



Berwick Bank Onshore Transmission Works

Appendix 8.1: Breeding Bird Survey Report

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Executive Summary

A breeding bird survey was undertaken between June 2020 and July 2020. The Survey Area covered two potential landfall sites and the cable route options for the onshore elements of an offshore wind farm (the proposed Berwick Bank Wind Farm) which lead to a proposed onshore substation site, southwest of Torness Power Station, and underground cable corridor connecting to the National Grid Branxton substation further south.

The breeding bird survey included a field survey and was further complimented by a desk study. The desk study included a search for designated sites and data requests for species from The Wildlife Information Centre. The field survey involved transects so planned to cover the inland area of the Site (application boundary) and a wider 500m survey buffer.

The breeding bird survey consisted of three survey visits between June and July 2020. Owing to the low-lying nature of the Site and the presence of grassland and woodland habitats within the Site and wider study area, the Common Bird Census (CBC) method was used for the survey and was carried out in line with the methods detailed in Bibby *et al.* (2000) and Gilbert *et al.* (2011).

The desk study identified three nature conservation designations of international importance and no nature conservation designations of local or national importance designated for ornithological features within 5km of the Site.

The data search identified a total of 128 species have been recorded within 5km of the Site. Of these, 31 species are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), 22 are listed within Annex 1 of the Birds Directive 2009, and 44 are listed on the Scottish Biodiversity List. Thirty are included on the BoCC Red List and a further 51 species are Amber-Listed.

The survey identified a breeding location for peregrine and a total of eight BoCC Red Listed and four BoCC Amber Listed species were confirmed as breeding during the three survey visits.

The most commonly recorded species were skylark (78 territories), yellowhammer (17 territories) and song thrush (6 territories). A further 14 common species were also confirmed as breeding within the Study Area.

In addition to the confirmed breeding species a total of six wader species were recorded during the survey: curlew; lapwing; oystercatcher; redshank; ringed plover and whimbrel. Eight seabird species were recorded: herring gull; black-headed gull; lesser black-backed gull; great black-backed gull; common gull; Mediterranean gull, Sandwich tern and a fulmar. Four wildfowl species were recorded: goosander; greylag goose; mallard and teal.

1. Introduction

1.1 Overview

ITPEnergised was appointed by SSE Renewables (the Applicant) to undertake a breeding bird survey for the onshore component of the proposed Berwick Bank Wind Farm development at Torness, southeast of Dunbar. The survey was completed to inform a planning application and incorporated the red line boundary of Proposed Development and a wider 500m survey buffer (hereafter referred to as the 'Site').

This report describes the methods used to gather and record information for the Site and summarises the findings of the study.

1.2 Site Description

The Site is approximately 600 hectares (ha) in size and extends from north-west of Skateraw Harbour to Bilsdean in the south. The A1 carriageway and the East Coast railway line pass through the Site from the north-west to the south-east. The Site largely comprises agricultural land with a mixture of arable and improved grazing fields. A number of watercourses traverse the Site from the west and enter the North Sea to the east. Braidwood Burn and Ogle Burn run through the western reaches of the Site, Branxton burn to the south of the Site and Thornton Burn through the centre of the Site. These watercourses are commonly associated with corridors of scrub and mixed woodland habitat. The majority of woodland habitat present within the Site is located within the southern and south-eastern reaches. The Site also encompasses a number of small hamlets and farm steadings. Larger settlements include Crowhill, Branxton and Lawfield to the south of the A1 and Skateraw and Thorntonloch to the north/northeast. Torness Power Station is located outwith the north-eastern boundary of the Site at Torness Point and Thorntonloch Caravan Park is located to the east of Thorntonloch.

2. Legislation, Policy and Guidelines

2.1 Legislation

All relevant legislation and guidance documents have been considered as part of this assessment, as referenced in this report (a summary of pertinent nature conservation legislation is presented below).

Of particular relevance are:

- Council Directive 2009/147/EC on the conservation of wild birds (the Birds Directive)¹;
- The Ramsar Convention on Wetlands 1976;
- Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive);
- The Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019;
- The Wildlife and Countryside Act 1981 (as amended);
- The Wildlife and Natural Environment (Scotland) Act 2011 (as amended); and
- The Nature Conservation (Scotland) Act 2004 (as amended), which places a statutory duty on all public bodies to further the conservation of biodiversity through the Scottish Biodiversity Strategy,

¹ Although the UK has left the European Union, there has been no significant change in the wording of UK nature conservation legislation based on European directives, and these therefore remain relevant to the present report.

with Scottish priority species and habitats listed on the Scottish Biodiversity List (SBL), itself based on the former UK Biodiversity Action Plan (UKBAP), and regional biodiversity targets defined through a Local Biodiversity Action Plan (LBAP). The LBAP of relevance to this report is the East Lothian Local Biodiversity Action Plan.

2.1.1 International Conventions and Directives

2.1.1.1 The Birds Directive (2009/147/EC)

The European Union (EU) Directive on the Conservation of Wild Birds (2009/147/EC) was first adopted in 1979 and is the primary mechanism for delivering the EU's obligations under the Convention on Biological Diversity (CBD), and the Ramsar and Bonn Conventions. Collectively, the Birds and Habitats Directives require Member States to take action in order to protect all bird species and their habitats which includes the designation of Special Protection Areas (SPAs) in respect to species listed on Annex I of the Directive.

2.1.1.2 Ramsar Convention on Wetlands

The Convention on Wetlands of International Importance (the Ramsar Convention) was adopted in Iran in February 1971 and came in to force in the UK in May 1976. The Convention considers the subject area of wetland conservation and comprises three elements of activity:

- The designation of wetlands of international importance as Ramsar sites;
- The promotion of the sustainable use of all wetlands in the territory of each country; and
- International co-operation with other countries to further the sustainable use of wetlands and their resource.

2.1.1.3 The Habitats Regulations

In Scotland, the Habitats Directive is translated into specific legal obligations by the Conservation (Natural Habitats, &c.) Regulations 1994. This piece of legislation is commonly referred to as the "Habitats Regulations".

In terms of ornithological interests, the Habitats Regulations cover the requirements for Special Protection Areas (SPAs), which are designated sites that are considered internationally important for specific species of bird and/or their assemblages. Along with Special Areas of Conservation (SACs), designated sites relating to protected habitats and species, making a network of sites known collectively as the Natura2000 network.

The Habitats Regulations were most recently amended in 2012.

2.1.1.4 The Convention on Biological Diversity (CBD)

The CBD was adopted at the Earth Summit in Rio de Janeiro, Brazil in June 1992, and came into force in December 1993. It was the first global treaty to provide a legal framework for biodiversity conservation. The treaty has three primary goals:

- The conservation of biological diversity;
- The sustainable use of its components; and
- The fair and equitable sharing of the benefits arising from the use of genetic resources.

Signatories are required to create and enforce national strategies and action plans to conserve, protect and enhance biological diversity.

The UK Government ratified the convention and published the UKBAP in 1994 and to compliment the UKBAP, separate biodiversity strategies for each of the devolved governments have been subsequently developed, including the Scottish Biodiversity Strategy, launched in 2004.

2.1.2 National Legislation

2.1.2.1 The Wildlife and Countryside Act

The Wildlife and Countryside Act 1981 (as amended) (WCA) is the principal mechanism for wildlife protection in the UK. Schedule 1 of the Act lists bird species that are afforded special protection. The principal designation established under the Act is the citation of Sites of Special Scientific Interest (SSSI).

The Act also makes it an offence (with exception to species listed in Schedule 2) to intentionally:

- Kill, injure, or take any wild bird;
- Take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- Take or destroy an egg of any wild bird.

2.2 Biodiversity

2.2.1 Scottish Biodiversity List (SBL)

Scottish Ministers created the SBL (Scottish Government, 2013) in 2005 to satisfy the requirements under Section 2(4) of the Nature Conservation (Scotland) Act 2004, and to assist public bodies in carrying out conservation of biodiversity, as well as to provide the general public with information regarding conservation within Scotland. The SBL comprises species and habitats listed using both scientific and social criteria. Only scientific criteria are considered relevant to this report. They include the following:

- All UK Priority Species present in Scotland;
- Species which Scotland has an international obligation to safeguard;
- All species defined as nationally rare at a GB or UK level that are present in Scotland;
- Species with populations present (resident, wintering or breeding) in five or fewer 10km squares or sites in Scotland; and
- All species that are endemic to Scotland;

2.2.2 Local Biodiversity Plan

East Lothian does not have an up to date Local Biodiversity Action Plan (LBAP) but a plan created in 2008 to run until 2013 contained several habitat action plans including farmland, coastal areas and woodland which were of relevance to the Site and listed 70 priority bird species in East Lothian (East Lothian Council, 2017a). Given there has been no update to the LBAP since 2008 and the 70 listed LBAP species broadly mirror the SPL species, in terms of protected status only mention on the SPL will be used in this report.

A more recent update states it should be noted that the biodiversity of East Lothian includes over 4000 species of invertebrate, over 300 species of bird, 28 species of mammal and 3 species of reptile (East Lothian Council, 2017b).

The Wildlife and Natural Environment (Scotland) Act 2011, requires public bodies in Scotland to provide a publicly available report, every three years to show they are meeting their biodiversity duty. The most recent report for East Lothian was in 2017; some of the key points highlighted in the report of relevance to the Site are:

- The distribution of pink-footed geese, which arrive in East Lothian in large numbers from September onwards and are an important feature of the Firth of Forth SPA; they often feed and roost in certain arable fields. Therefore, these fields need to be protected as part of the SPA and the distribution of pink-footed geese are recorded each year.
- Encourage and support ecosystem restoration and management, especially in catchments that have experienced the greatest degradation.

- Integrate protected areas policy with action for wider habitats to combat fragmentation and restore key habitats.

2.3 Birds of Conservation Concern 4

The Birds of Conservation Concern (BoCC) is a collaboration between the Statutory Nature Conservation Bodies (SNCBs), Royal Society for the Protection of Birds (RSPB), British Trust for Ornithology (BTO), Wildfowl and Wetlands Trust (WWT), Game and Wildlife Conservation Trust (GWCT) and several other organisations. It uses an approach based on quantitative assessments against standardised criteria, in order to place individual bird species on 'Red', 'Amber' or 'Green' lists to indicate different levels of conservation concern. Red in the context of BoCC is not the same as IUCN's Red List, though IUCN status is one of the criteria used in BoCC assessment. Collectively, the changes in the numbers and proportions of species on Red, Amber or Green lists provide a gauge of the broad direction of status of UK birds and point to the degree of threat they face, as well as the efficacy of conservation measures taken (Eaton *et al.*, 2015).

Birds on the Red and Amber lists are subject to at least one of the factors listed below:

- Red – red list species are those that are globally threatened, have had an historical population decline in the UK from 1800 -1995, a rapid (> or = 50%) decline in UK breeding population over the past 25 years, or a rapid (> or = 50%) contraction of UK breeding range over the past 25 years;
- Amber – amber listed species have had a historical population decline from 1800-1995 but are recovering; population size has more than doubled over the past 25 years, a moderate (25-49%) decline in UK breeding population over the past 25 years, a moderate (25-49%) contraction of UK breeding range over the past 25 years, a moderate (25-49%) decline in UK non-breeding population over the past 25 years, or species with unfavourable conservation status in Europe also known as Species of European Conservation Concern (SPEC); and
- Green – green listed species have no identified threat to their population status.

It should be noted a new version of BoCC (BoCC 5) was published in late 2021 (Stanbury *et al.*, 2021) but as the surveyor was following BoCC 4 (Eaton *et al.*, 2015), this classification of species is the one referred to in this report.

3. Consultation

The commencement of surveys was delayed until mid-June 2020 due to Covid-19 restrictions meaning the proposed dates of the survey visits would differ to the recommended guidance, which outline surveys to commence in April. In order to ensure the delayed start to surveys was acceptable, consultation was undertaken with NatureScot in April 2020 and a three-visit breeding bird survey, commencing in mid-June was proposed.

NatureScot responded by email on April 30th as follows:

"We note your proposed suite of site surveys, including additional measures aimed at compensating for lost time (e.g. use of experienced surveyors, identifying follow-up work, pre-construction surveys, use of buffers). We specifically note your question on bird surveys and advise:

the proposed (cable) route avoids nationally-designated sites (except for the stretch at Barns Ness Coast SSSI which we have discussed separately), and will traverse farmland for the most part;

therefore we anticipate a low level of risk to particularly sensitive bird receptors and so under covid-19 related restrictions this site survey programme is acceptable.”

4. Methodology

4.1 Desk Study

A full desk study was carried out in July 2021 and included for a search for nature conservation designations listed for ornithological reasons as well as records of ornithological species of conservation concern. In terms of designations supporting avian features the search areas used were as follows: international and national designations, i.e. SPAs, Ramsar sites, Sites of Special Scientific Interest (SSSIs), National Parks, and National Nature Reserves (NNRs), as well as statutory local designations i.e. Local Nature Reserves (LNR) were identified within 5km of the Site (this was extended to 20km for SPAs with specific features only). Non-statutory designations, such as Local Wildlife Sites (LWSs), Sites of Interest for Nature Conservation (SINCs) were identified within 2km of the Site. Only designations with ornithological qualifying features were considered relevant in this study.

Existing records for protected or otherwise notable species (e.g. SBL/LBAP priority species) were identified within 5km of the Site. Records were obtained from The Wildlife Information Centre (TWIC) and only records from within the last 10 years were considered relevant to the study. This included for bird records from the following organisations:

- British Trust for Ornithology (BTO) – including records from the BTO, Joint Nature Conservation Committee (JNCC) and the Royal Society for the Protection of Birds (RSPB) partnership;
- East Lothian Council Ranger Service records;
- Scottish Ornithologists' Club - Borders records (2010-2019);
- Scottish Ornithologists' Club - Lothians Tetrads Bird Atlas 2007-13 (winter records);
- Scottish Ornithologists' Club - Lothians Tetrads Bird Atlas 2008-13 (breeding records); and
- The British Association for Shooting and Conservation (BASC) - UK casual records from BASC members.

Full details of the methodology used are described in Volume 4, Appendix 7.1, submitted as part of the Proposed Development planning application.

4.2 Field Survey Methods

A breeding bird walkover survey, comprising three visits, was carried out in June and July 2020 to identify approximate numbers and the location of breeding pairs of birds within the Site (as outlined in June 2020) and a 500m survey buffer (i.e. the 'Study Area').

The majority of the Site comprised arable or improved grassland fields and in order to prevent damage to crop and as these habitats were assessed to be of low value to breeding birds the survey used transects following field boundaries ensuring to approach all areas of higher value habitat, such as scrub, woodland and wetland. The surveys covered the majority of the Site (as it was in the iterative development in June 2020) and an approximate 500m survey buffer. The proposed transects followed a modified Common Bird Census (CBC) type methodology (as outlined in Bibby *et al.*, 2000, and Gilbert *et al.*, 2011) to record breeding birds.

The CBC method was modified slightly so that three survey visits took place in the form of transects and were completed over two to three days in each of three visits in June and July 2020. The Study Area and approximate survey route is shown in Appendix Figure 8.1.1.

The three survey transects were carried out by a suitably qualified and experienced ornithologist on the following dates in 2020:

- 20th and 21st June;
- 10th, 11th and 12th July; and
- 24th, 25th and 26th July.

Surveys were conducted in good weather and the route taken on each field visit reversed to reduce systematic data bias.

When individuals or pairs of birds were encountered, the ornithologist determined whether the bird(s) were different from any previously encountered. This involved careful attention to the whereabouts and movements of birds, together with birds' sex and plumage characteristics. To minimise the risk of double-counting, behaviour and location of birds were carefully observed so that previously encountered birds were not recorded twice. Surveys were not conducted in winds greater than Beaufort Force 5, in persistent rain, or when visibility was poor (less than 500m).

The following behaviour or signs were considered to represent evidence of breeding:

- Displaying or singing;
- Territorial dispute;
- Repeated alarm calling or distraction displays;
- Occupied nests;
- Adult(s) carrying food;
- Adult(s) carrying nest material; and
- Newly fledged young with parent(s).

Other records were considered to be of non-breeding birds, failed breeders, or birds loafing, feeding, or on passage to other areas.

All bird activity was identified and mapped onto 1:25,000 OS maps of the Site, using BTO two-letter codes and appropriate symbols, as outlined in Appendix 1 of Gilbert *et al.* (2011). Due care and attention was taken using appropriate symbols, to ensure that multiple registrations of the same bird were not recorded on the survey maps.

On completion of all three visits all the data on birds showing signs of breeding were entered onto ArcGIS. Once all visits were entered onto the GIS territory analysis was completed in order to identify the number and location of territories for each species of conservation concern.

4.3 Survey Limitations

The surveyor had access to the majority of the Study Area, although access to some areas was restricted due to the lack of access permission or the presence of large numbers of cattle. Where practical some sections during the survey visits were scanned from a distance using binoculars and / or singing birds recorded by standing and listening. The ability of the surveyor to see and hear all parts of the Study Area mean this is not considered to be a limitation to the survey data obtained.

Due to the Covid-19 lockdown restrictions and in order to follow associated government guidance, surveys were not undertaken throughout April, May and the first half of June 2020, with surveys starting at the Site on June 20th, as agreed with NatureScot. On commencement of the surveys, and in order to maintain social distancing, some areas of the survey buffer were not accessed throughout all surveys, this included checking buildings and structures for evidence of breeding target species.

All the survey visits were completed within the optimal times and conditions for a breeding bird survey.

5. Results

5.1 Desk Study

5.1.1 Nature Conservation Designations

As shown on Appendix Figure 8.1.2 and detailed in Table 1, there are four nature conservation designations of international importance recorded within 20 km of the Site and no nature conservation designations of local or national importance designated for ornithological features within 5 km of the Site. The four designated sites confirmed are outlined in Table 1.

Table 1: European Protected Sites

Site Name	Designation	Distance from the Site
Outer Firth of Forth and St Andrews Bay Complex	SPA	Directly east
Firth of Forth	SPA/Ramsar	5.9 km north-west
St Abb's Castle to Fast Head	SPA	6.9 km south-east
Forth Islands	SPA	13.8 km north-west

5.1.1.1 Outer Firth of Forth and St Andrews Bay Complex SPA

Designated Site Description

The Outer Firth of Forth and St Andrews Bay Complex SPA is one of Scotland's most recently designated Natura sites having "proposed" status until being fully ratified in December 2020 and a draft version of the site's conservation objectives being published in November 2021. The SPA lies directly east of the Site and is a large estuarine/marine site on south-east coast of Scotland consisting of the two closely adjacent Firths of Forth and Tay (JNCC, 2001). In the mid Firth of Forth a belt of mud-rich sediments lies between areas of sandy gravels and shell material on either side along the shore. As the estuary widens towards the outer firth, there are extensive areas of sandy and gravelly muds and fine sediments. In contrast St Andrews Bay contains clean sands and gravel with only small areas of muddy sediments. Water depth is variable but large areas, in both the Firth of Forth and St Andrews Bay, are shallow and less than 10 m deep.

The area supports a wide variety of both pelagic and demersal fish, including sandeels, and crustaceans, molluscs and marine worms, all of which, especially sandeels, comprise the prey of the waterfowl species

Qualifying Features:

The Outer Firth of Forth and St Andrews Bay Complex SPA qualifies under Article 4.1 by regularly supporting a non-breeding population of European importance of the following Annex 1 species: Red-throated diver (*Gavia stellata*) during the period 2001/02 to 2004/2005, Slavonian grebe (*Podiceps auritus*) during the period 2006/07 to 2010/11, little gull (*Larus minutus*) during the period 2001/02 to 2004/05 (126 individuals; more than 50 individuals), and feeding common tern (*Sterna hirundo*) and Arctic tern (*Sterna paradisaea*) from the adjacent breeding colonies.

The Outer Firth of Forth and St Andrews Bay Complex SPA further qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory waterfowl species common eider (*Somateria mollissima*) and by regularly supporting in excess of 20,000 individual waterfowl, including nationally important populations of the following species first recorded during the five year period 2001/02 to 2004/05: Long tailed duck (*Clangula hyemalis*), common scoter (*Melanitta nigra*) and additionally recorded, during the period 2006/07-2010/11: Velvet scoter (*Melanitta fusca*), common goldeneye (*Bucephala clangula*) and red-breasted merganser (*Mergus serrator*).

The Outer Firth of Forth and St Andrews Bay Complex SPA further qualifies under Article 4.2 by regularly supporting populations of European importance of the two following migratory species of seabird: Foraging

European shag (*Phalacrocorax aristotelis*) from the nearby colonies and Northern gannet (*Morus bassanus*) monitored during the period 1980-2006.

The Outer Firth of Forth and St Andrews Bay Complex SPA further qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual seabirds during the breeding season including nationally important populations of the following species during the period 1980-2006: Atlantic puffin (*Fratercula arctica*), black-legged kittiwake (*Rissa tridactyla*) Manx shearwater (*Puffinus puffinus*), common guillemot (*Uria aalge*) and herring gull (*Larus argentatus*).

The Outer Firth of Forth and St Andrews Bay Complex SPA further qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual seabirds during the non-breeding season including nationally important populations of the following species during the period 2003/04-2005/06: black-headed gull (*Chroicocephalus ridibundus*), common gull (*Larus canus*), and herring gull and, during the period 1980-2006: common guillemot, European shag, black-legged kittiwake and razorbill (*Alca torda*).

5.1.1.2 Firth of Forth SPA

Designated Site Description

The Site is located south of the Firth of Forth SPA, 5.9 km north-west at its closest point. The Firth of Forth SPA is located on the east coast of Scotland and is a complex estuarine site extending 55 km and covering 6,313.72 ha from Alloa in the west to the East Lothian and Fife coasts including intertidal flats, rocky shore, saltmarsh, lagoons and sand dune habitats, in the east (JNCC, 2001).

Qualifying Features:

The Firth of Forth SPA qualifies under Article 4.1 of the Birds Directive for regularly supporting wintering populations of the Annex 1 species: red-throated diver (*Gavia stellata*), Slavonian grebe (*Podiceps auritus*), golden plover (*Pluvialis apricaria*) and bar-tailed godwit (*Limosa lapponica*). The SPA also qualifies under Article 4.1 for regularly supporting populations of European importance of the Annex 1 species Sandwich tern (*Sterna sandvicensis*) during the passage period.

The SPA further qualifies under Article 4.2 of the Birds Directive by regularly supporting populations of European importance of the wintering migratory species: pink-footed goose (*Anser brachyrhynchus*), shelduck (*Tadorna tadorna*), knot (*Calidris canutus*), redshank (*Tringa totanus*) and turnstone (*Arenaria interpres*). The SPA also qualifies under Article 4.2 for regularly supporting a wintering assemblage, in excess of 20,000 individual waterfowl, of European importance: a winter peak mean of 95,000 waterfowl, comprising 45,000 wildfowl and 50,000 waders including nationally important populations of the following species: scaup (*Aythya marila*); Slavonian grebe; golden plover; bar-tailed godwit; pink-footed; shelduck; knot; redshank; turnstone; great crested grebe (*Podiceps cristatus*); cormorant (*Phalacrocorax carbo*); red-throated diver; curlew (*Numenius arquata*); eider (*Somateria mollissima*); long-tailed duck (*Clangula hyemalis*); common scoter (*Melanitta nigra*); velvet scoter (*Melanitta fusca*); goldeneye (*Bucephala clangula*); red-breasted merganser (*Mergus serrator*); oystercatcher (*Haematopus ostralegus*); ringed plover (*Charadrius hiaticula*); grey plover (*Pluvialis squatarola*); and dunlin (*Calidris alpina alpina*).

In the five year winter period 1991/92 to 1995/96 the assemblage additionally included nationally important populations greater than 2,000 individuals of: mallard (*Anas platyrhynchos*); lapwing (*Vanellus vanellus*); and wigeon (*Anas penelope*).

5.1.1.3 St Abb's Head to Fast Castle SPA

Site Description

St Abb's Head to Fast Castle SPA lies 6.9 km south-east of the Site and comprises an area of sea cliffs and coastal strip stretching over 10 km along the Berwickshire Coast north of St Abbs (JNCC, 2001). The boundary of the SPA overlaps with that of St Abb's Head to Fast Castle SSSI, and the seaward extension extends approximately 1 km into the marine environment to include the seabed, water column and surface.

Qualifying Features:

N.B. All figures relate to numbers at the time of classification except where amended by the 2001 SPA Review.

St Abb's Head to Fast Castle SPA qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual seabirds. The site regularly supports 79,560 seabirds including nationally important populations of the following species: razorbill; common guillemot; black-legged kittiwake; herring gull; and European shag.

5.1.1.4 Forth Islands SPA

Site Description

Forth Islands SPA consists of a series of islands supporting the main seabird colonies in the Firth of Forth. The islands include Inchmickery, Isle of May, Fidra, The Lamb, Craigleith and Bass Rock, with Bass Rock being 16 km north-west of the Site making it the closest.

Qualifying Features:

Forth Islands SPA qualifies under Article 4.1 by regularly supporting populations of European Importance of the Annex 1 species: Arctic tern (*Sterna paradisaea*); roseate tern (*Sterna dougallii*); common tern and Sandwich tern.

Forth Islands SPA further qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory species: northern gannet; European shag; lesser black-backed gull (*Larus fuscus*) and Atlantic puffin.

Forth Islands SPA also qualifies under Article 4.2 by regularly supporting nationally important populations of razorbill; common guillemot; black-legged kittiwake; herring gull and great cormorant (*Phalacrocorax carbo*).

5.1.2 External Data

A total of 128 bird species have been recorded within 5 km of the Site in the last ten years. Of these, 31 species are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), 23 are listed within Annex 1 of the Birds Directive 2009, and 44 are listed on the SPL. Thirty are included on the BoCC Red List and a further 51 species are Amber-Listed.

Full details are described in the Ecological Desk Study (Volume 4, Appendix 7.1) and the full bird species list is shown in Table A1, Annex A, of this report.

5.2 Field Survey Results

5.2.1 Confirmed Schedule 1 and BoCC Red list species

The breeding bird survey identified a single Schedule 1 breeding species, peregrine.

A total of eight BoCC Red Listed species were assessed as breeding following the three survey visits across the Study Area. The number of birds showing evidence of breeding activity during the three survey visits, and the calculated number of territories, are summarised per species in Table 2 below. The location of the peregrine breeding attempt is shown in Volume 5, Confidential Appendix Figure 8.1.3 and the territories for each BoCC Red listed species are shown on Appendix Figure 8.1.4.

Table 2 - Breeding bird survey results – BoCC Red list species

Common name	Scientific Name	SBL / Sch. 1	Birds showing signs of breeding			Territories
			Visit 1	Visit 2	Visit 3	
Corn bunting	<i>Emberiza calandra</i>	SBL	0	3	0	3
Grasshopper warbler	<i>Locustella naevia</i>	SBL	2	1	1	3

Common name	Scientific Name	SBL / Sch. 1	Birds showing signs of breeding			Territories
			Visit 1	Visit 2	Visit 3	
Linnet	<i>Linaria cannabina</i>	SBL	2	3	1	5
Grey partridge	<i>Perdix perdix</i>	SBL	3	1	0	4
Skylark	<i>Alauda arvensis</i>	SBL	66	31	0	78
Song thrush	<i>Turdus philomelos</i>	SBL	6	1	1	6
Yellowhammer	<i>Emberiza citronella</i>	SBL	8	7	6	17
Yellow wagtail	<i>Motacilla flava</i>	SBL	1	0	0	1

The most frequently recorded BoCC Red listed species were skylark (78 territories), yellowhammer (17 territories) and song thrush (6 territories). These three species are associated with farmland, scrub and hedgerow habitats which were recorded throughout the Study Area.

5.2.2 Confirmed BoCC Amber list and other common breeding species

In addition to the above eight species a further four BoCC Amber listed species (dunnock (*Prunella modularis*), meadow pipit (*Anthus pratensis*), reed bunting (*Emberiza schoeniclus*) and willow warbler (*Phylloscopus trochilus*)) and a further 14 common species were also confirmed as breeding within the Study Area.

5.2.3 Likely breeding species

In addition to the confirmed breeding species a total of 47 other species were recorded during the three survey visits. Due to Covid-19 restrictions the first survey visit was not completed until June 20th meaning a number of common breeding species were present but no longer displaying obvious signs of breeding i.e. singing from their territories.

Of the 47 additional species recorded the following 'likely' breeding species includes six additional BoCC Red Listed species: grey wagtail (*Motacilla cinerea*); lesser redpoll (*Acanthis cabaret*); house sparrow (*Passer domesticus*); mistle thrush (*Turdus viscivorus*); starling (*Sturnus vulgaris*) and tree sparrow (*Passer montanus*).

5.2.4 Non-breeding records of bird species of conservation concern

In addition to the above species a number of wading, seabird and wildfowl species were recorded using the Study Area during the three survey visits. A total of six wader species: curlew; lapwing; oystercatcher; redshank; ringed plover and whimbrel (*Numenius phaeopus*) were recorded, with the majority of registrations of birds using the coastal strip for foraging or roosting purposes.

Gull species were recorded frequently, both along the coastal strip and also foraging and roosting in fields within the Study Area. Herring gull, black-headed gull and lesser black-backed gull were frequently recorded during all three survey visits, while great black-backed gull and common gull were occasionally recorded, and a single record of an immature Mediterranean gull (*Larus melanocephalus*) was recorded on the coast during the second survey visit in July. Other seabirds recorded include three Sandwich tern and a fulmar (*Fulmarus glacialis*) all noted in the tidal area of the Study Area during the first survey visit in June.

Four wildfowl species were recorded during survey: goosander (*Mergus merganser*), greylag goose (*Anser anser*) (assumed to be part of the feral resident breeding population), mallard and teal (*Anas crecca*).

The full list of species recorded during the breeding bird survey is shown in Annex B: Table B1.

6. Discussion

6.1 Nature Conservation Designations

As identified in Section 5.1.1.1 the Outer Firth of Forth and St Andrews Bay Complex SPA lies directly east of Site, the nearest point being overlapped by the Site within the intertidal zone. Although, there is no direct overlap between the onshore Proposed Development footprint and the SPA boundary (located at the Mean Low Water Springs (MLWS) line) at any point from making landfall and the remainder of the onshore cable route and associated infrastructure. The edge of the SPA lies 220 m away at its closest point from the nearest infrastructure (i.e. landfall and the transition joint bays).

The SPA is designated primarily for migratory and over wintering species but is also for five breeding species of seabird (Atlantic puffin, black-legged kittiwake, Manx shearwater, common guillemot and herring gull). None of these species were recorded breeding during the breeding bird survey although herring gull was frequently recorded both loafing and foraging along the coastal strip and within open fields.

The Firth of Forth SPA lies 5.9 km north of the site is designated only for migratory and over-wintering species.

St Abb's Head to Fast Castle SPA lies 6.9km south-east of the Site and is designated for its breeding seabirds including nationally important populations of the following species: razorbill; common guillemot; black-legged kittiwake; herring gull; and European shag. As outlined above of these species only herring gull was recorded during surveys and no evidence of breeding was noted.

Forth Islands SPA is designated for regularly supporting populations of Arctic tern, roseate tern, common tern and Sandwich tern. The SPA further qualifies for regularly supporting populations northern gannet, European shag, lesser black-backed gull and Atlantic puffin. The SPA boundary lies 13.8 km north-west of the Site boundary, at its closest point, and is also designated for a number of seabird species of which Sandwich tern, herring gull, great cormorant and lesser black-backed gull were all recorded during the breeding bird survey. No evidence of breeding activity was recorded for any of these species.

The proximity of Outer Firth of Forth and St Andrews Bay Complex SPA means works may have the possibility to impact on birds within this protected site due to visual and noise disturbance. Other species from the other three SPAs may forage within the Site and wider area, also. These impacts are likely to be short term and temporary in nature and will need to be taken into consideration in the Proposed Development process.

6.2 Species

6.2.1 Peregrine

Peregrine is listed both as a Schedule 1 and Annex 1 species and is legally protected accordingly.

A pair of peregrines were recorded holding territory in the Study Area (see Volume 5, Confidential Appendix Figure 8.1.3). The nest location was recorded over 1 km from the nearest proposed infrastructure.

6.2.2 Red / Amber Listed / SPL and LBAP Species

The Site contains a number of different habitats which provide suitable breeding habitat for a range of lowland, farmland, woodland and wetland bird species. Although none of the 26 breeding species recorded are afforded specific protection under any legislation beyond that of all breeding birds, eight of the recorded species are Red listed on the BoCC and a further four are Amber listed. Of these 12, 11 are also SBL priority species and, as such, are considered to be species of conservation concern.

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Annex A – Desk study results

Table A1 – Desk study results

Vernacular Name	Scientific name	EU Birds Directive: Annex 1	Schedule 1 Wildlife & Countryside Act 1981	Scottish Biodiversity List	Birds of Conservation Concern (BoCC)
Lesser Redpoll	<i>Acanthis cabaret</i>			X	Red
Common Redpoll	<i>Acanthis flammea</i>				Amber
Goshawk	<i>Accipiter gentilis</i>		X		
Sparrowhawk	<i>Accipiter nisus</i>				
Marsh Warbler	<i>Acrocephalus palustris</i>		X		Red
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>				
Reed Warbler	<i>Acrocephalus scirpaceus</i>			X	
Common sandpiper	<i>Actitis hypoleucos</i>				Amber
Skylark	<i>Alauda arvensis</i>			X	Red
Razorbill	<i>Alca torda</i>				Amber
Kingfisher	<i>Alcedo atthis</i>	X	X	X	Amber
Little Auk	<i>Alle alle</i>				
Pintail	<i>Anas acuta</i>				Amber
Teal	<i>Anas crecca</i>				Amber
Mallard	<i>Anas platyrhynchos</i>				Amber
White-fronted Goose	<i>Anser albifrons albifrons</i>				
Greylag Goose	<i>Anser anser</i>				Amber
Pink-footed Goose	<i>Anser brachyrhynchus</i>				Amber
Snow Goose	<i>Anser caerulescens</i>				
Bean Goose	<i>Anser fabalis</i>			X	Amber
Rock Pipit	<i>Anthus petrosus</i>				
Meadow Pipit	<i>Anthus pratensis</i>				Amber
Water Pipit	<i>Anthus spinoletta</i>				Amber
Tree Pipit	<i>Anthus trivialis</i>			X	Red
Swift	<i>Apus apus</i>			X	Amber
Grey Heron	<i>Ardea cinerea</i>				
Turnstone	<i>Arenaria interpres</i>				Amber
Short-eared Owl	<i>Asio flammeus</i>	X		X	Amber
Long-eared Owl	<i>Asio otus</i>				
Ring-necked Duck	<i>Aythya collaris</i>				
Pochard	<i>Aythya ferina</i>			X	Red
Tufted Duck	<i>Aythya fuligula</i>				Green

Vernacular Name	Scientific name	EU Birds Directive: Annex 1	Schedule 1 Wildlife & Countryside Act 1981	Scottish Biodiversity List	Birds of Conservation Concern (BoCC)
Scaup	<i>Aythya marila</i>		X	X	Red
Waxwing	<i>Bombycilla garrulus</i>				
Brent Goose	<i>Branta bernicla</i>				Amber
Greater Canada Goose	<i>Branta canadensis</i>				
Barnacle Goose	<i>Branta leucopsis</i>	X		X	Amber
Goldeneye	<i>Bucephala clangula</i>				Amber
Buzzard	<i>Buteo buteo</i>				
Rough-legged Buzzard	<i>Buteo lagopus</i>				
Lapland Bunting	<i>Calcarius lapponicus</i>		X		Amber
Sanderling	<i>Calidris alba</i>				Amber
Dunlin (schinzii race)	<i>Calidris alpina schinzii</i>	X			Amber
Baird's Sandpiper	<i>Calidris bairdii</i>				
Knot	<i>Calidris canutus</i>				Amber
Curlew Sandpiper	<i>Calidris ferruginea</i>				Amber
Purple Sandpiper	<i>Calidris maritima</i>		X	X	Amber
Little Stint	<i>Calidris minuta</i>				
Ruff	<i>Calidris pugnax</i>	X	X	X	Red
Goldfinch	<i>Carduelis carduelis</i>				
Black Guillemot	<i>Cephus grylle</i>				Amber
Treecreeper	<i>Certhia familiaris</i>				
Little Ringed Plover	<i>Charadrius dubius</i>		X		
Ringed Plover	<i>Charadrius hiaticula</i>				Red
Black Tern	<i>Chlidonias niger</i>	X	X		Green
Black-headed gull	<i>Chroicocephalus ridibundus</i>			X	Amber
Dipper	<i>Cinclus cinclus</i>				Amber
Hen Harrier	<i>Circus cyaneus</i>	X	X	X	Red
Long-tailed Duck	<i>Clangula hyemalis</i>		X		Red
Hawfinch	<i>Coccothraustes coccothraustes</i>			X	Red
Stock Dove	<i>Columba oenas</i>				Amber
Raven	<i>Corvus corax</i>				
Hooded Crow	<i>Corvus cornix</i>			X	
Quail	<i>Coturnix coturnix</i>		X		Amber
Cuckoo	<i>Cuculus canorus</i>			X	Red
Blue Tit	<i>Cyanistes caeruleus</i>				
Whooper swan	<i>Cygnus cygnus</i>	X	X	X	Amber

Vernacular Name	Scientific name	EU Birds Directive: Annex 1	Schedule 1 Wildlife & Countryside Act 1981	Scottish Biodiversity List	Birds of Conservation Concern (BoCC)
Mute swan	<i>Cygnus olor</i>				Amber
House Martin	<i>Delichon urbicum</i>				Amber
Great Spotted Woodpecker	<i>Dendrocopos major</i>				
Little Egret	<i>Egretta garzetta</i>	X			Green
Reed Bunting	<i>Emberiza schoeniclus</i>			X	Amber
Shore Lark	<i>Eremophila alpestris</i>		X		Amber
Robin	<i>Erithacus rubecula</i>				
Merlin	<i>Falco columbarius</i>	X	X	X	Red
Peregrine	<i>Falco peregrinus</i>	X	X	X	
Kestrel	<i>Falco tinnunculus</i>			X	Amber
Pied flycatcher	<i>Ficedula hypoleuca</i>				Red
Red-breasted Flycatcher	<i>Ficedula parva</i>	X			
Puffin	<i>Fratercula arctica</i>				Red
Brambling	<i>Fringilla montifringilla</i>		X	X	
Coot	<i>Fulica atra</i>				
Fulmar	<i>Fulmarus glacialis</i>				Amber
Snipe	<i>Gallinago gallinago</i>				Amber
Moorhen	<i>Gallinula chloropus</i>				
Black-throated Diver	<i>Gavia arctica</i>	X	X	X	Amber
Great Northern Diver	<i>Gavia immer</i>	X	X	X	Amber
Red-throated Diver	<i>Gavia stellata</i>	X	X	X	Green
Crane	<i>Grus grus</i>	X			Amber
Oystercatcher	<i>Haematopus ostralegus</i>				Amber
Swallow	<i>Hirundo rustica</i>				Green
Storm Petrel	<i>Hydrobates pelagicus</i>	X		X	Amber
Little Gull	<i>Hydrocoloeus minutus</i>		X		Green
Red Grouse	<i>Lagopus lagopus</i>				
Red-backed Shrike	<i>Lanius collurio</i>	X	X	X	Red
Herring Gull	<i>Larus argentatus</i>			X	Red
Common Gull	<i>Larus canus</i>				Amber
Lesser Black-backed Gull	<i>Larus fuscus</i>				Amber
Iceland Gull	<i>Larus glaucooides</i>				Amber
Glaucous Gull	<i>Larus hyperboreus</i>				Amber
Great black-backed Gull	<i>Larus marinus</i>				Amber
Bar-tailed Godwit	<i>Limosa lapponica</i>	X		X	Amber

Vernacular Name	Scientific name	EU Birds Directive: Annex 1	Schedule 1 Wildlife & Countryside Act 1981	Scottish Biodiversity List	Birds of Conservation Concern (BoCC)
Linnet	<i>Linaria cannabina</i>			X	Red
Twite	<i>Linaria flavirostris</i>			X	Red
Grasshopper warbler	<i>Locustella naevia</i>			X	Red
Crossbill	<i>Loxia curvirostra</i>		X		
Bluethroat	<i>Luscinia svecica</i>	X	X		
Jack Snipe	<i>Lymnocyptes minimus</i>				Green
Velvet Scoter	<i>Melanitta fusca</i>		X		Red
Common Scoter	<i>Melanitta nigra</i>		X	X	Red
Smew	<i>Mergellus albellus</i>	X		X	Amber
Goosander	<i>Mergus merganser</i>				
Red-breasted Merganser	<i>Mergus serrator</i>				
Bee-eater	<i>Merops apiaster</i>		X		
Red Kite	<i>Milvus milvus</i>	X	X	X	Green
Gannet	<i>Morus bassanus</i>				Amber
Pied Wagtail	<i>Motacilla alba</i>				
Grey Wagtail	<i>Motacilla cinerea</i>				Red
Yellow Wagtail	<i>Motacilla flava</i>			X	Red
Spotted Flycatcher	<i>Muscicapa striata</i>			X	Red
Curlew	<i>Numenius arquata</i>			X	Red
Whimbrel	<i>Numenius phaeopus</i>		X		Red
Wheatear	<i>Oenanthe oenanthe</i>				Green
Golden Oriole	<i>Oriolus oriolus</i>		X		Red
Osprey	<i>Pandion haliaetus</i>	X	X	X	Amber
Great Tit	<i>Parus major</i>				
House Sparrow	<i>Passer domesticus</i>			X	Red
Tree sparrow	<i>Passer montanus</i>			X	Red
Grey Partridge	<i>Perdix perdix</i>			X	Red

Annex B – Full breeding bird survey species list

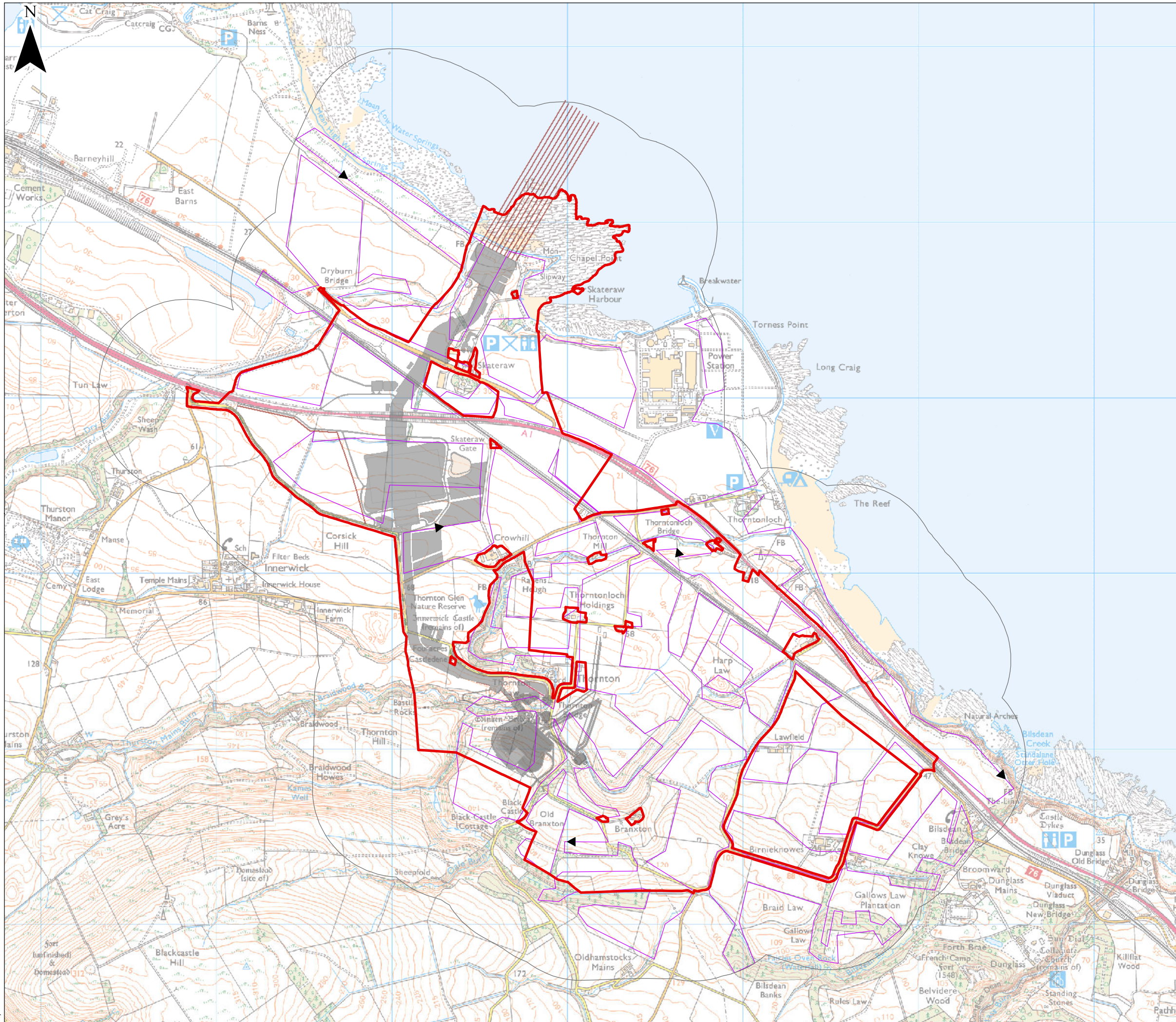
Table B1 – Breeding survey bird results

Vernacular Name	Scientific name
<i>Confirmed Breeding</i>	
Blackbird	<i>Turdus merula</i>
Blue tit	<i>Cyanistes caeruleus</i>
Corn bunting	<i>Emberiza calandra</i>
Chiffchaff	<i>Phylloscopus collybita</i>
Chaffinch	<i>Fringilla coelebs</i>
Coal tit	<i>Periparus ater</i>
Dunnock	<i>Prunella modularis</i>
Goldcrest	<i>Regulus regulus</i>
Grasshopper warbler	<i>Locustella naevia</i>
Goldfinch	<i>Carduelis carduelis</i>
Linnet	<i>Linaria cannabina</i>
Meadow pipit	<i>Anthus pratensis</i>
Grey partridge	<i>Perdix perdix</i>
Peregrine	<i>Falco peregrinus</i>
Pied wagtail	<i>Motacilla alba</i>
Robin	<i>Erithacus rubecula</i>
Reed bunting	<i>Emberiza schoeniclus</i>
Red-legged partridge	<i>Alectoris rufa</i>
Skylark	<i>Alauda arvensis</i>
Song thrush	<i>Turdus philomelos</i>
Sedge warbler	<i>Acrocephalus schoenobaenus</i>
Whitethroat	<i>Sylvia communis</i>
Wood pigeon	<i>Columba palumbus</i>
Wren	<i>Troglodytes troglodytes</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Yellowhammer	<i>Emberiza citrinella</i>
Yellow wagtail	<i>Motacilla flava</i>
<i>Other Species</i>	
Blackcap	<i>Sylvia atricapilla</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Black-headed gull	<i>Chroicocephalus ridibundus</i>
Buzzard	<i>Buteo buteo</i>

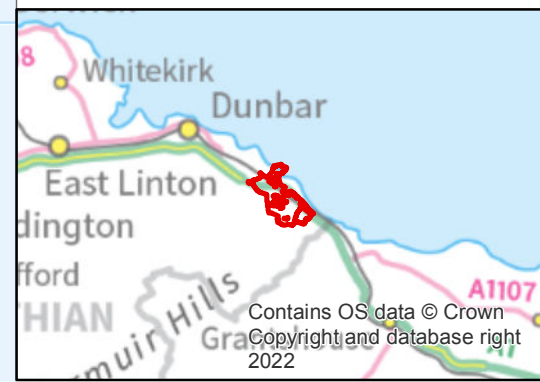
Vernacular Name	Scientific name
Carrion Crow	<i>Corvus corone</i>
Cormorant	<i>Phalacrocorax carbo</i>
Collared Dove	<i>Streptopelia decaocto</i>
Common Gull	<i>Larus canus</i>
Curlew	<i>Numenius arquata</i>
Fulmar	<i>Fulmarus glacialis</i>
Great black-backed Gull	<i>Larus marinus</i>
Goosander	<i>Mergus merganser</i>
Greylag Goose	<i>Anser anser</i>
Greenfinch	<i>Carduelis chloris</i>
Great Spotted Woodpecker	<i>Dendrocopos major</i>
Great Tit	<i>Parus major</i>
Grey Heron	<i>Ardea cinerea</i>
Herring Gull	<i>Larus argentatus</i>
Grey Wagtail	<i>Motacilla cinerea</i>
House Martin	<i>Delichon urbicum</i>
House Sparrow	<i>Passer domesticus</i>
Jay	<i>Garrulus glandarius</i>
Jackdaw	<i>Corvus monedula</i>
Kestrel	<i>Falco tinnunculus</i>
Lapwing	<i>Vanellus vanellus</i>
Lesser Black-backed Gull	<i>Larus fuscus</i>
Lesser Redpoll	<i>Acanthis cabaret</i>
Long-tailed Tit	<i>Aegithalos caudatus</i>
Lesser whitethroat	<i>Sylvia curruca</i>
Mistle Thrush	<i>Turdus viscivorus</i>
Mallard	<i>Anas platyrhynchos</i>
Magpie	<i>Pica pica</i>
Mediterranean Gull	<i>Larus melanocephalus</i>
Oystercatcher	<i>Haematopus ostralegus</i>
Redshank	<i>Tringa totanus</i>
Rook	<i>Corvus frugilegus</i>
Ringed Plover	<i>Charadrius hiaticula</i>
Stonechat	<i>Saxicola rubicola</i>
Starling	<i>Sturnus vulgaris</i>
Sparrowhawk	<i>Accipiter nisus</i>
Swift	<i>Apus apus</i>
Siskin	<i>Spinus spinus</i>

Vernacular Name	Scientific name
Swallow	<i>Hirundo rustica</i>
Sand Martin	<i>Riparia riparia</i>
Teal	<i>Anas crecca</i>
Sandwich Tern	<i>Sterna sandvicensis</i>
Tree sparrow	<i>Passer montanus</i>
Whimbrel	<i>Numenius phaeopus</i>

Figure 8.1.1: Site Location and Survey Area



- Key:**
- Site Boundary
 - Study Area (500m)
 - Approximate Survey Route



0 0.6 1.2 km
Scale 1:21,000 @ A3



Berwick Bank
Breeding Bird Survey
Figure 8.1.1

Survey Area and Approximate Route

Project Number: 2944

Figure 8.1.2: Ornithological Designations

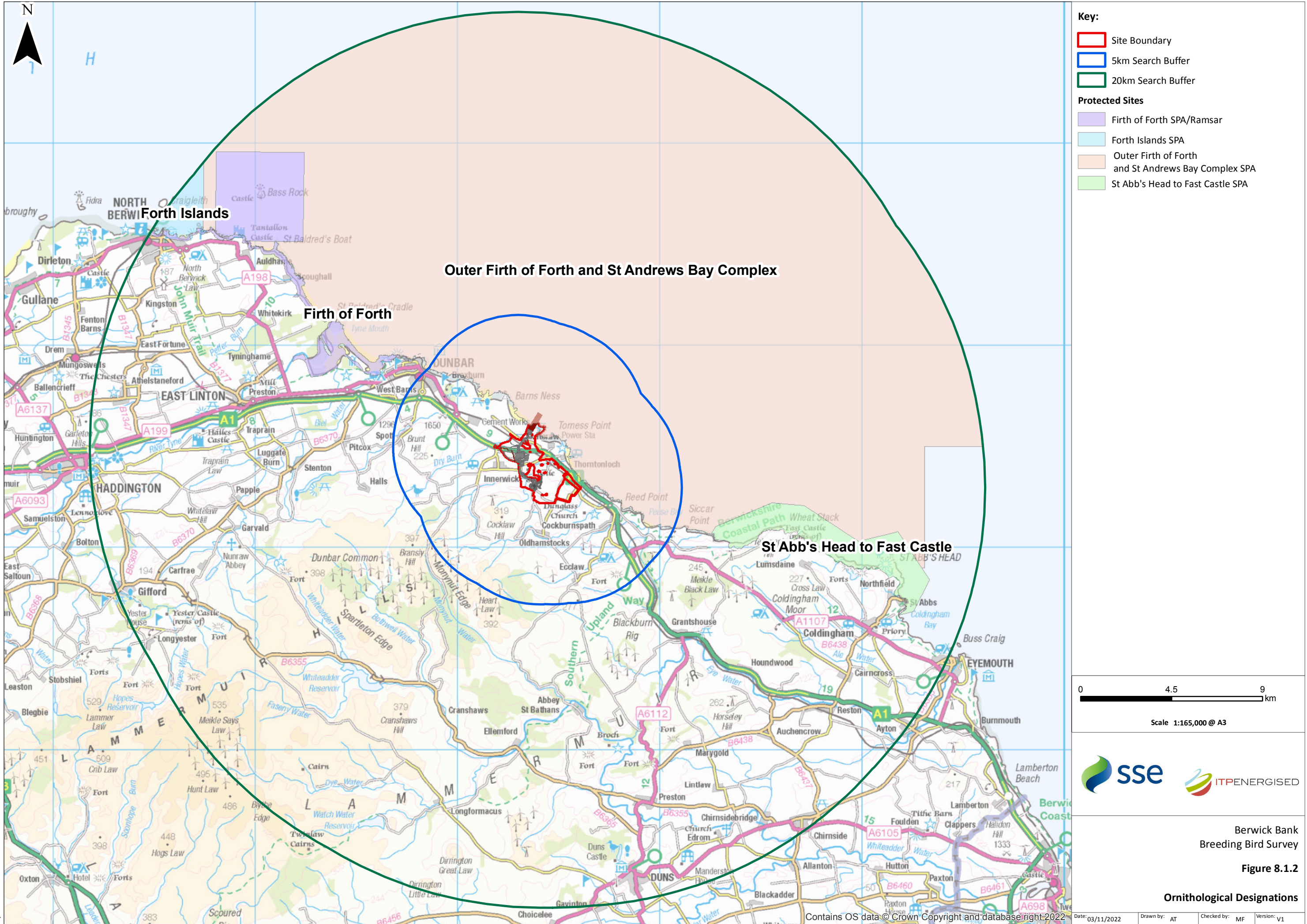
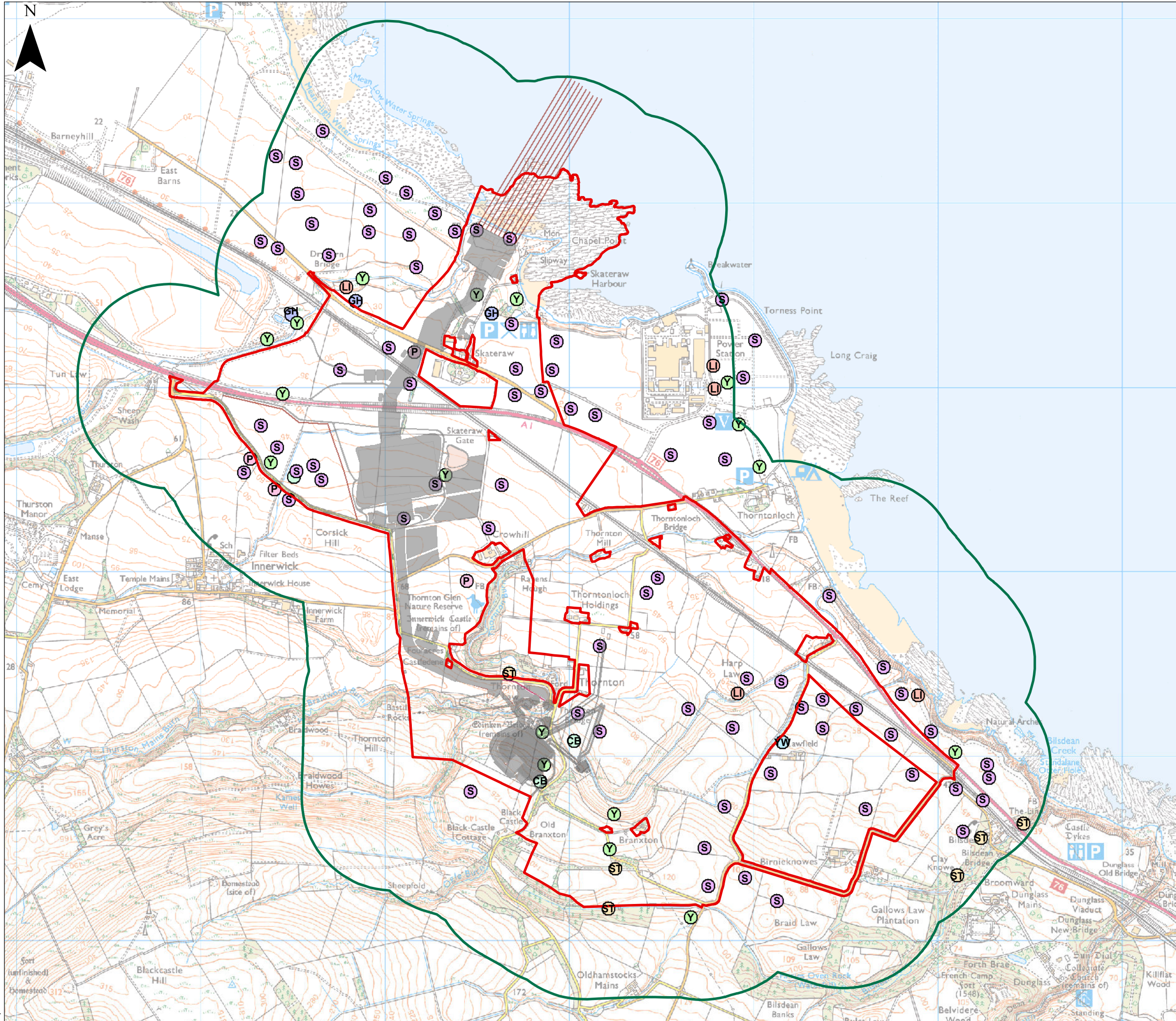


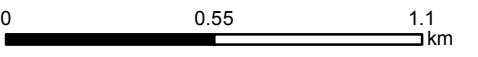
Figure 8.1.3: BBS Results - Peregrine (confidential)

Refer to Volume 5.

Figure 8.1.4: BBS Results – BoCC Red species



- Key:**
- Site Boundary
 - Study Area (500m)
- Species**
- Corn Bunting (CB)
 - Grasshopper Warbler (GH)
 - Linnet (LI)
 - Grey Partridge (P)
 - Skylark (S)
 - Song Thrush (ST)
 - Yellowhammer (Y)
 - Yellow Wagtail (YW)



Scale 1:20,000 @ A3



Berwick Bank
Breeding Bird Survey
Appendix Figure 8.1.4

BoCC Red List Territories



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