

4 Biological Environment

4.6 Terrestrial Ecology and Ornithology

4.6.1 Baseline Information

Introduction

4.6.1.1 This chapter details the terrestrial ecology and ornithology baseline conditions present within the modified Onshore Transmission Infrastructure (OnTI) associated with the MORL three consented wind farms (Telford, Stevenson and MacColl), and provides an assessment of the potential effects the modified OnTI may have on such receptors. The chapter covers all issues relating to terrestrial ecology, including birds and freshwater habitats.

4.6.1.2 The study area comprises a number of environments, including urban, rural, agricultural, and coastal land. The study area is defined as a corridor of 550 m, taking into account a proposed working corridor and suitable surrounding buffer. This totals 18.3 km² and was used throughout the baseline field surveys. Proposed and refined OnTI cable route options can be seen in Figure 4.6-1.

4.6.1.3 The study consisted of the following aspects:

- Detailed desk study to establish the baseline conditions within the study area;
- Field surveys to inform the baseline assessment;
- Consideration of the relevant key legislative and planning information; and
- Consultation with relevant statutory and non-statutory bodies, including Scottish Natural Heritage (SNH), the North East Biological Records Centre (NESBReC), and the North East Raptor Study Group (NERSG).

4.6.1.4 A detailed account of this information is provided in:

- Technical Appendix 4.6 A – Terrestrial Ecology and Ornithology Technical Report; and
- Confidential Annex – Terrestrial Ecology and Ornithology Confidential Annex Report (Protected Species).

4.6.1.5 Within the vicinity of the modified OnTI several sites are designated for ornithological or ecological interests: Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Wetlands of International Importance (Ramsar sites) and Sites of Special Scientific Interest (SSSIs). Figure 4.6-2 shows the locations of all designated sites within 15 km of the modified OnTI.

Consultations

4.6.1.6 Table 4.6-1 below details the organisations consulted regarding the modified OnTI. Where relevant, consultations made before and during the 2012 submission (MORL ES, 2012) are also provided.

Table 4.6-1. Terrestrial Ecology and Ornithology Response

Organisation	Consultation Response	MORL Approach
<p>Scottish Natural Heritage (2014)</p>	<p>The following advice was issued by SNH regarding the OnTI and information which should be provided in support of the ecological and ornithological interests within the area:</p> <ul style="list-style-type: none"> • Adequate detail of the cable laying technique(s) should be provided so that potential effects on sensitive species and habitats during the construction phase can be assessed; • The route is not expected to impinge on any designated ornithological sites; • Omission of winter bird surveys is acceptable if the timeline for construction specifies that the winter months will be avoided; • Additional breeding bird surveys should be carried out immediately prior to construction to identify nesting attempts, particularly those of Schedule 1 species; • SNH are content with the proposed list of protected species surveys outlined in section 5.2.6 of the scoping report; • In addition to the scoping response received following submission of the scoping report, SNH confirmed in May that great crested newt survey work was not required; • Relevant District Salmon Fishery Boards should be consulted regarding potential impacts to salmonids and other fish species at river crossings; • Surveys for freshwater pearl mussels are not required provided adequate sediment management and pollution prevention plans are in place; • SNH support the proposal to undertake Phase 1 surveys along the cable corridor route and buffer with the understanding that follow up National Vegetation Classification (NVC) work for important areas may be required. As set out in the scoping report, they also advise that this is also used to identify where protected species survey work is appropriate; and, • Protected species pre-construction survey work revisiting the project footprint should be undertaken to ascertain any changes in the degree of wildlife activity as this could have implications for the level of mitigation required. 	<p>Cable laying techniques are detailed in Chapter 2.2 (Project Description) and assessed in Section 4.6.2 of this chapter.</p> <p>Consultation has been undertaken with the Spey and Deveron District Salmon Fishery Boards and is detailed in Chapter 4.2 (Fish and Shellfish Ecology).</p>

Organisation	Consultation Response	MORL Approach
<p>Scottish Environmental Protection Agency (2014)</p>	<p>The following response was received from SEPA regarding the development:</p> <ul style="list-style-type: none"> • Approved of proposed Phase 1 Habitat and NVC (National Vegetation Classification) survey and recommended guidance to help identify wetlands 'A Functional Wetland Typology for Scotland'; • Site layout should avoid impacts on all wetlands, in particular active blanket bog. For areas where avoidance is impossible, details of how impacts upon wetlands including peatlands are minimised and mitigated should be provided. In particular impacts that should be considered include those from drainage, pollution and waste management; • Groundwater-dependent terrestrial ecosystems are protected under Water Framework Directive. Results of NVC survey and Appendix 2 of SEPA's Planning guidance on wind farm developments should be used to identify if wetlands are groundwater-dependent terrestrial ecosystems. If groundwater-dependent terrestrial ecosystems are located within radius of (i) 100m from roads, tracks and trenches, or (ii) 250 m from borrow pits and foundations, then any impacts will require further assessment. This assessment should be carried out whether or not features in (i) and (ii) occur inside or outside site boundary so that micro-siting does not necessitate further NVC surveys. Results and any mitigation should be provided; and, • Roads, tracks or trenches or other excavation work within 100m, or borrow pits within 250 m, of groundwater-dependent terrestrial ecosystems identified as highly sensitive (in Appendix 2 of SEPA's Planning Guidance on wind farm developments) should be reconsidered. Further studies will be required if infrastructure remains within buffer zones. 	<p>Potential effects on wetlands are assessed in Section 4.6.2 of this chapter and in Chapter 3.2 (Hydrology, Geology and Contaminated Land).</p> <p>Potential effects on wetlands are assessed in Section 4.6.2 of this chapter and in Chapter 3.2 (Hydrology, Geology and Contaminated Land).</p> <p>Potential effects on wetlands are assessed in Section 4.6.2 of this chapter and in Chapter 3.2 (Hydrology, Geology and Contaminated Land).</p>
<p>The River Deveron District Salmon Fisheries Board (RDDSFB) and the Deveron, Bogie & Isla Rivers Charitable Trust (DBIRCT) (2014)</p>	<p>The RDDSFB and DBIRCT were contacted regarding records of freshwater pearl mussels within the development corridor:</p> <ul style="list-style-type: none"> • Some sporadic records of freshwater pearl mussel are present within the Deveron and low Deveron, along with historic records from 1976 upstream of Banff and around Turriff. • Bodies recommended that salmonids and their associated habitats are considered within the assessment as these are protected by European law. 	<p>Potential effects on salmonids are assessed in Chapter 4.2 (Fish and Shellfish Ecology).</p>

Baseline Characteristics

4.6.1.7 The proposed modified OnTI passes through a landscape dominated by intensively managed arable and improved grassland fields, interspersed by pockets of semi-natural and plantation broadleaved and coniferous woodland. The area is criss-crossed by small watercourses and field boundaries demarcated by hedgerows and fence lines, with the wider area drained via the River Deveron which discharges into the Moray Firth at Banff. Scattered urban areas are present along the route, the

majority of these being single farms and associated agricultural outbuildings. However, the larger town of Banff is closely by-passed at the northern end of the route where the offshore transmission infrastructure (OfTI) will make landfall.

4.6.1.8 Desk and field based surveys have sought to quantify the terrestrial ecological interests within the OnTI cable route corridor and proposed location of the substations, creating a robust up to date baseline against which the potential effects associated with the modified OnTI can be assessed. Methodologies used to collate the baseline and complete results are detailed in full in Technical Appendix 4.6 A and Confidential Annex. A summary of the results compiled can be seen in Sections 4.6.1.11 to 4.6.1.24 below for both the desk and field based surveys.

Desktop Studies

Methods

4.6.1.9 The following sources of information were used to obtain historical and contemporary records of bird and protected mammal species, protected fish species and habitats in proximity to the proposed OnTI:

- Joint Nature Conservation Committee (JNCC) Seabird 2000;
- British Trust for Ornithology (BTO) Wetland Birds Survey (WeBS);
- National Biodiversity Network (NBN) (for British National Grid (BNG) squares NJ56, NJ66, NJ74, NJ75, NJ76, NJ84, NJ85 and NJ94);
- North East Raptor Study Group (NESRSG);
- Deveron, Bogie and Isla Rivers Charitable Trust;
- District Salmon Fisheries Boards;
- North East Scotland Biological Record Centre (NESBReC);
- Scottish Wildlife Trust (SWT);
- North East Scotland Bat Group;
- Saving Scotland's Red Squirrels (SSRS); and
- Botanical Society of Britain and Ireland (BSBI).

4.6.1.10 All species records were considered in the context of their legal protection and conservation status, taking cognisance of priority species on the North East Scotland Local Biodiversity Action Plan (NE LBAP) and the Scottish Biodiversity List (SBL). In total, there are 25 priority habitats and 48 priority bird and mammal species on the NE LBAP. For a list of these, see Table 10 and 11 in Technical Appendix 4.6 A. The full list of species and habitats on the SBL can be viewed at <http://www.snh.gov.uk/protecting-scotlands-nature/biodiversity-scotland/scottish-biodiversity-list/>.

Results

Seabird 2000

4.6.1.11 Two seabird colonies were identified within 3 km of the proposed landfall point at Boyndie Bay (Inverboyndie) using Seabird 2000 data. These colonies are relatively small in population with only herring gull noted as breeding at these locations.. The full results of the Seabird 2000 data search are presented in Table 2 of Technical Appendix 4.6 A.

Wetland Bird Survey

4.6.1.12 WeBS data was requested from one core count area in the River Deveron Estuary. A total of 30 species were recorded over the three year period May 2007 – November 2010, with herring gulls and great black-backed gulls being the most common species. The majority of species were recorded during the winter months, with numbers of all generally reduced during the breeding season (e.g. a peak count of 108 redshank in December 2009 compares to a peak breeding season count of 16 in May 2010). Full results of the WeBS data returned from the BTO are presented in Table 3 in Technical Appendix 4.6 A.

Raptors

4.6.1.13 At the time of writing this Chapter, June 19th 2014, no response had been returned by the NERSG. The project area and its habitats are not known to be associated with breeding Schedule 1 raptors, and the lack of a response is seen as an indication of low priority given by this body to raptor data in this area in relation to such a project.

Passerines

Corn Buntings

4.6.1.14 Corn bunting is a red-listed Bird of Conservation Concern (BoCC), listed on the Scottish Biodiversity List and noted as a NE LBAP priority species. The species is a scarce resident breeder in north east Scotland where it is at the northern extremity of its breeding range. There are an estimated 550-600 corn bunting territories in Aberdeenshire and Moray. This number comprises 64 % of the Scottish population and 6 % of the UK population. The northeast Scotland population has declined significantly in the past two decades. Most birds occur in the Buchan plain of Aberdeenshire, now the Scottish stronghold for the species, in several hotspots between Rattray and Rosehearty. Here, densities can reach 21 males/km² and the hotspots are therefore among the most densely populated areas of corn bunting in the UK (Francis and Cook, 2011). Extensive conservation work is being undertaken across Aberdeenshire to benefit this declining species (www.rspb.org.uk/ourwork/projects).

4.6.1.15 Corn buntings occur in open, lowland arable and mixed farmland. Nests are built on the ground within crops or in dense, grassy vegetation. A range of arable habitats are favoured by the species (Forrester *et al.*, 2007), most of which are typical of this area of rural Aberdeenshire.

4.6.1.16 Corn buntings typically rear two broods per year, first clutches are laid from late-May and second clutches are laid as late as mid-August, thus chicks can still be in the nest well into September (Forrester *et al.*, 2007). Early nests are usually built in autumn-sown cereals or grass managed for silage and later nests in spring-sown cereals. The chick diet is centred on insects (Francis and Cook, 2011).

4.6.1.17 Corn buntings are broadly sedentary and form flocks from late-October to early-May. In winter the flocks sometimes move locally when deep snow or ploughing of stubble reduces food supplies. The species has very similar breeding and winter distributions (Forrester *et al.*, 2007).

4.6.1.18 RSPB were consulted to provide any relevant information on corn bunting presence (Table 4.6-2). At the time of writing only the response from the previous 2012 submission is available, however this is deemed to still be relevant for the species.

Table 4.6-2. RSPB Corn Bunting Consultation

Organisation	Consultation response
RSPB Conservation Officers for North East Scotland	Hywel Maggs confirmed Aberdeenshire was remaining UK stronghold for the species. He agreed that potential construction impacts on the species would be low and of a temporary nature. It was verified that there is no ideal season for construction as corn bunting are present all year round (31 August 2011).

National Biodiversity Network

4.6.1.19 Records of a total of 79 bird species were obtained from the data search of the NBN (excluding green-listed birds of conservation concern which do not have other conservation designations associated with them). Of these 79, seven (corncrake, golden plover, kingfisher, little egret, red-backed shrike, sandwich tern and short-eared owl) are listed on Annex I of Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive'). In addition, six (corncrake, fieldfare, kingfisher, quail, red-backed shrike and redwing) are listed on Schedule 1 of the Wildlife and Countryside Act 1981. Records from the NBN do not clearly differentiate breeding or migrant species, and records relating to corncrake, red-backed shrike and little egret at least are believed to refer to passage migrants in the broader area rather than breeding species. The full list of species returned from the NBN data search is presented in Table 12 of Technical Appendix 4.6 A.

4.6.1.20 Records of a total of ten mammal species, and one fish species were obtained from the data search of the NBN. Of these eleven, six (otter, common pipistrelle, Daubenton's bat, soprano pipistrelle, unidentified bat species and wildcat) are listed on Schedule 2 of the Conservation (Natural Habitats &c.) Regulations 1994. These records included all relevant data held by SSRS.

4.6.1.21 The full list of species returned from the NBN data search is presented in Table 13 of Technical Appendix 4.6 A.

North East Scotland Biological Records Centre

4.6.1.22 Relevant bird, plant, mammal and fish records within the modified OnTI were sought from the NEBReC. These included all relevant records from the North East Bat Group. A total of 21 bird species were returned by NEBReC (excluding green-listed birds of conservation concern which do not have other conservation designations associated with them). These are presented with two associated conservation designations (Table 6 within Technical Appendix 4.6 A). Eight mammal species were found, these are also presented alongside five associated conservation designations (Table 7 of Technical Appendix 4.6 A). Fifty-one plant species of conservation concern were returned and these are presented alongside two associated conservation designations (Table 8 of Technical Appendix 4.6 A).

Botanical Society of Britain and Ireland

4.6.1.23 Plant records within the modified OnTI were sought from the BSBI. A total of 41 species were returned from the BSBI. These are presented alongside two associated conservation designations in Table 9 of Technical Appendix 4.6 A.

Scottish Biodiversity List and North east Local Biodiversity Action Plan

4.6.1.24 Priority habitats, birds and mammals with potential to occur along the length of the modified OnTI and surrounding area were sought from the SBL and NE LBAP. Twenty-five priority habitats and 48 priority bird and mammal species were identified. These are presented in Table 10 and Table 11 of Technical Appendix 4.6 A.

Site Specific Surveys

4.6.1.25 Baseline field surveys were carried out from April to May 2014 to quantify use of the modified OnTI by breeding birds and protected mammals, and to map habitats and assess their potential to support bats. The modified cable route corridor was defined as a 550 m wide band taking into account a proposed maximum construction area and suitable buffer area; this formed the 'ecology survey area', totalling 18.3 km² and was used throughout the baseline field surveys. This area also included all potential substation locations which were buffered by 250 m and included within the total survey area of 18.3 km². Of this 18.3 km², 4.9 km² was unable to be assessed during the course of the surveys due to a lack of permitted access by landowners. Details of areas surveyed can be seen in Figure 4.6-1 some surveys (breeding birds and Phase 1 Habitat Survey) are ongoing. This chapter has fully assessed the potential effects on these receptors using data collected to date. Breeding bird and coastal surveys have been conducted in May and June this year. It is considered that the bird count in May will disclose the peak potential breeding population as birds recorded singing and displaying at this time will not necessarily go on to make a breeding attempt. Whilst further surveys are being carried out in July, the assessment in this chapter has been based on these precautionary (likely worst case) May counts.

Winter Walkover Surveys

4.6.1.26 Three winter walkover surveys were carried out between November 2013 and March 2014 of a number of potential substation locations, including the proposed location within this application, and a subsequently-revised onshore cable route corridor (Figure 4.6-1). The requirement for winter walkover surveys was scoped out through consultation with SNH (Table 4.6-1) and so no further consideration is given to the results of these surveys in this chapter. The full list of species encountered during these surveys, including peak numbers for each, is presented in Table 14 of Technical Appendix 4.6 A, for reference purposes only.

Breeding Bird Surveys

Methods

4.6.1.27 At the time of writing, one breeding bird survey visit had been completed in May. Two further surveys will be carried out in June and July 2014, with the results of these surveys being provided in July. The surveys have been (and will be) undertaken according to the Common Bird Census (CBC) methodology (Gilbert *et al.*, 1998; Marchant, 1983). Surveys are carried out during periods of good weather (i.e. good visibility, no persistent rain or fog, avoiding excessive heat or cold or wind speeds exceeding Beaufort Force 4) from one hour before dawn to six hours after dawn. The location and behaviour of all birds are recorded directly onto 1:10,000 scale Ordnance Survey (OS) maps using standard BTO notation.

4.6.1.28 All records of birds are digitised using ArcGIS software and territory analysis will be carried out on completion of all surveys. Birds are assumed to be holding territory if one or more of the following behaviours are observed:

- Displaying or singing;
- Presence of a nest, eggs or young (including newly fledged birds);
- Agitated behaviour, specifically alarm calls or distraction display; and/or
- A territorial dispute.

4.6.1.29 In the absence of any of these behaviours, a pair observed together in suitable habitat is also considered to be holding a territory. Other records are considered to be of non-breeding birds.

Results

4.6.1.30 The results of the remaining two breeding bird surveys, and of the final territory analysis, will be submitted in July.

4.6.1.31 In summary, a total of 57 species were recorded during the May visit of the 2014 breeding bird surveys (Table 15 of Technical Appendix 4.6 A). A single osprey, which is listed on Annex I of the Birds Directive and on Schedule 1 of the Wildlife and Countryside Act 1981, was observed flying overhead during this survey. In addition, two flocks of golden plover (numbering 120 and 28 birds), which are listed on Annex I, were recorded flying high overhead. Six golden plover were also recorded on the ground but were not observed to be displaying any evidence of breeding, and habitat in the area is not conducive to this. A total of eighteen singing corn buntings were encountered, as shown in Figure 4.6-3. The remaining species are, in general, common and widespread.

Coastal Bird Surveys

Methods

4.6.1.32 Coastal bird surveys were undertaken at the proposed point of landfall for the TI export cables originating from the three consented wind farms at Inverboyndie. Three survey visits are proposed between May and July 2014. Data from the May surveys is present within this document; additional survey results will be report in July.

4.6.1.33 The survey area included the proposed landfall location and an additional 1 km buffer stretching east and west along the coastline. The coastline was buffered to a distance of 500 m offshore to include birds on the water or in flight above the sea. The coastal bird survey areas are shown in Figure 4.6-4. Surveyors walked the coast within the survey area from west to east, mapping all waterbird species (defined by the BTO as all divers, grebes, cormorants, herons, wildfowl, waders, gulls and terns) on a 1:5,000 scale OS map which had a north-south grid of 250 x 250 m cells placed across it to improve accuracy. Standard BTO codes were used in recording birds, with notes of behaviour also made (e.g. roosting, loafing, foraging).

4.6.1.34 Surveys were timed to be carried out across the survey programme at different times of the tidal cycle to ensure that all species and activities were captured. Surveys were timed as such:

- One survey commencing two hours prior to high tide;
- One survey commencing two hours prior to slack tide; and
- One survey commencing two hours prior to low tide.

Results

4.6.1.35 In summary, a total of twenty species were recorded at the Inverboyndie landfall point. The full list of species recorded is shown in Table 16 in Appendix 4.6 A. Four species (great northern diver, red-throated diver, sandwich tern and whimbrel) are listed on Annex I, while six (common scoter, great northern diver, long-tailed duck, red-throated diver, whimbrel and white-billed diver) are listed on Schedule 1 of the Wildlife and Countryside Act 1981. Great northern diver, common scoter and long-tailed duck were present in low numbers (represented by one, two and nine individuals, respectively). Relatively large numbers of red-throated divers were also present (fourteen individuals), suggesting that the wider coastal area is favoured by wintering / pre-breeding birds. The nine whimbrel recorded are passage migrants making only limited transitional use of the area. Large numbers of sandwich terns (65 individuals) were recorded; however, no breeding colony was identified via Seabird 2000 within 3 km of the landfall point (see Table 2 of Technical Appendix 4.6 A).

4.6.1.36 White-billed divers are very uncommon in British waters, with the area around Banff thought to be one of few known wintering grounds known for the species in the U.K (Baxter *et al.*, 2013). For example, up to thirteen birds were recorded during boat surveys between Logie Head and Portsoy in April 2013 (Baxter *et al.*, 2013). This number had, however, dropped to four by mid-May of 2013 and it is possible that birds use the area only during the spring moult before moving on to summer breeding grounds in Arctic Russia (Forrester *et al.*, 2007). The area being used by white-billed divers is also apparently very restricted in size, with no birds found within several miles to the east and west of the Logie Head to Portsoy stretch of coast (Baxter *et al.*, 2013).

Phase 1 Habitat Surveys

Methods

4.6.1.37 The Phase 1 Habitat survey was carried out from 5 to 16 May 2014. This survey defined Phase 1 Habitat types and extent across the 13.4 km² of the ecology survey area following standard JNCC (2010) guidelines. The Phase 1 Habitat classification and associated field survey technique provides a relatively rapid system to record semi-natural vegetation and other wildlife habitats. Each habitat type is defined by way of a brief description and is allocated a specific name, alpha-numeric code and unique mapping colour. The system has been widely used and continues to act as the standard phase 1 technique for habitat survey across the UK. The ecology survey area was walked, habitats were inspected and delineated directly onto 1:10,000 OS maps using standard Phase 1 alphanumeric notation. Target notes (TNs) were made to highlight features of interest or any aspect too small to be mapped; these were supported by photos and GPS coordinates. Target notes are referred to throughout the text and in figures by a sequential number prefixed with TN, e.g. TN17. Full details of target notes can be seen in Table 19 of Technical Appendix 4.6 A.

Results

4.6.1.38 Baseline field survey results (Figure 4.6-5) show that the habitat within the OnTI comprises an intensively managed, open landscape of predominantly arable land and improved grassland, with a small number of built up areas present, particularly surrounding the landfall location in the north. Pockets of both plantation and semi-natural woodland are scattered along the length of the OnTI. Field boundaries and woodland edges across the survey area form important linear features in the otherwise open, homogenous landscapes present. Native, species-rich hedgerows are widespread, comprising rowan, silver birch, hawthorn, hazel and elder.

4.6.1.39 A total of 23 Phase 1 Habitat types were recorded within the 13.4 km² of the cable route corridor surveyed. Habitats (and percentage coverage) within the OnTI can be summarised into the following categories:

- Arable land and grassland, 61.8 %;
- Woodland, 6.7 %;
- Built-up areas, 4.1 %
- Scrub, tall herb and fern, 0.4 %
- Water and wetland features, 0.2 %;
- Mire, 0.1 %; and,
- Rock and quarry, 0.1%.

4.6.1.40 No habitats were recorded which might be considered as ground-water dependent (SEPA 2012); consequently measures outlined in SEPA's scoping response (Table 4.6-1) are currently not required. For detailed results tables and descriptions of the habitats present please refer to Technical Appendix 4.6 A.

Protected Species (Mammal) Surveys

Methods

4.6.1.41 The protected species survey was carried out within the 13.4 km² of the OnTI available to be accessed between the 28 April and 22 May 2014. Field evidence of the following protected species was searched for across the survey area:

- Otter;
- Badger;
- Water vole;
- Red squirrel;
- Pine marten; and
- Wildcat.

4.6.1.42 A full description of the indicative field signs for each of these species is provided within Technical Appendix 4.6 A.

Results

4.6.1.43 Protected species evidence collected along the length of the modified OnTI shows the area is highly utilised by badgers, with 36 individual setts being recorded (these results can be seen in the Confidential Annex and the associated figure). Thirty of these setts were defined as main setts, with at least eleven of these exhibiting signs of current use. Well used runs, recently visited latrines, and snuffle holes and marks found along the corridor route similarly corroborate the high utilisation of the area by the species.

4.6.1.44 Use of watercourses by otters for foraging appears widespread with numerous couches and sprainting locations discovered during the course of the surveys. Much of the indicative evidence shows recent use of the area, and it is likely the species uses watercourses within the corridor as part of a number of wider territories.

4.6.1.45 Feeding signs of red squirrel were noted at a single location; however a sighting of an individual was recorded within the cable route corridor.

4.6.1.46 Water vole evidence was found throughout the survey area in habitats dominated by marshy grassland. Thirty-two burrows and five latrines were found across the ecological survey area.

4.6.1.47 No field signs of pine marten or wildcat were found during the field surveys despite small areas of suitable habitat being recorded for pine marten. The lack of any indicative sign for either species and the fragmented nature of sections of suitable habitat have led to these species being scoped out from further assessment. As such these species are not considered further within this document.

4.6.1.48 Full details of protected species presence, the signs found, and their location within the cable route corridor can be seen in the Technical Appendix 4.6 A and Figure 4.6-6. Badger sett records, due to the species' historical persecution and the sensitive nature of the information, are detailed in the Confidential Annex and Figure 4.6-7.

Bat Roost and habitat Suitability Surveys

Methods

4.6.1.49 The bat roost and habitat suitability survey was carried out from 5 to 16 May 2014 in parallel with the Phase 1 Habitat survey. Potential habitat suitability for bats was assessed across the 13.4 km² of the accessible modified OnTI.

4.6.1.50 As surveyors walked the ecology survey area recording Phase 1 Habitats, habitats were also considered for their potential suitability to support roosting, foraging or commuting bats. Surveyors categorised habitats to be of high, medium or low suitability for bats, based on roosting, foraging or commuting suitability criteria (Table 1 of Technical Appendix 4.6 A). Thus, potential bat roosts (buildings, bridges, mature trees), commuting routes (linear features such as hedgerows and lines of trees) and foraging habitat (water bodies, marshy grassland, cow fields) were classed to be of low, medium or high value. Photos, target notes and GPS coordinates were taken to support recordings made on maps.

Results

4.6.1.51 The modified OnTI's northerly latitude and managed, open landscape of predominantly arable land and improved grassland, lacking well-connected networks of different foraging habitats, suggests low numbers and diversity of bats. It is documented that the Grampian region supports at least five resident bat species (Haddow and Herman, 2000):

- Soprano pipistrelle;
- Common pipistrelle;
- Brown long-eared bat;
- Daubenton's bat; and
- Natterer's bat.

4.6.1.52 Soprano pipistrelles use a wide range of habitats and roost in various buildings and trees, however they strongly favour foraging over habitats associated with water, especially rivers and lochs with marginal woodlands, yet few such waterbodies exist within the modified OnTI. However, common pipistrelles are better adapted to agricultural landscapes with limited woodland and water, such as that within the modified OnTI. Daubenton's bat is a specialist of sheltered, calm water with a healthy chironomid midge population, whilst Brown long-eared and Natterer's bats favour foraging habitat of mixed landscapes with mature woodland, and roosting habitat in old, large buildings. Few such habitats for any of these species exist within the modified OnTI. As such, common pipistrelle is likely to be best adapted to the habitat found along the cable route.

4.6.1.53 A full list of areas suitable for roosting, foraging, or commuting are provided within Table 19 of Technical Appendix 4.6 A.

Legislative and Planning Framework

4.6.1.54 The legislation below was taken into account within the terrestrial ecology and ornithology assessment process:

- The European Union Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (EIA Directive);
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011;
- The European Council Directive 2009/147/EC on the conservation of wild birds (EU Birds Directive);
- The European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EU Habitats Directive);
- Ramsar Convention on Wetlands of International Importance 1971;
- Bonn Convention on the Conservation of Migratory Species of Wild Animals 1979, as amended;
- Conservation of Habitats and Species Regulations 2010;
- Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007;
- Conservation (Natural Habitats, &c.) Regulations 1994;
- Wildlife and Countryside Act 1981, as amended;
- The Nature Conservation (Scotland) Act 2004; and
- The Protection of Badgers Act 1992.

4.6.1.55 In addition to the above legislation, the following guidance was also taken into account:

Birds of Conservation Concern

4.6.1.56 The population status of UK birds is reviewed every five years to provide an up-to-date assessment of conservation priorities. The 2009 review of Birds of Conservation Concern (BoCC) allocated 246 species onto red, amber or green lists. Seven quantitative criteria were used to assess population status: global conservation status, recent decline, historical decline, European conservation status, rare breeders, localised species and international importance.

Scottish Biodiversity List

4.6.1.57 The Scottish Biodiversity List (SBL), published in 2005, is a list of flora, fauna and habitats which Scottish Ministers consider to be important for Scottish biodiversity conservation. The list was developed by a partnership of organisations, specifically, the Scottish Biodiversity Forum as well as the Scottish public. The criteria include scientific criteria as well as a social criterion of culturally important species and habitats based on a survey of the Scottish public.

NE LBAP Priority Habitats and Species

4.6.1.58 The NE LBAP aims to protect and enhance local biodiversity across Aberdeen, Aberdeenshire and Moray. Formed in 1996, it is a partnership of statutory and voluntary agencies and individuals. The NE LBAP develops Local Action Plans which set out measures to conserve priority habitats.

4.6.2 Impact Assessment

4.6.2.1 Summary of Effects and Mitigation

Summary of Effects

4.6.2.2 This section details the evaluation of likely significant effects on terrestrial ecology and ornithology as a result of the proposed development and provides mitigation measures to address these effects. The assessment covers birds, habitats and protected mammal species.

4.6.2.3 The impact assessment was carried out on all valued ecological receptors (VERs). In assessing the residual effects to VERs the following standard mitigation was proposed:

- For terrestrial breeding bird VERs, during mid-March to July carry out pre-construction surveys to ensure effects to breeding birds are minimised;
- For habitat VERs, micro-site onshore cable route design to avoid sensitive habitats and employ CEMP (Construction Environmental Management Plan) and Construction Method Statements (CMS);
- For otter and badger VERs, cover all excavations when not in use (or provide a means of escape), avoid night works (or minimise light spill), cease works within 100 m of otter holts and badger setts 1hr before dusk and commence 1hr after dawn, micro-site onshore cable route design to avoid badger setts (if setts cannot be avoided then a licence will be required from SNH), set up a protection zone 30 m around setts and carry out preconstruction surveys;
- For the bat roost and habitat suitability VER, micro-site cable route design to avoid sensitive bat habitat features, carry out targeted baseline field surveys prior to construction once onshore cable route design has been confirmed to inform detailed mitigation, avoid dawn, dusk and overnight works near areas with bat roost potential and carry out preconstruction surveys; and
- For red squirrel and water vole VERs, micro-site cable route design to avoid sensitive red squirrel or water vole habitat features, carry out pre-construction surveys to confirm species absence from all potentially affected areas.

4.6.2.4 Following implementation of mitigation measures, residual effects of only negligible significance were predicted for all ornithological effects.

4.6.2.5 All habitat VERs were found to have residual effects of only negligible-minor significance.

4.6.2.6 Otter and badger VERs were found to have residual effects of only minor significance whilst red squirrel and water vole VERs were found to give residual effects of only **negligible-minor** significance. Likewise, the bat roost and habitat suitability VER was found to have residual effects of only negligible-minor significance. A summary of the impact assessment results is shown in Table 4.6-3.

Table 4.6-3. Impact Assessment Summary

Effect	Receptor	Pre-mitigation Effect	Mitigation	Post-mitigation Effect
<i>Construction & Decommissioning</i>				
Impacts on breeding and wintering coastal and terrestrial birds from habitat loss and disturbance / displacement	Terrestrial breeding birds	Minor	Conduct pre-construction surveys if works are ongoing March to July. Habitat restoration.	Negligible
	Coastal wintering birds	Minor	Avoid coastal works during winter months.	Negligible
Impacts to species from habitat loss and disturbance/ displacement	Otter	Moderate	Cover all excavations when not in use. Where excavations cannot be covered, provide means of escape. Avoid night working. When night working cannot be avoided, direct light onto work area only and minimise light spill. Works within 100 m of holts should cease 1hr before dusk and commence 1hr after dawn. Adhere to SEPA's PPGs. Enforce vehicle speed limits. ECoW present during works.	Minor
	Badger	Moderate	Micro-site cable route to avoid sett(s). If sett(s) cannot be avoided then obtain license from SNH to destroy sett(s). Impose protection zones 30 m from sett(s) and mark with brightly coloured tape. Cover all excavations >5 m deep when not in use. Pipes of diameter >20 cm should be capped nightly. Avoid night working. When night working cannot be avoided, direct light onto work area only and minimise light spill. Works within 100 m of sett(s) should cease 1 hr before dusk and commence 1 hr after dawn. Enforce vehicle speed limits. ECoW present during works. Carry out preconstruction survey. Employ best practice.	Minor
	Red Squirrel	Minor-moderate	Micro-site cable route to avoid sensitive habitat features.	Negligible-minor

Effect	Receptor	Pre-mitigation Effect	Mitigation	Post-mitigation Effect
	Water vole	Minor	Carry out preconstruction survey. Enforce vehicle speed limits. ECoW present during works. Carry out pre construction survey. Employ best practice.	Negligible-minor
Impacts from damage habitat	Bat roost and habitat suitability	Minor-moderate	Micro-site cable route to avoid sensitive habitat features. Targeted baseline field surveys to be carried out prior to construction, once cable route confirmed, to inform detailed mitigation actions; surveys to include roost searches, Anabat surveys, commuting surveys and control surveys, all May-September. Carry out preconstruction survey. ECoW present during works. Habitat restoration. Avoid dawn, dusk and overnight works near areas with bat roost potential.	Negligible-minor
Impacts on habitats and conservation designated sites from pollution, damage and disturbance	Wet modified bog	Minor	Adhere to SEPA's PPGs. Maintain vehicles and plant to avoid leaks. Avoid construction works in heavy rainfall. Delimit working areas to minimise zone of impact. Employ best practice. Enforce CEMP and construction method statements. Sediment control near burns. Avoid trenching alongside the River Deveron. Habitat restoration where onshore export cable has impacts.	Negligible
	Semi-improved and unimproved neutral grassland	Minor		Negligible
	Watercourses and standing water	Minor		Minor
	Marshy grassland	Minor		Negligible
	Waterbodies	Minor		Negligible
	Plantation and semi-natural woodlands	Minor		Negligible
	Arable land	Negligible		Negligible
	Improved grassland	Negligible		Negligible
	Tall ruderal herb and fern	Negligible		Negligible
Amenity grassland	Negligible	Negligible		

Effect	Receptor	Pre-mitigation Effect	Mitigation	Post-mitigation Effect
	Scattered and dense scrub	Negligible		Negligible
<i>Operation</i>				
Impacts on breeding and wintering coastal and terrestrial birds from habitat loss and disturbance / displacement	Terrestrial breeding birds	Minor	Habitat restoration. Carry out preconstruction surveys. ECoW present during works.	Negligible
	Coastal wintering birds	Minor - Negligible	Avoid coastal works during winter months.	Negligible
Impacts to species from habitat loss and disturbance/ displacement	Otter	Moderate	Cover all excavations when not in use. Where excavations cannot be covered, provide means of escape. Avoid night working. When night working cannot be avoided, direct light onto work area only and minimise light spill. Works within 100 m of holts should cease 1hr before dusk and commence 1hr after dawn. Adhere to SEPA's PPGs. Enforce vehicle speed limits. ECoW present during works.	Minor
	Badger	Moderate	Micro-site cable route to avoid sett(s). If sett(s) cannot be avoided then obtain license from SNH to destroy sett(s). Impose protection zones 30m from sett(s) and mark with brightly coloured tape. Cover all excavations >5 m deep when not in use. Pipes of diameter >20 cm should be capped nightly. Avoid night working. When night working cannot be avoided, direct light onto work area only and minimise light spill. Works within 100 m of sett(s) should cease 1 hr before dusk and commence 1 hr after dawn. Enforce vehicle speed limits. ECoW present during works. Carry out preconstruction survey. Employ best practice.	Minor
	Red Squirrel	Minor	Micro-site cable route to avoid sensitive habitat features.	Negligible-minor

Effect	Receptor	Pre-mitigation Effect	Mitigation	Post-mitigation Effect
	Water vole	Minor	Carry out preconstruction survey. ECoW present during works. Employ best practice.	Negligible-minor
Impacts from damage habitat	Bat roost and habitat suitability	Minor-moderate	Micro-site cable route to avoid sensitive habitat features. Targeted baseline field surveys to be carried out prior to construction, once cable route confirmed, to inform detailed mitigation actions; surveys to include roost searches, Anabat surveys, commuting surveys and control surveys, all May-September. Carry out preconstruction survey. ECoW present during works. Habitat restoration. Avoid dawn, dusk and overnight works near areas with bat roost potential.	Negligible-minor
Impacts on habitats and conservation designated sites from pollution, damage and disturbance	Wet modified bog	Minor	Adhere to SEPA's PPGs. Maintain vehicles and plant to avoid leaks. Avoid heavy rainfall.	Negligible
	Semi-improved and unimproved neutral grassland	Minor	Delimit working areas to minimise zone of impact. Employ best practice.	Negligible
	Watercourses and standing water	Minor	Enforce CEMP and construction method statements. Sediment control near burns.	Minor - Negligible
	Marshy grassland	Minor	Avoid trenching alongside the River Deveron.	Negligible
	Waterbodies	Minor	Habitat restoration where onshore export cable has impacts.	Negligible
	Plantation and semi-natural woodlands	Minor		Negligible
	Arable land	Negligible		Negligible
	Improved grassland	Negligible		Negligible
	Tall ruderal herb and fern	Negligible		Negligible
	Amenity grassland	Negligible		Negligible
	Scattered and dense scrub	Negligible		Negligible

Introduction to Impact Assessment

- 4.6.2.7 The area of the modified OnTI in north east Aberdeenshire comprises a managed, open landscape of arable land and improved grassland, inhabited by the protected species otter, badger and bats, and supporting a typical assemblage of farmland and coastal birds.
- 4.6.2.8 This section assesses the likely significant effects on terrestrial ecology and ornithology baseline conditions derived from desk study and contemporary field surveys (2014) as a result of the proposed development. Detailed terrestrial ecology and ornithology baseline conditions are provided in:
- Technical Appendix 4.6 A – Terrestrial Ecology and Ornithology Technical Report; and
 - Confidential Annex – Terrestrial Ecology and Ornithology Confidential Annex.
- 4.6.2.9 This impact assessment is used to inform the terrestrial ecology and ornithology cumulative impact assessment provided in Section 4.6.3 of this chapter.
- 4.6.2.10 Within 15 km of the modified OnTI, 13 sites are designated for ornithological or ecological interests: SPAs, Ramsar sites, SACs and SSSIs (Figure 4.6-2). Although a number of these are within the locality of the modified export cable route, effects on these have been scoped out by SNH. As such no additional consideration is given to them within this Impact Assessment.

Rochdale Envelope Parameters Considered in the Assessment

- 4.6.2.11 The Rochdale Envelope, outlining the 'worst realistic case' effects for the impact assessment is summarised in Table 4.6-4 based on details in Chapter 2.2 - Project Description.

Table 4.6-4. Rochdale Envelope Parameters relevant to the Terrestrial Ecology and Ornithology Impact Assessment

Potential Effect	Rochdale Envelope Scenario Assessed
<i>Construction & Decommissioning</i>	
Effects on breeding and wintering coastal and terrestrial birds from habitat loss and disturbance/ displacement	Onshore AC cable: <ul style="list-style-type: none"> • Maximum number of cable trenches = four, each carrying three cables in a trefoil arrangement; • Cable installation method = cable plough at an estimated rate of 1km/day, directional drilling at landfall and water crossings at an estimated rate of <1 km/day, and open trenching at rate of 300 m/day at the landfall points if directional drilling is not possible; • Cable trench width = 4 m assuming one trench for each bundle, these may be installed in two separate phases (two trenches each time). Two 6 m wide trenches would be required if two bundles are buried together. For some very short sections it may be necessary to unbundle cable and install as single cables; • Cable trench target depth = 1 m, although slightly deeper burial of 1.2-1.5 m may be required in some areas; • Cable trench working width = 60 m maximum based on a worst case scenario of four trenches; and • Cable route length = 33 km from landfall site at Inverboyndie to the substation at New Deer. This is an approximate value; final length will be determined by final route design and micro-siting. • Transition Pits may be located above Mean High Water Springs). Size and dimensions of the pit is dependent on layout of subsea cables. Pits will be wide enough to accommodate one or two cables, plus a team of cable joiners (two – four people). • MORL AC substation: <ul style="list-style-type: none"> ○ Length, 270 m (plus temporary working area); ○ Width, 135 m (plus temporary working area); and ○ Height, 13 m. • Transmission owner AC substation: <ul style="list-style-type: none"> ○ Length, 270 m (plus temporary working area); ○ Width, 170 m (plus temporary working area); and ○ Height, 13 m.
Effects on habitats and conservation designated sites from pollution, damage and disturbance	
Effects on otter, badger, red squirrel or water vole from habitat loss and disturbance/ displacement	
Impacts from damage to bat habitat	
<i>Operation</i>	
Impacts on breeding and wintering coastal and terrestrial birds from habitat loss and disturbance/ displacement	<ul style="list-style-type: none"> • MORL AC substation: <ul style="list-style-type: none"> ○ Length, 270 m (plus temporary working area); ○ Width, 135 m (plus temporary working area); and ○ Height, 13 m. • Transmission owner AC substation: <ul style="list-style-type: none"> ○ Length, 270 m (plus temporary working area); ○ Width, 170 m (plus temporary working area); and ○ Height, 13 m.
Impacts on habitats and conservation designated sites from pollution, damage and disturbance	
Impacts on otter and badger from habitat loss and disturbance/ displacement	
Impacts from damage to bat habitat	

EIA Methodology

4.6.2.12 Assessment of significance of effects on VERs was broadly based on the staged process in the Institute of Ecology and Environmental Management's (IEEM) (2006) guidelines. As such, effects were predicted and characterised and their significance in terms of EIA Regulations were determined. However unlike IEEMs (2006) guidelines, a matrix approach was used to determine levels of significance based on the conservation value of VERs and the predicted magnitude of effects. This matrix is the standard approach adopted in ecological and ornithological impact assessment and is used for consistency and clarity. Results are subject to expert judgement using IEEMs (2006) guidelines to ensure accuracy in predictions and avoid over-reliance on matrix output.

4.6.2.13 The stages in the assessment are as follows:

- Determination of the conservation value of VERs within the modified OnTI based on geographical scale;
- Identification of potential effects based on the nature of the modified OnTI;
- Determination of the scale and magnitude of those effects;
- Determination of the significance of those effects based on the magnitude and duration of effects on the vulnerability of the VERs affected;
- Identification and assessment of mitigation measures required to address significant adverse effects; and
- Determination of the significance of any residual effects once the benefits of the prescribed mitigation measures have been assessed.

4.6.2.14 The significance of effects is also determined by understanding how each species or habitat will be affected by construction, operation or decommissioning of the export cable and onshore substations. This takes into consideration the following:

- Habitat extent/population estimates within the modified OnTI;
- Population/habitat extent trends of each species/habitat at a national or regional level;
- Distribution of populations/habitats of each VER within the study area and at a wider scale;
- Vulnerability of each VER to particular effects; and
- Ecology and behaviour of each species.

Conservation Value of VERs

4.6.2.15 VERs were identified from baseline results summaries. VER sensitivity was first assessed in relation to the conservation value of the species over the full range of geographical scales listed below (Table 4.6-5).

Table 4.6-5. Defining the Conservation Value of VERs

Conservation value	Examples
International	Habitats or species that form part of the cited interest within an internationally protected site, such as those designated under the Habitats Directive (SACs, SPAs) or other international convention (e.g. Ramsar site). This also includes species listed in the Birds Directive when outside of areas designated for their protection, i.e. within the wider countryside, that may interact with the study area.
National	Habitats or species that form part of the cited interest within a nationally designated site, such as a SSSI, or a National Nature Reserve (NNR). A feature (e.g. habitat or population) which is either unique or sufficiently unusual to be considered as being one of the highest quality examples in a national/regional context for which the site could potentially be designated as a SSSI. Presence of SBL habitats or species, where the action plan states that all areas of representative habitat, or individuals of the species, should be protected. A species for which a significant proportion (>1 %) of the national population is found within the site. An ecologically-sensitive species (<300 breeding pairs in the UK).
Regional	Habitats or species that form part of the cited interest of a Local Nature Reserve (LNR), or some local-level designated sites depending on specific site conditions. A feature (e.g. habitat or population), which is either unique or sufficiently unusual to be considered as being of nature conservation value up to a district or county context. A species for which a significant proportion (>1 %) of the regional population is found within the site. Presence of LBAP habitats or species, where the action plan states that all areas of representative habitat, or individuals of the species, should be protected.
Local	Habitats or species that form part of the cited interest of a local-level designated site and may be designated as a non-statutory Site of Importance for Nature Conservation (SINC) or the equivalent, e.g. Local Wildlife Site, Ancient Woodland designation. A feature (e.g. habitat or population) that is of nature conservation value in a local context only, with insufficient value to merit a formal nature conservation designation.
Negligible	Commonplace feature of little or no habitat/historical significance. Loss of such a feature would not be seen as detrimental to the ecology of the area.

Impact Magnitude of Development

4.6.2.16 The magnitude of a potential effect is determined by understanding how a VER will be affected by the modified OnTI. The scale of potential effects is defined by the following:

- Potential duration, whether short-term (<5 yrs), medium-term (5-15 yrs) or long-term (15-25 yrs or longer); and,
- Reversibility, whether effects will be reversible in the short to medium-term.

4.6.2.17 The magnitude of change on each VER is defined in Table 4.6-6

Table 4.6-6 Defining the Impact Magnitude of a Development

Magnitude	Examples
Total / Near Total	Would cause the loss of a major proportion or whole feature/population, or cause sufficient damage to a feature to immediately affect its viability. Irreversible.
High	Major effects on the feature/population which would have a sufficient effect to alter the nature of the feature in the short to long-term and affect its long-term viability. For example, more than 20 % habitat loss or long-term damage, or more than 20 % loss of a species' population.
Medium	Effects that are detectable in short and medium-term, but which should not alter the long-term viability of the feature/population. For example, between 10-20 % habitat loss or 10-20 % reduction of a species' population.
Low	Minor effects, either of sufficiently small-scale or of short duration to cause no long-term harm to the habitat/population. For example, less than 10 % loss or damage.
Negligible	A potential effect that is not expected to affect the habitat/population

Significance of Effects

4.6.2.18 The significance of an effect on a VER is therefore determined by combining the conservation value of the VER with the effect magnitude of the modified OnTI (Table 4.6-7).

Table 4.6-7 The Significance of an Impact on a VER, as Defined by the Relationship Between Conservation Value and Impact Magnitude

Effect magnitude	Conservation value			
	International	National	Regional	Local
Total/near total	Major	Major	Major	Moderate
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Minor
Low	Moderate	Minor	Minor	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

4.6.2.19 The significance of an effect generated from this matrix can be assessed against the likelihood of such predictions occurring, and the confidence level of the effect on a population, based on expert judgement and literature evidence. A scale of confidence, as recommended by the IPCC (Intergovernmental Panel on Climate Change) (2005) was used:

- Virtually certain, >99 % probability of occurrence;
- Very likely, >90 % probability;
- Likely, >66 % probability;
- About as likely as not, 33-66 % probability;

- Unlikely, <33 % probability;
- Very unlikely, <10 % probability; and
- Exceptionally unlikely, <1 % probability.

4.6.2.20 Using these criteria, and with rationales to explain the reasoning, the predicted level of significance can be altered either downwards (e.g. from major to moderate) or upwards (e.g. from minor to moderate) based on expert judgement and scientific evidence.

4.6.2.21 Impacts/residual effects determined as negligible or minor are not considered to be significant effects with regard to the EIA Regulations.

Impact Assessment: Modified OnTI

4.6.2.22 This section describes the likely significant effects on terrestrial ecology (including ornithology) which could arise in the absence of mitigation during the following phases of the modified OnTI:

- Construction;
- Operation; and
- Decommissioning.

4.6.2.23 Due to the nature of the site and the work to be undertaken, a number of effects may be similar for each phase of development. In particular, construction and decommissioning effects are likely to be similar in type, extent and duration. As such, decommissioning effects are not considered separately unless there is a requirement to differentiate likely effects.

4.6.2.24 The following VERs were derived from baseline desk study and field survey results (for detail refer to Section 4.6.1.11 to 4.6.1.24 of this chapter, Technical Appendix 4.6 A or Confidential Annex of the submission), and considered within this impact assessment:

- Terrestrial breeding birds;
- Coastal birds;
- Habitats;
- Protected mammals; and
- Bat roost and habitat suitability.

Ornithological VERs

Terrestrial Breeding Birds

4.6.2.25 At the time of writing this chapter, one of three rounds of breeding bird surveys had been undertaken. The further two visits will be completed between June and July 2014, with the results, including territory analysis, presented in a report to be submitted in July 2014.

4.6.2.26 This impact assessment has been undertaken using the results of the breeding bird surveys undertaken to date. The report to be submitted in July will detail the full results of the breeding bird surveys and, if necessary, will update this impact assessment to take account of the additional surveys. If the VERs identified are as surveyed thus far, the report will validate the impact assessment contained within this chapter.

4.6.2.27 The aim of the evaluation of effects on VERs is to report on 'likely' significant effects, based on EIA Regulations and IEEM guidance. As such, a number of species can be discounted from assessment as baseline field survey results indicate that significant effects are not likely to occur at a regional scale or above (for example if no breeding is recorded and site usage is rare). Consequently, such effects do not require assessment under the terms of the EIA Regulations.

4.6.2.28 During the process of identifying VERs, only species of conservation value have been considered. Amber-listed species not forming part of a NE LBAP action plan or listed within the SBL are discounted as their conservation status generally reflects a decline in numbers rather than rareness; they are still relatively common and widespread in the UK. Any species recorded flying in low numbers, not using the site for breeding, feeding or roosting, has been omitted from the assessment.

4.6.2.29 Based only on the single site visit, therefore, the species shown in Table 4.6-8, have been included in the impact assessment.

Table 4.6-8. Conservation Values of Bird Species Included in Impact Assessment for Breeding Bird

Species	Conservation Value
Golden plover	International
Corn bunting	National / Regional
Curlew	Regional
Dunnock	
Grey partridge	
Herring gull	
House sparrow	
Kestrel	
Lapwing	
Lesser redpoll	
Linnet	
Reed bunting	
Skylark	
Snipe	
Song thrush	
Starling	
Yellowhammer	

Coastal Birds

- 4.6.2.30 Relevant wetland bird count data were received from WeBS for the Deveron Estuary and a coastal bird survey undertaken at Inverboyndie Bay. For lists of species recorded to date, see Table 16 in Technical Appendix 4.6 A. As with breeding bird surveys, coastal bird surveys are currently on-going and as such, data collected subsequent to this report will be used to corroborate this Impact Assessment. This will be done on completion of the surveys and will be presented in the July report.
- 4.6.2.31 A total of twenty bird species were recorded during the first survey visit at Inverboyndie Bay; these include birds listed as Annex I and Schedule 1 species. For the purposes of the impact assessment, only the 17 species listed within Table 4.688 are included within the assessment. The numbers recorded during the first visit are unlikely to be matched in the remaining surveys, however, as, in general and away from seabird colonies, numbers reduce in the breeding season (e.g. red-throated diver numbers are unlikely to be as high as recorded in May).

Impact Assessment (Ornithology)

Construction (Ornithology)

- 4.6.2.32 Potential construction effects of the modified OnTI on the terrestrial breeding bird and coastal bird VERs are:
- Habitat loss; and
 - Temporary, short-term disturbance and displacement due to increased noise and the presence of humans and machinery.
 - Habitat Loss

Habitat Loss

- 4.6.2.33 Construction of the modified OnTI is likely to result in the temporary loss of potential breeding, feeding or roosting habitat, restricted to a 60 m wide corridor along the modified onshore export cable route. This is expected to affect any particular local stretch of cable route for no more than two non-consecutive breeding seasons (if, in the worst case, cable burial activities are undertaken in two separate activities), as habitat will be restored after cable installation. Construction of the substations will result in the short-term loss of habitat in the temporary working area and the long-term loss of habitat within the footprint of the substations (no more than 10 ha).

Terrestrial Breeding Birds

- 4.6.2.34 The magnitude of habitat loss for breeding birds found within the modified onshore export cable route depends on each species' population, foraging range, habitat preferences and flexibility to cope with any loss. A number of passerine territories are likely to be significantly affected by the construction of the export cable and substations. However this would be for a limited period of time, considered to be at most two (non-consecutive) breeding seasons, as the works footprint is re-instated post-cable installation and construction of the substations. Habitat loss within the substation footprint will, however, be long-term. Effects are unlikely to be significant at anything above local level for the majority of species, which should easily recover over the long-term.
- 4.6.2.35 In a worst case scenario, a number of territories of regionally-important species may be affected (Table 4.6.8) leading to an effect caused by the construction of the export cable and substations of low-medium magnitude on these VERs, and resulting in an indirect, short-term, temporary, negative effect of **minor significance** on their regional populations.

Coastal Birds

4.6.2.36 A very small amount of foraging or roosting habitat may be temporarily lost along the shoreline due to cable installation, potentially affecting wader species in particular, which may be specialised and rely on particular niches. However the magnitude of such effects is likely to be low considering the overall habitat available within potential foraging range and the mobility of birds outside the breeding season. Coastal birds will be unaffected by construction of the substations, as the buildings will be located at the inland end of the modified export cable route (Figure 4.6-1), more than 20 km from the coast. As the assemblage of species at the coastline is of regional conservation value, this will result in an indirect, short-term, temporary, negative effect caused by the construction of the export cable and substations of **minor significance** for any coastal bird species.

Disturbance / Displacement

4.6.2.37 Cabling works will result in temporarily increased noise and higher levels of human activity than currently experienced by birds within the modified export cable route, particularly intrusive works associated with cabling include drilling, trench digging and pulling the cable. Similar disturbance sources may result from construction of the substations.

Terrestrial Breeding Birds

4.6.2.38 Although works are scheduled to take place through the breeding season (March – July) for the modified OnTI, such operations will be of a relatively short duration with micrositing of the modified export cable route to avoid nesting birds wherever possible.

4.6.2.39 It is therefore predicted that, based on the construction methods proposed, there will be at most a low effect caused by the export cable and substation on VERs of regional conservation value, resulting in a negative effect of **minor significance**.

Coastal Birds

4.6.2.40 The distance away from a source of disturbance at which avoidance behaviour takes place varies between shoreline species, independent of site. Differences can also occur depending on local conditions, for example the availability of suitable habitat will influence response, with birds more likely to tolerate disturbance either if there is no alternative habitat, or the habitat within disturbance distance is of particularly high quality (Gill *et al.*, 2001).

4.6.2.41 Smit and Visser (1993) recorded distances of up to 120 m for roosting waders and gulls taking flight in response to human activity. IECS (Institute of Estuarine and Coastal Studies) (2007) studied responses of shorebirds to flood defence works in the Humber Estuary and showed that birds continued to feed within 200 m of piling operations. During repair work along a pipeline, birds remained within 100 m when workers were active, and flocks returned to the nearby vicinity within 15 mins of activity ceasing. Construction activity using a mechanical digger caused birds to remain 100 m from the locality, but return within 30 mins of cessation.

4.6.2.42 A literature review of shorebird disturbance by Cutts *et al.* (2009) showed a minimal level of disturbance beyond 300 m from feeding or roosting birds, with curlew being the most sensitive up to the 300 m point, and common wader species showing responses out to 150 m.

4.6.2.43 It is therefore the case that any activities associated with cable installation will be unlikely to displace feeding or roosting shorebirds beyond a 300 m radius. These effects will also be short-term in nature. Whilst this may affect feeding activities, it is unlikely that any VER will be significantly affected over the course of a whole season

and no effect on mortality rate is predicted. Birds are likely to be able to feed in the vicinity of the modified OnTI soon after construction activity has ceased. Coastal birds will be unaffected by substation construction, as the buildings will be set at the inland end of the cable route, more than 20 km from the coast.

- 4.6.2.44 No more than a low magnitude effect is predicted for any VER, resulting in a direct, short-term, temporary, negative effect caused by construction of the OnTI of **minor significance** on regional populations.

Operation

4.6.2.45 As the cable will be installed approximately 1 m underground, and restoration of habitat affected during installation of the cable and jointing pits will take place immediately afterwards, operational effects of the modified OnTI on ornithological VERs are expected to be negligible. Exceptions to this may occur due to human activity associated with repair works along the cable route, however these are expected to occur very rarely, if at all. Operational effects of the substations will mostly relate to operational noise. Potential operational effects of the OnTI on ornithological VERs are:

- Export cable: temporary, short-term disturbance and displacement due to increased noise and presence of humans and machinery due to repair works; and
- Substation: long-term disturbance and displacement due to increased noise.

Terrestrial Breeding Birds

4.6.2.46 Due to the limited, local extent of any maintenance operations, only a small number of farmland bird territories would likely be affected by operation of the export cable. Noise from the substation however could interfere with territorial display. This is unlikely to be significant to any VER resulting in a negligible-low magnitude effect caused by the export cable, with at worst an indirect, short-term, temporary, negative effect of **minor significance** in a worst case scenario for rarer species such as quail or corn bunting.

Coastal Wintering Birds

4.6.2.47 As with breeding birds, the temporary displacement of shorebirds from feeding or roosting activity during operation of the export cable is unlikely to be significant to any VER, resulting in a negligible to low magnitude of effect. Coastal wintering birds will be unaffected by substation construction, as the buildings will be set at the inland end of the cable route, more than 20 km from the coast. This would result in an indirect, short-term, temporary, negative effect caused by the OnTI substation of **negligible - minor significance** on any species at a regional level.

Decommissioning (Ornithology)

4.6.2.48 Although the timing and duration of decommissioning works are unknown, it is likely that they will be of a similar nature to those during construction. The predicted significance of effects for ornithological VERs during construction outlined above are therefore also applicable to decommissioning of the export cable, jointing pits and substations, although the confidence in such predictions are lower due to the uncertainty of timing and also the possibility that species assemblage, numbers and distribution may change over the long-term.

Impact Assessment (Ecology)

Habitats VERs

4.6.2.49 This section assesses the conservation value and sensitivity of habitat VERs (Table 4.6-9). Habitats with the potential to overlap with Annex I habitats, SBL or NE LBAP priority habitats were selected.

Table 4.6-9 Conservation Value of Habitat VERs

Habitat VER	Status within onshore cable route and qualifying features	Conservation value (descending order)
Wet modified bog	Recorded in four areas within the modified OnTI. This habitat has been extensively disturbed, however the habitat is listed as an Annex 1 Habitat, on the SBL with bog habitats a priority within the NE LBAP.	Regional
Semi-improved and unimproved neutral grassland	Scattered across the modified OnTI, these habitats are listed with in the SBL and as NE LBAP priority habitats.	Regional
Watercourses and standing water	The River Deveron is the major watercourse crossing the modified OnTI, with a number of smaller burns also present. Large watercourses are listed as SBL habitats while smaller burns are listed as NE LBAP priority habitats.	Regional
Marshy grassland	This habitat is associated with a number of SBL habitats.	Local
Waterbodies	Waterbodies in the form of small ponds are present across the proposed OnTI cable route corridor and are listed as a priority habitat within the NE LBAP.	Local
Plantation and semi-natural woodlands	Woodland is included on both the SBL and the NE LBAP; however these areas of habitat are small and fragmented.	Local
Arable land	Farmland, field margins and boundary habitat are listed on the NE LBAP.	Local
Improved grassland	Farmland, field margins and boundary habitat are listed on the NE LBAP.	Local
Tall ruderal herb and fern	Field margins are listed on the NE LBAP.	Local
Amenity grassland	Amenity grassland is listed on the NE LBAP as important within an urban context for conservation throughout the area.	Local
Scattered and dense scrub	Both scattered and dense scrub are listed in a number of SBL habitats, however the fragmented nature of these habitats within the proposed OnTI cable route corridor lessens their importance within the national context.	Local

Construction

Pollution of Terrestrial Habitats

4.6.2.50 Pollution can arise in the form of fine sediment dusts associated with earthworks, track construction, borrow pit activities and transportation of construction material along temporary roads. Pollution of habitats may also occur from the release of environmentally hazardous chemicals, e.g. fuels and oils from construction plant. This has the potential to result in the loss of vegetation and/or alteration of substrate

chemistry through an increase in nutrients from either substances required to deal with chemical spills or the spills themselves. These have the potential to result in detrimental changes to vegetation communities in the long-term. Even in a worst case scenario however, a pollution event is only likely to affect a localised area. The effect magnitude is therefore low and effects caused by the OnTI on terrestrial habitat VERs of local-regional conservation value will be direct, medium-term, temporary, negative and range from negligible-minor significance.

Pollution of Freshwater Habitats

- 4.6.2.51 There is potential for watercourses to be affected by a variety of pollution types during construction. Potential effects include sediment run-off from earthworks and infrastructure giving rise to changes in water turbidity levels, oxygen saturation levels and water pH. There is also the potential for pollution to arise through chemical spills from hazardous materials, including fuels and oils. The magnitude of these effects is influenced by a variety of factors including flow levels within the watercourse, with pollution and sedimentation during low flows having a higher potential effect than during high flows when greater dilution occurs. Therefore, for the purpose of this chapter these effects have been assessed as a worst case scenario of pollution or sedimentation occurring during a period of low water flow.
- 4.6.2.52 For freshwater habitat VERs of local-regional conservation value, a worst case scenario of a medium effect magnitude (Table 4.6-6) caused by the OnTI would lead to a direct, medium-term, temporary, negative effect of minor significance.

Damage and Disturbance to Habitats

- 4.6.2.53 Construction will cause some damage to habitats and changes to community composition. Wet habitats such as wet modified bog are especially sensitive to damage (Table 4.6-10). Habitats at the landfall site will be left in as natural condition as possible; HDD will be the preferred method of installation, this method is technically feasible for distances of up to 1 km which is significantly greater than the length of any VER habitat present at the landfall location. If open trenching is used at the landfall point, the land will be restored to its original state as soon as construction is complete. HDD will also be used to cross major watercourses such as the Deveron to minimise effects upon these during construction.
- 4.6.2.54 For all habitat VERs, as conservation values range from local to regional and the effect magnitude of construction ranges from negligible to medium, the effect significance caused by the OnTI will therefore be direct, medium-term, temporary, negative and range from **negligible-minor significance**.

Table 4.6-10. Effect Significance of the Export Cable on Habitat VERs Caused by Damage and Disturbance during Construction

Habitat VER	Conservation value	Effect magnitude	Effect significance (descending order)
Wet Modified Bog	Regional	Low	Minor
Semi-improved and Unimproved Neutral Grassland	Regional	Low	Minor
Watercourses and Standing Water	Regional	Medium	Minor
Waterbodies	Local	Medium	Minor
Plantation and Semi-natural Woodlands	Local	Medium	Minor
Arable Land	Local	Medium	Minor
Marshy Grassland	Local	Low	Negligible
Improved Grassland	Local	Low	Negligible
Tall Ruderal Herb and Fern	Local	Low	Negligible
Amenity Grassland	Local	Negligible	Negligible
Dense/scattered Scrub	Local	Low	Negligible

Operation

Pollution or Damage to Terrestrial Habitats during Maintenance Activities

4.6.2.55 There is the potential for temporary damage and disturbance to habitats during maintenance operations and emergency works on the OnTI. This may lead to temporary habitat loss and/or permanent habitat degradation. Maintenance that requires use of machinery could result in a pollution incident adversely affecting surrounding terrestrial habitats. Due to the infrequent nature of these works there is a low likelihood of this damage occurring, however the possible emergency nature of these works and lack of an ECoW (Ecological Clerk of Works) during these times could lead to a medium level of damage in a localised area. Effect magnitude caused by the OnTI is likely to be medium, thus pollution or damage effects on terrestrial habitat VERs of local-regional conservation value will be direct, short-term, temporary, negative and of **minor significance**.

Pollution or Damage to Freshwater Habitats during Maintenance Activities

4.6.2.56 Maintenance activities during operation may result in pollution incidents affecting aquatic habitats and species. There is also the potential for these activities to result in the disturbance of fish species through noise and vibration generated through the operation of machinery. As maintenance activities will be carried out infrequently if at all during the lifespan of the OnTI, and are predicted to be of relatively short-duration, the risk of pollution events and disturbance is reduced in comparison to the construction phase. Effect magnitude caused by the OnTI is likely to be low-medium, thus pollution or damage-related effects on freshwater habitat VERs of local-regional conservation value will be direct, short-term, temporary, negative and of **negligible-minor significance**.

Decommissioning

4.6.2.57 Although the timing and duration of decommissioning works are unknown, it is likely that they will be of a similar nature to those during construction. The predicted significance of effects for habitats VERs during construction outlined above are therefore also applicable to decommissioning of the OnTI, although the confidence in such predictions are lower due to the uncertainty of timing and also the possibility that habitats may change over the long-term.

Protected Mammal VERs

Otter

4.6.2.58 Otters are a European protected species, thus any development with potential negative effects on otters may require a licence to proceed.

4.6.2.59 Baseline results confirm that otters inhabit the River Deveron and its tributaries with the majority of otter prints, spraints and couches found in this area. Further evidence was found along drainage ditches and by ponds.

Habitat Loss

4.6.2.60 HDD will be used for cable installation across large watercourses such as the River Deveron, for detail refer to Chapter 3.2 – Hydrology, Geology and Contaminated Land. HDD plans and procedures will be agreed in advance with SEPA. It is predicted that there will be no direct effects to otters in terms of habitat loss caused by the OnTI.

Disturbance

4.6.2.61 Otters are mainly active from dusk through the night to dawn and thus can be affected by early morning and late evening construction activities. During the longer nights of autumn and winter otters are also likely to be active during daily construction. However disturbance effects on active otters will be limited as construction activities will be relatively localised and short-term. Otter resting sites (holts and couches) are occupied through the day when most construction activity will occur; thus it is possible that otters may be affected within the modified export cable route corridor during construction.

4.6.2.62 As a VER of international conservation value, the magnitude of habitat loss and disturbance effects caused by the export cable and substation is predicted to be low, leading to an impact of direct and indirect, short-term, temporary, negative and **moderate significance** for otter.

Badger

4.6.2.63 Badgers are legally protected under the Protection of Badgers Act 1992. Baseline results show the modified OnTI to be highly utilised by the species with a large number of indicative signs and active setts located during field surveys.

Habitat Loss and Disturbance

4.6.2.64 Any habitat loss or damage within 30 m of a sett, or sett destruction itself, will require a licence from SNH.

4.6.2.65 Indirect effects may occur on badger populations as commuting paths and foraging areas may be lost or disrupted, and foraging habitat may be disturbed or temporarily fragmented. The increased levels of human and construction activity will also disturb badgers. Badgers are also at risk of becoming trapped in excavations or pipework left

open overnight. If a method of escape is not provided, injury or death can result. Standard procedures, specifically CEMP, will be in place to address this risk.

4.6.2.66 As a VER of national conservation value, the magnitude of habitat loss and disturbance caused by the modified OnTI is predicted to be medium, leading to an effect of direct and indirect, short-term, temporary, negative and **moderate significance** for badger.

Red Squirrel

4.6.2.67 Red squirrels are legally protected under the Wildlife and Countryside Act 1981 (as amended). Baseline results found feeding remains of the species in one location, with a single sighting recorded during the field surveys.

Habitat Loss and Disturbance

4.6.2.68 Direct habitat loss may occur from felling of forestry and woodland for the purposes of the OnTI, removing dreys for key denning habitats. Felling may also potentially fragment areas of suitable habitat decreasing the species ability to utilise the wider area.

4.6.2.69 Although the VER is of national conservation value, the magnitude of habitat loss and disturbance caused by the modified OnTI is predicted to be low, leading to an effect of direct and indirect, short-term, temporary, negative and **minor significance** for red squirrel.

Water vole

4.6.2.70 Water voles are protected under the Wildlife and Countryside Act 1981 (as amended). Baseline results found water vole present across the ecology survey area in areas of suitable habitat.

Habitat Loss

4.6.2.71 Direct habitat loss may occur from direct construction works, or indirectly from pollution events relating to both construction and operational activities. Such events would have an effect on the species within such areas.

4.6.2.72 Although the VER is of national conservation value; the magnitude of habitat loss and the likelihood of a pollution event occurring is assessed as low, leading to an effect of direct and indirect, short-term, temporary, negative and **minor significance** for red squirrel.

Bat Roost and Habitat Suitability VER

4.6.2.73 Bat habitat surveys identified that the proposed OnTI includes only small areas of high value bat habitat (mature deciduous woodlands with water and set in a connected landscape with buildings). There are few linear habitat features crossing the route which appear to connect areas of nearby high value habitat/roost potential. The substation location lies entirely within low value bat habitat. Thus, it is likely the main issues will be:

- A few areas of mature trees which might need to be felled and which could contain crevices suitable for bats to roost, thereby threatening bat roosts;
- A few connected linear elements where commuting or foraging bats may be disturbed by works, and where potential loss of the linear feature could affect population viability; and
- A few areas of high value bat habitat where loss of trees may reduce habitat connectivity, and/or reduce the amount of sheltered foraging habitat.

- 4.6.2.74 Although the conservation value of bats is high, the importance of Aberdeenshire populations within a UK context is low, and species biodiversity is also low. Without mitigation however, disturbance/displacement effects could have negative consequences on breeding, roosting or commuting bats in such sparse and marginal quality bat habitat.
- 4.6.2.75 The bat habitat is of local conservation value, however the species themselves are listed within both European and UK legislation, consequently, in the context of this impact assessment their conservation value is assessed as national within Table 4.6-5. The magnitude of habitat loss and disturbance/displacement impacts caused by the modified OnTI are medium; effects are both direct and indirect, short-term, temporary, negative, and thus the overall impact to these species is assessed as **minor-moderate significance**.

Proposed Monitoring and Mitigation

Ornithological VERs

Construction (Ornithology)

- 4.6.2.76 No effects of major or moderate significance on ornithological VERs were predicted from any aspect of construction. However, there is a need to follow best practice during construction to ensure compliance with legislation concerning disturbance to terrestrial breeding birds.

Terrestrial Breeding Birds

- 4.6.2.77 Under the Wildlife and Countryside Act 1981 as amended by the Nature Conservation (Scotland) Act 2004, it is an offence with only limited exceptions, to:
- Intentionally or recklessly take, interfere with, damage or destroy the nest of any wild bird whilst it is in use or being built;
 - Intentionally or recklessly take, interfere with or destroy the egg of any wild bird; or
 - Intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest-building, or at (or near) a nest containing eggs or young, or disturb the dependent young of such a bird.

- 4.6.2.78 As a mitigation measure, the majority of construction activities will be timed to avoid the breeding bird season (mid-March – July, inclusive), however, where this is not possible, pre-construction surveys of the route will be conducted during the breeding period to guide micro-siting of the route, avoiding any potential disturbance to breeding bird species. Furthermore, habitat restoration will be undertaken as quickly as possible following completion of construction activities to ensure that habitat loss is short-term in nature. Implementation of these measures will reduce all potential effects on breeding birds to **negligible significance** as the magnitude of all effects will be negligible.

Coastal Wintering Birds

- 4.6.2.79 No significant effects were predicted for coastal wintering birds and so no specific mitigation is required under the terms of the EIA Regulations. Nevertheless, numbers of coastal species will be higher in winter months, and so it would be advantageous for coastal work to take place outside this period. This will minimise effects on wintering birds and reduce all potential effects to **negligible significance** as the magnitude of all effects will be negligible.

Operation (Ornithology)

4.6.2.80 No significant effects were predicted during operation. However, routine maintenance or emergency works may have to comply with the Wildlife and Countryside Act 1981 legislation outlined above if works are to take place during the breeding season to avoid nest destruction and disturbance to terrestrial breeding birds.

4.6.2.81 An emergency works environmental action plan should be prepared to ensure minimal environmental impacts.

4.6.2.82 Further standard mitigation measures will also be implemented prior to any operational works:

- Compliance with the law will be achieved by appointment of a suitably experienced ornithologist as Ecological Clerk of Works (ECoW) to locate any active nests close to construction works shortly before these commence. There will be a clear line of responsibility for ensuring these measures are followed; and
- Pre-construction surveys will be undertaken to locate nesting birds in the vicinity of works to ensure nests are not disturbed. Works may be programmed to avoid disturbance, or an area can be cordoned off. If any Schedule 1 species is recorded breeding, buffer distances must be enforced to avoid committing an offence. In this case, and also if birds are nesting outside of controlled areas but in the opinion of the ECoW within possible disturbance zones, the work will either be re-scheduled or the nest site cordoned-off and destruction prevented. Buffer distances are species and site-specific, and will be agreed with SNH prior to works.

4.6.2.83 Implementation of the above measures will ensure all potential effects associated with the development will be of **negligible significance** as the magnitude of all effects will be negligible.

Decommissioning (Ornithology)

4.6.2.84 Decommissioning effects are deemed to be similar to those of construction. As such, refer to sections of the construction phase for mitigation.

Habitat VERs

Construction (Habitats)

Pollution of Conservation Designated Sites

4.6.2.85 Mitigation will be implemented through enforcement of CEMP and construction method statements, for detail refer to Chapter 3.2 – Hydrology, Geology and Contaminated. These include:

- Adhere to SEPA's PPGs, especially in relation to the safe storage of fuel, oils and chemicals;
- Maintain vehicles and plant to avoid leaks; and
- Time works to avoid heavy rainfall when the risk of fine sediment being transported from earthworks is significantly increased.

Pollution of Terrestrial Habitats

4.6.2.86 Mitigation will be implemented through enforcement of CEMP and construction method statements, for detail refer to Chapter 3.2 – Hydrology, Geology and Contaminated. These include:

- Adhere to SEPA's PPGs, especially in relation to the safe storage of fuel, oils and chemicals;
- Maintain vehicles and plant to avoid leaks;
- Time works to avoid heavy rainfall when the risk of fine sediment being transported from earthworks is significantly increased;
- Delimit working areas to minimise the zone of potential impact; and
- Employ best practice in relation to construction techniques.

4.6.2.87 Compliance with the law will be achieved by appointment of a suitably experienced ECoW to ensure works are carried out in accordance with construction method statements and CEMP.

Pollution of Freshwater Habitats

4.6.2.88 Export cable route design will minimise potential effects through identification of constraints and subsequent micro-siting;

- Careful sediment control near burns; and
- Avoid trenching alongside the River Deveron and its associated tributaries.

4.6.2.89 The implementation of the above measures with regards to potential effects on habitats will reduce these to a level of **minor-negligible significance** as the magnitude of all effects will be low - negligible.

Operation (Habitats)

Pollution or Damage to Terrestrial Habitats during Maintenance Activities

4.6.2.90 The proposed mitigation outlined above in relation to construction will also apply during operation.

Pollution or Damage to Freshwater Habitats during Maintenance Activities

4.6.2.91 The proposed mitigation outlined above in relation to construction will also apply during operation.

4.6.2.92 The implementation of the above measures with regards to potential effects on habitats will reduce these to a level of **minor-negligible significance** as the magnitude of all effects will be low - negligible following implementation of the proposed mitigation.

Decommissioning (Habitats)

4.6.2.93 The decommissioning effects of the onshore export cable are deemed to be similar to those of construction. As such, refer to sections of the construction phase for mitigation.

Protected Mammal VERs

Otter

Construction (Otter)

4.6.2.94 Baseline results (Section 4.6.1) confirm that otters inhabit the River Deveron and its tributaries. The following mitigation will be implemented to minimise effects on this species:

- Cover all excavations (trenches, trial pits, and pipelines) when not in use to prevent entry by otters;
- Where excavations cannot be covered, provide a means of escape (e.g. a plank);
- Avoid night working where possible;
- When night working cannot be avoided, lighting will be shuttered and focussed on the work area only, and directed away from watercourses using beam-deflectors to minimise light spill. Lighting will be kept to an absolute minimum of 100 m from holts or other resting places;
- Works within 100 m of holts or other resting places will cease 1hr before dusk and commence 1 hour after dawn to minimise disturbance during otters' main activity times;
- Adhere to SEPA's PPGs, especially in relation to the safe storage of fuel, oils and chemicals, these will be stored 10 m away from watercourses in bunded containers; and
- Speed limits will be restricted to 20 mph to minimise risk of collision with otters. This should be reduced to 15 mph within 25 m either side of any mammal paths identified by the ECoW as likely to be used by otters and which cross watercourses.

Operation (Otter)

4.6.2.95 The proposed mitigation outlined above in relation to construction will also apply during operation.

Decommissioning (Otter)

4.6.2.96 The decommissioning impacts of the onshore export cable are deemed to be similar to those of construction. As such, refer to sections of the construction phase for mitigation.

4.6.2.97 The implementation of the above measures with regards to potential effects on otters throughout all stages of the development will reduce these to a level of **minor significance** as the effect magnitude is anticipated as low.

Badger

Construction (Badger)

4.6.2.98 Baseline results (Section 4.6.1) confirm that badgers inhabit the OnTI. In accordance with SNH guidelines, construction cannot take place within 30 m of a badger sett without a development licence. If sett(s) cannot be avoided by micro-siting, they should be destroyed under license outside the badger breeding season (30 November to 1 July). An ECoW will be employed to ensure no significant effects on badgers occur, and that works are conducted in accordance with best practice. Sett location will be checked prior to construction. Toolbox talks will be given to construction staff and an emergency protocol given to contractors in the event of encountering a badger or sett. If new sett(s) are found within 30 m of the

construction footprint, micro-siting or an application to SNH will be required. The following mitigation is proposed to minimise effects on this species:

- Impose protection zones 30 m from sett(s) and mark with brightly coloured tape;
- Excavations more than 0.5 m deep will be fenced or covered when not in use to prevent entry by badgers;
- Pipes of diameter >20 cm will be capped nightly to prevent entry by badgers;
- Avoid night working where possible;
- When night working cannot be avoided, lighting will be shuttered and focussed on the work area only using beam-deflectors to minimise light spill. Lighting will be kept to an absolute minimum of 100m from sett(s);
- Works within 100 m of sett(s) will cease 1hr before dusk and commence 1hr after dawn to minimise disturbance during badgers' main activity times;
- Adhere to SEPA's PPGs, especially in relation to the safe storage of fuel, oils and chemicals; and
- Speed limits will be restricted to 15 mph to minimise the risk of collision with badgers.

Operation (Badger)

4.6.2.99 The proposed mitigation outlined above in relation to construction will also apply during operation.

Decommissioning (Badger)

4.6.2.100 The decommissioning effects of the onshore export cable are deemed to be similar to those of construction. As such, refer to sections of the construction phase for mitigation.

4.6.2.101 The implementation of the above measures with regards to potential effects on badgers throughout all stages of the development will reduce these to a level of **minor significance** as the effect magnitude is anticipated as low.

Red Squirrel

Construction (Red Squirrel)

4.6.2.102 Baseline results (Section 4.6.1) confirm that red squirrels inhabit the OnTI. Pre-construction surveys will be undertaken to assess all areas where felling of forestry is required for the presence of squirrel dreys. In accordance with SNH guidelines, felling of trees surrounding red squirrel dreys will leave a residual buffer of 10m of forestry. An escape route to allow individuals to move to areas out with those of construction or disturbance will be left. An ECoW will be employed to ensure no significant effects on red squirrels occur, and that works are conducted in accordance with best practice.

Operation (Red Squirrel)

4.6.2.103 The proposed mitigation outlined above in relation to construction will also apply during operation.

Decommissioning (Red Squirrel)

4.6.2.104 The decommissioning impacts of the OnTI are deemed to be similar to those of construction. As such, refer to sections of the construction phase for mitigation.

4.6.2.105 The implementation of the above measures with regards to potential effects on red squirrels throughout all stages of the development will reduce these to a level of **negligible-minor significance** as the effect magnitude is anticipated as **low-negligible**.

Water vole

Construction (Water vole)

4.6.2.106 Baseline results (Section 4.6.1) confirm that water voles inhabit the OnTI in areas of suitable habitat surrounding watercourses. Prior to construction within any habitat suitable for the species, pre-construction surveys should be undertaken by the ECoW to ensure water voles are not present. Where water voles are found, micro-siting of the cable route will be employed under the supervision of the ECoW to create a 10 m buffer between construction areas and those occupied by the species. All construction works will adhere to SEPA's PPGs, especially in relation to the safe storage of fuel, oils and chemicals, these will be stored 10 m away from watercourses in bunded containers

Operation (Water vole)

4.6.2.107 The proposed mitigation outlined above in relation to construction will also apply during operation.

Decommissioning (Water vole)

4.6.2.108 The decommissioning effects of the OnTI are deemed to be similar to those of construction. As such, refer to sections of the construction phase for mitigation.

4.6.2.109 The implementation of the above measures with regards to potential effects on water vole throughout all stages of the development will reduce these to a level of **negligible-minor significance** as the effect magnitude is anticipated as **low-negligible**.

Bat Roost and Habitat Suitability VERs

4.6.2.110 The bat roost and habitat suitability assessment aimed to inform future, targeted baseline field surveys for bats. These surveys defined:

- Potential roosts in trees which may need to be felled; and
- Key commuting or foraging areas that may be subject to significant disturbance, e.g. where hedgerows, woodland or trees may be removed.

4.6.2.111 Pre-construction targeted field surveys for bats will be undertaken when a precise cable route has been designed. Given that construction is not due to commence until 2016, such surveys will be undertaken within an appropriate time period preceding commencement.

4.6.2.112 Targeted surveys will be undertaken during bats' active season, between May and September inclusive. Key periods for survey within this are maternity (June-July), when nursery colonies are most vulnerable and detectable, and dispersal-mating (August-September) when bats move to different roosts and males set up courtship roosts. Survey methods should include use of Anabat or similar passive remote bat detectors, dawn and dusk commuting watch surveys, tree inspections to assess roost potential and walked transects with detectors to establish bat use of any higher value habitat affected. Control surveys will gather reference data from nearby habitat to permit the effective interpretation of the survey data and guide mitigation. In a few cases internal and external building inspections may be required if a building lies very close to the cable route where a roost could be significantly

disturbed by works; such buildings may require dawn re-entry surveys to prove roosts, or dusk surveys to prove numbers and species. Hedges and trees should be maintained in their original condition as much as possible. Trees which have roosts or high risk of roosts may need climbing surveys, or exclusion under licence.

4.6.2.113 The implementation of the above measures with regards to potential effects on bat species will reduce these to a level of **negligible-minor significance** as the effect magnitude is anticipated as **low - negligible**.

4.6.3 Cumulative Impact Assessment

Summary

4.6.3.1 A summary of the likely significant cumulative effects is provided in Table 4.6-11. None of the individual effects on VERs identified in Section 4.6.2 were considered to increase due to potential cumulative effects, and hence no additional mitigation is required. In general terms it is considered that there is limited potential for cumulative effects to occur.

Table 4.6-11. Cumulative Impact Summary

Effect	Residual Significance Level for Modified OnTI	Whole Project Assessment: Modified TI +Telford, Stevenson and MacColl	Mitigation Method
<i>Terrestrial breeding birds</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment (Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Coastal wintering birds</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment (Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Wet modified bog</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment (Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Semi-improved and unimproved neutral grassland</i>	Negligible	Minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment (Whole project plus those developments listed in Table 4.6-12)</i>	Minor effect. Not significant.		

Effect	Residual Significance Level for Modified OnTI	Whole Project Assessment: Modified TI +Telford, Stevenson and MacColl	Mitigation Method
<i>Running and standing water</i>	Minor	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Minor effect. Not significant.		
<i>Marshy grassland</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Waterbodies</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Plantation and semi-natural woodlands</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Arable land</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Improved grassland</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		

Effect	Residual Significance Level for Modified OnTI	Whole Project Assessment: Modified TI +Telford, Stevenson and MacColl	Mitigation Method
<i>Tall ruderal herb and fern</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment (Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Amenity Grassland</i>	Negligible	Minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment (Whole project plus those developments listed in Table 4.6-12)</i>	Minor effect. Not significant.		
<i>Dense / Scattered Scrub</i>	Negligible	Minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment (Whole project plus those developments listed in Table 4.6-12)</i>	Minor effect. Not significant.		
<i>Otter</i>	Minor	Negligible-minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment (Whole project plus those developments listed in Table 4.6-12)</i>	Minor effect. Not significant.		
<i>Badger</i>	Minor	Negligible-minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment (Whole project plus those developments listed in Table 4.6-12)</i>	Minor effect. Not significant.		
<i>Red Squirrel</i>	Negligible-minor	Negligible-minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment (Whole project plus those developments listed in Table 4.6-12)</i>	Negligible-minor effect. Not significant.		

Effect	Residual Significance Level for Modified OnTI	Whole Project Assessment: Modified TI +Telford, Stevenson and MacColl	Mitigation Method
<i>Water Vole</i>	Negligible-minor	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible-minor effect. Not significant.		
<i>Bat Roost and Habitat Suitability</i>	Negligible-minor	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible-minor effect. Not significant.		
<i>Terrestrial Breeding Birds</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Coastal Wintering Birds</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Wet Modified Bog</i>	Negligible	Negligible	None required
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Semi-improved and Unimproved Neutral Grasslands</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Watercourses and Standing Water</i>	Negligible	Negligible	None required beyond standard best practice

Effect	Residual Significance Level for Modified OnTI	Whole Project Assessment: Modified TI +Telford, Stevenson and MacColl	Mitigation Method
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Marshy Grassland</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Waterbodies</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Plantation and Semi-Natural Woodlands</i>	Negligible	Negligible	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible effect. Not significant.		
<i>Arable Land</i>	Negligible	Minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Minor effect. Not significant.		
<i>Improved Grassland</i>	Negligible	Minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Minor effect. Not significant.		
<i>Tall Ruderal Herb and Fern</i>	Negligible	Negligible-Minor	None required beyond standard best practice

Effect	Residual Significance Level for Modified OnTI	Whole Project Assessment: Modified TI +Telford, Stevenson and MacColl	Mitigation Method
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible-minor effect. Not significant.		
<i>Amenity Grassland</i>	Negligible	Negligible-Minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible-minor effect. Not significant.		
<i>Dense / Scattered Scrub</i>	Negligible	Negligible-Minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible-minor effect. Not significant.		
<i>Otter</i>	Minor	Minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Minor effect. Not significant.		
<i>Badger</i>	Minor	Minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Minor effect. Not significant.		
<i>Red Squirrel</i>	Negligible-Minor	Negligible-Minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible-minor effect. Not significant.		
<i>Water Vole</i>	Negligible-Minor	Negligible-Minor	None required beyond standard best practice

Effect	Residual Significance Level for Modified OnTI	Whole Project Assessment: Modified TI +Telford, Stevenson and MacColl	Mitigation Method
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible-minor effect. Not significant.		
<i>Bat Roost and Habitat Suitability</i>	Negligible-Minor	Negligible-Minor	None required beyond standard best practice
<i>Total Cumulative Impact Assessment</i> <i>(Whole project plus those developments listed in Table 4.6-12)</i>	Negligible-minor effect. Not significant.		

Assessment of Cumulative Effects

Methodology

- 4.6.3.2 This section presents the results of assessment of the potential cumulative effects upon Terrestrial Ecology (including ornithology) arising from the modified OnTI in conjunction with other existing or reasonably foreseeable developments and activities. A whole project assessment has also been undertaken for the likely significant cumulative effects of the modified TI in conjunction with the three consented wind farms (Telford, Stevenson and MacColl).
- 4.6.3.3 MORL's approach to the assessment of cumulative effects is described in Chapter 1.3: Environmental Impact Assessment and methodology used in this chapter has followed that outlined in the Moray Firth Offshore Wind Developers Group Discussion Document (ERM, 2011; see Appendix 1.3 D).
- 4.6.3.4 The scope of cumulative effects assessment for Terrestrial Ecology and Ornithology considered planned developments which match the following criteria:
- Within 5 km of the onshore cable route;
 - For which sufficient information was available e.g. an Environmental Impact Assessment;
 - Those which are current (expired applications were excluded); and
 - Those which are live (withdrawn or refused applications were excluded).
- 4.6.3.5 The scope of cumulative effects assessment highlighted that no planned developments were required to be considered for potential cumulative effects on the VERs identified within Table 4.6-11. The developments and activities considered at the scoping stage of the cumulative impact assessment are listed in Table 4.6-12 below for clarity.

Table 4.6-12. Cumulative Impact Assessment Scope – Developments and Activities

Name	Details	Evidence	Planning Status	Construction Timescale
Cairhill Farm (Turriff, Aberdeenshire, AB53 5TN)	Erection of 3 no Wind Turbines and Infrastructure. Application received 2007.	No significant impacts during the operational phase on relevant VERS.	Operational	N/A
Gairnieston Farm (Turriff, AB53 5RP)	Erection of Wind Turbine and Associated Infrastructure (1 turbine). Application received 2007.	Impacts on ornithological interests relate to collision risk therefore not relevant to this proposal. No significant impacts on any other relevant VERS.	Operational	N/A
Backhill of Yonderton (Craigston, Turriff AB53 5PT)	Erection of 2 no. Enercon E70 2.3 MW (4.6 MW) Wind Turbines on 64 m masts (Total Height 99.5 meters) and associated infrastructure. Application received 2010.	Very low significance of impacts on mammal species. No significant impacts on any other relevant VERS.	Approved	Duration 3 – 5 Months. No start date confirmed.
South Colleonard (Banff, AB45 3TP)	Full Planning Permission for Erection of 1 no. Wind Turbine, Hub Height 55.6 metres (Total Height 79.6 metres) and Associated Infrastructure. Application Received 2012.	No significant impacts on any relevant VERS.	Pending	No information available.
Knock Thunder Farm (Fiskaidly, Banff AB45 3AB)	Erection of 1 no. turbine of 77 m height and substation plus associated infrastructure. Application submitted 2013.	No significant impacts on any relevant VERS.	Pending	No information available.

Name	Details	Evidence	Planning Status	Construction Timescale
Overhead Line Deviation (Upper Mains of Asleid Turriff)	Overhead line deviation. Application submitted 2004	No impact assessment prepared – insufficient information.	Approved	No information available.
Overhead Line (Sprotyneuk, New Deer, Turriff, Aberdeenshire, AB53 6XX)	Erection of 11kV Overhead Line (Retrospective). Application submitted 2006.	No impact assessment prepared – insufficient information.	Approved	N/A
33 KV Line (Land at Strath of Brydock, Banff)	Installation of 33 KV Line. Application Granted 2008.	No impact assessment prepared – insufficient information.	Approved	No information available.
Reinforcement and Reinsulation of Existing Overhead Electricity Transmission Line (Land Rothienorman T Junction to Peterhead 275kV Electricity Sub Station)	Notification under Electricity Act 1989 for Section 37 Notification for Reinforcement and Reinsulation of Existing Overhead Electricity Transmission Line to Upgrade Voltage from 275kV to 400kV. Application granted 2013.	No significant impacts on any relevant VERS.	Approved	Works anticipated to commence 2016-2018.
Cairnhill Farm (Turiff, AB53 5TN)	Installation of 2.4 MW Solar Farm comprising PV Panels and Associated Infrastructure. Application granted 2013.	No significant impacts on any relevant VERS.	Approved	Duration: 2-3 weeks. No start date confirmed.

4.6.3.6 No further consideration of cumulative impacts is given within this chapter.

Habitats Regulations Appraisal

4.6.3.7 Habitats regulations appraisals (HRAs) seek to evaluate the likely significant effect that any development might have on a European designated site within its proximity (i.e. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)). The assessment will evaluate the designating features of a site and the likely significant effects that a development might have on these.

4.6.3.8 For the purposes of the modified OnTI, an HRA of any designated site surrounding the development is not required. SNH in their scoping response (Table 4.6-1) detailed that the route is not expected to impinge on any ornithological designated sites, and no sites of ecological designation are in close enough proximity to be affected by the route (i.e. there is no ecological links with any of the SACs within the surrounding area).

4.6.4 References

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