Biological Environment

Appendix 6A: Original Ecological Surveys (2012/13)

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Glossary

Application Site	The area within the red line planning boundary comprising the Onshore Transmission Works (OnTW), as defined.
Consented Offshore Transmission Works (OfTW)	Offshore substation platforms and their foundations and substructures, interconnector cables and offshore export cables, as consented by the Scottish Ministers on 10 October 2014.
Consented Offshore Wind Farm	Wind turbine generators and their foundations and substructures, and inter-array cables., as consented by the Scottish Ministers on 10 October 2014.
Construction Compound	An indicative area within the Application Site used to accommodate the temporary work site including; construction parking, construction welfare facilities, construction meeting room, construction laydown and storage area, construction security facilities (fenced area/gate and security access) and construction security lighting.
Crepuscular	Derived from the Latin *crepusculum*, meaning "twilight". Crepuscular animals are those that are active primarily during twilight (i.e. dawn and dusk).
EIA Report	Report presenting the findings of the Environmental Impact Assessment (EIA).
ICOL's Offshore Transmission Works (OfTW)	Offshore substation platforms (OSPs) and their foundations and substructures, interconnector cables and Offshore Export Cables. This refers to either the Consented OfTW or Revised OfTW, as defined.
ICOL's Offshore Wind Farm	This includes proposed wind turbine generators, foundations and substructures and inter-array cables. This refers to either the Consented Offshore Wind Farm or Revised Offshore Wind Farm, as defined.
Judicial Review	Court proceeding in which a judge reviews the lawfulness of a decision or action made by a public body.
Landfall	Point where up to two Offshore Export Cables from ICOL's Offshore Wind Farm will be brought ashore.
Offshore Export Cable	The subsea, buried or protected electricity cables running from ICOL's Offshore Wind Farm offshore substation to the Landfall and from the Landfall to the Onshore Substation.
Onshore Export Cables	Electricity cables from the Onshore Substation to the grid connection point.
Onshore Export Cable Corridor	The area within the Application Site where the proposed Onshore Export Cables will be laid.
Onshore Substation	The electrical substation comprising of all the equipment and associate infrastructure required to enable connection to the electrical transmission grid.
Onshore Substation Site/Substation Site	The indicative area within the Application Site where the Onshore Substation and screening will be located.

Onshore Transmission Works (OnTW)	All proposed works within the Application Site, typically including the Onshore Substation, cables transition pits, cable jointing pits, underground electricity transmission cables connecting to the Onshore Substation and further underground cables required to facilitate connection to the national grid. This includes all permanent and temporary works required. See *Chapter 5: Description of Development* for full details.
Original Application Site	The area within the red line planning boundary comprising the Original OnTW, as defined.
Original Onshore Substation	The electrical substation comprising of all the equipment and associate infrastructure required to enable connection to the electrical transmission grid as was granted planning permission in principle in September 2014, under ELC reference 14/00456/PPM.
Original OnTW	The OnTW, as was granted planning permission in principle in September 2014, under ELC reference 14/00456/PPM.
Original OnTW EIA	The Environmental Impact Assessment (EIA) that was prepared to support the planning application for the Original OnTW and reported in the Original OnTW ES, as defined.
Original OnTW ES	The Environmental Statement (ES) that was submitted to support the application for the Original OnTW in 2014.
Revised Offshore Transmission Works (OfTW)	Offshore substation platforms and their foundations and substructures, interconnector cables and Offshore Export Cables, as per the scoping report submitted to Marine Scotland Licensing Operations Team on behalf of the Scottish Ministers in April 2017.
Revised Offshore Wind Farm	Wind turbine generators and their foundations and substructures, and inter-array cables, as per the scoping report submitted to Marine Scotland Licensing Operations Team on behalf of the Scottish Ministers in April 2017.
Scoping Report	Report prepared as the first stage of the EIA process in support of a request for a Scoping Opinion from East Lothian Council, under Regulation 17 of the EIA Regulations. The Report was submitted in July 2017.

Abbreviations and Acronyms

BoCC	Birds of Conservation Concern
BTO	British Trust for Ornithology
CBC	Common Bird Census
GIS	Geographic Information System
ICOL	Inch Cape Offshore Ltd.
JNCC	Joint Nature Conservation Committee
OnTW	Onshore Transmission Works
SBL	Scottish Biodiversity List
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SSSI	Site Specific Scientific Interest

6A Ecological Surveys

6A.1 Introduction

1 Prior to the identification of the preferred Landfall, Inch Cape Offshore Limited (ICOL) was investigating a number of potential options along the East Lothian coastline. As a result, initial site specific surveys covered a much larger area than that which is now under consideration, extending for approximately 10 km between Musselburgh in the west to Longniddry in the east and at least 1.5 km inland. The now defined Application Site is located in the centre of this wider survey area.

2 All of the site specific surveys which were undertaken for the Onshore Transmission Works (OnTW) were conducted between February 2012 and April 2014. The Extended Phase 1 Habitat Survey and bird surveys were undertaken within the wider area described above but covered the Application Site and a surrounding buffer of at least 500 m, where access permitted. The anticipated distance out to which the potential impacts of the OnTW might extend is unlikely to be beyond 500 m. Therefore, with the exception of the intertidal and Near-Shore Bird Surveys and the Barn Owl Surveys, only the field survey data collected within 500 m of the Application Site is described below.

3 The protected species surveys were undertaken after the definition of the Application Site, and included and extended up to 250 m from the Application Site, as detailed below in *Section 7A.3*. Therefore, with the exception of the Intertidal and Near Shore Bird Surveys and the Barn Owl Surveys, where consideration is given to at least 1 km from the Application Site, only the field survey data collected within 500 m of the Application Site has been described below.

6A.2 Extended Phase 1 Habitat Survey

6A.2.1 Methods

4 An Extended Phase 1 Habitat Survey was carried out between the 23 and 24 August 2012. The survey followed the Joint Nature Conservation Committee's (JNCC) Phase 1 Habitat Survey guidelines (JNCC, 1990) and aimed to identify the broad habitat types and dominant floral communities within the survey area which included the Application Site and a surrounding buffer of at least 500 m, as shown on Figure 7A.1.

5 The survey also aimed to identify signs of, and habitat capable of supporting legally protected species such as otters, badgers, bats and water voles as well as identify the presence of invasive plant species subject to legal control such as Japanese knotweed and giant hogweed.

6 Residential and industrial areas were excluded from the survey area and access to the Cockenzie coal store and farmland to the east of the Application Site was not permitted. Nonetheless, it was still possible to identify and map these broad habitats within these areas from outwith those areas of land.

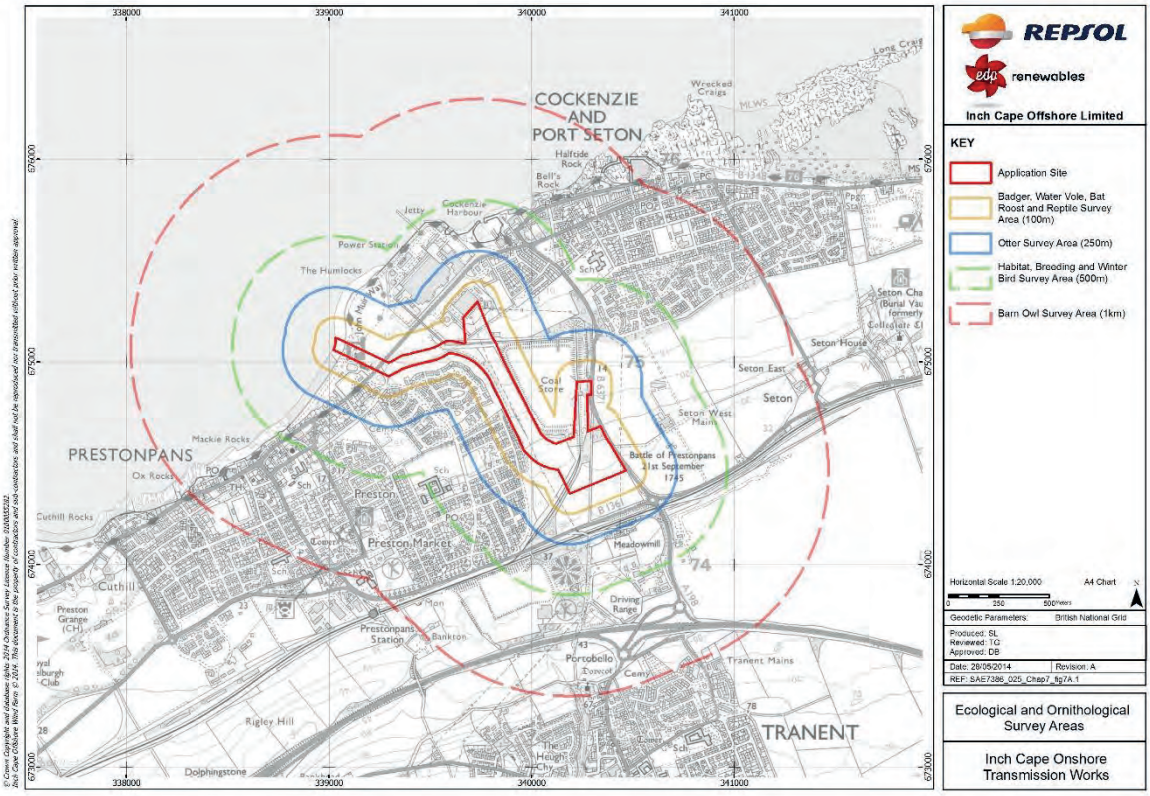

Figure 6A.1: Ecological and Ornithological Survey Areas

6A.2.2 Results

7 The results of the Extended Phase 1 Habitat Survey, for the Application Site and a 500 m buffer, are presented on Figure 7A.2.

8 The Extended Phase 1 Habitat Survey identified that the majority of the Application Site comprises locally common terrestrial habitats including amenity and species-spoor semi improved grassland interspersed with tall ruderal (i.e. early successional) vegetation, scattered scrub and immature self-seeded trees.

9 The intertidal habitat at the Landfall comprises a rock and boulder shoreline which is part of the Firth of Forth Special Protection Area (SPA), Wetland of International Importance (Ramsar site) and Site of Special Scientific Interest (SSSI); a complex of protected sites which contains a variety of coastal and estuarine habitats which attract large numbers and a wide variety of over-winter and passage wetland birds (waders and waterfowl). The shoreline is backed by an earth coastal defence embankment along the Mean High Water Springs mark with concrete-set boulders along the foot for reinforcement.

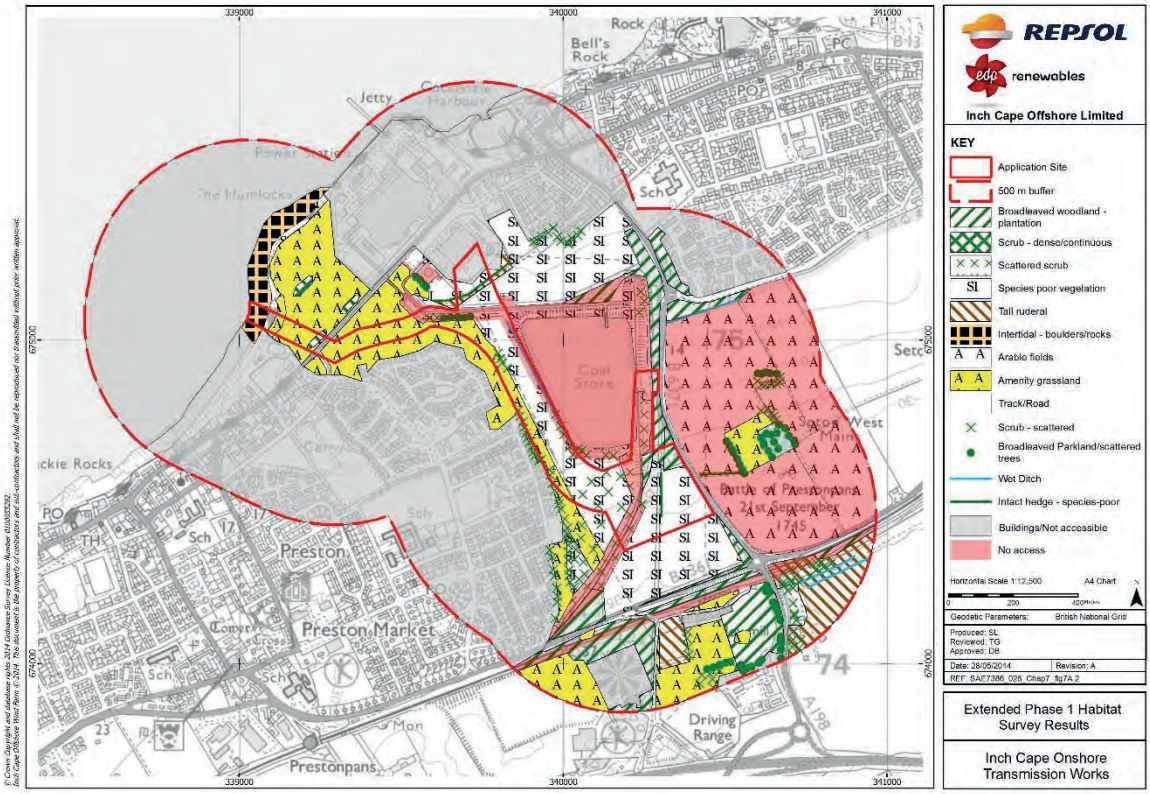

Figure 6A.2: Extended Phase 1 Habitat Survey Results

10 Behind that lies Preston Links; a large open area of public land dominated by amenity grassland with small patches of scrub dominated by sea buckthorn (*Hippophae rhamnoides*) and young sycamore trees (*Acer pseudoplatanus*) which is located to the west and south of the Cockenzie Power Station. The Onshore Export Cable Corridor passes due east through this area of amenity grassland before being routed due south east along a corridor, approximately 100 m wide, of land between the residential properties at the eastern extent of Prestonpans and the western margin of the Cockenzie coal store. This corridor comprises a mixture of amenity grassland to the west, and species-poor semi-improved grassland dominated by false oat grass (*Arrhenatherum elatius*), cocksfoot (*Dactylis glomerata*) and perennial rye grass (*Lolium perenne*) to the east, interspersed with tall ruderal vegetation and scattered hawthorn (*Crataegus monogyna*) and naturally seeded willow (*Salix* sp.) scrub.

11 To the south of the Cockenzie coal store, the Onshore Export Cable Corridor is routed due east where it continues until it connects with the Onshore Substation Site. This sits within a roughly square area of the Application Site. The land comprises an extension of the species-poor semi-improved grassland described above, interspersed with willow scrub and arable fields which are intersected by the Cockenzie branch line railway (referred to hereafter as the 'railway line'). The railway line is fringed by species-poor semi-improved grassland, tall ruderal vegetation and scattered scrub. The north east corner of this Section of the Application Site includes the southern extent of a strip of mature broad-leaved plantation woodland dominated by sycamore, wych elm (*Ulmus glabra*) and hawthorn and occasional beech (*Fagus*

sylvatica), ash (*Fraxinus excelsior*), wild cherry (*Prunus avium*) and elder (*Sambucus nigra*). Access to the Application Site will be via an upgrade to the existing access from the B6371. The habitats within this part of the Application Site include species-poor semi-improved grassland associated with the bunds which encompass the Cockenzie coal store and broad-leaved plantation woodland.

12 The habitats surrounding the Application Site are dominated by arable farmland, the near shore coastal waters of the Firth of Forth and residential areas of Prestonpans and Cockenzie as well as the Cockenzie Power Station and its coal store. There are also small patches of broad-leaved plantation woodland and species-poor semi-improved grassland associated with the north west corner of the former Blindwells Coal Site, located to the south east of the Application Site.

13 The only watercourses within the survey area are minor drainage ditches associated with the Cockenzie coal store and the farmland to the east of the Application Site. However, access to the land associated with these ditches was not permitted during the Extended Phase 1 Habitat Survey to allow detailed inspections of their condition. In addition, the only area of standing water in close proximity to the Application Site is a pond associated with the farmland to the east of the Application Site to which access was also denied.

14 During the Extended Phase 1 Habitat Survey it was noted that the wooded areas within the survey area have some, albeit low, potential to support badgers and bats. However, no evidence of badgers was found during the survey and no trees with obvious potential to support roosting bats were identified during the high level ground-based inspections of the survey.

15 There is limited habitat within the Application Site and surrounding area which may be suitable for otters and water voles. Although the minor drainage ditches associated with the Cockenzie coal store and the farmland to the east of the Application Site were not accessible during the survey, map inspections show these to be short in extent and highly fragmented and therefore unlikely to be suitable for either species. The coastal habitats associated with the Landfall however, are thought to present foraging opportunities for otters, such as crabs and small fish, although there are negligible shelter opportunities for the species along the shore.

16 The Extended Phase 1 Habitat Survey also identified suitable habitat for common reptiles such as common lizard and slow worm, associated with the railway line. However, it is concluded that the potential for reptiles to be present is low-moderate based on the railway line's partial isolation from other areas of potentially suitable habitat.

17 As mentioned above, access to the only pond within the survey area was denied and so it was not possible to assess its potential to support great crested newts. However, even if it were to support great crested newts it is considered unlikely that the species would be present within the Application Site. This is based on the distance of the pond from the Application Site (approximately 300m) since great crested newts typically remain within 250 m of the breeding pond (English Nature, 2004), the low suitability of the arable farmland habitat which connects

the pond to the Application Site, and the segregation of the pond from the Application Site by the relatively busy B6371.

18 No plant species which are subject to legal control were identified within the Application Site or surrounding 500 m buffer during the survey.

6A.3 Protected Species Surveys

6A.3.1 Methods

19 Given the identification of potentially suitable habitat for otters, bats, badgers, reptiles and possibly water voles within and immediately adjacent to the Application Site during the Extended Phase 1 Habitat Survey, a protected species survey was undertaken to confirm the presence or likely absence of these species.

20 The protected species survey was undertaken on 2 May 2014 and included all areas of potentially suitable habitat identified during the Extended Phase 1 Habitat Survey within the Application Site and a surrounding buffer of up to 250 m, where access was permitted. Areas which were not accessible included the Cockenzie coal store within which potentially suitable habitat for badger, bats, otter, water vole and reptiles existed, and the Cockenzie Power Station sub-station which may potentially provide roosting opportunities for bats, as well as areas of public land outwith the Application Site. However, it was possible to inspect some of the inaccessible areas from a short distance away (e.g. from outside of the perimeter fences), using binoculars, thereby allowing conclusions as to the potential presence or likely absence of certain species to be made.

Otters

21 Searches for evidence of the presence of otters included the shoreline habitats of the Firth of Forth SPA in the vicinity of the Landfall, as well as any other waterbodies, watercourses and minor ditches within 250 m of the Application Site boundary, where access permitted. The full extent of the otter survey area is presented in Figure 7A.1.

22 All such areas of potentially suitable otter habitat were inspected for field signs indicating the presence of the species as well as features which may be used as resting sites. Otter field signs are described in Bang and Dahlstrøm (2001) and Scottish Natural Heritage (SNH) (2008) and include resting sites (e.g. holts and couches), spraints, prints and feeding remains. Descriptions of these and other field evidence terms are provided below:

- **Holts** - these are underground features where otters live. They can be tunnels within banksides, underneath root-plates or boulder piles, and even the burrows of other species (e.g. badger setts (Jay et al. 2008 and SNH, 2001)) and man-made structures such as disused drains. Holts are used by otters to rest up during the day due to the crepuscular nature of their foraging activities and may be used as natal or breeding sites. Otters may use holts permanently or temporarily;

- **Couches** - these are above ground resting sites. Couches can be very difficult to identify, sometimes consisting of no more than an area of flattened grass or earth, and are best identified by the presence of other field signs (e.g. spraints);
- **Prints** - otters have characteristic footprints that can be found in soft ground and muddy areas;
- **Spraints** - otter faeces can be used to mark territories, often on in-stream boulders. They can be present within or outside the entrances of holts and couches. Spraints have a characteristic smell and often contain fish remains;
- **Feeding signs** - the remains of prey items may be found at preferred feeding stations. Remains of fish, crabs or skinned amphibians can indicate the presence of otter;
- **Paths** - these are terrestrial routes that otters take when moving between resting-up sites and watercourses, or at high flow conditions when they will travel along bank sides in preference to swimming; and
- **Slides and play areas** - slides are typically worn areas on steep slopes where otters slide on their bellies, often found between holts/couches and watercourses.

23 Any of these field signs are diagnostic of the presence of otters although spraints are the most reliably identifiable evidence of the species' presence. In the event that any resting sites were discovered, then an indication of their importance was recorded. This would be undertaken by evaluating spraint freshness, prints and paths or niche availability and quality of the feature.

24 Otters are active all year and so there is no optimal time of year in which to undertake otter surveys. However periods following heavy rainfall should be avoided as such events could wash away field evidence, potentially leading to under-recording or failure to confirm the species presence. Searches along the intertidal habitats of the Firth of Forth were conducted at low tide, when any otter field signs which might have been laid within the intertidal zone could have been detected.

Badgers

25 All areas of potentially suitable badger habitat, such as broadleaved and coniferous woodland and scrub, particularly those surrounding cultivated areas, and grass-covered embankments, within 100 m of the Application Site were inspected for signs indicating the presence of badgers, particularly setts, where access permitted. The full extent of the badger survey area is presented in Figure 7A.1.

26 Badger field signs are described in Neal and Cheeseman (1996), Bang and Dahlstrøm (2001), Natural England (2011) and SNH (2001) and include:

- **Setts** - den's used by badgers which can be sub-categorised into the following;
  - **Main setts**: several holes (sometimes up to 30) with large spoil heaps and obvious paths emanating from and between sett entrances;
  - **Annex setts**: Normally less than 150 m from the main sett, comprising several holes and usually with well defined runs connecting it to the main sett;

- **Subsidiary setts**: Normally fairly close to the main sett (at least 50 m away), typically comprising 3-5 entrances, generally with no tracks connecting them to other setts and only signs of occasional use; and
- **Outlier setts**: Typically consisting of just one or two entrances with little spoil outside the entrance holes, often with no obvious paths connecting them to other setts.

- **Latrines** - dung pits used as territorial markers;
- **Prints** - distinctive in shape;
- **Guard hairs** - these are distinctive in shape and colour and are often found snagged on wire fencing; and
- **Foraging signs** - snuffle holes and excavated wasp/bee nests.

27 Any of the above signs (with the exception of foraging signs) can be taken as diagnostic evidence of the presence of badger.

28 Badgers are active all year, but the optimal time to conduct surveys is November to April when vegetation is in senescence and has died back, thus making badger field signs more detectable. The timing of the survey at the very beginning of May is however not considered to be a limitation.

Water Voles

29 The aim of water vole surveys is to check all areas of suitable habitat such as watercourses, minor ditches and small waterbodies within at least 100 m (see Figure 7A.1) for signs of the species presence as described in Strachan and Moorhouse (2011). However, none of the potentially suitable habitat for water vole within the survey area were accessible during the survey. Where possible, such features were inspected from the closest accessible points (e.g. from behind perimeter fencing) to assess habitat suitability.

Bats

30 All mature trees and buildings within the Application Site and a surrounding buffer of 100 m were assessed for their potential to support roosting bats. The full extent of the bat roost assessment survey area is presented in Figure 7A.1. Any such features were assessed from ground level using close-focus binoculars to determine their suitability to support roosting bats and categorised based on the criteria outlined in Table 7A.1 which are taken from Hundt (2012).

Table 6A.1: Categories of Tree Bat Roost Potential

Tree Category	Description of typical features	Risk
Known or confirmed roost	Desk study or survey has confirmed the presence of a bat roost.	Confirmed

1*	Trees with multiple, highly suitable features capable of supporting larger roosts.	High
1	Trees with definite bat potential, supporting fewer suitable features than category 1* trees or with potential for use by single bats.	Medium
2	Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.	Low
3	Trees with no potential to support bats.	No risk

Reptiles

31 Visual searches and refuge surveys for reptiles were undertaken within the Application Site and a surrounding buffer of 100 m, according to the methods described in the (Edgar et al., 2010 and Froglife, 2010). The full extent of the reptile survey area is shown in Figure 7A.1. Visual searches involved inspecting potentially suitable habitat (such as sunny, sheltered locations used for basking) for the presence of reptiles. Refuge surveys involved investigating structures and objects which may also be used by reptiles for providing warmth and shelter. These may include stone walls, piles of rubble or wood and debris (such as corrugated iron sheets).

6A.3.2 Results

32 No evidence of any protected species was detected in the accessible areas of the survey area during the protected species survey.

33 The grass and scrub-covered bunds which surround the Cockenzie coal store were inspected from outside the perimeter fence and although some burrows were seen, these were considered to have been made by rabbits than by badgers.

34 No evidence of otters was discovered along the intertidal habitats of the Firth of Forth within the Application Site. There were no resting or shelter opportunities for the species along the shoreline within the Application Site. A ditch which runs along the western and southern margins of the Cockenzie coal store was inspected from outside the perimeter fence and was found to be heavily overgrown with grass and scrub and where visible, was dry. This was concluded to be wholly unsuitable for both otter and water vole.

35 None of the trees within the accessible areas of mature broadleaved woodland within the Application Site were found to possess potential to support roosting bats, nor was the existing Cockenzie Substation building which was observed from outside the perimeter fence.

36 Habitats associated with the railway line were confirmed as being suitable for common reptiles such as common lizard and slow worm although no individuals were detected during the limited visual inspections and refugia searches.

37 It was noted that the grassland habitats beyond the railway line were heavily disturbed by dog walkers, thus reducing the potential for many protected species to be present.

6A.4 Breeding Bird Surveys

6A.4.1 Methods

38 Breeding bird surveys were carried out in 2012 and followed a reduced-scope (three visits considered appropriate as opposed to the ten visits required for the full scope surveys) version of the Common Bird Census (CBC) methods of the British Trust for Ornithology (BTO) as described in Bibby et al. (2007), Gilbert et al. (1998), and (Marchant, 1983). This involved three visits undertaken between April and June. Surveys covered the Application Site plus a 500 m buffer as shown in Figure 7A.1. Survey visits were undertaken in good weather conditions (wind less than force 5 on the Beaufort Scale), beginning around sunrise.

39 During each visit, surveyors followed a route which brought them to within 50 m of all parts of the survey area and the behaviour of all birds seen or heard was recorded on large-scale (1:10,000) maps using standard BTO CBC coding and notation (Marchant, 1983).

40 All breeding bird survey records were entered into an ArcView Geographical Information System (GIS) Version 10.1. These were then analysed in order to identify minimum number of probable or confirmed breeding territories using the methods detailed in Bibby et al. (2007). This either involves the identification of clusters of registrations of birds of the same species displaying breeding characteristics (e.g. singing, nest building, mating) or food provisioning in the same general area over successive survey visits, or the discovery of an active nest (e.g. containing eggs or chicks). Given that the surveys comprised three visits over the breeding season, the minimum requirement for a cluster, and hence a probable breeding territory, to be defined was at least two registrations conforming to the above criteria recorded on separate survey visits conducted at least 10 days apart.

6A.4.2 Results

41 Table 7A.2 presents the results of the 2012 breeding bird surveys. A total of 34 species were recorded within the survey area during the breeding bird surveys. On analysis of the data however, only 15 of these were confirmed or probably holding breeding territories within the survey area, of which only six were breeding within the Application Site itself. The distribution of these territories within and surrounding the site is presented in Figure 7A.3. All other species were only recorded as present, and although some of these may have been breeding within the survey area, there was insufficient survey evidence to confirm this (e.g. non territorial species such as jackdaw and rook).

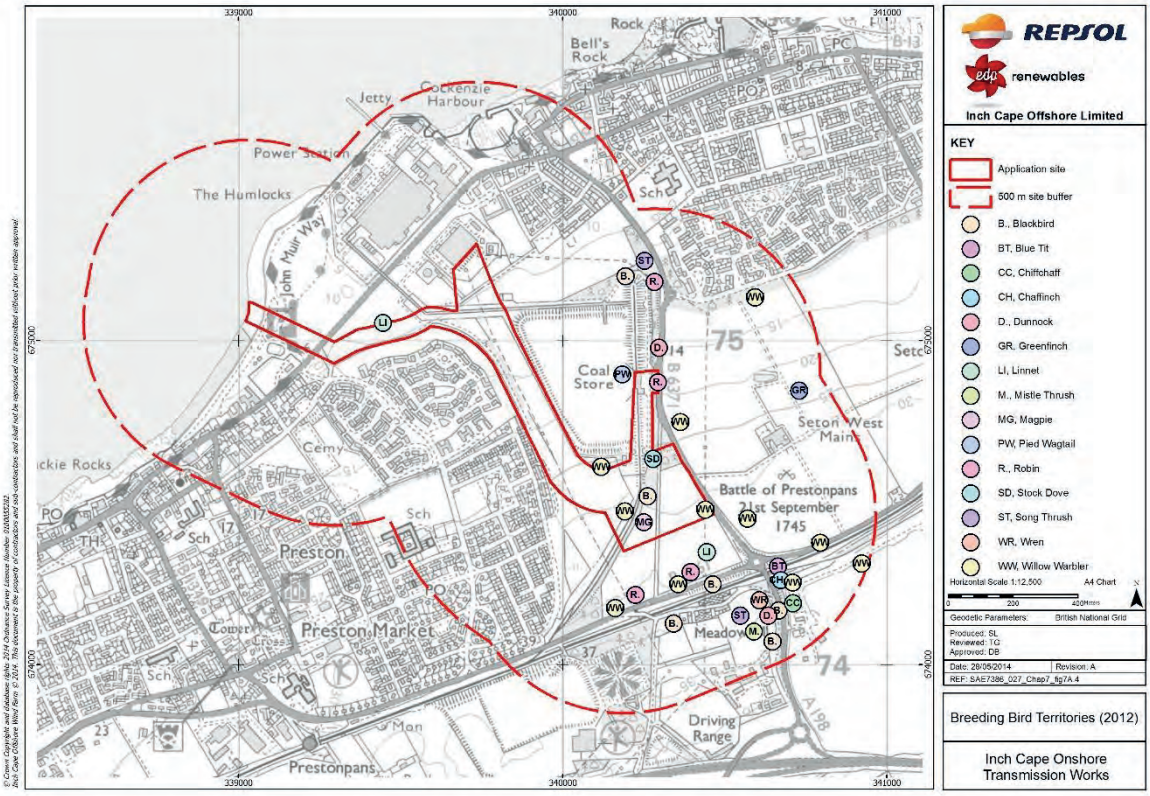

Figure 6A.3: Breeding Bird Territories

42 Of the 15 species which were confirmed to be holding breeding territories, only three were species of conservation concern. These included linnet, song thrush and dunnock, all of which held two territories. However, only linnet was found to hold a territory within the Application Site.

Table 6A.2: Results of the 2012 Breeding Bird Surveys

Species	Conservation/ Protection Status						Breeding Status	Estimated Number of Territories Within the Application Site	Estimated Number of Territories Within 500m of the Application Site
	Firth of Forth SPA & Ramsar Site Species	Firth of Forth SSSI	Schedule 1 Species	Annex 1 Species	Scottish Biodiversity List Species	Red-listed (BoCC)			
Blackbird							B	1	5
Blackcap							b	0	0
Blue tit							B	0	1

Species	Conservation/ Protection Status						Breeding Status	Estimated Number of Territories Within the Application Site	Estimated Number of Territories Within 500m of the Application Site
	Firth of Forth SPA & Ramsar Site Species	Firth of Forth SSSI	Schedule 1 Species	Annex 1 Species	Scottish Biodiversity List Species	Red-listed (BoCC)			
Buzzard							p	0	0
Chaffinch							B	0	1
Chiffchaff							B	0	1
Coal tit							b	0	0
Common gull							n	0	0
Curlew	✓	✓			✓		n	0	0
Dunnock					✓		B	0	2
Goldcrest							b	0	0
Goldfinch							p	0	0
Greenfinch							B	0	1
Herring gull					✓	✓	n	0	0
House martin							p	0	0
Jackdaw							p (NT)	0	0
Lesser black-backed gull							n	0	0
Linnet					✓	✓	B (NT)	1	1
Magpie							B	1	0
Mistle thrush							B	0	1
Moorhen							p	0	0
Oystercatcher	✓	✓					p	0	0
Pied wagtail							B	0	1
Reed bunting					✓		p	0	0
Robin							B	1	3

Species	Conservation/ Protection Status						Breeding Status	Estimated Number of Territories Within the Application Site	Estimated Number of Territories Within 500m of the Application Site
	Firth of Forth SPA & Ramsar Site Species	Firth of Forth SSSI	Schedule 1 Species	Annex 1 Species	Scottish Biodiversity List Species	Red-listed (BoCC)			
Rook							p (NT)	0	0
Song thrush					✓	✓	B	0	2
Starling						✓	p	0	0
Stock dove							b	1	0
Swallow							p	0	0
Swift							p	0	0
Willow warbler							B	7	29
Wren							B	0	1
Yellowhammer						✓	p	0	0

Notes:

Key to Breeding Status:

B = evidence of confirmed breeding

b = evidence of probable breeding

p = present in suitable habitat, otherwise no evidence of breeding

n = non-breeding (i.e. flying over or an obvious migrant)

NT = non-territorial species

6A.5 Inland Winter Walkover Bird Surveys

6A.5.1 Methods

43 A programme of inland winter walkover surveys was conducted between February and March 2012 and September 2012 and January 2013 and was designed to identify foraging and roosting grounds used by wetland birds associated with the Firth of Forth SPA, Ramsar site and SSSI as well as other species of conservation concern using the habitats of the survey area. These surveys focussed on open habitats of the Application Site and a surrounding buffer of 500 m, as shown on Figure 7A.2.

6A.5.2 Results

44 Table 7A.3 presents the results of the inland winter walkover surveys and only includes records of those birds which were observed actually using the habitats within the survey area (i.e. birds simply flying over the survey area were omitted as they were not using the habitats of the site – the aim of the survey).

45 A total of 47 species was recorded within the survey area. These included five qualifying species of the Firth of Forth SPA, Ramsar and SSSI (curlew, oystercatcher, lapwing, mallard and wigeon, Figure 7A.4A), one Annex 1 listed species (short-eared owl, Figure 7A.4B), two Schedule 1 protected species (fieldfare and redwing, Figure 7A.4B) and 15 Scottish Biodiversity List (SBL) and/or red-listed birds of conservation concern (BoCC) (Figure 7.4C).

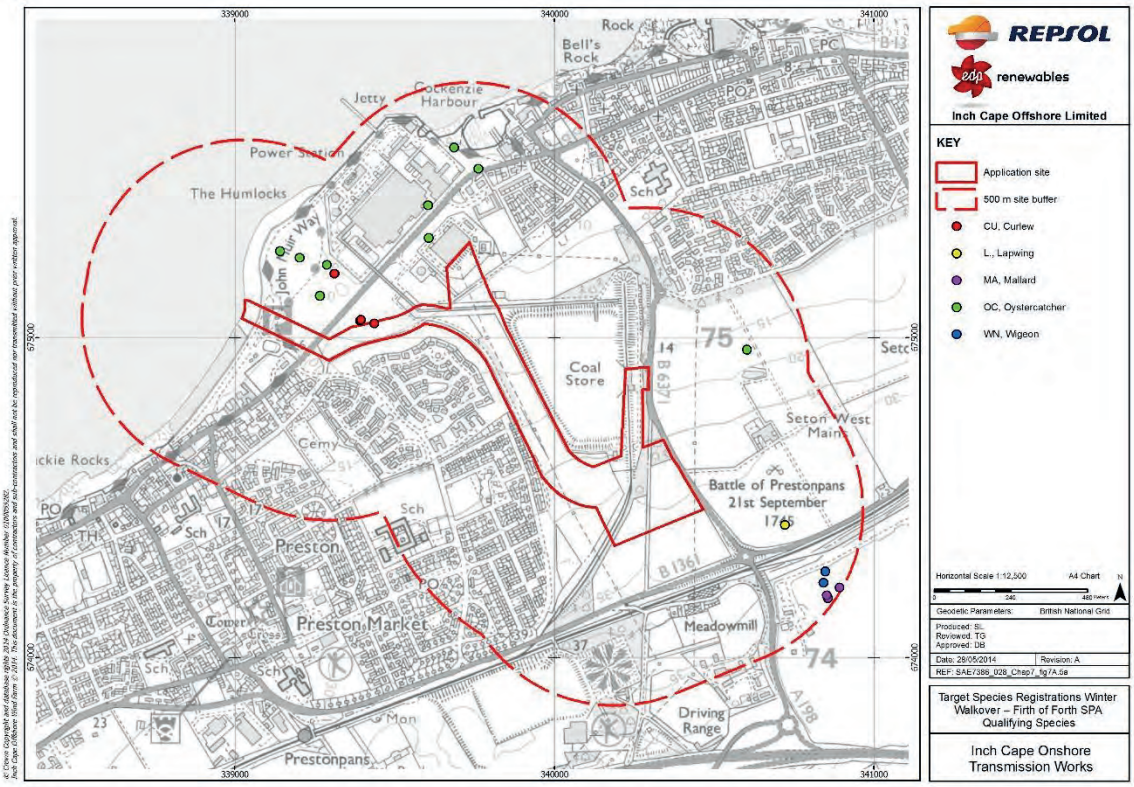

Figure 6A.4A: Winter Walkover Target Species Registrations - Firth of Forth SPA Qualifying Species

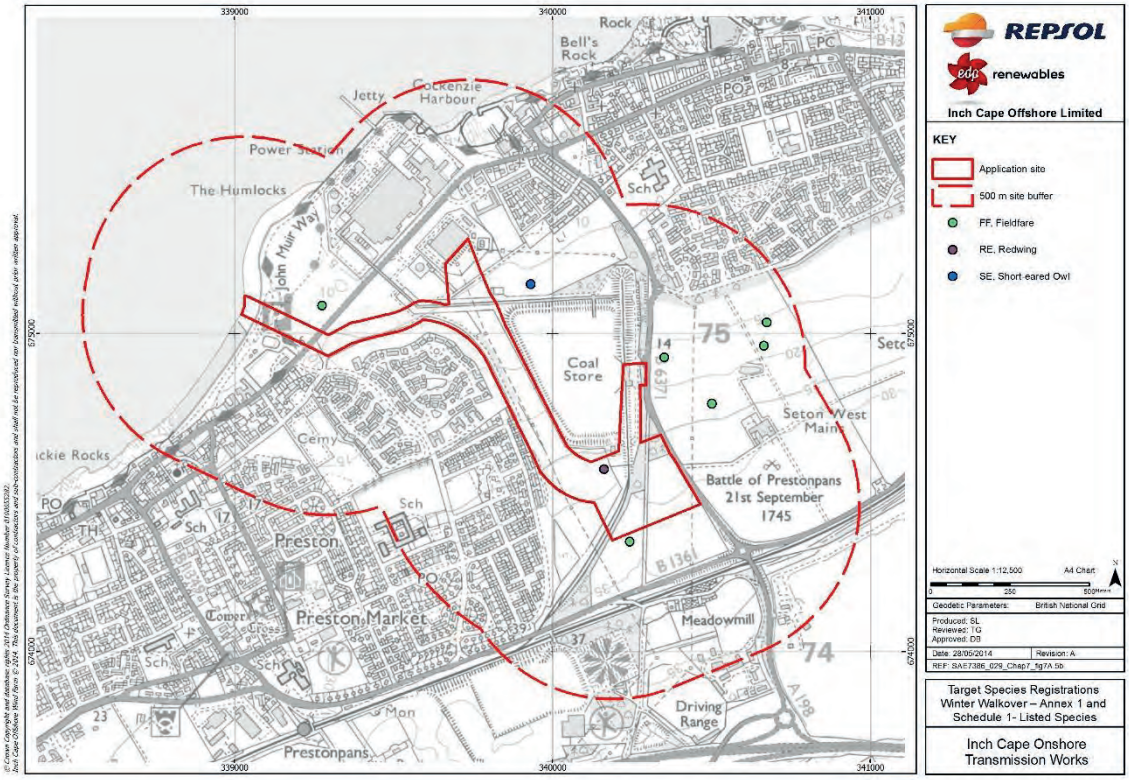

Figure 6A.4B: Winter Walkover Target Species Registrations - Annex I and Schedule 1-listed Species

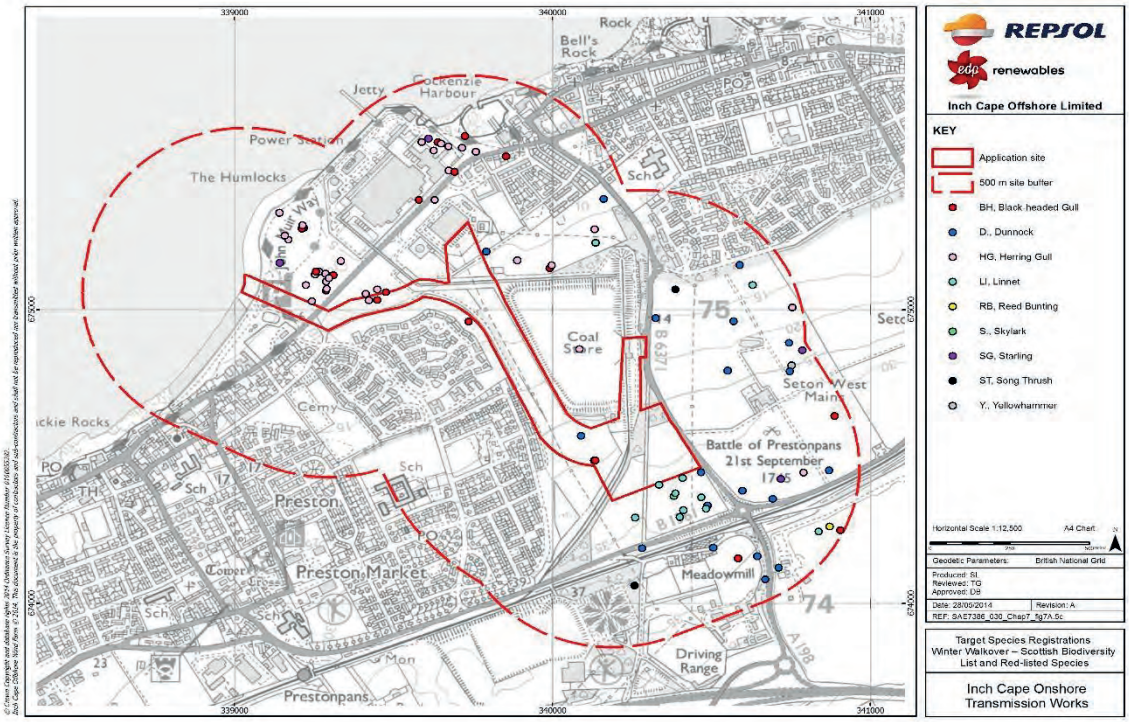

Figure 6A.4C: Winter Walkover Target Species Registrations - Scottish Biodiversity List and Red-listed Species

46 Of the five qualifying species, only mallard were ever recorded in numbers representing more than one per cent of their total Firth of Forth SPA, Ramsar Site and SSSI population. However, mallard were only recorded in two of the survey months (December 2012 and January 2013), with all the birds observed on a pond at the proposed Blindwells Settlement to the south of the Application Site. Curlew, oystercatcher, lapwing and wigeon were all recorded in low numbers relative to their respective Firth of Forth SPA populations. Furthermore, none of these species were recorded in every month of surveying, with lapwing only present on a single survey visit (January 2013) in a field to the east of the Application Site. Both curlew and oystercatcher were strongly associated with the grassland on Preston Links, to the west of Cockenzie Power Station, which represents suitable foraging habitat for these species. As with mallard, the two records of wigeon are from the proposed Blindwells Settlement to the south of the Application Site.

47 A pair of short-eared owls, which are listed on Annex 1 of the EU Birds Directive, were recorded on a single occasion in March 2012. The birds were observed over the grassland habitat between the town of Cockenzie and the Cockenzie coal store. Given the lack of records of this species during the 2012 Breeding Bird Surveys, it is likely that these birds were passing through on spring migration en route to their upland breeding grounds.

48 Both fieldfare and redwing are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Winter flocks of these species are mobile, as indicated by the irregular nature of their sightings during these surveys. The only record of a redwing was a single bird in the scrubby habitat in the southern part of the Application Site in November 2012. Fieldfares were recorded on several occasions in the arable and grassland habitats to the east and south of the Application Site but in very small numbers relative to their national wintering population.

49 Black-headed gulls, which are listed on the SBL were present in all but one survey month (September 2012). A peak count of 103 birds in January 2013 represents approximately 2.6 per cent of the Forth Estuary population of this species according to the BTO WeBS five year mean population estimate for the area (BTO, 2014). Similarly, herring gulls, which are red-listed and listed on the SBL, were present on four occasions in numbers representing more than one per cent of their estimated Forth Estuary population (BTO, 2014). However, the numbers of either species were low compared to their wintering populations. Lesser black-backed gulls were recorded both infrequently and in low numbers. Linnet were recorded in relatively large numbers in all but two months of surveying. Almost all observations of linnet were of birds in a fallow arable field to the south of the Application Site. It is likely that these birds were feeding on the seeds of the weed species growing at this location.

50 The remaining species which of conservation concern included skylark, dunnock, house sparrow, song thrush, reed bunting, starling and yellowhammer. These species are all common and widespread but are recognised as species of conservation concern due to national population declines as opposed to their rarity. All of these species were recorded in low numbers relative to their winter populations.

Table 6A.3: Results of the 2012/13 Inland Winter Walkover Bird Surveys

Species	Conservation/ Protection Status						2012		2013					Peak
	Firth of Forth SPA & Ramsar Site Species	Firth of Forth SSSI	Schedule 1 Species	Annex 1 Species	Scottish Biodiversity	Red-listed (BoCC)	Feb	Mar	Sep	Oct	Nov	Dec	Jan	
Blackbird							-	4	3	5	4	2	1	5
Black-headed gull					✓		30	36	-	16	64	87	103	103
Blue tit							-	4	1	1	1	1	-	4
Buzzard							-	-	-	-	1	-	-	1
Carrion crow							-	-	-	-	-	1	-	1
Chaffinch							-	4	-	-	-	-	-	4
Coal tit							-	-	-	-	-	-	1	1
Common gull							-	8	2	4	2	17	11	17
Coot							-	-	-	-	7	6	6	7
Curlew	✓	✓			✓		-	2	-	-	1	1	2	2
Dunnock					✓		-	6	1	2	4	4	4	6
Fieldfare			✓			✓	-	-	-	28	17	-	8	28
Goldcrest							-	-	-	5	1	-	2	5
Goldfinch							-	-	4	4	85	41	20	85
Great tit							-	5	-	-	-	-	4	5
Green-finch							-	7	-	7	1	6	3	7

Species	Conservation/ Protection Status						2012		2013					Peak
	Firth of Forth SPA & Ramsar Site Species	Firth of Forth SSSI	Schedule 1 Species	Annex 1 Species	Scottish Biodiversity	Red-listed (BoCC)	Feb	Mar	Sep	Oct	Nov	Dec	Jan	
Grey heron							-	-	-	-	-	-	1	1
Herring gull					✓	✓	2	29	13	21	39	59	57	59
House martin							-	-	3	-	-	-	-	3
House sparrow					✓	✓	-	-	2	-	-	2	4	4
Jackdaw							-	-	-	-	-	-	18	18
Lapwing	✓	✓			✓	✓	-	-	-	-	-	-	36	36
Lesser. black-backed gull							-	2	5	-	-	-	-	5
Linnet					✓	✓	16	38	-	-	50	43	28	50
Magpie							-	2	3	-	3	5	-	5
Mallard	✓	✓					-	-	-	-	-	16	20	20
Mistle thrush							-	2	-	1	1	1	-	2
Moorhen							-	-	-	-	2	-	4	4
Mute swan							-	-	-	4	-	2	4	4
Oyster-catcher	✓	✓					2	10	-	-	3	8	8	10
Pied Wagtail							-	2	7	1	4	2	1	7
Redwing			✓		✓	✓	-	-	-	-	1	-	-	1

Species	Conservation/ Protection Status						2012		2013					Peak
	Firth of Forth SPA & Ramsar Site Species	Firth of Forth SSSI	Schedule 1 Species	Annex 1 Species	Scottish Biodiversity	Red-listed (BoCC)	Feb	Mar	Sep	Oct	Nov	Dec	Jan	
Reed bunting					✓		-	-	1	-	-	-	-	1
Robin							-	10	2	4	9	3	4	10
Rook							-	14	-	-	-	10	-	14
Short-eared owl				✓	✓		-	2	-	-	-	-	-	2
Skylark					✓	✓	-	1	-	-	-	-	-	1
Snipe							-	-	-	1	1	-	-	1
Song thrush					✓	✓	-	1	-	1	-	-	-	1
Sparrow-hawk							-	-	-	-	1	-	-	1
Starling						✓	-	-	-	11	14	8	-	14
Stock dove							-	-	-	-	-	2	-	2
Swallow							-	-	6	-	-	-	-	6
Teal							-	-	-	-	12	-	-	12
Wigeon	✓	✓					-	-	-	-	-	10	19	19
Wren							-	1	-	-	-	-	-	1
Yellow-hammer					✓	✓	-	1	-	-	-	-	-	1

6A.6 Barn Owl Surveys

6A.6.1 Methods

51 Surveys to check barn owl breeding habitats, such as buildings, mature trees and quarries for the presence of barn owls were carried out in April and June 2012 and extended to one kilometre from the Application Site, as shown in Figure 7A.1, in accordance with the methods of Hardey et al. (2013).

6A.6.2 Results

52 No evidence of barn owls was found within the Application Site or the surrounding one kilometre survey area. The species is therefore considered likely to be absent from the site and surrounding area.

References

Bang, P & DahlstrØm, P (2001). Animal Tracks and Signs. Oxford University Press, Oxford.

Bibby, C. Burgess, N. Hill, D. & Mustoe, S. (2007). Bird Census Techniques. 2nd Edition.

BTO 2014. Wetland Bird Survey (WeBS) Online. Available at http://blx1.bto.org/webs-reporting/.

Edgar, P., Foster, J and Baker, J. (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation. , Bournemouth.

English Nature (2004) report (ENRR) Number 576. 'An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus*. English Nature report (ENRR) Number 576.

Froglife (2010). Reptile Survey. An Introduction to Planning, Conducting and Interpreting Surveys for Snake and Lizard Conservation. Froglife Advice Sheet 10. Froglife, Peterborough.

Gilbert, G., Gibbons, D.W. & Evans, J. (1998). Bird Monitoring Methods. RSPB, Sandy.

Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. (2013). Raptors: A Field Guide for Surveys and Monitoring. Third Edition. The Stationery Office, Edinburgh.

Hundt, L. (2012). Bat Surveys Good Practice Guidelines, 2nd Edition. Bat Conservation Trust.

Jay, S., Lane, M., O'Hara, K., Precey, P. and Scholey, G. (2008). Otters and Stillwater Fisheries. Environment Agency and The Wildlife Trusts. Available at: http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environment-agency.gov.uk/static/documents/Leisure/otters_and_stillwater_fisheriesv4_080501_FINAL_PRINT-CGS3.pdf.

Joint Nature Conservation Committee (JNCC) (1990). Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit. Reprinted by JNCC, Peterborough.

Marchant. J. (1983). Common Bird Census Instructions. British Trust for Ornithology.

Natural England (2011). Badgers and Development, a guide to best practice and licensing. Natural England Interim Guidance Document (Revised 12/11).

Neal, E. & Cheeseman, C. (1996). Badgers. Poyser Natural History, London.

Scottish Natural Heritage (SNH) (2001). Scotland's Wildlife: Badgers and Development. Available at: http://www.snh.org.uk/pdfs/publications/wildlife/badger.pdf

SNH (2008). Otter and Development. SNH Scottish Wildlife Series. SNH Online Guidance, available at: http://www.snh.org.uk/publications/on-line/wildlife/otters/planning.asp.

Strachan and Moorhouse (2011). Water Vole Conservation Handbook (3rd Edition). The Wildlife Conservation Research Unit, 2011.