

East Anglia THREE

Appendix 24.1

Baseline Onshore Ornithology
Information Acquired for East Anglia
ONE

Environmental Statement

Volume 3

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Table of Contents

1	Introduction	3
2	Volume 3 Appendix 24.1 Background Data Search Report of the East Anglia One Environmental Statement	4
3	Volume 3 Appendix 24.11 Wintering Birds Report of the East Anglia One Environmental Statement.....	5
4	Volume 3 Appendix 24.12 Breeding Bird Survey Report of the East Anglia One Environmental Statement.....	6

1 INTRODUCTION

1. This Appendix contains copies of the reports on onshore ornithology receptors that were submitted in support of the application for the East Anglia ONE offshore windfarm.
2. Those reports were submitted as Appendices to the East Anglia ONE Offshore Windfarm Environmental Statement. They are:
 - Appendix 24.1 Background Data Search Report
 - Appendix 24.11 Wintering Birds
 - Appendix 24.12 Breeding Bird Survey Report

2 VOLUME 3 APPENDIX 24.1 BACKGROUND DATA SEARCH REPORT OF THE EAST ANGLIA ONE ENVIRONMENTAL STATEMENT



East Anglia Offshore Wind Limited

East Anglia ONE Offshore Windfarm

Appendix 24.1 - Background Data Search Report

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RSK GENERAL NOTES

Project No.: 854188



Title: East Anglia ONE – Offshore Windfarm – Background Data Search Report

Client: East Anglia Offshore Wind Limited

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Date:	<u>28th August 2012</u>	Date:	<u>28th August 2012</u>

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment.

CONTENTS

1	INTRODUCTION	1
1.1	Background Data Search	1
1.2	Structure of the Report	1
2	METHODS.....	2
2.1	Background Data Search Methodology	2
2.2	Sources and Information Obtained.....	3
3	RESULTS	4
3.1	Background Data Search	4
3.1.1	Biodiversity Action Plans	4
3.1.2	Designated Sites	5
3.1.3	Notable Species Records.....	9
4	REFERENCES AND BIBLIOGRAPHY.....	14
4.1	Printed Reference Material.....	14
4.2	Web-based Resources	14

TABLES

<i>Table 1: Sources of background information and consultees.....</i>	<i>3</i>
<i>Table 2: Protected Species in the Search Area</i>	<i>10</i>

APPENDICES

APPENDIX 1	16
APPENDIX 2	32
APPENDIX 3.....	44

FIGURES

- Figure 24.1.1 - Statutory Designations
Figure 24.1.2 - Non-statutory Designations

1 INTRODUCTION

1.1 Background Data Search

This ecological background data search is a desk-based study for records of internationally, nationally and locally important species and sites within 2 km (extending to 5 km for bats) of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search for the East Anglia ONE project. This document forms Appendix 24.1 to *Volume 3, Chapter 24: Ecology and Ornithology* of the Environmental Statement.

This information can identify potential constraints to developments at an early stage and can be used in the assessment of the significance and magnitude of potential ecological impacts.

Background data searches provide valuable information for assessment, but have some limitations. For example, the reliability of biological record archives is unknown because factors such as recorder expertise, accuracy of species identification and accuracy of recorded location cannot be verified. It is important to note that the records do not provide a comprehensive list of all species in the search area. A lack of records for a defined geographical area does not necessarily mean that there is a lack of species; the area may simply be under-recorded.

1.2 Structure of the Report

The remainder of the report is set out as follows:

- *Section 2* describes the methodology of a background data search, including initial research information, organisations contacted for background data, and selection criteria for the information that was requested;
- *Section 3* presents summaries of the data received and researched;
- *Section 4* lists the references used in the report;
- *Section 5* is an appendix containing details of designated sites within a search area;
- *Section 6* is an appendix listing notable species within a search area; and
- *Section 7* is an appendix containing descriptions of protected species legislation and lists abbreviations used in this report.

2 METHODS

2.1 Background Data Search Methodology

A search was made of freely available reference materials relating to the ecology of an area comprising a 2 km buffer (extending to 5 km for bats) of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search. This included a review of the UK Biodiversity Action Plan (UKBAP; UK Biodiversity Steering Group 1998a-f, Biodiversity Reporting and Information Group 2007) and Suffolk's Local Biodiversity Action Plan (LBAP).

Information on statutory and non-statutory sites; notable species, and any other additional details that may be relevant to the project, were requested from the biological records centre, wildlife trust and county recorders. Additional sources on the internet, such as the Multi-Agency Geographic Information for the Countryside (MAGIC), Natural England, the Joint Nature Conservation Committee (JNCC) and Google Maps were also used for a search area of up to 2 km from the cable route and converter station.

A search was made for statutory designated sites (those that are internationally and nationally important sites for ecology) and non-statutory designated sites (those that are important in a local context) within 2 km of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search. A search was also made for records of notable species within 2 km, extending to 5 km for bats. Species included in the search parameters are:

- European protected species (listed on *Schedules 2 and 4 of The Conservation of Habitats and Species Regulations 2010*);
- nationally protected species under *Schedules 1, 5 and 8 of The Wildlife & Countryside Act 1981* and *The Protection of Badgers Act 1992*;
- species listed as Critically Endangered, Endangered or Vulnerable on the *IUCN Red List*
- all species listed on the RSPB *Birds of Conservation Concern 2002-2007* as Red or Amber;
- Nationally Rare or Nationally Scarce species;
- Notable invertebrates; and
- species that have Action Plans under the UK Biodiversity Action Plan (UKBAP) or are Priority Species under the Local Biodiversity Action Plan.

Records with 2-digit grid references (e.g. SJ24) are considered too imprecise and are omitted from the results. The following types of notable species records are included:

- species records with six-digit grid references (e.g. AB123456) that lie within the search area;

- records with 4-digit grid references, which refer to a 1 km square area, where the square falls entirely or partially in the search area; and
- records with tetrad grid references, which refer to a 2 km square area, where the square falls entirely or partially in the search area.

2.2 Sources and Information Obtained

A list of sources and consultees, and the information obtained from them is given in *Table 1* (below). A full list of references and other relevant documentation is given in *Section 4* (References and Bibliography Chapter).

Table 1: Sources of background information and consultees.

Information Obtained	Available From
Bird species-records	The Royal Society for the Protection of Birds (RSPB)
Non-statutory designated site locations and citations	Suffolk Biological Record Centre
Designated site citations	Natural England website
Designated site information	MAGIC website
Designations and legal protection of notable species	Joint Nature Conservation Committee (JNCC) website
Details of species and habitats listed on the Suffolk LBAP	Local BAP website
Information on Broad and Priority Habitats and Species Action Plans for the UK	UK Biodiversity Action Plan (UKBAP) website
Priority and protected species records	Suffolk Biological Record Centre
Non-statutory designated site locations and citations	Suffolk Wildlife Trust
Satellite imagery	Google Maps

3 RESULTS

3.1 Background Data Search

3.1.1 Biodiversity Action Plans

A revised UK Biodiversity Action Plan (UKBAP) was published in June 2007 (Biodiversity Reporting and Information Group 2007) that includes 65 'Priority' Habitat Action Plans (HAPs), which are specific habitat types in 28 Broad Habitat types and 1,150 'Priority' Species Action Plans (SAPs).

Some HAPs and SAP species are also covered by Suffolk's Local Biodiversity Action Plan (LBAP). The Suffolk Biodiversity Partnership currently have 21 Habitat Action Plans (HAPs) and 262 Species Action Plans (SAPs) comprising their Biodiversity Action Plan. Some local HAPs of potential relevance to the current development are;

- Arable field margins;
- Built environment & associated habitats (including open mosaic habitats on previously developed land);
- Coastal and floodplain grazing marsh (including dykes);
- Coastal sand dunes;
- Coastal vegetated shingle;
- Eutrophic standing waters (lakes);
- Lowland fens;
- Hedgerows;
- Lowland calcareous grassland;
- Lowland meadows (previously lowland hay meadows);
- Lowland heath (including acid grassland);
- Lowland mixed deciduous woodland;
- Maritime cliffs and slopes;
- Oligotrophic (and dystrophic) lakes;
- Ponds;
- Reedbeds;
- Rivers;
- Saline lagoons;
- Coastal saltmarsh and intertidal mudflats;
- Traditional orchards;
- Wet woodland; and
- Woodpasture and parkland.

3.1.2 Designated Sites

3.1.2.1 Statutory Designated Sites

The 2 km search area contains 16 statutory designated sites of which two have multiple designations, namely Deben Estuary Special Protection Area (SPA), Ramsar Site and Site of Special Scientific Interest (SSSI) and Alde-Ore Estuary SPA, Ramsar and SSSI. There are a further nine SSSIs, one further SPA, one Special Area of Conservation (SAC), two Local Nature Reserves (LNRs) and one Area of Outstanding Natural Beauty (AONB). A list of statutory sites within the 2 km search area is given below. The sites are listed in order of closest proximity to the Development Area. A more detailed description of these sites is given in *Table 3, Appendix 1*.

Crossed by the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search

- *Bawdsey Cliff SSSI* is of geological importance for its Red Crag exposure that is rich in marine Mollusca.
- *Deben Estuary SPA, Ramsar & SSSI* is important for its populations of overwintering waders and wildfowl and also for its extensive and diverse saltmarsh communities.
- *Suffolk Coast & Heaths AONB* covers a large area from Lowestoft to the river Stour. Habitats of interest in the AONB include ancient open heathland, saltmarsh, mudflats, wetlands, shingle beaches and woodland.

Within 100 m of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search

- *Outer Thames Estuary SPA* is a large marine area that is important for birds. The site supports 38% of Great Britain's *Gavia stellata* (Red-throated Diver) population.

Within 1 km of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search

- *Newbourn Springs SSSI* comprises a narrow spring-flushed valley occupied by a fast flowing stream with areas of Alder Carr, small areas of fen on peat, broad-leaved woodland, scrub, grassland communities and *Rubus fruticosus* agg. (Bramble) dominated heath. The site is important for breeding and migratory birds.
- *Alde-Ore Estuary SPA, Ramsar & SSSI* comprises cliffs, extensive areas of mudflats, reedbeds, grazing marsh, saltmarsh, vegetated shingle and coastal lagoons. The site supports nationally-scarce plants, rare invertebrates, and notable assemblages of breeding and wintering wetland birds.

- *Orfordness-Shingle Street SAC* comprises a series of percolation lagoons and a shingle spit that supports rare habitats. The site is covered by Alde-Ore Estuary SPA, Ramsar & SSSI.
- *Great Blakenham Pit SSSI* exposes a sequence through Early and Middle Pleistocene sediments and soils and is of importance in interpreting the glacial history of southern Britain.
- *Waldringfield Pit SSSI* is a Quaternary geological locality that is important for a sequence of Middle Pleistocene deposits.
- *Little Blakenham Pit SSSI* consists of former chalk workings that support one of the few examples of chalk grassland flora in East Suffolk. A disused tunnel on the site contains one of the largest underground roosts for hibernating bats known in Great Britain.

Within 2 km of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search

- *Bramford Meadows LNR* comprises scrub and low-lying wet meadows, separated by a number of drainage ditches, in a linear strip along the River Gipping. The site is important for invertebrates.
- *Rede Wood LNR* is a 7.6 hectare woodland dominated by *Fraxinus excelsior* (Ash), *Quercus sp.* (Oak) and coppiced *Corylus avellana* (Hazel). The site is important for birds.
- *Sinks Valley, Kesgrave SSSI* contains a range of habitats from open water, fringing swamp, spring-fed fen, wet grassland and wet *Alnus glutinosa* (Alder) woodland, to dry acid grassland, heathland and *Quercus sp.* (Oak) woodland rising up the valley sides.
- *Ferry Cliff, Sutton SSSI* is of geological interest because rocks of Palaeocene age here yield important mammalian fauna including representatives of the seven orders, including the oldest British members of the Rodentia, Artiodactyla and Perissodactyla (rodents and hoofed animals).
- *Ramsholt Cliff SSSI* contains an exposure of the Coralline Crag phosphorite deposit. The site is of geological importance for the number of sedimentological and palaeontological features and exhibits.
- *Riverside House Meadow, Hasketon SSSI* is a floristically rich unimproved meadow.

3.1.2.2 Non-statutory Designated Sites

The 2 km search area contains 77 non-statutory designated sites comprising Ancient Semi Natural Woodlands (ASNWs), Plantation Ancient Woodlands (PAWs), Woodland Trust Sites (WTs), County Wildlife Sites (CWSs), Suffolk Wildlife Trust Sites (SWTs) and Regionally Important Geological Sites (RIGSs). There are also 25 Veteran Trees within 2km of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search of which two fall within the corridor/area of search. These are a *Quercus robur* (Pedunculate Oak) at TM26444714 and a *Quercus x rosacea* (Hybrid Sessile and English Oak) at TM26354681. A list of non-statutory sites within 100 m of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search is given below. The sites are listed in order of closest proximity to the Onshore Cable Route. A table listing all the non-statutory designated sites is given in *Table 4, Appendix 1*.

Crossed by the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search

- *Suffolk Shingle Beaches* CWS comprise vegetated shingle, a rare and decreasing habitat, both in the British Isles and in Europe. The stretches of shingle beach along the Suffolk coast are of a national conservation importance for the range of shingle plants that grow there. Typical shingle flora includes *Lathyrus japonicus* (Sea Pea), *Crambe maritima* (Sea Kale), *Euphorbia paralias* (Sea Spurge), *Honckenya peploides* (Sea Sandwort) and *Calystegia soldanella* (Sea Bindweed). There are also rare invertebrates species found in these coastal sites.
- *Millers Wood* ASNW & CWS is enclosed by a woodbank, parts of which are probably medieval in origin, and divided by internal ditches. Of particular botanical interest, and a strong indicator of ancient woodland, is the presence of a *Sorbus domestica* (Service-tree) on the north western boundary.
- *Seckford Hall Campsite* CWS comprises a camping and caravan site with areas of acid grassland and wetland. There are a number of small scattered *Quercus* sp. (Oak) and *Crataegus monogyna* (Hawthorn) trees. The site supports two nationally scarce plant species; *Crassula tillaea* (Mossy Stonecrop) and *Trifolium suffocatum* (Suffocated Clover).
- *River Gipping (Sections)* CWS comprise two stretches of the River Gipping as it flows through Ipswich. The river banks and adjacent grassland areas support a large number of different plants including some rare species, for example *Nymphoides peltata* (Fringed Water Lily). The site is important for fish, invertebrates and birds, species of note include *Alcedo atthis* (Kingfisher) and *Aythya fuligula* (Tufted Duck).

- *The Mill River CWS* follows sections of the Mill River through a diverse landscape ranging from Alder carr, flower-rich grazing meadows, improved pasture and *Populus sp.* (Poplar) plantation. The Mill River has good water quality and supports a wide variety of aquatic wildlife. The site is important as a wildlife corridor and for birds.
- *Fore and Bushey Groves CWS* comprises two small woods separated by a track and an area of dense scrub. The majority of the woods have a uniform structure consisting of *Acer campestre* (Field Maple) and *Corylus avellana* (Hazel) coppice with *Fraxinus excelsior* (Ash) standards. However the southern half of Bushey Grove is occupied by a plantation of *Acer pseudoplatanus* (Sycamore) which is regenerating freely. In addition, approximately 10% of this area has been planted with *Pinus sylvestris* (Scot's Pine). A notable feature of Fore Grove is the *Sorbus domestica* (Service-tree).
- *Lumber Wood ASNW & CWS* is dominated by *Acer pseudoplatanus* (Sycamore) trees, which have been thinned and coppiced, and *Castanea sativa* (Sweet Chestnut). Dense clumps of suckering *Ulmus sp.* (Elm) together with occasional *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder) form the shrub-layer.
- *Welham's Meadow CWS* comprises wet-meadow flora. Plant species of note include *Ophrys apifera* (Bee Orchid), *Stachys officinalis* (Betony) and *Dactylorhiza maculata* (Heath Spotted Orchid).
- *Bullen Wood ASNW & CWS* is dominated by *Corylus avellana* (Hazel), *Fraxinus excelsior* (Ash) and *Acer campestre* (Field Maple) coppice with numerous mature *Quercus sp.* (Oak) standards. The site supports several less common woodland plants including *Orchis mascula* (Early-purple Orchid). Dead wood habitat on the site is important for birds and invertebrates.
- *Round Wood and Elms Grove ASNW & CWS* is bordered by a medieval bank, ditch and hedges. The dominant tree species in the wood are *Quercus sp.* (Oak) and *Fraxinus excelsior* (Ash) with frequent *Corylus avellana* (Hazel) coppice and *Crataegus monogyna* (Hawthorn). A good diversity of uncommon herbaceous and woody species can be found in the shrub and ground layers including *Orchis mascula* (Early-purple Orchid), *Anemone nemorosa* (Wood Anemone) and *Iris foetidissima* (Stinking Iris). The site is important for woodland birds particularly warblers.

Within 100 m of the Preferred Onshore Cable Corridor and Converter Station Refined Area of Search

- *Meadow Cottage Wood CWS* comprises deciduous woodland with ditches, scrub and tall herbs. This site is noted for *Elymus caninus* (Bearded Couch), it is the only record for this plant in east Suffolk. Two other scarce plants namely

Dipsacus pilosus (Small Teasel) and *Persicaria bistorta* (Common Bistort) also occur here.

- *Playford Reservoir CWS* is a spring-fed area of open water situated on a tributary of the River Fynn. The northern edge of the reservoir is fringed with dense reed, behind which is an area dominated by fen vegetation. The site is important for amphibians and birds.
- *Newbourne Springs Meadows CWS* is a series of unimproved meadows situated adjacent to the east bank of Newbourne Springs. The meadows support a herb-rich community characteristic of wet meadows; for example *Lychnis flos-cuculi* (Ragged-robin), *Dactylorhiza praetermissa* (Southern Marsh Orchid), *Oenanthe fistulosa* (Tubular Water-dropwort) and *Myosotis scorpioides* (Water Forget-me-not) grow frequently here. The reed-fringed dykes and stream support good numbers *Acrocephalus scirpaceus* (Reed Warbler) and *A. schoenobaenus* (Sedge Warbler).
- *Suffolk Water Park CWS* comprises a disused gravel pit with a horse-shoe shaped lake, a narrow fringe of emergent vegetation, areas of exposed mud and amenity grassland. The site is important for birds, species of note include *Aythya ferina* (Pochard), *Aythya fuligula* (Tufted Duck), *Bucephala clangula* (Goldeneye), Sandpipers and Gulls. The site also provides a valuable habitat for dragonflies.
- *Newbourne Springs SWT* comprises a steep-sided wooded valley with springs, streams, reedbed, fen, heathland and woodland. The rich mixture of habitats provides homes for many uncommon plants, insects and for breeding and migrating birds.

These statutory and non-statutory designated sites are shown in *Figures 24.1.1 and 24.1.2*.

3.1.3 Notable Species Records

At least 419 notable species were identified from records in the 2 km search area. Of these, 4 are amphibians, 151 are birds, 1 is a fish, 55 are flowering plants, 3 are fungi, 143 are insects, 27 are lichen, 2 are liverworts, 20 are mammals (of these, at least 12 are bats), 2 are molluscs, 7 are mosses and 4 are reptiles. Species that are protected by UK law under *The Wildlife and Countryside Act 1981*, *Schedules 2 and 4 of The Conservation of Habitats and Species Regulations 2010* or *The Protection of Badgers Act 1992* and have been recorded in the search area are listed in *Table 2*.

Table 2: Protected Species in the Search Area

Species	Designation	Within 100m	Within 2km	Within 5km (bats)
<u>Amphibians</u>				
<i>Bufo bufo</i> (Common Toad)	WCA5.9.5	☑		
<i>Lissotriton vulgaris</i> (Smooth Newt)	WCA5.9.5	P	☑	
<i>Rana temporaria</i> (Common Frog)	WCA5.9.5	P	☑	
<i>Triturus cristatus</i> (Great Crested Newt)	EPS (Sch2), WCA5.9.1	P	☑	
<u>Birds</u>				
<i>Alcedo atthis</i> (Common Kingfisher)	WCA1.1	P	☑	
<i>Anas acuta</i> (Northern Pintail)	WCA1.2	☑		
<i>Anas querquedula</i> (Garganey)	WCA1.1	P	☑	
<i>Anser anser</i> (Greylag Goose)	WCA1.2	P	☑	
<i>Aythya marila</i> (Greater Scaup)	WCA1.1	P	☑	
<i>Botaurus stellaris</i> (Great Bittern)	WCA1.1	P	☑	
<i>Bucephala clangula</i> (Common Goldeneye)	WCA1.2	☑		
	WCA1.1	P	☑	
<i>Calcarius lapponicus</i> (Lapland Longspur)	WCA1.1		☑	
<i>Calidris maritima</i> (Purple Sandpiper)	WCA1.1		P	
<i>Calidris temminckii</i> (Temminck's Stint)	WCA1.1	P	☑	
<i>Charadrius dubius</i> (Little Plover)	WCA1.1	P	☑	
<i>Chlidonias niger</i> (Black Tern)	WCA1.1	P	☑	
<i>Circus aeruginosus</i> (Marsh harrier)	WCA1.1	P	☑	
<i>Circus cyaneus</i> (Hen Harrier)	WCA1.1		☑	
<i>Circus pygargus</i> (Montagu's Harrier)	WCA1.1		☑	
<i>Coturnix coturnix</i> (Common Quail)	WCA1.1	P	☑	
<i>Crex crex</i> (Corn Crane)	WCA1.1	☑		
<i>Cygnus columbianus</i> (Tundra Swan)	WCA1.1	P	☑	
<i>Cygnus cygnus</i> (Whooper Swan)	WCA1.1	P	☑	
<i>Falco columbarius</i> (Merlin)	WCA1.1	P	☑	
<i>Gavia arctica</i> (Black-throated Diver)	WCA1.1		P	
<i>Gavia immer</i> (Great Northern Diver)	WCA1.1	P	☑	
<i>Gavia stellata</i> (Red-throated Diver)	WCA1.1		☑	
<i>Himantopus himantopus</i> (Black-winged Stilt)	WCA1.1		☑	
	WCA1.1		P	
<i>Jynx torquilla</i> (Eurasian Wryneck)	WCA1.1	P	☑	
<i>Lanius collurio</i> (Red-backed Shrike)	WCA1.1	P	☑	
<i>Larus melanocephalus</i> (Mediterranean Gull)	WCA1.1	☑		
<i>Larus minutus</i> (Little Gull)	WCA1.1	P	☑	
	WCA1.1		P	

Species	Designation	Within 100m	Within 2km	Within 5km (bats)
<i>Limosa limosa</i> (Black-tailed Godwit)	WCA1.1		<input checked="" type="checkbox"/>	
<i>Lullula arborea</i> (Wood Lark)	WCA1.1	P	<input checked="" type="checkbox"/>	
<i>Melanitta fusca</i> (Velvet Scoter)	WCA1.1	<input checked="" type="checkbox"/>		
<i>Melanitta nigra</i> (Common Scoter)	WCA1.1		<input checked="" type="checkbox"/>	
<i>Milvus milvus</i> (Red Kite)	WCA1.1		<input checked="" type="checkbox"/>	
<i>Numenius phaeopus</i> (Whimbrel)	WCA1.1	<input checked="" type="checkbox"/>		
<i>Oriolus oriolus</i> (Eurasian Golden Oriole)	WCA1.1	P	<input checked="" type="checkbox"/>	
<i>Pandion haliaetus</i> (Osprey)	WCA1.1	P	<input checked="" type="checkbox"/>	
<i>Panurus biarmicus</i> (Bearded Tit)	WCA1.1	<input checked="" type="checkbox"/>		
<i>Pernis apivorus</i> (European Honey-buzzard)	WCA1.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<i>Philomachus pugnax</i> (Ruff)	WCA1.1		<input checked="" type="checkbox"/>	
<i>Phoenicurus ochruros</i> (Black Redstart)	WCA1.1	<input checked="" type="checkbox"/>		
<i>Plectrophenax nivalis</i> (Snow Bunting)	WCA1.1	P	<input checked="" type="checkbox"/>	
<i>Podiceps auritus</i> (Slavonian Grebe)	WCA1.1	P	<input checked="" type="checkbox"/>	
<i>Podiceps nigricollis</i> (Black-necked Grebe)	WCA1.1		<input checked="" type="checkbox"/>	
<i>Recurvirostra avosetta</i> (Pied Avocet)	WCA1.1	<input checked="" type="checkbox"/>		
<i>Regulus ignicapilla</i> (Firecrest)	WCA1.1	<input checked="" type="checkbox"/>		
<i>Sternula albifrons</i> (Little Tern)	WCA1.1	<input checked="" type="checkbox"/>		
<i>Sylvia undata</i> (Dartford warbler)	WCA1.1	<input checked="" type="checkbox"/>		
<i>Tringa glareola</i> (Wood Sandpiper)				
<i>Tringa ochropus</i> (Green Sandpiper)				
<i>Turdus iliacus</i> (Redwing)				
<i>Turdus pilaris</i> (Fieldfare)				
<i>Tyto alba</i> (Barn Owl)				
<u>Flowering plants</u>				
<i>Dianthus armeria</i> (Deptford Pink)	WCA8		<input checked="" type="checkbox"/>	
<i>Mentha pulegium</i> (Pennyroyal)	WCA8		<input checked="" type="checkbox"/>	
<i>Salvia pratensis</i> (Meadow Clary)	WCA8		<input checked="" type="checkbox"/>	
<u>Insects</u>				
<i>Lucanus cervus</i> (Stag Beetle)	WCA5.9.5	<input checked="" type="checkbox"/>		
<i>Nymphalis polychloros</i> (Large Tortoiseshell)	WCA5.9.5		<input checked="" type="checkbox"/>	
<i>Papilio machaon</i> (Swallowtail)	WCA5.9.1		<input checked="" type="checkbox"/>	
<i>Plebejus argus</i> (Silver-studded Blue)	WCA5.9.5	P	<input checked="" type="checkbox"/>	
<i>Satyrrium w-album</i> (White-letter Hairstreak)				

Species	Designation	Within 100m	Within 2km	Within 5km (bats)
<u>Mammals</u>				
<i>Arvicola amphibius</i> (European Water Vole)	WCA5.9.4a EPS (Sch2), WCA5.9.1	☒		☒
<i>Barbastella barbastellus</i> (Western Barbastelle)	EPS (Sch2) EPS (Sch2), WCA5.9.1	P	☒ ☒	
Chiroptera (Unidentified Bats)	EPS (Sch2), WCA5.9.1	☒		
<i>Eptesicus serotinus</i> (Serotine)	BA	☒		
<i>Lutra lutra</i> (European Otter)	EPS (Sch2), WCA5.9.1		☒	
<i>Meles meles</i> (Eurasian Badger)	EPS (Sch2), WCA5.9.1		☒	
<i>Myotis brandtii</i> (Brandt's Bat)	EPS (Sch2), WCA5.9.1		☒	
<i>Myotis sp.</i> (Myotis bat)	EPS (Sch2), WCA5.9.1	☒		
<i>Myotis daubentonii</i> (Daubenton's Bat)	EPS (Sch2), WCA5.9.1		☒	
<i>Myotis nattereri</i> (Natterer's Bat)	EPS (Sch2), WCA5.9.1		☒	
<i>Myotis mystacinus</i> (Whiskered Bat)	EPS (Sch2), WCA5.9.1		☒	
<i>Nyctalus leisleri</i> (Lesser Noctule)	EPS (Sch2)			P
<i>Nyctalus noctula</i> (Noctule Bat)	EPS (Sch2), WCA5.9.1		☒	
<i>Nyctalus sp.</i>	EPS (Sch2), WCA5.9.1		☒	
<i>Phocoena phocoena</i> (Common Porpoise)	EPS (Sch2), WCA5.9.1			☒
<i>Pipistrellus sp.</i> (Pipistrelle bat)	EPS (Sch2), WCA5.9.1	☒		
<i>Pipistrellus nathusii</i> (Nathusius's Pipistrelle)	EPS (Sch2), WCA5.9.1		☒	
<i>Pipistrellus pipistrellus</i> (Common Pipistrelle)	EPS (Sch2), WCA5.9.1 EPS (Sch2), WCA5.9.1			☒
<i>Pipistrellus pygmaeus</i> (Soprano Pipistrelle)		P	☒	
<i>Plecotus sp.</i> (Long-eared Bat species)				
<i>Plecotus auritus</i> (Brown Long-eared Bat)				
<u>Molluscs</u>				
<i>Helix (Helix) pomatia</i> (Roman Snail)	WCA5.9.1		☒	
<u>Reptiles</u>				
<i>Anguis fragilis</i> (Slow-worm)	WCA5.9.1	☒		
<i>Natrix natrix</i> (Grass Snake)	WCA5.9.1		☒	
<i>Vipera berus</i> (Adder)	WCA5.9.1		☒	
<i>Zootoca vivipara</i> (Common Lizard)	WCA5.9.1	☒		

Note - P relates to records with 4 figure or tetrad grid references that could potentially be anywhere within a 1 or 2 km square.

A full list of notable species with details of their respective protection and/or designations is provided in *Table 5, Appendix 2*.

4 REFERENCES AND BIBLIOGRAPHY

4.1 Printed Reference Material

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UK Biodiversity Steering Group (1998e). *UK Biodiversity Group Tranche 2 Action Plans: Volume V – Maritime Species and Habitats*. English Nature.

UK Biodiversity Steering Group (1998f). *UK Biodiversity Group Tranche 2 Action Plans: Volume VI – Terrestrial and Freshwater Species and Habitats*. English Nature.

4.2 Web-based Resources

English Nature (Statutory Protected Sites) <http://www.english-nature.org.uk/Special/ssi/>

Suffok County Council <http://www.suffolk.gov.uk/>

Joint Nature Conservation Committee (Statutory Protected Sites and protected species status lists) <http://www.jncc.gov.uk/>

Suffolk Biodiversity Action Plan <http://www.suffolkbiodiversity.org/biodiversity-action-plans.aspx>

Multi-Agency Geographic Information for the Countryside (MAGIC)
<http://www.magic.gov.uk/>

National Association for Areas of Outstanding Natural Beauty <http://www.aonb.org.uk/>

UK Biodiversity Action Plan <http://www.ukbap.org.uk/>

Woodland Trust <http://www.woodlandtrust.org.uk/>

APPENDIX 1

Designated Sites

The following sections provide comprehensive lists of the statutory and non-statutory designated sites that fall in the search area. The name, designation, grid reference, distance from the site and a description of each site is given; the sites are listed in order of proximity¹ to the proposed cable corridor and converter station. The descriptions for statutory sites have been obtained from the citations available from Natural England, the Joint Nature Conservation Committee, the National Association for Areas of Outstanding Natural Beauty and relevant Borough Councils. The descriptions for non-statutory designated sites have been obtained from Suffolk Biological Record Centre, the Woodland Trust and Suffolk Wildlife Trust.

Table 3. Details of Statutory Designated Sites within 2 km of the Proposed Cable Corridor and Converter Station Showing Site Name, Designation, Location and Distance from the Development.

Site Name, Designation, Grid Reference, Distance from Site Centre Point, Description
<p><i>Bawdsey Cliff, SSSI, TM3460 386, 0 m</i></p> <p>Bawdsey Cliffs are of great geological interest and potential for studies of non-glacial Pleistocene environments. The cliffs provide over 2km of section in the Butleyan division of the Early Pleistocene Red Crag. The site constitutes by far the largest available exposure of the Red Crag and is rich in marine Mollusca.</p>
<p><i>Deben Estuary, SPA, Ramsar & SSSI, TM295 441, 0 m</i></p> <p>The Deben Estuary is important for its populations of over wintering waders and wildfowl and also for its extensive and diverse saltmarsh communities. Several estuarine plants and invertebrates with a nationally restricted distribution are also present. The Estuary extends for over 12 km in a generally south-easterly direction. It is sinuous, relatively sheltered and narrow, particularly at its mouth, which is protected by shifting sand banks. Mudflats occupy much of the intertidal area with more sandy deposits occurring where exposed Red Crag erodes from cliffs. The Deben Estuary supports approximately 40% of Suffolk's area of saltmarsh which also displays the most complete range of the vegetation's community types in the county. These occur in a highly complex mosaic with the variation in the proportions of species being dependent upon several factors including substrate type, frequency of tidal inundation, exposure, position within the Estuary and past management practices. The site supports a diverse assemblage of birds. The numbers of <i>Tringa totanus</i> (Redshank) over wintering on the Estuary are of international importance and the summer breeding population of this species is of county significance. The site is of national importance for its winter populations of <i>Recurvirostra avosetta</i> (Pied Avocet), <i>Branta bernicla</i> (Dark-bellied Brent Goose), <i>Tringa erythropus</i> (Spotted Redshank), <i>Tadorna tadorna</i> (Shelduck), <i>Anser fabalis</i> (Bean Goose), and <i>Limosa limosa</i> (Blacktailed Godwit) with the numbers of <i>Anas penelope</i> (Wigeon), <i>Anas acuta</i> (Pintail) and <i>Pluvialis squatarola</i> (Grey Plover) approaching this level in some years. The site also supports <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail), a species found in only</p>

¹ Please note that when a site is made up of two or more separate areas, Proximity to Site is calculated from the area located closest to the pipeline route.

Site Name, Designation, Grid Reference, Distance from Site Centre Point, Description

about 14 sites in Britain.

Suffolk Coast & Heaths, AONB, TM177 349, 0 m

Stretching south from Lowestoft to the river Stour, the AONB protects heathland, reed beds, saltmarsh and mud-flats, a rich mixture of unique and vulnerable lowland landscapes, all of which are under pressure of change. It is deeply indented by the estuaries of the Blyth, Alde, Deben, Orwell and Stour and bounded by the crumbling cliffs and tidal spits of the low and lonely North Sea coastline, the nearest unspoilt coast to Greater London. Habitats of interest on the site include ancient open heathland, saltmarsh, mudflats, wetlands, shingle beeches and woodland.

Outer Thames Estuary, SPA, TR273 962, 11 m

Outer Thames Estuary SPA is a large marine area that is important for birds. The site supports 38% of Great Britain's *Gavia stellata* (Red-throated Diver) population.

Newbourn Springs, SSSI, TM270 435, 273 m

The major part of the site comprises a narrow spring-flushed valley occupied by a fast flowing stream with Alder carr and small areas of fen on peat overlying London Clay. Drier more acidic soils further west and above the stream valley support broad-leaved woodland, scrub, grassland communities and *Pteridium aquilinum* (Bracken) dominated heath. Active management has led to the maintenance of a rich and varied flora and the subsequent diversity of habitats attracts good populations of breeding and migratory birds. There is a diverse ground flora along the stream banks and beneath the woodland; species of note including *Listera ovata* (Common Twayblade), *Dactylorhiza fuschii* (Common Spotted Orchid) and *Ophrys apifera* (Bee Orchid). The steep valley side above the stream supports Oak-Ash-Hazel woodland which has grown up into high forest. Above the valley is a large area of *Pteridium aquilinum* (Bracken) dominated heath fringed by thorn scrub. Some areas have been cleared and patches of dry acid grassland and heather heath have developed. A variety of birds breed on the site including *Luscinia megarhynchos* (Nightingale), *Regulus regulus* (Goldcrest), Warblers and Woodpeckers. Migratory birds such as Sylvia Warblers and *Turdus pilaris* (Fieldfare) are regular visitors as are many butterflies including *Callophrys rubi* (Green Hairstreak) and *Satyrus w-album* (White Letter Hairstreak).

Alde-Ore Estuary, SPA, Ramsar & SSSI, TM396 491, 397 m

The site stretches along the coast from Bawdsey to Aldeburgh and inland to Snape. It includes Orfordness, Shingle Street, Havergate Island, and the Butley, Ore and Alde Rivers. The site comprises cliffs, extensive areas of mud-flats, reedbeds, grazing marsh, saltmarsh, vegetated shingle and coastal lagoons which are of special botanical and ornithological value.

The variety of habitats on the site contributes to the overall botanical diversity of the site. Many of the habitats have a restricted distribution in the UK and support rare and specialised floral species. Of note are the saltmarsh communities that occur along the length of the rivers and the vegetated shingle (that is the second largest and best preserved area of the habitat in Britain). Species of note include several lichens, *Zostera angustifolia* (Narrow-leaved Eelgrass), *Althaea officinalis* (Marsh Mallow), *Lathyrus japonicus* (Sea Pea), *Medicago minima* (Bur Medick), *Puccinellia fasciculata* (Borrer's Saltmarsh-grass), *Sonchus palustris* (Marsh Sow-thistle), and *Vicia lutea* (Yellow Vetch). The saline lagoons on the site support specialised invertebrate fauna, species of note include *Nematostella vectensis* (Starlet Sea Anemone) and *Gammarus insensibilis*.

The site is of national importance for its birdlife. Havergate Island holds the largest breeding colony of *Recurvirostra avosetta* (Pied Avocet) in Britain, and they also feed in large numbers of Hazelwood Marshes and the Alde mudflats. Other breeding birds on the Island and elsewhere on the site include *Anas strepera* (Gadwall), *Anas clypeata* (Shoveler), *Haematopus ostralegus* (Oystercatcher), *Charadrius hiaticula* (Ringed Plover), *Sterna hirundo* (Common Tern), *Sterna*

Site Name, Designation, Grid Reference, Distance from Site Centre Point, Description

paradisaea (Arctic Tern), *Sterna sandvicensis* (Sandwich Tern), *Sterna albifrons* (Little Tern), *Asio flammeus* (Short-eared Owl), *Oenanthe oenanthe* (Wheatear) and *Circus aeruginosus* (Marsh Harrier). There are also very large breeding colonies of *Chroicocephalus ridibundus* (Black-headed Gull), *Larus fuscus* (Lesser Black-backed Gull) and *Larus argentatus* (Herring Gull) on Orfordness. In winter and during migration the site is visited by nationally important numbers of wildfowl and shore-birds, including *Cygnus columbianus* (Bewick's Swan), *Tadorna tadorna* (Shelduck), *Anas cracca* (Teal), *Anas penelope* (Wigeon), *Tringa totanus* (Redshank) and Pied Avocet.

Orfordness and Gedgrave Cliff are listed as being of national importance in the Geological Conservation Review.

Orfordness-Shingle Street, SAC, TM433 491, 397 m

The site comprises a series of percolation lagoons and a shingle spit. The lagoons have developed in the shingle bank adjacent to the shore at the mouth of the Ore estuary. The fauna of these lagoons includes typical lagoon species, such as the cockle *Cerastoderma glaucum*, the ostracod *Cyprideis torosa* and the gastropods *Littorina saxatilis tenebrosa* and *Hydrobia ventrosa*. The nationally rare *Nematostella vectensis* (Starlet Sea Anemone) is also found at the site.

Orfordness is an extensive shingle spit some 15 km in length and is one of two sites representing Annual Vegetation of Drift Lines habitat on the east coast of England. The drift-line community is widespread on the site and comprises *Beta vulgaris* ssp. *maritima* (Sea Beet) and *Atriplex* spp. (Orache) in a strip 2-5 m wide. This spit supports some of the largest and most natural sequences in the UK of shingle vegetation affected by salt spray. The southern end of the spit has a particularly fine series of undisturbed ridges, with zonation of communities determined by the ridge pattern. Pioneer communities with *Lathyrus japonicus* (Sea Pea) and *Arrhenatherum elatius* (False Oat-grass) grassland occur. Locally these are nutrient-enriched by the presence of a gull colony; elsewhere they support rich lichen communities. The northern part of Orfordness has suffered considerable damage from defence-related activities but a restoration programme for the shingle vegetation is underway.

Great Blakenham Pit, SSSI, TM116 498, 699 m

The Great Blakenham site exposes a sequence through Early and Middle Pleistocene sediments and soils. These include residual Crag, a thick body of estuarine sands, a thin layer of Thames river gravels, a buried soil complex, an extensive glacial till and associated outwash gravels. The present topsoil developed on the till includes periglacial soil structures and lenses of wind-blown sand. All these deposits make the site of great importance in interpreting the glacial history of southern Britain in Middle Pleistocene times.

Waldringfield Pit, SSSI, TM260 448, 764 m

Waldringfield Pit is a Quaternary geological locality important for a sequence of Middle Pleistocene deposits. The sequence comprises, from the base upward Red Crag; Waldringfield Gravels; the Valley Farm temperate palaeosol; the Barham periglacial palaeosol; and coversands. The top 1–2m of the deposits is undeformed by periglacial involutions. Waldringfield Pit is the type site for the Waldringfield Gravels, the lowest unit of the Kesgrave Sands and Gravels, which form a series of Middle Pleistocene terraces in Suffolk. The exposure of the Valley Farm palaeosol is significant because it is younger and less complex than on the higher terraces further north although it may have elements within which are attributable to post Cromerian temperate pedogenesis. The pattern of involutions is also of particular interest as a later set of features (of Wolstonian or Devensian age) may be superimposed on an older Anglian Set.

Little Blakenham Pit, SSSI, TM108 491, 820 m

This site consists of former chalk workings that support one of the few examples of chalk grassland flora in East Suffolk. Amongst the more unusual plants present is the locally rare *Orobanch*

Site Name, Designation, Grid Reference, Distance from Site Centre Point, Description

rapum-ganistae (Greater Broomrape). The botanical interest of the site centres on areas of chalk grassland, which are dominated by *Holcus lanatus* (Yorkshire Fog) and *Agrostis canina* (Brown Bent-grass). There are populations of *Anacamptis pyramidalis* (Pyramidal Orchid), *Ophrys apifera* (Bee Orchid), *Aceras anthropophorum* (Man Orchid) and *Dactylorhiza praetermissa* (Southern Marsh Orchid). A tunnel, totaling around 127m in length, is extremely important, as it contains one of the largest underground roosts for hibernating bats known in Great Britain. Three species of bat regularly use the tunnel between September and April, in numbers often totaling 450 or more. It is used principally by *Myotis daubentoni* (Daubenton's Bat), *Myotis nattereri* (Natterer's Bat) and *Plecotus auritus* (Brown Long-eared Bat), but occasional visitors are *Myotis mystacinus* (Whiskered Bat) and *Myotis brandti* (Brandt's Bat).

Bramford Meadows, LNR, TM126 468, 1334 m

Bramford Meadows LNR comprises low lying wet meadows, separated by a number of drainage ditches, and scrub in a linear strip along the River Gipping. The meadows are crossed by wet ditches and the old course of the river. The ditches support a diverse aquatic and emergent flora. The site is important for invertebrates; species of note include two species of Bush Cricket and *Aricia artaxerxes* (Brown Argus).

Rede Wood, LNR, TM153 506, 1420 m

Rede Wood LNR is a 7.6 hectare woodland dominated by *Fraxinus excelsior* (Ash), *Quercus sp.* (Oak) and coppiced *Corylus avellana* (Hazel). The woodland is home to rare species of plants and fungi; species of note include *Orchis mascula* (Early Purple Orchid). The site is also important for birds.

Sinks Valley, Kesgrave, SSSI, TM224 462, 1426 m

Sinks Valley is one of the few remaining valleys within the Suffolk Coast and Heaths Natural Area that are almost entirely occupied with semi-natural vegetation. It contains a full sequence of habitats from open water, fringing swamp, spring-fed fen, wet grassland and wet Alder woodland, to dry acid grassland, heathland and Oak woodland rising up the valley sides. It is this diversity of habitats, their barely interrupted sequence and their clear relation to the landform that makes Sinks Valley special. The habitats on the sites have high floristic diversity; species of note include *Crassula tillaea* (Mossy Stonecrop) and *Juncus squarrosus* (Heath Rush). The site is home to a number of rare animal species and is of particular importance for amphibians.

Ferry Cliff, Sutton, SSSI, TM279 486, 1541 m

This site is of geological interest because rocks of Palaeocene age here yield an important mammalian fauna including representatives of the seven orders, including the oldest British members of the Rodentia, Artiodactyla and Perissodactyla (rodents and hoofed animals). This locality and Belgian sites (of approximately the same age) have yielded the earliest Artiodactyls and Hyracotherium (ancestral horse) in Europe; and probably worldwide.

Ramsholt Cliff, SSSI, TM297 428, 1577 m

The Coralline Crag at this locality can be seen resting on irregular, erosional surface of London Clay, and to be overstepped by Red Crag where it comes to rest directly on London Clay. At the base of the Coralline Crag the phosphorite deposit (a 'coprolite bed' or 'Suffolk bone-bed') can be seen. This is the only locality where the Coralline Crag phosphorite deposit can be examined, and is also probably the only existing locality where the 'boxstones', phosphatic remnants of a Miocene formation can be seen in situ. The section at Ramsholt represents the most southerly and,

Site Name, Designation, Grid Reference, Distance from Site Centre Point, Description
<p>palaeoecologically, probably the most near-shore Coralline Crag deposited in East Anglia. The fauna is rich and well preserved and contains a number of uncommon species. Amongst these the most notable are the <i>Balanus concavus</i> (Large Barnacle), the Coral <i>Cryptangia woodii</i> and large colonies of the Bryozoan <i>Turbicellepora</i> which forms the substrate for <i>C. woodii</i>. Many species of aragonitic mollusc are also found. This site is important for the number of sedimentological and palaeontological features and exhibits.</p>

Riverside House Meadow, Hasketon, SSSI, TM244 503, 1805 m

Riverside House Meadow is a floristically rich unimproved meadow. The number of such traditionally managed herb-rich meadows has been greatly reduced in recent decades and remain under threat from changes in agricultural practice. The site supports a typically high number of grasses and herbs. The sward is dominated by *Alopecurus pratensis* (Meadow Foxtail), *Cynosurus cristatus* (Crested Dog's-tail) and *Holcus lanatus* (Yorkshire Fog). Fifty-two plant species other than grasses have been recorded in the meadow including a large number of *Orchis morio* (Green-winged Orchid). The meadow is on a gentle north-facing slope and situated on slowly permeable neutral to calcareous soils. It is managed traditionally with a summer hay cut and the aftermath is sometimes grazed.

Table 4. Non-statutory designated sites situated within 2 km of the proposed cable corridor and converter Station

Site Name, designation and description (if available)	Distance from Proposed Cable Corridor and Converter Station (m)
<p><i>Millers Wood ASNW & CWS</i> is enclosed by a woodbank, parts of which are probably medieval in origin, and divided by internal ditches. Of particular botanical interest, and a strong indicator of ancient woodland, is the presence of a <i>Sorbus domestica</i> (Service-tree) on the north western boundary.</p>	0 (corridor passes through the site)
<p><i>Seckford Hall Campsite CWS</i> comprises a camping and caravan site with areas of acid grassland and wetland. There are a number of small scattered <i>Quercus</i> sp. (Oak) and <i>Crataegus monogyna</i> (Hawthorn) trees. The site supports two nationally scarce species; <i>Crassula tillaea</i> (Mossy Stonecrop) and <i>Trifolium suffocatum</i> (Suffocated Clover).</p>	0 (corridor passes through the site)
<p><i>River Gipping (Sections) CWS</i> comprise two stretches of the River Gipping as it flows through Ipswich. The river banks and adjacent grassland areas support a large number of different plant species including some rare species, for example <i>Nymphoides peltata</i> (Fringed Water Lily). The site is important for fish, invertebrates and birds, species of note include <i>Alcedo atthis</i> (Kingfisher) and <i>Aythya fuligula</i> (Tufted Duck).</p>	0 (corridor passes through the site)
<p><i>The Mill River CWS</i> follows sections of the Mill River through a diverse landscape ranging from Alder carr, flower-rich grazing meadows, improved pasture and Poplar plantation. The Mill River has good water quality and supports a wide variety of aquatic wildlife. The site is important as a wildlife corridor and for birds.</p>	0 (corridor passes through the site)
<p><i>Suffolk Shingle Beaches CWS</i> comprise vegetated shingle, a rare and decreasing habitat, both in the British Isles and in Europe. The stretches of</p>	0 (corridor passes through the site)

Site Name, designation and description (if available)	Distance from Proposed Cable Corridor and Converter Station (m)
shingle beach along the Suffolk coast are of a national conservation importance for the range of shingle plants that grow there. Typical shingle flora includes <i>Lathyrus japonicus</i> (Sea Pea), <i>Crambe maritima</i> (Sea Kale), <i>Euphorbia paralias</i> (Sea Spurge), <i>Honckenya peploides</i> (Sea Sandwort) and <i>Calystegia soldanella</i> (Sea Bindweed). There are also rare invertebrates species found in these coastal sites.	
<i>Fore and Bushey Groves CWS</i> comprises two small woods separated by a track and an area of dense scrub. The majority of the woods has a uniform structure consisting of <i>Acer campestre</i> (Field Maple) and <i>Corylus avellana</i> (Hazel) coppice with <i>Fraxinus excelsior</i> (Ash) standards. However the southern half of Bushey Grove is occupied by a plantation of <i>Acer pseudoplatanus</i> (Sycamore) which is regenerating freely. In addition, approximately 10% of this area has been planted with <i>Pinus sylvestris</i> (Scot's Pine). A notable feature of Fore Grove is the <i>Sorbus domestica</i> (Service-tree).	0 (corridor passes through the site)
<i>Lumber Wood ASNW & CWS</i> is dominated by <i>Acer pseudoplatanus</i> (Sycamore) which have been thinned and coppiced, and <i>Castanea sativa</i> (Sweet Chestnut). Dense clumps of suckering <i>Ulmus sp.</i> (Elm) together with occasional <i>Crataegus monogyna</i> (Hawthorn) and <i>Sambucus nigra</i> (Elder) form the scrub layer.	0 (corridor passes through the site)
<i>Welham's Meadow CWS</i> comprises wet-meadow flora. Plant species of note include <i>Ophrys apifera</i> (Bee Orchid), <i>Stachys officinalis</i> (Betony) and <i>Dactylorhiza maculata</i> (Heath Spotted Orchid).	0 (corridor passes through the site)
<i>Bullen Wood ASNW & CWS</i> is dominated by <i>Corylus avellana</i> (Hazel), <i>Fraxinus excelsior</i> (Ash) and <i>Acer campestre</i> (Field Maple) coppice with numerous mature <i>Quercus sp.</i> (Oak) standards. The site supports several less common woodland plants including <i>Orchis mascula</i> (Early-purple Orchid). Dead wood habitat on the site is important for birds and invertebrates.	0 (corridor passes through the site)
<i>Round Wood and Elms Grove ASNW & CWS</i> is bordered by a medieval bank, ditch and hedges. The dominant tree species in the wood are <i>Quercus sp.</i> (Oak) and <i>Fraxinus excelsior</i> (Ash) with frequent <i>Corylus avellana</i> (Hazel) coppice and <i>Crataegus monogyna</i> (Hawthorn). A good diversity of uncommon herbaceous and woody species can be found in the shrub and ground layers including <i>Orchis mascula</i> (Early-purple Orchid), <i>Anemone nemorosa</i> (Wood Anemone) and <i>Iris foetidissima</i> (Stinking Iris). The site is important for woodland birds particularly warblers.	0 (corridor passes through the site)
<i>Meadow Cottage Wood CWS</i> comprises deciduous woodland with ditches, scrub and tall herbs. This site is noted for <i>Elymus caninus</i> (Bearded Couch), it is the only record for this plant in east Suffolk. Two other scarce plants namely <i>Dipsacus pilosus</i> (Small Teasel) and <i>Persicaria bistorta</i> (Common Bistort) also occur here.	13
<i>Playford Reservoir CWS</i> is a spring-fed area of open water situated on a tributary of the River Fynn. The northern edge of the reservoir is fringed with dense <i>Phragmites australis</i> (Common Reed), behind which is an area dominated by fen vegetation. The site is important for amphibians and birds.	56
<i>Newbourne Springs Meadows CWS</i> is a series of unimproved meadows	76

Site Name, designation and description (if available)	Distance from Proposed Cable Corridor and Converter Station (m)
situated adjacent to the east bank of Newbourne Springs. The meadows support a herb-rich community characteristic of wet meadows; for example <i>Lychnis flos-cuculi</i> (Ragged-robin), <i>Dactylorhiza praetermissa</i> (Southern Marsh Orchid), <i>Oenanthe fistulosa</i> (Tubular Water-dropwort) and <i>Myosotis scorpioides</i> (Water Forget-me-not) grow frequently here. The reed-fringed dykes and stream support good numbers <i>Acrocephalus scirpaceus</i> (Reed Warbler) and <i>A. schoenobaenus</i> (Sedge Warbler).	
<i>Suffolk Water Park CWS</i> comprises a disused gravel pit with a horse-shoe shaped lake, a narrow fringe of emergent vegetation, areas of exposed mud and amenity grassland. The site is important for birds, species of note include <i>Aythya ferina</i> (Pochard), <i>Aythya fuligula</i> (Tufted Duck), <i>Bucephala clangula</i> (Goldeneye), Sandpipers and Gulls. The site also provides a valuable habitat for dragonflies.	77
<i>Newbourne Springs SWT</i> comprises a steep-sided wooded valley with springs, streams, reedbed, fen, heathland and woodland. The rich mixture of habitats provides homes for many uncommon plants, insects and for breeding and migrating birds.	96
<i>Papermill Reedbed SWT</i>	109
<i>Kyson Meadows, Sluice Woods and Martlesham Creek CWS</i> comprise cattle-grazed, unimproved pastures bordering the Deben estuary and broad-leaved woodland. The site contains a diverse assemblage of wetland plants. Adjacent to the reedbed, on the southern bank of Martlesham Creek, lies Sluice Wood. The site is important for birds, species of note include <i>Tringa glareola</i> (Wood Sandpiper), <i>Tringa nebularia</i> (Greenshank), <i>Emberiza schoeniclus</i> (Reed Bunting), <i>Tadorna ferruginea</i> (Shelduck), <i>Anas crecca</i> (Teal) and <i>Gallinago gallinago</i> (Snipe). The site is also important for amphibians and invertebrates.	160
<i>Newbourne Great Pit RIGS</i> is a wooded valley on the side of Orwell estuary – from 35m OD to sea level and including the Orwell shore.	211
<i>Old Rotary Camping ground CWS</i> comprises an area of tall herb vegetation dominated by <i>Pteridium aquilinum</i> (Bracken) encroaching on heavily rabbit grazed acid grassland, a wetter meadow area and hedges. There is a variety of different plant communities within a relatively small area, species of note include <i>Dactylorhiza praetermissa</i> (Southern Marsh Orchid).	285
<i>Porters Wood WT & CWS</i> is a woodland on a slope with wet Alder carr woodland at the bottom and woodland dominated by species such as <i>Quercus sp.</i> (Oak), <i>Ilex aquifolium</i> (Holly) and introduced species on the drier ground. There are important areas of standing and fallen dead wood and Porter's Wood falls within the area of Suffolk where <i>Lucanus cervus</i> (Stag Beetles) are found. Many resident and migrant birds have been recorded on the site.	287
<i>Cubitts Pit CWS</i> comprises chalk grassland and dense scrub. The site is noted for a large population of <i>Helix (Helix) pomatia</i> (Roman Snail). <i>Satyrus w-album</i> (White Letter Hairstreak) butterfly has also been recorded on the <i>Ulmus sp.</i> (Elm) around the perimeter of the site.	295
<i>Crook' Meadow CWS</i> is one of the few remaining unimproved meadows in the Fynn valley. It is fed by a nearby fresh water spring, and supports a wide	298

Site Name, designation and description (if available)	Distance from Proposed Cable Corridor and Converter Station (m)
variety of plants. Rare species include <i>Scrophularia umbrosa</i> (Green Figwort) and <i>Hypericum montanum</i> (Pale St. John's-wort). Although the meadow is lightly grazed, patches have been left ungrazed and here scrub and <i>Chamerion angustifolium</i> (Rosebay Willowherb) are invading.	
RNR 144 CWS comprises chalk flora, species of note include <i>Anacamptis pyramidalis</i> (Pyramidal Orchid).	330
Kiln Farm Meadow CWS comprises areas of wet and dry grassland with a diverse flora, species of note include <i>Dactylorhiza fuchsii</i> (Common Spotted-orchid).	355
Burstall Long Wood ASNW & CWS is dominated by <i>Fraxinus excelsior</i> (Ash) and <i>Acer campestre</i> (Field Maple) coppice with mature <i>Quercus sp.</i> (Oak) standards and is enclosed on three sides by a ditch and bank. The ground flora, supports scarce woodland plants including <i>Euphorbia amygdaloides</i> (Wood Spurge) and <i>Daphne laureola</i> (Spurge-laurel). <i>Sorbus domestica</i> (Service-tree) is also present in Burstall Long Wood. Areas of dead wood provide a source of decaying timber for invertebrates and hole-nesting birds.	372
Harrison Wood WT is an area of mixed woodland.	415
Newbourne Springs RIGS is a wooded valley with Spring fed streams that is of geological interest.	419
Woodbridge Wet Meadow CWS supports a diverse wetland flora, a notable feature of which is a large and thriving population of <i>Dactylorhiza praetermissa</i> (Southern Marsh Orchid). Other wetland species include <i>Hypericum tetrapterum</i> (Square-stalked St. John's-wort) and <i>Angelica sylvestris</i> (Angelica). The drier slopes of the site support a plant community typically found on light soils in this part of Suffolk.	497
RNR 165 CWS is a Roadside Nature Reserve that supports <i>Arabis glabra</i> (Tower Mustard).	599
Corporation Marshes CWS consists of a reedbed interspersed with clumps of scrub. It is drained by a dyke which flows through the area into Falkenham Creek on the eastern side. It is used in winter as a hunting ground by <i>Asio flammeus</i> (Short-eared Owl), <i>Circus cyaneus</i> (Hen Harrier) and <i>Circus aeruginosus</i> (Marsh Harrier).	621
Playford Mere CWS consists of a number of artificial ponds linked by a series of channels and areas of tall fen vegetation interspersed with <i>Salix sp.</i> (Willow) scrub and <i>Populus sp.</i> (Poplar) plantation. This site is a mosaic of undisturbed habitats which provide a valuable refuge for wildlife particularly birds, in an otherwise intensively-farmed landscape. Good numbers of <i>Ardea cinerea</i> (Heron), <i>Tadorna tadorna</i> (Shelduck), <i>Fulica atra</i> (Coot), <i>Gallinula chloropus</i> (Moorhen) and <i>Aythya fuligula</i> (Tufted Duck) shelter in the tall waterside vegetation which fringes the pond and dykes. Uncommon wetland plants, for example <i>Lythrum salicaria</i> (Purple-loosestrife) and <i>Pulicaria dysenterica</i> (Common Fleabane) are abundant amongst the tall fen community.	638
Queech Wood CWS is dominated by mature <i>Fraxinus excelsior</i> (Ash) with frequent <i>Quercus sp.</i> (Oak) and <i>Acer campestre</i> (Field Maple) and a dense scrub layer is provided by <i>Corylus avellana</i> (Hazel), <i>Prunus spinosa</i>	641

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(Blackthorn), <i>Rosa</i> sp. (Rose) and <i>Sambucus nigra</i> (Elder). Tangles of <i>Lonicera periclymenum</i> (Honeysuckle) and <i>Hedera helix</i> (Ivy) in the trees are widespread.	
<p><i>Great Blakenham Pit CWS</i> is being excavated at the present time, it will be largely filled with domestic rubbish but certain areas will be retained for their wildlife value. The chalky banks and hedges around the older parts of the pit have stabilised and now support a species-diverse flora including many plants characteristic of a chalk grassland community. A number of scarce Suffolk species namely <i>Blackstonia perfoliata</i> (Yellow-wort) and <i>Anacamptis pyramidalis</i> (Pyramidal Orchid) have also been recorded. Invertebrates, particularly butterflies are attracted to the numerous wild flowers. Furthermore, large populations of molluscs occur on the chalky banks. Some sections of bank have been colonised by a dense growth of scrub. This provides suitable nesting habitat for birds. The site is noted for its population of Raptors; <i>Accipiter nisus</i> (Sparrowhawk), <i>Falco tinnunculus</i> (Kestrel) and Owls are frequently recorded. Immediately adjacent to the pit is Claypit Grove which is a fragment of a more extensive ancient woodland. It is dominated by <i>Fraxinus excelsior</i> (Ash), <i>Quercus robur</i> (Pedunculate Oak), <i>Acer campestre</i> (Field Maple) and <i>Corylus avellana</i> (Hazel) coppice whilst the ground flora includes <i>Hyacinthoides non-scripta</i> (Bluebell), <i>Circaea lutetiana</i> (Enchanter's-nightshade) and <i>Mercurialis perennis</i> (Dog's Mercury). Deer have been reported in this wood.</p>	699
<p><i>RNR 106 CWS</i> is a Roadside Nature Reserve with a chalk flora; species of note include <i>Anacamptis pyramidalis</i> (Pyramidal Orchid) and <i>Ophrys apifera</i> (Bee Orchid).</p>	803
<p><i>Bloomfield's Farm Meadow CWS</i> contains a wide diversity of wetland plants, and supports large colonies of <i>Dactylorhiza maculata</i> (Heath Spotted Orchid) and <i>Dactylorhiza praetermissa</i> (Southern Marsh Orchid).</p>	805
<p><i>Blunts Wood ASNW, PAW & CWS</i> is a remnant of a once larger ancient woodland. It has a ditch and bank along the southern boundary, with shallower ditches along all the other boundaries. A well-developed mixed deciduous hedge surrounds the woodland. The wood itself is mixed deciduous woodland with a considerable amount of former <i>Corylus avellana</i> (Hazel) coppice, and some more recent coppicing. <i>Prunus avium</i> (Wild Cherry) standards are located frequently along the strip of woodland adjacent to the road. The eastern half of the wood has been cleared and replanted with both native and exotic species including <i>Fagus sylvatica</i> (Beech), <i>Castanea sativa</i> (Sweet Chestnut) and <i>Pinus nigra</i> (Corsican Pine). The ground flora is fairly diverse though it is limited in distribution. This is probably due to earlier disturbance and the dense shade cast by the canopy. Of special interest is the presence of <i>Orchis mascula</i> (Early-purple Orchid) and <i>Dactylorhiza fuchsii</i> (Common Spotted-orchid).</p>	829
<p><i>Playford Alder Carr CWS</i> is an area of deciduous woodland in the Fynn valley consisting of <i>Alnus glutinosa</i> (Alder), <i>Fraxinus excelsior</i> (Ash), <i>Quercus</i> sp. (Oak), <i>Carpinus betulus</i> (Hornbeam) and <i>Acer pseudoplatanus</i> (Sycamore) with wet areas of sedges and reeds. An area planted with hybrid <i>Populus</i> sp. (Poplar) is also included within the site boundary as it contains</p>	849

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standing water fed by springs and also the occasional <i>Quercus robur</i> (Pedunculate Oak) and <i>Alnus glutinosa</i> (Alder). Spring pond is overgrown with little open water but the ground is not water-logged with the springs flowing as streams. There is a diverse age structure with regrowth of <i>Alnus glutinosa</i> (Alder) and <i>Carpinus betulus</i> (Hornbeam) of considerable age. The flora includes <i>Hyacinthoides non-scripta</i> (Bluebell) on the slope rising to the railway line and some plants normally indicative of ancient woodland for example <i>Melica uniflora</i> (Wood Melick), <i>Sanicula europaea</i> (Sanicle) and <i>Adoxa moschatellina</i> (Moschatel). Wetland species occur in the boggy flushes.	
<i>Woodbridge Old Cemetery CWS</i> comprises mature trees and unimproved dry grassland over nutrient poor soil. The higher ground and slopes of the cemetery support parched grassland with characteristic species such as <i>Agrostis capillaris</i> (Common Bent), <i>Vulpia bromoides</i> (Squirreltail Fescue), <i>Trifolium glomeratum</i> (Clustered Clover), <i>Galium verum</i> (Lady's Bedstraw), <i>Rumex acetosa</i> (Common Sorrel) and <i>Salvia verbenaca</i> (Wild Clary). In places, where conditions are really parched vegetation is comprised almost entirely of lichens and bryophytes. At the base of the slopes where conditions are more mesotrophic species such as <i>Leucanthemum vulgare</i> (Oxeye Daisy) and <i>Rumex acetosa</i> (Common Sorrel) are found. <i>Saxifraga granulata</i> (Meadow Saxifrage) (considered occasional in Suffolk) occurs in clusters throughout the cemetery. The trees on the site are important for birds, bats and invertebrates, species of note include <i>Lucanus cervus</i> (Stag Beetle).	851
<i>Blunt's Wood Meadow CWS</i> is a horse-grazed meadow with a diverse plant community. Species of note include <i>Pimpinella major</i> (Greater Burnet-saxifrage), of which there are only three other records in east Suffolk. The meadow lies adjacent to Blunt's Wood which has also been designated as a County Wildlife Site.	854
<i>RNR 92 CWS</i> is a Roadside Nature Reserve that supports <i>Trifolium ochroleucon</i> (Sulphur Clover) and <i>Orchis anthropophora</i> (Man Orchid).	881
<i>Culpho Wood ASNW, PAW & CWS</i> was clear-felled in the early 1940s and replanted by the Forestry Commission with mainly <i>Quercus sp.</i> (Oak) and some conifers.	903
<i>Hogfield Grove CWS</i> comprises a small woodland which is thought to be a fragment of ancient woodland. Situated in the parish of Little Blakenham, it is bordered in the south by a chalk pit which is designated as a Site of Special Scientific Interest. The dominant species are <i>Fraxinus excelsior</i> (Ash), <i>Acer campestre</i> (Field Maple) and <i>Corylus avellana</i> (Hazel) coppice in the scrub layer with <i>Quercus sp.</i> (Oak) and Ash standards forming the tree canopy. A notable feature of the wood is a few overmature <i>Prunus sp.</i> (Cherry) trees. <i>Mercurialis perennis</i> (Dog's Mercury) dominates about two thirds of the flora of the wood; <i>Hyacinthoides non-scripta</i> (Bluebell) interspersed with patches of <i>Rubus fruticosus</i> agg. (Bramble) cover the rest of the area. A number of uncommon plants, for example <i>Iris foetidissima</i> (Stinking Iris) and <i>Orchis mascula</i> (Early-purple Orchid) have been recorded in a few places in the wood.	937
<i>Pogson's Farm Meadow CWS</i> comprises of herb-rich grazed meadows with	859

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<p>areas of <i>Ulex europaeus</i> (Gorse) and <i>Rubus fruticosus</i> agg. (Bramble) scrub, hedges, wetter areas and some planted trees. The trees include <i>Castanea sativa</i> (Sweet Chestnut), <i>Betula pendula</i> (Silver Birch), <i>Larix</i> sp. (Larch) and <i>Pinus</i> sp. (Pine) and the old hedges are dominated by <i>Crataegus monogyna</i> (Hawthorn) with <i>Fraxinus excelsior</i> (Ash), <i>Ilex aquifolium</i> (Holly) and <i>Acer pseudoplatanus</i> (Sycamore). A wide variety of grasses grow in the meadows reflecting the unimproved nature of the grasslands. Species include <i>Anthoxanthum odoratum</i> (Sweet Vernal-grass), <i>Cynosurus cristatus</i> (Crested Dog's-tail), <i>Alopecurus pratensis</i> (Meadow Foxtail), <i>Phleum pratense</i> (Timothy) and <i>Festuca rubra</i> (Red Fescue). The very wet areas add further variety with several rushes and horsetails, <i>Veronica beccabunga</i> (Brooklime), and in open water, <i>Berula erecta</i> (Lesser Water-parsnip), <i>Nasturtium officinale</i> (Water-cress) and <i>Lemna minor</i> (Common Duckweed) are present.</p>	
<p><i>Flowtonhall Grove</i> ASNW & CWS is a small ancient woodland composed almost entirely of <i>Quercus</i> sp. (Oak), <i>Acer campestre</i> (Field Maple) and <i>Corylus avellana</i> (Hazel) coppice with scattered <i>Quercus robur</i> (Pedunculate Oak) and <i>Fraxinus excelsior</i> (Ash) standards throughout. Below the tree layer is an understorey composed largely of <i>Crataegus monogyna</i> (Hawthorn). The shrub layer is particularly dense in the south western corner where some old large <i>Crataegus monogyna</i> (Hawthorn) and <i>Malus sylvestris</i> (Crab Apple) trees are present. The shrub layer provides a good habitat for nesting birds, particularly warblers. <i>Hyacinthoides non-scripta</i> (Bluebell), <i>Orchis mascula</i> (Early-purple Orchid) and <i>Paris quadrifolia</i> (Herb-Paris) have been recorded in the ground layer.</p>	998
<p><i>Tuddenham Hall Wood</i> ASNW & CWS is a small ancient woodland containing mainly <i>Quercus</i> sp. (Oak), <i>Fraxinus excelsior</i> (Ash) and <i>Acer campestre</i> (Field Maple) with <i>Corylus avellana</i> (Hazel) as an understorey. The ground flora contains plants indicative of ancient woodlands including <i>Lamium galeobdolon</i> (Yellow Archangel), <i>Milium effusum</i> (Wood Millet) and <i>Sanicula europaea</i> (Sanicle). The site is important for woodland birds.</p>	1004
<p><i>Pumping Station Meadows</i> CWS is a small unmanaged grassland in the Fynn valley. The site lies on a slope with scrub encroaching on the drier ground. At the foot of the slope, the ground is quite boggy and it is here that the main floristic interest lies. Species include the uncommon <i>Dactylorhiza praetermissa</i> (Southern Marsh Orchid).</p>	1024
<p><i>Lux Wood</i> ASNW & CWS supports a wide range of deciduous tree species, including <i>Fagus sylvatica</i> (Beech), <i>Quercus</i> sp. (Oak), <i>Ulmus</i> sp. (Elm), <i>Acer pseudoplatanus</i> (Sycamore), <i>Prunus avium</i> (Wild Cherry) and <i>Carpinus betulus</i> (Hornbeam). Small areas of <i>Corylus avellana</i> (Hazel) and <i>Tilia cordata</i> (Small-leaved Lime) can also be found. Lux Wood is also an important site for birds, species of note include <i>Luscinia megarhynchos</i> (Nightingale) and <i>Coccothraustes coccothraustes</i> (Hawfinch).</p>	1052
<p><i>Paul's Rough Ground</i> CWS is a small, wet, unimproved meadow which lies adjacent to Kirton Brook. It supports a good range of marshland plants including <i>Lotus pedunculatus</i> (Greater Bird's-foot-trefoil), <i>Silene flos-cuculi</i> (Ragged-Robin) and <i>Pulicaria dysenterica</i> (Common Fleabane). <i>Dactylorhiza fuchsii</i> (Common Spotted-orchid) grows in good numbers amongst the rush</p>	1052

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clumps along the western side. The meadow is managed by occasional cattle grazing.	
<i>Kings Fleet CWS</i> comprises an extensive area of open water situated close to the Deben Estuary. It is a former tributary creek that is now separated from the tidal estuary by the sea wall. It is fed by springs and is mainly freshwater, although there is some brackish seepage. A large number of birds use the area in late Summer / Autumn including <i>Tachybaptus ruficollis</i> (Little Grebe), <i>Aythya fuligula</i> (Tufted Duck), <i>Motacilla flava</i> (Yellow Wagtail), <i>Panurus biarmicus</i> (Bearded Tit) and <i>Hirundo rustica</i> (Swallow). The water quality of Kingsfleet is very good and as a consequence the aquatic flora and invertebrate fauna, particularly dragonflies is abundant and varied. The site also provides good habitat for <i>Arvicola amphibius</i> (European Water Vole) and <i>Lutra lutra</i> (Otter).	1089
<i>RNR 119 CWS</i> is a Roadside Nature Reserve that supports <i>Orchis anthropophora</i> (Man Orchid).	1089
<i>Barham Pits CWS</i> comprise a series of old gravel pits with steep sides that are important for birds. They provide food and shelter for significant numbers of wintering wildfowl. Large populations of <i>Aythya ferina</i> (Pochard) and <i>Aythya fuligula</i> (Tufted Duck) are regularly seen, with smaller numbers of other ducks, for example <i>Bucephala clangula</i> (Goldeneye). In Summer, the pits are used by a variety of breeding water birds including good numbers of Tufted Duck and <i>Podiceps cristatus</i> (Great Crested Grebe). In addition, the pits are a regular stop over for birds on passage, for example <i>Sterna hirundo</i> (Common Tern), <i>Actitis hypoleucos</i> (Common Sandpiper) and <i>Pandion haliaetus</i> (Osprey) are frequent visitors. <i>Alcedo atthis</i> (Kingfisher) and <i>Ardea cinerea</i> (Heron) are regularly observed feeding in or around the lakes.	1224
<i>Martlesham Common CWS</i> comprises heathland and diverse acid grassland, interspersed with larger areas of <i>Pteridium aquilinum</i> (Bracken) and <i>Ulex europaeus</i> (Gorse). The site is important for its population of <i>Plebejus argus</i> (Silver-studded Blue) butterflies.	1259
<i>Kirton Reservoir CWS</i> comprises wet meadow, open water and woodland. The site supports a wide range of wetland plants including the rare <i>Dactylorhiza maculata</i> (Heath Spotted Orchid). There is a narrow band of mature deciduous woodland along the north shore of the reservoir dominated by <i>Quercus</i> sp. (Oak) and <i>Fraxinus excelsior</i> (Ash) with a few large <i>Fagus sylvatica</i> (Beech).	1267
<i>Somersham Park ASNW & PAW</i>	1292
<i>Column Field Upper Quarry CWS</i> comprises an unusual mosaic of habitats due to quarrying. The central area of the site comprises rank grassland, ponds, scrub and successional vegetation that is important for a wide range of birds including breeding <i>Charadrius dubius</i> (Little Ringed Plover). The shallow nature of the ponds and surrounding grassland scrub mosaic also make this an important over wintering site for wildfowl and waders. <i>Riparia riparia</i> (Sand martin) are confirmed to be breeding in the sand cliff to the east of the central area.	1297
The ponds and associated terrestrial habitat are known to support a medium (11-100) resident breeding population of <i>Triturus cristatus</i> (Great Crested Newt) and a good breeding population of <i>Natrix natrix</i> (Grass Snake). The	

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<p>site is important for bats, <i>Myotis daubentoni</i> (Daubenton's Bat) are regularly seen foraging over the pond area of the pit. The site is also important for invertebrates, particularly hymenoptera. Two of these species, <i>Philanthus triangulum</i> (Bee Wolf) and <i>Cerceris quinquefasciata</i> (5 Banded Digger Wasp) are nationally rare.</p> <p>The exposures of chalk and sand and thin soils have been colonised by an interesting combination of plants associated with early successional, chalk and dry grasslands including species such as <i>Erigeron acris</i> (Blue Fleabane), <i>Centaureum erythraea</i> (Common Centaury), <i>Ophrys apifera</i> (Bee Orchid) and <i>Anacamptis pyramidalis</i> (Pyramidal Orchid) and <i>Blackstonia perfoliata</i> (Yellow-wort).</p>	
<p><i>Bramford Meadows CWS</i> consists of a series of low-lying wet meadows which are separated by a number of drainage ditches with margins of rank vegetation and bare mud. The water in these ditches is of a high quality and they support a diverse aquatic and emergent flora. The ditch edges support several rare species including <i>Butomus umbellatus</i> (Flowering-rush). The site is also of importance for its invertebrate populations, particularly butterflies and crickets.</p>	1336
<p><i>Somersham Park ASNW & PAW</i></p>	1339
<p><i>Felixstowe Ferry CWS</i> comprises a number of different linked habitats: The Tomline Wall runs along the west of the site, and is a man-made flood defence bank with dykes either side. Rough grassland on the bank provides important habitat for <i>Anguis fragilis</i> (Slow-worm), <i>Natrix natrix</i> (Grass Snake), several species of birds and a wide range of invertebrates. The dykes themselves are a stronghold for <i>Arvicola amphibius</i> (Water Vole). At the northern end of the Tomline wall there is an area of rough grassland and scrub that is partially inundated by brackish water giving rise to an interesting mix of species suited to both freshwater and brackish environments. An area of <i>Ulex europaeus</i> (Gorse) and dry grassland is important for reptiles with <i>Lacerta vivipara</i> (Common Lizard) recorded. To the east of the seawall there is a large area vegetated shingle supporting the characteristic plants of this nationally rare habitat such as <i>Lathyrus japonicus</i> (Sea Pea), <i>Glaucium flavum</i> (Yellow Horned Poppy), and <i>Crambe maritima</i> (Sea Kale).</p>	1401
<p><i>Rede Wood ASNW & CWS</i> is an important historical feature of the landscape. Rede Wood is a typical boulder clay woodland consisting of <i>Fraxinus excelsior</i> (Ash), <i>Quercus sp.</i> (Oak) and <i>Corylus avellana</i> (Hazel) in a coppice with standards structure. Over one hundred and one species of flowering plant have been recorded in the wood. Species of note include <i>Anemone nemorosa</i> (Wood Anemone), <i>Euphorbia amygdaloides</i> (Wood Spurge) and <i>Neottia nidus-avis</i> (Bird's-nest Orchid). The site also supports a diverse assemblage of fungi and birds.</p>	1418
<p><i>Ramsholt Marshes and Lodge Plantation CWS</i> comprises agriculturally-improved, grazing marshes drained by a network of dykes and a small area of plantation woodland. The marshes are used by a large number of waders and wildfowl, in particular, <i>Anas platyrhynchos</i> (Mallard), <i>Anas penelope</i> (Wigeon) and <i>Anas crecca</i> (Teal) with fewer <i>Anas clypeata</i> (Shoveler). Lodge Plantation supports a good sized heronry.</p>	1427

Site Name, designation and description (if available)	Distance from Proposed Cable Corridor and Converter Station (m)
<p><i>Cliff Farm Meadows & Nettle Hill Wood CWS</i> comprise two small horse-grazed fields close to the Deben estuary near Sutton. They are linked by a stream which flows along the base of the slope. Wader species, for example, <i>Tringa totanus</i> (Redshank), <i>Vanellus vanellus</i> (Lapwing) and <i>Gallinago gallinago</i> (Snipe) breed in the meadows during the summer. <i>Tyto alba</i> (Barn Owl) use these meadows as prime hunting ground. Much the flora of the site is of conservation importance. Wetter marginal areas along the stream are colonised by <i>Veronica beccabunga</i> (Brooklime), <i>Caltha palustris</i> (Marsh-marigold) and <i>Apium nodiflorum</i> (Fool's Water-cress). Further away from the stream, <i>Dactylorhiza praetermissa</i> (Southern Marsh Orchid) and <i>Lychnis flos-cuculi</i> (Ragged-robin) are abundant. The pond which is fed by a stream is well used as a breeding site for amphibians. There are also areas of acid grassland. <i>Lepus europaeus</i> (Hares) are abundant in this part of the meadow. In addition, an area of mixed woodland known as Nettle Hill Wood situated to the south of Cliff Farm Meadows supports one of the largest Heronries in the county; approximately 24 nests were occupied in 1991.</p>	1439
<p><i>Osier Bed and Martlesham Plantation Meadows CWS</i> consists of two unimproved, wet grassland meadows and a former osier bed adjacent to Butlers Brook. The ground flora is rich and includes some noteworthy species such as <i>Dactylorhiza praetermissa</i> (Southern Marsh Orchid) and <i>Chrysosplenium oppositifolium</i> (Opposite-leaved Golden-saxifrage). The site is important for wading birds.</p>	1463
<p><i>Valley Lodge Meadow CWS</i> is south facing and is situated on a gentle slope. A large proportion of the northern half of the meadow was at one time colonised by patches of <i>Crataegus monogyna</i> (Hawthorn) scrub. Recent removal of this scrub has enabled a species rich flora to develop on the chalky soils of the site. A wide range of chalkland plants can be seen here including <i>Blackstonia perfoliata</i> (Yellow-wort), <i>Centaureum erythraea</i> (Common Centaury) and <i>Sanguisorba minor</i> (Salad Burnet). <i>Anacamptis pyramidalis</i> (Pyramidal Orchid) are a notable feature of the site and frequently occur on the steeper parts of the slope. The species diversity of the meadow is maintained by careful management regime which involves grazing by goats and horses.</p>	1463
<p><i>Witnesham Thicks PAW & CWS</i> is a small woodland that consists mainly of large neglected <i>Carpinus betulus</i> (Hornbeam) coppice with mature <i>Quercus</i> sp. (Oak) standards scattered throughout. The tree canopy forms a dense layer beneath which is an understorey composed of <i>Corylus avellana</i> (Hazel) coppice and <i>Crataegus monogyna</i> (Hawthorn). It is bordered along its southern roadside boundary by a thick hedge of Hornbeam, <i>Sambucus nigra</i> (Elder), Hawthorn and <i>Prunus spinosa</i> (Blackthorn). A ditch and bank, a feature associated with medieval woods, encloses the entire site. Very little light reaches the woodland floor through the dense tree canopy and as a result the ground flora is sparse.</p>	1483
<p><i>Nut Tree Cottage Meadow CWS</i> comprises a florally diverse meadow including a wide range of fairly common wild flowers, for example <i>Primula veris</i> (Cowslip) and <i>Agrimonia eupatoria</i> (Agrimony) and rare species such as <i>Blackstonia perfoliata</i> (Yellow-wort), <i>Anacamptis pyramidalis</i> (Pyramidal</p>	

Site Name, designation and description (if available)	Distance from Proposed Cable Corridor and Converter Station (m)
Orchid) and <i>Trifolium ochroleucon</i> (Sulphur Clover). Nut Tree Cottage Meadow represents a valuable fragment of agriculturally unimproved grassland which is the most threatened habitat in Suffolk.	
<i>Martlesham Plantation Acid Grassland</i> CWS comprises a small area of acid grassland that is a fragment of the once extensive Martlesham Heath. The sward is dominated by <i>Agrostis capillaris</i> (Creeping Bent Grass), <i>Festuca ovina</i> (Sheep's Fescue) and <i>Rumex acetosella</i> (Sheep's Sorrel).	1569
<i>River Gipping (Sections)</i> CWS supports a diverse emergent fringe consisting of <i>Phragmites australis</i> (Common Reed), Pond Sedge and <i>Sparganium erectum</i> (Branched Bur-reed). Channel vegetation is dominated by <i>Nuphar lutea</i> (Yellow Water-lily) but also contains some uncommon plants, for example <i>Myriophyllum spicatum</i> (Spiked Water-milfoil). A river corridor survey carried out in 1990 showed that <i>Alcedo atthis</i> (Kingfisher), <i>Emberiza schoeniclus</i> (Reed Bunting), <i>Acrocephalus scirpaceus</i> (Reed Warbler), <i>A. schoenobaenus</i> (Sedge Warbler) and <i>Aythya fuligula</i> (Tufted Duck) breed on the River Gipping. In addition <i>Motacilla cinerea</i> (Grey Wagtail) are known to breed in old river structures, mainly locks, including Baylham Mill Lock and Sharmford Lock. Furthermore the River Gipping supports a valuable mixed coarse fishery (Class A).	1582
<i>Great Wood ASNW & CWS</i> comprises mainly <i>Fraxinus excelsior</i> (Ash) with smaller numbers of <i>Quercus sp.</i> (Oak) standards. Neglected <i>Corylus avellana</i> (Hazel) coppice forms a dense understorey throughout. A number of old Hazel coppice stools can still be seen and are evidence of the wood's antiquity. The field layer is covered in a thick growth of <i>Rubus fruticosus</i> agg. (Bramble).	1653
<i>Great Blakenham Churchyard</i> CWS supports a species-rich plant community of conservation importance. In 1992, over one hundred and ten species of flowering plants were recorded here. In addition to a wide range of common wild flowers and garden escapes, the churchyard also supports a number of uncommon Suffolk species for example, <i>Saxifraga granulata</i> (Meadow Saxifrage), <i>Myosotis ramosissima</i> (Early Forget-me-not) and <i>Pimpinella saxifraga</i> (Burnet-saxifrage). Of particular interest is a small population of <i>Thalictrum minus</i> (Lesser Meadow-rue), a rare plant which has only been recorded from a few sites in Suffolk, mainly in Breckland. The site is also important for insects.	1692
<i>Kesgrave Wood and Sinks Valley</i> CWS comprises an early 19th century plantation, parkland with mature trees, acid grassland, heathland, Alder woodland and scrub. Scarce Suffolk species recorded in the valley include <i>Juncus squarrosus</i> (Heath Rush), and <i>Valeriana dioica</i> (Marsh Valerian). The site is important for birds and bats.	1711
<i>Church Farm Meadow</i> CWS is a semi-improved horse-grazed field close to Church Farm. A corner of the field is more waterlogged than the remainder of the site, and as a consequence is less heavily grazed. This has enabled a herb-rich flora to flourish and unusual wetland plants, for example, <i>Dactylorhiza praetermissa</i> (Southern Marsh Orchid) (50 spikes), <i>Carex otrubae</i> (False Fox-sedge) and <i>Stellaria graminea</i> (Lesser Stitchwort) grow here in good numbers.	1758
<i>Martlesham Heath Wood</i> CWS comprises <i>Betula pendula</i> (Silver Birch), <i>Quercus sp.</i> (Oak) and <i>Pinus sylvestris</i> (Scot's Pine) with mainly <i>Pteridium</i>	1913

Site Name, designation and description (if available)	Distance from Proposed Cable Corridor and Converter Station (m)
<p><i>aquilinum</i> (Bracken) under the trees. There are also a areas of <i>Ulex europaeus</i> (Gorse) thicket and a number of heath land remnants and grass glades which are invaded by <i>Betula sp.</i> (Birch) regeneration and some garden escapes and planted exotics are also present. Many of the paths which cross the site are well-worn and are often fringed with <i>Calluna vulgaris</i> (Heather). There are many pits and small trenches especially in the southern half of the wood, colonised with <i>Juncus effusus</i> (Soft-rush).</p>	
<p>Bramford Churchyard CWS. A botanical survey of the churchyard in 1993 recorded nearly one hundred species of flowering plants, although a number of these plants are introduced species and garden escapes. In addition to many common wild flowers the site also supports a number of uncommon Suffolk plants for example <i>Pimpinella saxifraga</i> (Burnet-saxifrage), <i>Sanguisorba minor</i> (Salad Burnet) and <i>Geranium rotundifolium</i> (Round-leaved Crane's-bill).</p>	1936
<p>Hasketon Meadow CWS is one of four meadows situated to the west of the village which have recently been denotified as a Site of Special Scientific Interest. The meadow supports two distinct plant communities. Over half the meadow is herb-poor sward dominated by <i>Alopecurus pratensis</i> (Meadow Foxtail), <i>Holcus lanatus</i> (Yorkshire-fog) and <i>Dactylis glomerata</i> (Cock's-foot). This is interspersed with areas of species-rich grassland. Amongst the more common wild flowers are a number of scarce Suffolk species for example <i>Anacamptis morio</i> (Green-winged Orchid) and <i>Silau silaus</i> (Pepper Saxifrage). Hasketon Meadow is managed by an annual hay cut.</p>	1963
<p>Brightwell Grazing Meadows CWS comprises a herb rich, cattle grazed meadows of considerable botanical interest adjoining both sides of the River Mill. A new straight channel has been cut for the river, upstream of Brightwell Bridge and the abandoned meandering watercourse forms a valuable habitat for plants such as <i>Nasturtium officinale</i> (Watercress) and <i>Veronica beccabunga</i> (Brooklime). Downstream of the bridge, the meadows are spring fed and the high water table throughout the summer provides ideal conditions for a wide range of wetland species including <i>Dactylorhiza praetermissa</i> (Southern Marsh Orchid), <i>Saxifraga granulata</i> (Meadow Saxifrage), <i>Lychnis flos-cuculi</i> (Ragged-robin) and <i>Carex distans</i> (Distant Sedge). <i>Vanellus vanellus</i> (Lapwing) and <i>Tringa totanus</i> (Redshank) are known to have bred on the meadow. Furthermore, amphibians are abundant in the marshy conditions.</p>	1977

APPENDIX 2

Protected Species Records

Table 5 displays protected and noteworthy species records that are located within the 2 km search area, extending to 5 km for bats. These species records were obtained from the Royal Society for the Protection of Birds (RSPB) and Suffolk Biological Record Centre. The Latin and common names for species are given as well as their level of designation. A glossary defining abbreviations used in the table is given in Table 7.1, Appendix C. This table does not constitute a comprehensive list. If a species is not included in the table below it does not necessarily mean the species is absent from the search area, but rather that it has not been recorded in these locations.

Table 5. Protected and noteworthy species records within the 2 km search area, extending to 5 km for bats

Latin Name	Common Name	Designation
Amphibians		
<i>Bufo bufo</i>	Common Toad	WCA5.9.5, UKBAP, LBAP
<i>Lissotriton vulgaris</i>	Smooth Newt	WCA5.9.5
<i>Rana temporaria</i>	Common Frog	WCA5.9.5
<i>Triturus cristatus</i>	Great Crested Newt	EPS (Sch2), WCA5.9.1, UKBAP, LBAP
Birds		
<i>Actitis hypoleucos</i>	Common Sandpiper	Amber
<i>Alauda arvensis</i>	Sky Lark	Red, LBAP
<i>Alca torda</i>	Razorbill	Amber
<i>Alcedo atthis</i>	Common Kingfisher	WCA1.1, Amber
<i>Anas acuta</i>	Northern Pintail	WCA1.2, Amber
<i>Anas clypeata</i>	Northern Shoveler	Amber
<i>Anas crecca</i>	Eurasian Teal	Amber
<i>Anas platyrhynchos</i>	Mallard	Amber
<i>Anas querquedula</i>	Garganey	WCA1.1, Amber
<i>Anas strepera</i>	Gadwall	Amber
<i>Anser anser</i>	Greylag Goose	WCA1.2, Amber
<i>Anser brachyrhynchus</i>	Pink-footed Goose	Amber
<i>Anser fabalis</i>	Bean Goose	Amber
<i>Anthus pratensis</i>	Meadow Pipit	Amber
<i>Anthus spinoletta</i>	Water Pipit	Amber
<i>Anthus trivialis</i>	Tree Pipit	Red, UKBAP, LBAP

Latin Name	Common Name	Designation
<i>Apus apus</i>	Common Swift	Amber
<i>Arenaria interpres</i>	Ruddy Turnstone	Amber
<i>Asio flammeus</i>	Short-eared Owl	Amber
<i>Aythya ferina</i>	Common Pochard	Amber
<i>Aythya fuligula</i>	Tufted Duck	Amber
<i>Aythya marila</i>	Greater Scaup	WCA1.1, Red, UKBAP
<i>Botaurus stellaris</i>	Great Bittern	WCA1.1, Red, UKBAP, LBAP
<i>Branta bernicla</i>	Brent Goose	Amber
<i>Branta leucopsis</i>	Barnacle Goose	Amber
<i>Bucephala clangula</i>	Common Goldeneye	WCA1.2, Amber
<i>Calcarius lapponicus</i>	Lapland Longspur	WCA1.1
<i>Calidris alpina</i>	Dunlin	Red
<i>Calidris canutus</i>	Red Knot	Amber
<i>Calidris maritima</i>	Purple Sandpiper	WCA1.1, Amber
<i>Calidris temminckii</i>	Temminck's Stint	WCA1.1, Red
<i>Caprimulgus europaeus</i>	European Nightjar	Red, UKBAP, LBAP
<i>Carduelis cabaret</i>	Lesser Redpoll	Red, UKBAP, LBAP
<i>Carduelis cannabina</i>	Common Linnet	Red, LBAP
<i>Carduelis flavirostris</i>	Twite	Red, LBAP
<i>Charadrius dubius</i>	Little Plover	WCA1.1
<i>Chlidonias niger</i>	Black Tern	WCA1.1, Amber
<i>Circus aeruginosus</i>	Eurasian Marsh Harrier	WCA1.1, Amber
<i>Circus cyaneus</i>	Hen Harrier	WCA1.1, Red
<i>Circus pygargus</i>	Montagu's Harrier	WCA1.1, Amber
<i>Coccothraustes coccothraustes</i>	Hawfinch	Red, UKBAP, LBAP
<i>Columba oenas</i>	Stock Pigeon	Amber
<i>Coturnix coturnix</i>	Common Quail	WCA1.1, Amber
<i>Crex crex</i>	Corn Crake	WCA1.1, Red, UKBAP
<i>Cuculus canorus</i>	Common Cuckoo	Red, UKBAP, LBAP
<i>Cygnus columbianus</i>	Tundra Swan	WCA1.1, Amber
<i>Cygnus cygnus</i>	Whooper Swan	WCA1.1, Amber
<i>Delichon urbicum</i>	House Martin	Amber
<i>Dendrocopos minor</i>	Lesser Spotted Woodpecker	Red, LBAP
<i>Egretta garzetta</i>	Little Egret	Amber
<i>Emberiza calandra</i>	Corn Bunting	Red
<i>Emberiza citrinella</i>	Yellowhammer	Red, UKBAP
<i>Emberiza schoeniclus</i>	Reed Bunting	Amber,

Latin Name	Common Name	Designation
		UKBAP, LBAP
<i>Falco columbarius</i>	Merlin	WCA1.1, Amber
<i>Falco tinnunculus</i>	Common Kestrel	Amber
<i>Ficedula hypoleuca</i>	Pied Flycatcher	Amber
<i>Fratercula arctica</i>	Atlantic Puffin	Amber
<i>Fulmarus glacialis</i>	Northern Fulmar	Amber
<i>Gallinago gallinago</i>	Common Snipe	Amber
		WCA1.1, Amber, UKBAP
<i>Gavia arctica</i>	Black-throated Diver	WCA1.1, Amber
<i>Gavia immer</i>	Great Northern Diver	WCA1.1, Amber
<i>Gavia stellata</i>	Red-throated Diver	WCA1.1, Amber
<i>Grus grus</i>	Common Crane	Amber
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	Amber
<i>Himantopus himantopus</i>	Black-winged Stilt	WCA1.1
<i>Hirundo rustica</i>	Barn Swallow	Amber
<i>Hydrobates pelagicus</i>	European Storm-petrel	Amber
		WCA1.1, Red, UKBAP
<i>Jynx torquilla</i>	Eurasian Wryneck	WCA1.1, Red, UKBAP
<i>Lanius collurio</i>	Red-backed Shrike	Red, LBAP
<i>Larus argentatus</i>	Herring Gull	Amber
<i>Larus canus</i>	Mew Gull	Amber
<i>Larus fuscus</i>	Lesser Black-backed Gull	Amber
<i>Larus glaucoides</i>	Iceland Gull	Amber
<i>Larus hyperboreus</i>	Glaucous Gull	Amber
<i>Larus marinus</i>	Great Black-backed Gull	Amber
		WCA1.1, Amber
<i>Larus melanocephalus</i>	Mediterranean Gull	WCA1.1, Amber
<i>Larus minutus</i>	Little Gull	Amber
<i>Larus ridibundus</i>	Black-headed Gull	Amber
<i>Limosa lapponica</i>	Bar-tailed Godwit	Amber
		WCA1.1, Red, UKBAP, LBAP
<i>Limosa limosa</i>	Black-tailed Godwit	Red, UKBAP, LBAP
<i>Locustella naevia</i>	Common Grasshopper Warbler	WCA1.1, Amber, UKBAP, LBAP
<i>Lullula arborea</i>	Wood Lark	Amber
<i>Luscinia megarhynchos</i>	Common Nightingale	Amber
<i>Lymnocyptes minimus</i>	Jack Snipe	Amber
		WCA1.1, Amber
<i>Melanitta fusca</i>	Velvet Scoter	WCA1.1, Red, UKBAP
<i>Melanitta nigra</i>	Common Scoter	Amber
<i>Mergellus albellus</i>	Smew	WCA1.1, Amber
<i>Milvus milvus</i>	Red Kite	

Latin Name	Common Name	Designation
<i>Morus bassanus</i>	Northern Gannet	Amber
<i>Motacilla cinerea</i>	Grey Wagtail	Amber
<i>Motacilla flava</i>	Yellow Wagtail	Red, LBAP
<i>Muscicapa striata</i>	Spotted Flycatcher	Red, UKBAP, LBAP
<i>Numenius arquata</i>	Eurasian Curlew	Amber, UKBAP
<i>Numenius phaeopus</i>	Whimbrel	WCA1.1, Red
<i>Oenanthe oenanthe</i>	Northern Wheatear	Amber
<i>Oriolus oriolus</i>	Eurasian Golden Oriole	WCA1.1, Red
<i>Pandion haliaetus</i>	Osprey	WCA1.1, Amber
<i>Panurus biarmicus</i>	Bearded Tit	WCA1.1, Amber
<i>Passer domesticus</i>	House Sparrow	Red, UKBAP, LBAP
<i>Passer montanus</i>	Eurasian Tree Sparrow	Red, UKBAP, LBAP
<i>Perdix perdix</i>	Grey Partridge	Red, UKBAP, LBAP
<i>Pernis apivorus</i>	European Honey-buzzard	WCA1.1, Amber
<i>Phalacrocorax aristotelis</i>	European Shag	Amber
<i>Philomachus pugnax</i>	Ruff	WCA1.1, Red
<i>Phoenicurus ochruros</i>	Black Redstart	WCA1.1, Amber
<i>Phoenicurus phoenicurus</i>	Common Redstart	Amber
<i>Phylloscopus sibilatrix</i>	Wood Warbler	Red, UKBAP, LBAP
<i>Phylloscopus trochilus</i>	Willow Warbler	Amber
<i>Picus viridis</i>	Green Woodpecker	Amber
<i>Plectrophenax nivalis</i>	Snow Bunting	WCA1.1, Amber
<i>Pluvialis apricaria</i>	European Golden Plover	Amber
<i>Pluvialis squatarola</i>	Grey Plover	Amber
<i>Podiceps auritus</i>	Slavonian Grebe	WCA1.1, Amber
<i>Podiceps grisegena</i>	Red-necked Grebe	Amber
<i>Podiceps nigricollis</i>	Black-necked Grebe	WCA1.1, Amber
<i>Poecile montanus</i>	Willow Tit	Red, LBAP
<i>Poecile palustris</i>	Marsh Tit	Red
<i>Prunella modularis</i>	Hedge Accentor	Amber, LBAP
<i>Puffinus griseus</i>	Sooty Shearwater	Amber
<i>Puffinus mauretanicus</i>	Balearic Shearwater	RDB (CR), Red, UKBAP
<i>Pyrrhula pyrrhula</i>	Common Bullfinch	Amber, LBAP
<i>Recurvirostra avosetta</i>	Pied Avocet	WCA1.1, Amber
<i>Regulus ignicapilla</i>	Firecrest	WCA1.1, Amber
<i>Riparia riparia</i>	Sand Martin	Amber

Latin Name	Common Name	Designation
<i>Rissa tridactyla</i>	Black-legged Kittiwake	Amber
<i>Saxicola rubetra</i>	Whinchat	Amber
<i>Scolopax rusticola</i>	Eurasian Woodcock	Amber
<i>Somateria mollissima</i>	Common Eider	Amber
<i>Stercorarius parasiticus</i>	Arctic Skua	Red, UKBAP
<i>Stercorarius skua</i>	Great Skua	Amber
<i>Sterna hirundo</i>	Common Tern	Amber
<i>Sterna paradisaea</i>	Arctic Tern	Amber
<i>Sterna sandvicensis</i>	Sandwich Tern	Amber
<i>Sternula albifrons</i>	Little Tern	WCA1.1, Amber
<i>Streptopelia turtur</i>	European Turtle Dove	Red, UKBAP, LBAP
<i>Sturnus vulgaris</i>	Common Starling	Red, LBAP
<i>Sylvia communis</i>	Common Whitethroat	Amber
<i>Sylvia undata</i>	Dartford Warbler	WCA1.1, Amber
<i>Tachybaptus ruficollis</i>	Little Grebe	Amber
<i>Tadorna tadorna</i>	Common Shelduck	Amber
<i>Tringa erythropus</i>	Spotted Redshank	Amber
<i>Tringa glareola</i>	Wood Sandpiper	WCA1.1, Amber
<i>Tringa ochropus</i>	Green Sandpiper	WCA1.1, Amber
<i>Tringa totanus</i>	Common Redshank	Amber
<i>Turdus iliacus</i>	Redwing	WCA1.1, Red
<i>Turdus philomelos</i>	Song Thrush	Red, LBAP
<i>Turdus pilaris</i>	Fieldfare	WCA1.1, Red
<i>Turdus torquatus</i>	Ring Ouzel	Red, UKBAP
<i>Turdus viscivorus</i>	Mistle Thrush	Amber
<i>Tyto alba</i>	Barn Owl	WCA1.1, Amber, LBAP
<i>Uria aalge</i>	Common Guillemot	Amber
<i>Vanellus vanellus</i>	Northern Lapwing	Red, UKBAP, LBAP
Fish		
<i>Anguilla anguilla</i>	European Eel	UKBAP
Flowering plants		
<i>Aceras anthropophorum</i>	Man Orchid	RDB (EN), UKBAP, NS, LBAP
<i>Althaea officinalis</i>	Marsh-mallow	NS
<i>Anthemis arvensis</i>	Corn Chamomile	RDB (EN)
<i>Anthemis cotula</i>	Stinking Chamomile	RDB (VU)
<i>Arabis glabra</i>	Tower Mustard	RDB (EN), UKBAP, NS, LBAP
<i>Brassica oleracea</i>	Wild Cabbage	NS
<i>Carex divisa</i>	Divided Sedge	RDB (VU),

Latin Name	Common Name	Designation
		UKBAP, NS, LBAP
<i>Carum carvi</i>	Caraway	RDB (EN), UKBAP, NS
<i>Centaurea cyanus</i>	Cornflower	UKBAP, LBAP
<i>Chenopodium bonus-henricus</i>	Good-King-Henry	RDB (VU)
<i>Chenopodium murale</i>	Nettle-leaved Goosefoot	RDB (VU)
<i>Clinopodium calamintha</i>	Lesser Calamint	RDB (VU), NS
<i>Crassula tillaea</i>	Mossy Stonecrop	NS
		WCA8, RDB (EN), UKBAP, NS
<i>Dianthus armeria</i>	Deptford Pink	NS
<i>Festuca arenaria</i>	Rush-leaved Fescue	NS
<i>Glebionis segetum</i>	Corn Marigold	RDB (VU)
<i>Helleborus foetidus</i>	Stinking Hellebore	NS
<i>Hippophae rhamnoides</i>	Sea-buckthorn	NS
		RDB (VU), UKBAP, NS, LBAP
<i>Hordeum marinum</i>	Sea Barley	RDB (VU)
<i>Hyoscyamus niger</i>	Henbane	RDB (VU)
<i>Hypochaeris glabra</i>	Smooth Cat's-ear	RDB (VU)
<i>Inula crithmoides</i>	Golden-samphire	NS
<i>Lathyrus japonicus</i>	Sea Pea	NS
<i>Lepidium latifolium</i>	Dittander	NS
<i>Linum perenne</i>	Perennial Flax	NS
<i>Medicago minima</i>	Bur Medick	RDB (VU), NS
<i>Medicago polymorpha</i>	Toothed Medick	NS
<i>Medicago sativa subsp. falcata</i>	Sickle Medick	NS
		WCA8, RDB (EN), UKBAP, NS
<i>Mentha pulegium</i>	Pennyroyal	RDB (EN), UKBAP, NS, LBAP
<i>Minuartia hybrida</i>	Fine-leaved Sandwort	RDB (VU)
<i>Misopates orontium</i>	Weasel's-snout	RDB (VU), UKBAP, NR, LBAP
<i>Muscari neglectum</i>	Grape-hyacinth	NS
<i>Nymphoides peltata</i>	Fringed Water-lily	RDB (VU), UKBAP, LBAP
<i>Ophrys insectifera</i>	Fly Orchid	RDB (VU)
<i>Papaver argemone</i>	Prickly Poppy	NS
<i>Parapholis incurva</i>	Curved Hard-grass	NS
<i>Poa bulbosa</i>	Bulbous Meadow-grass	NS
<i>Potentilla fruticosa</i>	Shrubby Cinquefoil	NR
<i>Puccinellia rupestris</i>	Stiff Saltmarsh-grass	NS
<i>Salvia pratensis</i>	Meadow Clary	WCA8, NS
<i>Sarcocornia perennis</i>	Perennial Glasswort	NS
		RDB (CR), UKBAP
<i>Scandix pecten-veneris</i>	Shepherd's-needle	RDB (EN), UKBAP, LBAP
<i>Scleranthus annuus</i>	Annual Knawel	

Latin Name	Common Name	Designation
<i>Silene noctiflora</i>	Night-flowering Catchfly	RDB (VU)
<i>Spartina maritima</i>	Small Cord-grass	RDB (EN), UKBAP, NS
<i>Spergula arvensis</i>	Corn Spurrey	RDB (VU)
<i>Stellaria palustris</i>	Marsh Stitchwort	RDB (VU), UKBAP, LBAP
<i>Suaeda vera</i>	Shrubby Sea-blite	NS
<i>Trifolium glomeratum</i>	Clustered Clover	NS
<i>Trifolium ochroleucon</i>	Sulphur Clover	NS
<i>Trifolium suffocatum</i>	Suffocated Clover	NS
<i>Vicia lutea</i>	Yellow-vetch	NS
<i>Vicia parviflora</i>	Slender Tare	RDB (VU), NS
<i>Vulpia ciliata subsp. ambigua</i>	Bearded Fescue	NS
<i>Vulpia unilateralis</i>	Mat-grass Fescue	NS
Fungi		
<i>Carbonea vitellinaria</i>	a fungus	NR
<i>Cyrtidula hippocastani</i>	a fungus	NS
<i>Leptorhaphis maggiana</i>	a fungus	NS
Insects		
<i>Acronicta psi</i>	Grey Dagger	UKBAP, LBAP
<i>Acronicta rumicis</i>	Knot Grass	UKBAP, LBAP
<i>Agrochola helvola</i>	Flounced Chestnut	UKBAP, LBAP
<i>Agrochola litura</i>	Brown-spot Pinion	UKBAP, LBAP
<i>Agrochola lychnidis</i>	Beaded Chestnut	UKBAP
<i>Allophytes oxyacanthae</i>	Green-brindled Crescent	UKBAP, LBAP
<i>Amphipoea oculaea</i>	Ear Moth	UKBAP, LBAP
<i>Amphipyra tragopoginis</i>	Mouse Moth	UKBAP, LBAP
<i>Anania verbascalis</i>	Golden Pearl	Notable:B
<i>Ancylosis oblitella</i>	Saltmarsh Knot-horn	Notable
<i>Andrena (Hoplendrena) trimmerana</i>	a hymenopteran insect	Notable:B
<i>Andrena (Poecilandrena) labiata</i>	a hymenopteran insect	Notable:A
<i>Anobium inexpectatum</i>	a beetle	Notable:B
<i>Apamea anceps</i>	Large Nutmeg	UKBAP, LBAP
<i>Apamea remissa</i>	Dusky Brocade	UKBAP, LBAP
<i>Aporophyla lutilenta</i>	Deep-brown Dart	UKBAP, LBAP
<i>Archanara neurica</i>	White-mantled Wainscot	UKBAP, LBAP
<i>Arctia caja</i>	Garden Tiger	UKBAP, LBAP
<i>Asteroscopus sphinx</i>	Sprawler	UKBAP, LBAP
<i>Atethmia centrago</i>	Centre-barred Sallow	UKBAP, LBAP
<i>Bombus (Megabombus) ruderatus</i>	a hymenopteran insect	UKBAP, Notable:B
<i>Bombus (Psithyrus) rupestris</i>	a hymenopteran insect	Notable:B
<i>Bombus (Thoracombeus) muscorum</i>	a hymenopteran insect	UKBAP
<i>Brachylomia viminalis</i>	Minor Shoulder-knot	UKBAP, LBAP
<i>Calamotropha paludella</i>	Bulrush Veneer	Notable:B
<i>Calathus (Calathus) ambiguus</i>	a beetle	Notable:B
<i>Caradrina morpheus</i>	Mottled Rustic	UKBAP, LBAP

Latin Name	Common Name	Designation
<i>Catapion pubescens</i>	a beetle	Notable:B
<i>Celaena leucostigma</i>	Crescent	UKBAP, LBAP
<i>Cerceris quinquefasciata</i>	a hymenopteran insect	UKBAP, LBAP
<i>Ceutorhynchus resedae</i>	a beetle	Notable:B
<i>Chesias legatella</i>	Streak	UKBAP, LBAP
<i>Chiasmia clathrata</i>	Latticed Heath	UKBAP, LBAP
<i>Chortodes extrema</i>	Concolorous	UKBAP, LBAP
<i>Coenonympha pamphilus</i>	Small Heath	UKBAP, LBAP
<i>Cossus cossus</i>	Goat Moth	UKBAP, LBAP
<i>Crambus hamella</i>	Dark Grass-veneer	Notable:B
<i>Curculio betulae</i>	a beetle	Notable:B
<i>Dasypoda hirtipes</i>	a hymenopteran insect	Notable:B
<i>Deltote bankiana</i>	Silver Barred	RDB (VU)
<i>Diarsia rubi</i>	Small Square-spot	UKBAP, LBAP
<i>Diloba caeruleocephala</i>	Figure of Eight	UKBAP, LBAP
<i>Ecliptopera silaceata</i>	Small Phoenix	UKBAP, LBAP
<i>Elaphropus parvulus</i>	a beetle	Notable:B
<i>Ennomos fuscantaria</i>	Dusky Thorn	UKBAP, LBAP
<i>Ennomos quercinaria</i>	August Thorn	UKBAP, LBAP
<i>Ethmia bipunctella</i>	Bordered Ermel	RDB (VU)
<i>Ethmia quadrillella</i>	Comfrey Ermel	Notable:A
<i>Ethmia terminella</i>	Five-spot Ermel	RDB (VU)
<i>Eugnorisma glareosa</i>	Autumnal Rustic	UKBAP, LBAP
<i>Eugnorisma glareosa subsp. glareosa</i>	a insect - moth	UKBAP
<i>Eulamprotes wilkella</i>	Painted Neb	Notable:B
<i>Eulithis mellinata</i>	Spinach	UKBAP, LBAP
<i>Euroleon nostras</i>	Ant Lion	LBAP
<i>Euxoa nigricans</i>	Garden Dart	UKBAP, LBAP
<i>Euxoa tritici</i>	White-line Dart	LBAP
<i>Evergestis extimalis</i>	Marbled Yellow Pearl	Notable:B
<i>Gymnancyla canella</i>	Hoary Knot-horn	Notable:A
<i>Hadroplontus trimaculatus</i>	a beetle	Notable:B
<i>Harpalus (Harpalus) pumilus</i>	a beetle	Notable:A
<i>Harpalus (Harpalus) serripes</i>	a beetle	Notable:B
<i>Hemistola chrysoprasaria</i>	Small Emerald	UKBAP, LBAP
<i>Hepialus humuli</i>	Ghost Moth	UKBAP, LBAP
<i>Hipparchia semele</i>	Grayling	UKBAP, LBAP
<i>Hoplodrina blanda</i>	Rustic	UKBAP, LBAP
<i>Hydraecia micacea</i>	Rosy Rustic	UKBAP, LBAP
<i>Hylaeus (Prosopis) signatus</i>	a hymenopteran insect	Notable:B
<i>Lasioglossum (Evylaeus) malachurum</i>	a hymenopteran insect	Notable:B
<i>Lasioglossum (Evylaeus) pauxillum</i>	a hymenopteran insect	Notable:A
<i>Lasioglossum (Evylaeus) puncticolle</i>	a hymenopteran insect	Notable:B
<i>Lasiommata megera</i>	Wall	UKBAP, LBAP
<i>Limenitis camilla</i>	White Admiral	UKBAP, LBAP
<i>Longitarsus anchusae</i>	a beetle	Notable:B
<i>Longitarsus quadriguttatus</i>	a beetle	Notable:A
<i>Lucanus cervus</i>	Stag Beetle	WCA5.9.5, UKBAP,

Latin Name	Common Name	Designation
		Notable:B, LBAP
<i>Lycia hirtaria</i>	Brindled Beauty	UKBAP, LBAP
<i>Macaria wauaria</i>	V-moth	UKBAP, LBAP
<i>Malacosoma neustria</i>	Lackey	UKBAP, LBAP
<i>Melanchra persicariae</i>	Dot Moth	UKBAP, LBAP
<i>Melanchra pisi</i>	Broom Moth	UKBAP, LBAP
<i>Melanthia procellata</i>	Pretty Chalk Carpet	UKBAP, LBAP
<i>Mesoligia literosa</i>	Rosy Minor	UKBAP, LBAP
<i>Monochroa palustrella</i>	Wainscot Neb	Notable:B
<i>Mythimna comma</i>	Shoulder-striped Wainscot	UKBAP, LBAP
<i>Nascia ciliaris</i>	Orange-rayed Pearl	Notable:A
<i>Nemophora fasciella</i>	Horehound Long-horn	UKBAP, LBAP
<i>Neoscia obliqua</i>	a fly	Notable
<i>Nephopterix angustella</i>	Spindle Knot-horn	Notable:B
<i>Nicrophorus vestigator</i>	a beetle	Notable:A
<i>Noctua orbona</i>	Lunar Yellow Underwing	UKBAP, LBAP
<i>Nomada fucata</i>	a hymenopteran insect	Notable:A
<i>Nymphalis polychloros</i>	Large Tortoiseshell	WCA5.9.5, RDB (EN)
<i>Oncocera semirubella</i>	Rosy-striped Knot-horn	Notable:B
<i>Ophonus (Metoponus) schaubergerianus</i>	a beetle	Notable:B
<i>Ophonus (Ophonus) azureus</i>	a beetle	Notable:B
<i>Orthochaetes setiger</i>	a beetle	Notable:B
<i>Orthosia gracilis</i>	Powdered Quaker	UKBAP, LBAP
<i>Oxypoda exoleta</i>	a beetle	Notable
<i>Papilio machaon</i>	Swallowtail	WCA5.9.1, RDB (VU)
<i>Paroxyna absinthii</i>	a fly	Notable
<i>Pediasia aridella</i>	Salt-marsh Grass-veneer	Notable:B
<i>Pediasia contaminella</i>	Waste Grass-veneer	Notable:B
<i>Pediasia fascelinella</i>	Banded Grass-veneer	RDB (VU)
<i>Pelurga comitata</i>	Dark Spinach	UKBAP, LBAP
<i>Pempelia genistella</i>	Gorse Knot-horn	Notable:A
<i>Philanthus triangulum</i>	a hymenopteran insect	RDB (VU)
<i>Phyllocnistis xenia</i>	Kent Bent-wing	RDB (VU)
<i>Phytoecia cylindrica</i>	a beetle	Notable:B
<i>Platyedra subcinerea</i>	Mallow Groundling	Notable
<i>Plebejus argus</i>	Silver-studded Blue	WCA5.9.5, UKBAP, LBAP
<i>Podagrica fuscicornis</i>	Mallow Flea Beetle	Notable:B
<i>Prionus coriarius</i>	Tanner Beetle	Notable:A
<i>Protapion filirostre</i>	a beetle	Notable:B
<i>Rhizedra lutosa</i>	Large Wainscot	LBAP
<i>Satyrrium w-album</i>	White-letter Hairstreak	WCA5.9.5, UKBAP, LBAP
<i>Scaphisoma boleti</i>	a beetle	Notable:B
<i>Schoenobius gigantella</i>	Giant Water-veneer	Notable:B
<i>Scopula marginepunctata</i>	Mullein Wave	UKBAP, LBAP

Latin Name	Common Name	Designation
<i>Scotopteryx chenopodiata</i>	Shaded Broad-bar	UKBAP, LBAP
<i>Scrobipalpa ocellatella</i>	Beet Moth	Notable
<i>Sitochroa palealis</i>	Sulphur Pearl	Notable
<i>Smicromyrme rufipes</i>	a hymenopteran insect	Notable:B
<i>Sphecodes crassus</i>	a hymenopteran insect	Notable:B
<i>Sphecodes miniatus</i>	a hymenopteran insect	Notable:B
<i>Sphecodes reticulatus</i>	a hymenopteran insect	Notable:A
<i>Spilosoma lubricipeda</i>	White Ermine	UKBAP, LBAP
<i>Spilosoma luteum</i>	Buff Ermine	UKBAP, LBAP
<i>Stratiomys longicornis</i>	a fly	RDB (VU)
<i>Stratiomys singularior</i>	a fly	Notable
<i>Synaphe punctalis</i>	Long-legged Tabby	Notable:B
<i>Tholera cespitis</i>	Hedge Rustic	UKBAP, LBAP
<i>Tholera decimalis</i>	Feathered Gothic	UKBAP, LBAP
<i>Timandra comae</i>	Blood-Vein	UKBAP, LBAP
<i>Trichiura crataegi</i>	Pale Eggar	UKBAP, LBAP
<i>Tyria jacobaeae</i>	Cinnabar	UKBAP, LBAP
<i>Volucella inanis</i>	a fly	Notable
<i>Volucella zonaria</i>	a fly	Notable
<i>Watsonalla binaria</i>	Oak Hook-tip	UKBAP, LBAP
<i>Xanthia gilvago</i>	Dusky-lemon Sallow	UKBAP, LBAP
<i>Xanthia icteritia</i>	Sallow	UKBAP, LBAP
<i>Xanthorhoe ferrugata</i>	Dark-barred Twin-spot Carpet	UKBAP, LBAP
<i>Xestia agathina</i>	Heath Rustic	UKBAP, LBAP
<i>Zaenadus exiguus</i>	Bloody Cranesbill Weevil	Notable:B
Lichen		
<i>Acarospora glaucocarpa</i>	a lichen	NS
<i>Acarospora nitrophila</i>	a lichen	NR
<i>Bacidia caligans</i>	a lichen	NS
<i>Bacidia neosquamulosa</i>	a lichen	NR
<i>Bacidia saxenii</i>	a lichen	NS
<i>Buellia stellulata</i>	a lichen	NS
<i>Caloplaca crenulatella</i>	a lichen	NS
<i>Candelariella aurella forma smaragdula</i>	a lichen	NS
<i>Candelariella medians forma steephholmensis</i>	a lichen	NR
<i>Catillaria atomarioides</i>	a lichen	NS
<i>Chaenotheca brachypoda</i>	a lichen	NS
<i>Cyphelium notarisii</i>	a lichen	NS
<i>Dirina massiliensis forma massiliensis</i>	a lichen	NS
<i>Dirina massiliensis forma soledata</i>	a lichen	NS
<i>Lecania cyrtella</i>	a lichen	NR
<i>Lecania hutchinsiae</i>	a lichen	NS
<i>Lecanora campestris subsp. dolomitica</i>	a lichen	NS
<i>Lecanora stenotropa</i>	a lichen	NS
<i>Placynthiella dasaea</i>	a lichen	NS

Latin Name	Common Name	Designation
<i>Punctelia ulophylla</i>	a lichen	NS
<i>Pyrenocollema orustense</i>	a lichen	NS
<i>Ramonia interjecta</i>	a lichen	NS
<i>Strangospora pinicola</i>	a lichen	NS
<i>Strigula jamesii</i>	a lichen	NS
<i>Thelomma ocellatum</i>	a lichen	NS
<i>Xanthoria ucrainica</i>	a lichen	NS
<i>Xanthoria ulophyllodes</i>	a lichen	NR
Liverworts		
<i>Sphaerocarpos michelii</i>	Micheli's Balloonwort	NS RDB (VU), UKBAP, NS, LBAP
<i>Sphaerocarpos texanus</i>	Texas Balloonwort	LBAP
Mammals		
<i>Arvicola amphibius</i>	European Water Vole	WCA5.9.4a, UKBAP EPS (Sch2), WCA5.9.1, RDB (VU), UKBAP
<i>Barbastella barbastellus</i>	Western Barbastelle	EPS (Sch2)
<i>Chiroptera</i>	Unidentified Bats	EPS (Sch2), WCA5.9.1
<i>Eptesicus serotinus</i>	Serotine	UKBAP, LBAP
<i>Erinaceus europaeus</i>	West European Hedgehog	UKBAP, LBAP
<i>Lepus europaeus</i>	Brown Hare	EPS (Sch2), WCA5.9.1, UKBAP, LBAP
<i>Lutra lutra</i>	European Otter	BA
<i>Meles meles</i>	Eurasian Badger	UKBAP, LBAP
<i>Micromys minutus</i>	Harvest Mouse	EPS (Sch2), WCA5.9.1
<i>Myotis sp.</i>	Myotis bat	EPS (Sch2), WCA5.9.1
<i>Myotis brandtii</i>	Brandt's Bat	EPS (Sch2), WCA5.9.1
<i>Myotis daubentonii</i>	Daubenton's Bat	EPS (Sch2), WCA5.9.1
<i>Myotis mystacinus</i>	Whiskered Bat	EPS (Sch2), WCA5.9.1
<i>Myotis nattereri</i>	Natterer's Bat	EPS (Sch2), WCA5.9.1
<i>Nyctalus leisleri</i>	Lesser Noctule	EPS (Sch2), WCA5.9.1
<i>Nyctalus noctula</i>	Noctule Bat	EPS (Sch2), WCA5.9.1, UKBAP, LBAP
<i>Nyctalus sp.</i>	Nyctalus bat	UKBAP
<i>Phoca vitulina</i>	Common Seal	EPS (Sch2), WCA5.9.1, RDB (VU), UKBAP, LBAP
<i>Phocoena phocoena</i>	Common Porpoise	

Latin Name	Common Name	Designation
<i>Pipistrellus sp.</i>	Pipistrelle bat	EPS (Sch2), WCA5.9.1
<i>Pipistrellus nathusii</i>	Nathusius's Pipistrelle	EPS (Sch2), WCA5.9.1
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	EPS (Sch2), WCA5.9.1
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	EPS (Sch2), WCA5.9.1, UKBAP, LBAP
<i>Plecotus auritus</i>	Brown Long-eared Bat	EPS (Sch2), WCA5.9.1, UKBAP, LBAP
<i>Plecotus sp.</i>	Long-eared bat	Plecotus sp.
Molluscs		
<i>Vertigo (Vertilla) angustior</i>	a mollusc	UKBAP
<i>Helix (Helix) pomatia</i>	Roman Snail	WCA5.9.1
Moss		
<i>Bryum pallescens</i>	Tall-clustered Thread-moss	NS
<i>Didymodon umbrosus</i>	Shady Beard-moss	NS
<i>Leptobarbula berica</i>	Beric Beard-moss	NS
<i>Microbryum davallianum</i>	Smallest Pottia	NS
<i>Pterygoneurum ovatum</i>	Oval-leaved Pottia	NS
<i>Schistidium confertum</i>	Compact Grimmia	NS
<i>Tortula vahlana</i>	Chalk Screw-moss	RDB (VU), UKBAP, NR, LBAP
Reptiles		
<i>Anguis fragilis</i>	Slow-worm	WCA5.9.1, UKBAP, LBAP
<i>Natrix natrix</i>	Grass Snake	WCA5.9.1, UKBAP, LBAP
<i>Vipera berus</i>	Adder	WCA5.9.1, UKBAP, LBAP
<i>Zootoca vivipara</i>	Common Lizard	WCA5.9.1, UKBAP, LBAP

APPENDIX 3

Abbreviations of Protected Species Legislation

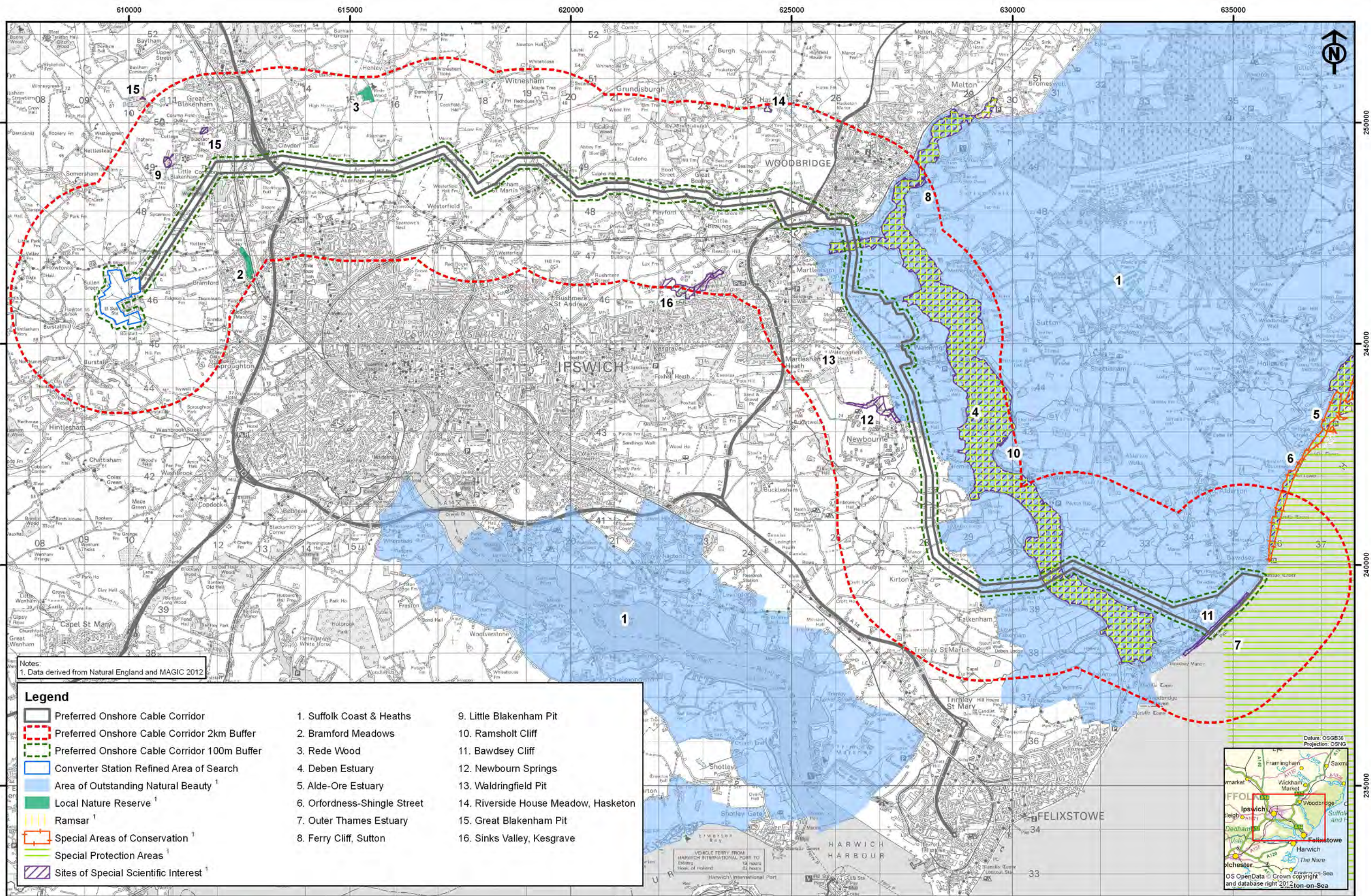
Table 6. Glossary of Abbreviations Used in this Report

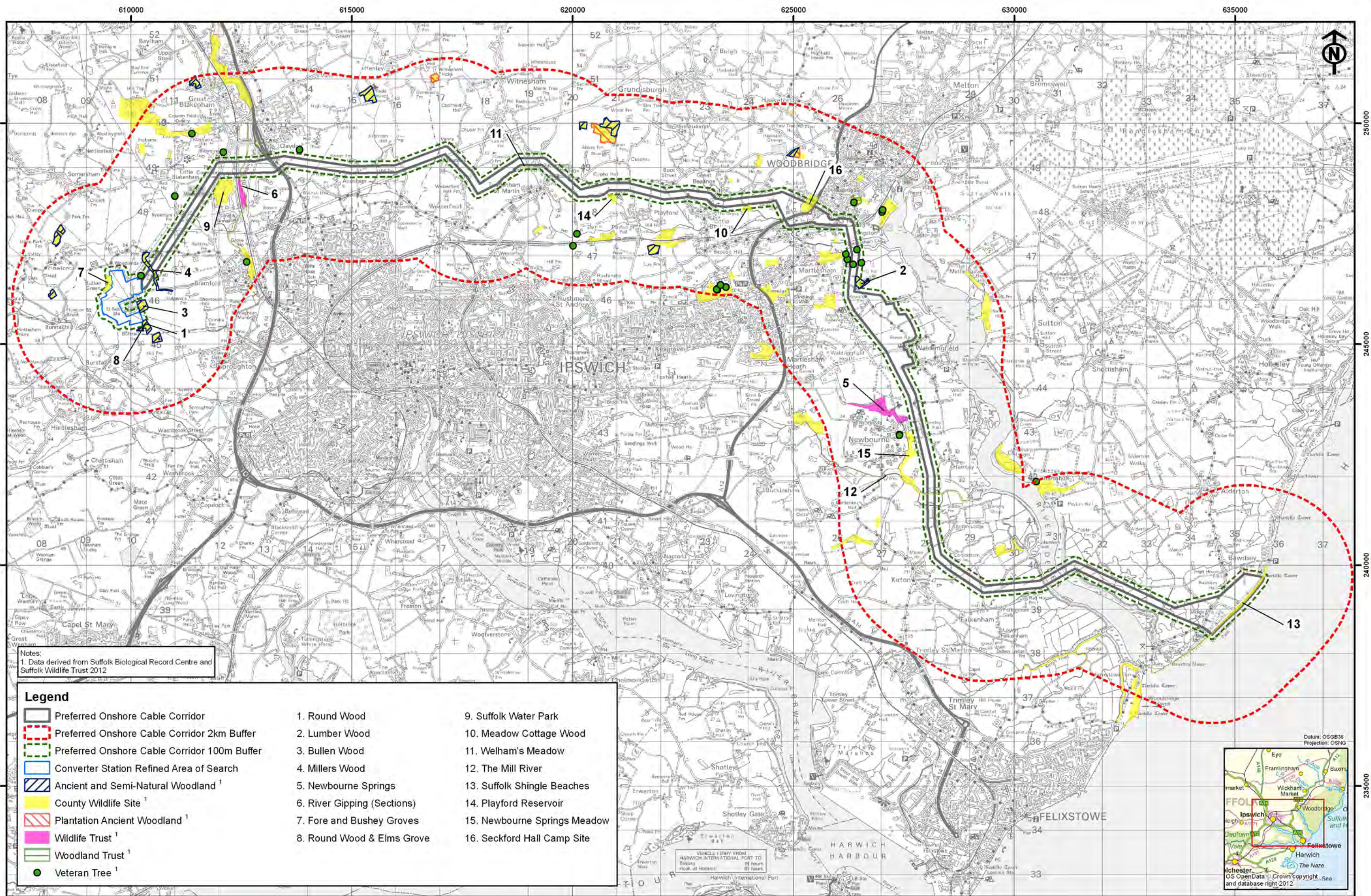
Code	Full Title	Explanation
Amber	Amber list	Amber listed species have a population status in the UK of medium conservation concern.
BA	The Protection of Badgers Act 1992	Legislation making it an offence to kill, injure or take a Badger, or to damage or interfere with a sett unless a licence is obtained from a statutory authority.
BAP	Biodiversity Action Plan	A plan that identifies threats to significantly important species and habitats, and sets out targets and actions to enhance or maintain biodiversity.
EPS (Sch2)	European Protected Species (Schedule 2)	Animals protected on <i>Schedule 2 of The Conservation of Habitats and Species Regulations 2010</i>
HAP	Habitat Action Plan	A plan that identifies threats to a priority habitat and sets out targets and actions to enhance or maintain that habitat.
IUCN	International Union for Conservation of Nature and Natural Resources (also known as The World Conservation Union)	A worldwide partnership and conservation network to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.
LBAP	Local Biodiversity Action Plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in Species Action Plans and Habitat Action Plans to enhance or maintain biodiversity at the county or regional level.
LHAP	Local Habitat Action Plan	A plan that identifies threats to a locally important priority habitat and sets out targets and actions to enhance or maintain that habitat.
LSAP	Local Species Action Plan	A plan that identifies threats to locally important species, and sets out targets and actions to prevent losing that species from the local area.
Marine NR	Provisional list of rare and scarce marine species (Sanderson, 1996)	Species which occur in eight or fewer 10km 10 km × 10 km grid squares containing sea (or water of marine saline influence) within

Notable	Scarce and threatened invertebrates	the three mile territorial limit. Invertebrate species which are estimated to occur within the range of 16 to 100 10km squares but subdivision into Notable A and Notable B categories is not possible as there is insufficient information available).
Notable: B	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in between 31 and 100 10km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties.
Notable:A	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in 30 or fewer 10km squares of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties.
NR	Nationally Rare	Species in 15 or fewer hectads in Great Britain.
NS	National Scarce	Species in 16-100 hectads in Great Britain.
RDB	Red Data Book Species	Species identified in one of the UK Red Data books.
RDB(EN)	Endangered	An IUCN Red List designation for species at a very high risk of extinction.
RDB(VU)	Vulnerable	An IUCN Red List designation for species at high risk of extinction.
Red	Red List	Red listed species have a population status in the UK with high conservation concern.
SAP	Species Action Plan	A plan that identifies threats to significantly important species, and sets out targets and actions to prevent losing that species to extinction.
UKBAP	UK Biodiversity Action Plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in Species Action Plans and Habitat Action Plans to enhance or maintain biodiversity in the UK.
UKSAP	UK Species Action Plan	A plan that identifies threats to nationally important species, and sets out targets and actions to prevent the decline or extinction of the species in the UK.
WCA	<i>The Wildlife and Countryside Act 1981 (as amended)</i>	Containing 4 Parts and 17 Schedules, the Act covers protection of wildlife (birds, and some animals and plants), the countryside, National Parks, and the designation of protected areas, and public rights of way. All wild plants in Britain are protected from intentional uprooting by an unauthorized person, but land owners, land occupiers, persons authorized by either of these or

		<p>persons authorized in writing by the Local Authority for the area are exempt.</p> <p>Protection for some species may be limited to certain Sections of the Act (e.g. S13(2)).</p> <p>This Schedule lists birds protected by special penalties at all times, but virtually all wild birds have some protection in law.</p> <p>Acts which are prohibited for all wild birds (except derogated 'pest' species) include intentional killing, injuring or taking; taking, damaging or destroying nests in use or being built; taking or destroying eggs; possessing or having control of (with certain exceptions but including live for dead birds, parts or derivative); setting or permitting certain traps, weapons, decoys or poisons. Selling, offering or exposing for sale, possessing or transporting for sale any live wild bird, egg or part of an egg or advertising any of these for sale, or dead wild bird including parts or derivatives are also prohibited. Many birds must be formally registered and ringed if kept in captivity.</p> <p>Schedule I WCA birds are additionally protected from intentional or reckless disturbance while building a nest, or when such a bird is in, on or near a nest containing eggs or young, or intentional or reckless disturbance of dependent young.</p>
WCA1.1	Schedule 1 of <i>The Wildlife and Countryside Act 1981</i> (as amended)	
WCA1.2	Schedule 1 of <i>The Wildlife and Countryside Act 1981</i> (as amended)	Birds protected by special penalties (as above) during close season.
WCA5	Schedule 5 of <i>The Wildlife and Countryside Act 1981</i> (as amended)	Schedule 5 animals are protected from intentional killing, injuring or taking; possessing (including parts or derivatives); intentional or reckless damage, destruction or obstruction of any structure or place used for shelter or protection; selling, offering or exposing for sale, possessing or transporting for the purpose of sale (alive or dead, including parts or derivatives). Protection of some species is limited to certain Sections of the Act (e.g. S9(1), S9(4a), S9(4b), S9(5)).
WCA5.9.1	Section 9 (1) under Schedule 5 of <i>The Wildlife and Countryside Act 1981</i> (as amended)	Protection limited to intentional killing, injury or taking.
WCA5.9.4a	Section 9 (4a) under Schedule 5 of <i>The Wildlife and Countryside Act 1981</i> (as amended)	Protection limited to damaging, destroying, or obstructing access to, any structure or place used by the animal for shelter or protection.
WCA5.9.5	Section 9 (5) under Schedule 5 of	Protection limited to selling, offering for sale,

	<i>The Wildlife and Countryside Act 1981 (as amended)</i>	possessing or transporting for purpose of sale, or advertising for sale, any live or dead animal, or any part of, or anything derived from, such animal. Note that all cetaceans (whales and dolphins) and the Basking Shark (<i>Cetorhinus maximus</i>) are now protected from intentional or reckless disturbance.
WCA8	Schedule 8 of <i>The Wildlife and Countryside Act 1981</i> (as amended)	Plants and fungi protected from intentional picking, uprooting, destroying, trading (including parts or derivatives), <i>etc.</i>





3 VOLUME 3 APPENDIX 24.11 WINTERING BIRDS REPORT OF THE EAST ANGLIA ONE ENVIRONMENTAL STATEMENT

East Anglia ONE

Offshore Windfarm

Environmental Statement

Volume 3 Chapter 24 Ecology Appendices

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Appendix 24.11

Wintering Birds

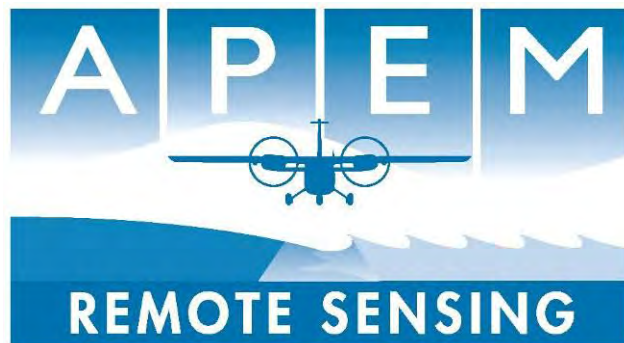
**Scottish Power Renewables and
Vattenfall Vindkraft Joint Venture**

**ONSHORE CABLE ESTUARINE
WINTERING BIRD SURVEYS:
FINAL REPORT**

FINAL

DATE: 4th OCTOBER 2012

APEM LTD. REF: 411732



CLIENT: East Anglia Offshore Wind (EAOW)

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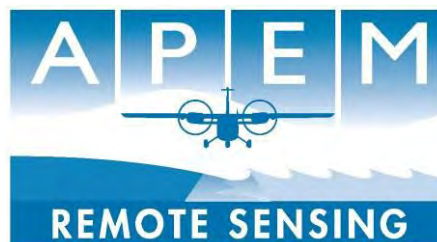
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Contents

EXECUTIVE SUMMARY	3
1 INTRODUCTION	4
2 METHODS.....	7
2.2 BACKGROUND DATA SEARCH.....	8
3 RESULTS	9
3.1 ESTUARY	9
3.2 CORE COUNT SECTORS	9
3.3 LOW TIDE SECTORS	13
3.4 CABLE LANDFALL	20
3.5 BAWDSEY MARSHES.....	22
3.6 OTHER BIRD / MAMMAL SIGHTINGS.....	22
4 DISCUSSION & RECOMMENDATIONS.....	24
4.1 SPA SPECIES	24
4.2 SSSI/OTHER SPECIES	31
4.3 POTENTIAL IMPACTS AND CONSENTING RISKS	50
5 REFERENCES	51
6 APPENDIX I: ANNUAL PEAK COUNTS FOR WEBS (2005/06-2009/10) & APEM WINTER 2011/12 SURVEYS FOR CORE COUNT SECTORS.....	52
7 APPENDIX II: PEAK AND MEAN COUNTS FROM WEBS & APEM SURVEYS FOR LOW TIDE COUNT SECTORS.....	58
8 APPENDIX III: LATIN NAMES OF RELEVANT BIRD SPECIES.....	63
9 APPENDIX IV: SUMMARY OF TIDE TIMES AND HEIGHTS.....	65

Tables:

Table 1.1 Summary of survey programme and tidal state for each sector	5
Table 2.1 Survey dates and weather conditions.....	8
Table 3.1 Monthly counts of each species recorded in Sector 1 (Figure 1.1).	9
Table 3.2 Monthly counts of each species recorded in Sector 5 (Figure 1.1).	11
Table 3.3 Monthly counts of each species recorded in Sector 9 (Figure 1.1).	12
Table 3.4 Monthly counts of each species recorded in Sector BX001 (Figure 1.1).	14
Table 3.5 Monthly counts of each species recorded in Sector BX002 (Figure 1.1).	14
Table 3.6 Monthly counts of each species recorded in Sector BX003 (Figure 1.1).	15
Table 3.7 Monthly counts of each species recorded in Sector BX004 (Figure 1.1).	17
Table 3.8 Monthly counts of each species recorded in Sector BX005 (Figure 1.1).	18
Table 3.9 Monthly counts of each species recorded in Sector BX019 (Figure 1.1).	19
Table 3.10 Monthly counts of each species recorded in cable landfall sector FF001 (Figure 1.1).	21
Table 3.11 Monthly counts of each species recorded in Cable Landfall Sector (Figure 1.1).	22

Figures:

Figure 1.1 Deben Estuary survey sectors.....	6
Figure 4.1 Annual peak counts of dark-bellied brent geese.....	24
Figure 4.2 WeBS five-year monthly mean counts of dark-bellied brent geese	25
Figure 4.3 Dark-bellied brent goose feeding areas on the River Deben.	26
Figure 4.4 Peak and mean counts of dark bellied brent geese recorded at each low tide sector	27
Figure 4.5 Annual peak counts of avocet at each core count sector	28
Figure 4.6 WeBS five-year monthly mean counts of avocet	28
Figure 4.7 Peak and mean counts of avocet recorded at each low tide sector	29
Figure 4.8 Main avocet feeding and roosting areas on the River Deben	30
Figure 4.9 Annual peak counts of mute swan at each core count sector.....	31
Figure 4.10 WeBS five-year monthly mean counts of mute swan	32
Figure 4.11 Peak and mean counts of mute swan recorded at each low tide sector.....	33
Figure 4.12 Annual peak counts of shelduck at each core count sector.....	34
Figure 4.13 WeBS five-year monthly mean counts of shelduck	34
Figure 4.14 Peak and mean counts of shelduck recorded at each low tide sector.....	35
Figure 4.15 Annual peak counts of wigeon at each core count sector	36
Figure 4.16 WeBS five-year monthly mean counts of wigeon	36
Figure 4.17 Peak and mean counts of wigeon recorded at each low tide sector	37
Figure 4.18 Annual peak counts of pintail at each core count sector.....	38
Figure 4.19 WeBS five-year monthly mean counts of pintail	38
Figure 4.20 Peak and mean counts of pintail recorded at each low tide sector.....	39
Figure 4.21 Annual peak counts of grey plover at each core count sector	40
Figure 4.22 WeBS five-year monthly mean counts of grey plover	40
Figure 4.23 Peak and mean counts of grey plover recorded at each low tide sector	41
Figure 4.24 Annual peak counts of dunlin at each core count sector.....	42
Figure 4.25 WeBS five-year monthly mean counts of dunlin	42
Figure 4.26 Peak and mean counts of dunlin recorded at each low tide sector.....	43
Figure 4.27 Annual peak counts of black-tailed godwit at each core count sector	44
Figure 4.28 WeBS five-year monthly mean counts of black-tailed godwit.....	44
Figure 4.29 Peak and mean counts of black-tailed godwit recorded at each low tide sector	45
Figure 4.30 Annual peak counts of curlew at each core count sector	46
Figure 4.31 WeBS five-year monthly mean counts of curlew	46
Figure 4.32 Peak and mean counts of curlew recorded at each low tide sector	47
Figure 4.33 Annual peak counts of redshank at each core count sector	48
Figure 4.34 WeBS five-year monthly mean counts of redshank	48
Figure 4.35 Peak and mean counts of redshank recorded at each low tide sector	49

EXECUTIVE SUMMARY

- The proposed cable route of the EA ONE wind farm is expected to come ashore in the vicinity of the mouth of the River Deben. The Deben Estuary is a designated Special Protection Area (SPA), Ramsar site and Site of Special Scientific Interest (SSSI) because of its internationally and nationally important numbers of wintering wildfowl and waders.
- Surveys were undertaken to record bird abundance within areas of the River Deben inside the cable landfall and construction corridor, using pre-defined count sectors (where possible) to ensure data are compatible with Wetland Bird Survey (WeBS) data.
- Core count sectors, designed to enumerate waterbirds at roost sites, were surveyed once a month between October 2011 and March 2012. Low tide sectors, designed to describe habitat usage of waterbirds in intertidal areas, were surveyed once a month between November 2011 and February 2012. Areas extending 100 m inland were also surveyed, to include birds that were resting or feeding in nearby adjacent locations that could be affected by site operations
- Surveys were conducted from vantage points with a wide view, allowing the observer to count the entire sector (or most of it) while remaining concealed from feeding and roosting birds.
- Over all surveys a total of 50 species of waterbird were recorded during the core and low tide counts; 50 of these in the core count sectors and 42 in the low tide sectors.
- The Deben Estuary SPA is designated for wintering populations of dark bellied brent geese and avocets. These species therefore pose the most likely consenting risk to the proposed cable route.
- Across all sectors surveyed by both WeBS and APEM, dark-bellied brent geese were mainly present between December and February. The peak number of dark-bellied brent geese recorded in winter 2011/12 was 2,183 individuals during high tide in February 2012; 2.4% of the current GB wintering population
- Across all sectors surveyed by both WeBS and APEM, avocets were present between October and December, with October 2011 having the highest core count across all sectors. Avocet numbers peaked at 325 individuals during high tide in February 2012; 4.3% of the current GB wintering population.

1 INTRODUCTION

The Deben Estuary is a designated Special Protection Area (SPA), Ramsar site and Site of Special Scientific Interest (SSSI) because of its internationally and nationally important numbers of wintering wildfowl and waders (Holt *et al.* 2011).

The proposed cable route of the EA ONE wind farm is expected to come ashore in the vicinity of the mouth of the River Deben (Figure 1.1). At least one river crossing is expected with the potential for two crossings. The surveys described here are specifically aimed at recording bird abundance within areas of the River Deben inside the cable landfall and construction corridor, using pre-defined count sectors (where possible) to ensure data are compatible with Wetland Bird Survey (WeBS) data collected up to 2009/10 (the most recent dataset at the time of request). This document forms Appendix 24.11 to *Volume 3, Chapter 24: Ecology and Ornithology* of the Environmental Statement

WeBS is split into two parallel schemes: ‘core counts’, conducted at high tide, designed to enumerate waterbirds at roost sites; and low tide counts, conducted at low water, designed to describe habitat usage of waterbirds in intertidal areas (Holt *et al.* 2011). In order to meet the objectives of the project, WeBS sectors coinciding with the cable route, or a buffer within which operational activity may exert an influence, were selected (Figure 1.1). Core count sectors were surveyed once a month between October 2011 and March 2012, and low tide sectors were surveyed once a month between November 2011 and February 2012, in line with accepted WeBS methods and survey windows. Areas extending 100 m inland of the estuary were also surveyed, to include birds that were resting or feeding in nearby adjacent locations that could be affected by site operations; birds seen in the area but beyond 100 m from the sector edge were also counted, but excluded from the sector total to ensure consistency with previous datasets. The areas of survey are shown in Figure 1.1. These areas encompass Sectors 1, 5 and 9 (core counts, which were surveyed from October 2011 to March 2012) and BX001, BX002, BX003, BX004, BX005 and BX019 (low tide counts, which were surveyed between November 2011 to February 2012). The area between Sectors 1 and 5 was not surveyed since the proposed cable route and associated operational activity was deemed unlikely to exert an influence in this area.

Two further sectors (‘Cable landfall’ and FF001) do not overlap WeBS sectors, but are designed to encompass cable landfall areas. These sectors were surveyed at high tide and low tide between November 2011 and February 2012. In addition, a sector covering Bawdsey Marshes was added to the survey programme in December 2011 and was surveyed at high tide between December 2011 and February 2012. These three Sectors lie outside the Deben Estuary Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI).

The survey programme and tidal state for each sector is summarized in Table 1.1.

Table 1.1 Summary of survey programme and tidal state for each sector

Sector	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12
Sector 1	HT	HT	HT	HT	HT	HT
Sector 5	HT	HT	HT	HT	HT	HT
Sector 9	HT	HT	HT	HT	HT	HT
Sector BX001	-	LT	LT	LT	LT	-
Sector BX002	-	LT	LT	LT	LT	-
Sector BX003	-	LT	LT	LT	LT	-
Sector BX004	-	LT	LT	LT	LT	-
Sector BX005	-	LT	LT	LT	LT	-
Sector BX019	-	LT	LT	LT	LT	-
Sector FF001	-	HT, LT	HT, LT	HT, LT	HT, LT	-
Cable Landfall Sector	-	HT, LT	HT, LT	HT, LT	HT, LT	-
Bawdsey Marshes	-	-	HT	HT	HT	-

HT = high tide (conducted from October-March in line with WeBS core count methods)

LT = low tide (conducted from November-February in line with WeBS low tide count methods)

- = not surveyed

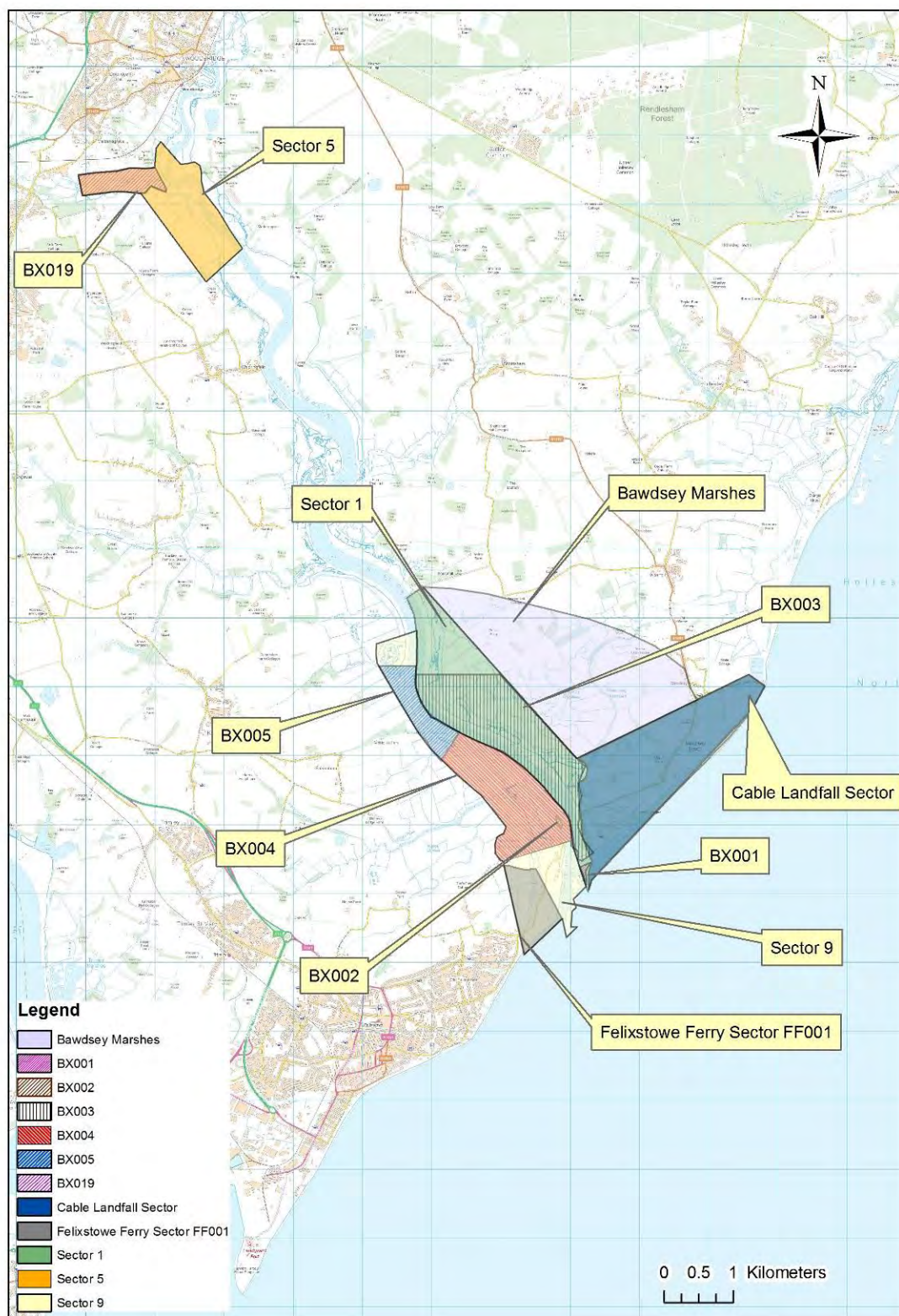


Figure 1.1 Deben Estuary survey sectors.

2 METHODS

2.1 Survey Methodology

For consistency with WeBS surveys, counts were made at both low and high tides. The surveys were carried out within two hours either side of low and high tides as shown in Appendix III.

Surveys were conducted from vantage points with a wide view, allowing the observer to count the entire sector (or most of it) while remaining relatively concealed from feeding and roosting birds. In line with WeBS methods, counts were performed using binoculars (10 x 42) and a high powered (25-50x) telescope. The survey area was divided into the same count sectors as those previously surveyed by WeBS to assist with the collection, synthesis and interpretation of results and the sectors were counted sequentially (Figure 1.1). Each sector was surveyed within a maximum four hour period of two hours either side of high or low tide (depending on whether the survey was a core count or low tide count) to ensure minimum movement of birds both within and between sectors. This minimised the probability of double-counting individual birds and provided a “snap-shot” of bird abundance and distribution within the study site.

3.2 Weather Conditions

A breakdown of the weather conditions on each survey can be seen in Table 2.1 below.

Table 2.1 Survey dates and weather conditions

Month	Date	Wind speed/direction	Visibility	Other significant information
October 2011	26/10/2011	Force 1-2/SE	>10 km	One thunderstorm. Mainly sunny and dry conditions
	27/10/2011	Force 1-2/SE	>10 km	Dry, mainly sunny conditions
November 2011	14/11/2011	Force 1/SE	>10 km	Calm and dry conditions
	15/11/2011	Force 1/SE	>10 km	Calm and dry conditions
	16/11/2011	Force 1/SE	>10 km	Calm and dry conditions
	17/11/2011	Force 1/SE	>10 km	Calm and dry conditions
December 2011	12/12/2011	Force 2/SW	>10 km	Predominantly dry
	13/12/2011	Force 2/SW	>10 km	Predominantly dry
	14/12/2011	Force 1/SW	>10 km	Predominantly dry
	15/12/2011	Force 1/SW	>10 km	Predominantly dry
January 2012	18/01/2012	Force 4/W	>10 km	Dry, 100% cloud cover
	19/01/2012	Force 2/W	>10 km	Light rain in the morning.
	20/01/2012	Force 4/W	<10 km	Rain showers
	21/01/2012	Force 4/W	>10 km	Dry, 100% cloud cover
February 2012	11/02/2012	Force 0	>10 km	Dry, calm, no cloud cover, freezing conditions
	12/02/2012	Force 0	>10 km	Initial snow showers clearing by afternoon
February 2012	13/02/2012	Force 0	>10 km	Dry, 100% cloud cover, thawing conditions
	14/02/2012	Force 0	>10 km	Light rain shower in the morning. Overcast and dry by the afternoon
March 2012	07/03/2012	Force 1/W	>10 km	Overcast with light rain in the morning. Dry by the afternoon.
	08/03/2012	Force 1/SW	>10 km	Dry with long periods of sunshine.
	09/03/2012	Force 1/SW	>10 km	Overcast and dry.

2.2 Background Data Search

Data collected as part of the BTO/RSPB/JNCC/WWT national Wetland Bird Survey scheme (WeBS) have been obtained for the same sectors as those surveyed in winter 2011/12 in order to put the winter 2011/12 survey data into context. For core count sectors, data were requested for the most recent five years available. At the time of request, 2009/10 data were the most recently available and therefore counts extend back as far as 2005/06. For the low tide sectors, data were requested for the most recent winter that each sector was surveyed. In the case of Sectors BX001, BX002 and BX003, these were last surveyed by WeBS in winter 1998/99, whilst Sectors BX004, BX005 and BX019 were last surveyed in winter 2006/07.

3 RESULTS

3.1 Estuary

Over all surveys a total of 50 species of waterbird were recorded during the core and low tide counts; 50 of these in the core count sectors and 42 in the low tide sectors.

3.2 Core count sectors

3.2.1 Sector 1

A total of 35 species were recorded in Sector 1 between October 2011 and March 2012. Of these, 11 were wildfowl (mute swan, greylag goose, Canada goose, dark-bellied brent goose, shelduck, wigeon, gadwall, teal, mallard, pintail and common scoter), 14 were waders (oystercatcher, avocet, golden plover, grey plover, lapwing, dunlin, snipe, woodcock, black-tailed godwit, bar-tailed godwit, curlew, greenshank, redshank and green sandpiper) and five were gulls (black-headed gull, common gull, lesser black-backed gull, herring gull and great black-backed gull). The other five species included cormorant, little egret, grey heron, great crested grebe and water rail (Table 3.1).

Table 3.1 Monthly counts of each species recorded in Sector 1 (Figure 1.1).

Counts in brackets indicate known underestimates. Counts in green text indicate those that exceed the 1% national (GB) threshold and counts in red indicate those that exceed the 1% international threshold in Holt *et al.* (2011)

Species	Count of birds					
	October 2011	November 2011	December 2011	January 2012	February 2012	March 2012
Mute swan ^(b)	19	-	-	2	-	-
Greylag goose	-	250	-	-	-	-
Canada goose	27	38	-	-	-	-
Dark-bellied brent goose ^(a*, b, c)	8	5	-	358	1	57
Shelduck ^(b)	9	29	20	33	59	26
Wigeon ^(b)	-	-	-	[5]	[111]	-
Gadwall	-	-	-	-	12	-
Teal	-	[10]	[8]	[15]	[14]	-
Mallard	5	14	[19]	[23]	24	4
Pintail ^(b)	-	-	-	-	1	-
Common scoter ^(d)	-	-	-	-	2	-
Cormorant	5	4	5	6		2
Little egret	1	1	-	-	1	-
Grey heron	1	1	-	-	2	-
Great crested grebe	1	-	-	-	-	-
Water rail	1	-	-	-	-	-
Oystercatcher	-	-	-	-	-	11

Species	Count of birds					
	October 2011	November 2011	December 2011	January 2012	February 2012	March 2012
Avocet ^(a, b)	239	300	-	105	198	-
Golden plover	-	25	61	-	-	-
Grey plover ^(b)	5	7	45	11	18	3
Lapwing ^(d)	13	110	57	50	7	-
Dunlin ^(b, d)	14	374	20	[23]	[156]	[40]
Snipe						1
Woodcock	-	-	-	-	1	-
Black-tailed godwit ^(b, d)		2	3	2	15	-
Bar-tailed godwit	2	1	-	18	40	-
Curlew ^(b, c)	34	93	65	14	15	153
Greenshank	-	1	-	[17]	-	-
Redshank ^(b)	21	[177]	25	-	[15]	15
Green sandpiper	-	-	-	-	-	1
Black-headed gull	40	-	25	25	120	23
Common gull	1	1	-	1	3	2
Lesser black-backed gull	-	-	-	-	1	-
Herring gull ^(c, d)	6	7	3	3	2	29
Great black-backed gull	4	-	-	3	3	23

^(a) SPA qualifying species (Stroud *et al.* 2001). *Dark-bellied brent goose is not listed as a qualifying species for the Deben Estuary in the SPA review (Stroud *et al.* 2001), but is listed on the Natura 2000 Standard Data form for the SPA (see <http://jncc.defra.gov.uk/pdf/SPA/UK9009261.pdf> for full details)

^(b) SSSI species, see Deben SSSI citation:

http://www.sssi.naturalengland.org.uk/citation/citation_photo/1006262.pdf

^(c) BAP priority species, England, see: <http://jncc.defra.gov.uk/page-5163>

^(d) Birds of Conservation Concern (BoCC) red list species (Eaton *et al.* 2009)

3.2.2 Sector 5

A total of 39 species were recorded in Sector 5 between October 2011 and March 2012. Of these, 12 were wildfowl (mute swan, Bewick's swan, Canada goose, dark-bellied brent goose, shelduck, wigeon, gadwall, teal, mallard, pochard, goldeneye and goosander), 15 were waders (oystercatcher, avocet, golden plover, grey plover, lapwing, knot, dunlin, snipe, black-tailed godwit, bar-tailed godwit, curlew, spotted redshank, greenshank, redshank and turnstone) and five were gulls (black-headed gull, common gull, lesser black-backed gull, herring gull and great black-backed gull). The other seven species included cormorant, little egret, grey heron, little grebe, great crested grebe, moorhen and kingfisher (Table 3.2).

Table 3.2 Monthly counts of each species recorded in Sector 5 (Figure 1.1).

Counts in brackets indicate known underestimates. Counts in green text indicate those that exceed the 1% national (GB) threshold and counts in red text indicate those that exceed the 1% international threshold in Holt *et al.* (2011)

Species	Count of birds					
	October 2011	November 2011	December 2011	January 2012	February 2012	March 2012
Mute swan ^(b)	12	7	-	2	-	6
Bewick's swan	-	-	18	-	-	-
Canada goose	58	-	9	-	-	-
Dark-bellied brent goose ^(a*, b, c)	13	-	200	2	-	-
Shelduck ^(b)	2	19	20	75	78	16
Wigeon ^(b)	8	30	98	110	71	38
Gadwall	-	-	2	2	-	-
Teal	38	245	[187]	476	[276]	65
Mallard	16	25	[45]	59	[57]	8
Pochard	2	-	-	-	-	-
Goldeneye	-	1	9	7	8	-
Goosander	-	-	-	-	1	-
Cormorant	4	-	3	4	2	-
Little egret	5	4	1	2	1	1
Grey heron	-	1	1	3	-	-
Little grebe	24	32	33	9	18	8
Great crested grebe	-	-	1	-	1	-
Moorhen	6	3	[11]	6	6	5
Oystercatcher	-	-	2	13	9	13
Avocet ^(a, b)	-	-	-	-	1	-
Golden plover	40	[200]	[100]	-	2	60
Grey plover ^(b)	4	12	[5]	10	29	15
Lapwing ^(d)	10	[403]	[606]	178	26	12
Knot	-	-	-	3	23	3
Dunlin ^(b, d)	23	-	[30]	[7]	[89]	70
Snipe	-	-	1	-	-	-
Black-tailed godwit ^(b, d)	29	16	176	29	104	310
Bar-tailed godwit	-	-	-	-	3	27
Curlew ^(b, c)	6	31	88	68	[15]	11
Spotted redshank	-	-	-	2	-	2
Greenshank	2	-	-	-	-	-
Redshank ^(b)	[86]	[41]	[103]	120	[65]	125
Turnstone	3	2	2	3	4	8
Black-headed gull	165	[304]	[120]	200	220	85
Common gull	3	8	1	1	8	1

Species	Count of birds					
	October 2011	November 2011	December 2011	January 2012	February 2012	March 2012
Lesser black-backed gull	-	-	1	2	-	1
Herring gull ^(c, d)	8	7	7	5	3	11
Great black-backed gull	-	-	2	-	-	-
Kingfisher	-	-	-	1	-	-

^(a) SPA qualifying species (Stroud *et al.* 2001). *Dark-bellied brent goose is not listed as a qualifying species for the Deben Estuary in the SPA review (Stroud *et al.* 2001), but is listed on the Natura 2000 Standard Data form for the SPA (see <http://jncc.defra.gov.uk/pdf/SPA/UK9009261.pdf> for full details)

^(b) SSSI species, see Deben SSSI citation:

http://www.sssi.naturalengland.org.uk/citation/citation_photo/1006262.pdf

^(c) BAP priority species, England, see: <http://jncc.defra.gov.uk/page-5163>

^(d) Birds of Conservation Concern (BoCC) red list species (Eaton *et al.* 2009)

3.2.3 Sector 9

A total of 39 species were recorded in Sector 5 between October 2011 and March 2012. Of these, 15 were wildfowl (mute swan, Bewick's swan, greylag goose, Canada goose, dark-bellied brent goose, pale-bellied brent goose, red-breasted goose, shelduck, wigeon, gadwall, teal, mallard, pintail, tufted duck and goosander), 14 were waders (oystercatcher, avocet, ringed plover, golden plover, grey plover, lapwing, knot, dunlin, black-tailed godwit, bar-tailed godwit, curlew, redshank, green sandpiper and turnstone) and five were gulls (black-headed gull, common gull, lesser black-backed gull, herring gull and great black-backed gull). The other five species were cormorant, little egret, grey heron, slavonian grebe and kingfisher (Table 3.3).

Table 3.3 Monthly counts of each species recorded in Sector 9 (Figure 1.1).

Counts in brackets indicate known underestimates. Counts in green text indicate those that exceed the 1% national (GB) threshold and counts in red text indicate those that exceed the 1% international threshold in Holt *et al.* (2011)

Species	Count of birds					
	October 2011	November 2011	December 2011	January 2012	February 2012	March 2012
Mute swan ^(b)	40	57	15	5	91	114
Bewick's swan	-	-	-	-	-	1
Greylag goose	-	149	-	-	-	-
Canada goose	30	-	15	15	-	2
Dark-bellied brent goose ^(a*, b, c)	172	413	394	641	2183	131
Pale-bellied brent goose	-	-	-	-	2	-
Red-breasted goose	-	-	-	-	1	-
Shelduck ^(b)	-	11	3	11	21	21
Wigeon ^(b)	-	-	6	14	6	-
Gadwall	-	-	-	-	2	-
Teal	15	[58]	175	68	[11]	16

Species	Count of birds					
	October 2011	November 2011	December 2011	January 2012	February 2012	March 2012
Mallard	2	-	1	16	5	4
Pintail ^(b)	-	-	-	-	1	-
Tufted duck	-	-	-	-	-	11
Goosander	-	-	-	-	1	
Cormorant	6	7	3	2	2	2
Little egret	4	2	1	2	-	1
Grey heron	1	-	3	1	1	1
Slavonian grebe	-	-	-	-	-	1
Oystercatcher	-	-	-	5	-	16
Avocet ^(a, b)	325	-	1	-	73	1
Ringed plover	-	-	-	1	3	3
Golden plover	250	72	276	664	-	16
Grey plover ^(b)	11	17	15	14	12	150
Lapwing ^(d)	35	237	83	161	8	5
Knot	-	-	10	-	-	-
Dunlin ^(b, d)	72	163	430	[209]	715	165
Black-tailed godwit ^(b, d)	-	-	3	4	3	-
Bar-tailed godwit	-	-	1	-	60	23
Curlew ^(b, c)	21	29	[45]	8	11	42
Redshank ^(b)	219	23	[36]	167	[14]	160
Green sandpiper	-	1	-	-	-	-
Turnstone	5	1	3	3	-	4
Black-headed gull	20	100	[53]	15	-	88
Common gull	2	2	1	-	-	2
Lesser black-backed gull	10	-	-	-	23	-
Herring gull ^(c, d)	19	9	10	10	4	16
Great black-backed gull	2	-	2	5	-	1
Kingfisher	1	-	-	-	-	-

^(a) SPA qualifying species (Stroud *et al.* 2001). *Dark-bellied brent goose is not listed as a qualifying species for the Deben Estuary in the SPA review (Stroud *et al.* 2001), but is listed on the Natura 2000 Standard Data form for the SPA (see <http://jncc.defra.gov.uk/pdf/SPA/UK9009261.pdf> for full details)

^(b) SSSI species, see Deben SSSI citation:

http://www.sssi.naturalengland.org.uk/citation/citation_photo/1006262.pdf

^(c) BAP priority species, England, see: <http://jncc.defra.gov.uk/page-5163>

^(d) Birds of Conservation Concern (BoCC) red list species (Eaton *et al.* 2009)

3.3 Low tide sectors

3.3.1 Sector BX001

A total of seven species were recorded in Sector BX001 between November 2011 and February 2012. Of these, one was a wader (lapwing) and five were gulls (black-headed gull,

common gull, lesser black-backed gull, herring gull and great black-backed gull). Cormorants were also observed during the January 2012 survey (Table 3.4).

Table 3.4 Monthly counts of each species recorded in Sector BX001 (Figure 1.1).

Counts in brackets indicate known underestimates. Counts in **green** text indicate those that exceed the 1% national (GB) threshold and counts in **red** text indicate those that exceed the 1% international threshold in Holt *et al.* (2011)

Species	Count of birds			
	November 2011	December 2011	January 2012	February 2012
Cormorant	-	-	6	-
Lapwing ^(d)	-	10	-	-
Black-headed gull	1	-	-	-
Common gull	-	-	-	1
Lesser black-backed gull	-	1	-	-
Herring gull ^(c, d)	3	3	5	2
Great black-backed gull	2	2	1	3

^(a) SPA qualifying species (Stroud *et al.* 2001). *Dark-bellied brent goose is not listed as a qualifying species for the Deben Estuary in the SPA review (Stroud *et al.* 2001), but is listed on the Natura 2000 Standard Data form for the SPA (see <http://jncc.defra.gov.uk/pdf/SPA/UK9009261.pdf> for full details)

^(b) SSSI species, see Deben SSSI citation:

http://www.sssi.naturalengland.org.uk/citation/citation_photo/1006262.pdf

^(c) BAP priority species, England, see: <http://jncc.defra.gov.uk/page-5163>

^(d) Birds of Conservation Concern (BoCC) red list species (Eaton *et al.* 2009)

3.3.2 Sector BX002

A total of 11 species were recorded in Sector BX002 between November 2011 and February 2012. Of these, one was classed as wildfowl (dark-bellied brent goose), four were waders (golden plover, grey plover, lapwing and bar-tailed godwit) and three were gulls (black-headed gull, herring gull and great black-backed gull). The other three species were cormorant, grey heron and moorhen (Table 3.5).

Table 3.5 Monthly counts of each species recorded in Sector BX002 (Figure 1.1).

Counts in brackets indicate known underestimates. Counts in **green** text indicate those that exceed the 1% national (GB) threshold and counts in **red** text indicate those that exceed the 1% international threshold in Holt *et al.* (2011)

Species	Count of birds			
	November 2011	December 2011	January 2012	February 2012
Dark-bellied brent goose ^(a*, b, c)	-	-	-	1
Cormorant	-	2	-	-
Grey heron	1	-	-	-
Moorhen	-	-	2	-
Golden plover	45	-	-	-

Species	Count of birds			
	November 2011	December 2011	January 2012	February 2012
Grey plover ^(b)	-	1	-	-
Lapwing ^(d)	85	23	-	11
Bar-tailed godwit	-	-	-	1
Black-headed gull	2	-	-	-
Herring gull ^(c, d)	6	1	23	30
Great black-backed gull	4	3	1	8

^(a) SPA qualifying species (Stroud *et al.* 2001). *Dark-bellied brent goose is not listed as a qualifying species for the Deben Estuary in the SPA review (Stroud *et al.* 2001), but is listed on the Natura 2000 Standard Data form for the SPA (see <http://jncc.defra.gov.uk/pdf/SPA/UK9009261.pdf> for full details)

^(b) SSSI species, see Deben SSSI citation:

http://www.sssi.naturalengland.org.uk/citation/citation_photo/1006262.pdf

^(c) BAP priority species, England, see: <http://jncc.defra.gov.uk/page-5163>

^(d) Birds of Conservation Concern (BoCC) red list species (Eaton *et al.* 2009)

3.3.3 Sector BX003

A total of 29 species were recorded in Sector BX003 between November 2011 and February 2012. Of these, nine were wildfowl (mute swan, greylag goose, Canada goose, dark bellied-brent goose, shelduck, wigeon, gadwall, teal and mallard), 13 were waders (oystercatcher, avocet, ringed plover, golden plover, grey plover, lapwing, knot, dunlin, black-tailed godwit, bar-tailed godwit, curlew, redshank and turnstone) and four were gulls (black-headed gull, common gull, herring gull and great black-backed gull). The other three species were cormorant, little egret and grey heron (Table 3.6).

Table 3.6 Monthly counts of each species recorded in Sector BX003 (Figure 1.1).

Counts in brackets indicate known underestimates. Counts in **green** text indicate those that exceed the 1% national (GB) threshold and counts in **red** text indicate those that exceed the 1% international threshold in Holt *et al.* (2011)

Species	Count of birds			
	November 2011	December 2011	January 2012	February 2012
Mute swan ^(b)	-	-	-	8
Greylag goose	300	-	-	-
Canada goose	11	10	-	-
Dark-bellied brent goose ^(a*, b, c)	16	7	391	45
Shelduck ^(b)	14	26	20	44
Wigeon ^(b)	25	47	28	494
Gadwall	-	-	9	7
Teal	95	120	135	[45]
Mallard	-	73	13	33
Cormorant	6	4	-	5
Little egret	1	-	-	1

Species	Count of birds			
	November 2011	December 2011	January 2012	February 2012
Grey heron	3	1	-	1
Oystercatcher	1	-	-	-
Avocet ^(a, b)	36	51	113	104
Ringed plover	-	-	1	-
Golden plover	-	-	55	-
Grey plover ^(b)	24	38	47	16
Lapwing ^(d)	54	15	130	2
Knot	4	120	-	17
Dunlin ^(b, d)	720	738	984	982
Black-tailed godwit ^(b, d)	1	-	-	-
Bar-tailed godwit	-	7	46	-
Curlew ^(b, c)	53	22	17	-
Redshank ^(b)	172	60	76	-
Turnstone	5	-	-	-
Black-headed gull	10	25	-	-
Common gull	1	-	-	-
Herring gull ^(c, d)	3	2	3	-
Great black-backed gull	1	-	6	-

^(a) SPA qualifying species (Stroud *et al.* 2001). *Dark-bellied brent goose is not listed as a qualifying species for the Deben Estuary in the SPA review (Stroud *et al.* 2001), but is listed on the Natura 2000 Standard Data form for the SPA (see <http://jncc.defra.gov.uk/pdf/SPA/UK9009261.pdf> for full details)

^(b) SSSI species, see Deben SSSI citation:

http://www.sssi.naturalengland.org.uk/citation/citation_photo/1006262.pdf

^(c) BAP priority species, England, see: <http://jncc.defra.gov.uk/page-5163>

^(d) Birds of Conservation Concern (BoCC) red list species (Eaton *et al.* 2009)

3.3.4 Sector BX004

A total of 31 species were recorded in Sector BX004 between November 2011 and February 2012. Of these, ten were wildfowl (Canada goose, dark-bellied brent goose, pale-bellied brent goose, red-breasted goose, shelduck, wigeon, teal, mallard, red-breasted merganser and goosander), 14 were waders (oystercatcher, avocet, ringed plover, golden plover, grey plover, lapwing, knot, dunlin, snipe, black-tailed godwit, bar-tailed godwit, curlew, redshank and turnstone) and five were gulls (black-headed gull, common gull, lesser black-backed gull, herring gull and great black-backed gull). The other two species were little egret and grey heron (Table 3.7).

Table 3.7 Monthly counts of each species recorded in Sector BX004 (Figure 1.1).

Counts in brackets indicate known underestimates. Counts in **green** text indicate those that exceed the 1% national (GB) threshold and counts in **red** text indicate those that exceed the 1% international threshold in Holt *et al.* (2011)

Species	Count of birds			
	November 2011	December 2011	January 2012	February 2012
Canada goose	-	-	10	-
Dark-bellied brent goose ^(a*, b, c)	72	181	860	2150
Pale-bellied brent goose	-	-	-	2
Red-breasted goose	-	-	-	1
Shelduck ^(b)	-	-	-	8
Wigeon ^(b)	4	-	23	-
Teal	49	65	102	[15]
Mallard	1	-	4	8
Red-breasted merganser	-	-	-	2
Goosander	-	-	-	1
Little egret	2	1	1	-
Grey heron	-	4	-	-
Oystercatcher	-	-	1	-
Avocet ^(a, b)	20	1	-	1
Ringed plover	4	6	1	4
Golden plover	96	440	1700	-
Grey plover ^(b)	10	7	2	2
Lapwing ^(d)	33	116	288	13
Knot	2	-	-	21
Dunlin ^(b, d)	305	300	64	248
Snipe	1	-	-	-
Black-tailed godwit ^(b, d)	1	1	1	5
Bar-tailed godwit	-	-	-	2
Curlew ^(b, c)	6	7	2	4
Redshank ^(b)	71	[66]	119	[19]
Turnstone	6	-	5	4
Black-headed gull	10	[6]	45	15
Common gull	-	-	1	-
Lesser black-backed gull	-	1	-	-
Herring gull ^(c, d)	-	2	14	6
Great black-backed gull	-	-	2	11

^(a) SPA qualifying species (Stroud *et al.* 2001). *Dark-bellied brent goose is not listed as a qualifying species for the Deben Estuary in the SPA review (Stroud *et al.* 2001), but is listed on the Natura 2000 Standard Data form for the SPA (see <http://jncc.defra.gov.uk/pdf/SPA/UK9009261.pdf> for full details)

^(b) SSSI species, see Deben SSSI citation:

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^(c) BAP priority species, England, see: <http://jncc.defra.gov.uk/page-5163>

^(d) Birds of Conservation Concern (BoCC) red list species (Eaton *et al.* 2009)

3.3.5 Sector BX005

A total of 26 species were recorded in Sector BX005 between November 2011 and February 2012. Of these, eight were wildfowl (mute swan, dark-bellied brent goose, shelduck, wigeon, gadwall, teal, mallard and red-breasted merganser), 11 were waders (oystercatcher, avocet, golden plover, grey plover, lapwing, knot, dunlin, bar-tailed godwit, curlew, redshank and green sandpiper) and four were gulls (black-headed gull, common gull, herring gull and great black-backed gull). The other three species were cormorant, little egret and grey heron (Table 3.8).

Table 3.8 Monthly counts of each species recorded in Sector BX005 (Figure 1.1).

Counts in brackets indicate known underestimates. Counts in **green** text indicate those that exceed the 1% national (GB) threshold and counts in **red** text indicate those that exceed the 1% international threshold in Holt *et al.* (2011)

Species	Count of birds			
	November 2011	December 2011	January 2012	February 2012
Mute swan ^(b)	30	4	4	90
Dark-bellied brent goose ^(a*, b, c)	400	5	25	1
Shelduck ^(b)	-	4	8	9
Wigeon ^(b)	-	3	-	10
Gadwall	-	-	-	9
Teal	-	9	25	2
Mallard	-	8	4	5
Red-breasted merganser	-	-	-	2
Cormorant	-	-	-	1
Little egret	1	-	-	-
Grey heron	-	-	-	1
Oystercatcher	-	-	2	-
Avocet ^(a, b)	-	62	-	-
Golden plover	-	1	5	-
Grey plover ^(b)	9	13	11	3
Lapwing ^(d)	-	20	-	-
Knot	4	-	-	-
Dunlin ^(b, d)	65	140	250	125
Bar-tailed godwit	-	-	-	2
Curlew ^(b, c)	5	11	95	5
Redshank ^(b)	48	36	60	[18]
Green sandpiper	1	-	-	-
Black-headed gull	4	[9]	26	-
Common gull	-	-	-	1

Species	Count of birds			
	November 2011	December 2011	January 2012	February 2012
Herring gull ^(c, d)	1	1	6	2
Great black-backed gull	-	-	1	-

^(a) SPA qualifying species (Stroud *et al.* 2001). *Dark-bellied brent goose is not listed as a qualifying species for the Deben Estuary in the SPA review (Stroud *et al.* 2001), but is listed on the Natura 2000 Standard Data form for the SPA (see <http://jncc.defra.gov.uk/pdf/SPA/UK9009261.pdf> for full details)

^(b) SSSI species, see Deben SSSI citation:

http://www.sssi.naturalengland.org.uk/citation/citation_photo/1006262.pdf

^(c) BAP priority species, England, see: <http://jncc.defra.gov.uk/page-5163>

^(d) Birds of Conservation Concern (BoCC) red list species (Eaton *et al.* 2009)

3.3.6 Sector BX019

A total of 33 species were recorded in Sector BX019 between November 2011 and February 2012. Of these, nine were wildfowl (mute swan, dark-bellied brent goose, shelduck, wigeon, gadwall, teal, mallard, pintail and tufted duck), 14 were waders (oystercatcher, avocet, grey plover, lapwing, knot, dunlin, snipe, black-tailed godwit, bar-tailed godwit, curlew, spotted redshank, redshank, green sandpiper and turnstone) and five were gulls (black-headed gull, common gull, lesser black-backed gull, herring gull and great black-backed gull). The other five species were little egret, grey heron, little grebe, moorhen and kingfisher (Table 3.9).

Table 3.9 Monthly counts of each species recorded in Sector BX019 (Figure 1.1).

Counts in brackets indicate known underestimates. Counts in **green** text indicate those that exceed the 1% national (GB) threshold and counts in **red** text indicate those that exceed the 1% international threshold in Holt *et al.* (2011)

Species	Count of birds			
	November 2011	December 2011	January 2012	February 2012
Mute swan ^(b)	3	-	-	2
Dark-bellied brent goose ^(a*, b, c)	-	6	-	-
Shelduck ^(b)	16	27	29	11
Wigeon ^(b)	45	127	112	[74]
Gadwall	-	-	-	6
Teal	238	[325]	518	632
Mallard	42	67	78	50
Pintail ^(b)	-	-	-	2
Tufted duck	-	-	1	1
Little egret	8	1	-	-
Grey heron	1	1	-	1
Little grebe	34	20	5	7
Moorhen	16	5	5	5
Oystercatcher	3	3	-	5
Avocet ^(a, b)	4	39	12	2

Species	Count of birds			
	November 2011	December 2011	January 2012	February 2012
Grey plover ^(b)	5	8	11	10
Lapwing ^(d)	36	74	120	46
Knot	-	1	97	13
Dunlin ^(b, d)	7	130	3	432
Snipe	1	-	1	1
Black-tailed godwit ^(b, d)	30	101	45	20
Bar-tailed godwit	-	2	-	-
Curlew ^(b, c)	13	4	19	19
Spotted redshank	2	1	2	-
Redshank ^(b)	223	[93]	[109]	50
Green sandpiper	1	-	-	1
Turnstone	-	1	3	1
Black-headed gull	[135]	[49]	[101]	200
Common gull	2	3	7	14
Lesser black-backed gull	-	-	1	1
Herring gull ^(c, d)	5	6	6	10
Great black-backed gull	-	2	1	2
Kingfisher	-	-	-	1

^(a) SPA qualifying species (Stroud *et al.* 2001). *Dark-bellied brent goose is not listed as a qualifying species for the Deben Estuary in the SPA review (Stroud *et al.* 2001), but is listed on the Natura 2000 Standard Data form for the SPA (see <http://jncc.defra.gov.uk/pdf/SPA/UK9009261.pdf> for full details)

^(b) SSSI species, see Deben SSSI citation:

http://www.sssi.naturalengland.org.uk/citation/citation_photo/1006262.pdf

^(c) BAP priority species, England, see: <http://jncc.defra.gov.uk/page-5163>

^(d) Birds of Conservation Concern (BoCC) red list species (Eaton *et al.* 2009)

3.4 Cable landfall

3.4.1 Sector FF001

A total of 16 species were recorded over eight surveys of the cable landfall sector FF001 between November 2011 and February 2012. Of these, seven were waders (ringed plover, golden plover, lapwing, dunlin, woodcock, curlew and redshank) and five were gulls (black-headed gull, common gull, herring gull, lesser black-backed gull and great black-backed gull). The other four species were shelduck, teal, red-breasted merganser and grey heron (Table 3.10).

Table 3.10 Monthly counts of each species recorded in cable landfall sector FF001 (Figure 1.1).

Counts in brackets indicate known underestimates. Counts in **green** text indicate those that exceed the 1% national (GB) threshold and counts in **red** text indicate those that exceed the 1% international threshold in Holt *et al.* (2011)

Species	Count of birds							
	November 2011		December 2011		January 2012		February 2012	
	Core Count	Low Tide	Core Count	Low Tide	Core Count	Low Tide	Core Count	Low Tide
Shelduck ^(b)	4	-	-	-	-	-	-	-
Teal	-	-	-	-	-	-	2	-
Red-breasted merganser	-	-	-	-	-	-	2	-
Grey heron	-	-	-	-	-	1	-	-
Ringed plover	-	-	28	-	-	-	-	-
Golden plover	-	-	-	-	-	-	11	10
Lapwing ^(c, d)	-	-	-	-	-	-	18	7
Dunlin ^(b, d)	3	-	75	-	-	-	5	4
Woodcock	-	-	-	-	-	-	1	-
Curlew ^(b, c)	-	-	-	-	-	-	2	-
Redshank ^(b)	-	-	-	1	-	-	4	-
Black-headed gull	14	[30]	[45]	25	80	67	115	300
Common gull	1	-	1	-	1	2	2	1
Lesser black-backed gull	-	-	-	-	-	-	1	-
Herring gull ^(c, d)	4	4	6	2	7	3	6	4
Great black-backed gull	-	2	1	-	1	6	2	3

^(a) SPA qualifying species (Stroud *et al.* 2001). *Dark-bellied brent goose is not listed as a qualifying species for the Deben Estuary in the SPA review (Stroud *et al.* 2001), but is listed on the Natura 2000 Standard Data form for the SPA (see <http://jncc.defra.gov.uk/pdf/SPA/UK9009261.pdf> for full details)

^(b) SSSI species, see Deben SSSI citation:

http://www.sssi.naturalengland.org.uk/citation/citation_photo/1006262.pdf

^(c) BAP priority species, England, see: <http://jncc.defra.gov.uk/page-5163>

^(d) Birds of Conservation Concern (BoCC) red list species (Eaton *et al.* 2009)

3.4.2 Cable Landfall Sector

A total of eight species were recorded over eight surveys of the Cable Landfall Sector between November 2011 and February 2012. Of these, four were gulls (black-headed gull, common gull, herring gull and great black-backed gull). The other four species were mute swan, dark-bellied brent goose, cormorant and great-crested grebe (Table 3.11).

Table 3.11 Monthly counts of each species recorded in Cable Landfall Sector (Figure 1.1).

Counts in brackets indicate known underestimates. Counts in **green** text indicate those that exceed the 1% national (GB) threshold and counts in **red** text indicate those that exceed the 1% international threshold in Holt *et al.* (2011)

Species	Count of birds							
	November 2011		December 2011		January 2012		February 2012	
	Core Count	Low Tide	Core Count	Low Tide	Core Count	Low Tide	Core Count	Low Tide
Mute swan ^(b)	25	29	-	-	8	8	12	14
Dark-bellied brent goose ^(a*, b, c)	-	5	-	-	-	-	-	-
Cormorant	1	-	-	-	-	-	3	2
Great crested grebe	-	-	-	-	-	-	1	-
Black-headed gull	[45]	25	[60]	43	13	15	16	13
Common gull	1	6	-	3	-	-	3	2
Herring gull ^(c, d)	13	7	20	14	3	7	4	25
Great black-backed gull	4	2	2	3	-	3	6	10

^(a) SPA qualifying species (Stroud *et al.* 2001). *Dark-bellied brent goose is not listed as a qualifying species for the Deben Estuary in the SPA review (Stroud *et al.* 2001), but is listed on the Natura 2000 Standard Data form for the SPA (see <http://jncc.defra.gov.uk/pdf/SPA/UK9009261.pdf> for full details)

^(b) SSSI species, see Deben SSSI citation:

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^(c) BAP priority species, England, see: <http://jncc.defra.gov.uk/page-5163>

^(d) Birds of Conservation Concern (BoCC) red list species (Eaton *et al.* 2009)

3.5 Bawdsey Marshes

During December 2011, a flock of 33 curlew were present (feeding and roosting) in fields half way between the seawall and Poplar Farm. Few other birds were noted in the Bawdsey Marshes area during this survey.

In January 2012, a flock of 200 dark-bellied brent geese were present feeding in fields near Queen's Fleet in the northern part of Bawdsey Marshes and twelve mute swans were present in the northern part of Bawdsey Marshes.

Two curlew were present during the February 2012 survey in fields on Bawdsey Marshes but little else of interest was noted in the area.

3.6 Other bird / mammal sightings

During the November 2011 survey, four snow buntings were seen feeding along the shoreline adjacent to Falkenham Marshes in Sector 9. A female hen harrier was seen hunting over the saltmarsh midway along BX003. Two female and one male marsh harrier were also present during November in BX003 and three Cetti's warblers were recorded in the small reedbed on

the north side of Martlesham Creek, BX019. Small numbers of bearded tits were also seen and heard in reeds adjacent to the seawalls in both BX003 and BX019. Finally, common seals were seen in BX003 (hauled out on mud) and BX004 (swimming in the main channel at low tide).

In December 2011, a short-eared owl was present just south of Falkenham Creek and a male hen harrier was also present just south of Falkenham Creek. Two Cetti's warblers were again present in the small reedbeds adjacent to the seawall on the north side of Martlesham Creek. Up to three marsh harriers were seen regularly throughout the December survey period both in Sector 1 and Sector 9. Finally, bearded tits were again seen and heard in small reed fringes in BX003 and BX019.

A single Cetti's warbler was present during the January 2012 survey in the small reedbed adjacent to the seawall on the north side of Martlesham Creek and up to three marsh harriers were again seen regularly throughout the survey period in both Sector 1 and Sector 9. As in previous surveys, bearded tits were seen and heard in small reed fringes in BX003 and BX019. Finally, two common seals were present in the estuary; one in BX003 and one in Sector 5.

During the February 2012 survey, two Cetti's warblers were present in the small reedbed adjacent to the seawall on the north side of Martlesham Creek. A peregrine falcon was seen hunting wading birds in BX019 and a single green woodpecker was feeding on the grass embankment on the seawall within BX005. Common seals were again observed with three noted along the shoreline of the Cable Landfall sector. Further common seals were noted within BX004 and BX005 during low tide counts.

Bearded tits were heard calling from reeds near King's Fleet within Sector 9 during the March 2012 survey. A hen harrier was observed quartering the area around Falkenham Creek in the same sector during this survey. In addition, one male and one female marsh harrier were seen in Sector 1 and a single female marsh harrier was seen within Sector 9.

4 DISCUSSION & RECOMMENDATIONS

4.1 SPA species

The Deben Estuary SPA qualifies under Article 4.1 of the European Union Bird Directive by regularly supporting 7.5% of the Great British (GB) wintering population of avocet, and 0.8% of the north-west European population of dark-bellied brent geese (see <http://jncc.defra.gov.uk/pdf/SPA/UK9009261.pdf> for full details). Both of these species are listed on Annex I of the Directive. The site also qualifies under Criterion 3c of the Ramsar Convention by regularly supporting internationally important wintering numbers of dark-bellied brent geese. These species therefore pose the most likely consenting risk to the proposed cable route of the EA ONE wind farm.

4.1.1 Dark-bellied brent goose

Dark-bellied brent geese are migratory, leaving the south-east coast of England in April for their breeding grounds in northern Russia and returning to Britain in early October (Cramp & Simmons 1977). Most dark-bellied brent geese recorded at high tide were observed within core count Sectors 1 and 9 (Figures 4.1 and 4.2). Across all three sectors surveyed by both WeBS and APEM, dark-bellied brent geese were present mainly between December and February (Figure 4.2). The peak number of dark-bellied brent geese recorded in winter 2011/12 was 2,183 individuals in Sector 9 during February 2012 exceeding the 1% international wintering threshold of 2,000 individuals (Holt *et al.* 2011) and representing 2.4% of the current GB wintering population (Holt *et al.* 2011). Previous data collected by WeBS indicated that relatively low numbers of dark-bellied brent geese were present within the Deben Estuary SPA, with a mean peak count of 428 individuals in Sector 1 during February (Figure 4.2).

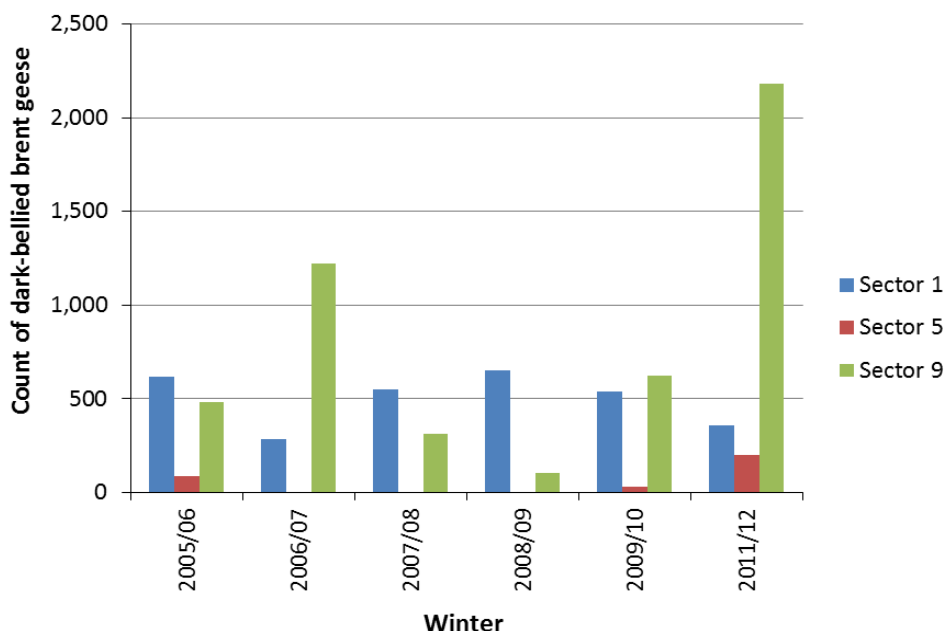


Figure 4.1 Annual peak counts of dark-bellied brent geese
(at each core count sector recorded by WeBS during winters 2005/06 to 2009/10 and by APEM during winter 2011/12.)

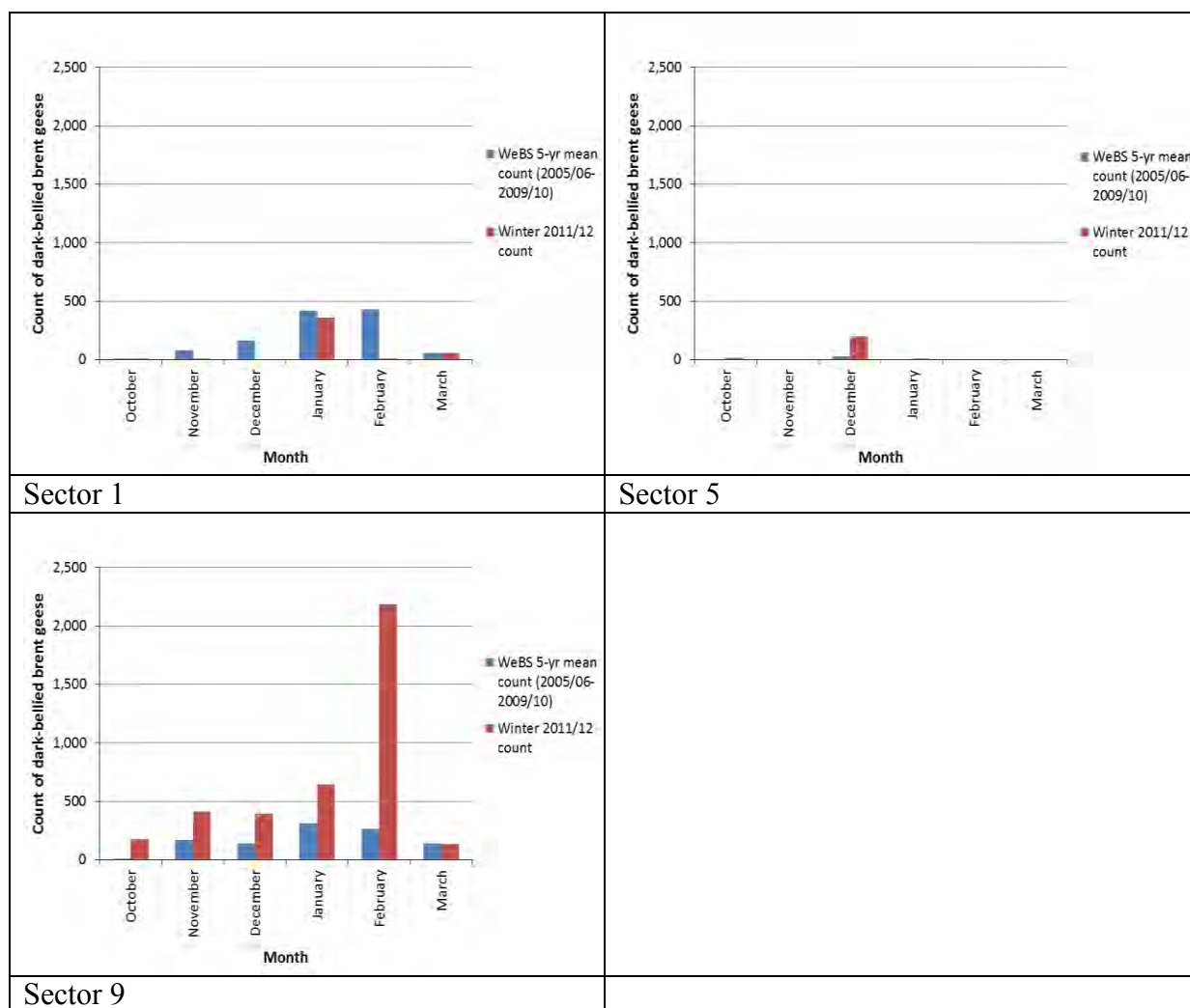


Figure 4.2 WeBS five-year monthly mean counts of dark-bellied brent geese
((2005/06-2009/10) and winter 2011/12 monthly counts of (at each core count sector))

Feeding flocks of geese were nearly always present on farmland within Sector 9 preferring Felixstowe Marshes as shown in Figure 4.3. The flocks were often disturbed and flew onto the estuary itself or nearby saltmarsh to rest for a short time before returning to the same fields. No more than 200 were seen around Falkenham Creek. The 2,183 birds recorded in February were present in a single flock towards the southern end of Felixstowe Marshes (most southerly symbol on Figure 4.3).



Figure 4.3 Dark-bellied brent goose feeding areas on the River Deben.

At low tide, dark-bellied brent geese were recorded in Sectors BX003, BX004 and BX005 (Figure 4.4). In winter 2011/12, the vast majority of dark-bellied brent geese present at low tide were observed within Sector BX004: a peak count of 2,150 individuals were recorded in February 2012 and a mean of 816 individuals were recorded for this sector in winter 2011/12. Mean peak counts recorded previously by WeBS showed that dark-bellied brent geese were recorded in lower numbers in Sectors BX003 and BX004, peaking at a mean of 104 individuals in Sector BX004 (Figure 4.4).

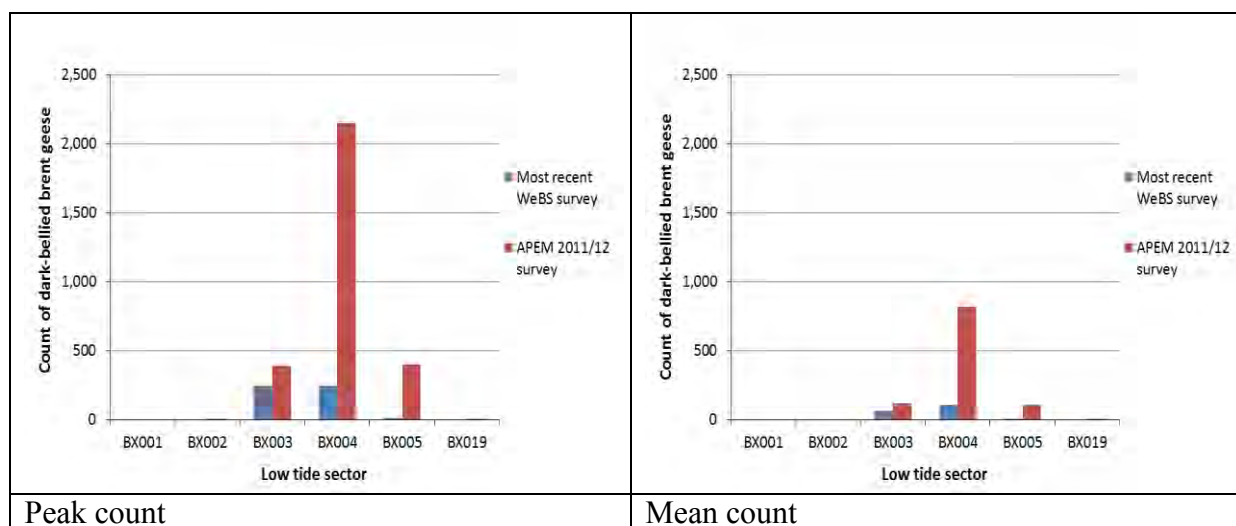


Figure 4.4 Peak and mean counts of dark bellied brent geese recorded at each low tide sector

(in the most recent year surveyed by WeBS for which data are available (1995/96 for Sectors BX001, BX002, BX003 and 2006/07 for Sectors BX004, BX005, BX019) and for winter 2011/12)

No dark-bellied brent geese were recorded during any survey month in winter 2011/12 at Sector FF001 at either high or low tide. The only dark-bellied brent geese recorded at the Cable Landfall Sector were five birds in November 2011 at low tide, although no birds were present at high tide. No birds were present in this sector during any other month at high or low tide. A flock of 200 dark-bellied brent geese were present feeding in fields near Queen's Fleet in the northern part of Bawdsey Marshes in January 2012. This was the only month where this species was recorded at the Bawdsey Marshes site.

4.1.2 Avocet

Avocets breeding in Britain are largely non-migratory, moving into estuaries to feed during the non-breeding season (October – April) (Lack 1986). The majority of avocets recorded at high tide were observed within core count Sectors 1 and 9 (Figures 4.5 & 4.6); a single avocet was recorded within Sector 5 during February 2012. Across all three sectors surveyed by both WeBS and APEM, most avocets were present between October and December, with October 2011 having the highest core count (Figure 4.6). Avocet numbers peaked at 325 individuals in Sector 9 during February 2012; 4.3% of the current GB wintering population (Holt *et al.* 2011). This peak exceeds the 1% national (GB) wintering threshold of 75 individuals but does not reach the 1% international wintering threshold of 730 individuals (Holt *et al.* 2011). Mean peak counts recorded previously by WeBS confirmed that avocets

were present in relatively high numbers in Sectors 1 and 9 with no individuals recorded in Sector 5. However, in contrast to the 2011/12 surveys, avocets were recorded in high numbers during December in Sector 1, with a mean peak of 209 individuals (Figure 4.6).

The most frequent high tide roosting location used by the majority of birds was south of Ramsholt Quay on the east side of the Deben in Sector 1, with smaller numbers in Falkenham Creek on the west side of the estuary, which are highlighted in Figure 4.7 as primary roosting locations. However, during strong westerly winds they also roosted in Kirton Creek (secondary roost site, Figure 4.7). However, the roosting flock was also observed to split between both the primary and secondary roost sites on one occasion.

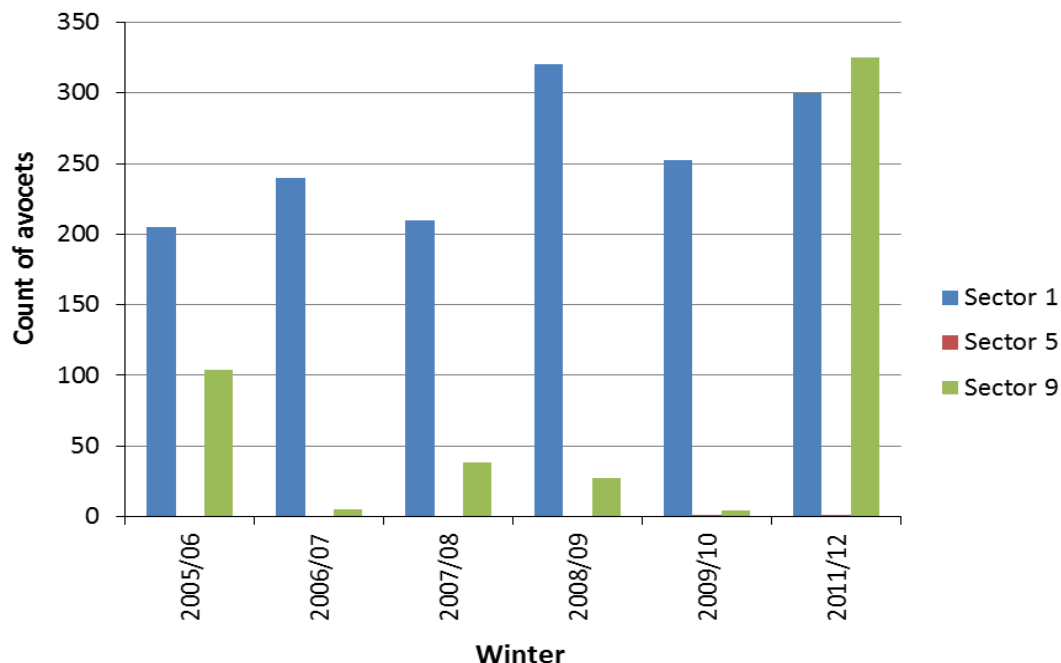


Figure 4.5 Annual peak counts of avocet at each core count sector
(recorded by WeBS during winters 2005/06 to 2009/10 and by APEM during winter 2011/12)

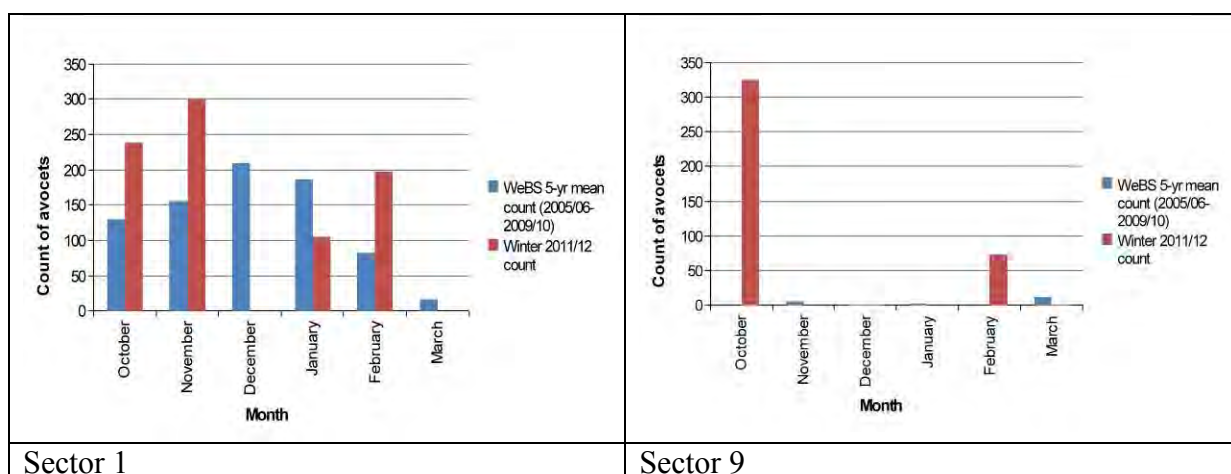


Figure 4.6 WeBS five-year monthly mean counts of avocet
((2005/06-2009/10) and winter 2011/12 monthly counts (at each core count sector))

At low tide, avocets were recorded in Sectors BX003, BX004, BX005 and BX019 (Figure 4.7). In winter 2011/12, the vast majority of avocet present at low tide were observed within Sector BX003: a peak count of 113 individuals were recorded in this sector during winter 2011/12; 1.5% of the current GB wintering population (Holt *et al.* 2011). In comparison, mean peak counts recorded previously by WeBS showed that avocets were present in relatively low numbers in these Sectors, peaking at a mean of six individuals in Sector BX005 (Figure 4.7). Figure 4.8 displays the main foraging area for avocets on the Deben.

No avocets were recorded during any survey month in winter 2011/12 within Sector FF001 or within the Cable Landfall Sector at either high or low tide.

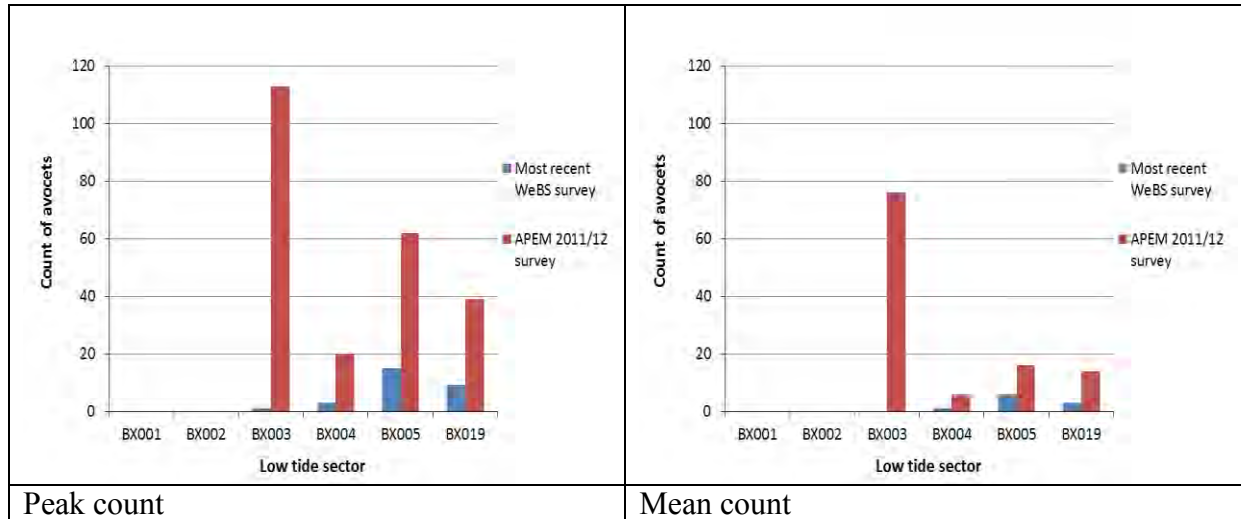
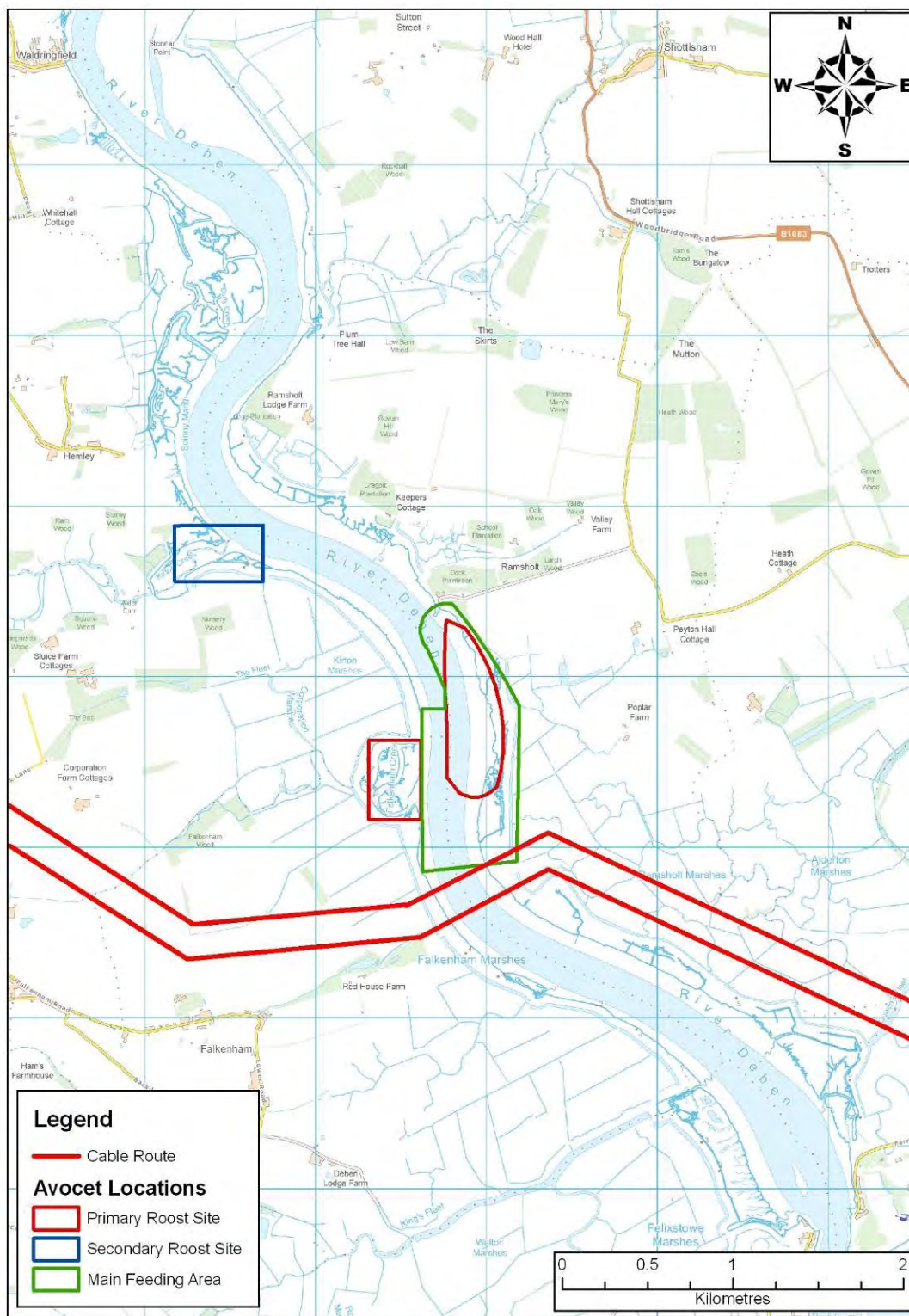


Figure 4.7 Peak and mean counts of avocet recorded at each low tide sector

(in the most recent year surveyed by WeBS for which data are available (1995/96 for Sectors BX001, BX002, BX003 and 2006/07 for Sectors BX004, BX005, BX019) and for winter 2011/12)



4.2 SSSI/Other species

The Deben Estuary has been designated as a SSSI under Section 28 of the Wildlife and Countryside Act 1981. Part of this designation is for important numbers of wintering wildfowl and waders, which may pose an additional consenting risk to the proposed onshore cable route. The number of redshanks overwintering on the Estuary are of international importance and the site is of national importance for its winter populations of dark-bellied brent geese, shelducks and black-tailed godwits. Numbers of wintering wigeon, pintail and grey plover approach national importance levels in some years. High numbers of dunlins, curlews and mute swans are also supported on the Estuary. Furthermore, several species of raptor winter in the area including hen harriers and marsh harriers which are red and amber listed, respectively, on the Birds of Conservation Concern list.

4.2.1 Mute swan

Mute swans are present year round but some are migratory, forming winter flocks (Cramp & Simmons 1977). Indeed, during periods of inclement weather on the continent, migrants from Europe are known to winter in the east of England (Cramp & Simmons 1977). Most mute swans recorded at high tide were observed within core count Sectors 1 and 9 (Figures 4.9 & 4.10). Across all three sectors surveyed by both WeBS and APEM, most mute swans were present between February and March (Figure 4.10). Mute swans peaked at 114 individuals during March 2012 within Sector 9 falling below the 1% international wintering threshold for this species ($n=320$)¹. Previous data collected by WeBS indicated that mute swans peaked at a mean count of 88 individuals in Sector 9 during February (Figure 4.10).

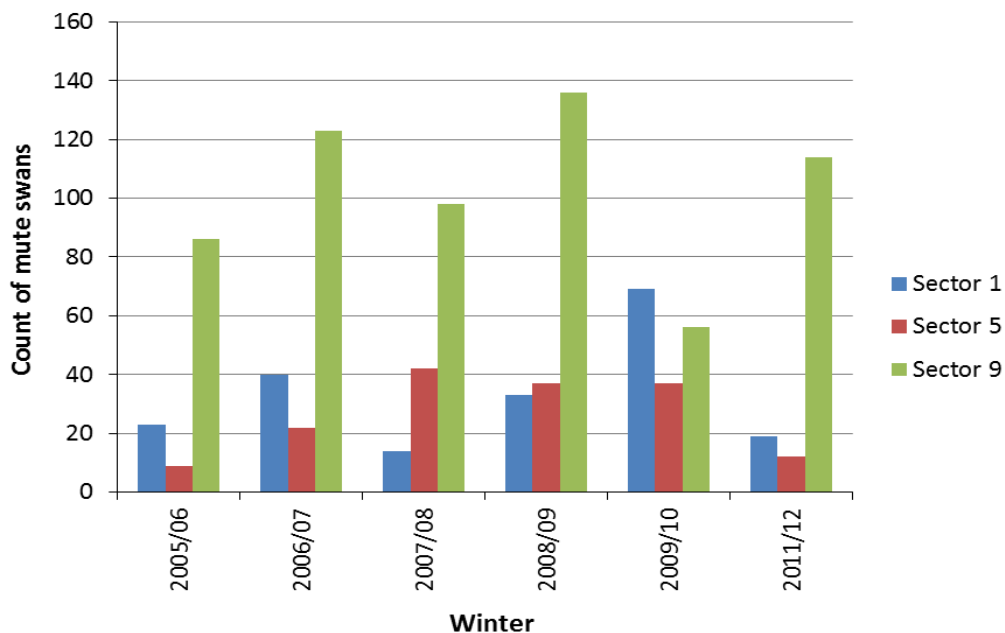


Figure 4.9 Annual peak counts of mute swan at each core count sector
(recorded by WeBS during winters 2005/06 to 2009/10 and by APEM during winter 2011/12)

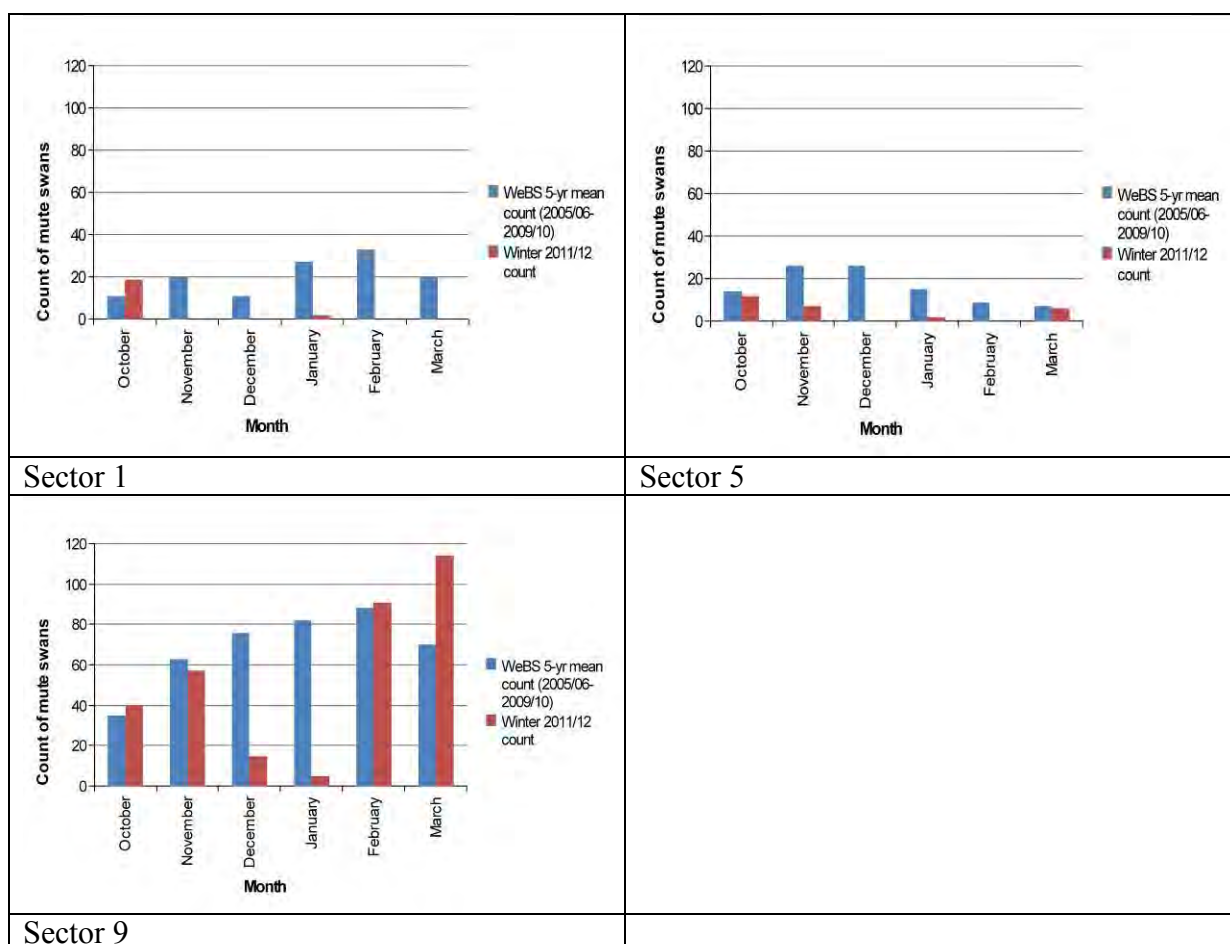


Figure 4.10 WeBS five-year monthly mean counts of mute swan
((2005/06-2009/10) and winter 2011/12 monthly counts (at each core count sector))

At low tide, mute swans were recorded in Sectors BX003, BX004, BX005 and BX019 (Figure 4.11). Mute swans peaked during winter 2012/13 at low tide within Sector BX005 when 90 individuals were recorded. Previous data collected by WeBS indicated that mute swans peaked at a mean count of 12 individuals in Sector BX019 (Figure 4.11).

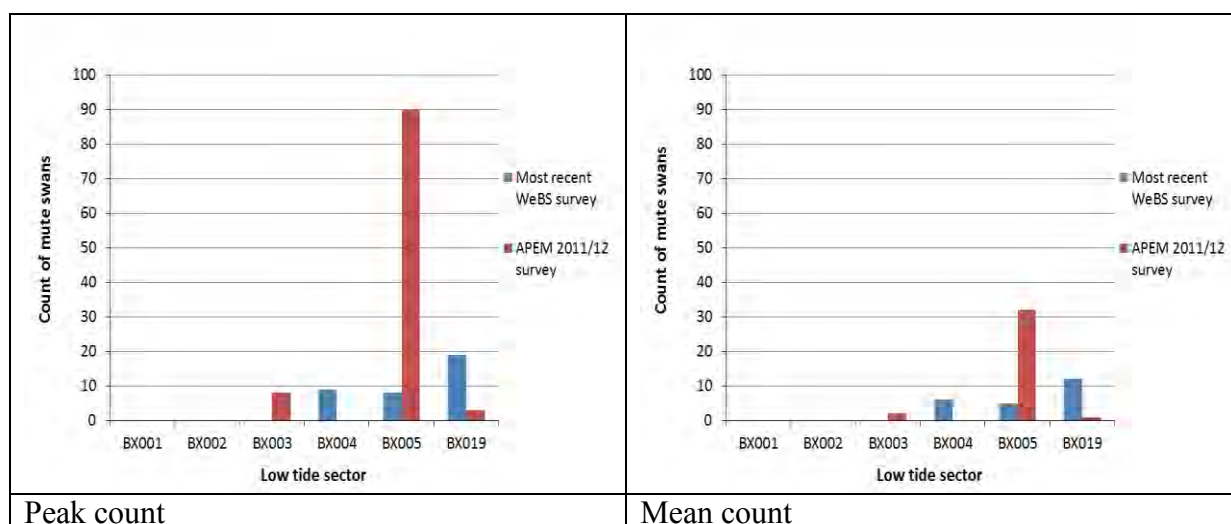


Figure 4.11 Peak and mean counts of mute swan recorded at each low tide sector

(in the most recent year surveyed by WeBS for which data are available (1995/96 for Sectors BX001, BX002, BX003 and 2006/07 for Sectors BX004, BX005, BX019) and for winter 2011/12)

No mute swans were recorded during any survey month in winter 2011/12 in Sector FF001 at either high or low tide. A total of 96 mute swans were recorded across all survey months within the Cable Landfall Sector. Numbers peaked in this sector during November 2011 when 25 individuals were recorded at high tide and 29 during low tide. A further twelve mute swans were present in the northern part of Bawdsey Marshes during January 2012.

4.2.2 Shelduck

Shelducks are present in Britain year-round although some individuals move to the Wadden Sea post-breeding to moult. The British population swells to 73,500 individuals during winter as a result of migration from the continent (Cramp & Simmons 1977). The majority of shelducks recorded at high tide were observed within core count Sectors 1 and 5 (Figures 4.12 & 4.13). Across all three sectors surveyed by both WeBS and APEM, most individuals were present between January and March. Shelduck numbers peaked at 78 individuals during February 2012 in Sector 5 (Figure 4.13); less than the 1% national (GB) and international wintering thresholds for this species (Holt *et al.* 2011) ($n=610$ and $n=3,000$, respectively). Previous data collected by WeBS indicated that shelducks peaked at a mean count of 71 individuals in Sector 1 during February (Figure 4.13).

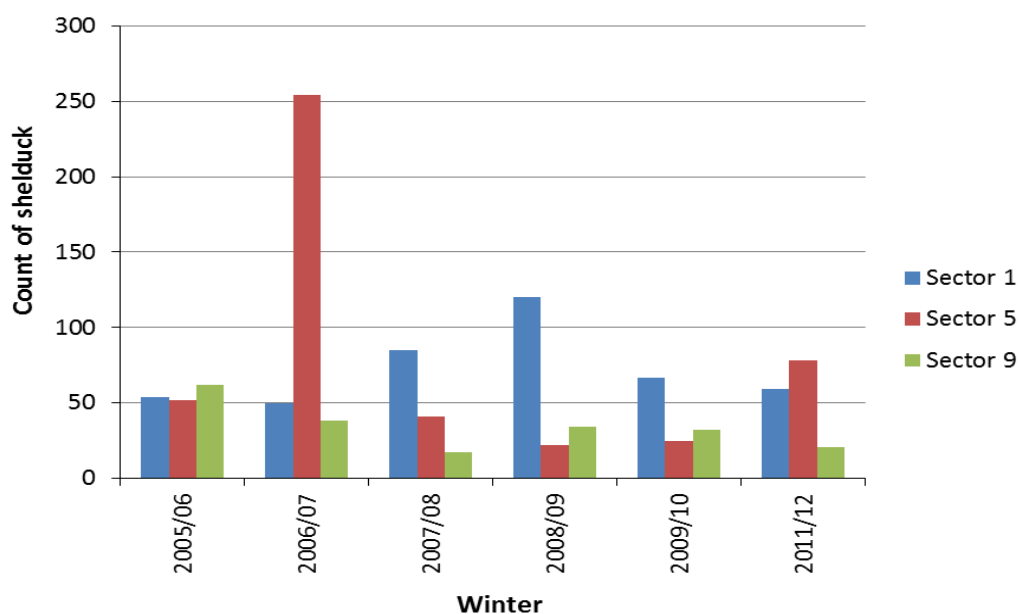


Figure 4.12 Annual peak counts of shelduck at each core count sector
(recorded by WeBS during winters 2005/06 to 2009/10 and by APEM during winter 2011/12)

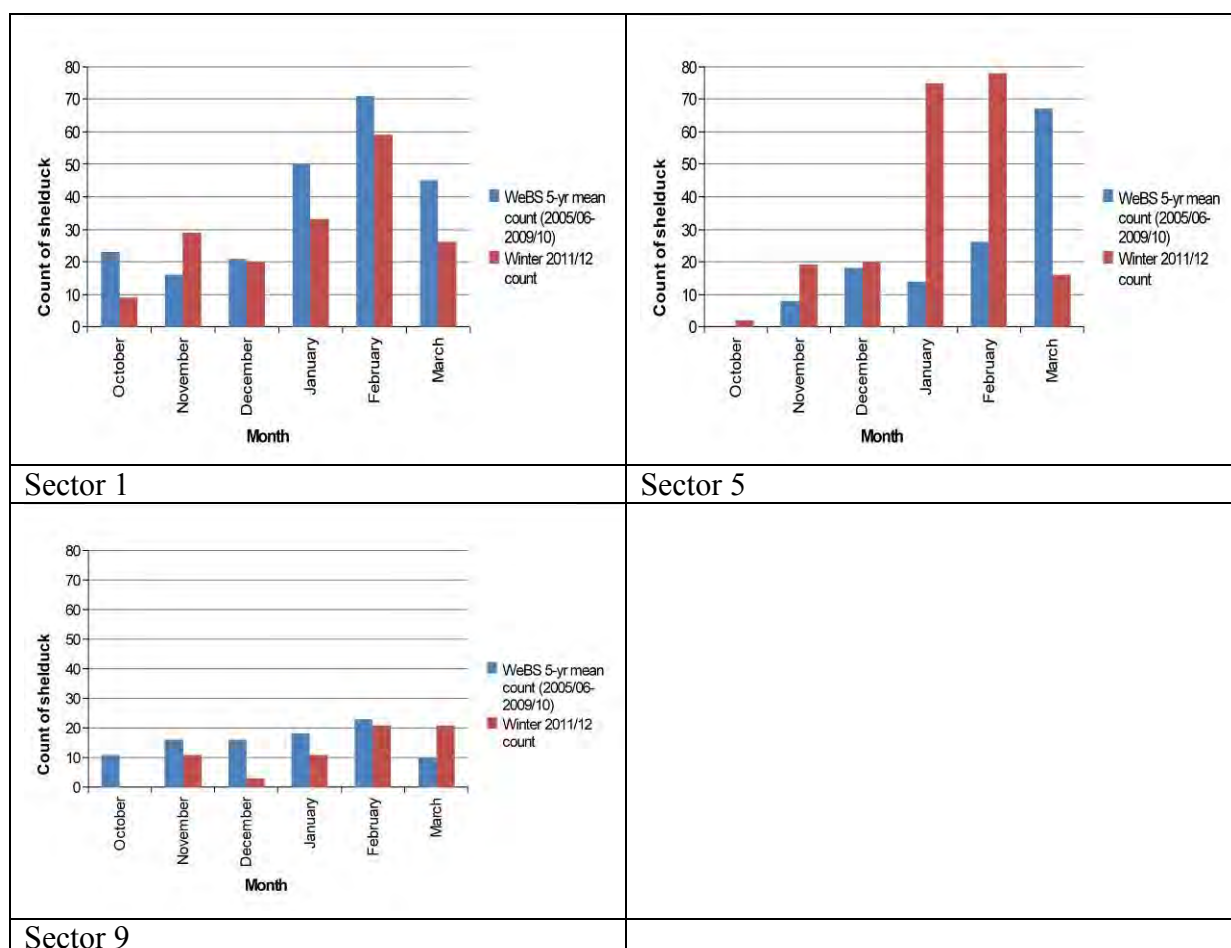


Figure 4.13 WeBS five-year monthly mean counts of shelduck
(2005/06-2009/10) and winter 2011/12 monthly counts (at each core count sector)

At low tide, shelducks were recorded in Sectors BX003, BX004, BX005 and BX019 (Figure 4.14). In winter 2011/12, shelducks peaked at low tide within Sector BX003 when 44 individuals were recorded. Previous data collected by WeBS indicated that shelducks peaked at a mean count of 72 individuals in Sector BX003 (Figure 4.14).

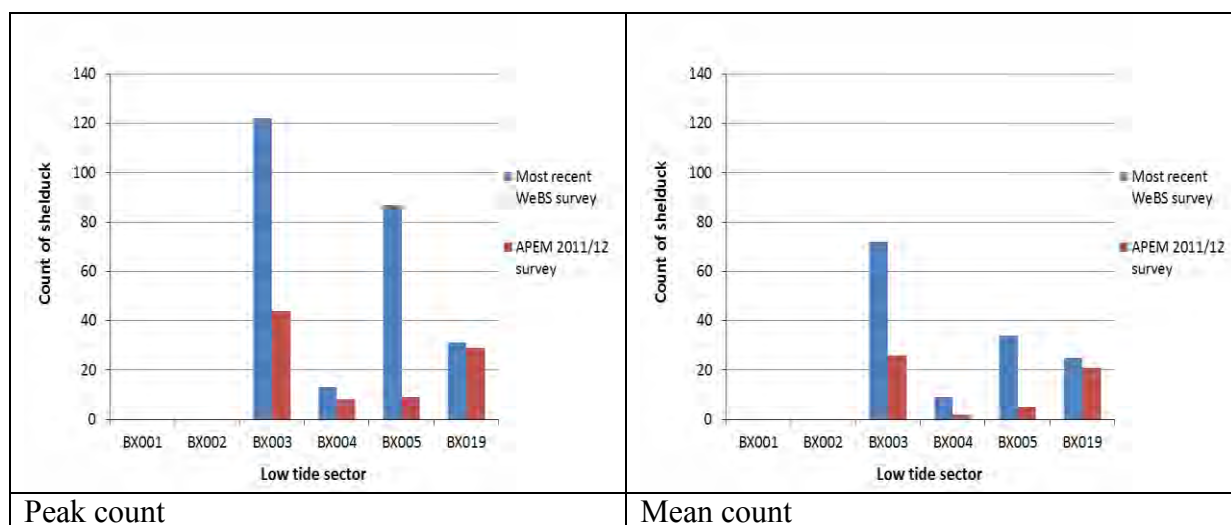


Figure 4.14 Peak and mean counts of shelduck recorded at each low tide sector (in the most recent year surveyed by WeBS for which data are available (1995/96 for Sectors BX001, BX002, BX003 and 2006/07 for Sectors BX004, BX005, BX019) and for winter 2011/12)

In Sector FF001, four shelducks were recorded at high tide during November 2011. None were recorded at any other time within this sector and no shelducks were observed within the Cable Landfall Sector either.

4.2.3 Wigeon

Approximately 300 pairs of wigeon breed in Scotland and northern England¹. This population swells to >250,000 individuals between October and March as wigeon from Iceland, Scandinavia and Russia arrive across the UK to winter (Cramp & Simmons 1977). The majority of wigeon recorded at high tide were observed within core count Sectors 1 and 5 (Figures 4.15 & 4.16). Across all three sectors surveyed by both WeBS and APEM, most wigeon were present between December and February (Figure 4.16). Wigeon numbers peaked at 111 individuals within Sector 1 during February 2012, far below the 1% national (GB) and international wintering thresholds for this species (n=4,400 and n=15,000, respectively). Previous data collected by WeBS indicated that wigeon peaked at a mean count of 82 individuals in Sector 5 during December (Figure 4.16).

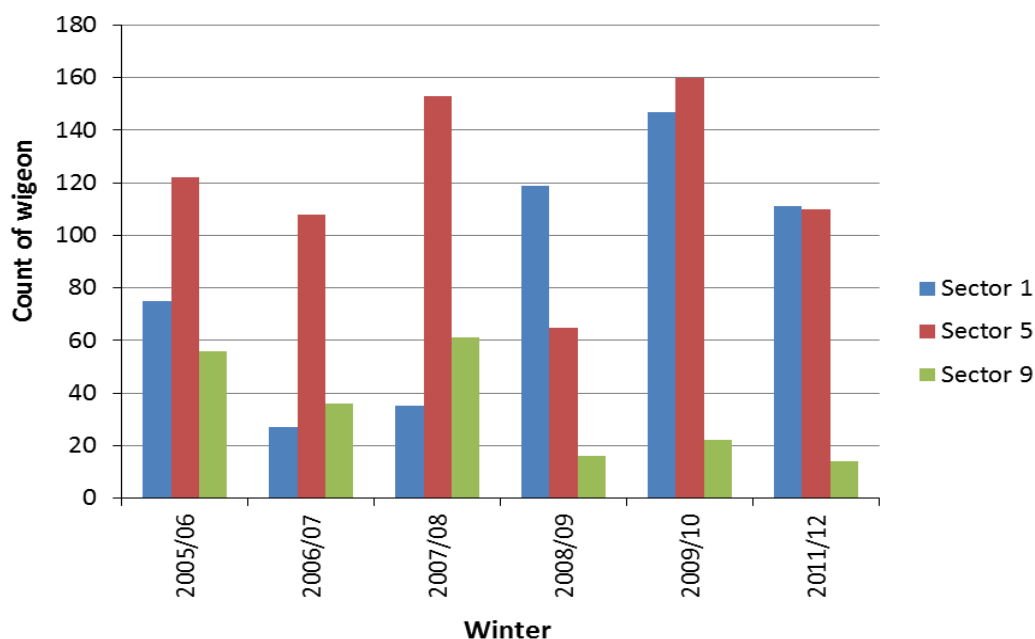


Figure 4.15 Annual peak counts of wigeon at each core count sector
(recorded by WeBS during winters 2005/06 to 2009/10 and by APEM during winter 2011/12)

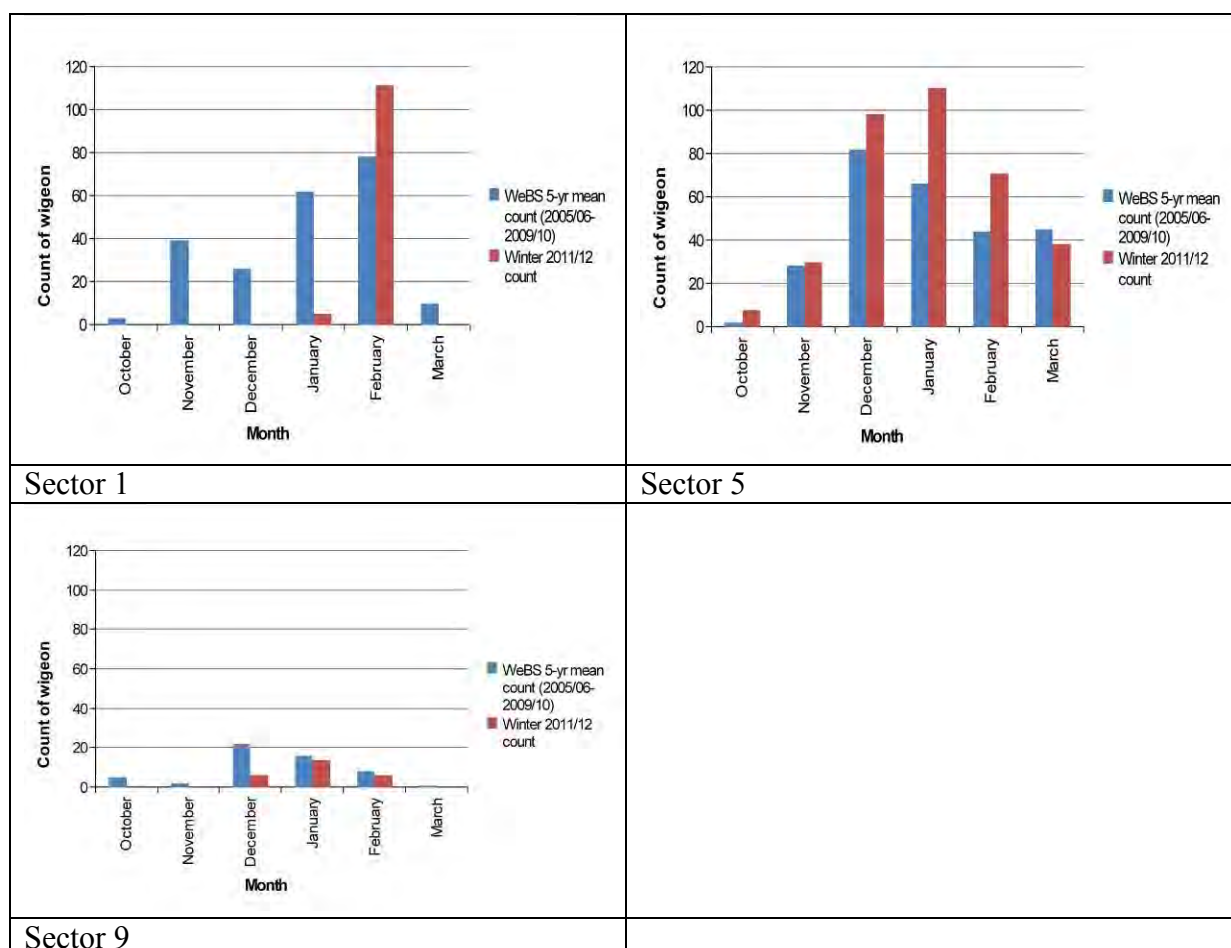


Figure 4.16 WeBS five-year monthly mean counts of wigeon
(2005/06-2009/10) and winter 2011/12 monthly counts (at each core count sector)

At low tide, wigeon were recorded in Sectors BX003, BX004, BX005 and BX019 (Figure 4.17). In winter 2011/12, wigeon were recorded in highest numbers in Sector BX003 with a peak count of 494 individuals and a mean count of 149 individuals. Previous data collected by WeBS indicated that wigeon peaked at a mean count of 77 individuals in Sector BX019 (Figure 4.17).

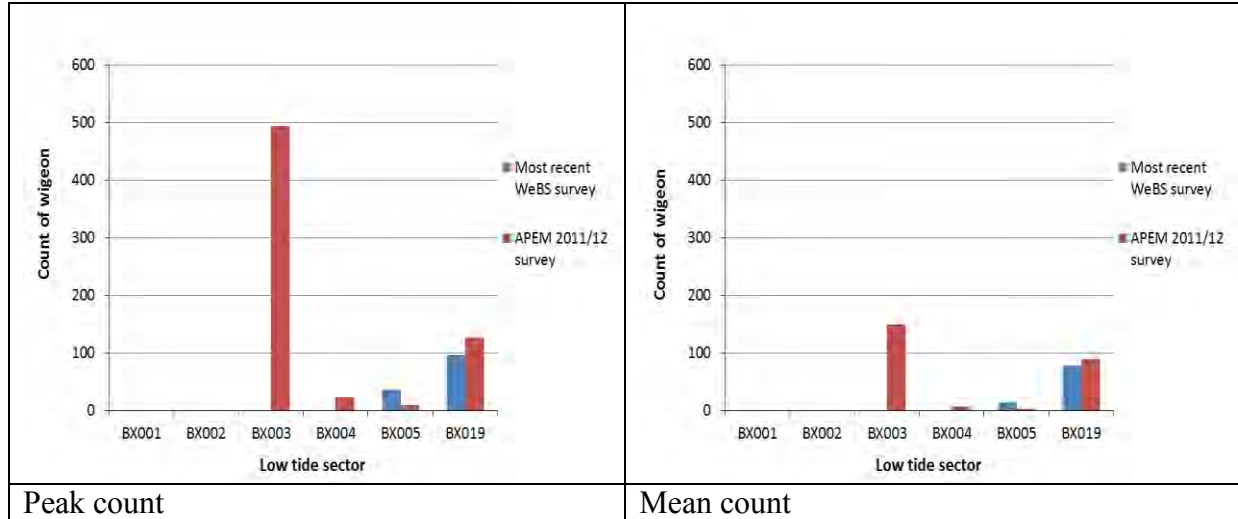


Figure 4.17 Peak and mean counts of wigeon recorded at each low tide sector (in the most recent year surveyed by WeBS for which data are available (1995/96 for Sectors BX001, BX002, BX003 and 2006/07 for Sectors BX004, BX005, BX019) and for winter 2011/12)

No wigeon were recorded during any survey month in winter 2011/12 at Sector FF001 or the Cable Landfall Sector at either high or low tide.

4.2.4 Pintail

Few (10-34 pairs) pintails breed within the UK although large numbers (>27,000 individuals) are present in Britain between September and early March as migrants arrive from northern and eastern Europe (Cramp & Simmons 1977; Holt *et al.* 2011). Most pintails recorded at high tide were observed within core count Sectors 1 and 5 (Figures 4.18 & 4.19). Across all three sectors surveyed by both WeBS and APEM, most pintails were present in February to March 2012 (Figure 4.19). Single pintails were observed in both Sectors 1 and 9 during February 2012. Previous data collected by WeBS indicated that pintails peaked at a mean count of four individuals in Sector 5 during March (Figure 4.19). None of these counts exceed the 1% national (GB) and international wintering thresholds for pintails (Holt *et al.* 2011) (n=290 and n=600, respectively).

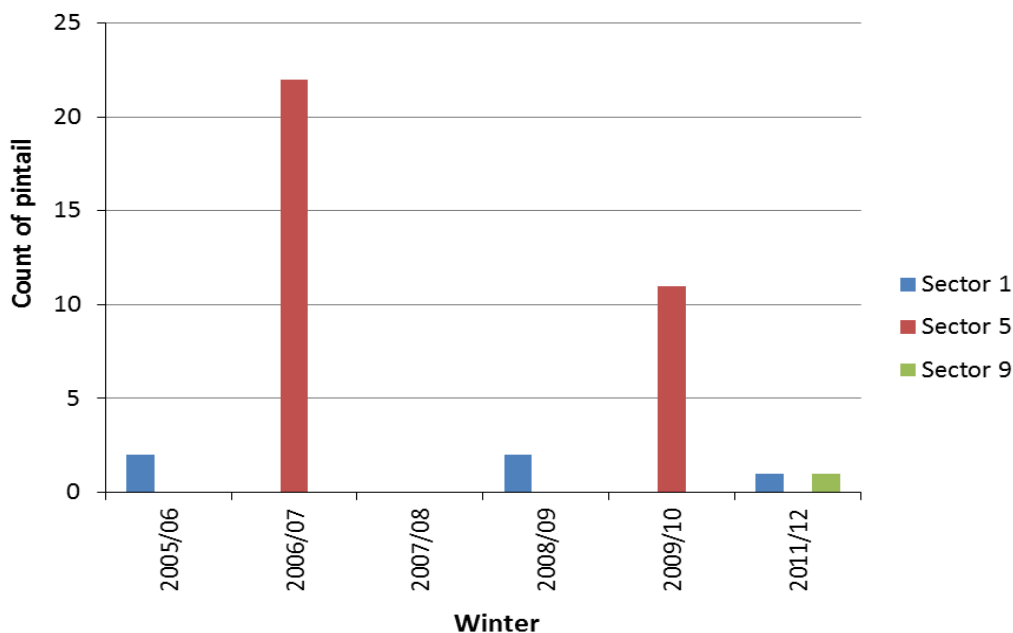


Figure 4.18 Annual peak counts of pintail at each core count sector
(recorded by WeBS during winters 2005/06 to 2009/10 and by APEM during winter 2011/12)

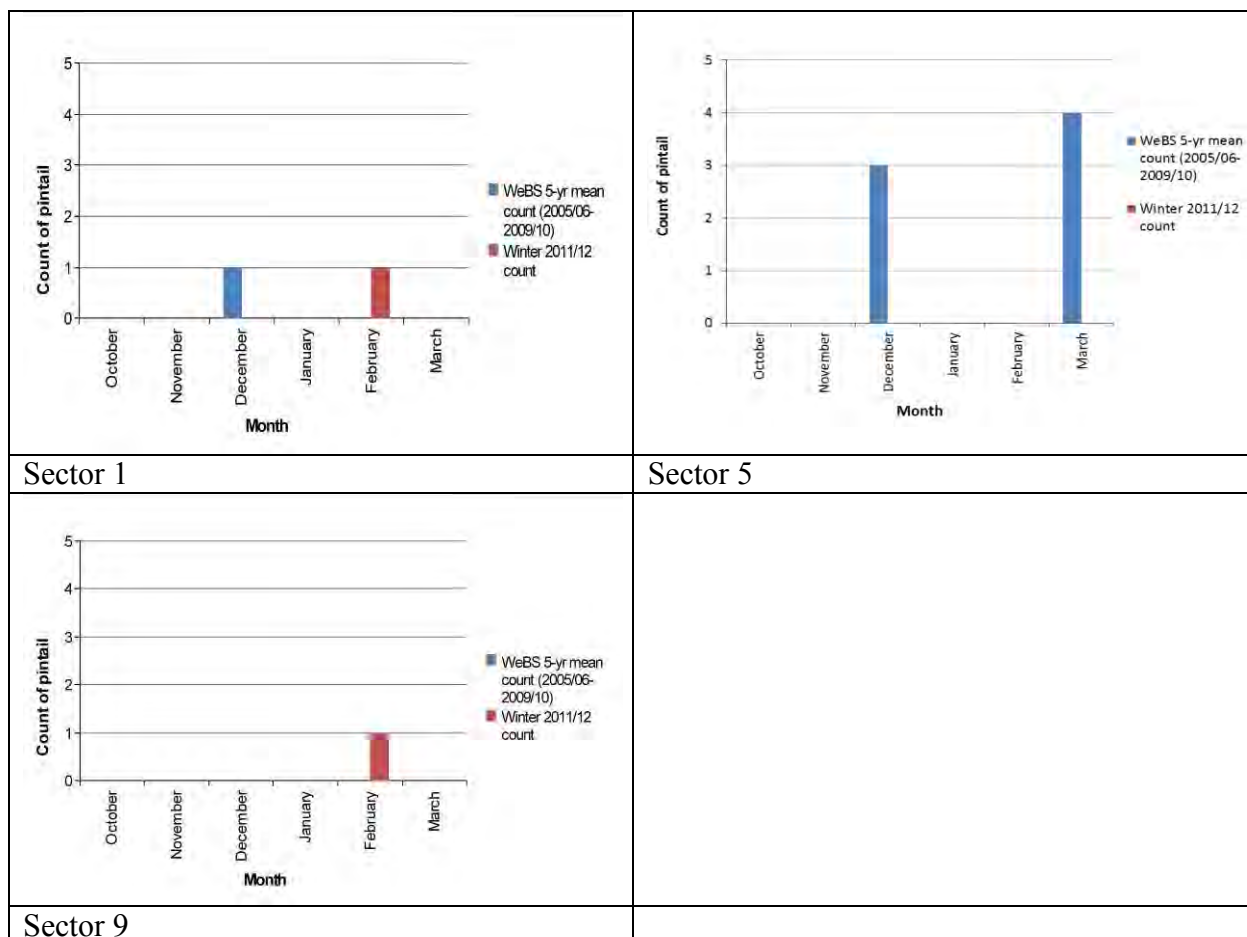


Figure 4.19 WeBS five-year monthly mean counts of pintail
((2005/06-2009/10) and winter 2011/12 monthly counts (at each core count sector))

During winter 2011/12 at low tide, pintails were only recorded in Sector BX019 (Figure 4.20), with a peak count of two individuals and a mean of one. No pintails were observed during the WeBS surveys of these Sectors (Figure 4.20).

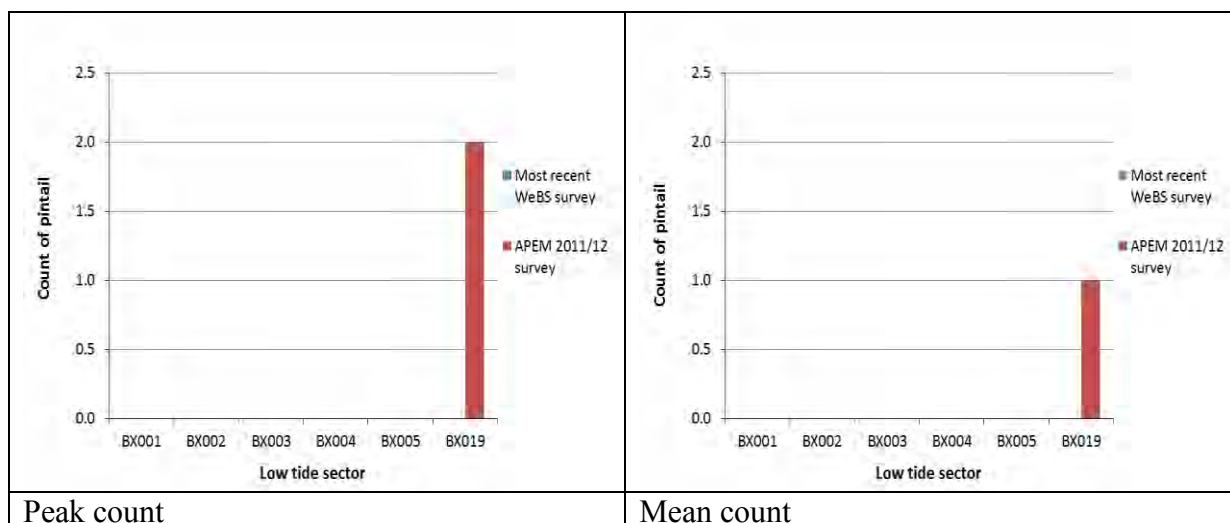


Figure 4.20 Peak and mean counts of pintail recorded at each low tide sector (in the most recent year surveyed by WeBS for which data are available (1995/96 for Sectors BX001, BX002, BX003 and 2006/07 for Sectors BX004, BX005, BX019) and for winter 2011/12)

No pintails were recorded in Sector FF001 or the Cable Landfall Sector during any survey month in winter 2011/12 at either high or low tide.

4.2.5 Grey plover

Grey plovers breed in north-west Russia, moving south and west during the non-breeding season. In Britain, peak numbers of grey plovers occur on most coasts between November and March, with most birds concentrated in the south-east and north-west of England (Wernham *et al.* 2002). The majority of the grey plovers recorded at high tide were observed within core count Sectors 1 and 9 (Figures 4.21 & 4.22). Across all three sectors surveyed both by WeBS and APEM, grey plover numbers peaked earlier within Sector 1 (November-January) and later in Sector 9 (February-March) which may suggest a movement of individuals out of Sector 1 into Sector 9 as the winter season progresses (Figure 4.22). Grey plovers peaked at 150 individuals in Sector 9 during March 2012. Previous data collected by WeBS indicated that grey plovers peaked at a mean count of 97 individuals in Sector 1 during January (Figure 4.22). These peak counts do not exceed the 1% national (GB) and international wintering grey plover thresholds of 430 and 2,500 individuals, respectively (Holt *et al.* 2011).

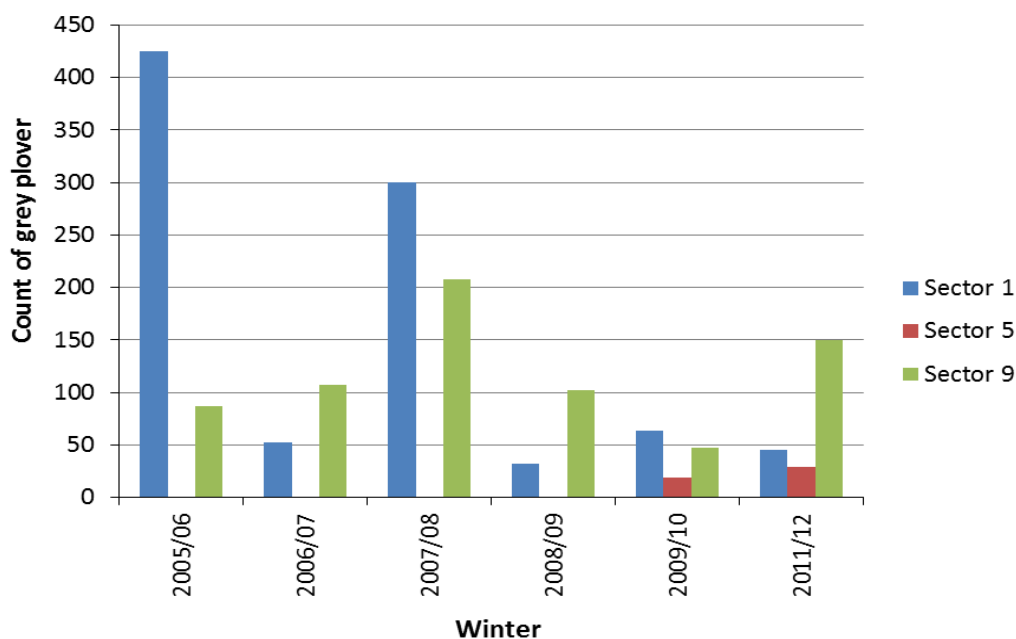


Figure 4.21 Annual peak counts of grey plover at each core count sector
(recorded by WeBS during winters 2005/06 to 2009/10 and by APEM during winter 2011/12)

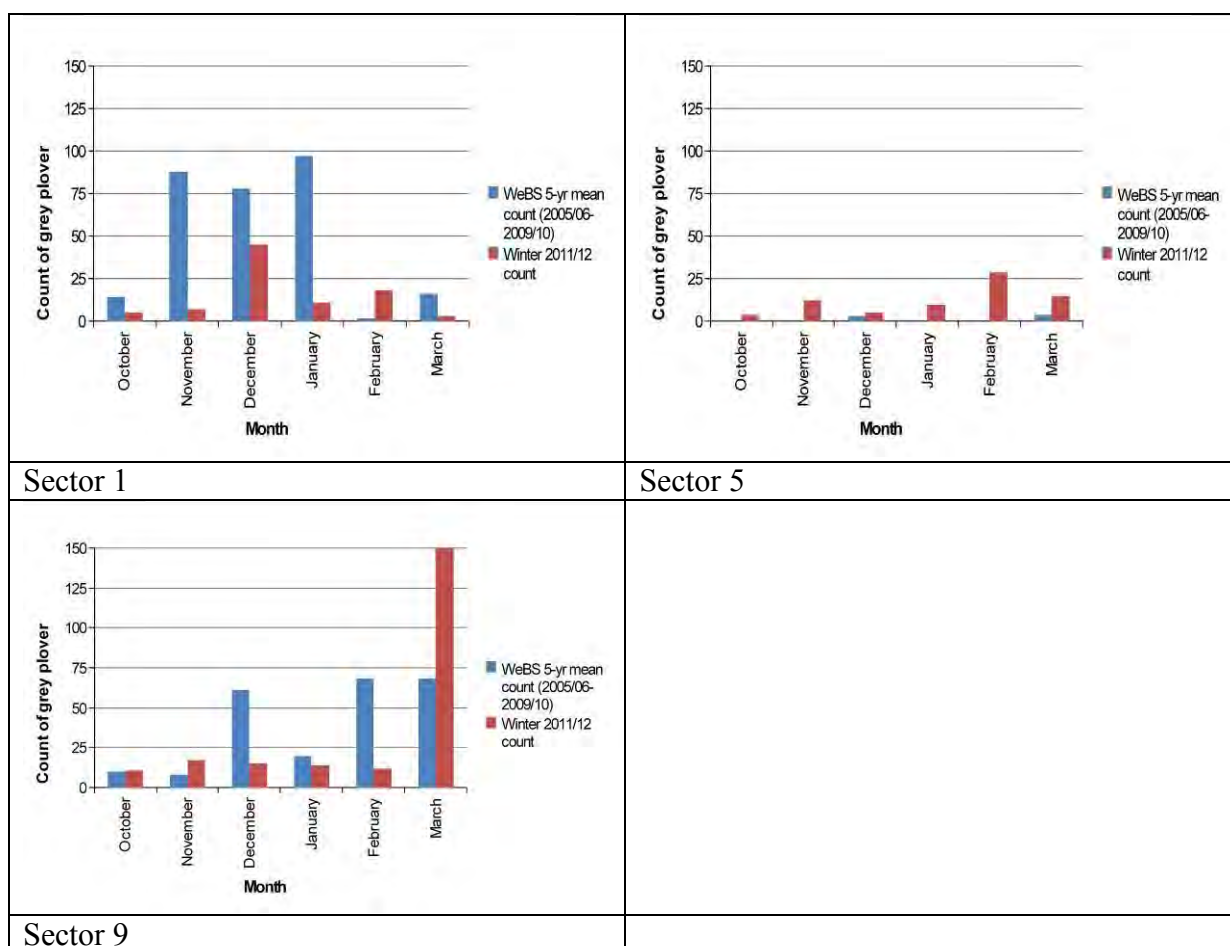


Figure 4.22 WeBS five-year monthly mean counts of grey plover
((2005/06-2009/10) and winter 2011/12 monthly counts (at each core count sector))

At low tide, grey plovers were recorded on Sectors BX002, BX003, BX004, BX005 and BX019 (Figure 4.23). The vast majority of grey plover present at low tide were observed within Sector BX003; a peak count of 47 individuals was recorded in this sector with a mean of 31 individuals. Previous data collected by WeBS indicated that grey plovers peaked at a mean count of 88 individuals in Sector 9 during February (Figure 4.10).

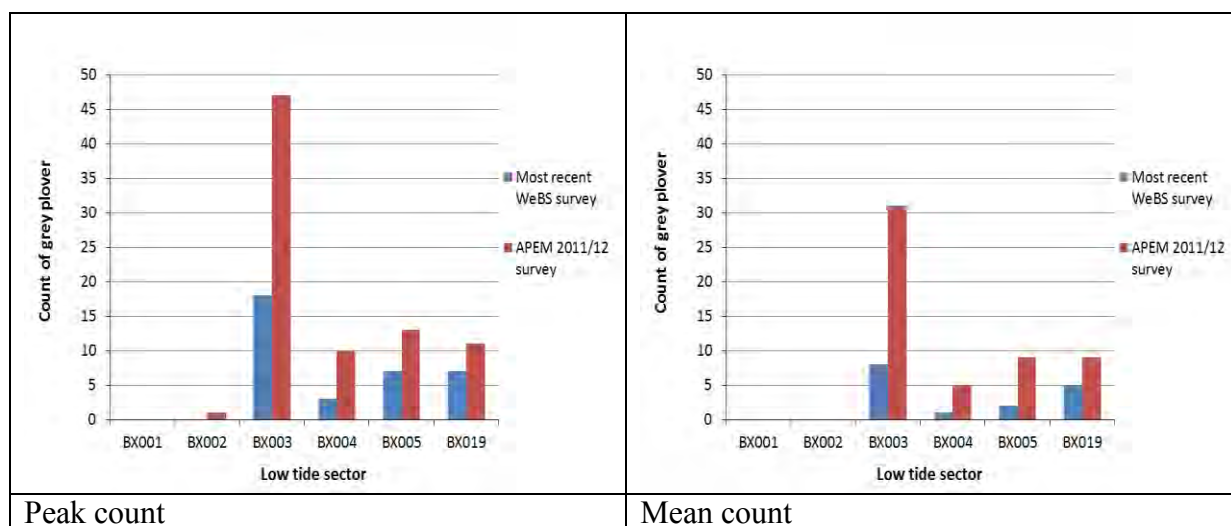


Figure 4.23 Peak and mean counts of grey plover recorded at each low tide sector (in the most recent year surveyed by WeBS for which data are available (1995/96 for Sectors BX001, BX002, BX003 and 2006/07 for Sectors BX004, BX005, BX019) and for winter 2011/12)

No grey plovers were recorded during any survey month in winter 2011/12 within Sector FF001 or the Cable Landfall Sector at either high or low tide.

4.2.6 Dunlin

Dunlins breed mainly in Scandinavia and Russia and winter in the UK, Ireland and France (Holt *et al.* 2011). Several important wintering sites for dunlins are located along the eastern and south-eastern coastlines, where birds can be found between September and March (Lack 1986). The majority of the dunlins recorded at high tide were observed within core count Sectors 1 and 9 (Figures 4.24 & 4.25). Across all three sectors surveyed by both WeBS and APEM, dunlin numbers began to build in November, peaking in February in Sector 9 when 715 individuals were recorded (Figure 4.25). Previous data collected by WeBS indicated that dunlins peaked at a mean count of 746 individuals in Sector 9 during February (Figure 4.25). Peak dunlin counts during these surveys did not exceed the 1% national (GB) or international wintering thresholds of 3,500 and 13,300 individuals, respectively (Holt *et al.* 2011).

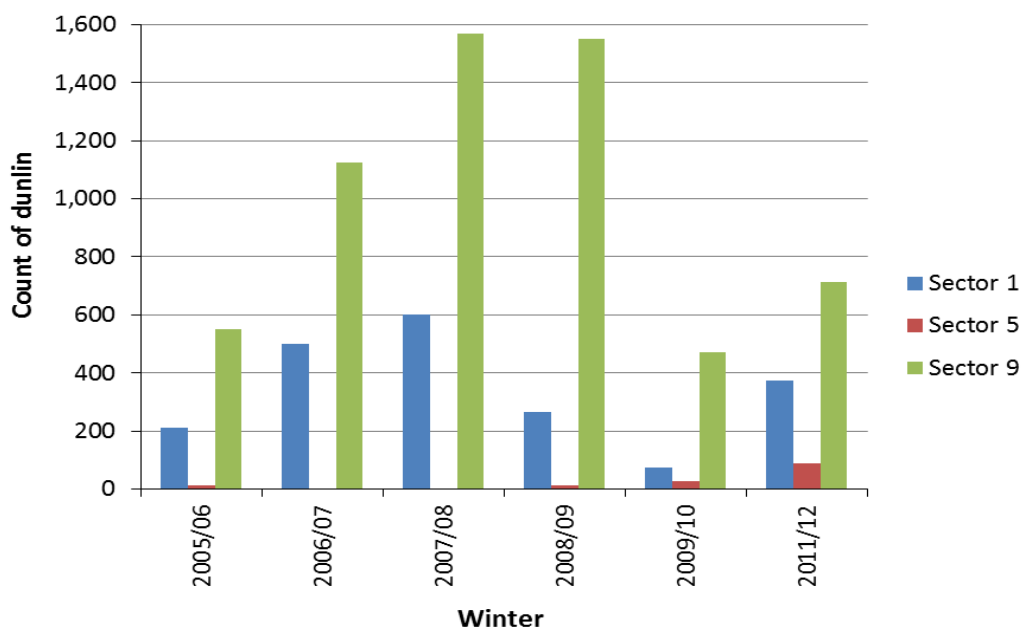


Figure 4.24 Annual peak counts of dunlin at each core count sector
(recorded by WeBS during winters 2005/06 to 2009/10 and by APEM during winter 2011/12)

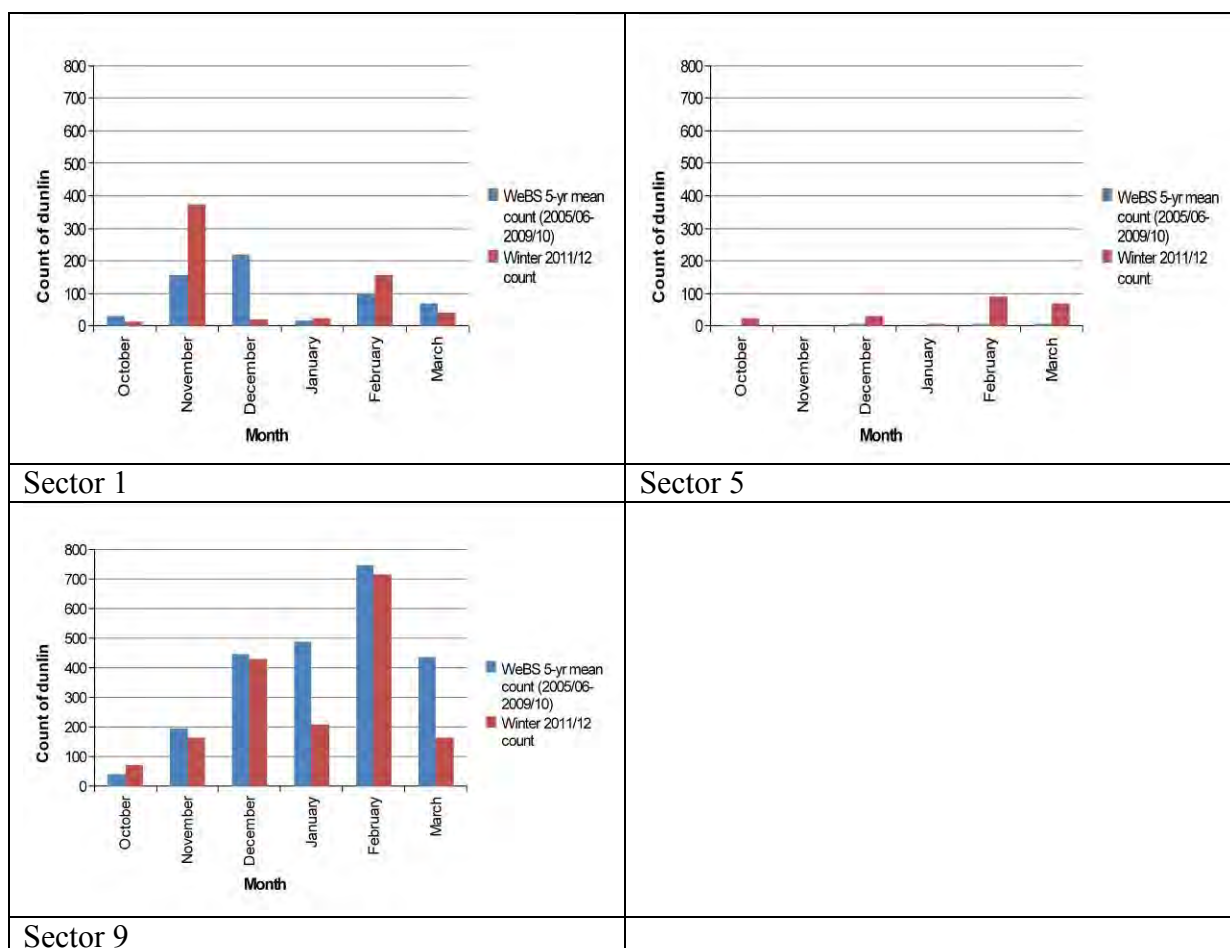


Figure 4.25 WeBS five-year monthly mean counts of dunlin
((2005/06-2009/10) and winter 2011/12 monthly counts (at each core count sector))

At low tide, dunlins were recorded on Sectors BX003, BX004, BX005 and BX019 (Figure 4.26). In winter 2011/12, the vast majority of dunlin present at low tide were observed within Sector BX003 with a peak of 984 individuals and a mean of 856. Previous data collected by WeBS indicated that dunlins peaked at a mean count of 568 individuals in Sector BX003 (Figure 4.26).

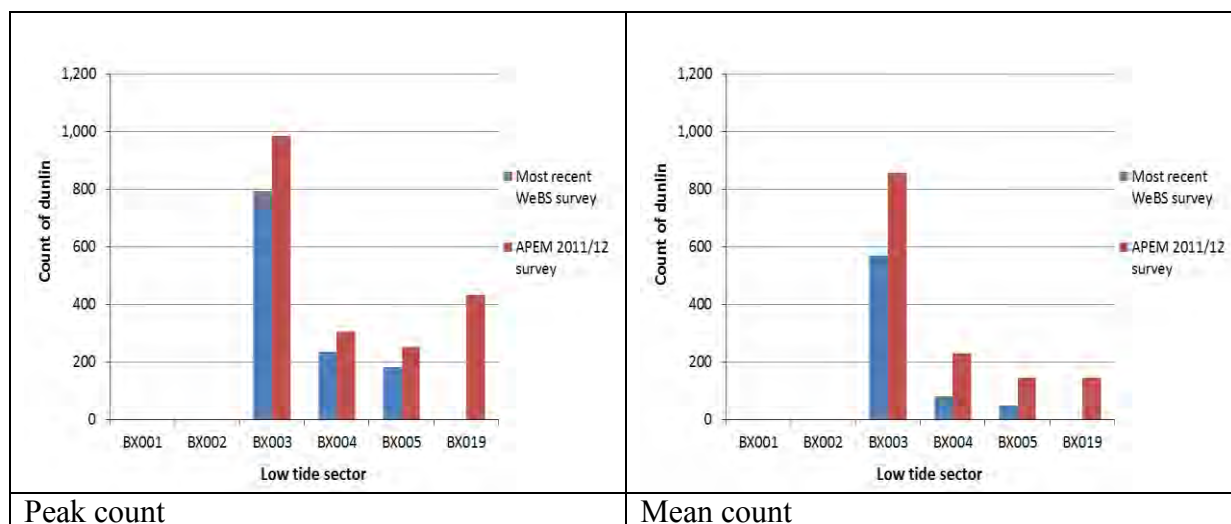


Figure 4.26 Peak and mean counts of dunlin recorded at each low tide sector

(in the most recent year surveyed by WeBS for which data are available (1995/96 for Sectors BX001, BX002, BX003 and 2006/07 for Sectors BX004, BX005, BX019) and for winter 2011/12)

In total, 87 dunlins were recorded during the winter of 2011/12 at Sector FF001 in both high and low tide surveys. The peak count for this sector occurred during December 2011 when 75 individuals were recorded. There were no dunlins recorded within the Cable Landfall Sector.

4.2.7 Black-tailed godwit

Black-tailed godwits breeding in Iceland migrate to spend the winter in Britain, with numbers peaking between October and March (Lack 1986). Only a small population breeds in Britain and these individuals migrate to west Africa during the winter (Holt *et al.* 2011). Most black-tailed godwits recorded at high tide were observed within core count Sectors 5 (Figures 4.27 & 4.28). Across all three sectors surveyed by both WeBS and APEM, most black-tailed godwits were present between December and March 2012 (Figure 4.28). The number of black-tailed godwits peaked at 310 individuals in Sector 5 during March 2012, falling below both the 1% national (GB) wintering threshold of 430 individuals and the 1% international wintering threshold of 470 individuals (Holt *et al.* 2011). Previous data collected by WeBS indicated that black-tailed godwits peaked at a mean count of 24 individuals in Sector 5 during February (Figure 4.28).

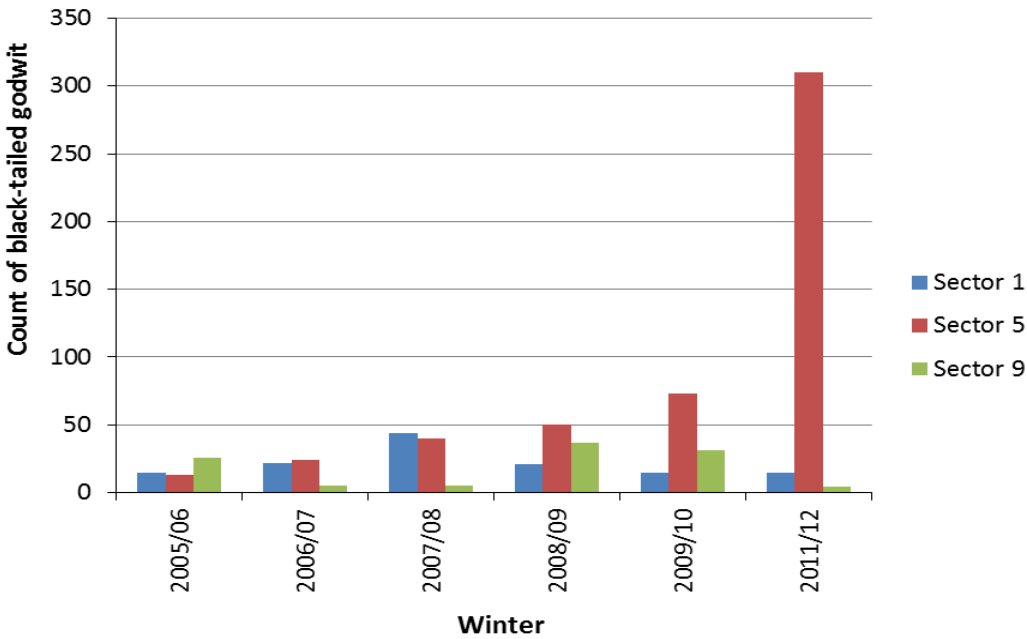


Figure 4.27 Annual peak counts of black-tailed godwit at each core count sector
(recorded by WeBS during winters 2005/06 to 2009/10 and by APEM during winter 2011/12)

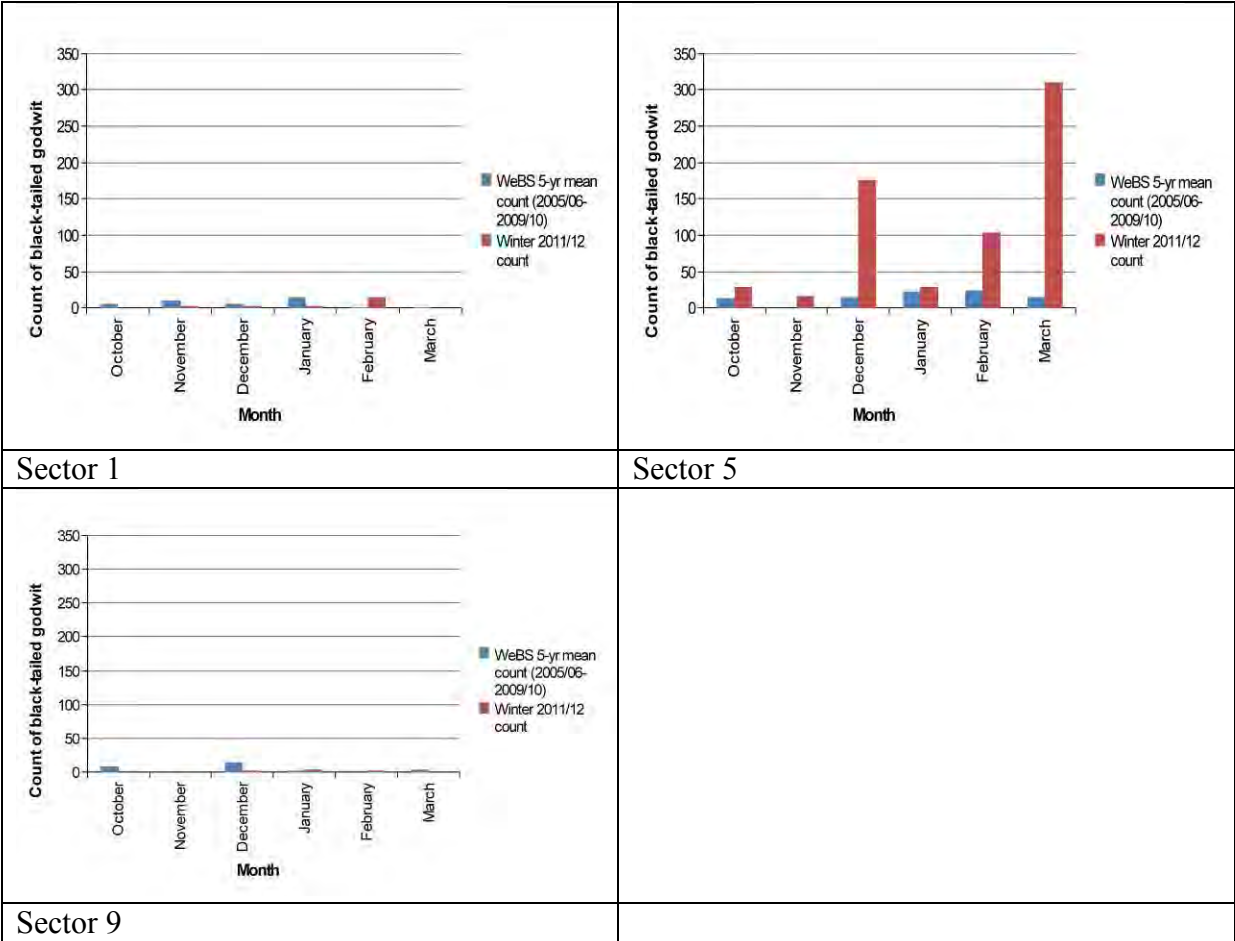


Figure 4.28 WeBS five-year monthly mean counts of black-tailed godwit
((2005/06-2009/10) and winter 2011/12 monthly counts (at each core count sector))

At low tide, black-tailed godwits were recorded on Sectors BX003, BX004 and BX019 (Figure 4.29). In winter 2011/12, the vast majority of black-tailed godwit present at low tide were observed within Sector BX019: a peak count of 101 birds was recorded and a mean of 49 was observed for this sector in winter 2011/12. Previous data collected by WeBS indicated that black-tailed godwits peaked at a mean count of 25 individuals in Sector BX019 (Figure 4.29).

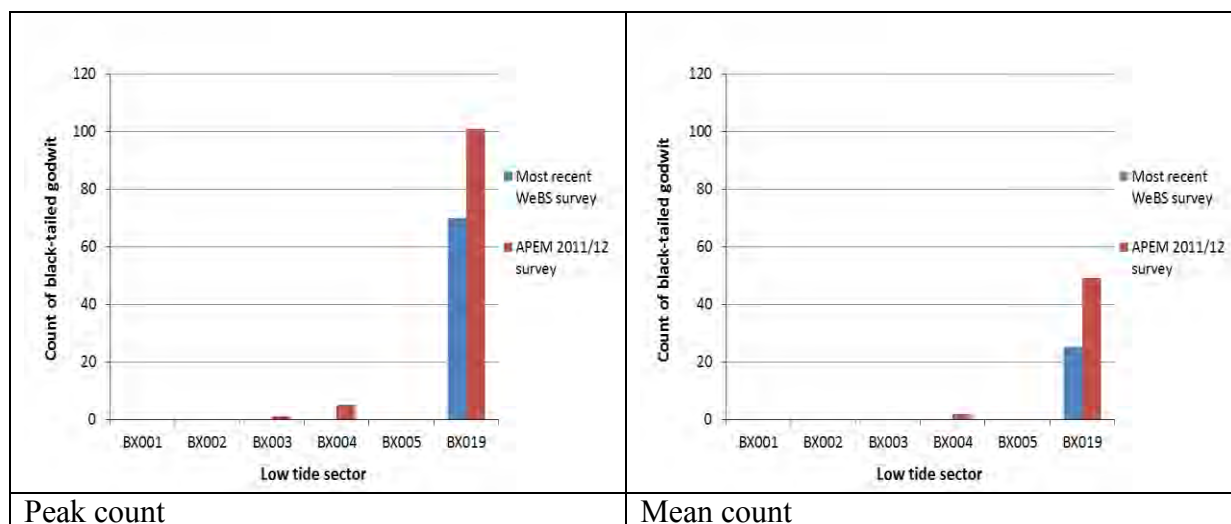


Figure 4.29 Peak and mean counts of black-tailed godwit recorded at each low tide sector

(in the most recent year surveyed by WeBS for which data are available (1995/96 for Sectors BX001, BX002, BX003 and 2006/07 for Sectors BX004, BX005, BX019) and for winter 2011/12)

No black-tailed godwits were recorded during any survey month in Sector FF001 or in the Cable Landfall Sector at either high or low tide.

4.2.8 Curlew

Curlews migrate from Scandinavia, especially Finland and Sweden, to winter around the British coastline. Winter numbers peak in Britain between November and February (BirdLife International 2012). Curlews were recorded at high tide across all three core count sectors during both WeBS and APEM surveys (Figures 4.30 & 4.31). The number of curlews recorded peaked at 153 individuals in Sector 1 during March 2012. Previous data collected by WeBS indicated that curlews peaked at a mean count of 112 individuals in Sector 1 during October (Figure 4.31). Peak counts during these surveys fell below both the 1% national (GB) wintering threshold of 1,400 curlews and the 1% international wintering threshold of 8,500 curlews (Holt *et al.* 2011).

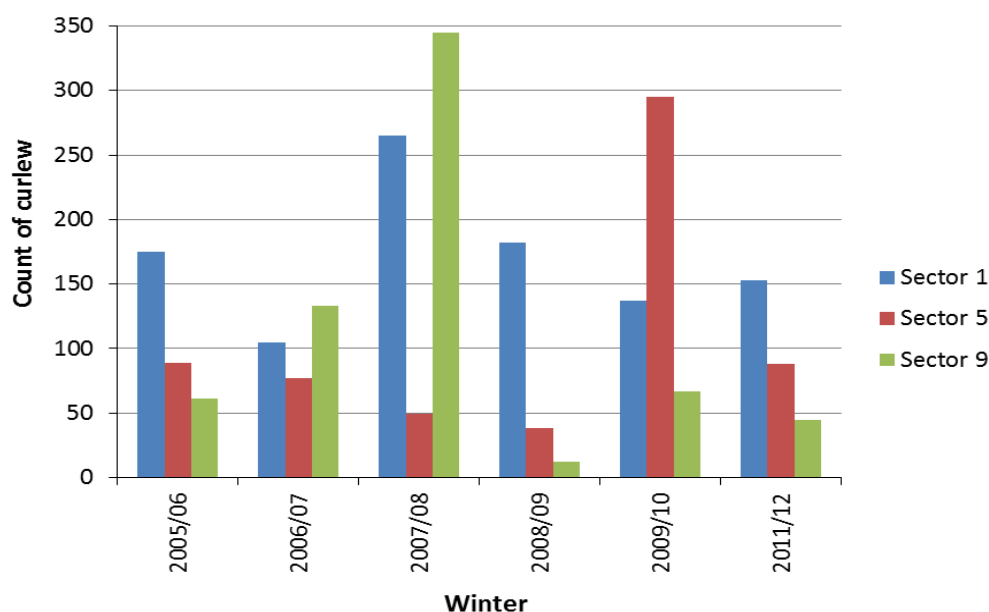


Figure 4.30 Annual peak counts of curlew at each core count sector
(recorded by WeBS during winters 2005/06 to 2009/10 and by APEM during winter 2011/12)

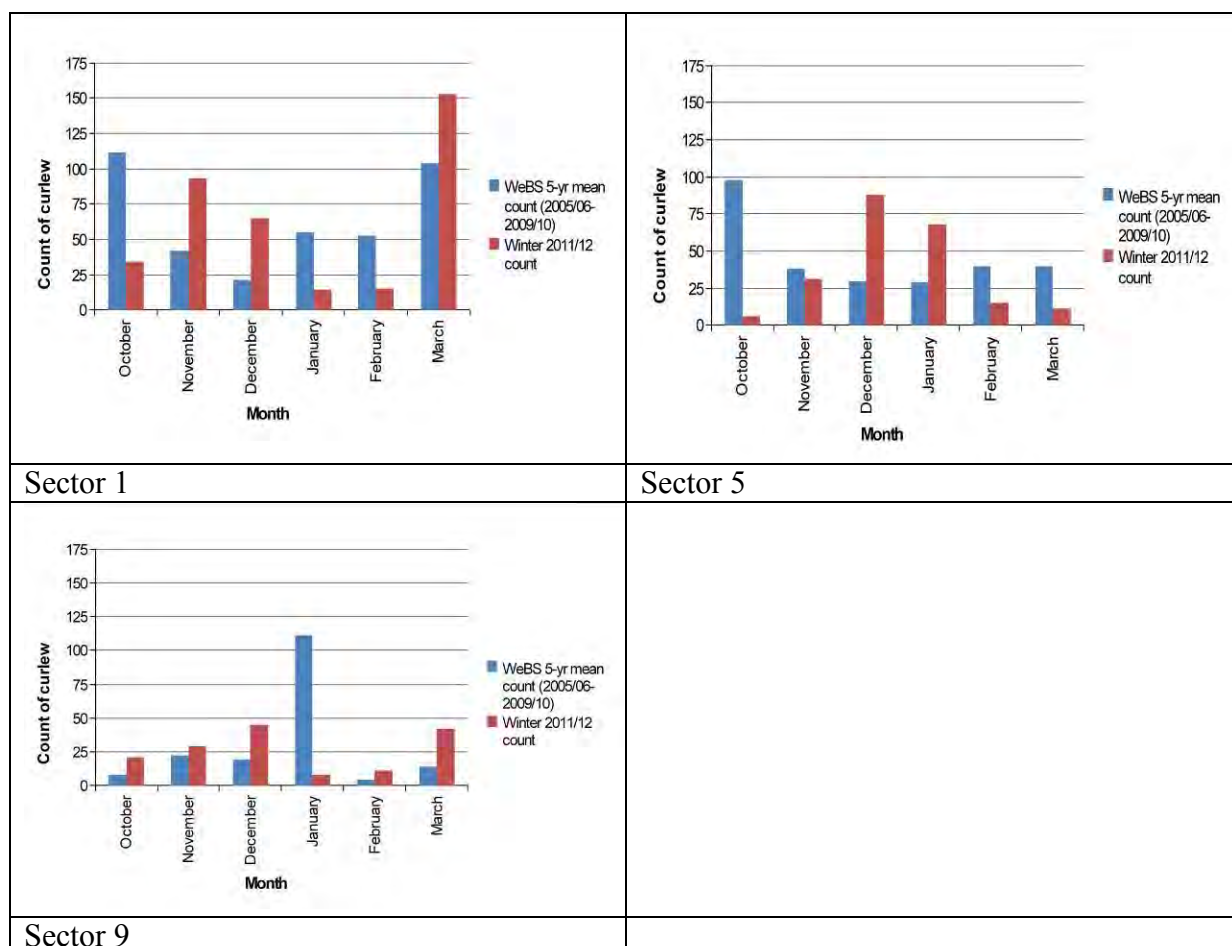


Figure 4.31 WeBS five-year monthly mean counts of curlew
(2005/06-2009/10) and winter 2011/12 monthly counts at each core count sector)

At low tide, curlews were recorded in Sectors BX003, BX004 BX005 and BX019 (Figure 4.32). Numbers peaked at 95 individuals in Sector BX005, with a mean count of 29 curlews. Previous data collected by WeBS indicated that curlews peaked at a mean count of 12 individuals in Sector BX019 during (Figure 4.32).

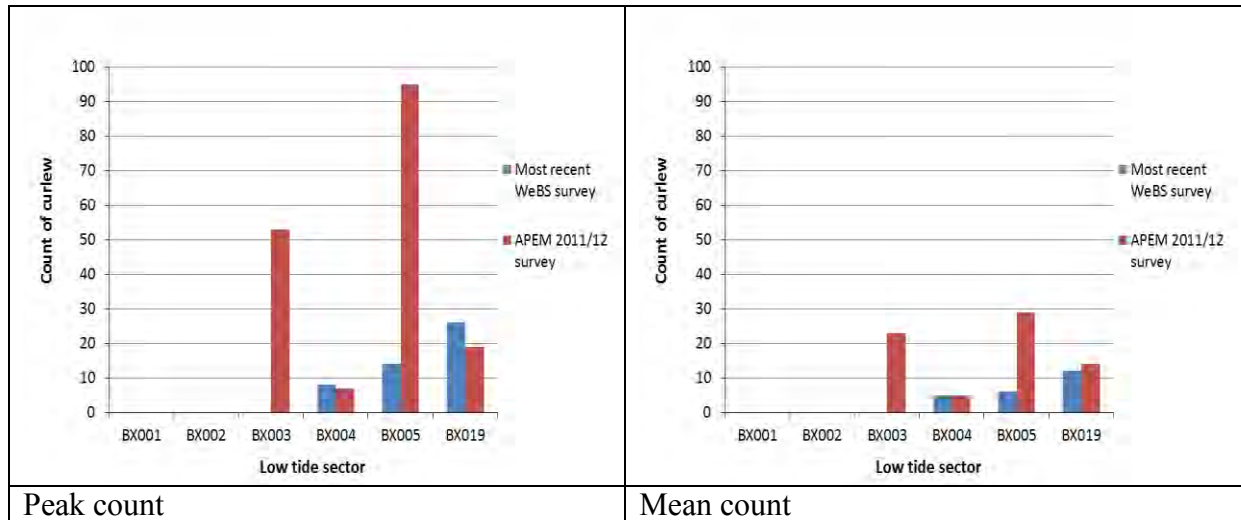


Figure 4.32 Peak and mean counts of curlew recorded at each low tide sector (in the most recent year surveyed by WeBS for which data are available (1995/96 for Sectors BX001, BX002, BX003 and 2006/07 for Sectors BX004, BX005, BX019) and for winter 2011/12)

In Sector FF001, two curlews were present in February 2012 during high tide. No curlews were recorded in the Cable Landfall Sector, but two curlews were present in Bawdsey Marshes during February 2012.

4.2.9 Redshank

Both British and Scandinavian redshanks over-winter in Britain, totaling approximately 80% of the East Atlantic Flyway population between October and February (Lack 1986). The majority of the redshanks recorded at high tide in Sectors 1 and 9 (Figures 4.33 & 4.34). Redshank were observed across all survey months within these sectors (Figure 4.34), peaking at 219 individuals in Sector 9 during October 2011. Previous data collected by WeBS indicated that redshanks peaked at a mean count of 247 individuals in Sector 1 during October (Figure 4.34). Peak counts during these surveys were below both the 1% national (GB) wintering threshold of 1,200 individuals and the 1% international wintering threshold of 2,800 individuals (Holt *et al.* 2011).

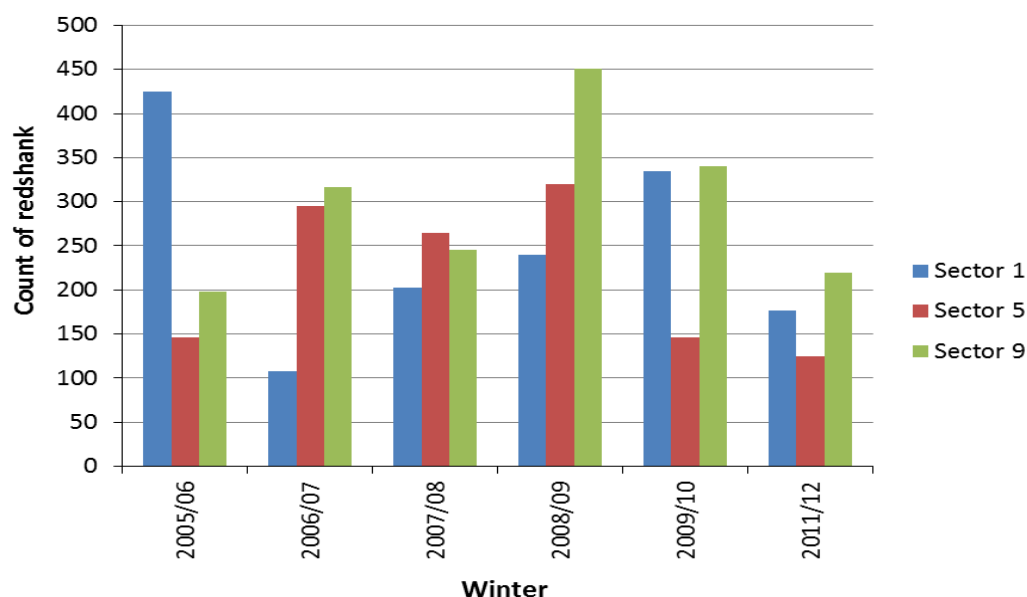


Figure 4.33 Annual peak counts of redshank at each core count sector
(recorded by WeBS during winters 2005/06 to 2009/10 and by APEM during winter 2011/12)

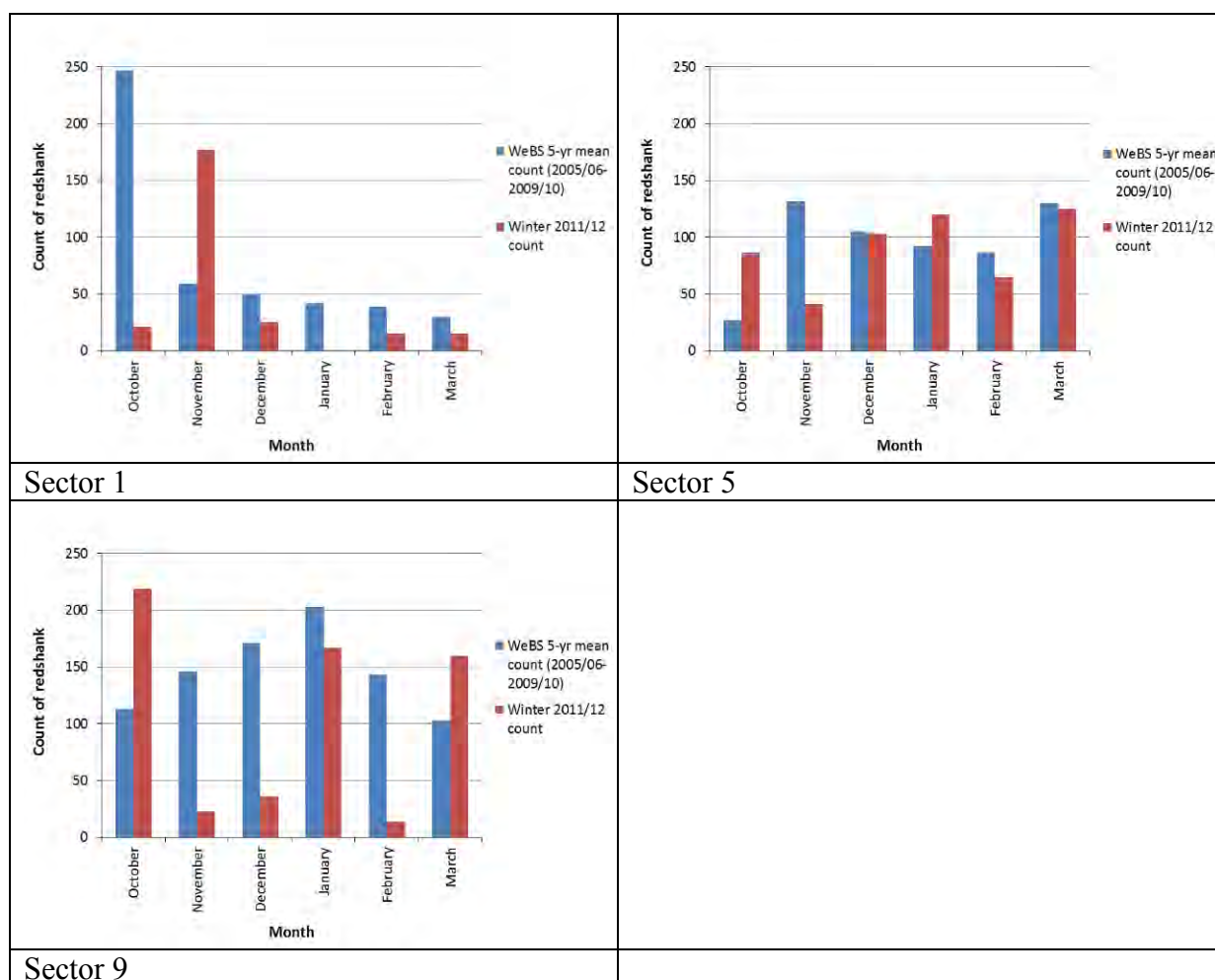


Figure 4.34 WeBS five-year monthly mean counts of redshank

((2005/06-2009/10) and winter 2011/12 monthly counts of redshank at each core count sector)

At low tide, redshanks were recorded in Sectors BX003, BX004 BX005 and BX019 (Figure 4.35). Numbers peaked at 223 individuals within Sector BX019, with a mean count of 119 redshanks. Previous data collected by WeBS indicated that redshanks peaked at a mean count of 95 individuals in Sector BX019 (Figure 4.35).

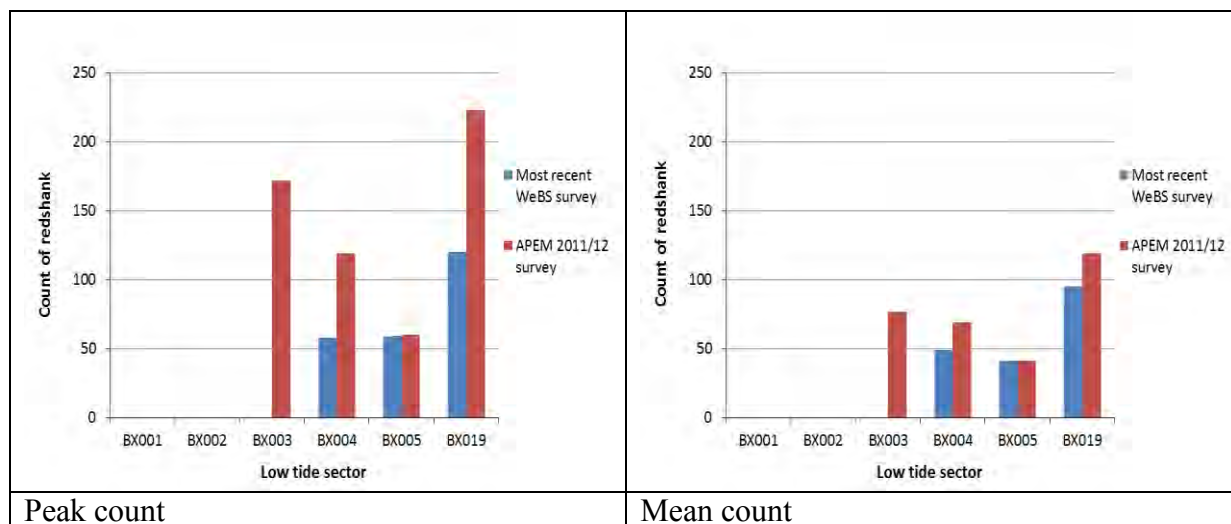


Figure 4.35 Peak and mean counts of redshank recorded at each low tide sector

(in the most recent year surveyed by WeBS for which data are available (1995/96 for Sectors BX001, BX002, BX003 and 2006/07 for Sectors BX004, BX005, BX019) and for winter 2011/12)

A total of five redshanks were recorded within Sector FF001 across all surveys. Numbers peaked in this sector at four redshanks during February 2012. No redshanks were seen in the Cable Landfall Sector.

4.2.10 Raptors

A number of raptors listed on Annex 1 of the European Union Bird Directive and protected under Schedule 1 of the Wildlife and Countryside Act 1981 were observed during the surveys. A female hen harrier was recorded in Sector BX003 during the November 2011 survey. Hen harriers are red-listed on the Birds of Conservation Concern due to historical population decline. Approximately 640 pairs of hen harriers breed in Britain (Holling 2011) with only a small number of pairs breeding in England (n=11). Up to three marsh harriers were recorded in every survey with the exception of February 2012. These individuals were observed in Sector BX003 during November 2011 and in Sectors 1 and 9 during December 2011, January 2012 and March 2012. A single peregrine falcon was recorded during February 2012 in Sector BX019.

4.3 Potential impacts and consenting risks

Disturbance and/or displacement of bird species from feeding and roosting habitat during cable laying is likely to pose the main consenting issue. Loss of habitat is also likely to be a key consenting issue. This will be most applicable to avocets and dark-bellied brent geese, during the winter period, since the Deben Estuary SPA and Ramsar site is designated for wintering populations of these species. These potential impacts will be most relevant if activities occur in a location used most by birds during this peak period. The location of the first cable crossing point across the Deben (from Ramsholt Marshes to Falkenham Marshes) has been chosen specifically to avoid areas of saltmarsh, which is recognised as an important habitat. The location of the second cable crossing point is through Martlesham Creek. The cable crossing path through Martlesham Creek avoids the main roosting locations for wading birds and waterfowl that were found towards the westernmost end of the creek itself.

Sectors BX003 and BX005 overlap with the possible location of the cable laying area. Peak numbers of avocets in these sectors occurred in January (n=113) and December (n=62), respectively. These peaks equate to 8.89% and 4.89% of the GB wintering population. Peak avocet numbers in Sector BX003 during January 2012 exceeded the 1% national (GB) wintering threshold of 75 individuals (Holt *et al.* 2011), but peak numbers in Sector BX005 during December 2011 did not (n=62). Avocets in these sectors did not exceed the 1% international wintering threshold of 730 individuals in any month during winter 2011/12¹. Peak numbers of dark-bellied brent geese in Sectors BX003 and BX005 occurred in January (n=391) and November (n=400) respectively, equating to 0.37% and 0.38% of the GB wintering population. Peak numbers of dark-bellied brent geese in Sector BX003 during January 2012 and Sector BX005 did not exceed the 1% national (GB) wintering threshold of 910 individuals (Holt *et al.* 2011), or the 1% international wintering threshold of 2,000 individuals (Holt *et al.* 2011). The preferred crossing point is approximately 500 m from the primary roosting locations for avocet and a minimum of 300 m from the main foraging area for avocet, so any disturbance to these species is expected to be minimal.

If the cable laying equipment is to be brought to the laying site up the Deben Estuary from the coast by barge, then disturbance and displacement of birds may also occur at other sectors along the planned route. Sectors affected would include Sectors 9, BX001, BX002 and BX004, in addition to sectors BX003 and BX005. The highest number of dark-bellied brent geese in this area occurred in Sector BX004 in February 2012 when a total of 2,150 individuals were recorded, equating to 2.08% of the GB wintering population and exceeding the international wintering threshold of 2,000 individuals (Holt *et al.* 2011). The highest number of avocets in this area occurred in Sector 9 in October 2011 when a total of 325 birds were recorded, equating to 25.6% of the GB wintering population, exceeding the 1% national (GB) wintering threshold but not the 1% international threshold of 730 individuals (Holt *et al.* 2011). However, as regular movements of vessels occur along the Deben, any additional traffic will not represent a significant increase to the level of disturbance on roosting and/or foraging areas for avocets, dark-bellied brent geese or any other bird species.

5 REFERENCES

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6 APPENDIX I: ANNUAL PEAK COUNTS FOR WEBS (2005/06-2009/10) & APEM WINTER 2011/12 SURVEYS FOR CORE COUNT SECTORS

Sector 1

Species	Peak count (and month)					
	2005/06	2006/07	2007/08	2008/09	2009/10	2011/12
Mute swan	23 (Mar)	40 (Jan)	14 (Mar)	33 (Nov)	69 (Jan)	19 (Oct)
Pink-footed goose	0	0	35 (Jan)	0	0	0
Greylag goose	0	0	12 (Jan)	0	2 (Mar)	250 (Nov)
Canada goose	2 (Apr)	0	400 (Jan)	55 (Nov)	18 (Nov)	38 (Nov)
Dark-bellied brent goose	(617) (Feb)	287 (Nov)	553 (Dec)	650 (Jan)	537 (Jan)	358 (Jan)
Shelduck	54 (Jan/Mar)	50 (Nov)	85 (Mar)	120 (Feb)	67 (Jan)	59 (Feb)
Wigeon	75 (Nov)	27 (Nov)	35 (Mar)	119 (Feb)	147 (Jan)	(111) (Feb)
Gadwall	0	0	5 (Apr)	0	9 (Jan)	12 (Feb)
Teal	85 (Jan)	36 (Nov)	172 (Jan)	39 (Dec)	201 (Jan)	(15) (Jan)
Mallard	33 (Dec)	98 (Jan)	50 (Jan)	48 (Jan)	29 (Dec)	24 (Feb)
Pintail	2 (Dec)	0	0	2 (Jan)	0	1 (Feb)
Tufted duck	3 (Oct)	(42) (Dec)	0	0	0	0
Eider	0	0	1 (Feb)	0	0	0
Common scoter	0	0	0	0	0	2 (Feb)
Red-throated diver	0	0	0	0	1 (Oct)	0
Cormorant	12 (Dec)	11 (Nov)	6 (Mar)	7 (Jan)	7 (Apr)	6 (Jan)
Little egret	3 (Dec/Mar)	7 (Nov)	(5) (Nov)	5 (Sep)	3 (Oct)	1 (Oct/Nov/ Feb)
Grey heron	6 (Sep)	5 (Sep)	5 (Feb)	2 (Oct/Apr)	1 (Oct-Jan)	2 (Feb)
Little grebe	2 (Mar)	2 (Nov)	0	0	1 (Apr)	0
Great crested grebe	0	0	0	0	1 (Oct/Jan)	1 (Oct)
Water rail	0	0	0	0	0	1 (Oct)
Moorhen	3 (Mar)	0	2 (Oct)	1 (Sep/Nov)	2 (Oct)	0
Coot	1 (Mar)	0	0	0	0	0
Oystercatcher	14 (Apr)	26 (Apr)	13 (Mar)	14 (Feb)	12 (Mar)	11 (Mar)
Avocet	205 (Dec)	240 (Nov)	210 (Jan/Feb)	320 (Dec)	252 (Jan)	300 (Nov)
Ringed plover	12 (Mar)	5 (Nov)	3 (Feb)	0	1 (Jan)	0
Golden plover	800 (Jan)	420 (Jan)	1600 (Dec)	2120 (Nov)	1550 (Nov)	61 (Dec)
Grey plover	425 (Jan)	52 (Nov)	300 (Dec)	32 (Mar)	63 (Oct)	45 (Dec)

Species	Peak count (and month)					
	2005/06	2006/07	2007/08	2008/09	2009/10	2011/12
Lapwing	1100 (Jan)	472 (Jan)	750 (Dec)	1358 (Dec)	700 (Nov)	110 (Nov)
Knot	0	0	0	0	22 (Mar)	0
Dunlin	210 (Dec)	502 (Nov)	600 (Dec)	266 (Feb)	74 (Oct)	374 (Nov)
Ruff	2 (Sep)	0	0	0	0	0
Jack snipe	0	0	1 (Mar)	0	0	0
Snipe	8 (Mar)	4 (Jan/Mar)	16 (Mar)	9 (Feb)	3 (Feb)	1 (Mar)
Woodcock	0	0	0	1 (Jan)	0	1 (Feb)
Black-tailed godwit	15 (Jan)	22 (Sep)	44 (Jan)	21 (Nov)	15 (Jan)	15 (Feb)
Bar-tailed godwit	3 (Oct)	7 (Oct)	4 (Sep)	0	0	40 (Feb)
Whimbrel	0	1 (Apr)	0	0	7 (Apr)	0
Curlew	175 (Oct)	105 (Nov)	265 (Sep)	182 (Mar)	137 (Oct)	153 (Mar)
Green sandpiper	0	0	0	0	0	1 (Mar)
Greenshank	0	0	0	1 (Sep)	0	(17) (Jan)
Redshank	425 (Oct)	108 (Sep)	203 (Sep)	240 (Oct)	335 (Oct)	(177) (Nov)
Turnstone	200 (Jan)	3 (Nov)	0	0	2 (Jan)	0
Black-headed gull	180 (Sep)	260 (Jan)	389 (Oct)	310 (Sep)	110 (Jan)	120 (Feb)
Mediterranean gull	0	0	1 (Feb)	0	0	0
Common gull	0	0	0	0	2 (Oct)	3 (Feb)
Lesser black-backed gull	14 (Sep)	2 (Mar)	6 (Jan)	3 (Sep)	2 (Mar)	1 (Feb)
Herring gull	52 (Apr)	8 (Oct)	21 (Oct)	11 (Jan)	32 (Jan)	29 (Mar)
Great black-backed gull	2 (Nov)	0	1 (Oct)	2 (Dec)	1 (Jan)	23 (Mar)
Common tern	0	7 (Sep)	0	0	NC	0

Sector 5

Species	Peak count (and month)					
	2005/06	2006/07	2007/08	2008/09	2009/10	2011/12
Mute swan	9 (Jan)	22 (Sep)	42 (Nov)	(37) (Sep)	37 (Dec)	12 (Oct)
Bewick's swan	0	0	0	0	0	18 (Dec)
Black swan	0	0	1 (Mar)	0	0	0
Greylag goose	0	1 (Nov)	0	0	0	0
Canada goose	(6) (Feb)	8 (Nov)	79 (Jan)	5 (Oct)	5 (Dec)	58 (Oct)
Dark-bellied brent goose	85 (Dec)	0	0	0	29 (Dec)	200 (Dec)
Shelduck	(52) (Feb)	254 (Mar)	41 (Apr)	22 (Feb)	25 (Dec)	78 (Feb)

Species	Peak count (and month)					
	2005/06	2006/07	2007/08	2008/09	2009/10	2011/12
Gadwall	0	0	0	0	2 (Jan)	2 (Dec/Jan)
Wigeon	(122) (Feb)	(108) (Dec)	153 (Jan)	65 (Jan)	160 (Dec)	110 (Jan)
Teal	65 (Oct)	45 (Jan)	12 (Dec)	36 (Mar)	186 (Dec)	476 (Jan)
Mallard	(42) (Feb)	26 (Jan)	53 (Feb)	34 (Jan)	41 (Dec)	59 (Jan)
Pintail	0	22 (Mar)	0	0	11 (Dec)	0
Shoveler	0	0	0	0	1 (Dec)	0
Pochard	0	0	14 (Nov)	0	0	2 (Oct)
Tufted duck	0	0	0	0	2 (Jan)	0
Goldeneye	0	1 (Mar)	10 (Feb)	3 (Jan)	6 (Dec)	9 (Dec)
Goosander	0	0	0	0	0	1 (Feb)
Red-throated diver	0	0	0	1 (Feb)	0	0
Great northern diver	0	0	0	0	1 (Nov)	0
Cormorant	3 (Dec)	5 (Sep)	3 (Jan)	0	2 (Apr)	4 (Oct/Jan)
Little egret	2 (Nov)	21 (Sep)	6 (Sep)	3 (Oct)	6 (Oct)	5 (Oct)
Grey heron	1 (Oct/Dec /Mar)	1 (Sep/Oct/Jan/ Mar)	3 (Sep)	2 (Dec)	3 (Apr)	3 (Jan)
Little grebe	21 (Nov)	20 (Nov)	23 (Oct)	18 (Sep)	28 (Dec)	33 (Dec)
Great crested grebe	0	2 (Mar)	0	1 (Dec)	2 (Mar)	1 (Dec/Feb)
Water rail	0	0	0	0	1 (Dec)	0
Moorhen	10 (Dec)	6 (Jan)	9 (Jan)	4 (Mar)	6 (Dec)	(11) (Dec)
Coot	(1) (Sep)	0	1 (Nov)	1 (Mar)	1 (Jan/Feb/Mar)	0
Oystercatcher	6 (Mar)	8 (Mar)	10 (Mar)	10 (Feb)	8 (Apr)	13 (Jan/Mar)
Avocet	0	0	0	0	1 (Nov)	1 (Feb)
Ringed plover	0	2 (Sep)	0	0	0	0
Golden plover	0	0	0	0	7 (Nov)	(200) (Nov)
Grey plover	0	0	0	1 (Feb)	19 (Jan)	29 (Feb)
Lapwing	212 (Dec)	425 (Jan)	56 (Feb)	40 (Oct)	186 (Oct)	(606) (Dec)
Knot	0	0	0	0	0	23 (Feb)
Dunlin	12 (Oct)	0	0	13 (Mar)	26 (Dec)	(89) (Feb)
Ruff	0	0	1 (Apr)	0	1 (Jan/Feb)	0
Jack snipe	0	0	0	0	1 (Dec/Jan)	0
Snipe	(7) (Feb)	29 (Mar)	2 (Mar)	1 (Oct)	19 (Jan)	1 (Dec)

Species	Peak count (and month)					
	2005/06	2006/07	2007/08	2008/09	2009/10	2011/12
Black-tailed godwit	13 (Apr)	24 (Mar)	40 (Jan)	50 (Dec)	73 (Feb/Apr)	310 (Mar)
Bar-tailed godwit	0	0	0	0	3 (Apr)	27 (Mar)
Whimbrel	0	0	0	0	5 (Apr)	0
Curlew	89 (Oct)	77 (Mar)	49 (Feb)	38 (Oct)	295 (Oct)	88 (Dec)
Common sandpiper	(1) (Sep)	0	1 (Sep)	0	0	0
Green sandpiper	0	0	0	0	2 (Feb)	0
Spotted redshank	0	0	0	0	3 (Apr)	2 (Jan/Mar)
Greenshank	1 (Apr)	1 (Sep)	0	0	1 (Oct/Apr)	2 (Oct)
Redshank	146 (Dec)	295 (Sep)	265 (Apr)	320 (Nov)	146 (Feb)	125 (Mar)
Turnstone	(1) (Feb)	3 (Sep)	0	1 (Dec)	3 (Dec/Mar)	8 (Mar)
Black-headed gull	(90) (Feb)	254 (Oct)	246 (Jan)	88 (Jan)	400 (Jan)	(304) (Nov)
Common gull	2 (Apr)	0	4 (Apr)	6 (Feb)	17 (Feb)	8 (Nov/Feb)
Lesser black-backed gull	(3) (Feb)	2 (Mar)	1 (Jan)	0	11 (Jan)	2 (Jan)
Herring gull	(5) (Feb)	8 (Sep)	4 (Oct/Nov)	3 (Feb/Mar)	27 (Feb)	11 (Mar)
Great black-backed gull	(1) (Feb)	0	0	0	1 (Jan/Mar)	2 (Dec)
Common tern	0	1 (Sep)	0	0	0	0
Kingfisher	1 (Oct)	1 (Mar)	1 (Oct/Dec)	1 (Dec)	2 (Oct)	1 (Jan)

Sector 9

Species	Peak count (and month)					
	2005/06	2006/07	2007/08	2008/09	2009/10	2011/12
Mute swan	86 (Dec)	(123) (Dec)	98 (Mar)	136 (Jan)	56 (Apr)	114 (Mar)
Bewick's swan	2 (Jan)	0	0	0	17 (Dec)	1 (Mar)
Whooper swan	0	0	0	0	1 (Jan)	0
Greylag goose	6 (Mar)	225 (Nov)	1 (Mar)	27 (Feb)	49 (Nov)	149 (Nov)
Canada goose	39 (Mar)	79 (Nov)	(45) (Jan)	72 (Nov)	294 (Nov)	30 (Oct)
Dark-bellied brent goose	484 (Mar)	1224 (Jan)	311 (Nov)	105 (Dec)	623 (Feb)	2183 (Feb)
Light-bellied brent goose	0	0	0	0	0	2 (Feb)
Red-breasted goose	0	0	0	0	0	1 (Feb)
Shelduck	(62) (Feb)	38 (Nov)	17 (Mar)	34 (Jan)	32 (Oct)	21 (Feb/Mar)
Wigeon	56 (Dec)	(36) (Dec)	(61) (Jan)	16 (Dec)	22 (Feb)	14 (Jan)

Species	Peak count (and month)					
	2005/06	2006/07	2007/08	2008/09	2009/10	2011/12
Gadwall	6 (Dec)	7 (Jan)	3 (Oct)	5 (Jan)	2 (Dec/Feb-Apr)	2 (Feb)
Teal	58 (Nov)	73 (Jan)	46 (Dec)	48 (Dec)	74 (Oct)	175 (Dec)
Mallard	31 (Apr)	22 (Apr)	15 (Mar)	55 (Nov)	25 (Nov)	16 (Jan)
Pintail	0	0	0	0	0	1 (Feb)
Garganey	0	1 (Apr)	0	0	0	0
Shoveler	0	2 (Mar/Apr)	0	0	1 (Jan)	0
Tufted duck	46 (Mar)	43 (Apr)	47 (Apr)	38 (Mar)	22 (Mar)	11 (Mar)
Eider	0	0	(1) (Jan)	0	0	0
Smew	0	0	0	0	1 (Feb)	0
Goosander	0	0	0	0	0	1 (Feb)
Cormorant	5 (Dec)	4 (Nov/Jan/Apr)	4 (Apr)	3 (Sep/Jan)	72 (Dec)	7 (Nov)
Bittern	0	0	0	1 (Sep)	0	0
Little egret	3 (Oct)	9 (Nov)	4 (Oct)	7 (Oct)	4 (Oct)	4 (Oct)
Grey heron	2 (Sep)	3 (Apr)	4 (Oct)	3 (Oct/Dec)	3 (Nov)	3 (Dec)
Little grebe	3 (Sep)	(2) (Dec)	2 (Mar)	4 (Oct)	2 (Mar)	0
Great crested grebe	0	4 (Apr)	1 (Feb)	0	4 (Jan)	0
Slavonian grebe	0	0	0	0	0	1 (Mar)
Water rail	1 (Dec)	1 (Sep/Jan)	1 (Mar/Apr)	2 (Mar)	1 (Feb)	0
Moorhen	17 (Apr)	5 (Nov/Jan)	7 (Oct)	5 (Jan/Feb)	9 (Jan)	0
Coot	32 (Sep)	16 (Nov)	59 (Sep)	13 (Mar)	7 (Feb)	0
Oystercatcher	28 (Apr)	33 (Apr)	21 (Mar/Apr)	29 (Apr)	26 (Apr)	16 (Mar)
Avocet	104 (Sep)	5 (Sep/Apr)	38 (Mar)	27 (Nov)	4 (Dec)	325 (Oct)
Ringed plover	41 (Oct)	54 (Sep)	44 (Oct)	47 (Oct)	12 (Jan)	3 (Feb/Mar)
Golden plover	922 (Jan)	(1208) (Dec)	454 (Nov)	757 (Dec)	305 (Mar)	664 (Jan)
Grey plover	87 (Mar)	(107) (Dec)	208 (Mar)	102 (Dec)	47 (Jan)	150 (Mar)
Lapwing	1021 (Jan)	(831) (Dec)	(890) (Jan)	151 (Oct)	349 (Nov)	237 (Nov)
Knot	(45) (Feb)	2 (Oct)	15 (Apr)	5 (Feb)	6 (Dec)	10 (Dec)
Dunlin	552 (Mar)	(1125) (Dec)	(1570) (Jan)	1552 (Feb)	470 (Nov)	715 (Feb)
Ruff	0	1 (Oct)	0	0	0	0
Snipe	8 (Dec)	4 (Jan)	1 (Oct/Mar)	24 (Dec)	7 (Dec)	0

Species	Peak count (and month)					
	2005/06	2006/07	2007/08	2008/09	2009/10	2011/12
Black-tailed godwit	26 (Dec)	5 (Sep)	5 (Apr)	37 (Oct)	31 (Dec)	4 (Jan)
Bar-tailed godwit	0	3 (Sep)	3 (Feb)	0	2 (Oct)	60 (Feb)
Curlew	61 (Jan)	133 (Jan)	(345) (Jan)	12 (Oct)	67 (Dec)	(45) (Dec)
Common sandpiper	1 (Sep/Apr)	0	3 (Sep)	1 (Sep)	0	0
Green sandpiper	0	0	1 (Sep)	1 (Sep/Mar)	0	1 (Nov)
Greenshank	0	4 (Sep)	0	0	0	0
Redshank	(198) (Feb)	317 (Nov)	(246) (Jan)	451 (Dec)	340 (Jan)	219 (Oct)
Turnstone	10 (Dec)	11 (Mar)	8 (Apr)	14 (Nov)	8 (Nov)	5 (Oct)
Black-headed gull	214 (Sep)	321 (Sep)	231 (Sep)	307 (Sep)	1846 (Nov)	100 (Nov)
Common gull	17 (Nov)	2 (Jan)	1 (Dec)	25 (Feb)	6 (Nov)	2 (Oct/Nov/ Mar)
Lesser black-backed gull	12 (Nov)	16 (Sep)	7 (Sep)	9 (Sep)	6 (Nov)	23 (Feb)
Herring gull	25 (Nov)	19 (Nov)	154 (Oct)	87 (Mar)	17 (Oct)	19 (Oct)
Great black-backed gull	2 (Apr)	(3) (Dec)	6 (Nov)	1 (Sep)	5 (Nov)	5 (Jan)
Common tern	0	2 (Oct)	0	1 (Sep/Apr)	NC	0
Kingfisher	0	1 (Nov)	1 (Nov)	1 (Apr)	1 (Dec)	1 (Oct)

7 APPENDIX II: PEAK AND MEAN COUNTS FROM WEBS & APEM SURVEYS FOR LOW TIDE COUNT SECTORS

Sector BX001

Species	1998/99 (WeBS)		2011/12 (APEM)	
	Peak count	Mean count	Peak count	Mean count
Cormorant	0	0	6	2
Lapwing	0	0	10	3
Black-headed gull	80	42	1	0
Common gull	97	48	1	0
Lesser black-backed gull	3	1	1	0
Herring gull	42	27	5	3
Great black-backed gull	31	11	3	2

Sector BX002

Species	1998/99 (WeBS)		2011/12 (APEM)	
	Peak count	Mean count	Peak count	Mean count
Dark-bellied brent goose	0	0	1	0
Cormorant	1	0	2	1
Grey heron	0	0	1	0
Moorhen	0	0	2	1
Golden plover	0	0	45	11
Grey plover	0	0	1	0
Lapwing	0	0	85	30
Bar-tailed godwit	0	0	1	0
Black-headed gull	9	4	2	1
Common gull	1	0	0	0
Lesser black-backed gull	11	3	0	0
Herring gull	77	44	30	15
Great black-backed gull	21	14	8	4

Sector BX003

Species	1998/99 (WeBS)		2011/12 (APEM)	
	Peak count	Mean count	Peak count	Mean count
Mute swan	0	0	8	2
Greylag goose	0	0	300	75
Canada goose	0	0	11	5
Dark-bellied brent goose	246	64	391	115
Shelduck	122	72	44	26
Wigeon	0	0	494	149

Species	1998/99 (WeBS)		2011/12 (APEM)	
	Peak count	Mean count	Peak count	Mean count
Gadwall	3	1	9	4
Teal	6	4	135	99
Mallard	5	2	73	30
Eider	1	0	0	0
Cormorant	8	6	6	4
Little egret	0	0	1	1
Grey heron	0	0	3	1
Great crested grebe	2	1	0	0
Oystercatcher	0	0	1	0
Avocet	1	0	113	76
Ringed plover	11	6	1	0
Golden plover	188	47	55	14
Grey plover	18	8	47	31
Lapwing	596	154	130	50
Knot	1	0	120	35
Dunlin	795	568	984	856
Black-tailed godwit	0	0	1	0
Bar-tailed godwit	0	0	46	13
Curlew	0	0	53	23
Redshank	0	0	172	77
Turnstone	0	0	5	1
Black-headed gull*	-	-	25	9
Common gull*	-	-	1	0
Herring gull*	-	-	3	2
Great black-backed gull*	-	-	6	2

*Inclusion of gulls and terns is optional in WeBS, therefore, no count does not necessarily mean that zero birds were present.

Sector BX004

Species	2006/07 (WeBS)		2011/12 (APEM)	
	Peak count	Mean count	Peak count	Mean count
Mute swan	9	6	0	0
Canada goose	3	1	10	3
Dark-bellied brent goose	243	104	2,150	816
Light-bellied brent goose	0	0	2	1
Red-breasted goose	0	0	1	0
Shelduck	13	9	8	2
Wigeon	0	0	23	7
Teal	23	9	102	58
Mallard	6	2	8	3

Species	2006/07 (WeBS)		2011/12 (APEM)	
	Peak count	Mean count	Peak count	Mean count
Red-breasted merganser	0	0	2	1
Goosander	0	0	1	0
Pochard	1	0	0	0
Tufted duck	7	2	0	0
Little egret	1	1	2	1
Grey heron	1	0	4	1
Moorhen	3	3	0	0
Coot	7	4	0	0
Oystercatcher	9	2	1	0
Avocet	3	1	20	6
Ringed plover	7	4	6	4
Golden plover	83	42	1700	559
Grey plover	3	1	10	5
Lapwing	131	92	288	113
Knot	0	0	21	6
Dunlin	236	80	305	229
Snipe	0	0	1	0
Black-tailed godwit	0	0	5	2
Bar-tailed godwit	0	0	2	1
Curlew	8	5	7	5
Redshank	58	49	119	69
Turnstone	0	0	6	4
Black-headed gull*	-	-	45	19
Common gull*	-	-	1	0
Lesser black-backed gull*	-	-	1	0
Herring gull*	-	-	14	6
Great black-backed gull*	-	-	11	3

*Inclusion of gulls and terns is optional in WeBS, therefore, no count does not necessarily mean that zero birds were present.

Sector BX005

Species	2006/07 (WeBS)		2011/12 (APEM)	
	Peak count	Mean count	Peak count	Mean count
Mute swan	8	5	90	32
Dark-bellied brent goose	12	4	400	108
Shelduck	87	34	9	5
Wigeon	36	13	10	3
Gadwall	3	2	9	2
Mallard	10	7	8	4
Tufted duck	5	1	0	0

Species	2006/07 (WeBS)		2011/12 (APEM)	
	Peak count	Mean count	Peak count	Mean count
Red-breasted merganser	0	0	2	1
Cormorant	1	0	1	0
Little egret	3	1	1	0
Grey heron	1	0	1	0
Moorhen	4	3	0	0
Coot	9	7	0	0
Oystercatcher	8	2	2	1
Avocet	15	6	62	16
Golden plover	0	0	5	2
Grey plover	7	2	13	9
Lapwing	198	51	20	5
Knot	0	0	4	1
Dunlin	182	48	250	145
Bar-tailed godwit	0	0	2	1
Curlew	14	6	95	29
Redshank	59	41	60	41
Green sandpiper	0	0	1	0
Black-headed gull*	-	-	26	10
Common gull*	-	-	1	0
Herring gull*	-	-	6	3
Great black-backed gull*	-	-	1	0

*Inclusion of gulls and terns is optional in WeBS, therefore, no count does not necessarily mean that zero birds were present.

Sector BX019

Species	2006/07 (WeBS)		2011/12 (APEM)	
	Peak count	Mean count	Peak count	Mean count
Mute swan	19	12	3	1
Dark-bellied brent goose	0	0	6	2
Shelduck	31	25	29	21
Wigeon	96	77	127	90
Gadwall	0	0	6	2
Teal	36	30	632	428
Mallard	32	18	78	59
Pintail	0	0	2	1
Tufted duck	0	0	1	1
Little egret	3	2	8	2
Grey heron	2	1	1	1
Little grebe	24	15	34	17
Moorhen	4	3	16	8

Species	2006/07 (WeBS)		2011/12 (APEM)	
	Peak count	Mean count	Peak count	Mean count
Coot	1	0	0	0
Oystercatcher	6	3	5	3
Avocet	9	3	39	14
Ringed plover	1	0	0	0
Grey plover	7	5	11	9
Lapwing	113	54	120	69
Knot	8	3	97	28
Dunlin	0	0	432	143
Snipe	0	0	1	1
Black-tailed godwit	70	25	101	49
Bar-tailed godwit	0	0	2	1
Curlew	26	12	19	14
Green sandpiper	0	0	1	1
Spotted redshank	2	1	2	1
Redshank	120	95	223	119
Turnstone	0	0	3	1
Black-headed gull*	-	-	200	121
Common gull*	-	-	14	7
Lesser black-backed gull*	-	-	1	1
Herring gull*	-	-	10	7
Great black-backed gull*	-	-	2	1
Kingfisher	0	0	1	0

*Inclusion of gulls and terns is optional in WeBS, therefore, no count does not necessarily mean that zero birds were present.

8 APPENDIX III: LATIN NAMES OF RELEVANT BIRD SPECIES

Common name	Latin name
Mute swan	<i>Cygnus olor</i>
Bewick's swan	<i>Cygnus columbianus</i>
Greylag goose	<i>Anser anser</i>
Canada goose	<i>Branta canadensis</i>
Red-breasted goose	<i>Branta ruficollis</i>
Dark-bellied brent goose	<i>Branta bernicla bernicla</i>
Pale-bellied brent goose	<i>Branta bernicla hrota</i>
Shelduck	<i>Tadorna tadorna</i>
Wigeon	<i>Anas penelope</i>
Gadwall	<i>Anas strepera</i>
Teal	<i>Anas crecca</i>
Mallard	<i>Anas platyrhynchos</i>
Pintail	<i>Anas acuta</i>
Pochard	<i>Aythya ferina</i>
Tufted duck	<i>Aythya fuligula</i>
Common scoter	<i>Melanitta nigra</i>
Goldeneye	<i>Bucephala clangula</i>
Red-breasted merganser	<i>Mergus serrator</i>
Goosander	<i>Mergus merganser</i>
Cormorant	<i>Phalacrocorax carbo</i>
Little egret	<i>Egretta garzetta</i>
Grey heron	<i>Ardea cinerea</i>
Little grebe	<i>Tachybaptus ruficollis</i>
Great crested grebe	<i>Podiceps cristatus</i>
Slavonian grebe	<i>Podiceps auritus</i>
Marsh harrier	<i>Circus aeruginosus</i>
Hen harrier	<i>Circus cyaneus</i>
Peregrine	<i>Falco peregrinus</i>
Water rail	<i>Rallus aquaticus</i>
Moorhen	<i>Gallinula chloropus</i>
Oystercatcher	<i>Haematopus ostralegus</i>
Avocet	<i>Recurvirostra avosetta</i>
Ringed plover	<i>Charadrius hiaticula</i>
Golden plover	<i>Pluvialis apricaria</i>
Grey plover	<i>Pluvialis squatarola</i>
Lapwing	<i>Vanellus vanellus</i>
Knot	<i>Calidris canutus</i>
Dunlin	<i>Calidris alpina</i>
Snipe	<i>Gallinago gallinago</i>

Common name	Latin name
Woodcock	<i>Scolopax rusticola</i>
Black-tailed godwit	<i>Limosa limosa</i>
Bar-tailed godwit	<i>Limosa lapponica</i>
Curlew	<i>Numenius arquata</i>
Green sandpiper	<i>Tringa ochropus</i>
Spotted redshank	<i>Tringa erythropus</i>
Greenshank	<i>Tringa nebularia</i>
Redshank	<i>Tringa totanus</i>
Turnstone	<i>Arenaria interpres</i>
Black-headed gull	<i>Chroicocephalus ridibundus</i>
Common gull	<i>Larus canus</i>
Lesser black-backed gull	<i>Larus fuscus</i>
Herring gull	<i>Larus argentatus</i>
Great black-backed gull	<i>Larus marinus</i>
Short-eared owl	<i>Asio flammeus</i>
Kingfisher	<i>Alcedo atthis</i>
Green woodpecker	<i>Picus viridis</i>
Bearded tit	<i>Panurus biarmicus</i>
Cetti's warbler	<i>Cettia cetti</i>
Snow bunting	<i>Plectrophenax nivalis</i>

9 APPENDIX IV: SUMMARY OF TIDE TIMES AND HEIGHTS

Month	Date	Low Tide		High Tide	
		Time	Height(metres)	Time	Height(metres)
October 2011	26/10/2011	-	-	11.29	4.12
	27/10/2011	-	-	12.20	4.30
November 2011	14/11/2011	07.43	0.49	14.14	3.16
	15/11/2011	08.21	0.49	14.55	3.09
	16/11/2011	09.04	0.53	15.41	3.00
	17/11/2011	09.52	0.56	16.32	2.93
December 2011	12/12/2011	07.13	0.42	13.22	3.22
	13/12/2011	07.29	0.35	14.02	3.24
	14/12/2011	08.09	0.30	14.43	3.22
	15/12/2011	08.50	0.30	15.27	3.18
January 2012	18/01/2012	05.59	2.91	12.07	0.77
	19/01/2012	07.16	2.87	13.20	0.84
	20/01/2012	08.32	2.93	14.29	0.84
	21/01/2012	09.39	3.06	15.30	0.78
February 2012	11/02/2012	08:17	-0.04	13:45	3.57
	12/02/2012	09:01	0.07	14:25	3.45
	13/02/2012	09:46	0.26	15:09	3.27
	14/02/2012	10:37	0.51	15:56	3.06
March 2012	07/03/2012	-	-	11:38	3.34
	08/03/2012	-	-	12:23	3.57
	09/03/2012	-	-	13:06	3.71

4 VOLUME 3 APPENDIX 24.12 BREEDING BIRD SURVEY REPORT OF THE EAST ANGLIA ONE ENVIRONMENTAL STATEMENT

This copy does not include the confidential Appendix 4 that contained information about potential breeding locations of birds specially protected under Schedule 1 of the Wildlife and Countryside Act 1981.



East Anglia Offshore Wind Limited

East Anglia One Cable Route

Appendix 24.12 - Breeding Bird Survey Report

854188

AUGUST 2012

RSK

RSK GENERAL NOTES

Project No.: 854188

Title: East Anglia ONE – Offshore Windfarm – Breeding Bird Survey Technical Report

Client: East Anglia Offshore Wind Limited

Date: 24th August 2012

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Status: Final – Rev02

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment.

CONTENTS

1 INTRODUCTION	3
1.1 Purpose of the Report	3
1.2 Ecological Context	3
1.3 Structure	3
2 METHODOLOGY	4
2.1 Objectives	4
2.2 Breeding Bird Survey	4
2.3 Limitations	4
2.4 Data Search	5
2.5 Criteria for Evaluation	5
2.5.1 Determination of Breeding Status.....	5
2.5.2 Species Richness	5
2.5.3 Identification of Birds of Conservation Concern	5
2.6 Importance Thresholds	6
2.7 Nomenclature	6
3 RESULTS	7
3.1 Data Search	7
3.1.1 Biodiversity Action Plans	7
3.1.2 Background Data Search.....	7
3.2 Targeted Survey Areas	7
3.3 Survey Dates and Weather	8
3.4 Summary of Survey Results	9
3.4.1 Breeding Status	9
3.4.2 Birds of Conservation Concern.....	9
4 EVALUATION AND CONCLUSIONS	17
4.1.1 Assemblage	17
4.1.2 Important Habitat	17
4.1.3 Important Species	19
4.1.4 Other Species of Conservation Concern	19
5 REFERENCES	20
6 FIGURES	21
APPENDIX 1	22
APPENDIX 2	34
Legislation	34
APPENDIX 3	35
Possible Breeding	35
Probable Breeding	35
Confirmed Breeding	35
APPENDIX 4	36
Confidential Appendix containing Schedule 1 Species Information	36

FIGURES

Figure 24.12.1 – Route Overview

Figure 24.12.2 – April BBS Results

Figure 24.12.3 – May BBS Results

Figure 24.12.4 – June BBS Results

TABLES

Table 1: Targeted areas for breeding bird surveys in May and June.....	8
Table 2: Dates of Breeding Bird Surveys and the Weather Conditions	9
Table 3: Bird Species Recorded from the East Anglia one cable route during the Breeding Bird Surveys of Conservation Concern, their Conservation Status and their Breeding Status.....	10
Table 4: A summary of the number of all the designated birds species recorded and their associated EOAC breeding status.	16
Table 5: All Bird Species Recorded from the East Anglia One cable route during the Breeding Bird Surveys and their Breeding Status.....	23

1 INTRODUCTION

1.1 Purpose of the Report

This report presents the findings of surveys for breeding bird surveys carried out in connection with plans to construct an Onshore Cable Route and Converter Station for the East Anglia ONE Offshore Windfarm. This document forms Appendix 24.12 to *Volume 3, Chapter 24: Ecology and Ornithology* of the Environmental Statement.

The Onshore Cable Route runs from a landfall south-east of Ipswich, east of the River Deben near Bawdsey. The route then runs north-west towards Bramford to the west of Ipswich, a distance of approximately 37km. The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search is shown in *Figure 24.12.1*.

This study was undertaken to describe the breeding bird community along the route of the proposed cable and to value of the breeding assemblage. Mitigation is suggested to comply with wildlife legislation during construction.

1.2 Ecological Context

The Preferred Onshore Cable Corridor and Converter Station Refined Area of Search lies within a rural landscape in East Anglia. Much of the land crossed is arable farmland, but the Onshore Cable Route crosses hedgerows, field drains and ditches, as well as coastal habitats and small areas of woodland. The Onshore Cable Route also crosses previously-developed land and the River Deben.

1.3 Structure

The remainder of this report is structured as follows:

- *Section 2 describes survey and evaluation methods;*
- *Section 3 gives the results;*
- *Section 4 evaluates the results and gives conclusions;*
- *Section 5 details basic mitigation;*
- *Section 6 gives references; and*
- *Section 7 contains the figures.*

Appendices contain species-lists, legislation and EOAC criteria.

2 METHODOLOGY

2.1 Objectives

The objectives of the breeding bird survey were to:

- *identify the distribution of breeding birds across the site;*
- *locate any birds protected under Schedule 1 of The Wildlife and Countryside Act 1981;*
- *identify any species which may require special mitigation during the works; and*
- *identify any further, species-specific surveys that may be required.*

2.2 Breeding Bird Survey

The survey methodology is based on the Common Bird Census (CBC) methodology devised jointly by the British Trust for Ornithology (BTO), the Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservancy Council (JNCC), (Gilbert et al. 1998). All surveys were undertaken early in the morning at or just after sunrise to coincide with the period of peak bird activity. A route was walked incorporating all features that may function as nesting bird habitat within and immediately adjacent to the route of the proposed cable. All birds seen or heard were recorded onto base maps along with notes of behaviour that may indicate breeding.

Three breeding bird surveys were undertaken. Due to the size of the study site it would not have been practical to survey the whole route three times. One survey carried out in April aimed to survey the entire length of the proposed cable route across its entire width. This visit was to get a general impression of the habitats that would be affected by the cable route, the general assemblage of birds using the route and to identify key areas of habitat for more detailed survey. Two further week-long visits were then carried out in May and June in these areas (results are given in Section 3). This survey methodology and the locations surveyed were discussed with statutory consultees prior to commencement.

Some incidental sightings of notable bird species recorded by surveyors undertaking other protected species surveys are also included. Some of these are rare or uncommon species, species that are hard to detect.

2.3 Limitations

Surveys were undertaken at the ideal time of year and during good weather for breeding bird surveys. A table of all weather data is shown in Section 3.

In spite of the good conditions, generally it is not realistic to expect to record every bird using a site during three breeding bird visits. However, the surveys were sufficient to record any important assemblages, and to identify areas of particular interest.

Some areas of the proposed cable route were not surveyed due to landowners not permitting access. These areas were generally not considered to be of high value for birds and the survey results would not have varied greatly from those obtained if access to these areas would have been granted.

2.4 Data Search

A detailed background data search was undertaken for all species and designated sites. All information is provided in Appendix 24.1.

2.5 Criteria for Evaluation

2.5.1 Determination of Breeding Status

The breeding status of each species is classified into three categories: Confirmed breeding; Probable breeding; and Possible breeding. The behaviour, sex, age and location of individual birds allow conclusions to be drawn about breeding status, based on categories devised by the European Ornithology Atlas Committee (EOAC), 1979. It is also possible that species are merely present in a habitat and are not actually breeding. Breeding evidence used in this report follows EOAC guidelines, 1979 and these are given in Appendix 3. Birds not thought to be breeding and birds flying-over are classed as non-breeding.

2.5.2 Species Richness

Fuller (1980) measured the diversity of a sites breeding assemblage using certain criteria for a simple site assessment. This gives an assessment of importance according to the following categories - Local (25-49 species), County (50-69 species), Regional (70-84 species) and National (85+ species).

2.5.3 Identification of Birds of Conservation Concern

A number of criteria are available to determine the conservation status of those bird species recorded. These criteria aid in evaluating the function of the site for breeding birds and thus the value of the breeding bird assemblage. The most appropriate of these are:

- The Birds Directive - Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (this is the codified version of Directive 79/409/EEC as amended) is the EU's oldest piece of nature legislation and one of the most important, creating a comprehensive scheme of protection for all wild bird species naturally occurring in the Union. Its was adopted unanimously by the Members States in 1979 as a response to increasing concern about the declines in Europe's wild bird populations resulting from pollution, loss of habitats as well as unsustainable use. It was also in recognition that wild birds, many of which are migratory, are a shared heritage of the Member States and that their effective conservation required international co-operation. The Birds Directive bans activities that directly threaten birds, such as the deliberate killing or capture of birds, the destruction of their nests and taking of their eggs, and associated activities such as trading in live or dead birds.

- *Wildlife and Countryside act 1981 Schedule 1 Species* – All bird species are protected from intentionally killing and injuring, and to the destruction of nests, eggs and dependent young. *Schedule 1* species are also protected from disturbance whilst nesting or attempting to make a nest.
- *Birds of Conservation Concern 3 (Eaton et al. 2009)* – Under this approach bird populations are assessed, using quantitative criteria, to determine the population status of each species and then placed on one of three lists; Red, Amber or Green. Red list species are of high conservation concern, being either globally threatened, having historical UK population declines between 1800 and 1995 or a rapid population decline or breeding range contraction by 50% or more in the last 25 years. Amber list species are of medium conservation concern due to a number of factors, for example having suffered between 25% and 49% contraction of UK breeding range or a 25-49% reduction in breeding or non-breeding populations over the last 25 years. Species that have a five year mean of 1-300 breeding pairs (bp) in the UK or an unfavourable European conservation status or for which the breeding population in the UK represents 20% or more of the European breeding populations are also listed on the Amber list. Green list species have a favourable conservation status.
- *National and Local Biodiversity Action Plans (BAP)* – The United Kingdom BAP (UK Biodiversity Steering Group 1995, reviewed 2007) lists a number of bird species of conservation concern, for which national targets and priorities have been set in order to address those species' needs. In June 2007 after a review of the UK BAP an additional 22 priority bird species were added to the list of species for which Species Action Plans (SAPs) will be prepared. The Suffolk Local Biodiversity Action Plan lists species for which conservation targets exist within the local area. An action plan for each of these species has been developed to set specific, measurable, achievable, realistic and time bounded targets for the conservation of these species.

2.6 Importance Thresholds

When assessing the importance of sites used by birds a system was developed and thresholds set where if 1% of a species (or subspecies) population is represented at a site then the site is important for this species for the size of the population. For example where a site supports 1% of the international population the site is important at international level, where a site supports 1% of the national population the site is important at the national level etc.

We have adopted these thresholds of importance in assessing the importance of some breeding species identified during these surveys. For example if 1% of a species breeding population is identified at any population size then it is important at that level.

2.7 Nomenclature

The nomenclature for common and scientific names and the taxonomic ordering of species accounts follows that contained in The British List: A checklist of Birds of Britain (7th edition), Dudley et al. 2006, also taking into account amendments that have been made by the British Ornithological Union (BOU) since its publication.

3 RESULTS

3.1 Data Search

3.1.1 Biodiversity Action Plans

A revised UK Biodiversity Action Plan (UKBAP) was published in June 2007 (Biodiversity Reporting and Information Group 2007) and includes 65 'Priority' Habitat Action Plans (HAPs), which are specific habitat types in 28 Broad Habitat types, 1,149 'Priority' Species Action Plans (SAPs), and nine 'Grouped' SAPs.

The Suffolk Local BAP lists 37 species of birds. Thirty-five species are full BAP species with a county SAP and two are designated as local character species.

3.1.2 Background Data Search

The background data search identified 151 notable bird species within the 2km search area (see Appendix 24.1 for full details).

3.2 Targeted Survey Areas

The first breeding bird survey visit in April identified key areas of habitat that would require more detailed survey in later visits. The criteria for identifying these target areas were based mainly on habitat (e.g. habitat that could support a better assemblage of breeding birds or rarer or highly protected species) but also covered areas where rarer or highly-protected species had been seen during the Phase 1 or April survey (i.e. further surveys were required to determine breeding status of those species). Some areas were selected also to give further detail of breeding bird assemblage in typical habitat along the route. The details of these targeted areas are given in Table 1.

Table 1: Targeted areas for breeding bird surveys in May and June

Area	Location	Reason for targeted survey
1	Agricultural and between Bawdsey and the coast.	Area in which the cable will make land fall. Potentially interesting breeding bird assemblage in the coastal habitat.
2	Bawdsey and Alderton Marshes up to the River Deben.	Area of agricultural land with many ditches. Potentially interesting breeding bird assemblage.
3	Falkenham Marshes west of the River Deben.	Area of agricultural land with many ditches. Potentially interesting breeding bird assemblage and Barn Owl box located just south of the cable route.
4	Agricultural land in Falkenham Marshes.	Potentially interesting breeding bird assemblage.
5	Area of wetland between two woodlands south of Hemley.	Potentially interesting breeding bird assemblage and Cetti's Warbler heard there in April.
6	Area of agricultural land north of Waldringfield.	Potentially interesting breeding bird assemblage and Barn Owl box located within cable route corridor.
7	Area of wetland, pasture land and hedges north of Marthlesham Creek.	Potentially interesting breeding bird assemblage and Common Nightingale and Cetti's Warbler heard there in April.
8	Area of grassland and woodland near Woodbridge. Now outside proposed cable route.	Potentially interesting breeding bird assemblage and Barn Owl box located within original possible cable route corridor but outside latest proposed route corridor.
9	Area of grassland and woodland near Woodbridge.	Potentially interesting breeding bird assemblage.
10	Area of grassland and woodland near Tuddenham St Martin.	Potentially interesting breeding bird assemblage and Barn Owl box located within cable route corridor.
11	Area of agricultural land and woodland near Akenham.	Potentially interesting breeding bird assemblage.
12	Area of grassland and wetland near Claydon east of Bramford Road.	Potentially interesting breeding bird assemblage.
13	Millers Wood near Bramford.	Potentially interesting breeding bird assemblage and Tawny Owl seen there during Phase 1.
14	Area of agricultural land around existing sub-station surrounded by small woodlands.	Potentially interesting breeding bird assemblage and possibility of permanent land take for the sub-station extension.

3.3 Survey Dates and Weather

The dates of the surveys and general weather conditions are shown in Table 2.

Table 2: Dates of Breeding Bird Surveys and the Weather Conditions

Survey Visit	Dates	Weather
April 2012	10 th to the 12 th	Fairly constant throughout. Cold starts, with rain over night on two occasions. Generally bright, clear, sunny mornings with little cloud except light rain showers on the 12 th . Wind ranged from force 1 to 5 (Beaufort) generally from the north-west.
May 2012	21 st to the 24 th	Variable. Start of week overcast with force 5 wind from the north-west. Middle of the week foggy starts but clearing up, force 1 to 4 winds from the north. End of the week foggy starts and staying cool force 1 wind from the east.
June 2012	25 th to the 28 th	Constant throughout. Very warm week. Cool starts but getting hot (>20degC) by mid morning. Clear, bright days. Wind started in the north-west switching to the south-west, force 1 to 4.

3.4 Summary of Survey Results

Figures for the April, May and June surveys detailing survey results are presented on Figures 24.12.2, 24.12.3 and 24.12.4 respectively.

Ninety-four species were recorded – of these seventy-two species were confirmed breeding, probable breeding or possible breeding. A complete species list summarising the breeding status, based on the EOAC criteria is presented in Appendix 1.

3.4.1 Breeding Status

Interpreting the data using the EOAC criteria, 25 species (27%) are confirmed as breeding, 26 (28%) are categorised as probable breeding species and 21 (22%) as possible breeding species. In addition, 22 species (23%) are categorised as either non-breeding species or were simply recorded flying over the site.

3.4.2 Birds of Conservation Concern

Of all the bird species recorded, 53 are designated as Annex 1 on the EU Birds Directive, Schedule 1 on the Wildlife and Countryside Act 1981 or are Species of Conservation Concern and their associated conservation and breeding status are presented in Table 3.

Table 3: Bird Species Recorded from the East Anglia one cable route during the Breeding Bird Surveys of Conservation Concern, their Conservation Status and their Breeding Status

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Common Shelduck	<i>Tadorna tadorna</i>			Amber		Recorded on all three visits. Common in the coastal/estuarine areas. 21 registrations mainly of birds flying over, but pairs recorded in suitable breeding habitat and one pair with eight chicks recorded.	Confirmed Breeding
Eurasian Teal	<i>Anas crecca</i>			Amber		Recorded in April only. Uncommon in wetland habitat. A flock of six recorded at Marthlesham Creek, presumably late wintering birds. One male recorded in suitable breeding habitat.	Possible Breeding
Mallard	<i>Anas platyrhynchos</i>			Amber		Recorded on all three visits. Fairly common in wetland areas. Recorded 36 times in numbers ranging from one to 10. Observed in suitable breeding habitat and juveniles observed twice.	Confirmed Breeding
Common Pochard	<i>Aythya ferina</i>			Amber		Incidental sighting in July only. Rare in wetland habitat. One female with three chicks in the large ditch just adjacent to the west bank of the River Deben.	Confirmed Breeding
Tufted Duck	<i>Aythya fuligula</i>			Amber		Recorded in May and June only. Rare in wetland habitat. One pair and a female recorded in the large ditch just adjacent to the west bank of the River Deben. Incidental sighting of the same birds in July.	Possible Breeding
Grey Partridge	<i>Perdix perdix</i>			Red	UK and Local BAP	Recorded in May only. One pair recorded in suitable breeding habitat.	Possible Breeding
Little Grebe	<i>Tachybaptus ruficollis</i>			Amber		Recorded in April and May only. Rare in wetland habitat. One pair recorded at Marthlesham Creek and in the large ditch just adjacent to its northern	Possible Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
						bank.	
Little Egret	<i>Egretta garzetta</i>	✓		Amber		Recorded in all three visits. Uncommon in wetland habitat. Individuals recorded at Marthlesham Creek and in the wetland area east of Bramford Road.	Non Breeding
Common Kestrel	<i>Falco tinnunculus</i>			Amber		Recorded on all three visits. Uncommon in woodland and agricultural areas. Four locations with probable breeding pairs.	Probable Breeding
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>			Amber		Recorded on all three visits. Common in wetland habitats. 11 registrations of birds flying over near to or at intertidal areas. No evidence of breeding recorded.	Non Breeding
Northern Lapwing	<i>Vanellus vanellus</i>			Red	UK and Local BAP	Recorded on all three visits. Uncommon in wetland or agricultural habitat. Two pairs observed displaying near wetland south of Hemley and three pairs recorded on agricultural land to the west of Suffolk Water Park.	Probable Breeding
Black-tailed Godwit	<i>Limosa limosa</i>		✓	Red	UK BAP	Recorded in April only. 13 birds recorded at Marthlesham Creek. Presumably late wintering or passage birds.	Non Breeding
Eurasian Curlew	<i>Numenius arquata</i>			Amber	UK and Local BAP	Recorded in April and May only. 11 registrations of birds feeding in agricultural land or flying over. Largest flock recorded was 16 birds. Presumably late wintering or passage birds.	Non Breeding
Spotted Redshank	<i>Tringa erythropus</i>			Amber		Recorded in April only. One individual bird recorded at Marthlesham Creek. Presumably a late wintering or passage bird.	Non Breeding
Common Redshank	<i>Tringa totanus</i>			Amber		Recorded in April and May only. Uncommon at intertidal wetland areas. Seven registrations of birds flying over or feeding. Largest flock recorded was 13 birds. Presumably late wintering or passage birds. No evidence of breeding recorded.	Non Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Black-headed Gull	<i>Larus ridibundus</i>			Amber		Recorded on all three visits. Uncommon in wetland and intertidal habitats. Eight registrations of birds flying over or feeding in agricultural land or intertidal areas. Largest flock size recorded was of 35 birds.	Non Breeding
Common Gull	<i>Larus canus</i>			Amber		Recorded in April only. One individual observed feeding with Black-headed Gulls in agricultural land. Presumably a late wintering bird.	Non Breeding
Lesser Black-backed Gull	<i>Larus fuscus</i>			Amber		Recorded on all three visits. Uncommon, seen flying over agricultural land, wetland or at the coast.	Non Breeding – flyover only
Herring Gull	<i>Larus argentatus</i>			Red (specifically breeding argenteus)	UK and Local BAP	Recorded on all three visits. Uncommon, seen flying over agricultural areas, wetland or at the coast.	Non Breeding – flyover only
Great Black-backed Gull	<i>Larus marinus</i>			Amber		Recorded in May only. A group of 5 mixed age birds seen at the coast.	Non Breeding
Little Tern	<i>Sternula albifrons</i>	✓	✓	Amber	Local BAP	Recorded in June only. One individual seen flying north along the River Deben.	Non Breeding – flyover only
Common Tern	<i>Sterna hirundo</i>	✓		Amber		Recorded in May only. One individual seen at Marthlesham Creek and two seen flying over agricultural land near to the coast. Presumably passage birds.	Non Breeding – flyover only
Stock Pigeon	<i>Columba oenas</i>			Amber		Seen on all three visits. Common in agricultural and woodland habitats. 26 registrations of singing males, pairs or small groups in suitable breeding habitat. One nest confirmed and several suspected in old nesting boxes and tree cavities.	Confirmed Breeding
European Turtle Dove	<i>Streptopelia turtur</i>			Red	UK and Local BAP	Incidental sighting only. One male seen and heard singing in May in suitable breeding habitat at The Bungalow, near to Tuddenham-st-Martin.	Possible Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Common Cuckoo	<i>Cuculus canorus</i>			Red	UK and Local BAP	Recorded on all three visits. Uncommon in agricultural and wetland habitat. Six registrations of birds where suitable host species were recorded.	Probable Breeding
Barn Owl	<i>Tyto alba</i>		✓	Amber		Recorded in May only. Rare in agricultural land. One individual seen hunting near to the existing sub-station at the western end of the route. One incidental sighting of a single bird hunting between Millers Wood and Tye Lane at the western end of the route. Possibly under-recorded. Boxes recorded but all were occupied by other species.	Possible Breeding
Common Swift	<i>Apus apus</i>			Amber		Four registrations of flyover birds only. No potential breeding sites affected by the route.	Non Breeding – flyover only
Common Kingfisher	<i>Alcedo atthis</i>	✓	✓	Amber		Recorded in June only. One individual seen flying north along the river to the east of Bramford Road. No suitable breeding habitat observed along the route.	Non Breeding – flyover only
Green Woodpecker	<i>Picus viridis</i>			Amber		Recorded on all three visits. Common in agricultural and grassland habitat. 18 registrations of birds in suitable nesting habitat.	Probable Breeding
Skylark	<i>Alauda arvensis</i>			Red	UK and Local BAP	Recorded on all three visits. Very common in agricultural and grassland habitat. At least 149 territorial males or pairs recorded.	Probable Breeding
Sand Martin	<i>Riparia riparia</i>			Amber		One registration of flyover birds only. No potential breeding sites affected by the route.	Non Breeding – flyover only
Barn Swallow	<i>Hirundo rustica</i>			Amber		Seventeen registrations of flyover birds only. No potential breeding sites affected by the route.	Non Breeding – flyover only
House Martin	<i>Delichon urbica</i>			Amber		One registration of flyover birds only. No potential breeding sites affected by the route.	Non Breeding – flyover only
Meadow Pipit	<i>Anthus pratensis</i>			Amber		Recorded in April and May only. Uncommon in grassland and agricultural habitat. 12 registrations mainly of birds flying over but males recorded singing on three occasions in suitable breeding habitat. Most	Possible Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
						likely late wintering or passage birds.	
Yellow Wagtail	<i>Motacilla flava</i>			Red	UK and Local BAP	Recorded on all three visits. Concentrated and common in the agricultural and wetland habitat at the eastern end of the route (Bawdsey and Alderton Marshes), rare elsewhere. 32 registrations of single birds, males singing or pairs in suitable breeding habitat. One family group seen in June.	Confirmed Breeding
Grey Wagtail	<i>Motacilla cinerea</i>			Amber		Recorded in May and June only. Rare in wetland habitat. One individual seen in the same locality (wetland to the east of Bramford Road) on both occasions.	Possible Breeding
Hedge Accentor	<i>Prunella modularis</i>			Amber	UK and Local BAP	Recorded in all three visits. Very common in most habitats. At least 84 territorial males or pairs recorded.	Probable Breeding
Common Nightingale	<i>Luscinia megarhynchos</i>			Amber		Recorded in April only. A single male recorded singing in scrub to the north of Marthlesham Creek. Possibly only a passage bird.	Possible Breeding
Song Thrush	<i>Turdus philomelos</i>			Red	UK and Local BAP	Recorded in all three visits. Common in most habitats, particularly woodland. At least 37 territorial males or pairs recorded.	Probable Breeding
Mistle Thrush	<i>Turdus viscivorus</i>			Amber		Recorded on all three visits. Uncommon in woodland habitat. 11 registrations of singing males or pairs in suitable breeding habitat.	Probable Breeding
Cetti's Warbler	<i>Cettia cetti</i>		✓			Recorded on all three visits. Recorded in two distinct areas – the wetland habitat just north of Marthlesham Creek and the wetland area to the south of Hemley. Five and two singing males recorded at each site respectfully.	Probable Breeding
Common Whitethroat	<i>Sylvia communis</i>			Amber		Recorded in all three visits. Very common in hedgerows and scrub. At least 66 territorial males or pairs recorded. Evidence of breeding confirmed in June.	Confirmed Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Willow Warbler	<i>Phylloscopus trochilus</i>			Amber		Recorded in April and May only. Only two registrations of single male birds singing in hedgerows at the western end of the route. Possibly only passage birds.	Possible Breeding
Marsh Tit	<i>Poecile palustris</i>			Red	UK and Local BAP	Recorded in April and May only. Rare in woodland habitat. Recorded in two areas only woodlands at the western end of the route and the wetland area east of Bramford Road. Three to five pairs recorded.	Probable Breeding
Common Starling	<i>Sturnus vulgaris</i>			Red	UK and Local BAP	Recorded in all three visits. Rare, only three registrations of small groups of up to eight birds, most likely post breeding family groups.	Possible Breeding
House Sparrow	<i>Passer domesticus</i>			Red	UK and Local BAP	Recorded in April and May only. Uncommon around farm buildings. Eight registrations of single birds or males singing.	Possible Breeding
Common Linnet	<i>Carduelis cannabina</i>			Red	UK and Local BAP	Recorded in all three visits. Very common in scrub habitat. One late winter flock of 40 birds recorded in April. At least 60 territorial males or pairs recorded. Evidence of breeding recorded in May and June.	Confirmed Breeding
Common Crossbill	<i>Loxia curvirostra</i>		✓			Recorded in June only. One record of two birds flying over the western end of the route. Presumably birds on post breeding dispersal.	Non Breeding
Common Bullfinch	<i>Pyrrhula pyrrhula</i>			Amber	UK and Local BAP	Recorded in April and May only. Rare in scrub habitat and hedgerows. Only six registrations of singing males or individuals in suitable breeding habitat.	Probable Breeding
Yellowhammer	<i>Emberiza citrinella</i>			Red	UK and Local BAP	Recorded on all three visits. Uncommon in agricultural habitats. Concentrated at the western end of the route. 23 registrations of males sing or pairs in suitable breeding habitat.	Probable Breeding
Reed Bunting	<i>Emberiza schoeniclus</i>			Amber	UK and Local BAP	Recorded in all three visits. Very common in wetland habitat. At least 62 territorial males or pairs recorded.	Probable Breeding

A summary of the number of designated bird species recorded and their associated EOAC breeding status is given in *Table 4*.

Table 4: A summary of the number of all the designated birds species recorded and their associated EOAC breeding status.

Designation	Confirmed Breeding	Probable Breeding	Possible Breeding	Non Breeding	Total
EU Birds Directive Annex 1	1	-	-	3	4
WCA 1981 Schedule 1	1	1	2	4	8
BoCC Red List	2	6	4	2	14
BoCC Amber List	6	6	8	16	36
UK BAP	2	9	4	3	18
Local BAP	2	9	4	3	18
No Designation	17	13	8	3	41
Total	31	44	30	34	

4 EVALUATION AND CONCLUSIONS

4.1.1 Assemblage

Ninety-four species were recorded of which 72 are confirmed breeding, probable breeding or possible breeding species.

Using the criteria set out by Fuller (1980) the route has a breeding bird assemblage that is of importance at a Regional level (70 - 84 species).

The route's breeding bird assemblage including Birds Directive Annex 1, WCA Schedule 1, BoCC and BAP species is because of the length of the route and the diversity of habitat. The route footprint is mainly agricultural land but has grassland, woodland, scrub and many hedgerows as well as coastal, estuarine, wetland habitats. Whilst the general agricultural land supports numerous bird species, there are certain parcels of land that support a more diverse species mix and some very important breeding species. These are discussed below.

4.1.2 Important Habitat

4.1.2.1 Bawdsey and Alderton Marshes (Targeted Area 2)

Bawdsey and Alderton Marshes is a large area of agricultural land intersected by numerous ditches. It is just inland from the coast and is adjacent to the River Deben. Bawdsey and Alderton Marshes are particularly notable for two WCA Schedule 1 species recorded there. *For further detail on Schedule 1 species recorded here please refer to the Confidential Appendix.*

The area is also notable as it supports large numbers of few species of conservation concern. The agricultural fields are used by large numbers of the ground-nesting species Skylark and Yellow Wagtail (which was not present in any number anywhere else on the route). The ditches also support large numbers of Reed Warbler and Reed Bunting, as well as breeding Mute Swan and Common Linnet.

4.1.2.2 Falkenham Marsh (Targeted Area 3)

Falkenham Marsh (just to the west of the River Deben) has similar habitat to Bawdsey and Alderton Marshes comprising agricultural land intersected with ditches, but it is not as wet. This area is notable for breeding wildfowl in a large ditch adjacent to the River Deben. Here, Common Pochard was confirmed to have bred and Tufted Duck possibly breeds. These species were not recorded anywhere else on the route. The area also supports fairly large numbers of Reed Warblers and Reed Buntings.

4.1.2.3 Wetland South of Hemley CP (Targeted Area 5)

A wetland south of Hemley CP comprises agricultural land with a river and several ditches. The area is sandwiched between two woods; Shepherds Wood and The Thicket. This wetland is particularly notable for the WCA Schedule 1 species; Cetti's Warbler, where two male birds were recorded holding territory and probably bred. *For further detail on other Schedule 1 species recorded here please refer to the Confidential Appendix.*

Wetland species recorded here included Northern Lapwing (two pairs displaying), Reed Warblers and Reed Buntings. Woodland species recorded here included Common Buzzards, Common Cuckoo and Garden Warblers.

4.1.2.4 *Marthlesham Creek Area (Targeted Area 7)*

The area to the north of, and including, Marthlesham Creek comprises the intertidal creek and fields to the north, which are intersected by ditches, hedgerows and a railway line. This area is particularly notable for supporting the WCA Schedule 1 species; Cetti's Warbler, where five male birds were recorded holding territory and probably bred. A Common Nightingale was recorded singing here in April but was not heard again.

Marthlesham Creek had small numbers of late wintering or passage wildfowl and waders, which although they were not breeding, it is clearly an important area for these species to feed. Little Egret and Little Grebe were also recorded here with Little Grebe possibly breeding in the large ditch to the north of the creek. A single male Eurasian Teal was recorded in the same large creek in April and it's possible they breed here. Other notable species were large numbers of Reed Warblers and Reed Buntings. Common Cuckoo was recorded here and this is the only area Common Starling recorded, which may breed in the nearby residential area.

4.1.2.5 *Wetland Area east of Bramford Road (Targeted Area 12)*

The wetland area east of Bramford Road comprises of a river, cattle-grazed pasture fields intersected by ditches, pools formed by flood-water and mature outgrown hedges and stands of mature oaks and poplars. The WCA Schedule 1 species Common Kingfisher and Little Egret were recorded here but it is not suitable for these species to breed here. The only Grey Wagtail recorded on the route was in the area in May and June and may breed here. The area also supports Marsh Tits, Great Spotted Woodpecker (only confirmed breeding location), breeding wildfowl and breeding warblers.

4.1.2.6 *Millers Wood (Targeted Area 13)*

Millers Wood is at the western end of the route, just to the north-east of the existing substation, and is oak woodland with a sparse understory. It supports woodland species such as Eurasian Nuthatch (the only one recorded) and Tawny Owl (one of two places this species was recorded).

4.1.2.7 *Area around the existing substation (Targeted Area 14)*

The existing substation is at the far western end of the onshore cable route surrounded by agricultural land and then almost completely enclosed by surrounding woodland. This area is the only area where the WCA Schedule 1 species Barn Owl was recorded and it is known that a pair breeds on neighbouring land. The agricultural land is particularly notable for large number of Yellowhammers, almost as many here as in the rest of the onshore cable route. It also supports Common Linnet and Skylark, which almost certainly nest here.

The surrounding woods support important species such as Marsh Tit and Tawny Owl. Fore Grove also has a large rookery and in May 130 Rooks were recorded in the fields here.

4.1.3 Important Species

4.1.3.1 Common Pochard

Common Pochard is a rare breeding bird in the UK. The 2009 Rare Breeding Birds in the UK Report (Holling et al 2011) states up to 700 pairs breeding in the UK, of which there was a possible 11 pairs in Suffolk and seven pairs were confirmed to breed in Suffolk. Based on these figures the one breeding pair recorded on this route represents 0.14% of the National total and 9% of the County total. This would make one breeding pair important at the County level.

4.1.3.2 Cetti's Warbler

Cetti's Warbler is a rare breeding bird in the UK. The 2009 Rare Breeding Birds in the UK Report (Holling et al 2011) states up to 2347 territorial males in the UK, of which 223 were recorded in Suffolk (the county with the second highest number recorded). Based on these figures the 7 singing males recorded on this route represents 0.29% of the National total and 3% of the County total. This would make seven territorial males important at the County level.

4.1.3.3 Other Schedule 1 Species

For further detail on Schedule 1 species recorded here please refer to the Confidential Appendix.

4.1.4 Other Species of Conservation Concern

Most of the other species of conservation concern recorded along this route are common species in Suffolk. Some were recorded in small numbers but many were recorded in large numbers and are of County significance. Some of the species recorded are documented to be suffering severe national declines, with a major factor being loss of breeding habitat in the UK. These species are Northern Lapwing, European Turtle Dove, Common Cuckoo, Yellow Wagtail and Common Nightingale.

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6 FIGURES

Figure 24.12.1 – Route Overview

Figure 24.12.2 – April BBS Results

Figure 24.12.3 – May BBS Results

Figure 24.12.4 – June BBS Results

Breeding Birds Survey Key Sheet

Activity Symbols for Birds

B.m	Blackbird Male	B.*	Blackbird Nest	B. --- B.	Two Blackbirds Calling / Singing to Each Other
B.fm	Blackbird Female	B.food	Blackbird Carrying Food	B. — B.	Same Blackbird Moving
B.pr	Blackbird Pair	G.drum	Green Woodpecker Drumming	→ B.	Blackbird Flying to Perch
B.juv	Blackbird Juvenile	B.	Blackbird Calling	B. →	Blackbird Flying From Perch
B.fam	Blackbird Family	B.	Blackbird Singing	— B. →	Blackbird in Flight

Bird Species Codes

Code	Common Name	Latin Name	Code	Common Name	Latin Name
BO	Barn Owl	<i>Tyto alba</i>	LI	Linnet	<i>Carduelis cannabina</i>
B.	Blackbird	<i>Turdus merula</i>	ET	little Egret	<i>Egretta garzetta</i>
BC	Blackcap	<i>Sylvia atricapilla</i>	LG	Little Grebe	<i>Tachybaptus ruficollis</i>
BH	Black-headed Gull	<i>Larus ridibundus</i>	LO	Little Owl	<i>Athene noctua</i>
BW	Black-tailed Godwit	<i>Limosa limosa</i>	AF	Little Tern	<i>Sterna albifrons</i>
BT	Blue Tit	<i>Cyanistes caeruleus</i>	LT	Long-tailed Tit	<i>Aegithalos caudatus</i>
BF	Bullfinch	<i>Pyrrhula pyrrhula</i>	MG	Magpie	<i>Pica pica</i>
BZ	Buzzard	<i>Buteo buteo</i>	MA	Mallard	<i>Anas platyrhynchos</i>
CG	Canada Goose	<i>Branta canadensis</i>	MR	Marsh Harrier	<i>Circus aeruginosus</i>
C.	Carion Crow	<i>Corvus corone</i>	MT	Marsh Tit	<i>Poecile palustris</i>
CW	Cetti's Warbler	<i>Cettia cetti</i>	MP	Meadow Pipit	<i>Anthus pratensis</i>
CH	Chaffinch	<i>Fringilla coelebs</i>	M.	Mistle Thrush	<i>Turdus viscivorus</i>
CC	Chiffchaff	<i>Phylloscopus collybita</i>	MH	Moorhen	<i>Gallinula chloropus</i>
CT	Coal Tit	<i>Parus ater</i>	MS	Mute Swan	<i>Cygnus olor</i>
CD	Collared Dove	<i>Streptopelia decaocto</i>	N.	Nightingale	<i>Luscinia megarhynchos</i>
CM	Common Gull	<i>Larus canus</i>	NH	Nuthatch	<i>Sitta europaea</i>
CN	Common Tern	<i>Sterna hirundo</i>	OC	Oystercatcher	<i>Haematopus ostralegus</i>
CO	Coot	<i>Fulica atra</i>	PH	Pheasant	<i>Phasianus colchicus</i>
CA	Cormorant	<i>Phalacrocorax carbo</i>	PW	Pied Wagtail	<i>Motacilla alba</i>
CR	Crossbill	<i>Loxia curvirostra</i>	PO	Pochard	<i>Aythya ferina</i>
CK	Cuckoo	<i>Cuculus canorus</i>	RL	Red-legged Partridge	<i>Alectoris fufa</i>
CU	Curlew	<i>Numenius arquata</i>	RK	Redshank	<i>Tringa totanus</i>
D.	Dunmock	<i>Prunella modularis</i>	RB	Reed Bunting	<i>Emberiza schoeniclus</i>
GW	Garden Warbler	<i>Sylvia borin</i>	RW	Reed Warbler	<i>Acrocephalus scirpaceus</i>
GC	Goldcrest	<i>Regulus regulus</i>	R.	Robin	<i>Erithacus rubecula</i>
GO	Goldfinch	<i>Carduelis carduelis</i>	RO	Rook	<i>Corvus frugilegus</i>
GB	Great Black-backed Gull	<i>Larus marinus</i>	SM	Sand Martin	<i>Riparia riparia</i>
GS	Great Spotted Woodpecker	<i>Dendrocopos major</i>	SW	Sedge Warbler	<i>Acrocephalus schoenobaenus</i>
GT	Great Tit	<i>Parus major</i>	SU	Shelduck	<i>Tadorna tadorna</i>
G.	Green Woodpecker	<i>Picus viridis</i>	S.	Skylark	<i>Alauda arvensis</i>
GR	Greenfinch	<i>Carduelis chloris</i>	ST	Song Thrush	<i>Turdus philomelos</i>
H.	Grey Heron	<i>Ardea cinerea</i>	SH	Sparrowhawk	<i>Accipiter nisus</i>
P.	Grey Partridge	<i>Perdix perdix</i>	DR	Spotted Redshank	<i>Tringa erythropus</i>
GL	Grey Wagtail	<i>Motacilla cinerea</i>	SG	Starling	<i>Sturnus vulgaris</i>
GJ	Greylag Goose	<i>Anser anser</i>	SD	Stock Dove	<i>Columba oenas</i>
HG	Herring Gull	<i>Larus argentatus</i>	SL	Swallow	<i>Hirundo rustica</i>
HY	Hobby	<i>Falco subbuteo</i>	SI	Swift	<i>Apus apus</i>
HM	House Martin	<i>Delichon urbica</i>	TO	Tawny Owl	<i>Strix aluco</i>
HS	House Sparrow	<i>Passer domesticus</i>	T.	Teal	<i>Anas crecca</i>
JD	Jackdaw	<i>Corvus monedula</i>	TC	Treecreeper	<i>Certhia familiaris</i>
J.	Jay	<i>Garrulus glandarius</i>	TU	Tufted Duck	<i>Aythya fuligula</i>
K.	Kestrel	<i>Falco tinnunculus</i>	WH	Whitethroat	<i>Sylvia communis</i>
KF	Kingfisher	<i>Alcedo atthis</i>	WW	Willow Warbler	<i>Phylloscopus trochilus</i>
L.	Lapwing	<i>Vanellus vanellus</i>	WP	Wood Pigeon	<i>Columba palumbus</i>
LB	Lesser Black-backed Gull	<i>Larus fuscus</i>	WR	Wren	<i>Troglodytes troglodytes</i>
LW	Lesser Whitethroat	<i>Sylvia curruca</i>	Y.	Yellowhammer	<i>Emberiza citrinella</i>



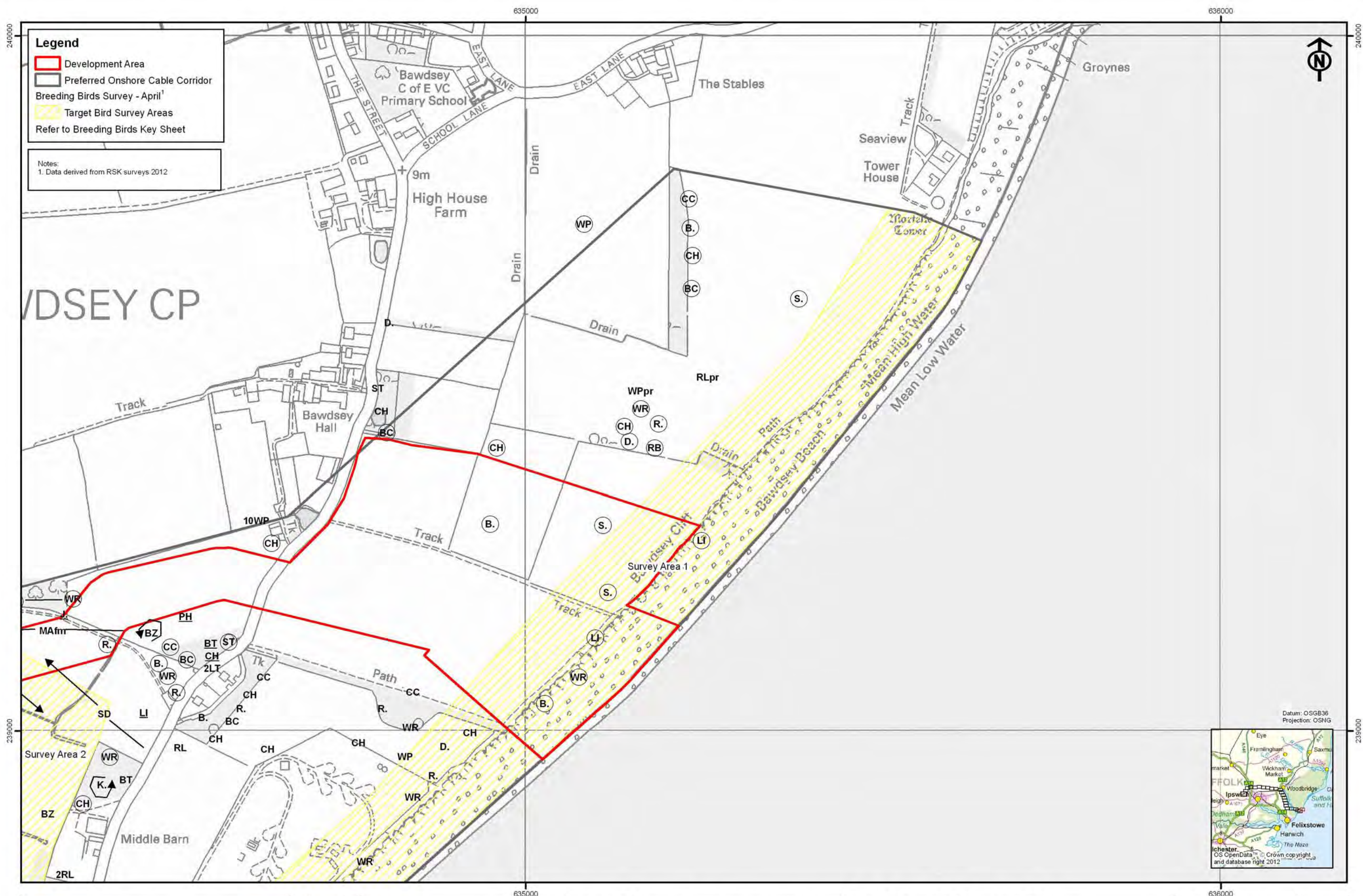
East Anglia Offshore Wind Breeding Birds Survey Key Sheet

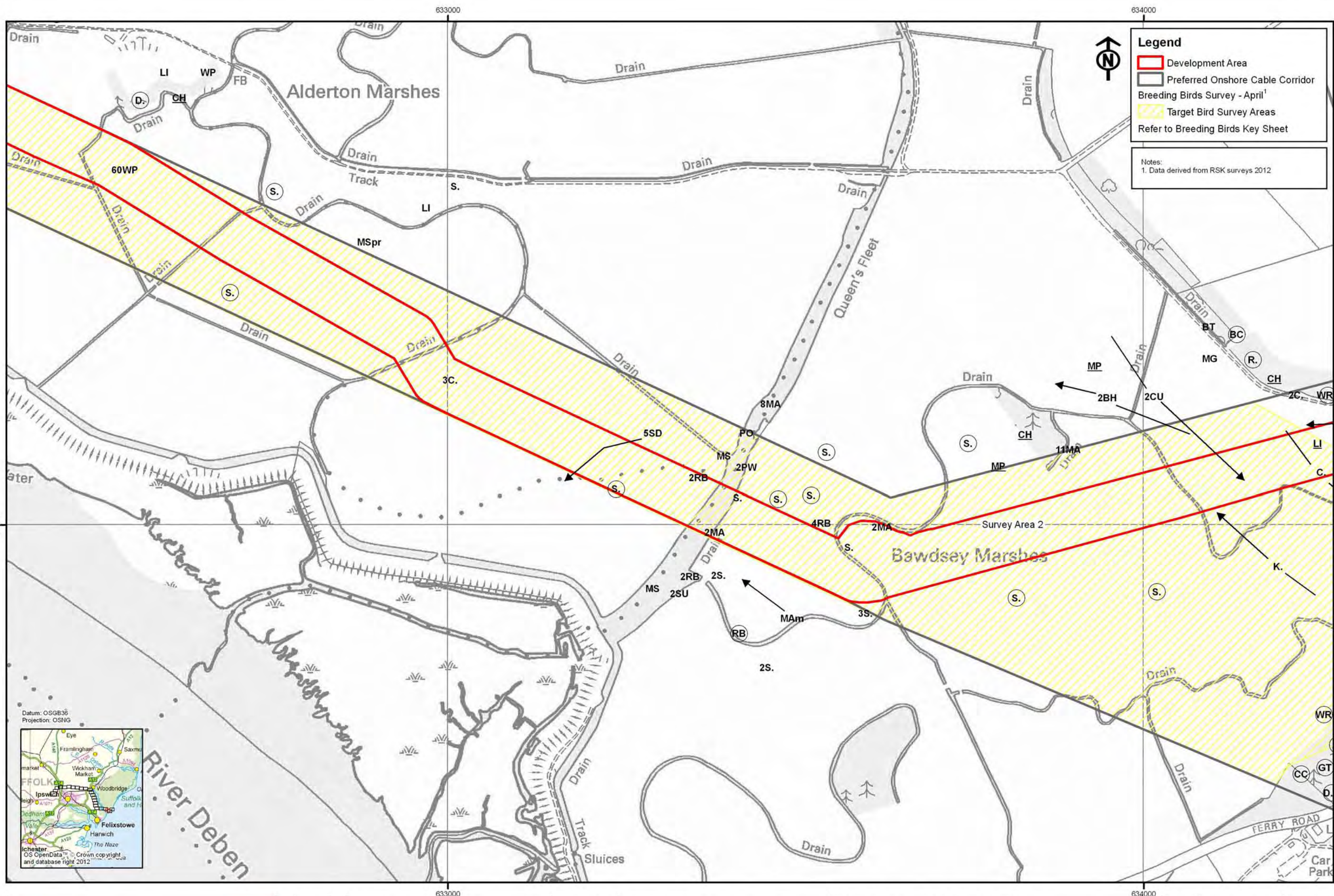
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00	18/07/12	SP	First Issue
Rev	Date	By	Comment

Appendix 24.12

Figure 24.12.2

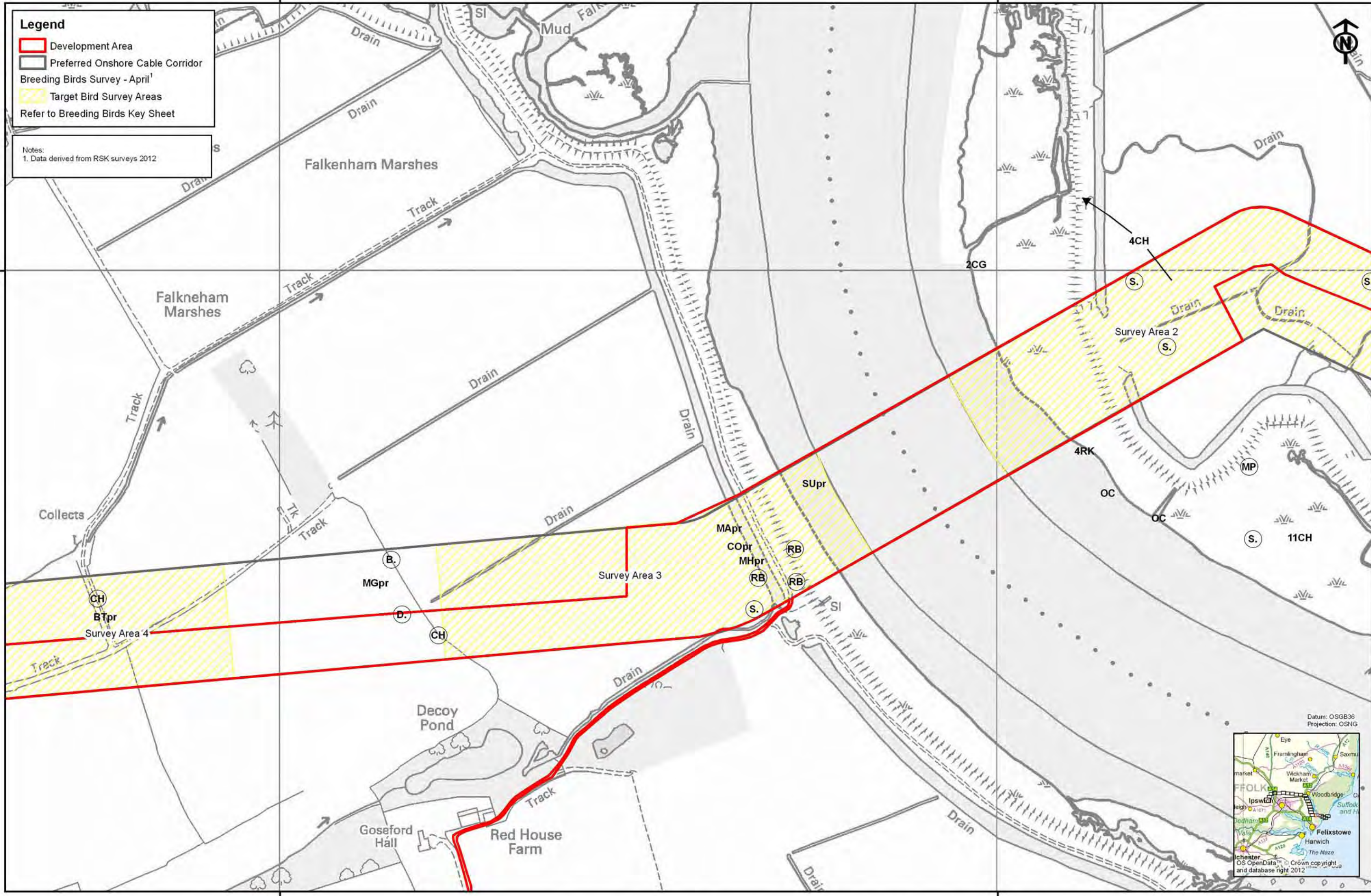
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N/A	01/10/12	02	41386-A24-24.12.2(0)





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00	15/08/12	SP	First issue
Rev	Date	By	Comment

Drg No	41388-A24-24.12.2(2a)	Appendix 24.12
Rev	02	
Date	01/10/12	Figure 24.12.2
Layout	N/A	



Legend

- Development Area
- Preferred Onshore Cable Corridor
- Breeding Birds Survey - April¹
- Target Bird Survey Areas
- Refer to Breeding Birds Key Sheet

Notes:
1. Data derived from RSK surveys 2012





02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

Original A3 Plot Scale 1:5,000

0

50

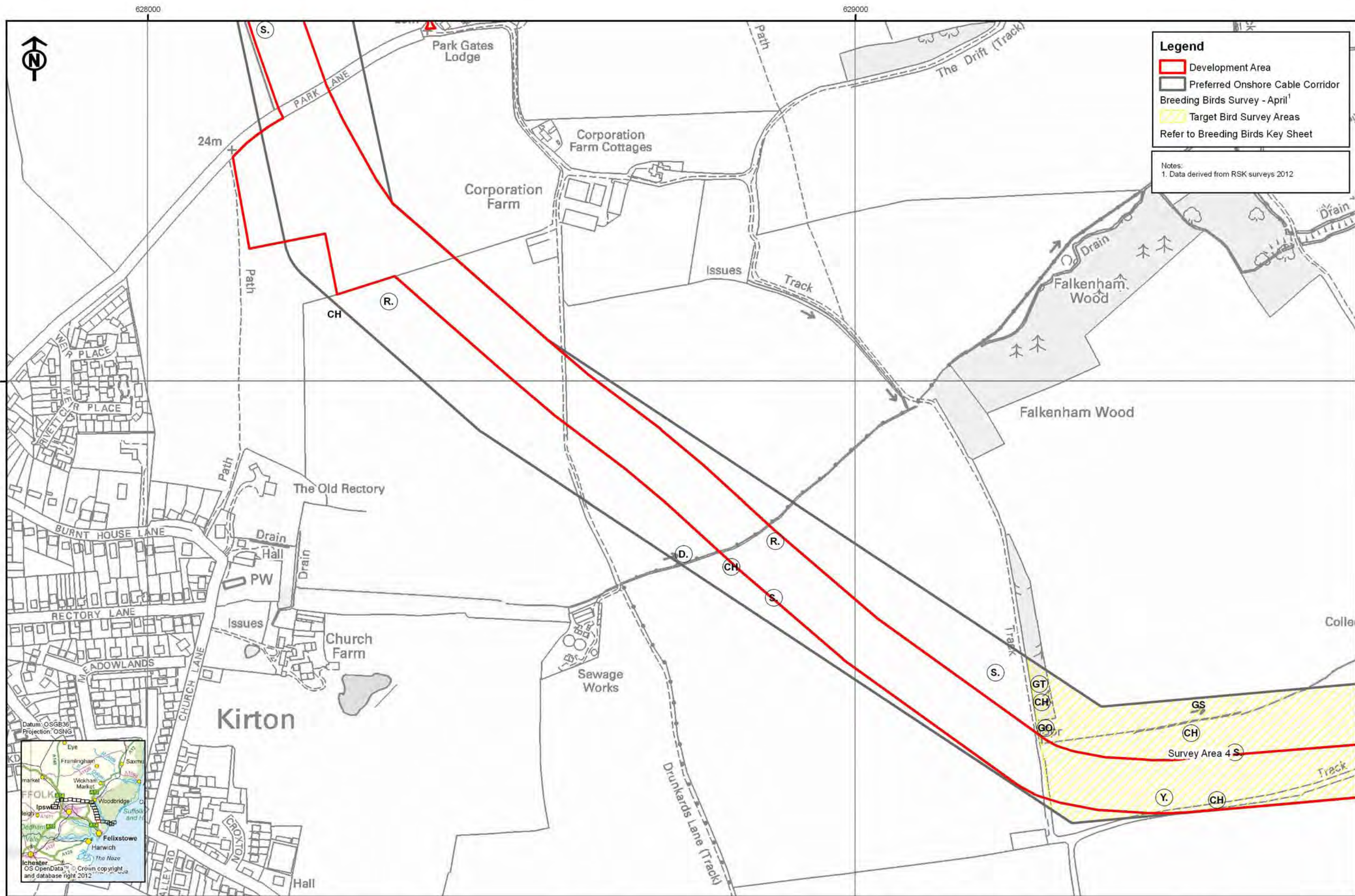
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200 Meters

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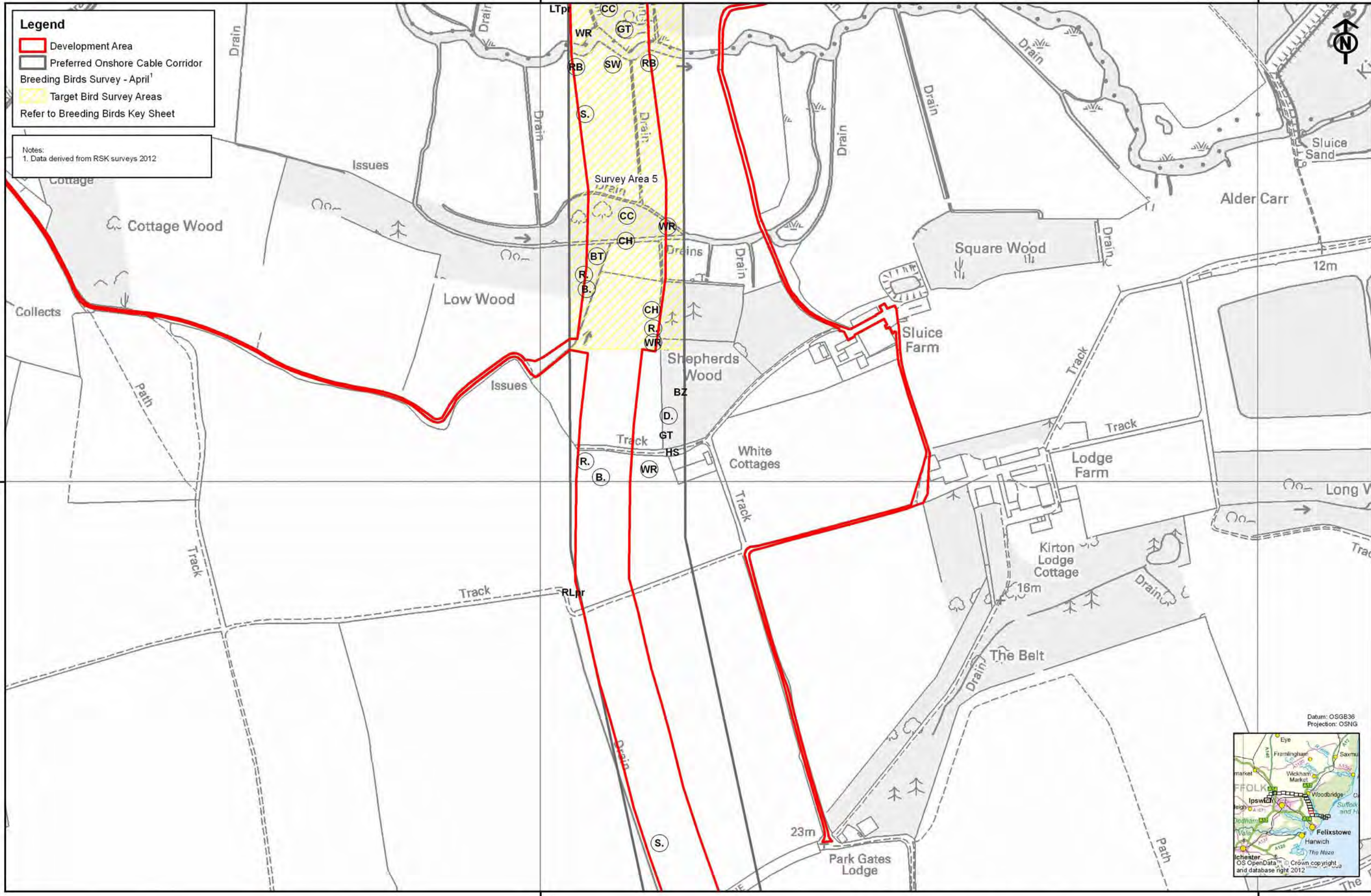
East Anglia Offshore Wind
April Breeding Birds Suvey
Sheet 4 of 22

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Rev	02	
Date	01/10/12	Figure 24.12.2
Layout	N/A	



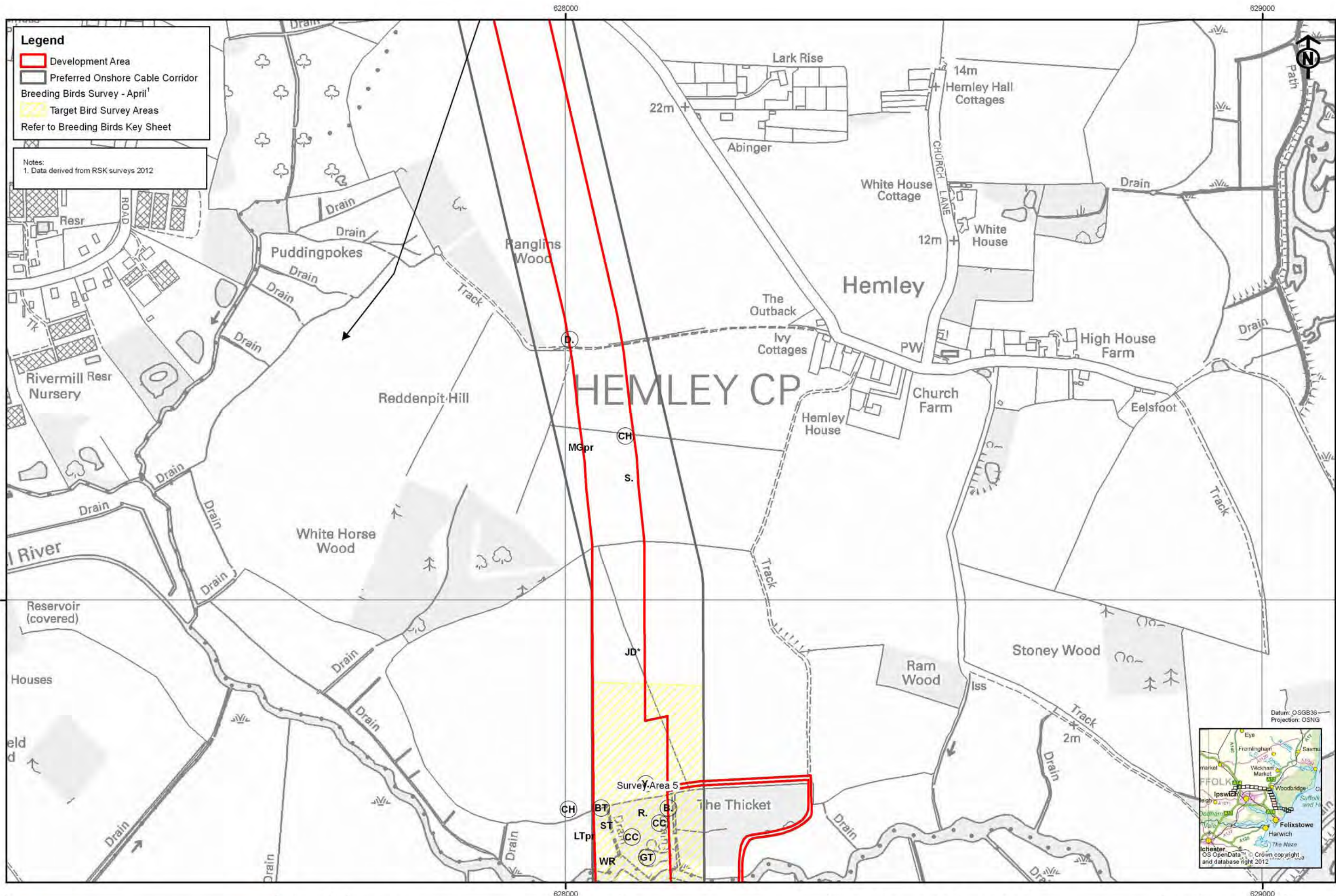
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Rev	Date	By	Comment

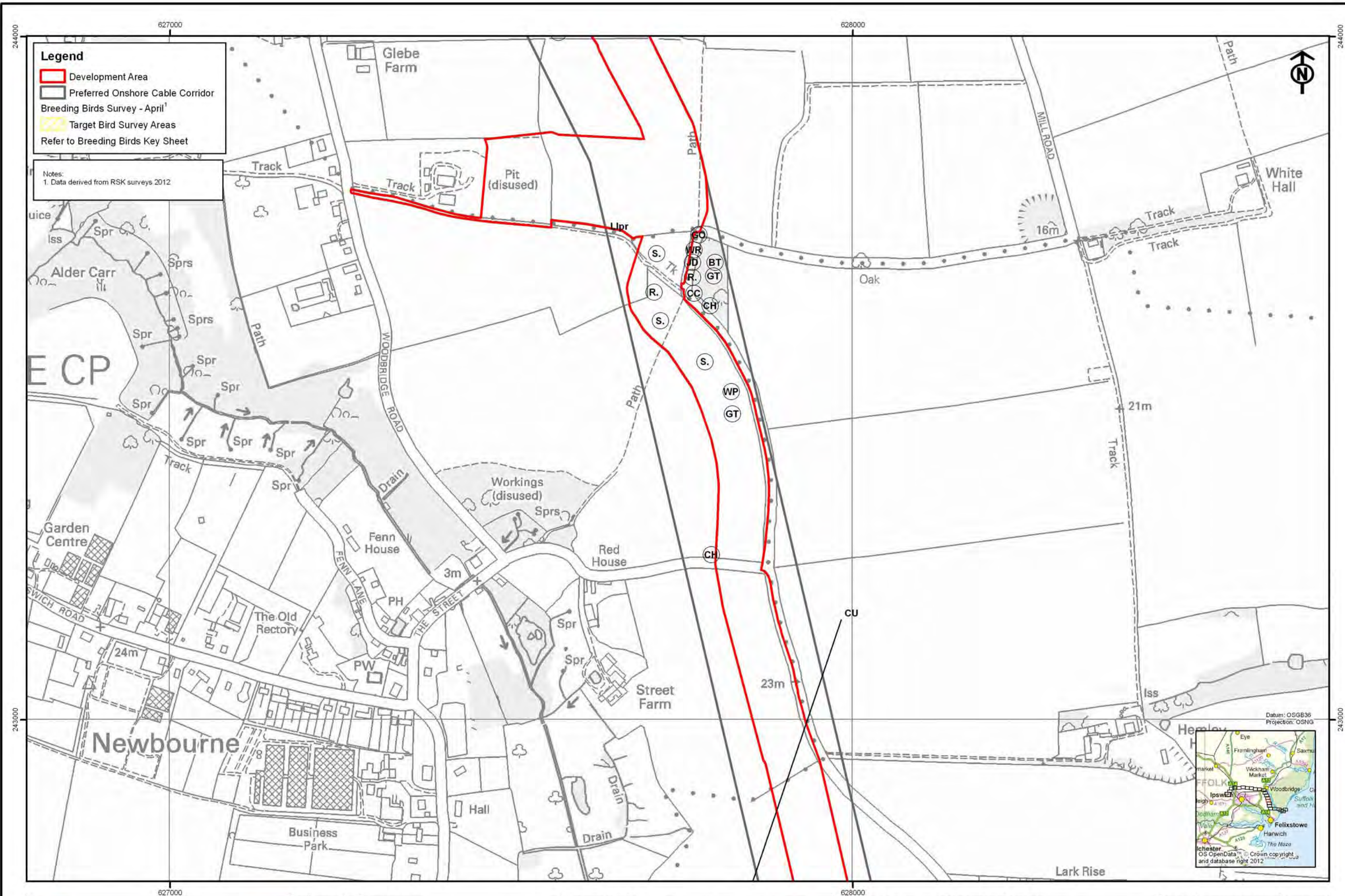
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Rev	Date	By	Comment

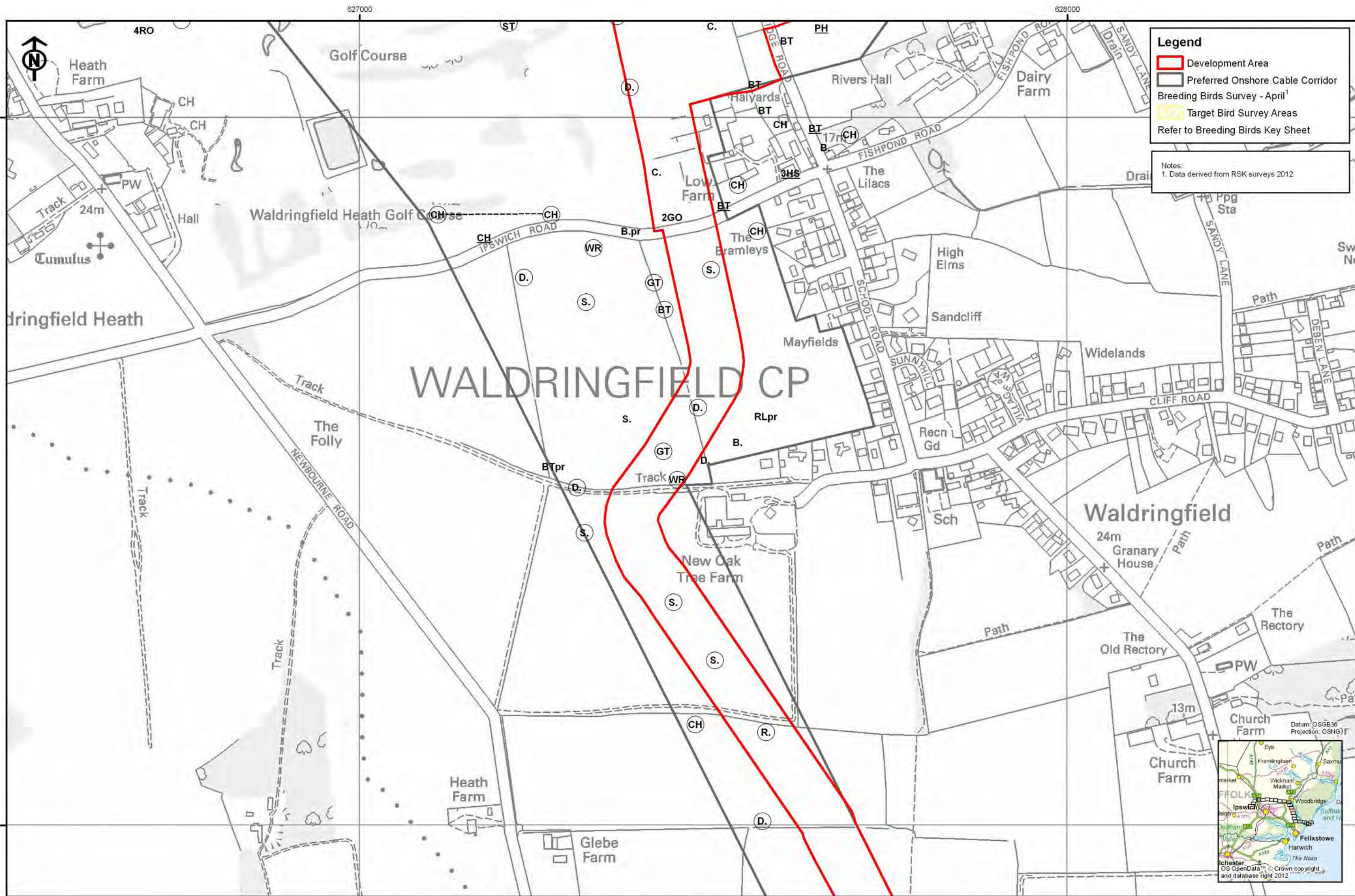
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Rev	02	
Date	01/10/12	Figure 24.12.2
Layout	N/A	





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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

Drg No	41388-A24-24.12.2(8)	Appendix 24.12
Rev	02	Figure 24.12.2
Date	01/10/12	
Layout	N/A	



Legend

- Development Area
- Preferred Onshore Cable Corridor
- Breeding Birds Survey - April¹
- Target Bird Survey Areas
- Refer to Breeding Birds Key Sheet

Notes:
1. Data derived from RSK surveys 2012

SCOTTISHPOWER RENEWABLES **VATTENFALL**

02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

Original A3 Plot Scale 1:5,000

0 50 100 200 Meters

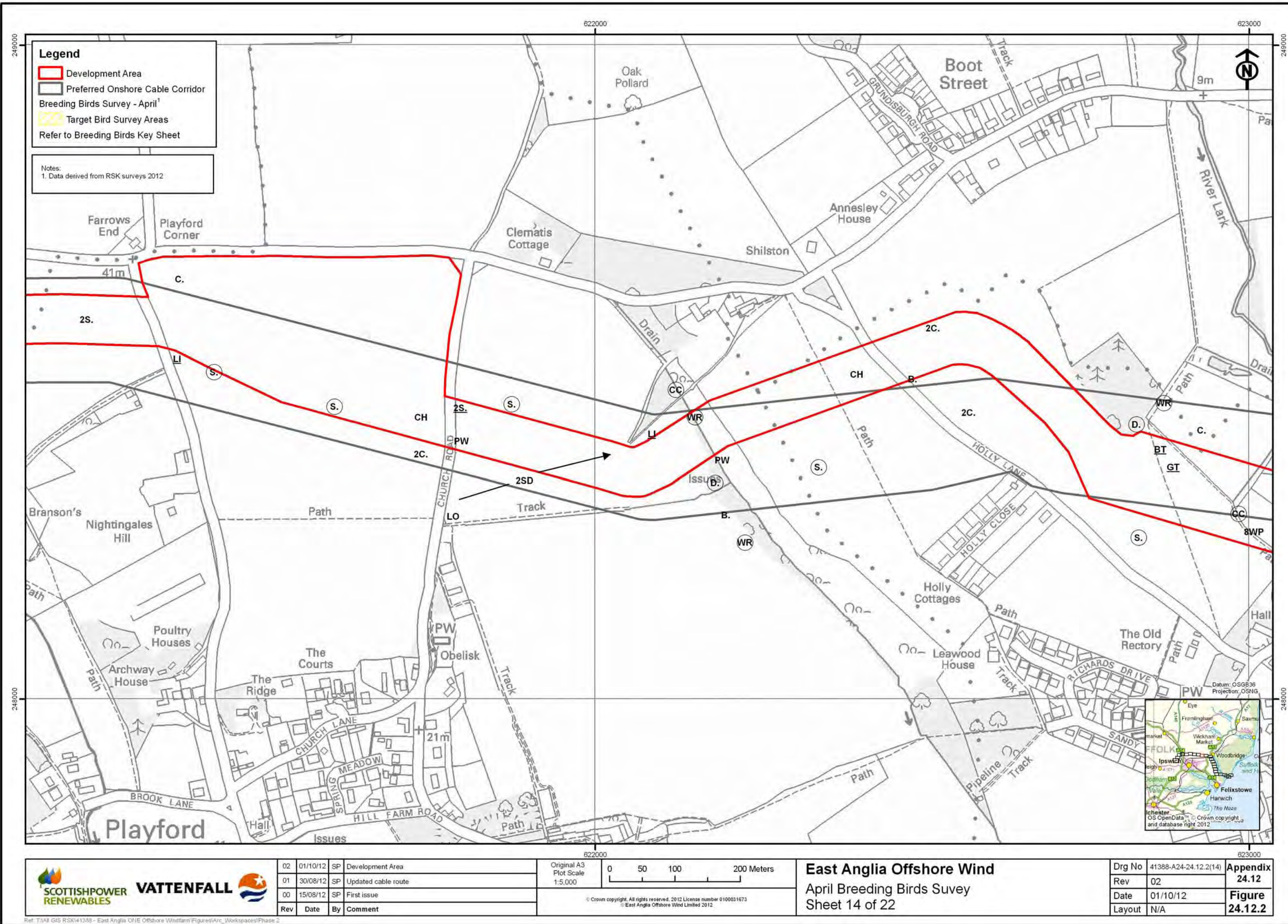
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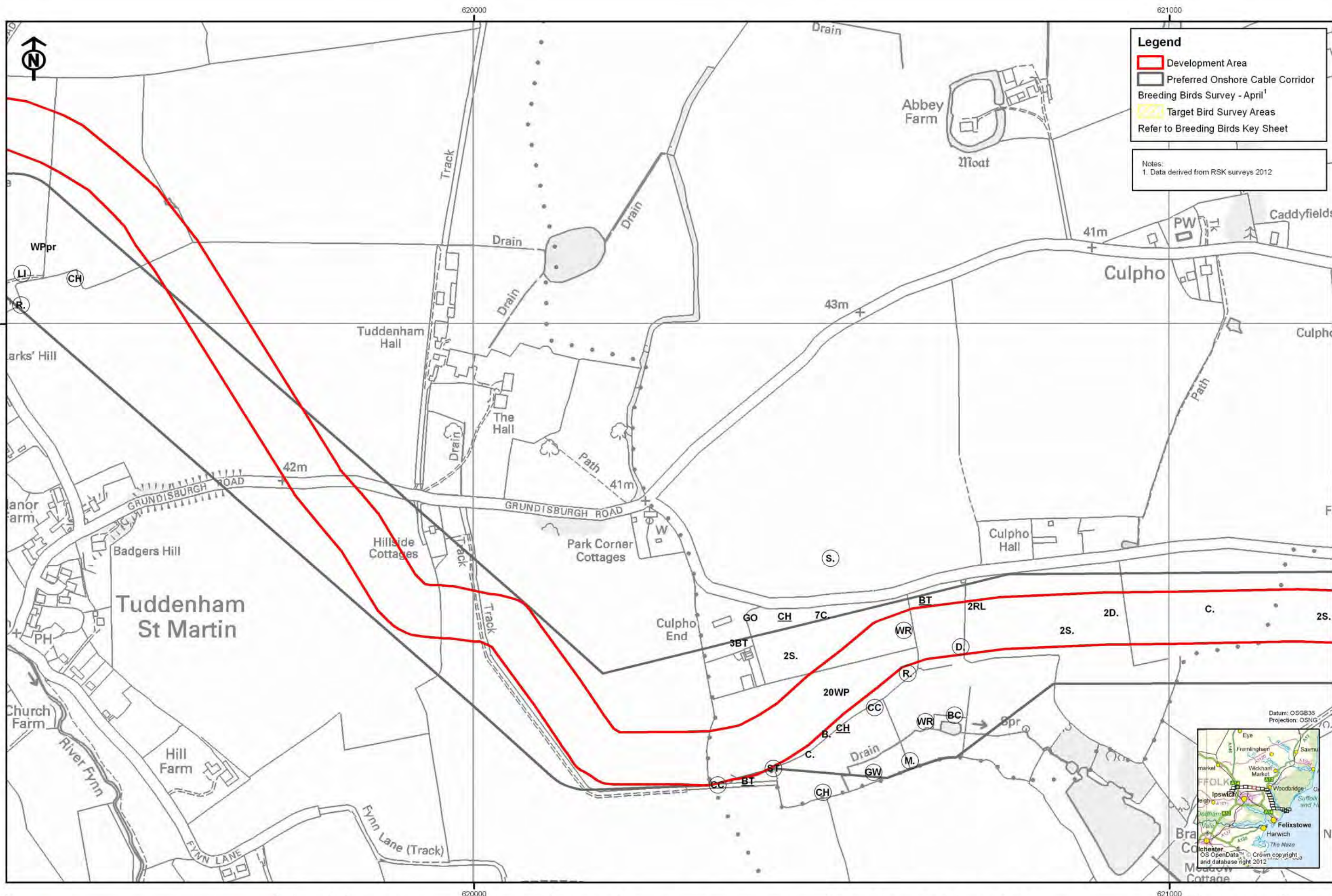
East Anglia Offshore Wind



April Breeding Birds Suvey

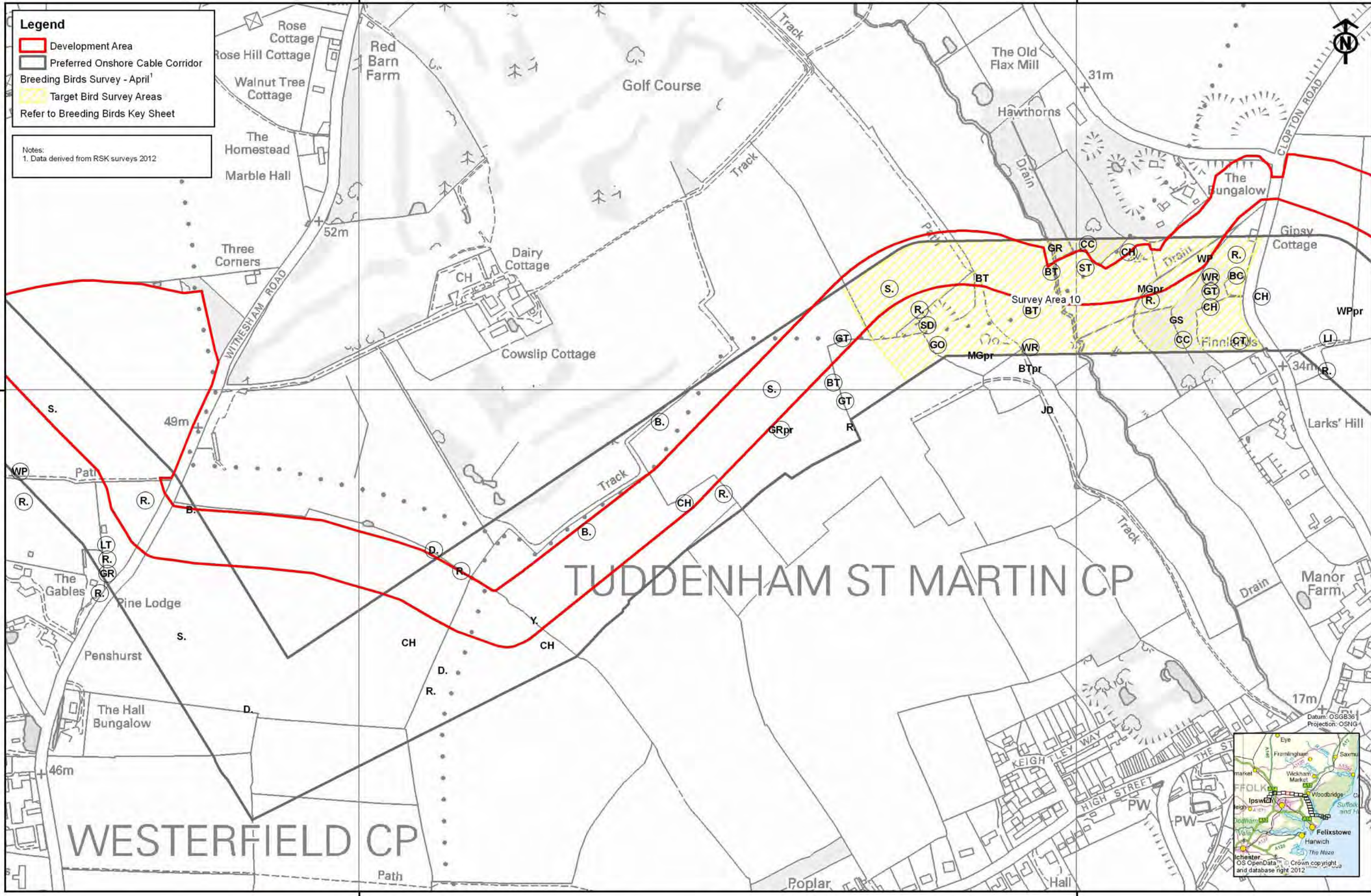
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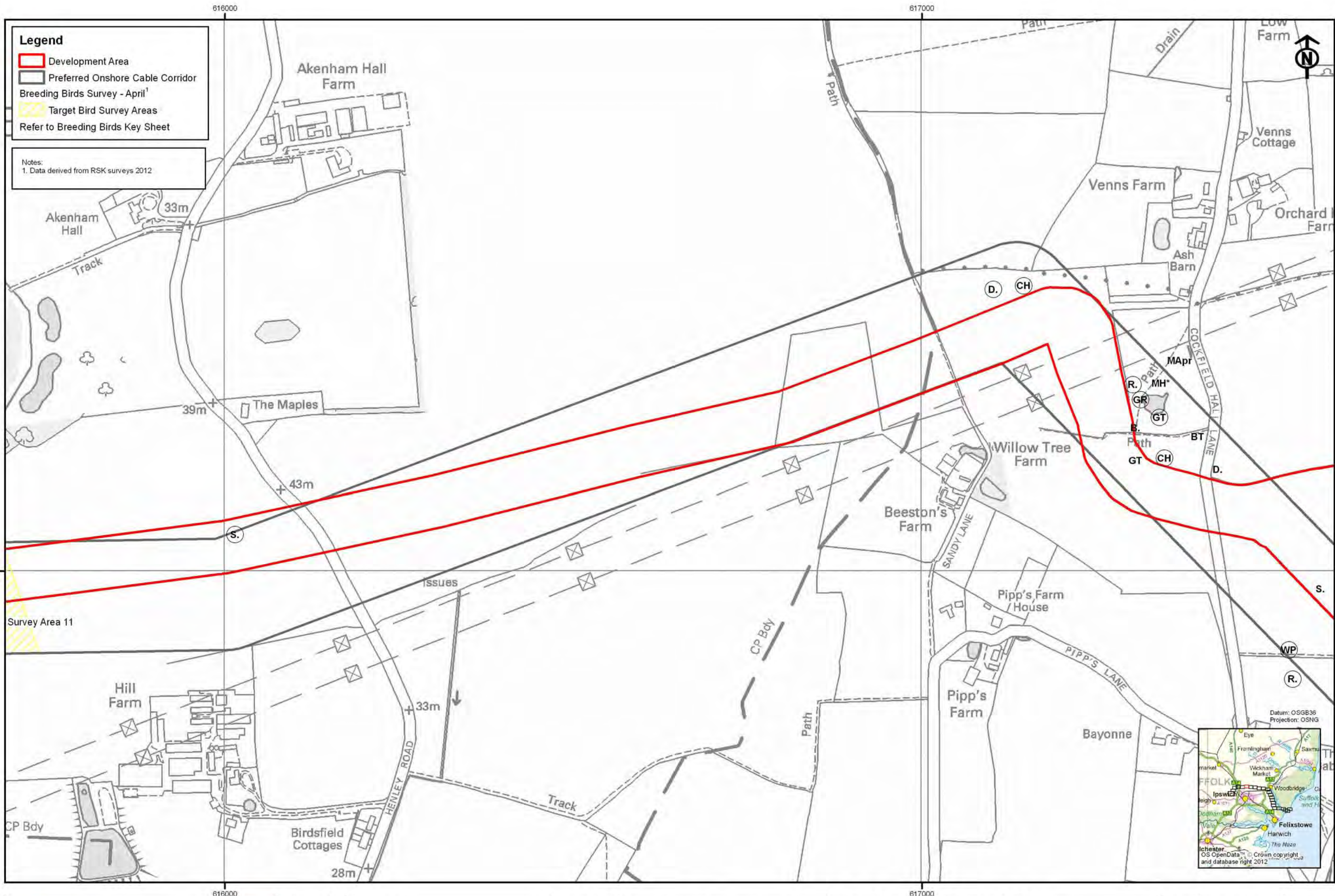
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Rev	02	
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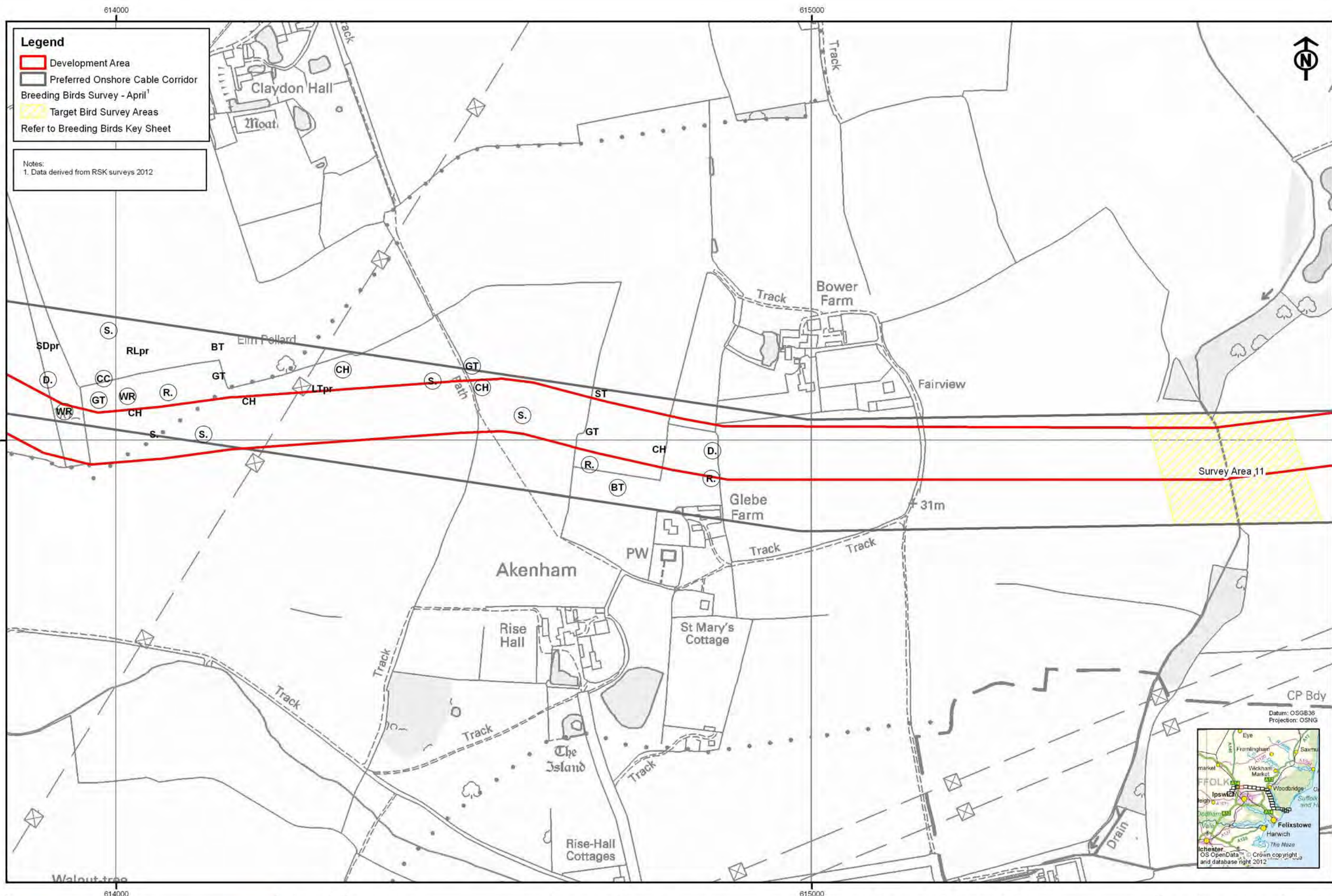


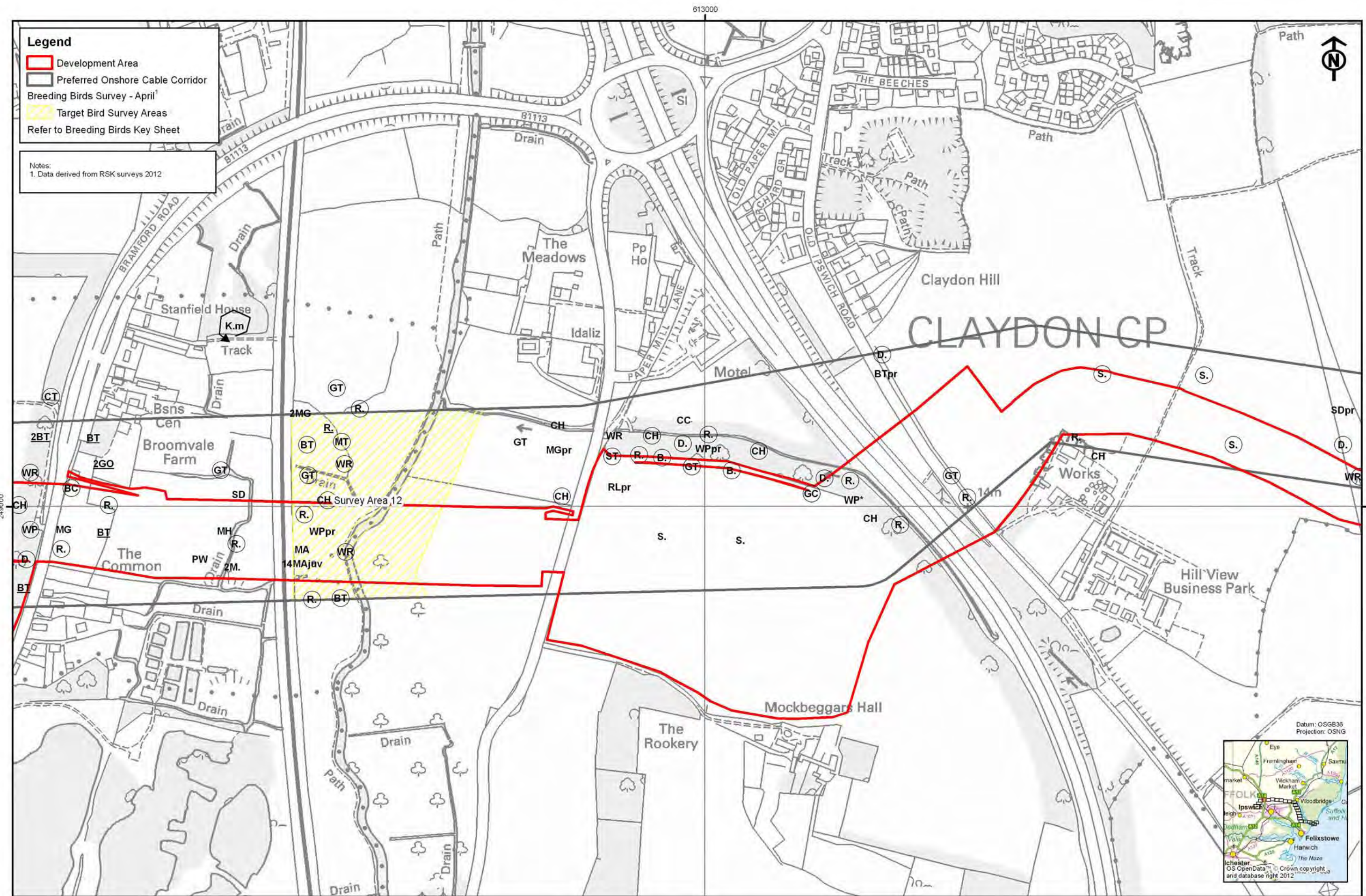


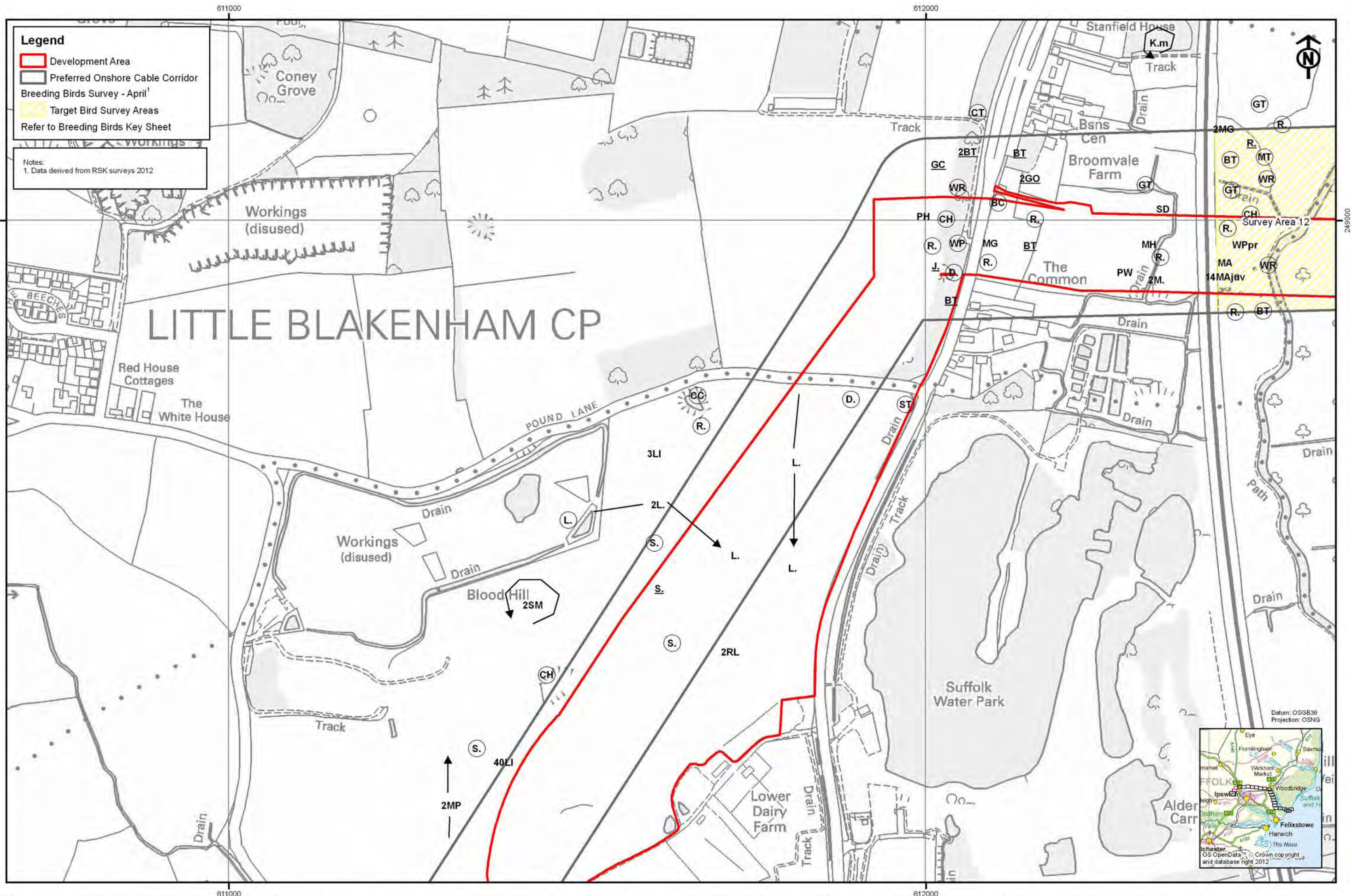
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	01	30/08/12	SP	Updated cable route				Rev	02	
	00	15/08/12	SP	First issue				Date	01/10/12	Figure 24.12.2
	Rev	Date	By	Comment	Layout	N/A				
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Legend

- Development Area
- Preferred Onshore Cable Corridor
- Breeding Birds Survey - April¹
- Target Bird Survey Areas
- Refer to Breeding Birds Key Sheet

Notes:
1. Data derived from RSK surveys 2012



02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

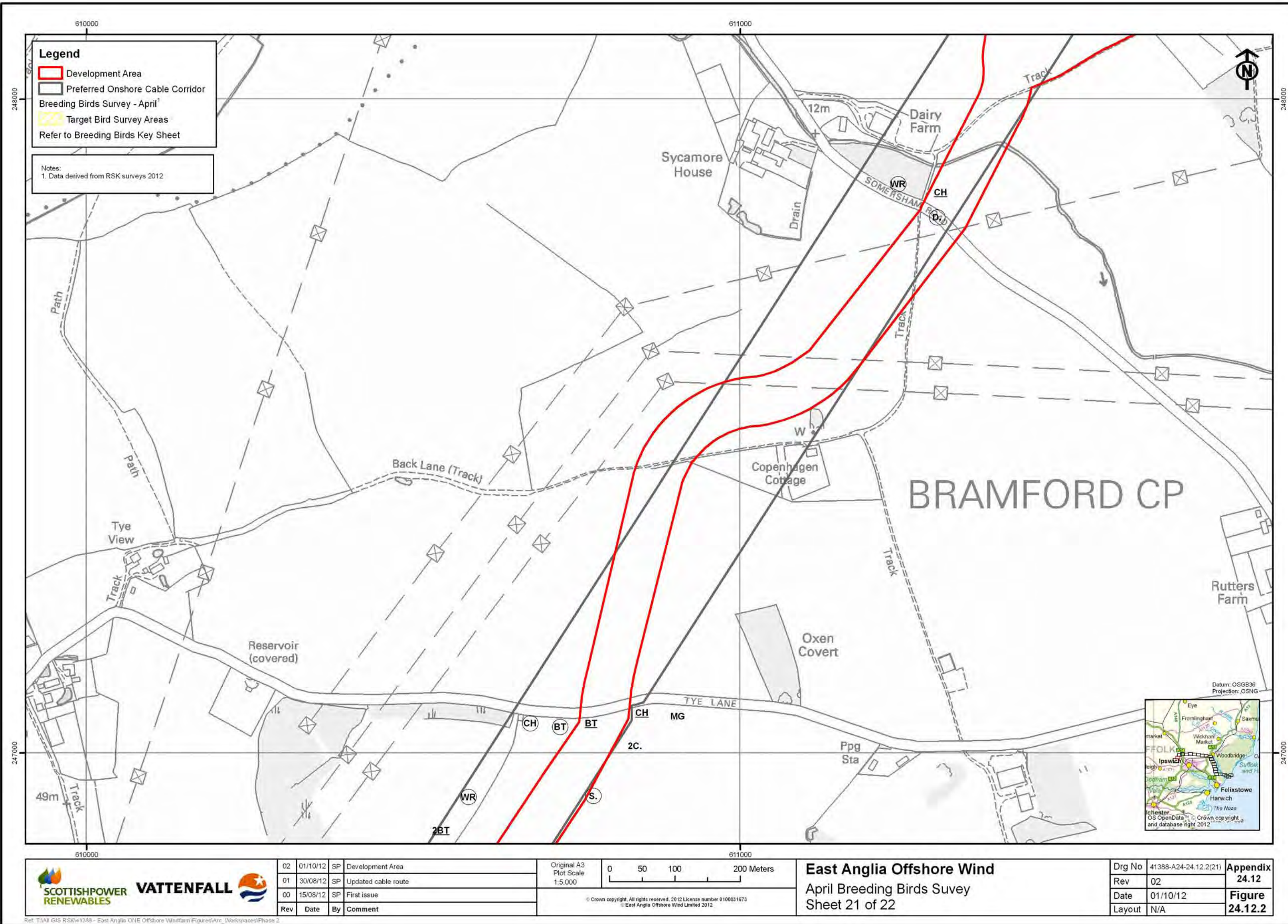
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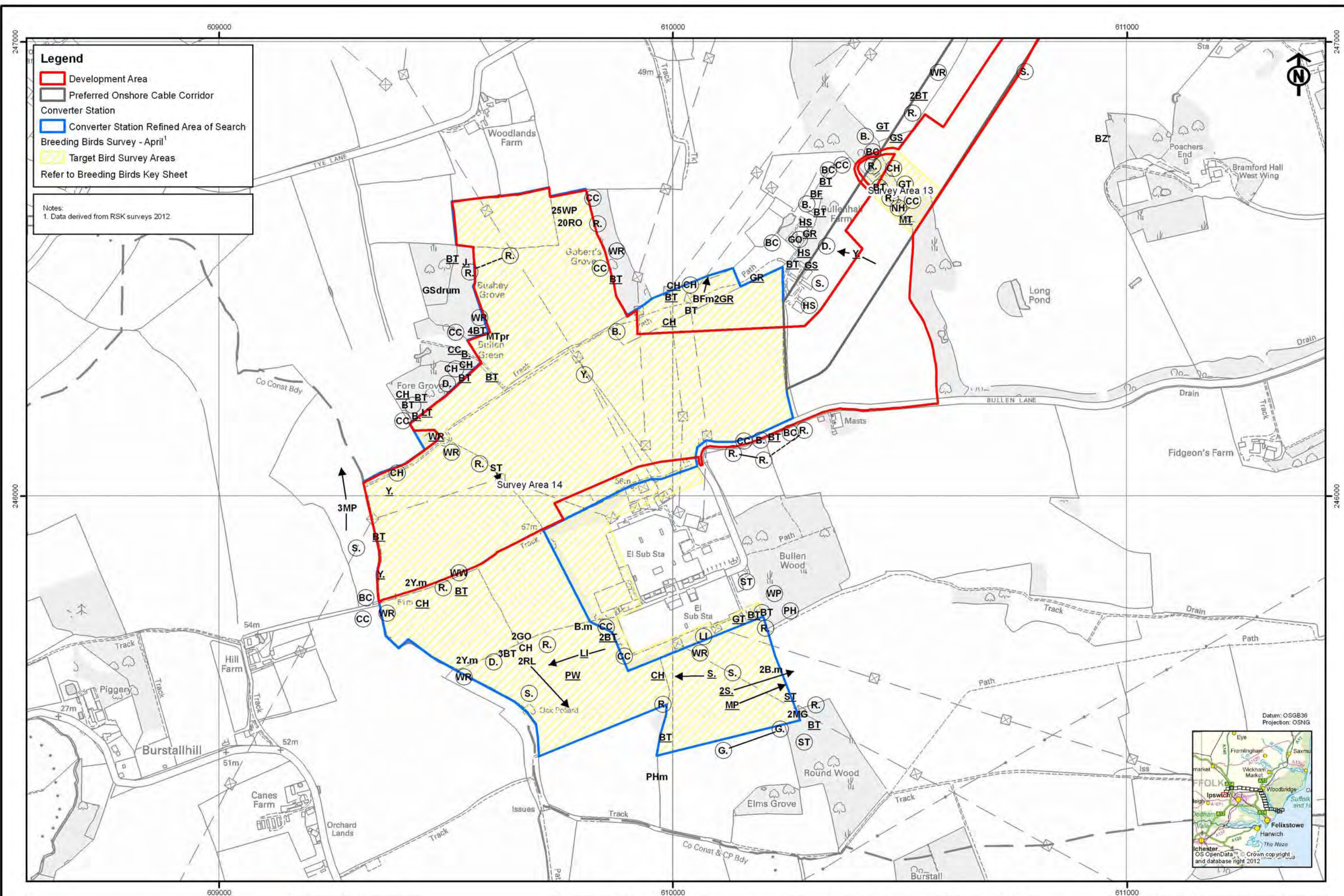
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East Anglia Offshore Wind
April Breeding Birds Suvey
Sheet 20 of 22

Drg No	41388-A24-24.12.2(20)	Appendix 24.12
Rev	02	
Date	01/10/12	Figure 24.12.2
Layout	N/A	







02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

Original A3 Plot Scale 1:7,500

0

75

150

300 Meters

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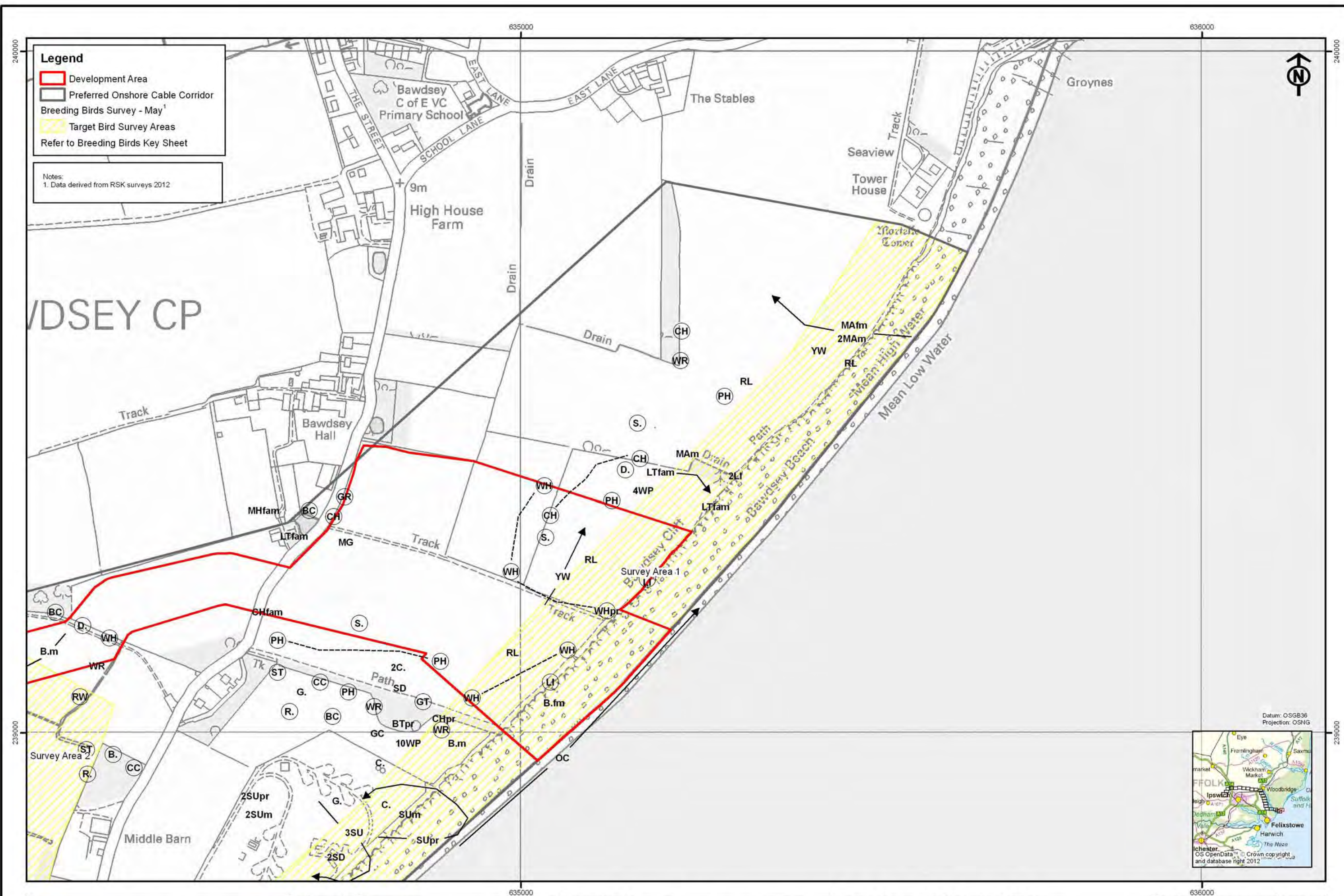
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April Breeding Birds Suvey

Sheet 22 of 22

Drg No	41388-A24-24.12.2(22)	Appendix 24.12
Rev	02	
Date	01/10/12	Figure 24.12.2
Layout	N/A	



Legend

- Development Area
- Preferred Onshore Cable Corridor
- Breeding Birds Survey - May¹
- Target Bird Survey Areas
- Refer to Breeding Birds Key Sheet

Notes:

1. Data derived from RSK surveys 2012



02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

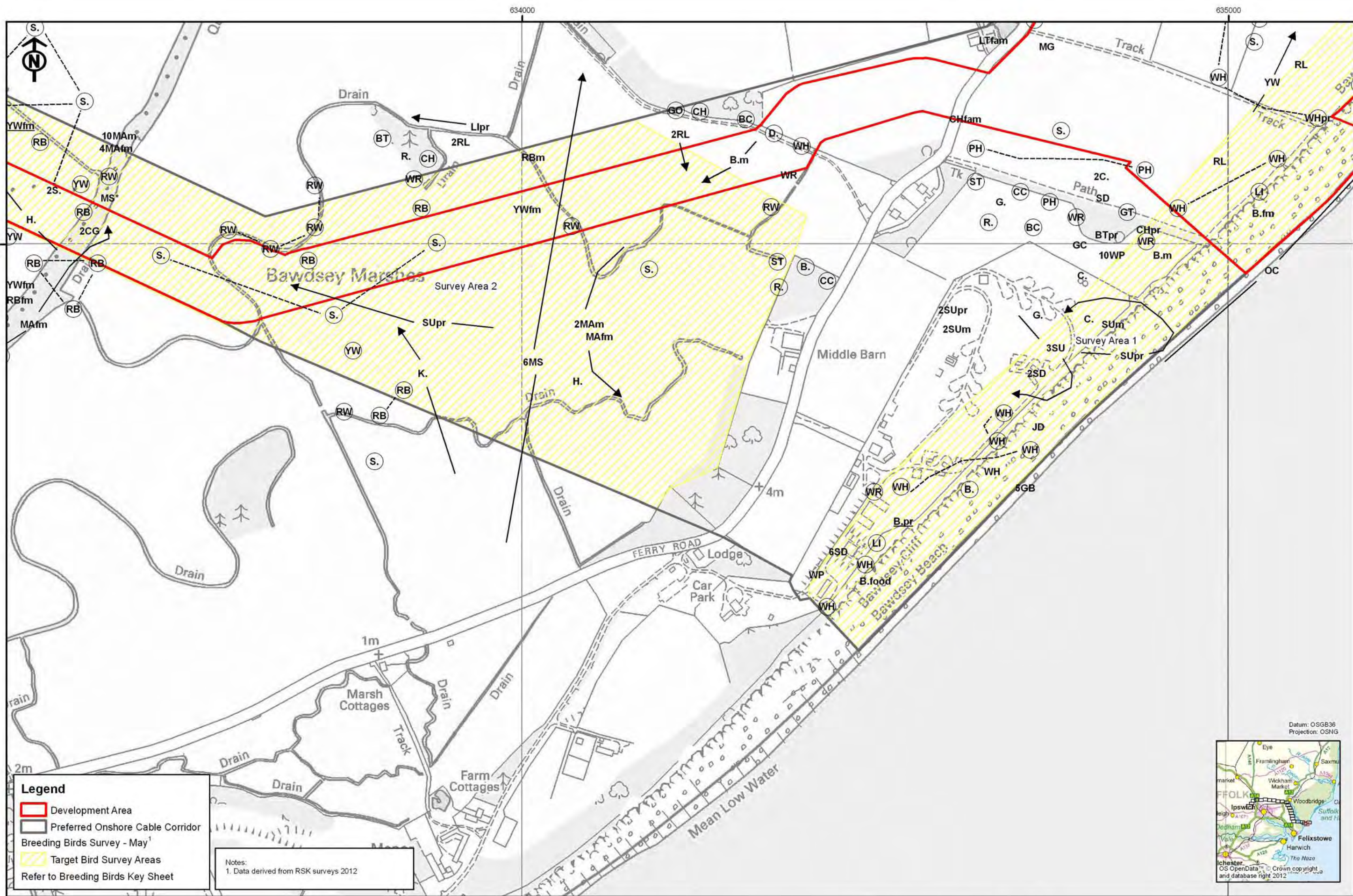
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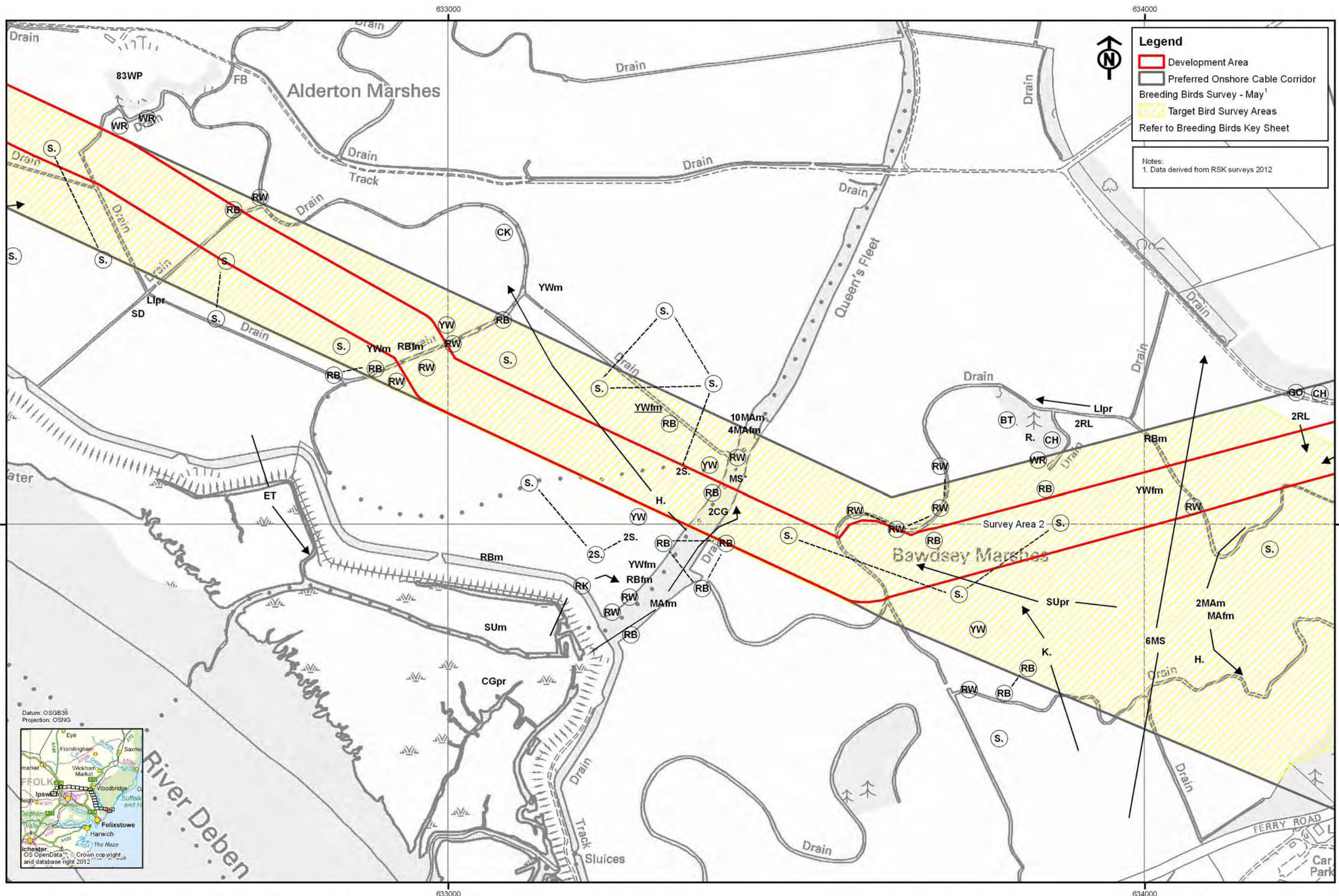
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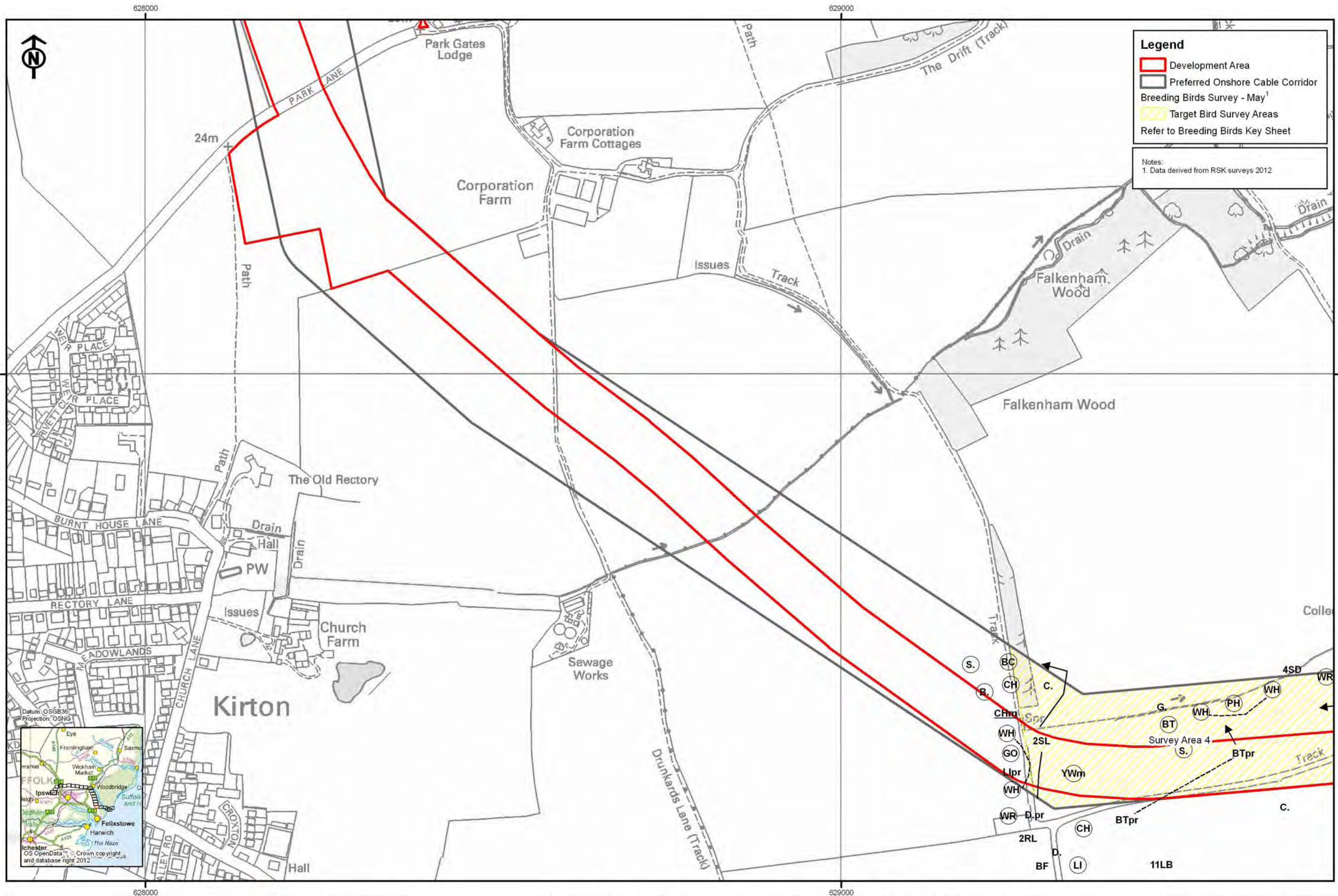
East Anglia Offshore Wind
May Breeding Birds Survey
Sheet 1 of 22

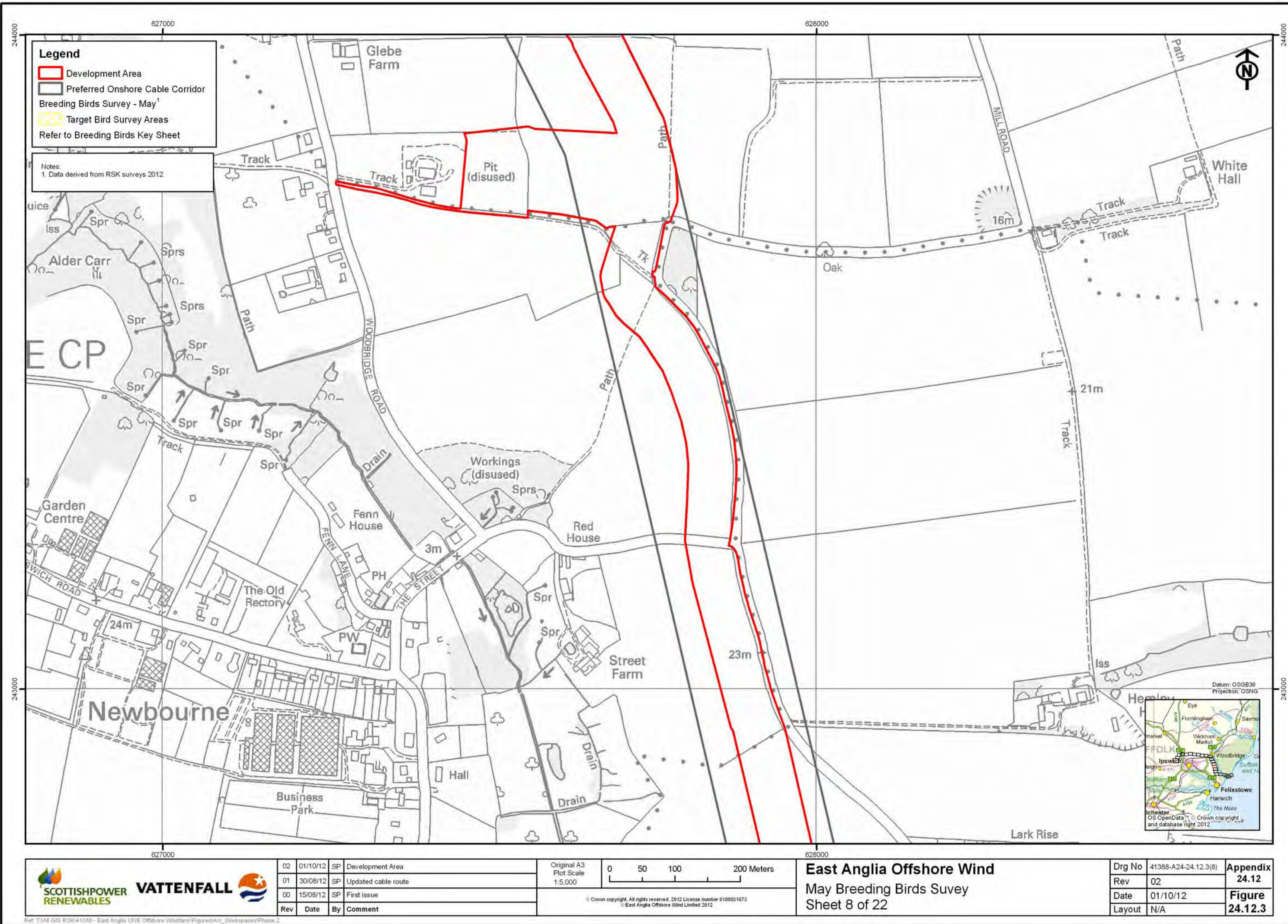
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Rev	02	
Date	01/10/12	Figure 24.12.3
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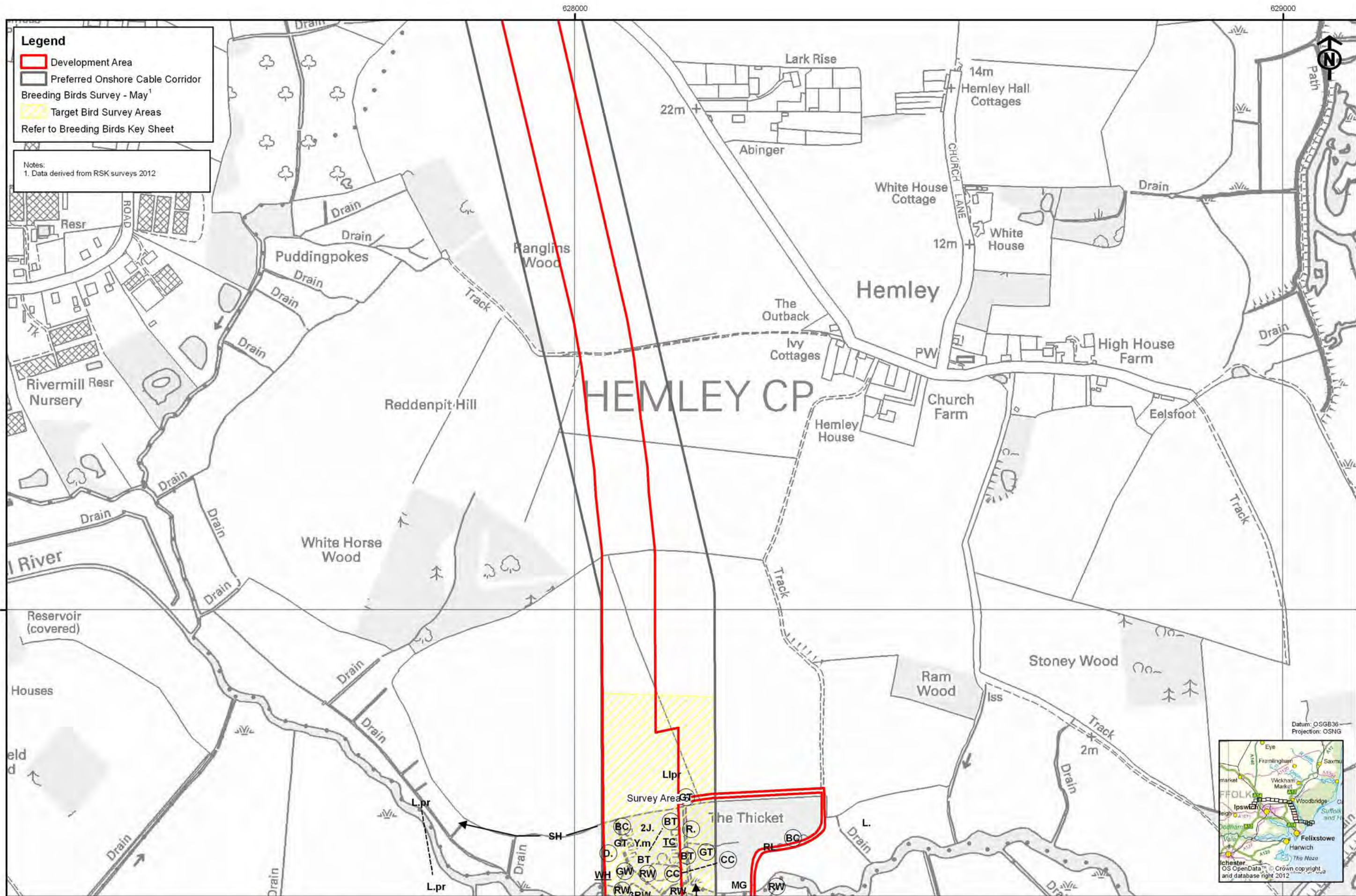


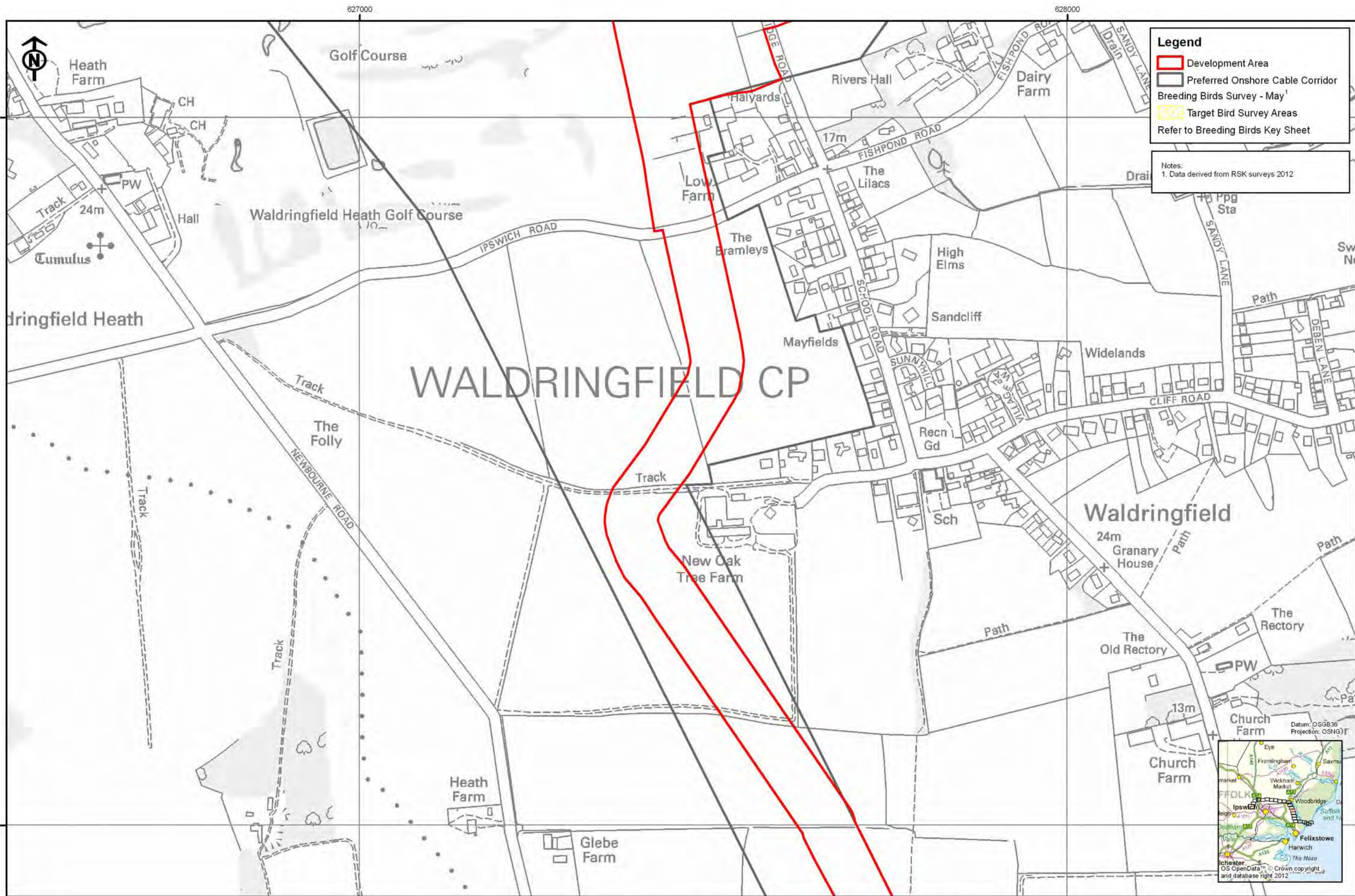


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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment









Legend

- Development Area
- Preferred Onshore Cable Corridor
- Breeding Birds Survey - May¹
- Target Bird Survey Areas
- Refer to Breeding Birds Key Sheet

Notes:
1. Data derived from RSK surveys 2012

SCOTTISHPOWER RENEWABLES **VATTENFALL**

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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

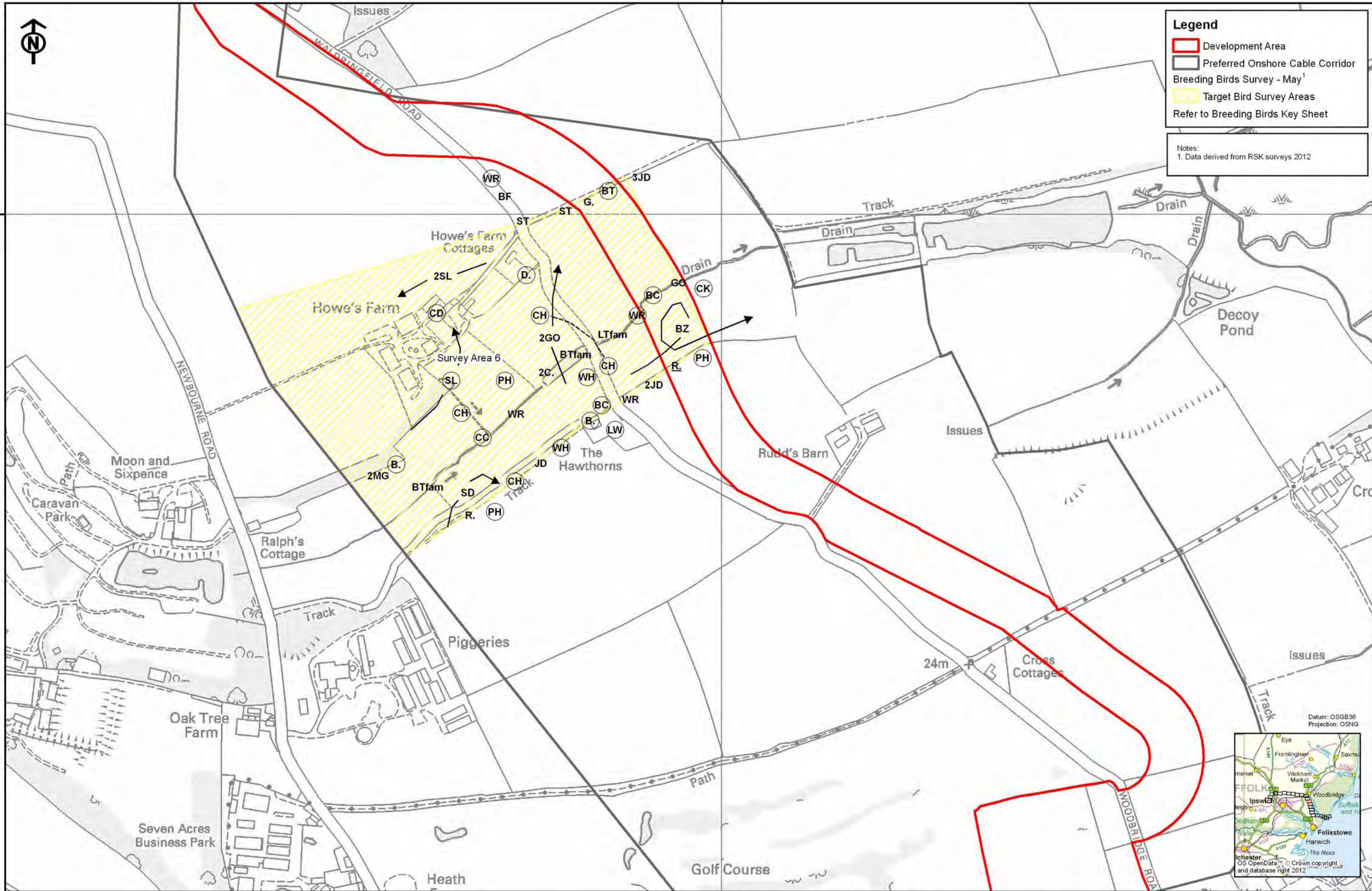
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0 50 100 200 Meters

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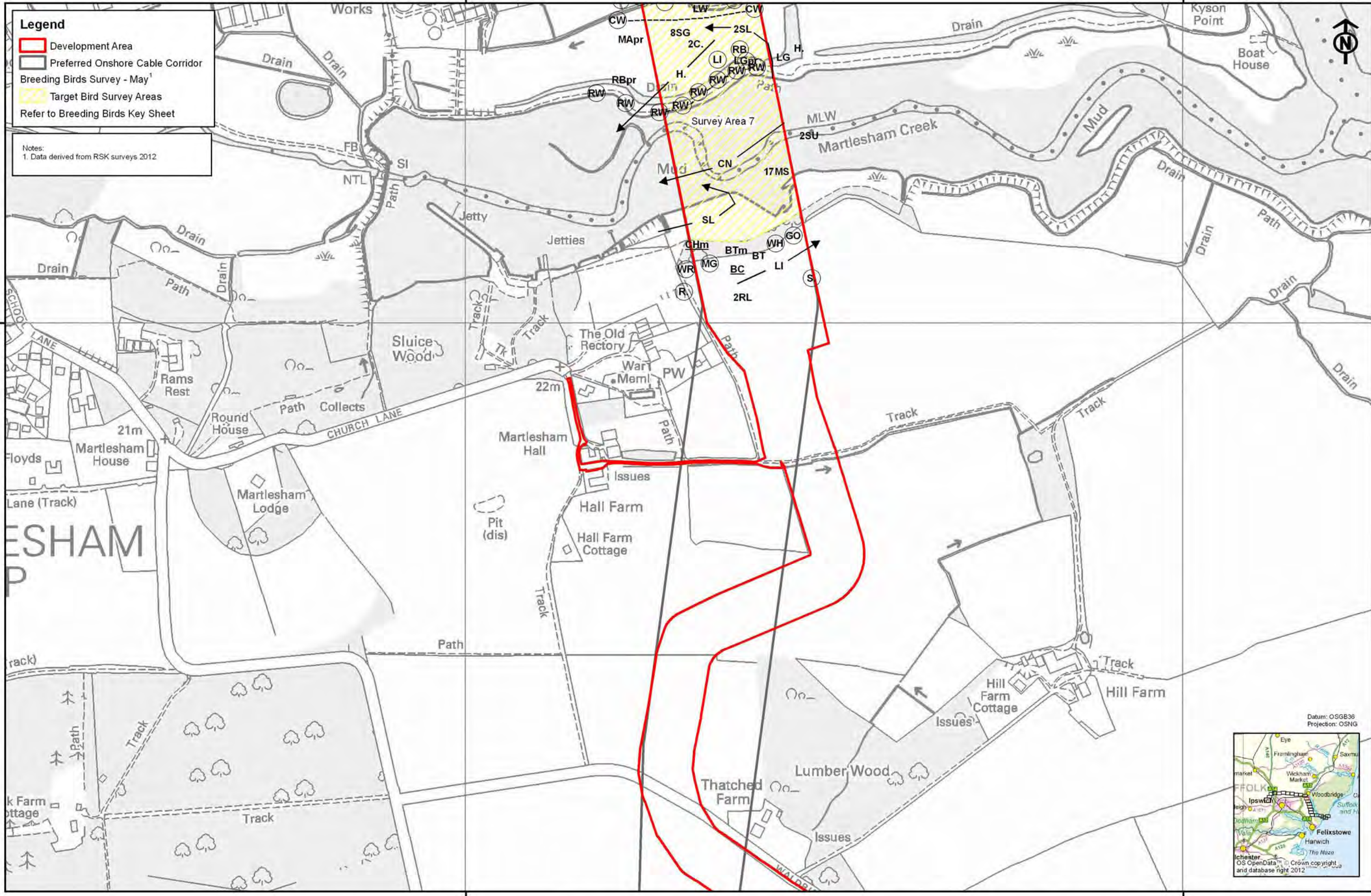
East Anglia Offshore Wind
May Breeding Birds Suvey
Sheet 9 of 22

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Rev	02	
Date	01/10/12	Figure 24.12.3
Layout	N/A	



02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

Drg No	41388-A24-24.12.3(10)	Appendix 24.12
Rev	02	
Date	01/10/12	Figure 24.12.3
Layout	N/A	





02	01/10/12	SP	Development Area
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00	15/08/12	SP	First issue
Rev	Date	By	Comment

Original A3 Plot Scale 1:5,000

050100200

Meters

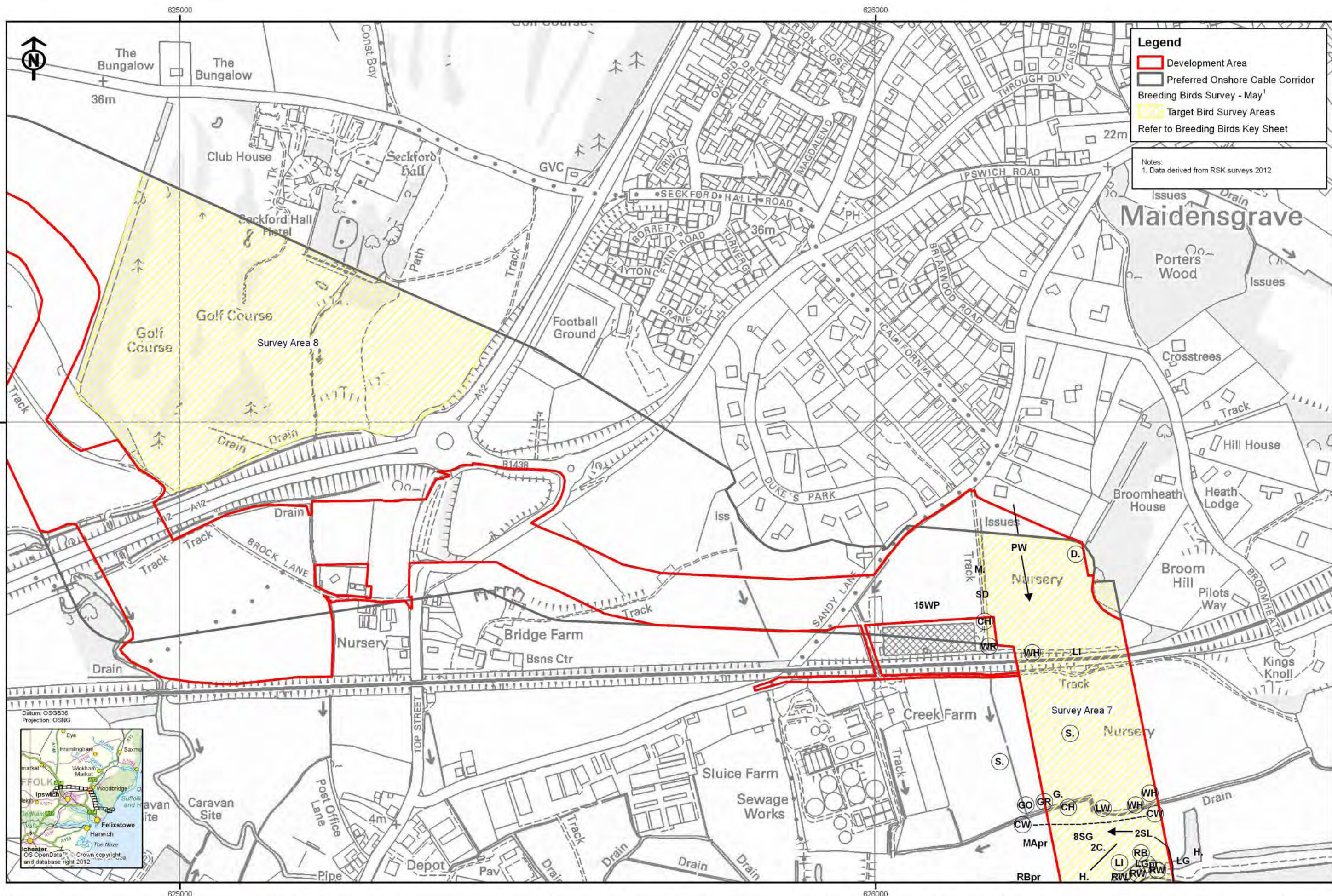
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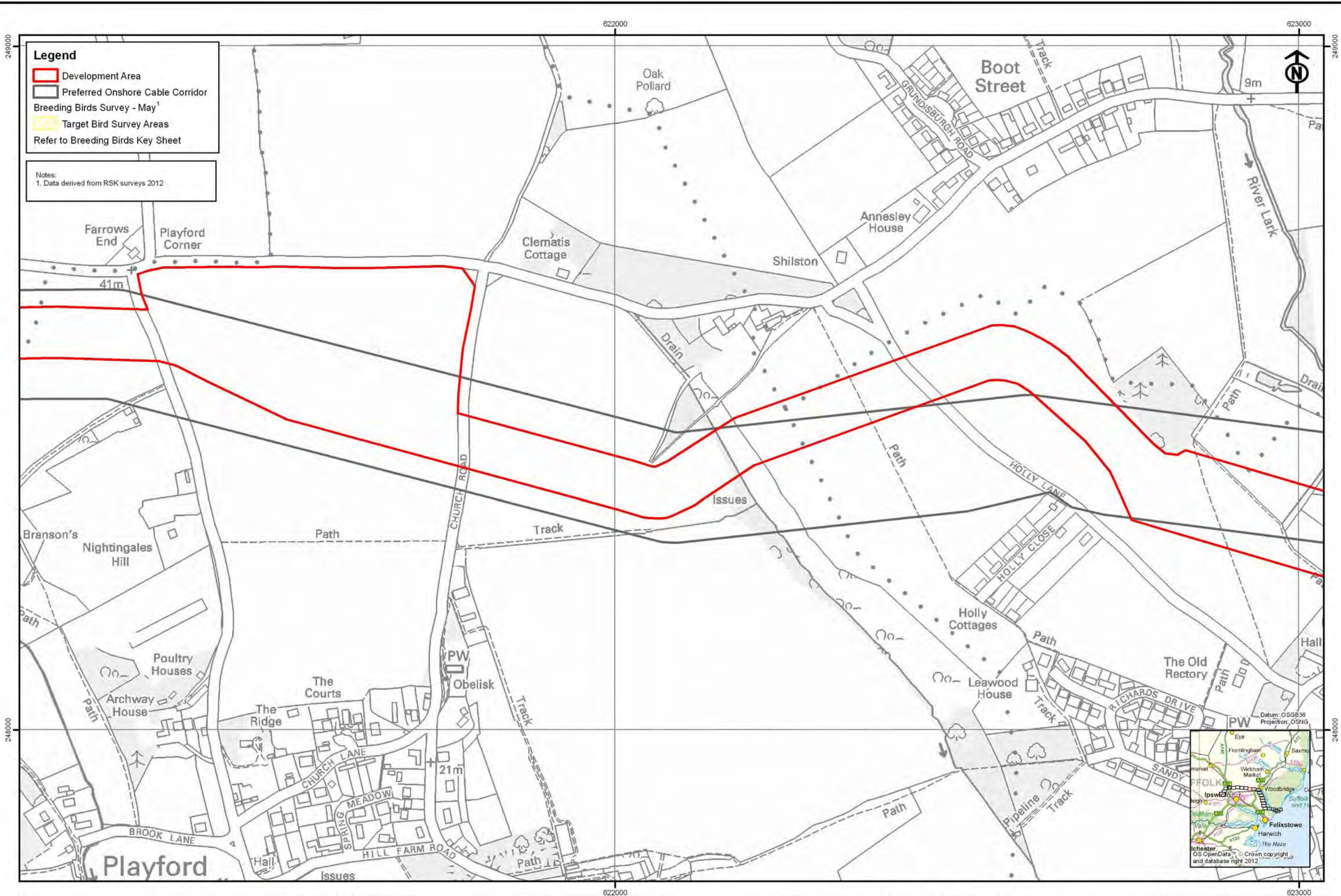
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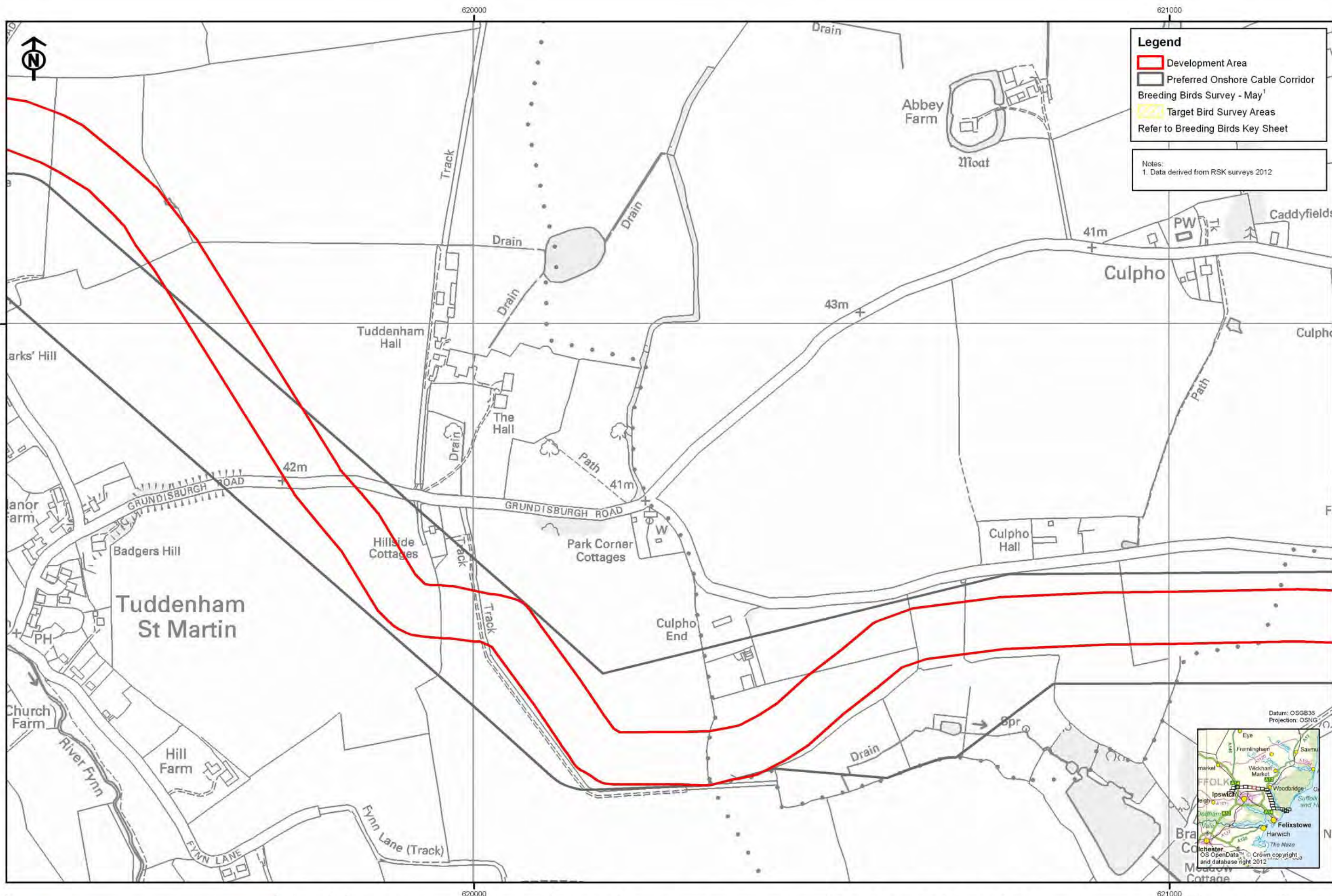
May Breeding Birds Suvey

Sheet 11 of 22

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Rev	02	
Date	01/10/12	Figure 24.12.3
Layout	N/A	

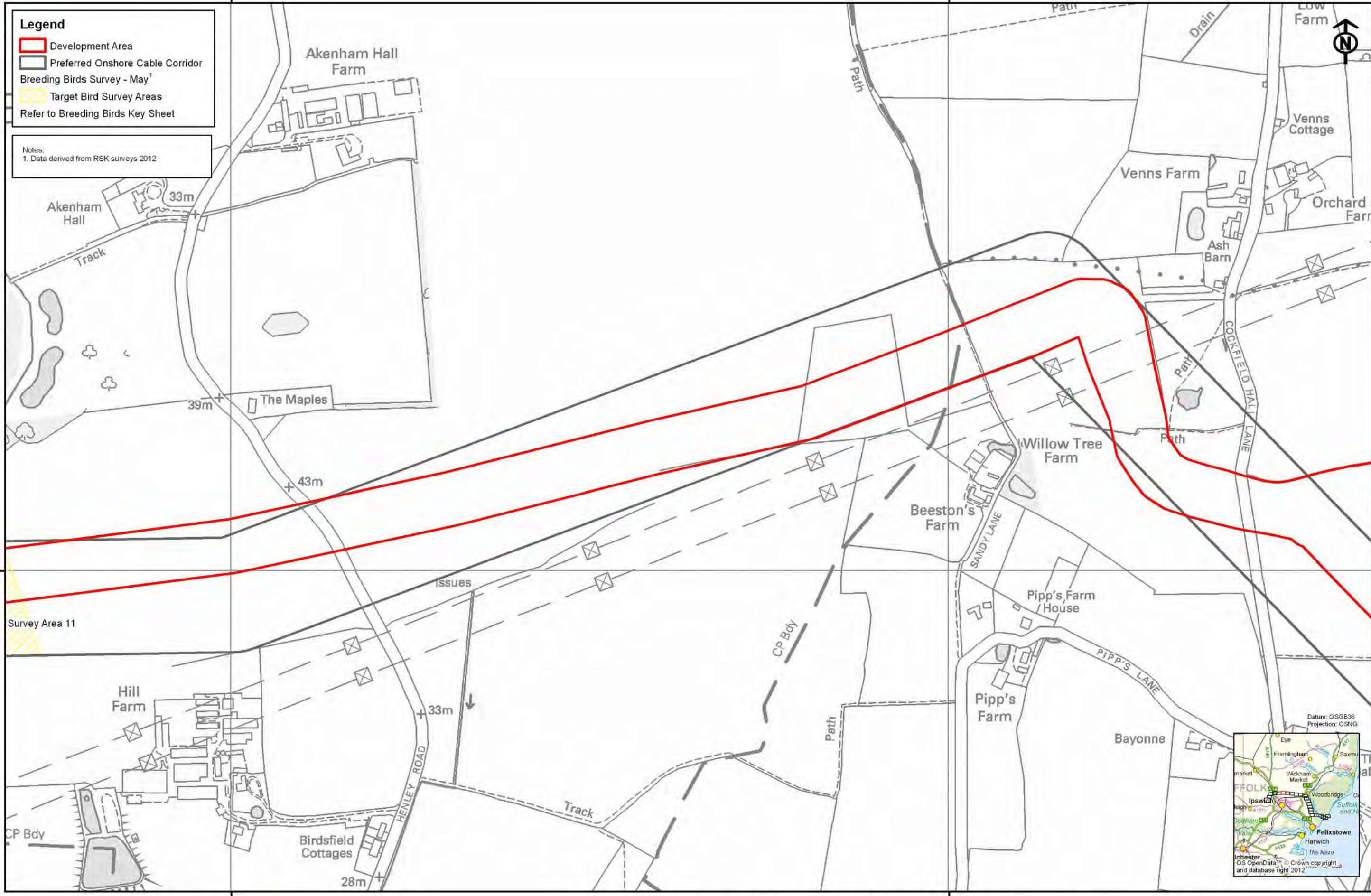






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00	15/08/12	SP	First issue
Rev	Date	By	Comment

Drg No	41388-A24-24.12.3(15)	Appendix
Rev	02	24.12
Date	01/10/12	Figure
Layout	N/A	24.12.3



Legend

- Development Area
- Preferred Onshore Cable Corridor
- Breeding Birds Survey - May¹
- Target Bird Survey Areas
- Refer to Breeding Birds Key Sheet

Notes:
1. Data derived from RSK surveys 2012

 **VATTENFALL** 

02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

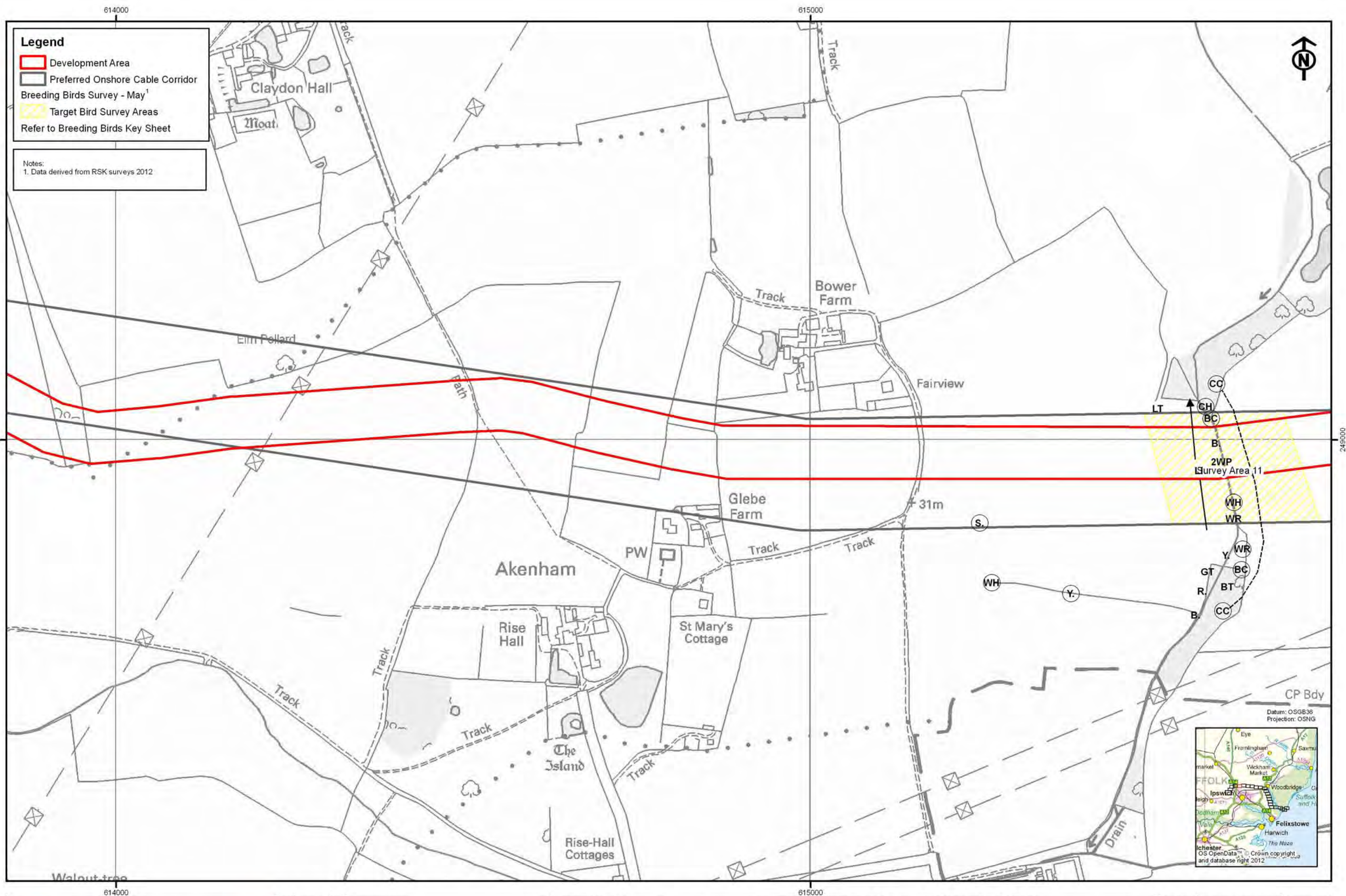
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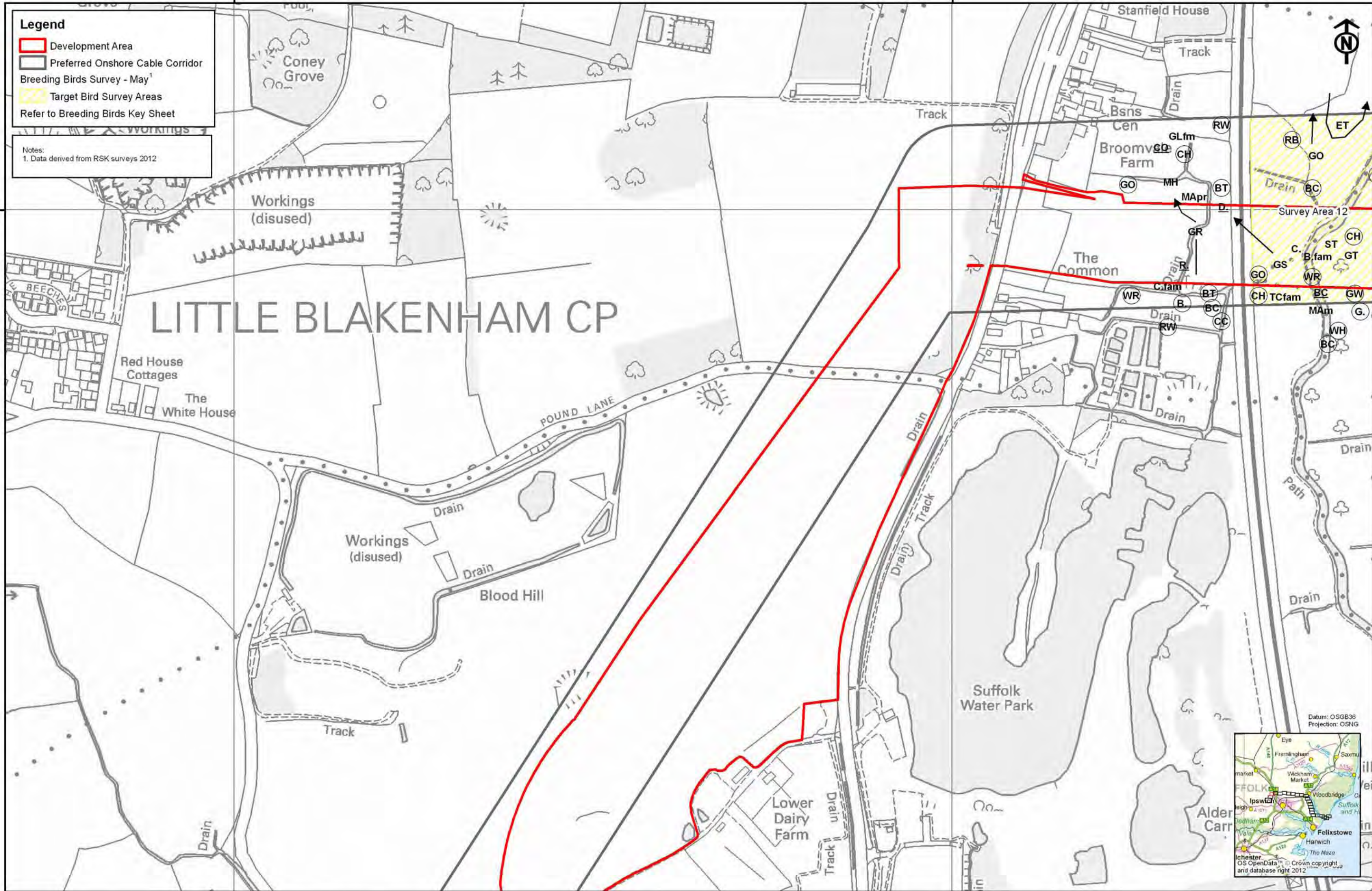
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East Anglia Offshore Wind
May Breeding Birds Survey
Sheet 17 of 22

Drg No	41388-A24-24.12.3(17)	Appendix 24.12
Rev	02	
Date	01/10/12	Figure 24.12.3
Layout	N/A	





Legend

- Development Area
- Preferred Onshore Cable Corridor
- Breeding Birds Survey - May¹
- Target Bird Survey Areas
- Refer to Breeding Birds Key Sheet

Notes:

1. Data derived from RSK surveys 2012



SCOTTISHPOWER RENEWABLES

VATTENFALL

02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

Original A3 Plot Scale 1:5,000

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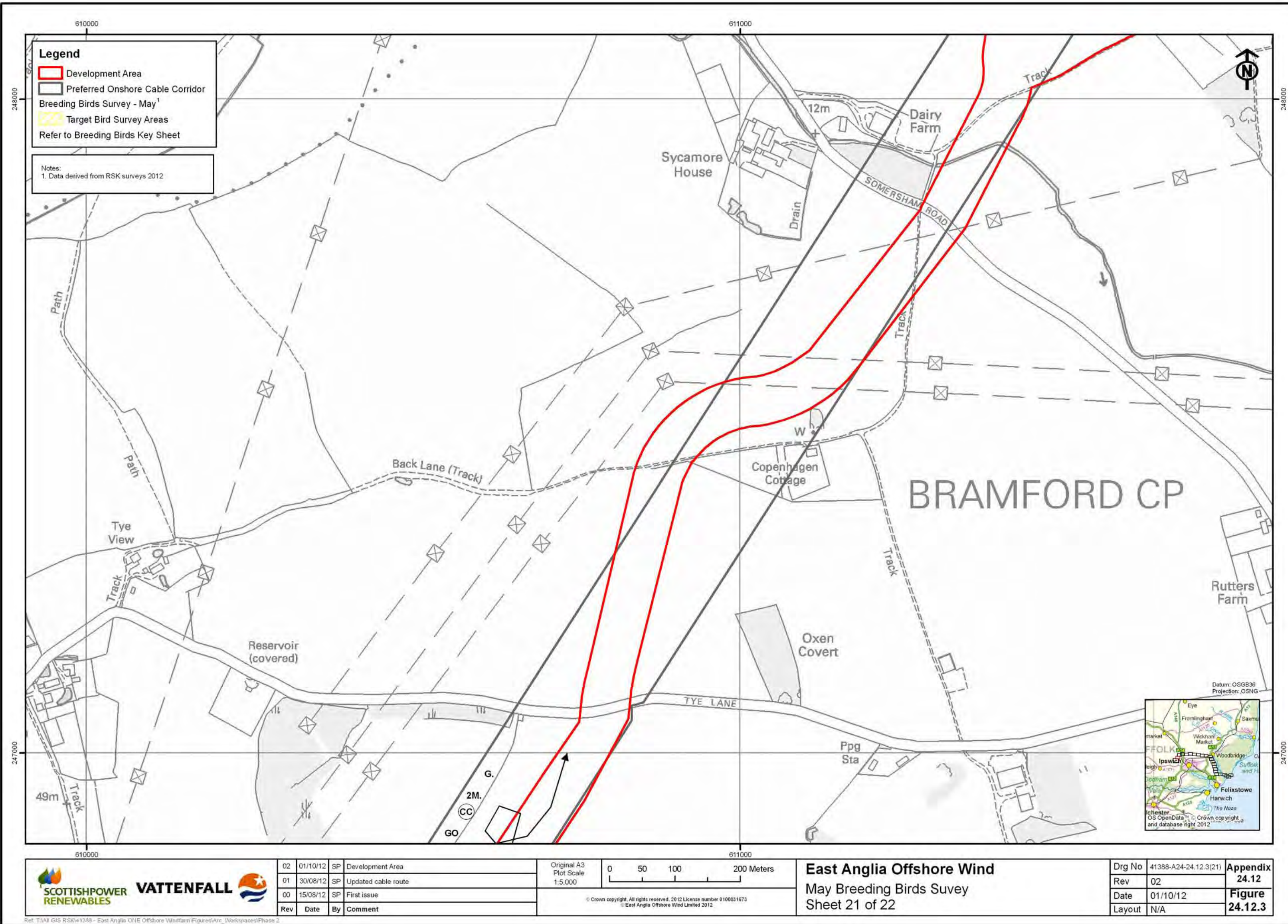
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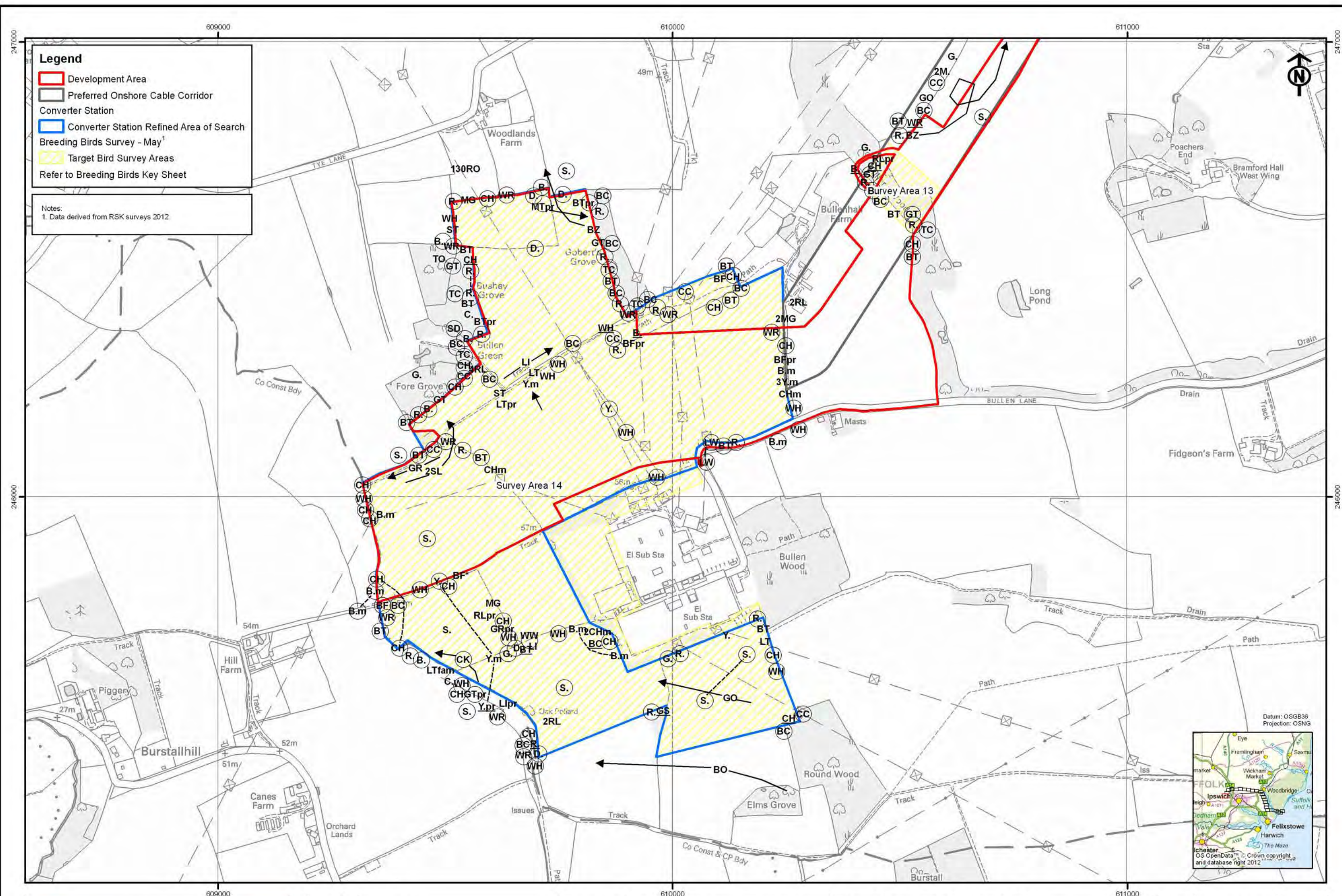
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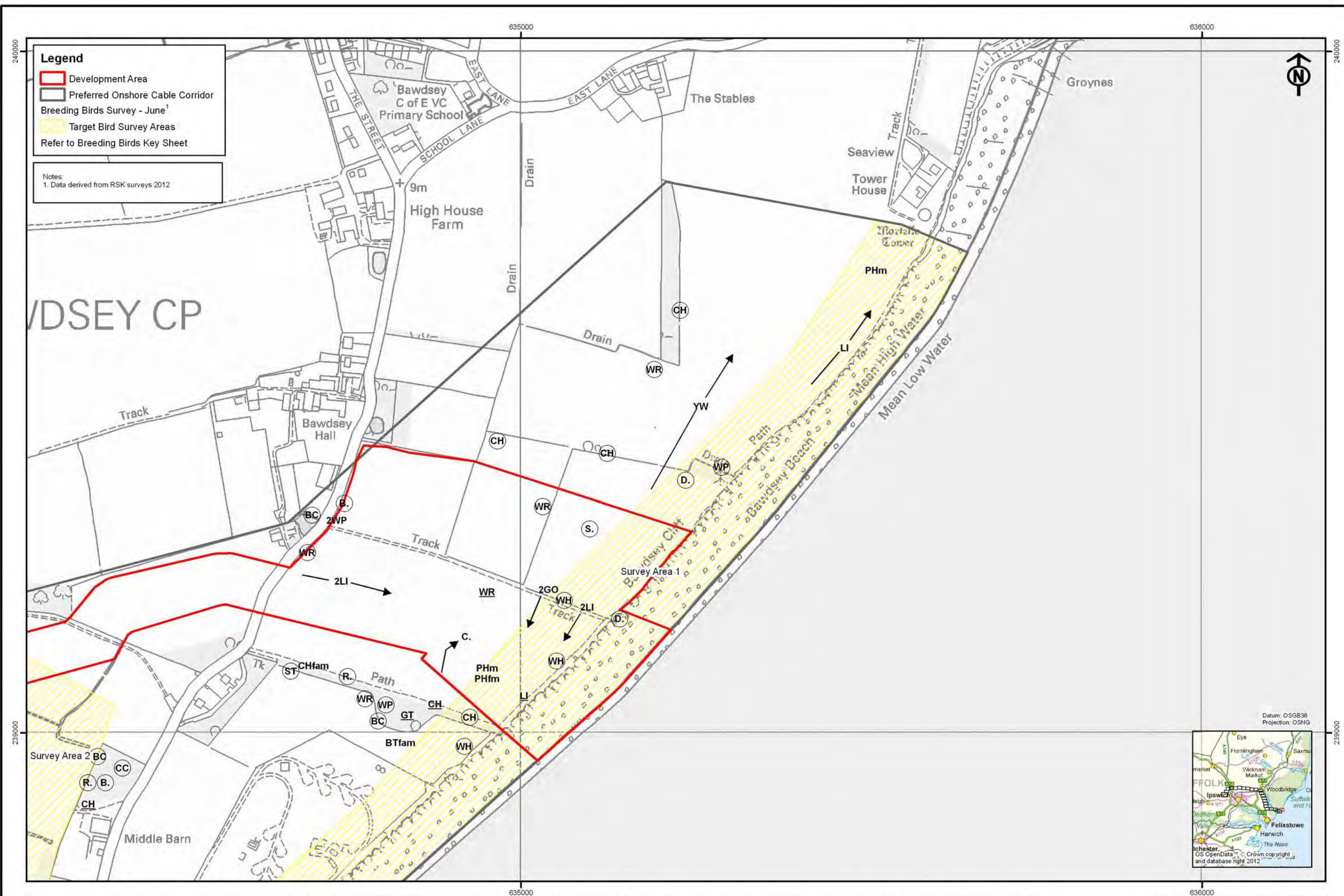
May Breeding Birds Suvey

Sheet 20 of 22

Drg No	41388-A24-24.12.3(20)	Appendix 24.12
Rev	02	
Date	01/10/12	Figure 24.12.3
Layout	N/A	









02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

Original A3 Plot Scale 1:5,000

0

50

100

200 Meters

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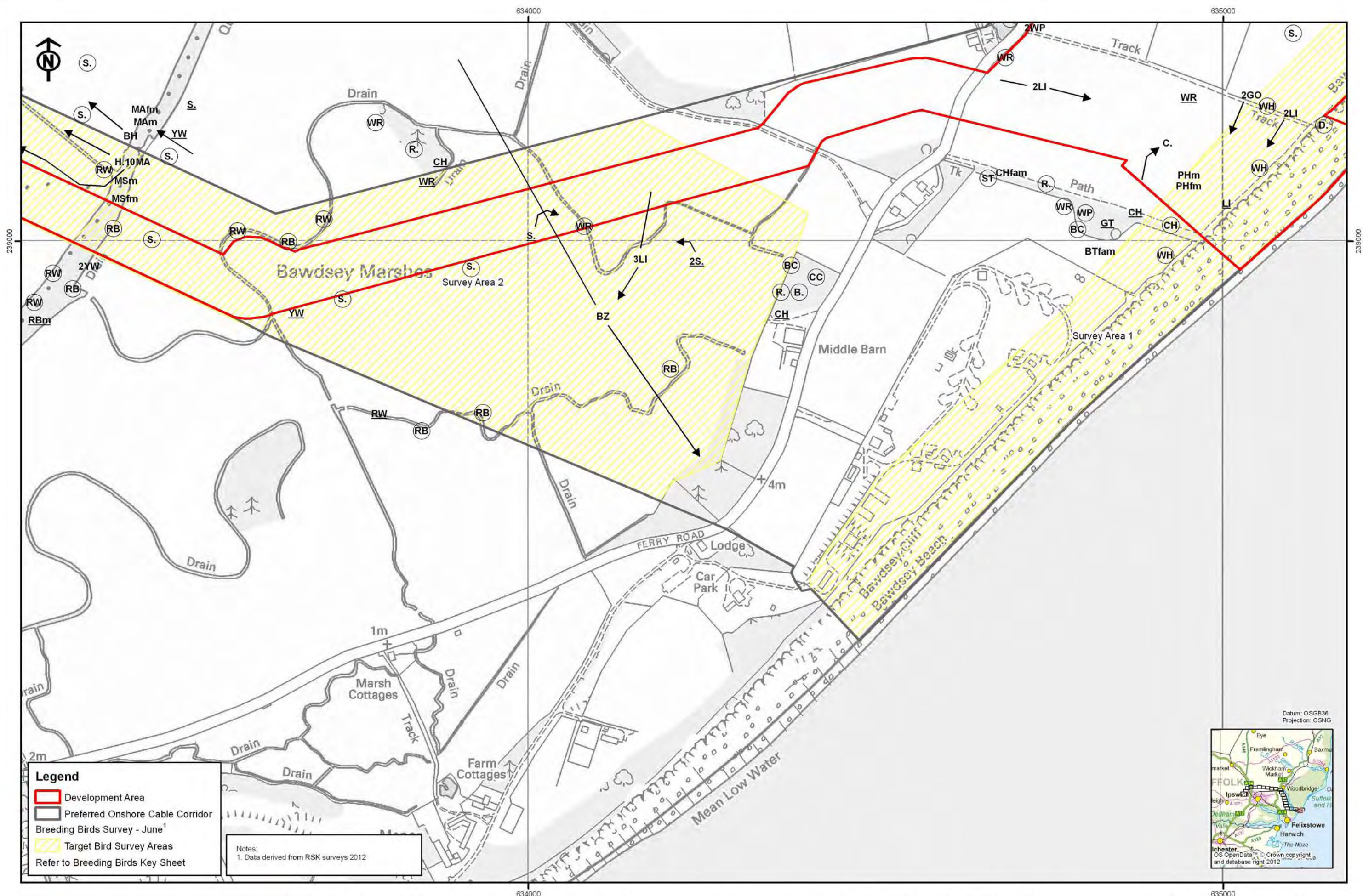
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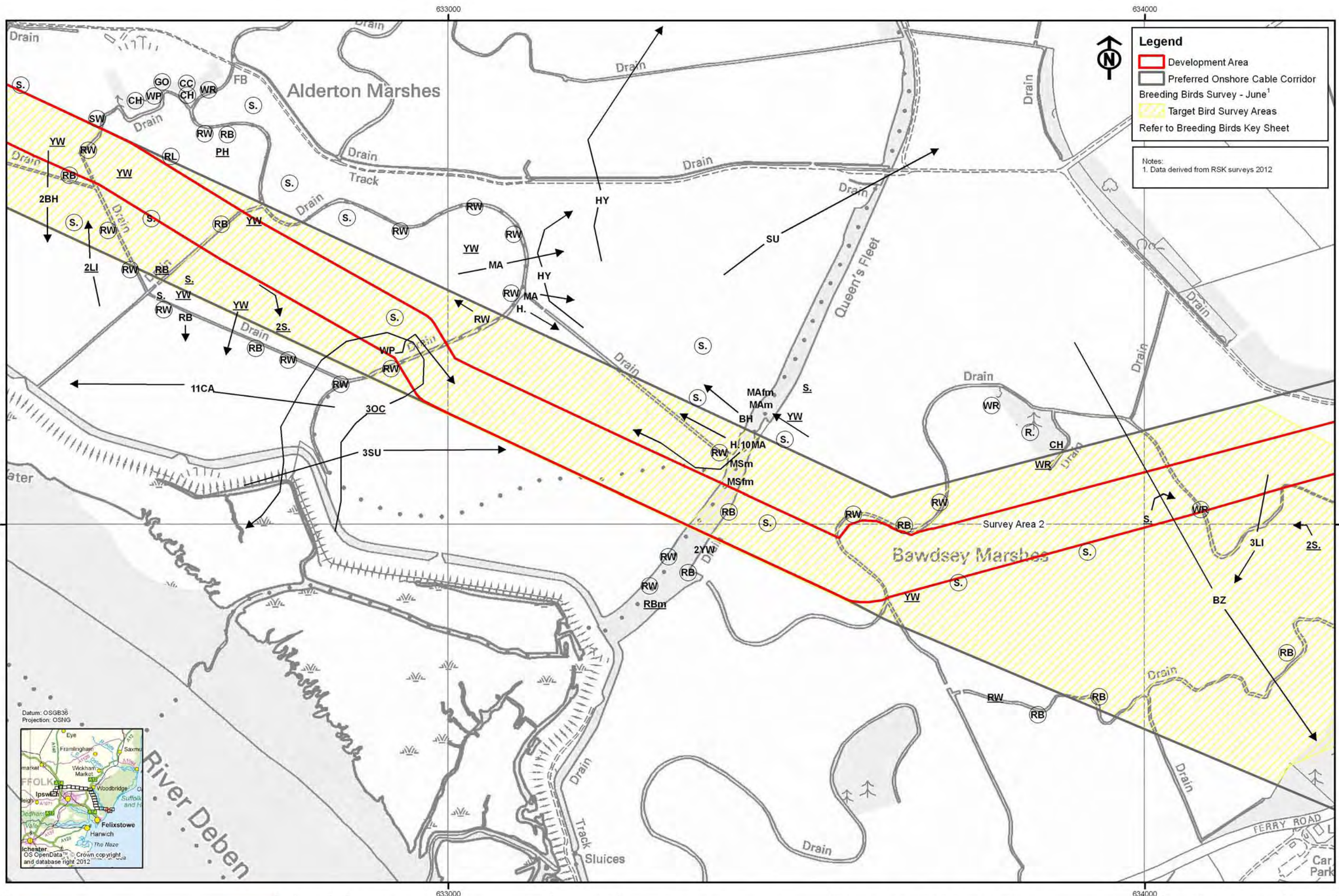
East Anglia Offshore Wind

June Breeding Birds Survey

Sheet 1 of 22

Drg No	41388-A24-24.12.4(1)	Appendix 24.12
Rev	02	
Date	01/10/12	Figure 24.12.4
Layout	N/A	







02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

Original A3 Plot Scale 1:5,000

0

50

100

200 Meters

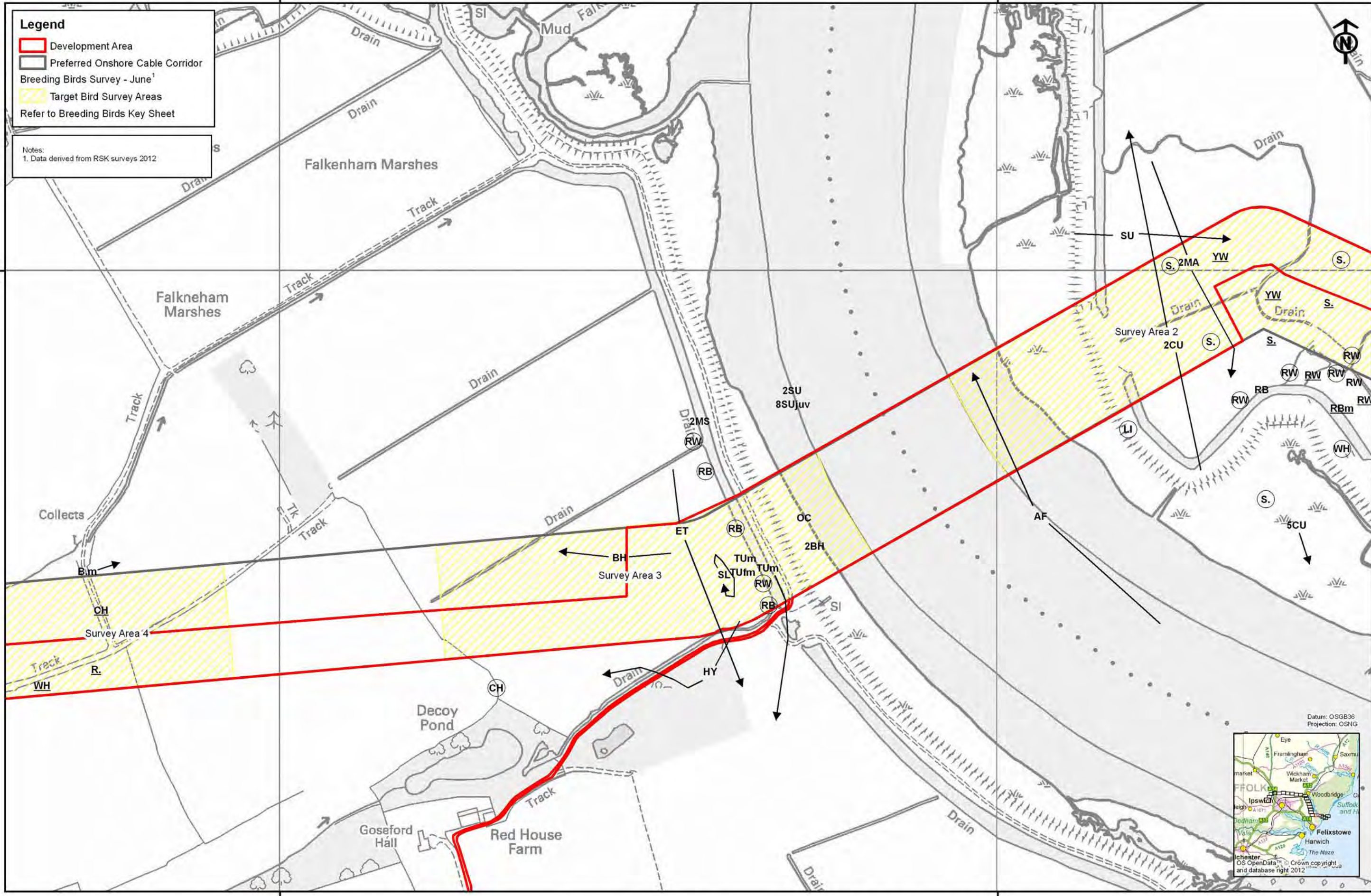
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June Breeding Birds Suvey

Sheet 2a of 22

Drg No	41388-A24-24.12.4(2a)	Appendix 24.12
Rev	02	
Date	01/10/12	Figure 24.12.4
Layout	N/A	



Legend

- Development Area
- Preferred Onshore Cable Corridor
- Breeding Birds Survey - June¹
- Target Bird Survey Areas
- Refer to Breeding Birds Key Sheet

Notes:
1. Data derived from RSK surveys 2012



02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

Original A3 Plot Scale 1:5,000

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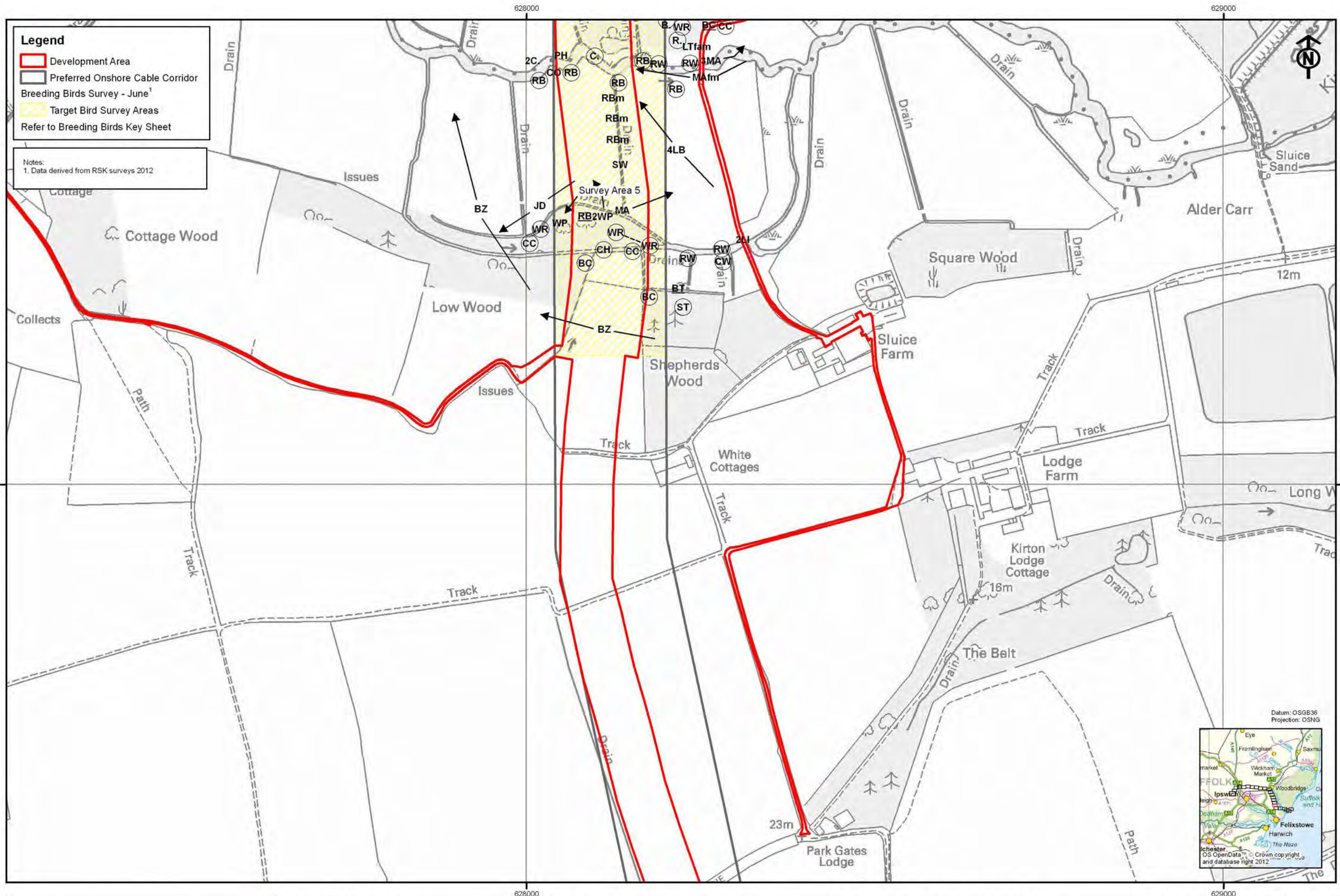
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East Anglia Offshore Wind
June Breeding Birds Suvey
Sheet 4 of 22

Drg No	41388-A24-24.12.4(4)	Appendix 24.12
Rev	02	
Date	01/10/12	Figure 24.12.4
Layout	N/A	



Legend

- Development Area
- Preferred Onshore Cable Corridor
- Breeding Birds Survey - June¹
- Target Bird Survey Areas
- Refer to Breeding Birds Key Sheet

Notes:
1. Data derived from RSK surveys 2012



SCOTTISHPOWER RENEWABLES **VATTENFALL**

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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

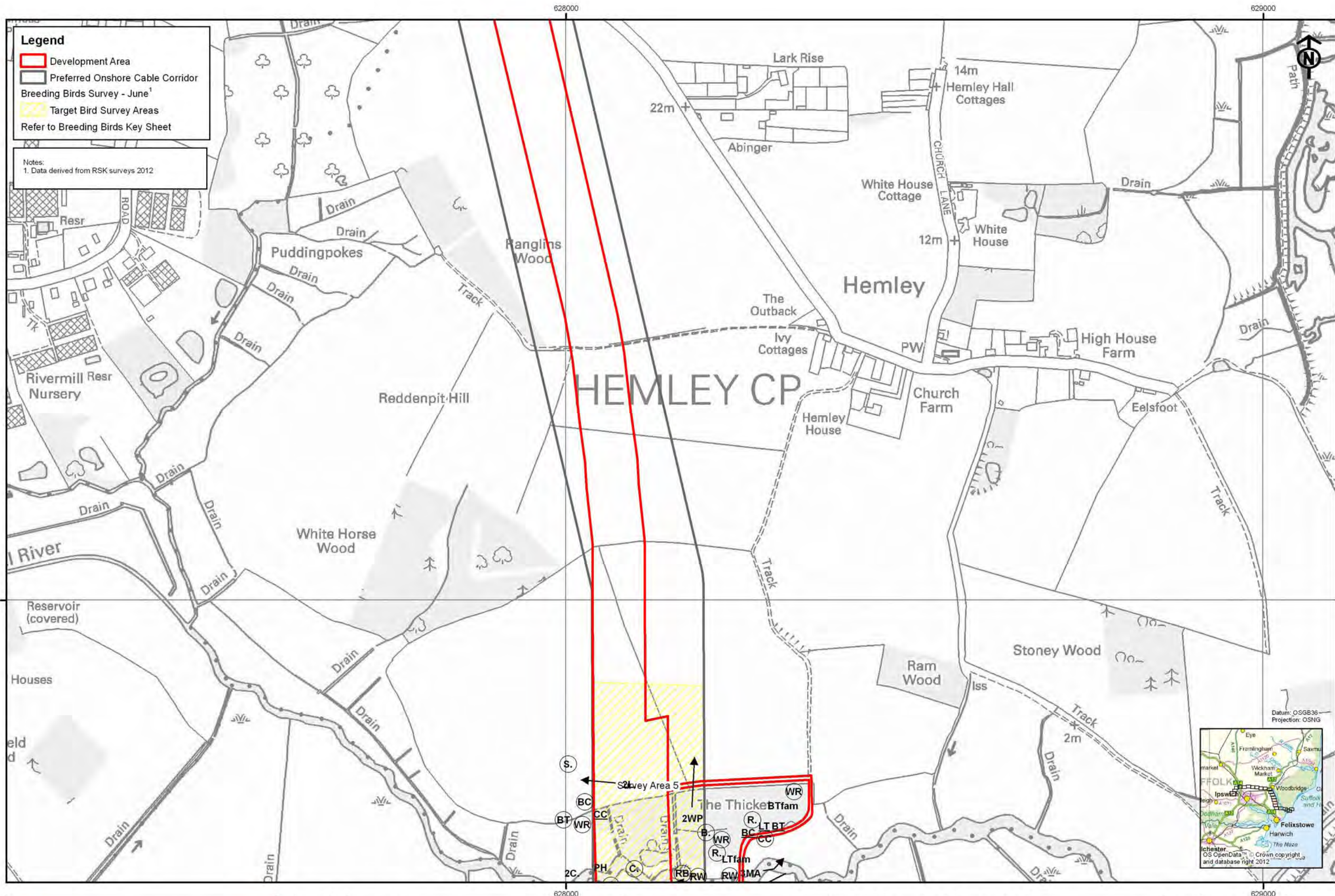
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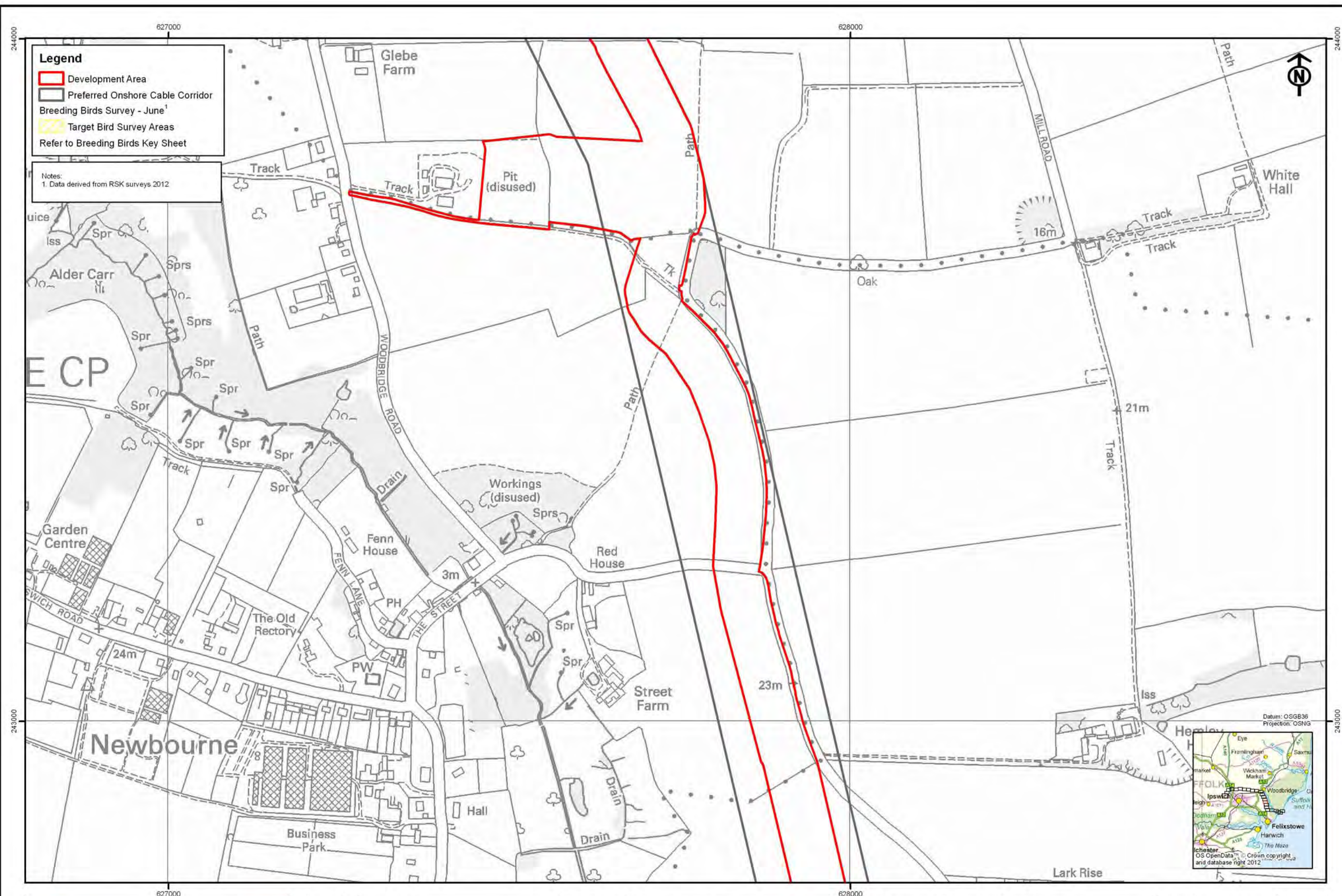
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East Anglia Offshore Wind
June Breeding Birds Suvey
Sheet 6 of 22

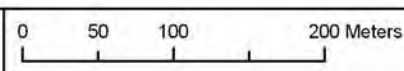
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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

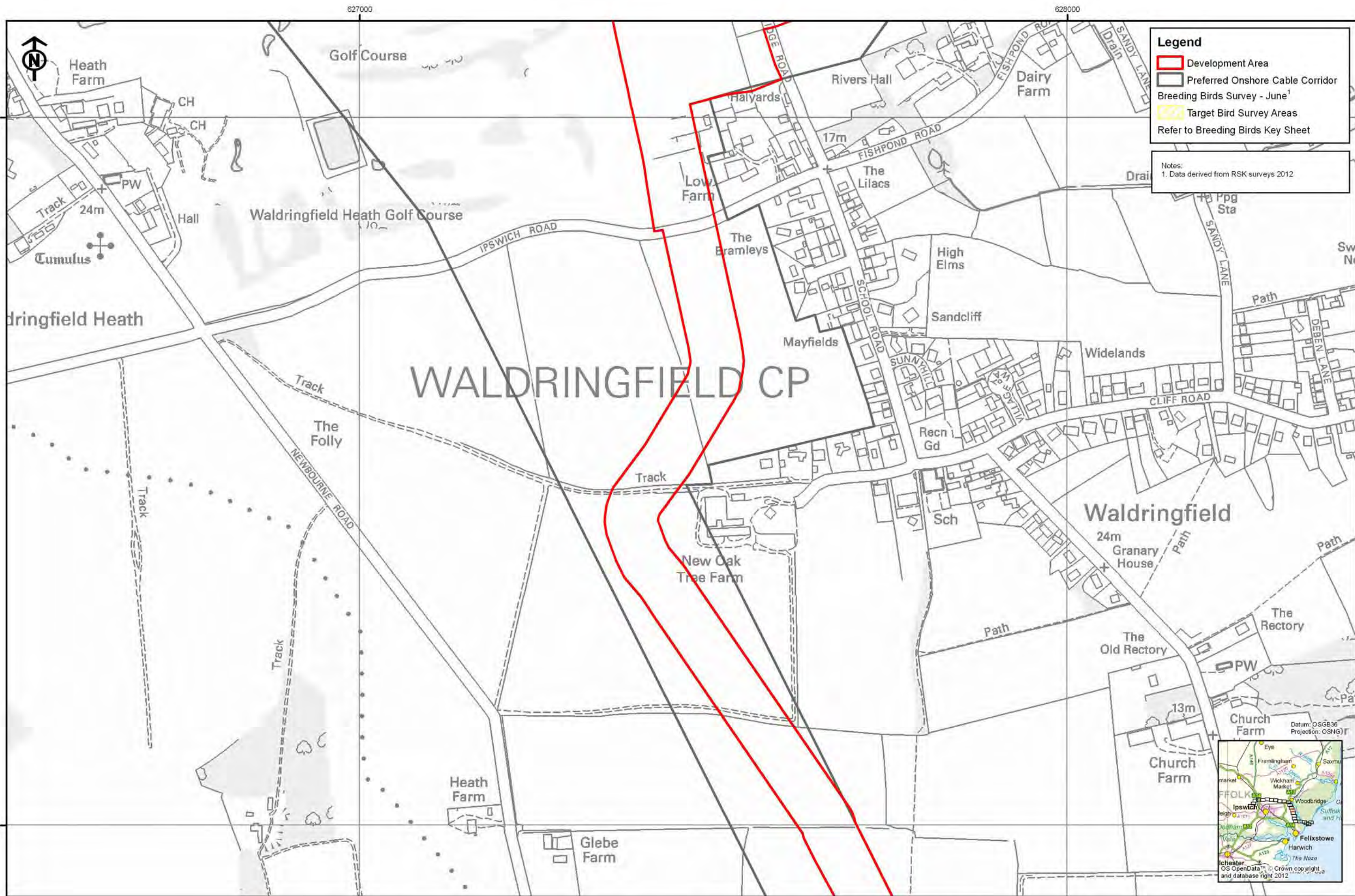
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East Anglia Offshore Wind
June Breeding Birds Survey
Sheet 8 of 22

Drg No	41388-A24-24.12.4(8)	Appendix 24.12
Rev	02	
Date	01/10/12	Figure 24.12.4
Layout	N/A	



Legend

- Development Area
- Preferred Onshore Cable Corridor
- Breeding Birds Survey - June¹
- Target Bird Survey Areas
- Refer to Breeding Birds Key Sheet

Notes:
1. Data derived from RSK surveys 2012

SCOTTISHPOWER RENEWABLES **VATTENFALL**

02	01/10/12	SP	Development Area
01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

Original A3 Plot Scale 1:5,000

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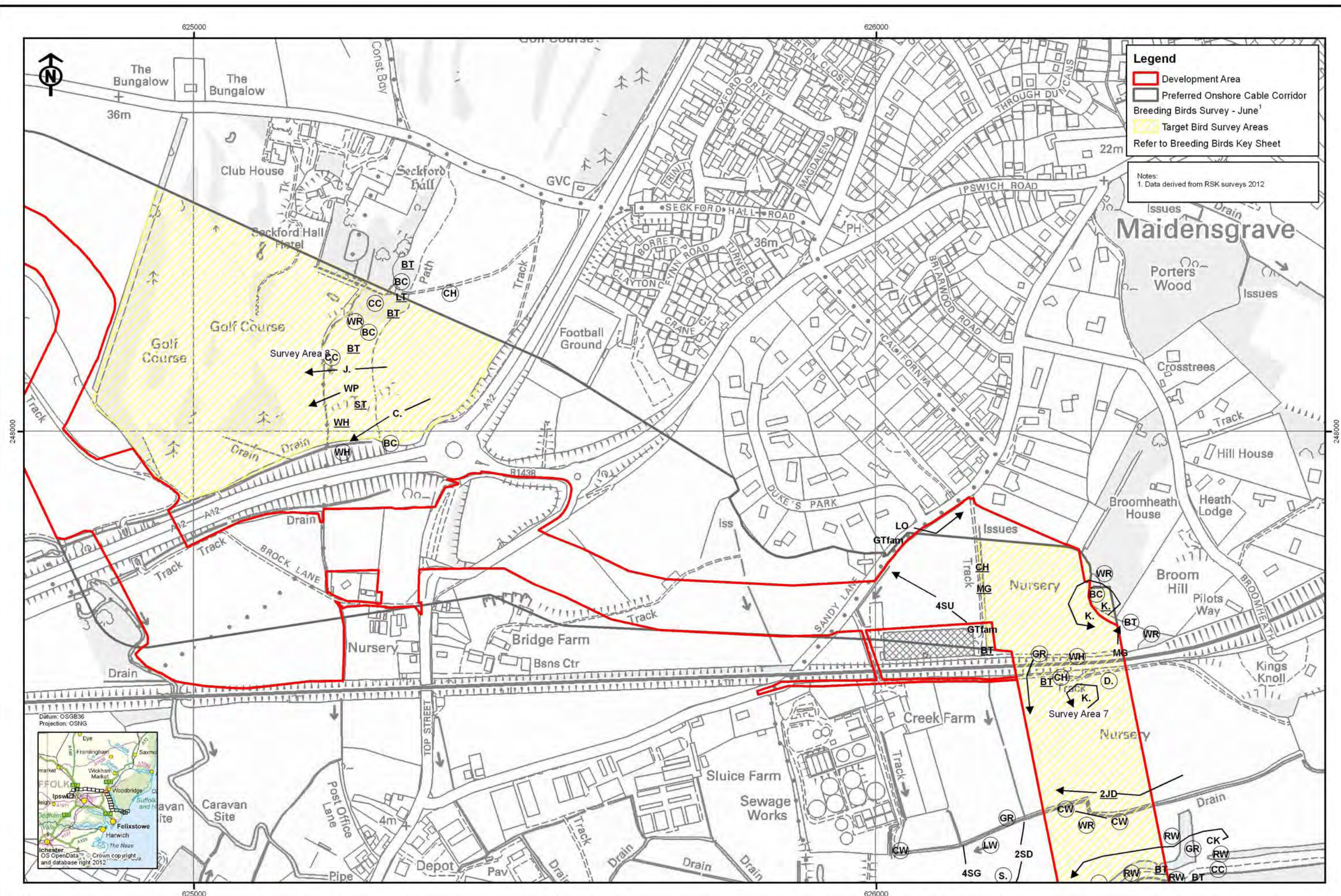
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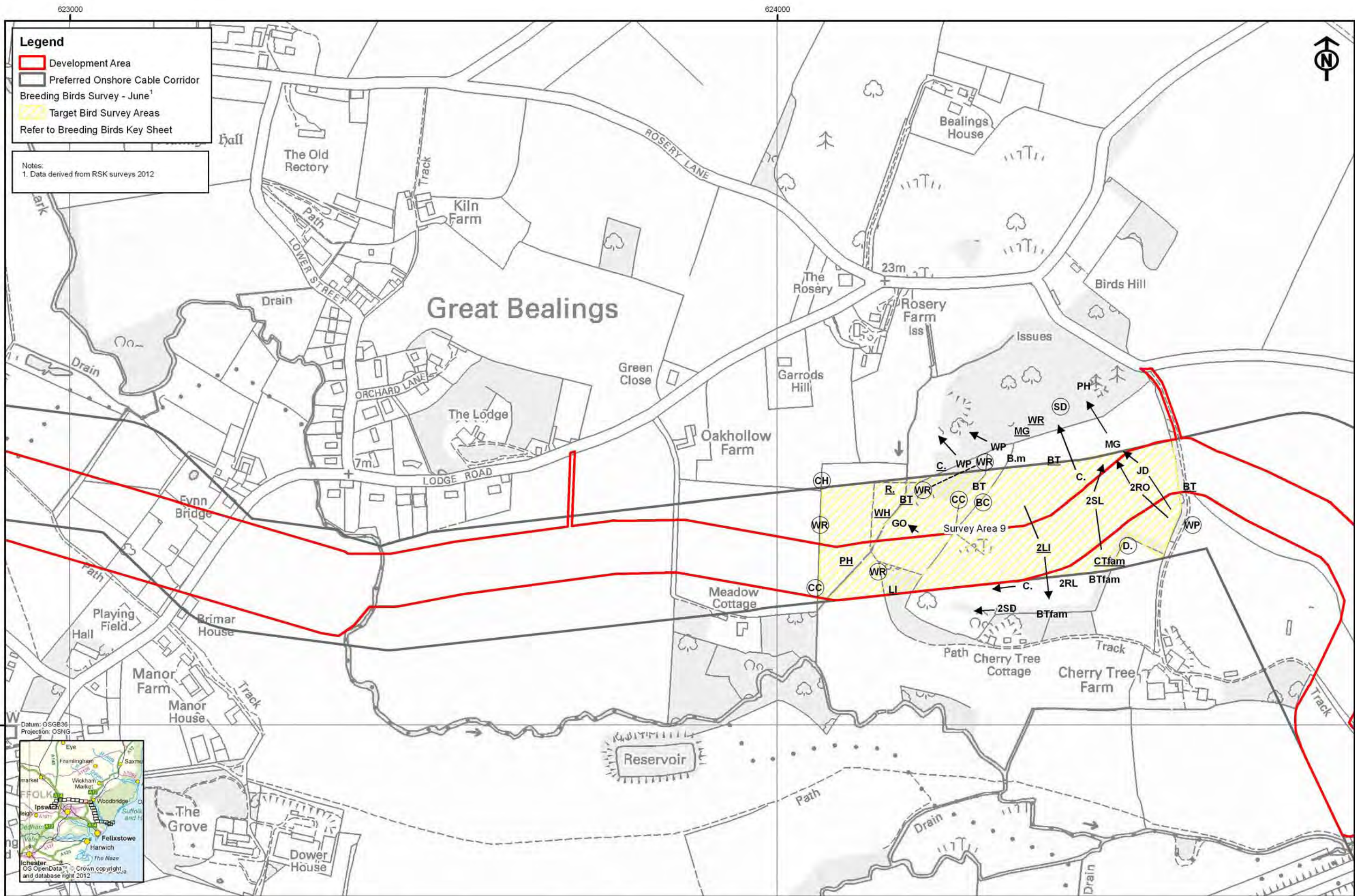
East Anglia Offshore Wind

June Breeding Birds Suvey

Sheet 9 of 22

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Rev	02	
Date	01/10/12	Figure 24.12.4
Layout	N/A	





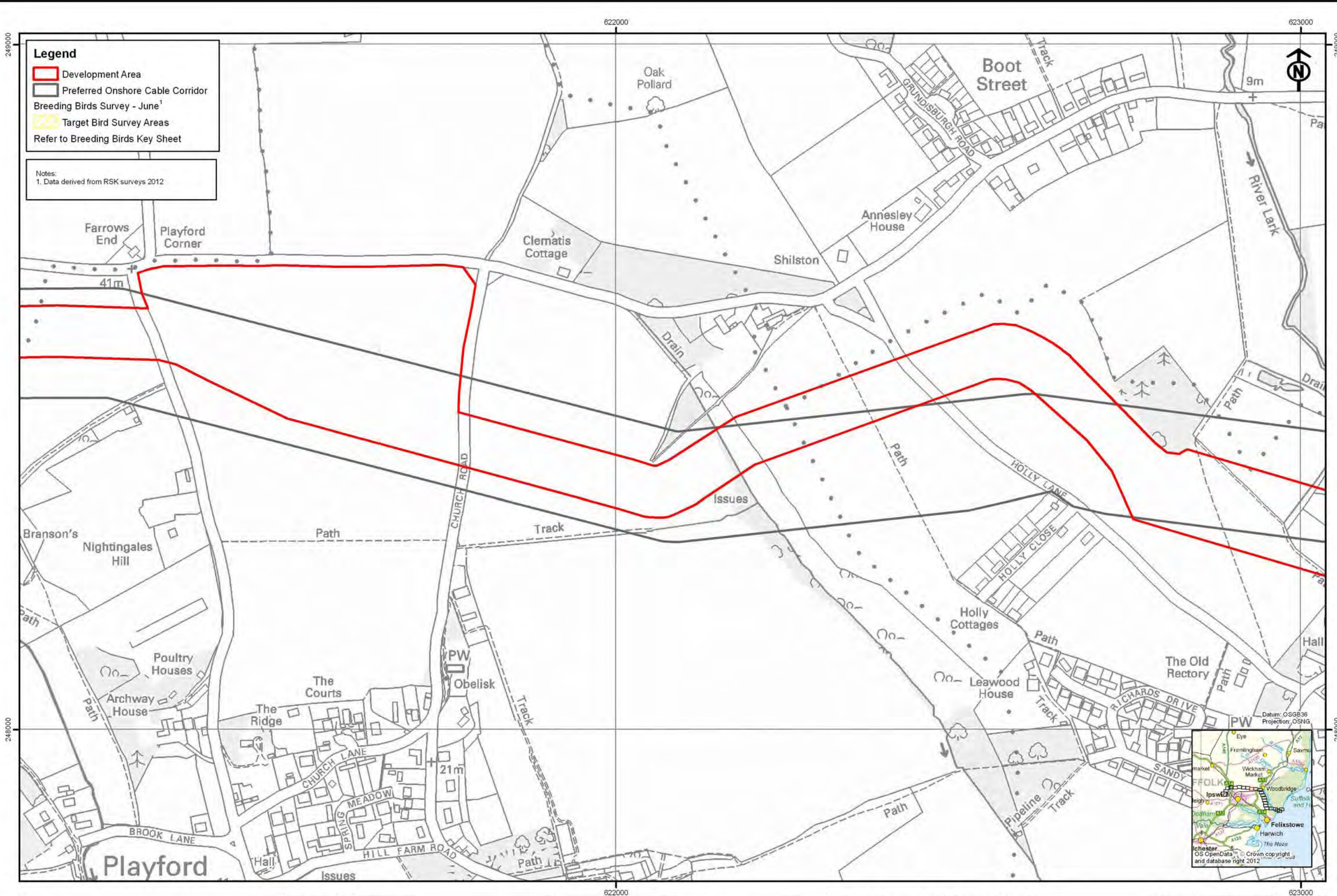
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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

Original A3
Plot Scale
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Drg No	41388-A24-24.12.4(13)	Appendix
Rev	02	24.12
Date	01/10/12	Figure
Layout	N/A	24.12.4



Legend

- Development Area
- Preferred Onshore Cable Corridor
- Breeding Birds Survey - June¹
- Target Bird Survey Areas
- Refer to Breeding Birds Key Sheet

Notes:
1. Data derived from RSK surveys 2012

Original A3 Plot Scale 1:5,000

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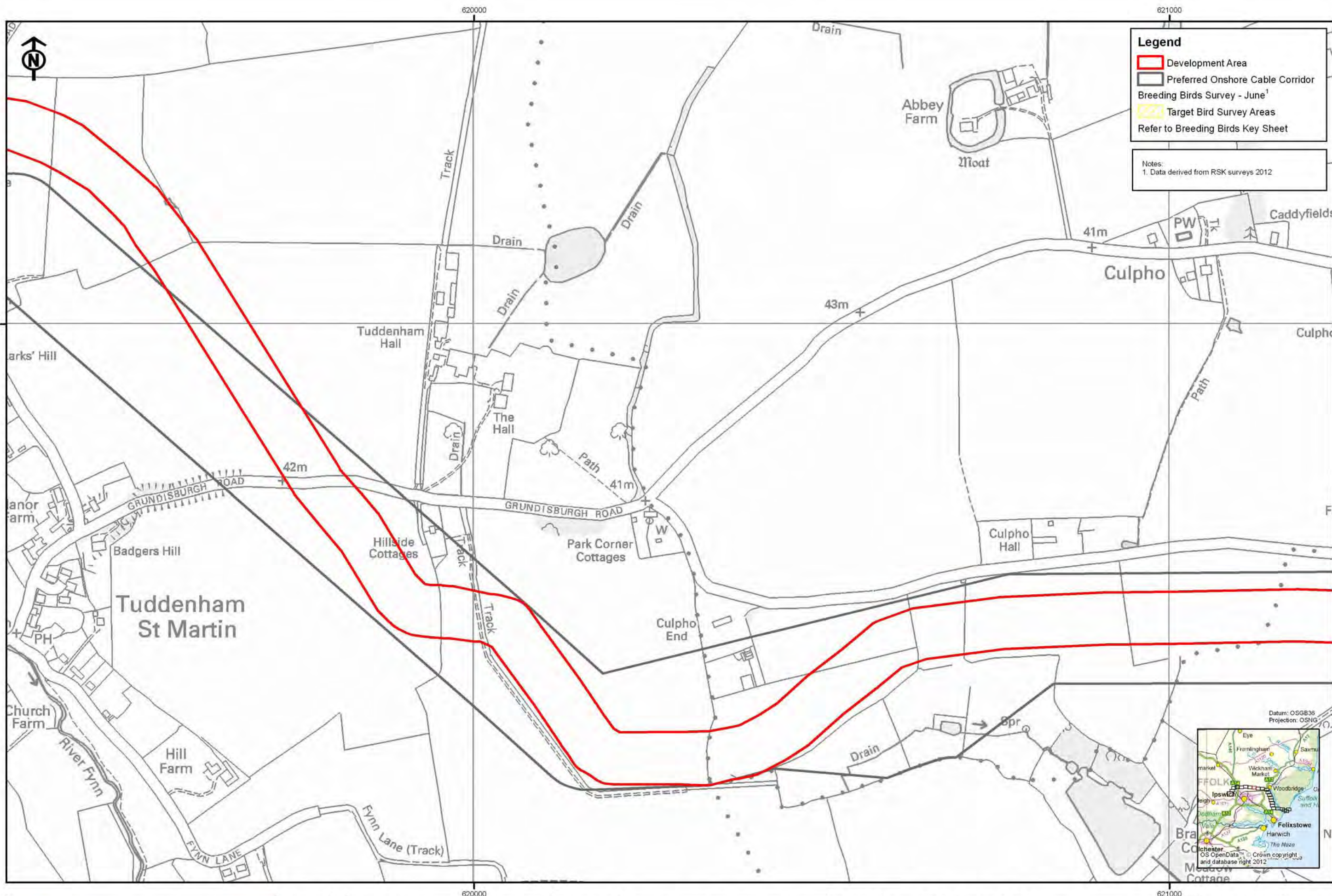
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East Anglia Offshore Wind
June Breeding Birds Survey
Sheet 14 of 22

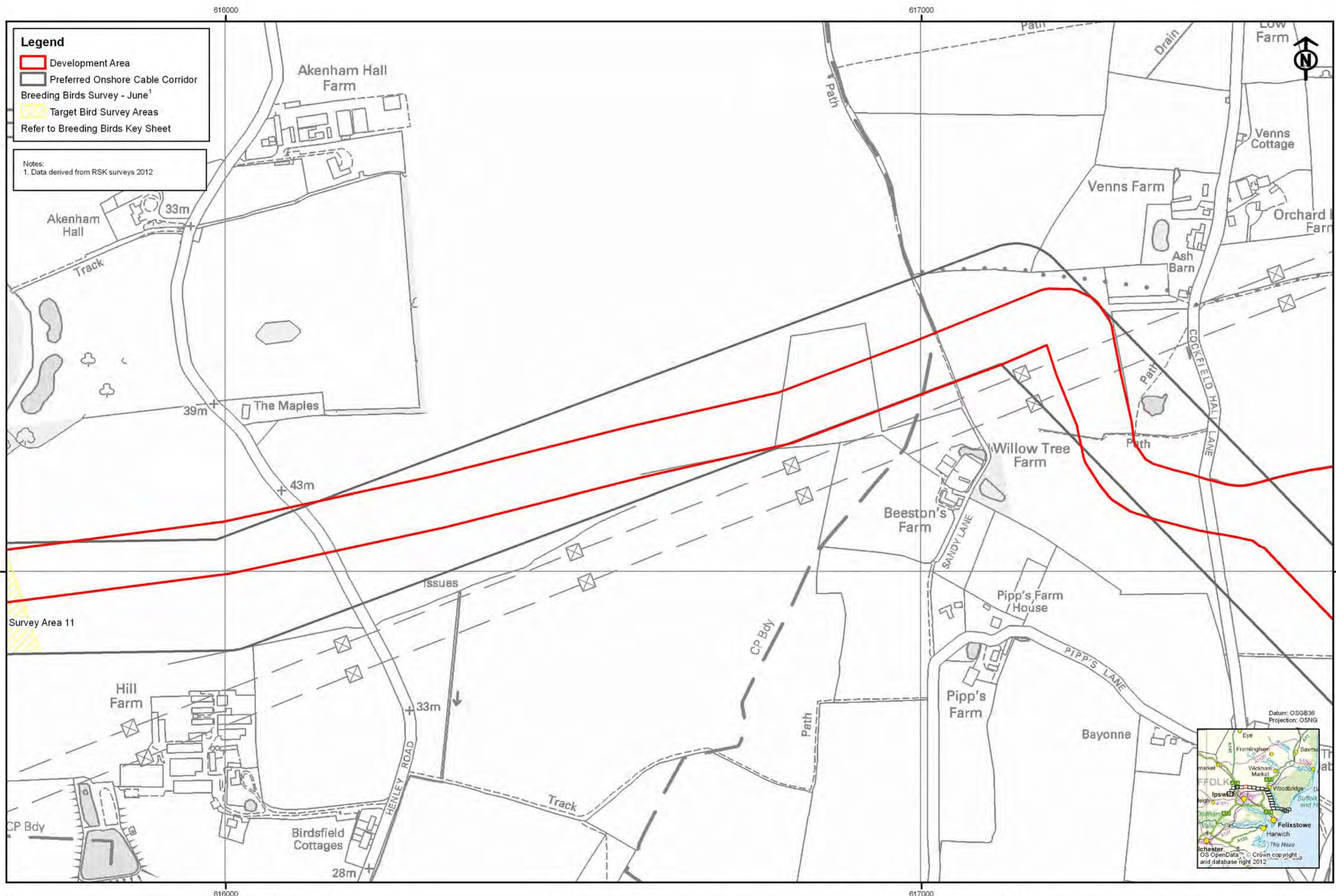
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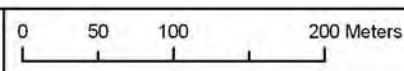


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02 01/10/12 SP Development Area											Rev 02		Figure 24.12.4
01 30/08/12 SP Updated cable route											Date 01/10/12		
00 15/08/12 SP First issue											Layout N/A		
Rev	Date	By	Comment										



02	01/10/12	SP	Development Area
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00	15/08/12	SP	First issue
Rev	Date	By	Comment

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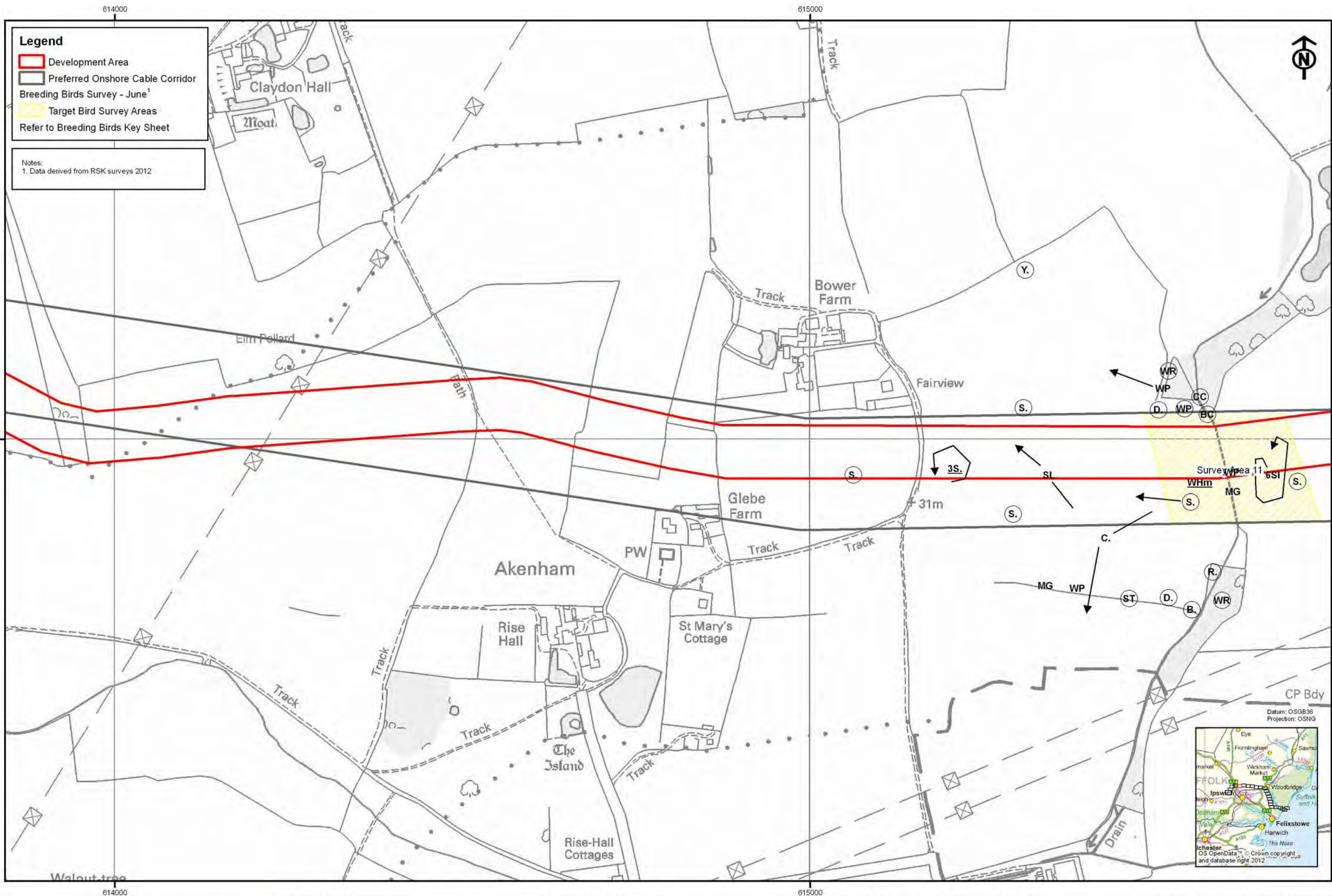


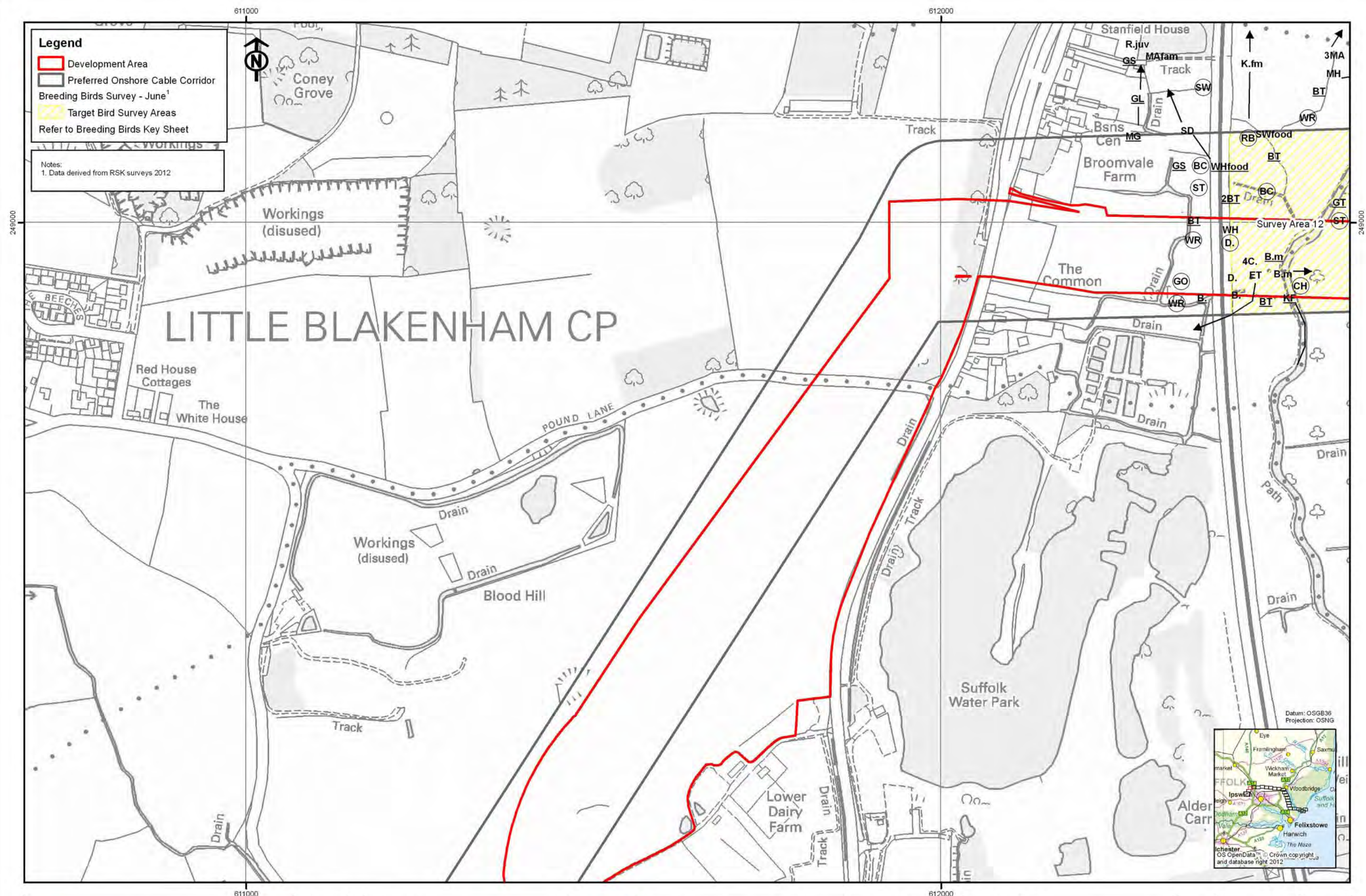
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June Breeding Birds Suvey
Sheet 17 of 22

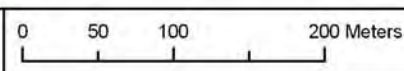
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Rev	02	
Date	01/10/12	Figure 24.12.4
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01	30/08/12	SP	Updated cable route
00	15/08/12	SP	First issue
Rev	Date	By	Comment

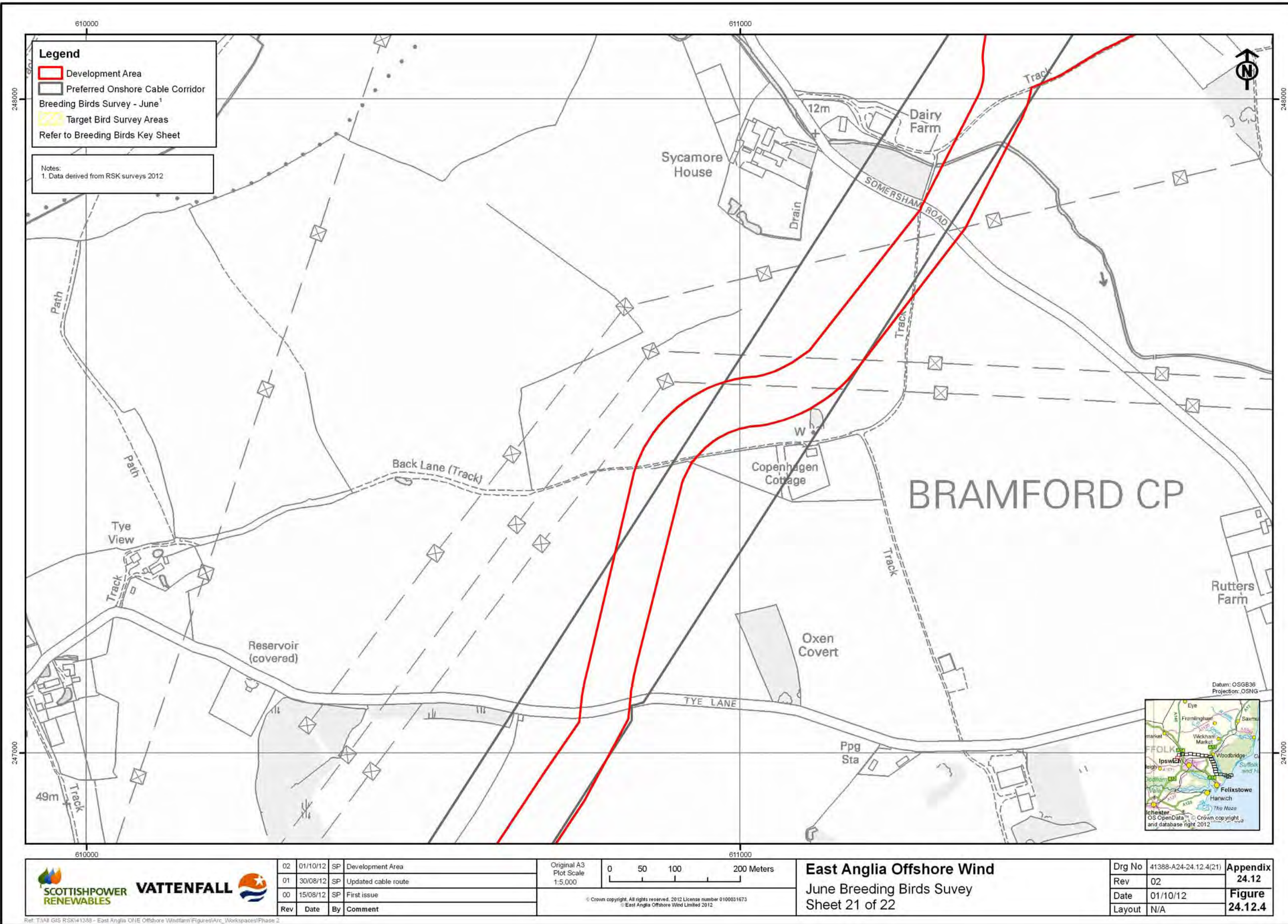
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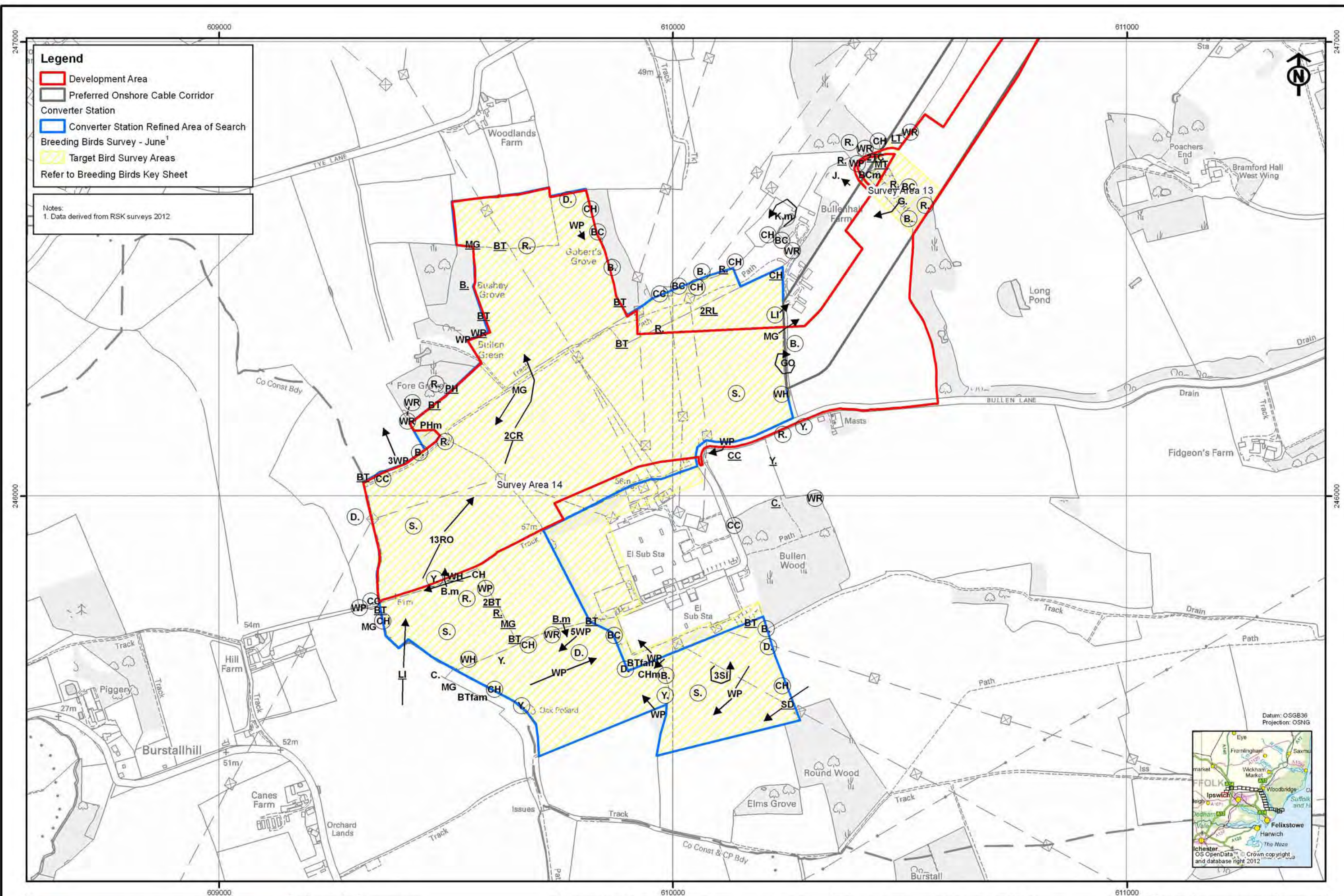


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East Anglia Offshore Wind
June Breeding Birds Survey
Sheet 20 of 22

Drg No	41388-A24-24.12.4(20)	Appendix 24.12
Rev	02	
Date	01/10/12	Figure 24.12.4
Layout	N/A	





Legend

- Development Area
- Preferred Onshore Cable Corridor
- Converter Station
- Converter Station Refined Area of Search
- Breeding Birds Survey - June¹
- Target Bird Survey Areas
- Refer to Breeding Birds Key Sheet

Notes:

1. Data derived from RSK surveys 2012



APPENDIX 1

Table 5: All Bird Species Recorded from the East Anglia One cable route during the Breeding Bird Surveys and their Breeding Status

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Mute Swan	<i>Cygnus olor</i>					Recorded on all three visits. Fairly common in wetland areas. Maximum flock of 18 birds, presumably immature non-breeding birds. Eight registrations of pairs in suitable breeding habitat, one nest recorded in Queens Fleet, Bawdsey Marshes.	Confirmed Breeding
Greylag Goose (Feral population only)	<i>Anser anser</i>					Recorded in May only. One individual observed in suitable breeding habitat south of Hemley. An incidental sighting of 12 in the same area in July.	Possible Breeding
Greater Canada Goose	<i>Branta canadensis</i>					Recorded in April and May only. A pair recorded twice at different locations in suitable breeding habitat.	Possible Breeding
Common Shelduck	<i>Tadorna tadorna</i>					Recorded on all three visits. Common in the coastal/estuarine areas. 21 registrations mainly of birds flying over, but pairs recorded in suitable breeding habitat and one pair with eight chicks recorded.	Confirmed Breeding
Eurasian Teal	<i>Anas crecca</i>			Amber		Recorded in April only. Uncommon in wetland habitat. A flock of six recorded a Marthlesham Creek, presumably late wintering birds. One male recorded in suitable breeding habitat.	Possible Breeding
Mallard	<i>Anas platyrhynchos</i>			Amber		Recorded on all three visits. Fairly common in wetland areas. Recorded 36 times in numbers ranging from one to 10. Observed in suitable breeding habitat and juveniles observed twice.	Confirmed Breeding
Common Pochard	<i>Aythya ferina</i>			Amber		Incidental sighting in July only. Rare in wetland habitat. One female with three chicks in the large ditch just adjacent to the west bank of the River Deben.	Confirmed Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Tufted Duck	<i>Aythya fuligula</i>					Recorded in May and June only. Rare in wetland habitat. One pair and a female recorded in the large ditch just adjacent to the west bank of the River Deben. Incidental sighting of the same birds in July.	Possible Breeding
Red legged Partridge	<i>Alectoris rufa</i>			Amber		Recorded on all three visits. Common in agricultural areas. 31 registrations of pairs in suitable breeding habitat.	Probable Breeding
Grey Partridge	<i>Perdix perdix</i>				UK and Local BAP	Recorded in May only. One pair recorded in suitable breeding habitat.	Possible Breeding
Common Pheasant	<i>Phasianus colchicus</i>			Red		Recorded on all three visits. Common in agricultural areas. 29 registrations of males or pairs in suitable breeding habitat.	Probable Breeding
Little Grebe	<i>Tachybaptus ruficollis</i>					Recorded in April and May only. Rare in wetland habitat. One pair recorded at Marthleshsham Creek and in the large ditch just adjacent to its northern bank.	Possible Breeding
Great Cormorant	<i>Phalacrocorax carbo</i>			Amber		Recorded on all three visits. Records of birds flying over only.	Non Breeding – flyover only
Little Egret	<i>Egretta garzetta</i>	✓				Recorded in all three visits. Uncommon in wetland habitat. Individuals recorded at Marthleshsham Creek and in the wetland area east of Bramford Road.	Non Breeding
Grey Heron	<i>Ardea cinerea</i>			Amber		Recorded on all three visits. Uncommon in wetland habitat. Nine registrations of birds flying over or feeding in wet habitats.	Non Breeding
Eurasian Sparrowhawk	<i>Accipiter nisus</i>					Recorded in April and May only. Uncommon in areas with woodland. Two registrations of single birds in suitable breeding habitat.	Possible Breeding
Common Buzzard	<i>Buteo buteo</i>					Recorded on all three visits. Common in areas with woodland and agricultural land. Eight registrations of single birds or pairs in areas with suitable breeding habitat. One nest located in woodland between	Confirmed Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Common Kestrel	<i>Falco tinnunculus</i>			Amber		Millers Wood and Tye Lane and a pair probably breeding in the woodland area south of Hemley. Recorded on all three visits. Uncommon in woodland and agricultural areas. Four locations with probable breeding pairs.	Probable Breeding
Common Moorhen	<i>Gallinula chloropus</i>					Recorded on all three visits. Common in wetland habitat. At least eight pairs recorded in suitable breeding habitat with chicks recorded at two locations.	Confirmed Breeding
Common Coot	<i>Fulica atra</i>					Recorded on all three visits. Uncommon in wetland habitat. Four registrations of birds in suitable breeding habitat.	Possible Breeding
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>			Amber		Recorded on all three visits. Common in wetland habitats. 11 registrations of birds flying over near to or at intertidal areas. No evidence of breeding recorded.	Non Breeding
Northern Lapwing	<i>Vanellus vanellus</i>				UK and Local BAP	Recorded on all three visits. Uncommon in wetland or agricultural habitat. Two pairs observed displaying near wetland south of Hemley and three pairs recorded on agricultural land to the west of Suffolk Water Park.	Probable Breeding
Black-tailed Godwit	<i>Limosa limosa</i>		✓	Red	UK BAP	Recorded in April only. 13 birds recorded at Marthlesham Creek. Presumably late wintering or passage birds.	Non Breeding
Eurasian Curlew	<i>Numenius arquata</i>			Red	UK and Local BAP	Recorded in April and May only. 11 registrations of birds feeding in agricultural land or flying over. Largest flock recorded was 16 birds. Presumably late wintering or passage birds.	Non Breeding
Spotted Redshank	<i>Tringa erythropus</i>			Amber		Recorded in April only. One individual bird recorded at Marthlesham Creek. Presumably a late wintering or passage bird.	Non Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Common Redshank	<i>Tringa totanus</i>					Recorded in April and May only. Uncommon at intertidal wetland areas. Seven registrations of birds flying over or feeding. Largest flock recorded was 13 birds. Presumably late wintering or passage birds. No evidence of breeding recorded.	Non Breeding
Black-headed Gull	<i>Larus ridibundus</i>			Amber		Recorded on all three visits. Uncommon in wetland and intertidal habitats. Eight registrations of birds flying over or feeding in agricultural land or intertidal areas. Largest flock size recorded was of 35 birds.	Non Breeding
Common Gull	<i>Larus canus</i>			Amber		Recorded in April only. One individual observed feeding with Black-headed Gulls in agricultural land. Presumably a late wintering bird.	Non Breeding
Lesser Black-backed Gull	<i>Larus fuscus</i>			Amber		Recorded on all three visits. Uncommon, seen flying over agricultural land, wetland or at the coast.	Non Breeding – flyover only
Herring Gull	<i>Larus argentatus</i>			Red (specifically breeding argenteus)	UK and Local BAP	Recorded on all three visits. Uncommon, seen flying over agricultural areas, wetland or at the coast.	Non Breeding – flyover only
Great Black-backed Gull	<i>Larus marinus</i>			Amber		Recorded in May only. A group of 5 mixed age birds seen at the coast.	Non Breeding
Little Tern	<i>Sternula albifrons</i>	✓	✓	Amber	Local BAP	Recorded in June only. One individual seen flying north along the River Deben.	Non Breeding – flyover only
Common Tern	<i>Sterna hirundo</i>	✓		Amber		Recorded in May only. One individual seen at Marthlesham Creek and two seen flying over agricultural land near to the coast. Presumably passage birds.	Non Breeding – flyover only
Feral Pigeon	<i>Columba livia</i> (domestic)					Recorded on all three visits. Seen around farms and residential areas.	Non Breeding – flyover only
Stock Pigeon	<i>Columba oenas</i>			Amber		Seen on all three visits. Common in agricultural and woodland habitats. 26 registrations of singing males, pairs or small groups in suitable breeding habitat.	Confirmed Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Common Wood Pigeon	<i>Columba palumbus</i>					One nest confirmed and several suspected in old nesting boxes and tree cavities. Seen on all three visits. Very common. 66 registrations of individuals, singing males, pairs or small groups. One regular roost of up to 83 birds. Nesting observed at several locations.	Confirmed Breeding
Eurasian Collared Dove	<i>Streptopelia decaocto</i>					Seen in April and May only. One individual male recorded singing in suitable breeding habitat on both occasions.	Probable Breeding
European Turtle Dove	<i>Streptopelia turtur</i>			Red	UK and Local BAP	Incidental sighting only. One male seen and heard singing in May in suitable breeding habitat at The Bungalow, near to Tuddenham-st-Martin.	Possible Breeding
Common Cuckoo	<i>Cuculus canorus</i>			Red	UK and Local BAP	Recorded on all three visits. Uncommon in agricultural and wetland habitat. Six registrations of birds where suitable host species were recorded.	Probable Breeding
Barn Owl	<i>Tyto alba</i>		✓			Recorded in May only. Rare in agricultural land. One individual seen hunting near to the existing sub-station at the western end of the route. One incidental sighting of a single bird hunting between Millers Wood and Tye Lane at the western end of the route. Possibly under-recorded. Boxes recorded but all were occupied by other species.	Possible Breeding
Little Owl	<i>Athene noctua</i>			Amber		Recorded on all three visits. Uncommon in agricultural land. Four registrations involving three individuals and one pair in suitable nesting habitat. Several incidental sightings also. Possibly under-recorded.	Probable Breeding
Tawny Owl	<i>Strix aluco</i>					Recorded in May only. Rare in Woodland habitat. A single bird observed in Bushey Grove woodland at the western end of the route. One incidental sighting of a single bird in Millers Wood at the western end of the route. Probably under-recorded.	Probable Breeding
Common Swift	<i>Apus apus</i>			Amber		Four registrations of flyover birds only. No potential	Non Breeding – flyover

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
						breeding sites affected by the route.	only
Common Kingfisher	<i>Alcedo atthis</i>	✓	✓			Recorded in June only. One individual seen flying north along the river to the east of Bramford Road. No suitable breeding habitat observed along the route.	Non Breeding – flyover only
				Amber			
Green Woodpecker	<i>Picus viridis</i>					Recorded on all three visits. Common in agricultural and grassland habitat. 18 registrations of birds in suitable nesting habitat.	Probable Breeding
				Amber			
Great Spotted Woodpecker	<i>Dendrocopus major</i>					Recorded on all three visits. Common in woodland habitat. 11 registrations of single birds and males drumming. Nesting holes recorded in trees in the wetland area east of Bramford Road.	Confirmed Breeding
Skylark	<i>Alauda arvensis</i>				UK and Local BAP	Recorded on all three visits. Very common in agricultural and grassland habitat. At least 149 territorial males or pairs recorded.	Probable Breeding
				Red			
Sand Martin	<i>Riparia riparia</i>					One registration of flyover birds only. No potential breeding sites affected by the route.	Non Breeding – flyover only
				Amber			
Barn Swallow	<i>Hirundo rustica</i>					Seventeen registrations of flyover birds only. No potential breeding sites affected by the route.	Non Breeding – flyover only
				Amber			
House Martin	<i>Delichon urbica</i>					One registration of flyover birds only. No potential breeding sites affected by the route.	Non Breeding – flyover only
				Amber			
Meadow Pipit	<i>Anthus pratensis</i>					Recorded in April and May only. Uncommon in grassland and agricultural habitat. 12 registrations mainly of birds flying over but males recorded singing on three occasions in suitable breeding habitat. Most likely late wintering or passage birds.	Possible Breeding
				Amber			
Yellow Wagtail	<i>Motacilla flava</i>				UK and Local BAP	Recorded on all three visits. Concentrated and common in the agricultural and wetland habitat at the eastern end of the route (Bawdsey and Alderton Marshes), rare elsewhere. 32 registrations of single birds, males singing or pairs in suitable breeding habitat. One family group seen in June.	Confirmed Breeding
				Red			

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Grey Wagtail	<i>Motacilla. cinerea</i>			Amber		Recorded in May and June only. Rare in wetland habitat. One individual seen in the same locality (wetland to the east of Bramford Road) on both occasions.	Possible Breeding
White (Pied) Wagtail	<i>Motacilla alba</i>					Recorded in April and May only. Uncommon in agricultural habitat. Nine registrations of single birds in suitable breeding habitat.	Possible Breeding
Winter Wren	<i>Troglodytes troglodytes</i>					Recorded in all three visits. Very common in most habitats. At least 112 territorial males or pairs recorded.	Probable Breeding
Hedge Accentor	<i>Prunella modularis</i>			Amber	UK and Local BAP	Recorded in all three visits. Very common in most habitats. At least 84 territorial males or pairs recorded.	Probable Breeding
European Robin	<i>Erithacus rubecula</i>					Recorded in all three visits. Very common in most habitats. At least 101 territorial males or pairs recorded. Juvenile birds recorded in June.	Confirmed Breeding
Common Nightingale	<i>Luscinia megarhynchos</i>			Amber		Recorded in April only. A single male recorded singing in scrub to the north of Marthlesham Creek. Possibly only a passage bird.	Possible Breeding
Common Blackbird	<i>Turdus merula</i>					Recorded in all three visits. Very common in most habitats. At least 98 territorial males or pairs recorded. Evidence of breeding confirmed three times.	Confirmed Breeding
Song Thrush	<i>Turdus philomelos</i>			Red	UK and Local BAP	Recorded in all three visits. Common in most habitats, particularly woodland. At least 37 territorial males or pairs recorded.	Probable Breeding
Mistle Thrush	<i>Turdus viscivorus</i>			Amber		Recorded on all three visits. Uncommon in woodland habitat. 11 registrations of singing males or pairs in suitable breeding habitat.	Probable Breeding
Cetti's Warbler	<i>Cettia cetti</i>		✓			Recorded on all three visits. Recorded in two distinct areas – the wetland habitat just north of Marthlesham Creek and the wetland area to the south of Hemley.	Probable Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>					Five and two singing males recorded at each site respectfully. Recorded in all three visits. Uncommon in wetland habitats. At least 13 territorial males or pairs recorded in suitable breeding habitat. Evidence of breeding confirmed in June.	Confirmed Breeding
Reed Warbler	<i>Acrocephalus scirpaceus</i>					Recorded in all three visits. Very common in wetland habitats. At least 72 territorial males or pairs recorded.	Probable Breeding
Blackcap	<i>Sylvia atricapilla</i>					Recorded in all three visits. Very common in woodland or scrub habitats. At least 74 territorial males or pairs recorded.	Probable Breeding
Lesser Whitethroat	<i>Sylvia curruca</i>					Recorded in April and May only. Uncommon in hedgerows and scrub. Six registrations of singing males. Possibly only passage birds.	Possible Breeding
Common Whitethroat	<i>Sylvia communis</i>					Recorded in all three visits. Very common in hedgerows and scrub. At least 66 territorial males or pairs recorded. Evidence of breeding confirmed in June.	Confirmed Breeding
Common Chiffchaff	<i>Phylloscopus collybita</i>			Amber		Recorded in all three visits. Very common in woodlands and hedgerows. At least 76 territorial males or pairs recorded.	Probable Breeding
Willow Warbler	<i>Phylloscopus trochilus</i>					Recorded in April and May only. Only two registrations of single male birds singing in hedgerows at the western end of the route. Possibly only passage birds.	Possible Breeding
Goldcrest	<i>Regulus regulus</i>				Amber	Recorded in April and May only. Uncommon in woodland habitat. Only four registrations of single birds or males singing. Possibly under-recorded.	Possible Breeding
Long-tailed Tit	<i>Aegithalos caudatus</i>					Recorded in all three visits. Very common in woodlands and hedgerows. At least 76 territorial males or pairs recorded. Evidence of breeding recorded in May and June.	Confirmed Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Blue Tit	<i>Cyanistes caeruleus</i>					Recorded in all three visits. Very common in woodlands and hedgerows. At least 134 territorial males or pairs recorded. Evidence of breeding recorded in May and June.	Confirmed Breeding
Great Tit	<i>Parus major</i>					Recorded in all three visits. Common in woodlands and hedgerows. At least 57 territorial males or pairs recorded. Evidence of breeding recorded in May and June.	Confirmed Breeding
Coal Tit	<i>Periparus ater</i>					Recorded in all three visits. Uncommon in woodland habitat. Eight registrations of males singing or pairs in suitable breeding habitat. Evidence of breeding in May. Possibly under-recorded.	Confirmed Breeding
Marsh Tit	<i>Poecile palustris</i>				UK and Local BAP	Recorded in April and May only. Rare in woodland habitat. Recorded in two areas only woodlands at the western end of the route and the wetland area east of Bramford Road. Three to five pairs recorded.	Probable Breeding
Wood Nuthatch	<i>Sitta europaea</i>			Red		Recorded in April only. Rare in woodland habitat. One male recorded singing in Millers Wood. One incidental sight of a male singing in the same woodland. Possibly under-recorded.	Possible Breeding
Eurasian Treecreeper	<i>Certhia familiaris</i>					Recorded on all three visits. Uncommon in woodland habitat. 14 registrations of males singing or pairs in suitable breeding habitat. Evidence of breeding in May. Possibly under-recorded.	Confirmed Breeding
Eurasian Jay	<i>Garrulus glandarius</i>					Recorded on all three visits. Uncommon in woodland habitat. 11 registrations of birds in suitable breeding habitat.	Probable Breeding
Black-billed Magpie	<i>Pica pica</i>					Recorded on all three visits. Common in most habitats. 41 registrations of birds in suitable breeding habitat. Evidence of breeding recorded in May.	Confirmed Breeding
Eurasian Jackdaw	<i>Corvus monedula</i>					Recorded on all three visits. Uncommon in woodland and agricultural habitat. 14 registrations of birds in suitable breeding habitat.	Probable Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Rook	<i>Corvus frugilegus</i>					Recorded in all three visits. Common in woodland and agricultural habitat. 12 registrations of birds in suitable breeding habitat. Maximum flock size recorded was of 130 birds. Many flyover birds. Rookery observed in Fore Grove wood at the western end of the route.	Confirmed Breeding
Carrion Crow	<i>Corvus corone</i>					Recorded in all three visits. Common in woodland and agricultural habitat. 44 registrations of birds in suitable breeding habitat. Many flyover birds.	Confirmed Breeding
Common Starling	<i>Sturnus vulgaris</i>			Red	UK and Local BAP	Recorded in all three visits. Rare, only three registrations of small groups of up to eight birds, most likely post breeding family groups.	Possible Breeding
House Sparrow	<i>Passer domesticus</i>			Red	UK and Local BAP	Recorded in April and May only. Uncommon around farm buildings. Eight registrations of single birds or males singing.	Possible Breeding
Chaffinch	<i>Fringilla coelebs</i>					Recorded in all three visits. Very common in woodlands and hedgerows. At least 167 territorial males or pairs recorded. Evidence of breeding recorded in May and June.	Confirmed Breeding
Common Linnet	<i>Carduelis cannabina</i>			Red	UK and Local BAP	Recorded in all three visits. Very common in scrub habitat. One late winter flock of 40 birds recorded in April. At least 60 territorial males or pairs recorded. Evidence of breeding recorded in May and June.	Confirmed Breeding
European Greenfinch	<i>Chloris chloris</i>					Recorded in all three visits. Uncommon in woodlands and hedgerows. At least 20 territorial males or pairs recorded.	Probable Breeding
European Goldfinch	<i>Carduelis carduelis</i>					Recorded in all three visits. Common in woodlands and hedgerows. At least 37 territorial males or pairs recorded.	Probable Breeding
Common Crossbill	<i>Loxia curvirostra</i>		✓			Recorded in June only. One record of two birds flying over the western end of the route. Presumably birds on post breeding dispersal.	Non Breeding

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Schedule 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Common Bullfinch	<i>Pyrrhula pyrrhula</i>			Amber	UK and Local BAP	Recorded in April and May only. Rare in scrub habitat and hedgerows. Only six registrations of singing males or individuals in suitable breeding habitat.	Probable Breeding
Yellowhammer	<i>Emberiza citrinella</i>			Red	UK and Local BAP	Recorded on all three visits. Uncommon in agricultural habitats. Concentrated at the western end of the route. 23 registrations of males sing or pairs in suitable breeding habitat.	Probable Breeding
Reed Bunting	<i>Emberiza schoeniclus</i>			Amber	UK and Local BAP	Recorded in all three visits. Very common in wetland habitat. At least 62 territorial males or pairs recorded.	Probable Breeding

APPENDIX 2

Legislation

All breeding birds are protected under Section 1 of The Wildlife and Countryside Act 1981 (as amended). This protection extends to intentionally killing and injuring, and to the destruction of nests, eggs and dependent young. The only exceptions are with certain game species (listed in Schedule 2), which can be killed during specific seasons (see Section 2), and to certain pest species, which can be controlled under licence (Statutory Instrument 3010, 1986).

Additional protection is offered to bird species listed on Schedule 1 of the The Wildlife and Countryside Act 1981, which are protected for example, from disturbance whilst nesting or attempting to make a nest. The Countryside and Rights of Way Act 2000 added reckless disturbance to intentional disturbance of Schedule 1 species as an offence.

The above is a summary of the legislation and the original Acts and Schedules should be referred to for the precise wording.

APPENDIX 3

Possible Breeding

1. Species observed in breeding season in possible nesting habitat.
2. Singing male(s) present (or breeding calls heard) in breeding season

Probable Breeding

1. Pair observed in suitable nesting habitat in breeding season
2. Permanent territory presumed through registration of territorial behaviour (song, etc.) on at least two different days a week or more apart at the same place
3. Courtship and display
4. Visiting a probable nest site
5. Agitated behaviour or anxiety calls from adults
6. Brood patch on adult examined in the hand
7. Nest building or excavating nest-hole

Confirmed Breeding

1. Distraction-display or injury feigning
2. Used nest or eggshells found (occupied or laid within period of survey)
3. Recently fledged young (nidicolous species) or downy young (nidifugous species)
4. Adults entering or leaving nest-site in circumstances indicating occupied nest (including high nest or nest-holes, the contents of which can not be seen) or adult seen incubating
5. Adult carrying faecal sac or food for young
6. Nest containing eggs
7. Nest with young seen or heard

APPENDIX 4

Confidential Appendix containing Schedule 1 Species Information

Confidential information has not been included in this appendix but has been shared with appropriate consultees.

Appendix 24.1 Ends Here