The Sizewell C Project

6.9 Volume 8 Freight Management Facility

Chapter 7 Terrestrial Ecology and Ornithology

Appendix 7A Ecological Baseline and Method Statements

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VOLUME 8, CHAPTER 7, APPENDIX 7A – ECOLOGICAL BASELINE AND METHOD STATEMENTS

Documents included within this Appendix are as follows:

ANNEX 7A.1 - FIGURES (provided separately)

ANNEX 7A.2 - DESK STUDY

ANNEX 7A.3 - PRIMARY DATA

ANNEX 7A.4 - NON-LICENSABLE METHOD STATEMENTS:

- ANNEX 7A.4A - BATS
- ANNEX 7A.4B - REPTILES

NOTE:

Please note that the red line boundary used in figures within this document may have since been amended, and therefore does not reflect the boundaries in respect of which development consent has been sought in this application. However, the amendment to the red line boundary does not have any impact on the findings set out in this document and all other information remains correct.

VOLUME 8, CHAPTER 7, APPENDIX 7A: ECOLOGICAL BASELINE

Contents

Tables

Plates

None provided.

Figures (refer to Annex 7A.1)

APPENDICES

Executive Summary

Baseline ecological conditions were assessed within habitat-, species- or species assemblage- specific Zones of Influence (ZoI) of the proposed freight management facility at Seven Hills (hereafter referred to as the 'proposed development') and wider study area. The ecological baseline has specifically considered designated sites, plants and habitats, invertebrates, amphibians, reptiles, birds, bats, and other terrestrial mammals.

A ZoI of 5km was assigned for statutory designated sites, and a ZoI of 2km was assigned to non-statutory designated sites, plants and habitats, invertebrates, amphibians, reptiles, birds, bats, and terrestrial mammals. These ZoI are considered to be conservative.

Desk-study data from the Suffolk Biodiversity Information Service was obtained within the 2 x 2 kilometre (km) Ordnance Survey (OS) tetrad covering the site for notable species of conservation interest from the last ten years. A range of species considered to be typical of the habitats present within these areas was identified. The following surveys were carried out in 2019 to further inform the ecological baseline:

- extended Phase 1 habitat and protected species survey;
- great crested newt (*Triturus cristatus*) Habitat Suitability Index (HSI) surveys; and
- bat tree roost assessments (ground level-assessment only).

Eleven statutory designated sites (two Ramsar Sites, two Special Protection Areas (SPAs), and seven Sites of Special Scientific Interest (SSSIs)) are within a 5km radius of the site. Six non-statutory County Wildlife Sites (CWS) are within a 2km radius of the site.

The area within the site boundary predominantly consists of intensively managed arable land bounded by fences and hedgerows. The hedgerows are primarily species-poor with large gaps; however, one hedgerow supports a diverse mix of shrub species, but is not classified as 'important' under the Wildlife and Landscape Criteria of the Hedgerows Regulations (Ref 1.1). There are no waterbodies (ponds) within the site boundary, but there are four ponds within 500m of the site, two of which are within 10m of the site boundary.

There are no habitats on the site suitable to support notable plants, scarce arable weeds, hazel dormice (*Muscardinus avellanarius*), water vole *(Arvicola amphibius*), or otter (*Lutra lutra*). Habitats present within the site are largely sub-optimal for invertebrates, amphibians, reptiles, farmland birds, and badgers (*Meles meles*). There were records of three species of bat within the ZoI, and several trees with the potential to support roosting bats are present within the site. The arable fields within the site are

of limited value to bats, but the hedgerows and mature trees provide limited foraging and commuting opportunities. The habitats are of moderate value to brown hare (*Lepus europaeus*) and hedgehog (*Erinaceus europaeus*). A brown hare was recorded within the site boundary during the surveys.

To ensure a robust Ecological Impact Assessment (EcIA) process, species and habitats of conservation interest and/or legally protected or designated species and habitats within the relevant ZoI of the site have been assessed to determine whether or not they would qualify as Important Ecological Features (IEFs) as defined in the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines on EcIA (Ref 1.2) In addition, habitats and species have been assessed in accordance with the standard EIA methodology used elsewhere within this Environmental Statement (ES).

The CIEEM guidelines (Ref 1.2) define IEFs on the basis of nature conservation importance as well as legally protected and/or controlled species where there is the potential for a breach in the relevant legislation as a result of the proposed development. This baseline report focuses on those IEFs that have been assessed as being sufficiently important (in nature conservation terms) to be a material consideration in the planning decision. Those IEFs that qualify purely on legislative considerations are discussed in less detail and are addressed separately in the EcIA.

The following species/habitats within the ZoI of the proposed development have been classified as IEFs and scoped into the detailed assessment of the EcIA:

- The bat assemblage is an IEF at the local level under CIEEM guidelines (Ref 1.2) and of low importance following the EIA-specific methodology.

1. Ecological Baseline

1.1 Purpose of the Appendix

1.1.1 EDF Energy[1] (hereafter referred to as 'EDF Energy') is proposing to build a new nuclear power station at Sizewell, known as Sizewell C. The new nuclear power station would be located on the Suffolk coast, north-east of the town of Leiston. The proposed site of Sizewell C lies within an area of high landscape and ecological sensitivity.

1.1.2 As part of the development proposals, a number of sites where associated developments are required to support construction and operation of Sizewell C. These associated development sites are not located within the Sizewell C main development site (hereafter referred to as the 'main development site'). Further detail is provided in **Volume 1, Chapter 2**. Each of the associated development sites has been subject to a suite of ecological survey work and desk study, and the ecological baseline has been developed for each associated development site. This appendix presents the ecological baseline for the proposed freight management facility at Seven Hills (hereafter referred to as the 'proposed development'). The freight management facility site (herein referred to as the 'site') is located on land to the south-east of the A12 and A14 junction.

1.1.3 To carry out a robust Ecological Impact Assessment (EcIA) of the Scheme for the Environmental Impact Assessment (EIA), it is first necessary to determine the ecological baseline describing the existing conditions for the habitats and species that could be affected by the proposed development. Baseline conditions were determined through a combination of desk study and field surveys undertaken in 2019.

1.1.4 This appendix to the proposed development **Chapter 7** of **Volume 8** of the **ES** presents the methodologies employed in carrying out the desk studies and detailed surveys (as well as the results of this work), and also evaluates the ecological features that could be affected. This then forms the ecological baseline for the impact assessment presented in **Chapter 7** of **Volume 8** of the **ES**.

1.2 Structure of this Appendix

1.2.1 This appendix describes the ecological baseline conditions for designated habitats and sites, legally protected species and habitats, and species and

[1] NNB Generation Company (SZC) Limited, whose registered office is at 90 Whitfield Street, London W1T 4EZ (referred to in this document as 'EDF Energy').

habitats of conservation interest, within the Zone of Influence (ZoI) of the proposed development and wider study area. ZoI, study area, and survey area are all defined in **section 3**.

1.2.2 Within this appendix, the following terms are used to describe the biological data underpinning the description of baseline conditions:

- Desk study – this refers to any third-party biological data held, for example, by the Suffolk Biodiversity Information Service or Suffolk Wildlife Trust (SWT), that has been requested for the site and surrounding area.

- Primary data – this refers to survey work carried out in 2019 specifically targeted at informing the proposed development. This has been scoped with the consultees to ensure a robust and complete data set.

1.2.3 The remainder of this appendix is set out as follows.

- **section 2** discusses the legislative framework of designated sites and legally protected and notable species and habitats;

- **section 3** establishes the site boundary, ZoI(s), study area, and survey area for the proposed development;

- **section 4** sets out the approach and methodology used for obtaining the desk-study information and primary data used to inform the assessment, as well as the results of this data acquisition. The primary data includes 2019 survey work, along with the justification for the scope and extent of the survey work undertaken. The detail of the desk-study information acquired is presented in **Annex 1.2**. Detailed results of surveys carried out in 2019 are presented in **Annex 1.3**; and

- **section 5** presents the collated baseline conditions for the relevant ecological receptors within the ZoI. This section considers the nature conservation importance and legal protection for each ecological receptor and follows the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines (Ref 1.2) to assess whether the ecological receptors considered can be categorised as Important Ecological Features (IEFs). Those IEFs which may be materially affected by the proposed development are taken forward for detailed assessment within the EcIA. The value and sensitivity of the ecological features are also assessed in accordance with the wider EIA methodology used elsewhere within the ES.

1.2.4 Figures summarising the ecological baseline with regard to IEFs are presented in **Annex 7A.1**.

1.3 Legislative Framework

a) Introduction

1.3.1 This section provides a summary of the legislative and policy context regarding designated sites, legally protected and/or controlled species, and other habitats and species of nature conservation importance that could be affected by the proposed development. The aim is to summarise the key implications of this legislation and policy, particularly with regard to how it influences the assessment of IEFs.

b) Designated sites

1.3.2 Three classes of designated site are considered within this report:

- European designations: (Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites);
- national designations: (sites of Special Scientific Interest (SSSIs)); and
- non-statutory Local (County) designations (Local Nature Reserves, County Wildlife Sites (CWSs), and Roadside Nature Reserves (RNRs)).

i. European designated sites

1.3.3 SPAs are classified in accordance with Article 4 of the European Community (EC) 'Birds Directive' (Ref 1.3). They are designated on behalf of rare and vulnerable birds (as listed on Annex I), and for regularly occurring migratory species.

1.3.4 SACs are designated under the EC 'Habitats Directive' (Ref 1.4). Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive. The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds).

1.3.5 Ramsar sites are wetlands of international importance designated under the Ramsar Convention (Ref 1.5). They often cover a similar area to that already designated as a SAC and/or SPA, where these sites support a notable amount of wetland habitat.

1.3.6 Before a site can be designated as a European site, it must first have been designated as a SSSI. In many cases, a single European designation may encompass multiple SSSIs. The constituent habitats and species listed within the citations for European sites (often referred to as qualifying features) are considered to be of European/International importance for nature conservation.

ii. National designated sites

1.3.7 SSSIs are designated at the national (UK) level. Originally notified under the National Parks and Access to the Countryside Act (Ref 1.6), SSSIs were re-notified under the Wildlife and Countryside Act (Ref 1.7). Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act (Ref 1.8). The SSSI network in the UK provides statutory protection for the best examples of the country's flora, fauna, and geological or physiographical features.

1.3.8 These sites are also used to underpin other national and international nature conservation designations (SACs, SPAs, Ramsar sites and National Nature Reserves (NNRs)). NNRs are declared by the national statutory nature conservation agencies under the National Parks and Access to the Countryside Act (Ref 1.6) and the Wildlife and Countryside Act (Ref 1.7).

1.3.9 The constituent habitats and species listed within SSSI and/or NNR citations are considered to be of national importance for nature conservation.

iii. Local designated sites

1.3.10 Local Nature Reserves s are statutory sites designated at the county/local level. They are designated by principal local authorities under Section 21 of the National Parks and Access to the Countryside Act (Ref 1.6), amended by Schedule 11 of the Natural Environment and Rural Communities (NERC) Act (Ref 1.9).

1.3.11 A Local Nature Reserve can also be an SSSI or may have other designations (although an Local Nature Reserve cannot also be an NNR). A Local Nature Reserve can be given protection against damaging operations. It also has protection against development on and around it. This protection is usually given via the Local Plan, (produced by the planning authority), and often supplemented by local by-laws. Unlike national designations, the level and type of protection afforded a Local Nature Reserve is decided locally and varies from site to site.

1.3.12 The constituent habitats and species listed within Local Nature Reserve citations are considered to be of County importance for nature conservation.

1.3.13 CWSs are non-statutory sites supporting habitats and/or species considered to be rare or vulnerable across the county. In Suffolk they are identified via a panel that includes technical expertise from Natural England, SWT, Suffolk Biodiversity Information Service and Suffolk County Council (SCC). The panel evaluates proposed CWSs against agreed selection criteria to ensure that the sites meet the threshold for designation.

1.3.14 RNRs are non-statutory sites designated by SCC to conserve good examples of species-rich plant areas and plants of national or county importance, and to reduce the threats posed by inappropriate management (all RNRs have their own management regime). RNRs can also be designated as either SSSIs or CWSs.

1.3.15 The constituent habitats and species listed within the citations of non-statutory designated sites are considered to be of county importance for nature conservation.

c) Legally protected and controlled species

1.3.16 Many species of animals and plants receive some degree of legal protection. For the purposes of this study, legal protection refers to species included on Schedules 1, 5, and 8 of the Wildlife and Countryside Act (Ref 1.7), species included on Schedules 2 and 5 of The Conservation of Habitats and Species Regulations (Ref 1.10), and badgers (*Meles meles*), which are protected under the Protection of Badgers Act (Ref 1.11).

1.3.17 Species that are fully protected under the Wildlife and Countryside Act (Ref 1.7) and/or Conservation of Habitats and Species Regulations (Ref 1.10), known as protected species and European Protected Species (EPS), respectively, tend to be the focus of impact assessments and nature conservation action in the UK. However, the geographical scale at which they are important varies from species to species. Thus, the designation of a species as an EPS does not necessarily mean that all individuals of that species are of European importance.

1.3.18 In addition, Schedule 9 of the Wildlife and Countryside Act (Ref 1.7) lists controlled species of animal that it is an offence to release or allow to escape into the wild, as well as species of plant that it is an offence to plant or otherwise cause to grow in the wild. These species are clearly not of any nature conservation importance (other than with regard to the damage they can do to habitats and species of importance) and are therefore not a material consideration in planning decisions. They do, however, require careful consideration in the design and implementation of development.

d) Priority habitats and species

1.3.19 Public bodies have a duty to conserve biodiversity, in accordance with Section 40 of the NERC Act (Ref 1.9). In addition to designated sites and legally protected/controlled species (discussed in **section 2.2** and **2.3**), a large number of habitats and species have been identified as a priority for biodiversity conservation within the UK. These features therefore also need due consideration in any EcIA, although the level at which they are considered important will vary.

1.3.20 Priority habitats and species groupings considered within this report include:

- habitats and species of principal importance for the conservation of biological diversity in England, as listed under Section 41 of the NERC Act (Ref 1.9);
- species listed as being of conservation interest in the relevant UK Red Data Book (RDB) or the Birds of Conservation Concern (BoCC) Red List (Ref 1.12);
- nationally scarce species, which are species recorded from 16-100 10x10 kilometre (km) grid squares in the UK;
- ancient woodland (i.e. areas that have been under continuous woodland cover since at least 1600, and which are listed within the relevant County Ancient Woodland Inventory); and
- habitats and species listed in the Suffolk's Biodiversity Action Plan (BAP) (Ref 1.13) and Suffolk's Priority Species and Habitats list (Ref 1.14).

1.3.21 It should be noted that a large number of habitats and species will qualify under more than one of the above groupings and will also need to be considered at the correct spatial scale, so the process of assigning importance to these features is therefore a complex one. For example, within Section 41 of the NERC Act (Ref 1.9), habitats and species of principal importance for the conservation of biological diversity in England would be considered to be of national importance, reflecting the fact that these features have been assessed at a national level. However, this status relates to the total amount/population and distribution of habitat/species. The level of importance therefore pertains to the species/habitat concerned as a whole rather than to individual areas of habitat or species populations, which can be difficult to value objectively.

1.3.22 Within this ecological baseline report, detailed consideration is given to the importance assigned to each ecological feature (both habitats and species, and species assemblages), and this necessarily requires a degree of professional judgement.

1.4 Scope of the baseline

a) Introduction

1.4.1 This section defines the terms 'site boundary', 'ZoI', 'study area', and 'survey area', and the terminology and approach applied to the ecological data.

b) Site boundary

1.4.2 Please refer to **Figure 7.3** in **Annex 7A.1** for the site boundary used within the **Chapter 7** of **Volume 8** of the **ES** and this ecological baseline.

c) Defining the Zones of Influence

1.4.3 The ZoI is defined as '*the area over which ecological features may be affected by biophysical changes caused by a proposed project and associated activities*' (Ref 1.2).

1.4.4 It is not a simple task to define the extent of the ZoI for the proposed development, as it follows that the ZoI will be different for each ecological feature and with the biophysical change being considered. For example, disturbance to bird species caused by displaced recreational activities is likely to manifest itself over a larger area than disturbance caused to bird species arising from construction noise, which is likely to be limited to the area in close proximity to the construction activity.

1.4.5 An appropriate ZoI has been defined for each ecological feature (species, assemblage or habitat) considered, using published information and professional judgement. Given the discrete nature of the associated development site proposals and the likelihood that effects arising from the proposed development will be highly localised, 2km is considered to be a suitable maximum radius over which to consider potential effects. Internationally and nationally recognised designated sites (SPAs, SACs, Ramsar sites, SSSIs, and NNRs) have been considered within a 5km radius, and locally recognised designated sites (Local Nature Reserves, CWSs and RNRs) within a 2km radius.

1.4.6 For interest features of designated sites (i.e. species), only those designated sites falling within the ZoI of that species or species assemblage are considered. For example, all statutory designated sites within 5km are considered, but only those falling within the 2km ZoI for reptile species are

assessed for their specific value to reptile species (i.e. presence of reptile species as a cited interest feature).

1.4.7 Full details of the ZoI defined for the considered ecological features is provided in **section 3.5**.

d) Defining the study area and survey area

1.4.8 The study area is the land within the site boundary and ZoI (as defined within **section 3.3**) of the proposed development. This includes desk-study data and primary data (as defined in **section 1.2**). The study area will differ depending on the type of data and the data sets being considered.

1.4.9 Survey area is defined as '*the geographical extent over which a particular field survey activity took place*'. Similarly, it follows that the survey area will differ depending on the type of survey being considered. For example, no surveys were undertaken for invertebrates, reptiles, birds, or terrestrial mammals, as the extended Phase 1 habitat and protected species survey determined suitability of habitats for these species within the site boundary to be sub-optimal.

1.4.10 Professional judgement has been used to ensure that sufficient ecological information has been obtained within the likely ZoI that has been defined for each habitat and species assemblage. The study area for each habitat and species assemblage generally closely corresponds to the ZoI, whilst the survey areas are more limited in extent, being targeted at key areas where it is envisaged effects on ecological receptors may manifest themselves. For some ecological features, it was not considered necessary to undertake specific field survey work. In these instances, the ecological baseline has been informed by desk-study data obtained within the defined study area.

1.4.11 Study and survey areas were based on the site boundary available at the time of survey, however, please note that the figures show the current site boundary. Full access to the entire survey area, therefore, was not obtained; however, it was considered that sufficient access was obtained to be able to make a reasonable assessment of the value of the habitats to protected or notable species. Areas where access was not obtained for survey are shown on **Figure 7.3** in **Annex 7A.1**.

e) Defining ZoI, study area, and survey area for ecological features

1.4.12 **Table 1.1** defines the ZoI, study area and survey area for the considered ecological features.

Table 1.1: Specific ZoI, study area and survey areas for ecological features.

Ecological Feature		ZoI	Study Area	Survey Area
Designated sites	Statutory	5km	5km	N/A
	Non-statutory	2km	2km	N/A
Plants and Habitats		2km	2km	Within the site boundary.
Invertebrates		2km	2km	Not surveyed as habitat suboptimal.
Reptiles		2km	2km	Not surveyed as habitat sub-optimal.
Amphibians		2km	2km	Within the site boundary and a 500m buffer area*.
Birds		2km	2km	Not surveyed as habitat suboptimal.
Bats		2km	2km	Within the site boundary (and a 10m buffer area for bat tree roost assessments).
Terrestrial Mammals		2km	2km	Within the site boundary.

* This is in accordance with standing advice from Natural England for assessing the impacts of developments on great crested newts (Ref 1.15).

1.5 Desk-study/Baseline Data

a) Approach and methodology

i. Desk study

1.5.1 Records of protected or otherwise notable species of conservation interest within the 2 x 2km Ordnance Survey (OS) tetrad covering the site were obtained from Suffolk Biodiversity Information Service in July 2018.

1.5.2 Statutory and non-statutory designated sites were considered within the following radii from the site boundary:

- internationally (SPA, SAC and Ramsar site) and nationally (SSSI and NNR) recognised sites within 5km; and
- locally recognised sites (Local Nature Reserve, CWS, and RNR) within 2km.

1.5.3 Where designated sites were found to fall within the radii detailed above, citations were obtained from Suffolk Biodiversity Information Service or the Joint Nature Conservation Committee's (Ref 1.16) and Natural England's (Ref 1.17) websites. The citations were reviewed to allow for an assessment of the likely presence of any species or habitats of nature conservation importance which may pose a constraint to the proposed development.

1.5.4 Suffolk's Priority Species and Habitats list (Ref 1.14), and the habitats and species of principal importance included on the Section 41 list of the NERC Act (Ref 1.9), were also reviewed with reference to the habitats and species present, or likely to be present, within the site boundary and wider study area.

ii. Primary data

1.5.5 Surveys carried out in May 2019 included:

- extended Phase 1 habitat and protected species survey, including a badger survey;
- great crested newt Habitat Suitability Index (HSI)[2] surveys; and
- bat tree roost assessments (ground-level assessment only).

1.5.6 Full details of the methodologies employed can be found in **Annex 7A.3**.

b) Results

i. Designated sites

1.5.7 Eleven statutory designated sites (two Ramsar sites, two SPAs, and seven SSSIs) were identified within 5km of the site boundary. Details of these sites are provided in **Table 1.2** whilst their locations are presented on **Figure 7.1** in **Annex 7A.1**.

Table 1.2: Statutory designated sites located within 5km of the site.

Site name	Distance from the nearest point of the site (km)	Reason for designation
Nacton Meadows SSSI	0.90km south-west	Nacton Meadows are of special interest for their areas of fen-meadow. In addition, this site supports a relatively species-rich version of the vegetation community type compared to the other sites in the County.

2 HSI refers to the suitability of ponds to support great crested newts; a score of excellent indicates that the pond is suitable to support great crested newts.

Site name	Distance from the nearest point of the site (km)	Reason for designation
Stour and Orwell Estuaries SPA and Ramsar site	1.60km south	This site qualifies under Article 4.1 of the EC Birds Directive (Ref 1.3) by supporting populations of European importance of the following species listed on Annex I of the Directive over winter: hen harrier (*Circus cyaneus*). This site also qualifies under Article 4.2 of the EC Birds Directive by supporting populations of European importance of the following migratory species over winter: black-tailed godwit (*Limosa limosa*), dunlin (*Calidris alpina alpina*), grey plover (*Pluvialis squatarola*), pintail (*Anas acuta*), redshank (*Tringa totanus*), ringed plover (*Charadrius hiaticula*), shelduck (*Tadorna tadorna*), turnstone (*Arenaria interpres*). The site is also a wetland of international importance and is therefore also designtaed as a Ramsar site under the Ramsar Convention (Ref 1.5).
Orwell Estuary SSSI	1.60km south	The Orwell Estuary is of national importance for breeding avocet (*Recurvirostra avosetta*), its breeding bird assemblage of open waters and their margins, nine species of wintering waterfowl (including black-tailed godwit), an assemblage of vascular plants, and intertidal mud habitats.
Ipswich Heaths SSSI	3.30km north-west	These sites contains the best remnants of a formerly extensive tract of heathland which formed the southern limit of the 'sandlings' heaths of East Suffolk. Both sites contain substantial areas of Heather (*Calluna vulgaris*) heath and acid grassland, together with stands of Bracken (*Pteridium aquilinum*) and gorse (*Ulex europaeus*) scrub, which form a mosaic of habitats of particular value for butterflies. Martlesham Heath is notable for supporting the largest colony of the silver-studded blue butterfly (*Plebejus argus*) in East Anglia, as well as a number of other species.

Site name	Distance from the nearest point of the site (km)	Reason for designation
Newbourn Springs SSSI	4.10km north	Newbourn Springs is a relatively small site which contains a variety of habitats in close juxtaposition. The major part of the site comprises a narrow spring-flushed valley occupied by a fast flowing stream with Alder (*Alnus glutinosa*) 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 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.
Bixley Heaths SSSI	4.20km north-west	Bixley Heath is important for its heathland, which occurs here in association with a scarce swamp vegetation. The presence of these two habitat types within a single site is a particularly rare feature in the Suffolk Sandlings.
Waldringfield Pit SSSI	4.50km north	Waldringfield Pit is a Quaternary geological locality important for a sequence of Middle Pleistocene deposits.
Deben Estuary SPA and Ramsar site	4.90km north-east	This site qualifies under Article 4.1 the EC Birds Directive (Ref 1.3) by supporting populations of European importance of the following species listed on Annex I of the Directive over winter: avocet. The site is also a wetland of international importance and is therefore also designtaed as a Ramsar site under the Ramsar Convention (Ref. 1.5).
Deben Estuary SSSI	4.90km north-east	The Deben Estuary is important for its populations of overwintering 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.

1.5.8 The proposed development will involve no direct land take from any of these statutory designated sites and the site is not linked to any of the designated sites described in **Table 1.2**.

1.5.9 Six non-statutory designated sites (CWSs) were identified within 2km of the site boundary. Details of these sites are provided in **Table 1.3** whilst their locations are presented on **Figure 7.2** in **Annex 7A.1**.

Table 1.3: Non-statutory designated sites located within 2km of the site.

Site name	Distance from the nearest point of the site (km)	Reason for designation
Nacton Meadows CWS	0.59km south-west	An unimproved wet meadow supporting a good range of wetland and emergent plants, as well as acid grassland species in drier areas.
Levington Cut CWS	1.66km south-west	Comprises a mosaic of semi-natural habitats, important for wildlife in it's own right but also provides valuable linking habitat between other seminatural habitats of high wildlife value. Habitat on site includes reedbed (biodiversity priority habitat), wet grassland dry grassland, a belt of ancient trees along the shoreline of the river, scrub, borrow dyke and rank grassland. The site is particularly important for birds.
Kirton Reservoir CWS	1.73km east	This area consists of a mosaic of priority habitats including; lowland meadow, mixed deciduous woodland, wet woodland and ponds with secondary habitat consisting of areas of semi improved grassland, dry acid grassland and mixed scrub.
Home Wood CWS	1.80km south-west	A large wood directly abutting the River Orwell SSSI, with a diverse woodland structure and diverse ground flora including the uncommon Broad-leaved Helleborine (*Epipactis helleborine*), foxglove (*Digitalis* sp.), Bluebell (*Hyacinthoides non-scripta*), and Male-fern (*Dryopteris filix-mas*). Other species characteristic of dry sandy soils occur such as Sheep's Sorrel (*Rumex acetosella*), Dittander (*Lepidium latifolium*), and Lesser Trefoil (*Trifolium dubium*).
Levington Lagoon CWS	1.83km south	One of the major roost sites for waders on the Orwell estuary and is used by a vast number of dunlin, redshank, ringed plover (*Charadrius hiaticula*), oystercatcher (*Haematopus ostralegus*), and knot (*Calidris canutus*). Consists of a saline lagoon with fresh water pools and mudflats which are colonised in part by glasswort (*Salicornia* agg.), Spear-leaved Orache (*Atriplex prostrata*) and Sea Couch (*Elytrigia atherica*). The water level in the saline lagoon is controlled by sluices allowing sea water to flood the area during the spring tides. Saltmarsh islands are managed to encourage redshank, oystercatcher, and avocet to nest.

Site name	Distance from the nearest point of the site (km)	Reason for designation
Stratton Hall Wood CWS Also an Ancient and Semi-Natural Woodland (ASNW) on the Ancient Woodland Inventory (AWI)	1.84km south-east	Ancient woodland. Has had considerable interference through the planting of non-native species such as Poplar (*Poplus* sp.) and Evergreen Oak (*Quercus ilex*). Otherwise the dominant tree is Ash (*Fraxinus excelsior*), with Pedunculate Oak (*Quercus robur*), Sweet Chestnut (*Castanea sativa*), and Alder also occuring. Some areas have been coppiced. Ground flora consists of areas of Common Nettle (*Urtica dioica*) and Dog's-mercury (*Mercurialis perennis*) with Bugle (*Ajuga reptans*), Ramsons (*Allium ursinum*), Opposite-leaved Golden Saxifrage (*Chrysospleniumoppositifolium*), and Primrose (*Primula vulgaris*). There are several small streams in the wood with attendant boggy areas and a large pond. Breeding birds recorded include all three species of woodpecker (*Dendrocopos major, Dendrocopos minor, Picus viridis*), nightingale (*Luscinia megarhynchos*), blackcap (*Sylvia atricapilla*), and spotted flycatcher (*Muscicapa striata*).

1.5.10 These sites comprise reedbed, species-rich grassland, lowland meadow, mixed deciduous woodland (including ancient woodland), wet woodland, ponds, coastal and floodplain grazing marsh, saltmarsh, saline lagoons, and mudflats, all of which are listed under Section 41 of the NERC Act (Ref 1.9) and these habitats are also targeted for action under Suffolk's Priority Species and Habitats list (Ref 1.14).

1.5.11 The development proposals will involve no direct land take from any of these non-statutory designated sites and the site is not linked to any of the designated sites described in **Table 1.3**.

ii. Plants and habitats

1.5.12 The desk-study identified records for plant species within 2km of the site boundary. These records have been examined to identify those recorded within or close to the site boundary. The results are presented in **Annex 7A.2** whilst a summary is presented below.

1.5.13 Records of three notable plant species were noted from the desk-study; Corn Marigold (*Glebionis segetum*), Lesser Spearwort (*Ranunculus flammula*), and Southern Marsh-orchid (*Dactylorhiza praetermissa*). All records were from over 500m from the site boundary, except that of Corn Marigold for which the location information was not of sufficient resolution. Southern Marsh-orchid is associated with damp alkaline meadows, riverbanks, and

sand dunes; these habitats are not present on the site and, therefore, this plant is not expected to be present. Lesser Spearwort is associated with ponds edges, lakes, streams, marshes, and wet meadows; and Corn Marigold is associated with acid arable soils and field boundaries. Whilst habitats on the site are suitable for these species, they were not recorded during the survey.

1.5.14 The Phase 1 habitat plan and associated Target Notes are presented on **Figure 7.3** in **Annex 7A.1**. Target Notes are described in **Annex 7A.3** and are not repeated in this document. Those hedgerows assessed against the Wildlife and Landscape criteria of the Hedgerows Regulations (Ref. 1.1) are also indicated by 'hedgerow numbers' (e.g. H1) on **Figure 7.3** in **Annex 7A.1**. The results of the hedgerow assessment are also presented in **Annex 7A.3**.

1.5.15 No non-native invasive plant species were identified within or immediately adjacent to the site.

1.5.16 The site comprises predominantly intensively managed arable fields. The fields are ploughed and cropped to the hedgerows and fence lines, such that no scarce arable weeds or other notable plant species were recorded on the site.

1.5.17 The fields are bounded by fences and hedgerows; there are two defunct species-poor hedgerows with trees present (H2 and H3) and one defunct species species-rich hedgerow with trees (H1). Hedgerow H1 supports a diverse mix of shrub species including Hawthorn (*Crataegus monogyna*), Pedunculate Oak, Blackthorn (*Prunus spinosa*), Field Maple (*Acer campestre*), Holly (*Ilex aquifolium*), rose (*Rosa* sp.), Hazel (*Corylus avellana*), and Spindle (*Euonymus europaeus*). Hedgerows H2 and H3 are species-poor containing only Hawthorn and Pedunculate Oak or Elder (*Sambucus nigra*), Holly, and Rose. None of the hedgerows are 'important' when assessed against the Wildlife and Landscape Criteria of the Hedgerows Regulations (Ref 1.1). Hedgerows are a Suffolk BAP priority habitat (Ref 1.14) and are listed under Section 41 of the NERC Act (Ref 1.9).

1.5.18 There is no woodland within the site boundary. An area of plantation woodland is present to the west of the site, between the secondary road and the railway line, connecting to larger areas of woodland in the wider area to the west and north of the site.

1.5.19 There are no waterbodies (ponds) within the site boundary. Four ponds are present within 500m of the site boundary, two of which (P005 and P161) are within 10m of the site boundary. All ponds are scoped in for further assessment. Ponds are a habitat listed under Suffolk's Priority Species and Habitats list (Ref 1.14) and are listed under Section 41 of the NERC Act (Ref 1.9).

iii. Invertebrates

1.5.20 There were desk-study records of four invertebrate species within 2km of the site boundary; cinnabar moth (*Tyria jacobaeae*), grayling (*Hipparchia semele*), stag beetle (*Lucanus cervus*), and tanner beetle (*Prionus coriarius*). Records for stag beetle and tanner beetle were all over 500m from the site, whilst location data for records for cinnabar moth and grayling were not of sufficient resolution to determine their location in reference to the site boundary. Cinnabar moth, grayling, and stag beetle are all listed under Section 41 of the NERC Act (Ref 1.9); and grayling and stag beetle are also on Suffolk's Priority Species and Habitats list (Ref 1.14).

1.5.21 Cinnabar moth larvae feed on Common Ragwort (*Senecio jacobaea*), which was recorded on the road verge within the site boundary, therefore, this species could potentially be present within the site. Stag beetle and tanner beetle larvae feed on decaying wood and so could also potentially be present within the site. Grayling occur in areas with dry, well-drained soils and sparse vegetation, most commonly coastal, and require specific grasses as host plants; these habitats were not recorded within the site boundary, and, therefore, Grayling is unlikely to be present.

1.5.22 The extended Phase 1 survey did not identify any habitat of particular value to invertebrates. Most of the site comprises arable fields and hedgerows of limited value for invertebrate species.

iv. Amphibians

1.5.23 There was only one amphibian desk-study record of smooth newt (*Lissotriton vulgaris*) within 2km of the site boundary, located approximately 1.1km north of the site boundary.

1.5.24 Suffolk is a stronghold for great crested newt, particularly in the north-east of the county, where there is a higher abundance of ponds (Ref 1.18). Great crested newt is protected under Schedule 5 of the Wildlife and Countryside Act (Ref 1.7), listed under Section 41 of the NERC Act (Ref 1.9) and Suffolk's Priority Species and Habitats list (Ref 1.14). Great crested newt is also protected under Schedule 2 of the Conservation of Habitats and Species Regulations (Ref 1.10). However, no records of great crested newt within 2km of the site boundary were returned by the desk-study.

1.5.25 Four ponds are within 500m of the site boundary (see **Figure 7.4** in **Annex 7A.1**). All ponds were scoped in for further assessment; however, access was not obtained for these ponds (P003, P004, P005, and P161). Ponds P005 and P161 are within 10m of the site boundary and it was possible to undertake an HSI assessment. These both resulted in a 'good' HSI score. As no access was granted, it was not possible to undertake eDNA surveys

of these ponds. Additionally, no HSI assessments or eDNA surveys were undertaken on ponds P003 and P004. For full details of survey results, please refer to **Annex 7A.3**.

1.5.26 While the HSI assessment for Ponds P005 and P161 resulted in a 'good' score category, the habitats on site, which mainly consist of intensively managed arable fields, are of limited value to great crested newt and lacked connectivity to other suitable habitats. It is, therefore, considered likely that great crested newt is absent from the site.

v. Reptiles

1.5.27 There were no desk-study records of reptiles within 2km of the site boundary. A review of Suffolk's Priority Species and Habitats list identified adder (*Vipera berus*), common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica helvetica*), and slow-worm (*Anguis fragilis*) as priority species (Ref 1.14). In addition, all four species are included within Section 41 of the NERC Act (Ref 1.9).

1.5.28 Within the site boundary, suitable habitat for reptiles is extremely limited, but includes marginal habitats, such as field boundaries. These are restricted in extent and often isolated within large tracts of arable farmland, and therefore, of limited value to reptiles.

vi. Birds

1.5.29 The desk study presented in **Annex 1.2** returned a considerable number of bird records. Many of these species are associated with the Stour and Orwell Estuaries Ramsar site, SPA, and SSSI, which is within 1.6km south of the site boundary. Details of which statutory and non-statutory designated sites have particular species cited as interest features are provided in **Table 1.2**. The arable fields on the site are not considered to be functionally-linked to this designated site, and these wetland and coastal bird species are not expected to be present within the site boundary.

1.5.30 Professional judgement has been used to identify the notable species that could potentially use the habitats present within the site, these bird species are listed in **Table 1.4** alongside their conservation status and/or legislative protection.

Table 1.4: Desk-study records for notable bird species within 2km of the site and their conservation status and/or legislative protection.

Common name	Sch 1 Wildlife and Countryside Act *	Section 41 NERC Act	Red List (BoCC)	Amber List (BoCC)
Barn owl (*Tyto alba*)	✓			
Brambling (*Fringilla montifringilla*)	✓			
Bullfinch (*Pyrrhula pyrrhula*)		✓		✓
Cetti's warbler (*Cettia cetti*)	✓			
Common (mealy) redpoll (*Acanthis flammea*)				✓
Corn bunting (*Emberiza calandra*)		✓	✓	
Cuckoo (*Cuculus canorus*)		✓	✓	
Dunnock (*Prunella modularis*)		✓		✓
Fieldfare (*Turdus pilaris*)	✓		✓	
Grey partridge (*Perdix perdix*)		✓	✓	
Hen harrier (*Circus cyaneus*)	✓	✓	✓	
Hobby (*Falco subbuteo*)	✓			
Honey buzzard (*Pernis apivorus*)	✓			✓
House martin (*Delichon urbicum*)				✓
House sparrow (*Passer domesticus*)		✓	✓	
Kestrel (*Falco tinnunculus*)				✓
Lapwing (*Vanellus vanellus*)		✓	✓	
Lesser redpoll (*Acanthis cabaret*)		✓	✓	
Lesser spotted woodpecker (*Dendrocopos minor*)		✓	✓	
Linnet (*Linaria cannabina*)		✓	✓	
Meadow pipit (*Anthus pratensis*)				✓
Merlin (*Falco columbarius*)	✓		✓	
Mistle thrush (*Turdus viscivorus*)			✓	
Nightingale (*Luscinia megarhyncho*)			✓	
Peregrine (*Falco peregrinus*)	✓			
Red kite (*Milvus milvus*)	✓			
Redwing (*Turdus iliacus*)	✓		✓	

Common name	Sch 1 Wildlife and Countryside Act *	Section 41 NERC Act	Red List (BoCC)	Amber List (BoCC)
Short-eared owl (*Asio flammeus*)				✓
Skylark (*Alauda arvensis*)		✓	✓	
Song thrush (*Turdus philomelos*)		✓	✓	
Spotted flycatcher (*Muscicapa striata*)		✓	✓	
Starling (*Sturnus vulgaris*)		✓	✓	
Stock dove (*Columba oenas*)				✓
Swift (*Apus apus*)				✓
Tawny owl (*Strix aluco*)				✓
Tree sparrow (P*asser montanus*)		✓	✓	
Turtle dove (*Streptopelia turtur*)		✓	✓	
Whinchat (*Saxicola rubetra*)			✓	
Willow warbler (*Phylloscopus trochilus*)				✓
Woodlark (*Lullula arborea*)	✓	✓		
Yellow wagtail (*Motacilla flava*)		✓	✓	
Yellowhammer (*Emberiza citrinella*)		✓	✓	

*Sch 1 Wildlife and Countryside Act = Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) Ref. 1.7

1.5.31 In addition to the above, records of a further seven species that are either included on the Green List of BOCC (Ref 1.12) or of low conservation concern were also returned by the desk-study.

1.5.32 Of the bird species listed in **Table 1.4**, an assemblage of birds typical of farmland habitats, including species such as corn bunting, grey partridge, lapwing, linnet, turtle dove, tree sparrow, yellowhammer, and yellow wagtail, as well as ground-nesting species such as skylark, could be present on the site. However, the habitats are intensively managed and sub-optimal for the species and so at best only small numbers would be present on site with few expected to be breeding. It is also possible that some bird species listed on Schedule 1 of the Wildlife and Countryside Act (Ref 1.7), such as barn owl could use the site for foraging as part of the wider landscape.

1.5.33 Although specific bird surveys were not undertaken on the site, the assumed presence of a small number of farmland birds is supported by breeding bird surveys undertaken at a similar associate development site (**Volume 6**

Sizewell Link Road: Chapter 7: Appendix 7A), which also concluded presence of a farmland bird assemblage. Farmland birds have been declining nationally since the 1970's (Ref 1.19) and many species are included within Section 41 of the NERC Act (Ref 1.9) as well as being listed on Suffolk's Priority Species and Habitats list (Ref 1.14).

vii. Bats

1.5.34 The desk-study returned 15 records of bats within 2km of the site boundary. Species recorded were common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), and brown long-eared bat (*Plecotus auritus*). The two brown long-eared bat records (from 2012) were related to roosts located 0.62km and 0.81km north of the site. The other records of common pipistrelle and soprano pipistrelle were unspecified. All bat records were over 500m north of the site.

1.5.35 All species of bats found in the UK are protected under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (Ref 1.10) and Schedule 5 of the Wildlife and Countryside Act (Ref 1.7). Certain species of bat; barbastelle (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), soprano pipistrelle, brown long-eared bat, greater horseshoe bat (*Rhinolophus ferrumequinum*), and lesser horseshoe bat (*Rhinolophus hipposideros*); are listed under Section 41 of the NERC Act (Ref 1.9). In addition to the Section 41 species, serotine (*Eptesicus serotinus*), Brandts (*Myotis brandtii*), Daubenton's (*Myotis daubentonii*), whiskered bat (*Myotis mystacinus*), natterer's bat (*Myotis nattereri*), Leisler's bat (*Nyctalus leisleri*), Nathusius' pipistrelle (*Pipistrellus nathusii*), and common pipistrelle, are also listed on Suffolk's Priority Species and Habitats list (Ref 1.14).

1.5.36 A summary of the bat surveys undertaken at the site is provided below. Full details of the results of these surveys can be found in **Annex 1.3**.

1.5.37 The extended Phase 1 habitat and protected species survey identified the habitats present on the site to be primarily arable fields of limited value to bats. Mature trees were also recorded, which have potential to support roosting bats and the hedgerows provide limited foraging and commuting opportunities. There is no woodland within the site. An area of plantation woodland is present to the west of the site, between the secondary road and the railway line, connecting to larger areas of woodland in the wider area to the west and north of the site. This area is likely to contain trees with potential to support roosting bats and provide foraging and commuting opportunities.

1.5.38 The bat tree roost assessment survey identified 18 trees with the potential to support roosting bats (supporting a total of 41 potential roost features) within

the boundary of the site. The locations of these trees are illustrated on **Figure 7.5** in **Annex 7A.1**. A summary of the results is provided in **Table 1.5**.

Table 1.5: Summary of the bat tree roost assessment results

Tree roost assessment level	Number of trees identified	Number of potential roost features
Moderate	10	31
Low	8	10

viii. Terrestrial mammals

1.5.39 The desk-study returned 16 records of terrestrial mammals within 2km of the site boundary, comprising brown hare, badger, and hedgehog.

1.5.40 There were no desk-study or survey records of hazel dormouse, water vole, or otter and no habitat suitable to support these species was recorded on the site. These species are considered absent from the site.

1.5.41 There was a single desk-study record of badger. The location information was not of sufficient resolution to determine the location of the record in reference to the site. No badger setts or signs of badger were recorded during the extended Phase 1 habitat and protected species survey. The habitats on the site are of limited value to badgers for foraging. Badger are considered to be absent from the site.

1.5.42 A single brown hare was recorded during the extended Phase 1 habitat and protected species survey. One of the brown hare desk-study records was from within the site boundary. The other seven brown hare records were between 0.28km and 0.6km north and north-east of the site boundary. The habitats on site are of moderate value to brown hare. Brown hare are listed under Section 41 of the NERC Act (Ref 1.9) and Suffolk's Priority Species and Habitats list (Ref 1.14).

1.5.43 The seven hedgehog records were mostly from north of the site, with two records from east and south-east of the site. The closest record was 0.15km east of the site boundary. Hedgehog were not recorded during the extended Phase 1 habitat and protected species survey. The habitats on site are of moderate value to hedgehog. Hedgehog are listed under Section 41 of the NERC Act (Ref 1.9) and Suffolk's Priority Species and Habitats list (Ref 1.14).

1.6 Baseline Conditions - Ecological Features and their Importance

a) Assessment Methodology

1.6.1 The purpose of this final section is to describe the distribution and relative abundance of the habitats and species present within the ZoI of the site boundary, and to use this information, in the context of the wider distribution, to assess the importance of the habitats and species that could be affected by the proposed development. This assessment will then be used, in conjunction with a description of the extent and magnitude of the predicted impacts of the scheme, to carry out the detailed EcIA presented in **Chapter 7** of **Volume 8** of the **ES**.

1.6.2 To comply with both the CIEEM Guidelines for Ecological Impact Assessment (Ref 1.2) and with the standard EIA methodology used elsewhere within the ES, both methodologies have been used to assess the habitats and species within the ZoI of the proposed development.

1.6.3 Under the CIEEM guidelines (Ref 1.2), the first stage is to identify IEFs, to include habitats, species and ecosystems, including ecosystem function and processes, with reference to the geographical context in which they are considered important. An assessment is then made of whether these IEFs will likely be subject to impacts and, if so, these are taken forward into the EcIA as a material consideration in the planning decision. Where protected species are present and there is the potential for a breach of the legislation, those species are also considered to be IEFs to be included in the EcIA.

1.6.4 Those IEFs that qualify purely on the basis of legislative considerations (such as badger) rather than as a result of their conservation status, are addressed separately in the EcIA from those that are of material concern, with the latter being assessed in greater detail. For both, the ES outlines what measures are required to prevent any contravention of the legislation.

1.6.5 In line with the CIEEM guidelines (Ref 1.2), the importance of an ecological feature, as determined with reference to legal, policy and/or nature conservation considerations, has been assessed within the following geographical context:

- International and European importance;
- National importance (i.e. England);
- Regional importance (i.e. the East of England);
- County importance (i.e. Suffolk); and

- Local importance (within ZoI of the scheme).

1.6.6 The following table (**Table 1.6**) has also been used in order to assess the ecological features in accordance with the wider EIA methodology.

Table 1.6: Criteria for assessment of ecological importance*.

Importance	Criteria	
High	International; UK; National (England)	Very high importance and rarity. Feature/resource possesses key characteristics which contribute significantly to the distinctiveness, rarity and character of the site (for example designated features of international/national importance, such as SACs, SPAs, Ramsar sites and SSSIs.
Medium	Regional (East Anglia); County (Suffolk)	Medium importance and rarity, regional scale. Feature/resource possesses key characteristics which contribute significantly to the distinctiveness and character of the site/receptor (for example designated features of regional or county importance, such as CWSs, County BAP habitats, etc.).
Low	Local - district/ borough (Suffolk Coastal)	Low or medium importance and rarity, local scale. Feature/resource possesses characteristics which are only locally significant. Feature/resource not designated or only designated at a district or local level (for example local nature reserve).
Very low	Within the ZoI	Feature/resource characteristics do not make a significant contribution to local character or distinctiveness. Feature/resource not designated.

*As part of the assessment process, the sensitivity of the ecological features has also been assessed. Sensitivity has not been addressed within the ecological baseline. Sensitivity and a detailed rationale explaining how a particular sensitivity rating has been arrived at for each ecological feature is addressed in the Environment Statement. [Note that Importance and Sensitivity are assessed separately, as they are to an extent independent of each other (e.g. a feature of high value could be of low sensitivity, and vice versa)].

b) Description and assessment of ecological features

1.6.7 This section sets out the relevant ecological features and their importance and discusses each in turn. For each feature, its importance is described by:

- Description and distribution: the habitat or species is described in terms of its distribution and abundance locally, regionally and nationally.

- Assessment: the habitat or species is described by its protected/nature conservation status, and other measures of value, to determine its relative importance both in terms of the CIEEM guidelines (Ref 1.2) and the wider EIA assessment methodology.

1.6.8 As outlined in **section 2,** the legislative and policy framework for each ecological receptor is considered in full and, together with professional

judgement, is used to assign a value to each ecological receptor. This technical appendix gives a detailed rationale for the value assigned to each ecological receptor and the conclusions reached.

i. Feature: Designated sites

Description and distribution

1.6.9 Eleven statutory designated sites (two Ramsar sites, two SPAs, and seven SSSIs) were identified within 5km of the site boundary. Six non-statutory designated sites (CWSs) were identified within 2km of the site boundary. These sites are detailed in **Table 1.2** and **Table 1.3**.

Assessment

1.6.10 Given that:

- Stour and Orwell Estuaries and Deben Estuary SPAs and Ramsar sites support Annex I species of European importance listed on Article 4 of the EC Birds Directive (Ref 1.3), and are wetlands of international importance;
- Stour and Orwell Estuaries SPA and Ramsar site support populations of European importance of migratory bird species over winter;
- Orwell Estuary SSSI, Ipswich Heaths SSSI, Newbourn Springs SSSI, Bixley Heaths SSSI, Deben Estuary SSSI, and Nacton Meadows SSSI support habitats and species of national importance;
- no direct land take from these sites will occur; and
- these sites are sufficiently distant that no obvious direct or indirect impact pathways have been identified;

then these statutory designated sites within the ZoI of the proposed development would be:

- an IEF at the international (SPA, SAC and Ramsar sites)/national (SSSI sites) level under the CIEEM guidelines (Ref 1.2);
- of high importance following the EIA-specific assessment methodology; and
- scoped out of the detailed assessment as there would be no direct or indirect impacts.

1.6.11 Given that the CWSs (Nacton Meadows CWS, Levington Cut CWS, Kirton Reservoir CWS, Home Wood CWS, Levington Lagoon CWS, and Stratton Hall Wood CWS):

- support habitat types listed on Section 41 of the NERC Act (Ref 1.9) and are targeted for action in the Suffolk BAP (Ref 1.13);
- no direct land take from these sites will occur; and
- these sites are sufficiently far away so that no direct or indirect impact pathways have been identified;

then these non-statutory designated sites within the ZoI of the proposed development would be:

- an IEF at the county level under the CIEEM guidelines (Ref 1.2);
- of medium importance following the EIA-specific assessment methodology; and
- scoped out of the detailed assessment as there would be no direct or indirect impacts.

ii. Feature: Plants and habitats

Description and distribution

1.6.12 Arable farmland, which is widespread in Suffolk, is the main habitat present, and no botanically-rich arable margins were identified. Only one species-rich hedgerow was identified within the site line boundary, the other two being species-poor, and all three hedgerows were defunct (not-intact). Hedgerows have been targeted for action in the Suffolk BAP (Ref 1.13). At the last assessment (2004), there were an estimated 12,500km to 15,000km of species-rich hedgerow in the county (Ref 1.20).

1.6.13 The Suffolk BAP states that Suffolk 'has a very high density of ponds with an estimate of 22,635 across the county' (Ref 1.13); however, only four ponds were identified within 500m of the site boundary, two of these being within 10m of the site boundary.

Assessment

1.6.14 Given that:

- hedgerows and ponds are Suffolk BAP priority habitats (Ref 1.13) and are also listed under Section 41 of the NERC Act (Ref 1.9);
- arable habitat is widespread in Suffolk and no botanically-rich field margins were identified;
- only one species-rich hedgerow was identified within the site, which will be retained in its entirety;
- all hedgerows were defunct;
- the retained hedgerows will be protected by a 10m buffer;
- none of the hedgerows classified as 'important' under the Hedgerows Regulations (Ref 1.1);
- the two ponds within 10m of the site boundary would be retained in their entirety; and
- the area of plantation woodland would be retained in its entirety;

then the arable habitat features within the ZoI of the proposed development would:

- not be an IEF under the CIEEM guidelines (Ref 1.2); and
- be of very low importance following the EIA-specific assessment methodology;

then hedgerow and pond habitat features within the ZoI of the proposed development would:

- not be an IEF under the CIEEM guidelines (Ref 1.2); and
- be of low importance following the EIA-specific assessment methodology;

then the plantation woodland habitat within the ZoI of the proposed development would:

- not be an IEF under the CIEEM guidelines (Ref 1.2); and
- be of very low importance following the EIA-specific assessment methodology.

iii. Feature: Invertebrates

Description and distribution

1.6.15 Desk-study records identified species such as cinnabar moth and stag beetle, which are listed under Section 41 of the NERC Act (Ref 1.9), and tanner beetle, that could occur within the site boundary. No habitat of value for invertebrates was identified within the site. Most of the site comprises arable fields, with one species-rich hedgerow, and other hedgerows largely defunct or species-poor, and some mature trees and deadwood, but with no other features of particular importance to invertebrate species.

Assessment

1.6.16 Given that:

- the desk study identified species such as cinnabar moth and stag beetle, which are listed under Section 41 of the NERC Act (Ref 1.9), and tanner beetle, that could occur within the site boundary;
- most of the site comprised arable fields and hedgerows of limited value to invertebrate species; and
- these habitats are common and widespread and the site is not expected to support a diverse or notable invertebrate assemblage;

then the invertebrate assemblage within the ZoI of the proposed development would:

- not be an IEF under the CIEEM guidelines (Ref 1.2); and
- be of very low importance following the EIA-specific assessment methodology.

iv. Feature: Amphibians

Description and distribution

1.6.17 There was one desk-study record of smooth newt, located 1.1km north of the site. There were no desk-study records of great crested newt or any other amphibians within 2km of the site.

1.6.18 There are four ponds within 500m of the site (P003, P004, P005, and P161). Access was not obtained to any of these ponds. An HSI assessment was possible for Ponds P005 and P161 (which are within 10m of the site boundary). While the HSI score for Ponds P005 and P161 was ‘good’, the

habitats on site mainly consist of intensively managed arable fields, of limited value to great crested newt, and lack connectivity to other suitable habitats. It is, therefore, considered unlikely that great crested newt or other common amphibian species would be present on the site.

Assessment

1.6.19 Given that:

- there was one amphibian record (of smooth newt) over 1km from the site;
- great crested newt are protected under Schedule 2 of the Conservation of Habitats and Species Regulations (Ref 1.10), Schedule 5 of the Wildlife and Countryside Act (Ref 1.7), and are listed under Section 41 of the NERC Act (Ref 1.9) and Suffolk's Priority Species and Habitats list (Ref 1.14);
- there were no desk-study records of great crested newts;
- the majority of the site comprises arable fields of limited value to amphibians; and
- the two ponds adjacent to the site would be protected by a 10m buffer;

then, notwithstanding the legal protection afforded to this species, great crested newt within the ZoI of the proposed development would:

- not be an IEF under the CIEEM guidelines (Ref 1.2);
- be of very low importance following the EIA-specific assessment methodology;

then the remaining amphibian assemblage within the ZoI of the proposed development would:

- not be an IEF under the CIEEM guidelines (Ref 1.2); and
- be of very low importance following the EIA-specific assessment methodology.

v. Feature: Reptiles

Description and distribution

1.6.20 There were no desk-study records of reptile species within 2km of the site. Within the site boundary, suitable habitat for reptiles is extremely limited, but includes marginal habitats, such as field boundaries. These are restricted in extent and often isolated within large tracts of arable farmland, and therefore, are of limited value to reptiles.

Assessment

1.6.21 Given that:

- the four common species of reptiles are protected under the Wildlife and Countryside Act (Ref 1.7) and are included within Section 41 of the NERC Act (Ref 1.10) and also listed on Suffolk's Priority Species and Habitats list (Ref 1.14);
- there were no desk-study records of reptile species within 2km of the site; and
- most of the site comprises arable fields of limited value to reptiles;

then, notwithstanding the legal protection afforded to these species, the reptile assemblage within the ZoI of the proposed development would:

- not be an IEF under the CIEEM guidelines (Ref 1.2); and
- be of very low importance following the EIA-specific assessment methodology.

vi. Feature: Ornithology

Description and distribution

1.6.22 The desk study returned a considerable number of bird records. Most of these records are associated with the Stour and Orwell Estuaries Ramsar site, SPA and SSSI, which is within 1.6km of the site. Habitats on the site are intensively managed arable land that is not considered to be functionally-linked to this designated site, and these wetland and coastal bird species are not expected to be present within the site boundary.

1.6.23 Of the other desk-study bird species records, an assemblage of birds typical of farmland habitats, including species such as such as corn bunting, grey partridge, lapwing, linnet, turtle dove, tree sparrow, yellowhammer, and

yellow wagtail, as well as ground-nesting species such as skylark, could be to be present on the site in small numbers. This is supported by breeding bird surveys undertaken at a similar associated development site which also recorded presence of a farmland bird assemblage. It is also possible that some bird species listed on Schedule 1 of the Wildlife and Countryside Act (Ref 1.7), such as barn owl could use the site for foraging as part of the wider landscape.

Assessment

1.6.24 Given that:

- the desk study returned a considerable number of bird records associated with Stour and Orwell Estuaries Ramsar site, SPA and SSSI (1.6km away), for which there is no functionally-linked land on the site;
- there is likely to be small number of farmland birds using the site;
- farmland birds have been declining nationally since the 1970's (Ref 1.19) and many species are included within Section 41 of the NERC Act (Ref 1.9) as well as being listed on Suffolk's Priority Species and Habitats list (Ref 1.14);
- intensively managed arable habitat is widespread in Suffolk;
- the arable habitat is not being managed specifically to benefit breeding birds;
- the habitats are small in area and of poor quality;
- the farmland bird assemblage using the site is likely to be low in numbers and have poor species diversity; and
- wetland and coastal bird species are not expected to be present on the site;

then, notwithstanding the legal protection afforded to nesting bird species, the bird assemblage within the ZoI of the proposed development would:

- not be an IEF under the CIEEM guidelines (Ref 1.2); and
- be of low importance following the EIA-specific assessment methodology.

vii. Feature: Bats

Description and distribution

1.6.25 There were 15 desk-study records of bats within 2km of the site (all over 500m from the site. Species recorded comprised common pipistrelle, soprano pipistrelle, and brown long-eared bat.

1.6.26 The extended Phase 1 habitat and protected species survey of the site identified the habitats present to be primarily arable fields of limited value to bats. The mature trees have potential to support roosting bats and the fragmented hedgerows provide limited foraging and commuting opportunities. There is no woodland within the site. An area of plantation woodland is present to the west of the site, between the secondary road and the railway line, connecting to larger areas of woodland in the wider area to the west and north of the site. This area is likely to contain trees with potential to support roosting bats and provide foraging and commuting opportunities.

1.6.27 The bat tree roost assessment survey identified 18 trees with the potential to support roosting bats (ten trees with moderate potential and eight trees with low potential) within the site boundary.

Assessment

1.6.28 Given that:

- there were 18 trees within the site with moderate or low potential to support roosting bats;
- all species of bats found in the UK are protected under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (Ref 1.10) and Schedule 5 of the Wildlife and Countryside Act (Ref 1.7), certain species of bat are listed under Section 41 of the NERC Act (Ref 1.9), and some species are also listed on Suffolk's Priority Species and Habitats list (Ref 1.14);
- there were no records of bats within the site boundary; and
- most of the site comprises arable fields of limited foraging and commuting value to bats;

then, notwithstanding the legal protection afforded to roosting bats, the bat assemblage within the ZoI of the proposed development would be:

- an IEF at the local level under the CIEEM guidelines (1.2); and

- of low importance following the EIA-specific assessment methodology.

viii. Feature: Terrestrial mammals

Description and distribution

1.6.29 There were seven hedgehog desk-study records within 2km of the site, the closest of which was 0.15km east if the site boundary. No hedgehogs were recorded during the extended Phase 1 habitat and protected species survey. The habitats on site are of moderate value to hedgehogs.

1.6.30 There was one of the brown hare desk-study records was from within the site boundary. A single brown hare was recorded on the site during the extended Phase 1 habitat and protected species survey. East Anglia is a reservoir for brown hare, holding approximately 20% of the national population across the three counties (Cambridgeshire, Suffolk and Norfolk) (Ref 1.21). Brown hare is widespread in Suffolk (Ref 1.22); however, recent reports in the east of England in 2018 suggest brown hare are suffering from a disease epidemic with records of sick or dead animals (Ref 1.23). The one individual recorded on site would not comprise a significant contribution to the wider population of this highly mobile species.

Assessment

1.6.31 Given that:

- brown hare and hedgehog are listed on Suffolk's Priority Species and Habitats list (Ref 1.14) and Section 41 of the NERC Act (Ref 1.9);
- there were desk-study records for brown hare and hedgehog within 2km of the site, and the habitat within the site boundary is suitable for brown hare and hedgehog;
- brown hare was recorded on the site during surveys; and
- the populations of brown hare and hedgehog using the site would not be a significant contribution to the wider population of these species;

then brown hare and hedgehog within the ZoI of the proposed development would:

- not be IEFs under the CIEEM guidelines (Ref 1.2); and
- be of very low importance following the EIA-specific assessment methodology.

c) Summary of ecological features/receptors

1.6.32 Following a review of the known baseline within the Zol, **Table 1.7** lists the ecological features/receptors and details that will be carried forward into the detailed assessment. Those carried forward are IEFs of sufficient conservation value that will be sufficiently affected by the proposed development to require material consideration within the assessment.

There are a number of ecological receptors that, while not of significant nature conservation value within the Zol, do require some consideration because of the legislative protection afforded to them. While not taken forward for detailed assessment, these are considered further in the ES, where appropriate secondary mitigation is prescribed to ensure legislative compliance.

Table 1.7: Determination of IEFs for the proposed development to be taken forward for detailed assessment

Feature/Receptor	Importance (CIEEM/EIA Methodology)	Justification	Scoped In or Out
Statutory designated sites within 5km of the site boundary	International/High	The statutory designated sites support a range of important and European protected habitats and species. Given the distance of these sites from the proposed development (the closest of which is 0.9km south-west), and the implementation of the primary and tertiary mitigation measures detailed in **section 7.5** of **Chapter 7** of **Volume 8** of the **ES**, no direct or indirect impacts are anticipated on statutory designated sites. The statutory designated sites (Stour and Orwell Estuaries SPA and Ramsar site, Orwell Estuary SSSI, Ipswich Heaths SSSI, Newbourn Springs SSSI, Bixley Heaths SSSI, Waldringfield Pit SSSI, Deben Estuary SPA and Ramsar site, Deben Estuary SSSI, and Nacton Meadows SSSI) have therefore been scoped out of the detailed assessment.	Scoped out
Non-statutory designated sites within 2km of the site boundary	County/Medium	The non-statutory designated sites support a range of habitats that are listed on Section 41 of the NERC Act (Ref 1.9) and that are targeted for action in the Suffolk BAP (Ref 1.13). Given the distance of these sites from the site (the closest of which is 0.59km south-west, and the implementation of the primary and tertiary mitigation measures detailed in **section 7.5** of **Chapter 7** of **Volume 8** of the **ES**, no direct or indirect impacts are anticipated on the non-statutory designated sites.. The non-statutory designated sites (Nacton Meadows CWS, Levington Cut CWS, Kirton Reservoir CWS, Home Wood CWS, Levington Lagoon CWS, and Stratton Hall Wood CWS) have therefore been scoped out of the detailed assessment.	Scoped out
Arable habitats	Local/Very Low	There will be loss of the arable habitat on site to accommodate the proposed development. As arable habitat is widespread in Suffolk and no botanically-rich field margins were identified it is not considered that the loss of this habitat would result in a significant impact. Arable habitats have therefore been scoped out of the detailed assessment.	Scoped out
Hedgerow and pond habitats	Local/Low	Hedgerows are a priority habitat under Section 41 of the NERC Act (Ref 1.9) and are listed on Suffolk's Priority Species and Habitats list (Ref 1.14). There would be loss of one defunct species-poor hedgerow with trees on site to accommodate the proposed development. The remaining two hedgerows (one defunct species-rich hedgerow with trees and one defunct species-poor hedgerow with trees) would be retained, for	Scoped out

Feature/Receptor	Importance (CIEEM/EIA Methodology)	Justification	Scoped In or Out
		as much as possible. None of the hedgerows are classified as 'important' under the Hedgerows Regulations (Ref 1.1). The retained hedgerows will be protected by a 10m buffer and new screen planting comprising native species will compensate for the removed hedgerow. Ponds are a priority habitat under Section 41 of the NERC Act (Ref 1.9) and are listed on Suffolk's Priority Species and Habitats list (Ref 1.14). The ponds adjacent to the site will be retained and protected by a 10m buffer. Therefore, hedgerow and pond habitats have been scoped out of the detailed assessment.	
Invertebrate assemblage	Local/Very Low	No habitat of particular value to invertebrates was identified within the site. Most of the site comprises arable fields, with one species-rich hedgerow but with hedgerows largely defunct or species-poor, and with no other features of particular importance to invertebrate species. Therefore, invertebrates have been scoped out of the detailed assessment.	Scoped out
Great crested newts	Local/Very Low	There were no desk-study records of great crested newt within the ZoI and the majority of the site comprises arable fields of limited value to amphibians. Therefore, great crested newt have been scoped out of the detailed assessment.	Scoped out
Other amphibians	Local/Very Low	There was only one amphibian desk-study record (of smooth newt) within the ZoI. Most of the site comprises arable fields of limited value to amphibians. Therefore, amphibians have been scoped out of the detailed assessment; however.	Scoped out
Reptile assemblage	Local/Very Low	There were no reptile desk-study records within the ZoI. Most of the site comprises arable fields of limited value to reptiles. Therefore, reptiles have been scoped out of the detailed assessment.	Scoped out
Bird assemblage	Local/Low	There is expected to be a farmland bird assemblage present within the site, representative of the arable habitats present; the assemblage is likely to be low in numbers and have poor species diversity considering the small size and low quality of the habitats within the site. Intensively managed arable habitat is widespread in Suffolk, and the site is not being managed specifically to benefit birds. It is not considered that any significant effects would occur on the bird populations as a result of the proposed development.	Scoped out

Feature/Receptor	Importance (CIEEM/EIA Methodology)	Justification	Scoped In or Out
		Therefore, birds are scoped out of the detailed assessment, details of the tertiary mitigation measures employed to protect birds have been detailed within **section 7.5** of **Chapter 7** of **Volume 8** of the **ES**.	
Bat assemblage	Local/Low	All bat species in the UK are protected under the Conservation of Habitats and Species Regulations (Ref 1.10). Additional relevant legislation includes the Wildlife and Countryside Act (Ref 1.7), and the NERC Act (Ref 1.9). There were no records of bats within the site boundary and most of the habitats within the site were of limited value to foraging and commuting bats. There are 18 trees within the site with moderate or low potential to support roosting bats. The degree of sensitivity bats display varies between species; however, it is recognised that all bat species can be negatively impacted by anthropogenic activities. Therefore, the bat assemblage is scoped into the detailed assessment.	**Scoped in**
Brown hares and hedgehogs	Local/Very Low	Brown hare and hedgehog are listed on Suffolk's Priority Species and Habitats list (Ref 1.14) and Section 41 of the NERC Act (Ref 1.9) and there were desk-study records of brown hare and hedgehog within 2km of the site. The habitat within the site boundary is suitable for brown hare and hedgehog and a brown hare was recorded on the site during surveys. The populations of brown hare and hedgehog using the site would not be a significant contribution to the wider population of these species and effects are unlikely to be significant. Therefore, brown hare and hedgehog have been scoped out of the detailed assessment, details of the tertiary mitigation measures employed to protect these species have been detailed within **section 7.5** of **Chapter 7** of **Volume 8** of the **ES**.	Scoped out

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VOLUME 8, CHAPTER 7, APPENDIX 7A: ANNEX 7A.2: DESK STUDY

Contents

Tables

Plates

None provided.

Figures

None provided.

1. Desk Study

1.1 Methodology

1.1.1 Desk-study records of protected or otherwise notable species of conservation interest from the last ten years within the 2 x 2 kilometre (km) Ordnance Survey (OS) tetrad covering the freight management facility at Seven Hills (hereafter referred to as the 'proposed development') were obtained from Suffolk Biodiversity Information Service (SBIS) in July 2018. The freight management facility site (herein referred to as the 'site') is located on land to the south-east of the A12 and A14 junction.

1.2 Results

a) Plants

1.2.1 **Table 1.1** below summarises the desk-study results for plants recorded in the last ten years within the 2km Zone of Influence (ZoI) of the site.

Table 1.1: Desk study results for plants

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Corn Marigold	*Glebionis segetum*	Levington	-	TM2339	52.00414264	1.249368386	2016		N/A*
Lesser Spearwort	*Ranunculus flammula*	Nacton Meadows	-	TM2319540005	52.0130864	1.252859596	2015	3 Count	0.77km south-west
		Nacton Meadows	-	TM2318940005	52.01308881	1.252772304	2015	2 Count	0.77km south-west
		Nacton Meadows	-	TM2315440079	52.0137672	1.252311318	2015	3 Count	0.75km south-west
Southern Marsh-orchid	*Dactylorhiza praetermissa*	Nacton Meadows	-	TM2318840023	52.0132508	1.252769486	2015	2 Count	0.76km south-west
		Nacton Meadows	-	TM2318940005	52.01308881	1.252772304	2015	4 Count	0.77km south-west
		Nacton Meadows	-	TM2317440047	52.01347188	1.252581443	2015	3 Count	0.75km south-west

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Nacton Meadows	-	TM2319540005	52.0130864	1.252859596	2015	3 Count	0.77km south-west
		Nacton Meadows	-	TM2307140104	52.01402499	1.251120042	2015	2 Count	0.80km south-west

**Distance from the site boundary can only be calculated where location of the record has been provided to sufficent accuracy.*

b) Invertebrates

1.2.2 **Table 1.2** below summarises the desk-study results for invertebrates recorded in the last ten years within the 2km ZoI of the site.

Table 1.2: Desk study results for invertebrates

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Cinnabar	*Tyria jacobaeae*	Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
Grayling	*Hipparchia semele*	Buckles-ham	Buckles-ham / Brightwell tetrad	TM2442	52.03067141	1.265876641	2009	1 Count of Adult	N/A*
Stag beetle	*Lucanus cervus*	Nacton	-	TM230412	52.02389257	1.25080094	2015		0.83km north-west
		Buckles-ham	-	TM243416	52.02695936	1.269980678	2015		0.72km north
Tanner beetle	*Prionus coriarius*	Buckles-ham	-	TM244420	52.03050973	1.271698291	2014		1.13km north

**Distance from the site boundary can only be calculated where location of the record has been provided to sufficent accuracy.*

c) Amphibians

1.2.3 **Table 1.3** below summarises the desk-study results for amphibians recorded in the last ten years within the 2km ZoI of the site.

Table 1.3: Desk study results for amphibians

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Smooth newt	*Lissotriton vulgaris*	Buckles-ham	16 Church Close	TM243420	52.03055018	1.270242884	2012		1.10km north

**Distance from the site boundary can only be calculated where location of the record has been provided to sufficient accuracy.*

d) Reptiles

1.2.4 There were no desk-study results for reptiles recorded in the last ten years within the 2km ZoI of the site.

e) Birds

1.2.5 **Table 1.4** below summarises the desk-study results for birds recorded in the last ten years within the 2km ZoI of the site.

Table 1.4: Desk study results for birds

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Avocet	*Recurvirostra avosetta*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	30 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2012	38 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010		N/A*
Barn owl	*Tyto alba*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Stratton Hall	Stratton Hall suffolk yacht harbour	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
		Bucklesham	Buckles-ham, Suffolk	TM24K	52.01271722	1.264567899	2010	1 Count	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Count	N/A*
Barnacle goose	*Branta leucopsis*	Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	5 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Bar-tailed godwit	*Limosa lapponica*	Levington	A14, Levington	TM23P	51.99476295	1.263260525	2010	2 Non-Count of Breeding confirmed	N/A*
Bearded tit	*Panurus biarmicus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2015	3 Count	N/A*
Bee-eater	*Merops apiaster*	Bucklesham	-	TM2441	52.02169432	1.265222099	2015	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2015	1 Count	N/A*
Black redstart	*Phoenicurus ochruros*	Bucklesham	-	TM2441	52.02169432	1.265222099	2015	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2015	1 Count	N/A*
Black-headed gull	*Chroicocephalus ridibundus*	Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24F	52.01352077	1.235470445	2016	20 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	230 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010		N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Foxhall	Foxhall Hall	TM24G	52.03147548	1.236767572	2010	1 Non-Count of Breeding confirmed	N/A*
		Brightwell	-	TM24L	52.03067141	1.265876641	2009	46 Count	N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	7 Count	N/A*
Black-necked grebe	*Podiceps nigricollis*	Levington Marina	-	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
Black-tailed godwit	*Limosa limosa*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	20 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Levington	-	TM23P	51.99476295	1.263260525	2010		N/A*
	Limosa limosa subsp. islandica	Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	60 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Brambling	*Fringilla montifringilla*	Stratton Hall	Levington Stratton Hall	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
Brent goose	*Branta bernicla*	Levington Lagoon	-	TM23J	51.99556598	1.234174673	2016	4 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2009	45 Count	N/A*
Bullfinch	*Pyrrhula pyrrhula*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	3 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2009	1 Probable Count of Breeding confirmed	N/A*
Buzzard	*Buteo buteo*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	2 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2016	2 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	4 Count	N/A*
		Bucklesham	-	TM235414	52.02548681	1.258207607	2015		0.59km north-west
		Brightwell	-	TM243410	52.02157313	1.269587471	2015		0.20km north-east
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	6 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Probable Count of Breeding confirmed	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Possible Count of Breeding confirmed	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2009	1 Count	N/A*
		Levington Heath	-	TM23P	51.99476295	1.263260525	2009	1 Probable Count of Breeding confirmed	N/A*
		Levington Heath	-	TM24K	52.01271722	1.264567899	2009	1 Probable Count of Breeding confirmed	N/A*
Cetti's warbler	*Cettia cetti*	Levington	-	TM2339	52.00414264	1.249368386	2016	1 Count	N/A*
		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	2 Count	N/A*
		Brightwell	-	TM24L	52.03067141	1.265876641	2010	1 Possible Count of Breeding confirmed	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Common (mealy) redpoll	*Carduelis flammea*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	2 Count	N/A*
Common crossbill	*Loxia curvirostra*	Nacton	Amber-field School, Nacton	TM2240	52.01352077	1.235470445	2011	2 Count	N/A*
		Nacton	Nacton Amber-field School	TM24F	52.01352077	1.235470445	2011	2 Count	N/A*
		Newbourn	Great Grove Wood, New-bourne	TM24L	52.03067141	1.265876641	2010	6 Non-Count of Breeding confirmed	N/A*
Common gull	*Larus canus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2009		N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	1 Count	N/A*
		Brightwell	-	TM24L	52.03067141	1.265876641	2009	2 Count	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Non-Count of Breeding confirmed	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Common sandpiper	*Actitis hypoleucos*	Bucklesham	-	TM2442	52.03067141	1.265876641	2014	2 Count	N/A*
		Levington Creek	-	TM23J	51.99556598	1.234174673	2009	1 Count	N/A*
Common tern	*Sterna hirundo*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Stratton Hall	Stratton Hall suffolk yacht harbour	TM23P	51.99476295	1.263260525	2010	2 Count	N/A*
Cormorant	*Phalacrocorax carbo*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	2 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2012	50 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	3 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010		N/A*
		Martlesham	Martles-ham - Dukes Hill Wood Area	TM24G	52.03147548	1.236767572	2009		N/A*
Corn bunting	*Emberiza calandra*	Trimley St Martin	Trimley St Martin, Fire Hill	TM23P	51.99476295	1.263260525	2011	8 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2009	74 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Crane	*Grus grus*	Levington Creek	Levington Creek / Lagoon	TM23J	51.99556598	1.234174673	2011	2 Count	N/A*
Cuckoo	*Cuculus canorus*	Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2015	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
		Nacton	Amber-field School, Nacton	TM2240	52.01352077	1.235470445	2011	1 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2011	1 Confirmed Count of Breeding confirmed	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Stratton Hall	Stratton Hall suffolk yacht harbour	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Confirmed Count of Breeding confirmed	N/A*
Curlew		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	46 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
	Numenius arquata	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	11 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	1 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010		N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	2 Count	N/A*
Curlew sandpiper	*Calidris ferruginea*	Levington	-	TM2339	52.00414264	1.249368386	2011	2 Count	N/A*
Dark-bellied brent goose	*Branta bernicla subsp. bernicla*	Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	129 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	51 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	5 Count	N/A*
Dartford warbler	*Sylvia undata*	Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
Dunlin	*Calidris alpina*	Levington Lagoon	-	TM23J	51.99556598	1.234174673	2016	300 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	500 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010		N/A*
Dunnock	*Prunella modularis*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Nacton	Nacton Amberf-ield School	TM24F	52.01352077	1.235470445	2011		N/A*
		Levington	Bridge Farm Levington	TM23P	51.99476295	1.263260525	2011		N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	3 Count	N/A*
		Brightwell	-	TM24L	52.03067141	1.265876641	2009	2 Count	N/A*
		Bucklesham	-	TM243417	52.02785707	1.270046224	2009		0.81km north
		Bucklesham	-	TM244420	52.03050973	1.271698291	2009		1.13km north
		Bucklesham	-	TM244418	52.02871433	1.271567123	2009		0.94km north
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	6 Count	N/A*
Eurasian eagle owl	*Bubo bubo*	Nacton	-	TM2240	52.01352077	1.235470445	2013	1 Count	N/A*
Fieldfare	*Turdus pilaris*	Levington Lagoon	-	TM23J	51.99556598	1.234174673	2016	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	22 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	2 Count	N/A*
		Trimley St Martin	Gosling's Farm, Trimley	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	2 Count	N/A*
Gadwall	*Anas strepera*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	25 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	10 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Probable Count of Breeding confirmed	N/A*
Garganey	*Anas querquedula*	Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
Golden plover	*Pluvialis apricaria*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	3 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	600 Count	N/A*
		Levington	-	TM23P	51.99476295	1.263260525	2010		N/A*
Goldeneye	*Bucephala clangula*	Levington	-	TM2339	52.00414264	1.249368386	2011	2 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	8 Count	N/A*
		Levington Creek	-	TM23J	51.99556598	1.234174673	2009		N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Grasshopper warbler	*Locustella naevia*	Levington	-	TM2339	52.00414264	1.249368386	2010		N/A*
		Levington	-	TM23J	51.99556598	1.234174673	2010	1 Confirmed Count of Breeding confirmed	N/A*
Great black-backed gull	*Larus marinus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Levington Marina	Levington Marina West 2KM	TM23P	51.99476295	1.263260525	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	4 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
Great crested grebe	*Podiceps cristatus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	4 Count	N/A*
		Levington Marina	Levington Marina West 2KM	TM23P	51.99476295	1.263260525	2016	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	11 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
Great northern diver	*Gavia immer*	Nacton	-	TM2240	52.01352077	1.235470445	2015	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2010	1 Count	N/A*
		Levington Creek	Levington Creek / Lagoon	TM23J	51.99556598	1.234174673	2009	2 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Green sandpiper	*Tringa ochropus*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Bucklesham	-	TM24F	52.01352077	1.235470445	2016	1 Count	N/A*
		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2015	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
Greenshank	*Tringa nebularia*	Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	2 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2009	1 Count	N/A*
Grey heron	*Ardea cinerea*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	2 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2016	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2016	1 Count	N/A*
		Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	2 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2016	2 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Bucklesham	-	TM24K	52.01271722	1.264567899	2011	1 Non-Count of Breeding confirmed	N/A*
Grey partridge	*Perdix perdix*	Nacton	-	TM2240	52.01352077	1.235470445	2014	10+ Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	2 Count	N/A*
		Levington	nr Keepers Cottage Levington	TM2540	52.01231275	1.279116115	2011	3 Count	N/A*
Grey plover	*Pluvialis squatarola*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	120 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010		N/A*
Grey wagtail	*Motacilla cinerea*	Bucklesham	-	TM24F	52.01352077	1.235470445	2016	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2015	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2010	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Possible Count of Breeding confirmed	N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	1 Count	N/A*
Greylag goose	*Anser anser*	Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	3 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	150 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	86 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2012	50 Count	N/A*
Hen harrier	*Circus cyaneus*	Bucklesham	-	TM2441	52.02169432	1.265222099	2016	1 Count of present	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2015	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2013	1 Count	N/A*
		Levington Creek	Levington Creek / Lagoon	TM23J	51.99556598	1.234174673	2011		N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Levington	A14, Levington	TM23P	51.99476295	1.263260525	2011	1 Non-Count of Breeding confirmed	N/A*
Herring gull	*Larus argentatus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	6 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Foxhall	Foxhall Hall	TM24G	52.03147548	1.236767572	2010	1 Non-Count of Breeding confirmed	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010		N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2009		N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	9 Count	N/A*
		Brightwell	-	TM24L	52.03067141	1.265876641	2009	3 Count	N/A*
Hobby	*Falco subbuteo*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	3 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2015	2 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Nacton	-	TM24F	52.01352077	1.235470445	2010	2 Non-Count of Breeding confirmed	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Confirmed Count of Breeding confirmed	N/A*
Honey-buzzard	*Pernis apivorus*	Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count of present	N/A*
House martin	*Delichon urbicum*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	4 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Nacton	Nacton Amber-field School	TM24F	52.01352077	1.235470445	2011		N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2011	1 Possible Count of Breeding confirmed	N/A*
		Stratton Hall	Stratton Hall suffolk yacht harbour	TM23P	51.99476295	1.263260525	2010	20 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
House sparrow	*Passer domesticus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	8 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	42 Count	N/A*
		Levington	Bridge Farm Levington	TM23P	51.99476295	1.263260525	2011		N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Probable Count of Breeding confirmed	N/A*
		Bucklesham	-	TM244418	52.02871433	1.271567123	2009		0.94km north
		Bucklesham	-	TM244420	52.03050973	1.271698291	2009		1.13km north
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	1 Confirmed Count of Breeding confirmed	N/A*
		Bucklesham	-	TM243417	52.02785707	1.270046224	2009		0.81km north
		Bucklesham	-	TM241420	52.03063102	1.267332059	2009		1.06km north
Kestrel	*Falco tinnunculus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count	N/A*
		Brightwell	-	TM24L	52.03067141	1.265876641	2016	2 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Bucklesham	A12 Buckles-ham	TM234415	52.0264248	1.256817621	2015	1 Count	0.73km north-west
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2011	1 Possible Count of Breeding confirmed	N/A*
		Stratton Hall	Stratton Hall suffolk yacht harbour	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
		Bucklesham	-	TM24F	52.01352077	1.235470445	2010	1 Possible Count of Breeding confirmed	N/A*
		Foxhall	Foxhall, near Ipswich	TM24G	52.03147548	1.236767572	2009	1 Count	N/A*
Kingfisher	*Alcedo atthis*	Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
Knot	*Calidris canutus*	Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	10 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	800 Count	N/A*
Lapwing	*Vanellus vanellus*	Bucklesham	-	TM24F	52.01352077	1.235470445	2016	86 Count	N/A*
		Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	48 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	5 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Stratton Hall	-	TM23P	51.99476295	1.263260525	2010	40 Count	N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	45 Count	N/A*
Lesser black-backed gull	*Larus fuscus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	4 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010		N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	2 Count	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Non-Count of Breeding confirmed	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2009		N/A*
		Brightwell	-	TM24L	52.03067141	1.265876641	2009	2 Count	N/A*
Lesser redpoll	*Carduelis cabaret*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	60 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	2 Count	N/A*
Lesser spotted woodpecker	*Dendrocopos minor*	Nacton	Amber-field School, Nacton	TM2240	52.01352077	1.235470445	2011	1 Count	N/A*
		Nacton	Nacton Amber-field School	TM24F	52.01352077	1.235470445	2011	1 Possible Count of Breeding confirmed	N/A*
Linnet	*Linaria cannabina*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	8 Count	N/A*
		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	60 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2011	1 Probable Count of Breeding confirmed	N/A*
		Levington Creek	-	TM23P	51.99476295	1.263260525	2010	100 Count	N/A*
		Bucklesham	-	TM24F	52.01352077	1.235470445	2009	35 Count	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Confirmed Count of Breeding confirmed	N/A*
Little egret	*Egretta garzetta*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	1 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Count	N/A*
Little grebe		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	4 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
	Tachybaptus ruficollis	Bucklesham	-	TM2442	52.03067141	1.265876641	2014	2 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2009	1 Confirmed Count of Breeding confirmed	N/A*
		Stratton Hall	Stratton Hall suffolk yacht harbour	TM23P	51.99476295	1.263260525	2009	1 Count	N/A*
Little owl	*Athene noctua*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	2 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2012	1 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Probable Count of Breeding confirmed	N/A*
		Levington Creek	-	TM23J	51.99556598	1.234174673	2010	1 Probable Count of Breeding confirmed	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2010	2 Count	N/A*
		Stratton Hall	-	TM23P	51.99476295	1.263260525	2009		N/A*
		Bucklesham	-	TM24G	52.03147548	1.236767572	2009		N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	1 Possible Count of Breeding confirmed	N/A*
Long-eared owl	*Asio otus*	Bucklesham	-	TM2442	52.03067141	1.265876641	2014	2 Count	N/A*
Mallard	*Anas platyrhynchos*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	15 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	106 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2012	20 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	14 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Confirmed Count of Breeding confirmed	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Possible Count of Breeding confirmed	N/A*
		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Marsh harrier	*Circus aeruginosus*	Levington	-	TM2339	52.00414264	1.249368386	2016	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2016	1 Count	N/A*
		Levington	A14, Levington	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
Meadow pipit	*Anthus pratensis*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	18 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	23 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Stratton Hall	Stratton Hall suffolk yacht harbour	TM23P	51.99476295	1.263260525	2009	6 Count	N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	2 Count	N/A*
Mediterran-ean gull	*Larus melanocephalus*	Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2015	1 Count	N/A*
		Stratton Hall	Stratton Hall, Levington near Ipswich	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2009	1 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2009	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Merlin	*Falco columbarius*	Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2013	1 Count	N/A*
		Stratton Hall	-	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
Mistle thrush	*Turdus viscivorus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	2 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2011	2 Probable Count of Breeding confirmed	N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2011	1 Possible Count of Breeding confirmed	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Confirmed Count of Breeding confirmed	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	3 Count	N/A*
Moorhen		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	3 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
	Gallinula chloropus	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	7 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2012	20 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	1 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Confirmed Count of Breeding confirmed	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Possible Count of Breeding confirmed	N/A*
Mute swan	*Cygnus olor*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	6 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	2 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	2 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
Nightingale		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2016	2 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
	Luscinia megarhynchos	Bucklesham	-	TM2442	52.03067141	1.265876641	2016	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	13 Count	N/A*
		Stratton Hall	-	TM23P	51.99476295	1.263260525	2011		N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Probable Count of Breeding confirmed	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Possible Count of Breeding confirmed	N/A*
Osprey	*Pandion haliaetus*	Nacton	-	TM2240	52.01352077	1.235470445	2016	1 Count	N/A*
Oystercatcher	*Haematopus ostralegus*	Levington Lagoon	-	TM23J	51.99556598	1.234174673	2016	4 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	2 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	129 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Stratton Hall	Stratton Hall Suffolk yacht harbour	TM23P	51.99476295	1.263260525	2010	2 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Confirmed Count of Breeding confirmed	N/A*
		Nacton	-	TM24G	52.03147548	1.236767572	2010	1 Probable Count of Breeding confirmed	N/A*
Peregrine	*Falco peregrinus*	Bucklesham	-	TM2442	52.03067141	1.265876641	2015	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
Pink-footed goose	*Anser brachyrhynchus*	Nacton	-	TM2240	52.01352077	1.235470445	2012	25 Count	N/A*
Pintail	*Anas acuta*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
Pochard	*Aythya ferina*	Levington	-	TM2339	52.00414264	1.249368386	2012	5 Count	N/A*
Red kite	*Milvus milvus*	Levington	-	TM2339	52.00414264	1.249368386	2016	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2014	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Levington	-	TM23P	51.99476295	1.263260525	2009	1 Count	N/A*
		Martlesham	-	TM24L	52.03067141	1.265876641	2009	1 Non-Count of Breeding confirmed	N/A*
Red-breasted merganser	*Mergus serrator*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	2 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	10 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	2 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2009	1 Count	N/A*
Red-necked grebe	*Podiceps grisegena*	Nacton	-	TM2240	52.01352077	1.235470445	2011	1 Count	N/A*
Redshank	*Tringa totanus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	200 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010		N/A*
Redwing	*Turdus iliacus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	500 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2016	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Levington	Bridge Farm Levington	TM23P	51.99476295	1.263260525	2011		N/A*
Reed bunting	*Emberiza schoeniclus*	Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	4 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	4 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Stratton Hall	Trimley Stratton Hall	TM23P	51.99476295	1.263260525	2009	1 Count	N/A*
Ringed plover	*Charadrius hiaticula*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	14 Count	N/A*
		Levington	-	TM23P	51.99476295	1.263260525	2010		N/A*
Ruff	*Philomachus pugnax*	Levington Lagoon	Levington (lagoon), on River Orwell	TM23J	51.99556598	1.234174673	2009	1 Count	N/A*
Sandwich tern	*Sterna sandvicensis*	Foxhall	-	TM2242	52.03147548	1.236767572	2016	1 Count	N/A*
		Levington Creek	-	TM23J	51.99556598	1.234174673	2009	2 Count	N/A*
Scaup	*Aythya marila*	Nacton	-	TM2240	52.01352077	1.235470445	2013	1 Count	N/A*
Shag		Levington Marina	-	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
	Phalacrocorax aristotelis	Levington Creek	Levington Creek / Lagoon	TM23J	51.99556598	1.234174673	2009		N/A*
Shelduck	*Tadorna tadorna*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	4 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	142 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Confirmed Count of Breeding confirmed	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010		N/A*
Short-eared owl	*Asio flammeus*	Levington	-	TM2339	52.00414264	1.249368386	2010	1 Count	N/A*
		Levington Creek	Levington Creek / Lagoon	TM23J	51.99556598	1.234174673	2010	1 Count	N/A*
Shoveler	*Anas clypeata*	Bucklesham	-	TM24L	52.03067141	1.265876641	2015	2 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	6 Count	N/A*
Siskin	*Carduelis spinus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	2 Count	N/A*
		Trimley St Martin	Trimley St Martin, Fire Hill	TM23P	51.99476295	1.263260525	2011	1 Count	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	11 Count	N/A*
Skylark	*Alauda arvensis*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	2 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2011	1 Possible Count of Breeding confirmed	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Probable Count of Breeding confirmed	N/A*
		Stratton Hall	Stratton Hall suffolk yacht harbour	TM23P	51.99476295	1.263260525	2009	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Possible Count of Breeding confirmed	N/A*
Slavonian grebe	*Podiceps auritus*	Levington Creek	-	TM23J	51.99556598	1.234174673	2011	1 Count	N/A*
Smew	*Mergus albellus*	Levington Creek	Levington Creek / Lagoon	TM23J	51.99556598	1.234174673	2010		N/A*
Snipe	*Gallinago gallinago*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	2 Count	N/A*
		Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	2 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	2 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Stratton Hall	Stratton Hall suffolk yacht harbour	TM23P	51.99476295	1.263260525	2009	2 Count	N/A*
Song thrush	*Turdus philomelos*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Nacton	Nacton Amber-field School	TM24F	52.01352077	1.235470445	2011		N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Levington	Bridge Farm Levington	TM23P	51.99476295	1.263260525	2011		N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	2 Count	N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	1 Confirmed Count of Breeding confirmed	N/A*
Sparrow-hawk	*Accipiter nisus*	Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Possible Count of Breeding confirmed	N/A*
Spoonbill	*Platalea leucorodia*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	3 Count	N/A*
Spotted flycatcher	*Muscicapa striata*	Bucklesham	-	TM2442	52.03067141	1.265876641	2016	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Bucklesham	-	TM24K	52.01271722	1.264567899	2011	1 Possible Count of Breeding confirmed	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2010	6 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2009	1 Confirmed Count of Breeding confirmed	N/A*
Spotted redshank	*Tringa erythropus*	Levington Lagoon	-	TM23J	51.99556598	1.234174673	2016	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
Starling	*Sturnus vulgaris*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	30 Count	N/A*
		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2010	20 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Confirmed Count of Breeding confirmed	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Stratton Hall	-	TM23P	51.99476295	1.263260525	2009		N/A*
		Bucklesham	-	TM241420	52.03063102	1.267332059	2009		1.06km north
		Bucklesham	-	TM243417	52.02785707	1.270046224	2009		0.81km north
Stock dove	*Columba oenas*	Bucklesham	-	TM24F	52.01352077	1.235470445	2016	10 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	2 Count	N/A*
		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	102 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2011	1 Probable Count of Breeding confirmed	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Possible Count of Breeding confirmed	N/A*
Swift	*Apus apus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	5 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Nacton	Nacton Amber-field School	TM24F	52.01352077	1.235470445	2011		N/A*
		Bucklesham	-	TM24K	52.01271722	1.264567899	2011	1 Possible Count of Breeding confirmed	N/A*
		Stratton Hall	Stratton Hall suffolk yacht harbour	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
Tawny owl	*Strix aluco*	Bucklesham	-	TM2442	52.03067141	1.265876641	2014	2 Count	N/A*
		Levington	-	TM23J	51.99556598	1.234174673	2010		N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2009	1 Confirmed Count of Breeding confirmed	N/A*
		Stratton Hall	Stratton Hall suffolk yacht harbour	TM23P	51.99476295	1.263260525	2009	1 Count	N/A*
Teal	*Anas crecca*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010		N/A*
Tree sparrow	*Passer montanus*	Stratton Hall	Stratton Rail Crossing	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
Turnstone	*Arenaria interpres*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	2 Count	N/A*
		Stratton Hall	Stratton Hall suffolk yacht harbour	TM23P	51.99476295	1.263260525	2010	10 Count	N/A*
Turtle dove	*Streptopelia turtur*	Bucklesham	-	TM2442	52.03067141	1.265876641	2016	2 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Levington Creek	-	TM23J	51.99556598	1.234174673	2011	2 Probable Count of Breeding confirmed	N/A*
		Levington	-	TM23P	51.99476295	1.263260525	2011	1 Possible Count of Breeding confirmed	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	1 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Nacton	A14, Nacton Sevenhills	TM24K	52.01271722	1.264567899	2011	3 Possible Count of Breeding confirmed	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2010		N/A*
Water pipit	*Anthus spinoletta*	Levington Lagoon	-	TM23J	51.99556598	1.234174673	2016	7 Count	N/A*
Water rail	*Rallus aquaticus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
Whimbrel	*Numenius phaeopus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	2 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Nacton	-	TM2240	52.01352077	1.235470445	2011	1 Count	N/A*
Whinchat	*Saxicola rubetra*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	2 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2015	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	1 Count	N/A*
Wigeon	*Anas penelope*	Levington Lagoon	-	TM23J	51.99556598	1.234174673	2016	150 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Bucklesham	-	TM24L	52.03067141	1.265876641	2015	2 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*
		Levington Marina	-	TM23P	51.99476295	1.263260525	2010		N/A*
Willow warbler	*Phylloscopus trochilus*	Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	1 Count of present	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2010	1 Possible Count of Breeding confirmed	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Possible Count of Breeding confirmed	N/A*
Wood sandpiper	*Tringa glareola*	Bucklesham	-	TM2442	52.03067141	1.265876641	2010	1 Count	N/A*
		Newbourn	Great Grove Wood, New-bourne	TM24L	52.03067141	1.265876641	2010	1 Non-Count of Breeding confirmed	N/A*
Woodcock	*Scolopax rusticola*	Bucklesham	-	TM2442	52.03067141	1.265876641	2016	1 Count	N/A*
		Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Trimley St Martin	Trimley Woodruff Grove	TM23P	51.99476295	1.263260525	2010	1 Count	N/A*
Woodlark	*Lullula arborea*	Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Possible Count of Breeding confirmed	N/A*
Yellow wagtail	*Motacilla flava*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	1 Count	N/A*
		Levington Creek	Levington Creek 2KM	TM23J	51.99556598	1.234174673	2016	3 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2014	1 Count	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2009		N/A*
Yellowhammer	*Emberiza citrinella*	Bucklesham	-	TM24L	52.03067141	1.265876641	2016	16 Count	N/A*
		Levington Marina	Levington Creek / Marina	TM23J	51.99556598	1.234174673	2016	5 Count	N/A*
		Bucklesham	-	TM2442	52.03067141	1.265876641	2013	6 Count	N/A*
		Levington	-	TM2339	52.00414264	1.249368386	2013	1 Count	N/A*
		Trimley St Martin	Trimley St Martin, Fire Hill	TM23P	51.99476295	1.263260525	2011	10 Count	N/A*

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Bucklesham	-	TM24K	52.01271722	1.264567899	2009	1 Possible Count of Breeding confirmed	N/A*
		Foxhall	-	TM24G	52.03147548	1.236767572	2009	1 Possible Count of Breeding confirmed	N/A*
		Nacton	-	TM24F	52.01352077	1.235470445	2009	3 Count	N/A*
Yellow-legged gull	*Larus michahellis*	Levington	-	TM2339	52.00414264	1.249368386	2011	1 Count	N/A*

**Distance from the site boundary can only be calculated where location of the record has been provided to sufficent accuracy.*

f) Bats

1.2.6 **Table 1.5** below summarises the desk-study results for bats recorded in the last ten years within the 2km ZoI of the site.

Table 1.5: Desk study results for bats

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Brown long-eared bat	*Plecotus auritus*	Bucklesham	IP10 0DZ	TM243417	52.02785707	1.270046224	2012	No information	0.81km north
		Bucklesham	3 Levington Lane Buckles-ham IP10 0DZ	TM243415	52.02606166	1.269915134	2012	No information	0.62km north-east
Common pipistrelle	*Pipistrellus pipistrellus*	Bucklesham	Buckles-ham	TM243419	52.02965248	1.270177327	2014	No information	1.00km north
		Bucklesham	-	TM2433041675	52.02762051	1.270466431	2014	No information	0.80km north
		Bucklesham	Buckles-ham	TM241420	52.03063102	1.267332059	2014	No information	1.06km north
		Bucklesham	-	TM2432141950	52.03009284	1.270515738	2014	No information	1.06km north
		Bucklesham	-	TM2357041548	52.02678722	1.259322976	2014	No information	0.69km north-west
		Bucklesham	-	TM2415241054	52.0221177	1.267469252	2014	No information	0.16km north-east
		Bucklesham	-	TM2418041478	52.02591267	1.268154404	2014	No information	0.56km north

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
		Bucklesham	-	TM2418841040	52.02197748	1.267983933	2014	No information	0.16km north-east
		Bucklesham	-	TM2420141426	52.02543737	1.268425943	2014	No information	0.52km north
		Bucklesham	-	TM2352441492	52.02630304	1.258616959	2014	No information	0.66km north-west
		Bucklesham	-	TM2347941458	52.02601595	1.257939876	2014	No information	0.65km north-west
		Bucklesham	-	TM244420	52.03050973	1.271698291	2013	No information	1.13km north
Soprano pipistrelle	*Pipistrellus pygmaeus*	Bucklesham	-	TM2354341511	52.02646595	1.258905875	2014	No information	0.66km north-west

**Distance from the site boundary can only be calculated where location of the record has been provided to sufficent accuracy.*

g) Terrestrial mammals

1.2.7 **Table 1.6** below summarises the desk-study results for terrestrial mammals recorded in the last ten years within the 2km Zol of the site.

Table 1.6: Desk study results for terrestrial mammals

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Brown hare	*Lepus europaeus*	Bucklesham	Buckles-ham Tenth Rd	TM2441440998	52.02150908	1.271244993	2015		0.29km north-east
		Levington	-	TM240406	52.01810348	1.264960378	2015		Possibly within the red line boundary
		Bucklesham	Buckles-ham Tenth Rd	TM2448741369	52.02481003	1.272550545	2015		0.60km north-east
		Bucklesham	Buckles-ham Tenth Rd	TM2449941102	52.02240831	1.272550045	2015		0.42km north-east
		Bucklesham	Tenth Rd	TM244410	52.0215327	1.271042588	2015		0.28km north-east
		Bucklesham	Tenth Road	TM245411	52.02238995	1.272563285	2015		0.42km north-east
		Bucklesham	Tenth Rd	TM244413	52.02422581	1.271239263	2015		0.50km north-east
		Nacton	A14 / 7 Hills, Nacton	TM235413	52.0245891	1.258142303	2010		0.51km north-west

Species		Location	Site Detail	Grid reference	Latitude	Longitude	Year	Abundance	Approximate distance and bearing from the site boundary*
Common name	Scientific name								
Eurasian badger	*Meles meles*	Nacton	-	TM2240	52.01352077	1.235470445	2017		N/A*
West European hedgehog	*Erinaceus europaeus*	Bucklesham	Levington Lane	TM2419341458	52.02572787	1.268330486	2015		0.55km north
		Bucklesham	Slip Ponds	TM2422141580	52.02681176	1.268817891	2015		0.67km north
		Bucklesham	Levington Lane, Ipswich	TM2436041720	52.02801235	1.27093253	2014	3 Count	0.85km north
		Bucklesham	Main Road, Buckles-ham	TM2434441942	52.03001172	1.270845233	2014	1 Count	1.05km north
		Levington	A14, Ipswich A14, Levington	TM2434340549	52.0175071	1.269917636	2014	1 Count of dead	0.15km east
		Bucklesham	-	TM234420	52.03091338	1.257144064	2013		1.17km north-west
		Levington	-	TM243402	52.01439148	1.269063387	2011		0.34km south-east

**Distance from the site boundary can only be calculated where location of the record has been provided to sufficent accuracy.*

VOLUME 8, CHAPTER 7, APPENDIX 7A: ANNEX 7A.2: DESK-STUDY, ANNEX 7A.2A DESIGNATED SITES CITATIONS

County Wildlife Site Citations

Ramsar Citation

Special Protection Areas:

- Citation
- Conservation Objectives
- Natura 2000 Data Forms

Sites of Special Scientific Interest Citations

County Wildlife Site Citations

CWS Number	Suffolk Coastal 112
Site Name	NACTON MEADOWS
Parish	LEVINGTON
District	Suffolk Coastal
NGR	TM232400
Description	Nacton Decoy Meadow, an unimproved wet meadow, is situated adjacent to the Suffolk Wildlife Trust Reserve. The plant communities of both meadows are very similar. The wet area at the base of the slope supports a good range of wetland plants including southern marsh orchid, oval sedge, marsh arrow-grass and lesser spearwort. Emergent plants, for example, fool's-watercress marsh marigold and hard rush grow along the line of overgrown ditches and along the banks of the stream. Drier conditions prevail at the top of the slope and acid grassland species including red campion, sheep's-sorrel and bird's-foot trefoil grow here. Nettle and bracken patches are beginning to encroach in this area. The meadows are managed by cattle grazing during the summer. A large proportion of the meadow has recently been notified as a Site of Special Scientific Interest.
RNR Number	0
Area	3.06

County Wildlife Site Citations

CWS Number	Suffolk Coastal 217
Site Name	LEVINGTON CUT
Parish	LEVINGTON
District	Suffolk Coastal
NGR	TM23243860
Description	

This CWS comprises a mosaic of semi-natural habitats to both the north and south of, and including ‘The Cut' watercourse at Levington. Home Wood CWS is adjacent to the west of the CWS with the River Orwell and Levington Creek immediately to the south and east respectively. The site is therefore not only important for wildlife in its own right, but also provides valuable linking habitat between other seminatural habitats of high wildlife value. Habitat on site includes reedbed (biodiversity priority habitat), wet grassland dry grassland, a belt of ancient trees along the shoreline of the river, scrub, borrow dyke and rank grassland.
The site is particularly important for birds, supporting breeding populations of the biodiversity priority species Turtle dove, Reed bunting, Skylark and Song thrush. Other breeding birds include Yellowhammer, Reed and Sedge warblers, Blackcap, Whitethroat, Lesser whitethroat, Cetti’s warbler (5 territories), Garden warbler, Willow warbler, Chiffchaff, Little owl and Tawny owl. Waders are also breeding on site including 2 pairs of Redshank in 2006, 2 pairs of Lapwing in 2006 and Snipe within the last four years (since 2002).
The site also includes a major Swallow roost and other roosting birds include Yellow wagtail, Linnet (biodiversity priority species), Meadow pipit and buntings including Corn bunting(biodiversity priority species) (33 in 2006). Barn owl (Suffolk character biodiversity priority species) regularly hunts over the grassland and Long eared owls have regularly over wintered during the last ten years.
The grassland is an important refuge for winter waders including 2000 Golden plover, 1000 Lapwing, Curlew and sometimes flocks of Brent geese.
The watercourses support Water vole (biodiversity priority species). The wet grassland supports a good wet grassland/fen flora including Southern Marsh Orchid.

RNR Number	0
Area	32.61

County Wildlife Site Citations

CWS Number	Suffolk Coastal 100
Site Name	KIRTON RESERVOIR
Parish	KIRTON
District	Suffolk Coastal
NGR	TM268405
Description	Set in the Suffolk Coast and Heath River Valley this area consists of a mosaic of Priority Habitats including; lowland meadow, mixed deciduous woodland, wet woodland and ponds with secondary habitat consisting of areas of semi improved grassland, dry acid grassland and mixed scrub. Long Meadow, which is situated west of Kirton Reservoir, and the marshy ground below support a wide range of wetland plants including the rare heath spotted orchids (over 1000 have previously been recorded). The areas of deciduous woodland contain predominantly oak, ash, hazel coppice and beech with a hawthorn, blackthorn, elder and holly understory. Ground flora includes bluebell and wild garlic. Honeysuckle and ivy grows on trees and on the ground. A varied habitat mosaic provides excellent structural diversity and provides valuable opportunities for a number of taxonomic groups. Kirton reservoir is part managed under Higher Level Stewardship and connected to a wider landscape of farmland also in stewardship. The main waterbody is managed as a mixed coarse fishery.
RNR Number	0
Area	9.83

County Wildlife Site Citations

CWS Number	Suffolk Coastal 134
Site Name	HOME WOOD
Parish	LEVINGTON
District	Suffolk Coastal
NGR	TM225388
Description	A large wood directly abutting the River Orwell SSSI. This wood, as with so many on the Orwell, has been altered considerably by the planting of Scots pine, horse chestnut, beech, poplar and common lime. Areas of sycamore have been coppiced and there are other open areas producing a diverse woodland structure. Despite the plantings, a diverse ground flora persists including foxglove, bluebell and male fern. Other species characteristic of dry sandy soils occur such as sheep'ssorrel, dittander and lesser yellow trefoil, all in the less wooded areas. An important element of the ground flora is the uncommon broad-leaved helleborine which was here in 1986 in good numbers.
RNR Number	0
Area	19.58

County Wildlife Site Citations

CWS Number	Suffolk Coastal 113
Site Name	LEVINGTON LAGOON
Parish	STRATTON HALL
District	Suffolk Coastal
NGR	TM239385
Description	

Levington Lagoon is one of the major roost sites for waders on the Orwell estuary and is used by a vast number of dunlin, redshank, ringed plover, oystercatcher and knot. The Suffolk Wildlife Trust reserve area was set aside for conservation following a campaign by ornithologists. The reserve consists of a saline lagoon with fresh water pools and mudflats which are colonised in part by glasswort, spear-leaved orache and sea couch grass. The water level in the saline lagoon is controlled by sluices allowing sea water to flood the area during the spring tides. Saltmarsh islands are managed to encourage Redshank, oystercatcher and avocet to nest. The sea wall is a good viewing point for birds on passage. Spotted redshank, whimbrel, greenshank and curlew sandpiper are all regular passage migrants. Other species often seen in the winter are twite, short-eared owl and kingfisher. In 2008, the CWS was extended to the west to include an area that has developed a grassland/scrub mosaic supporting a range of wildlife. It is particularly important for breeding linnet (biodiversity priority species), reed bunting (biodiversity priority species) and whitethroat. Wintering birds include Stonechat, Short-eared owl, barn owl and a winter roost of linnet.

RNR Number	0
Area	5.25

County Wildlife Site Citations

CWS Number	Suffolk Coastal 159
Site Name	STRATTON HALL WOOD
Parish	STRATTON HALL
District	Suffolk Coastal
NGR	TM245385
Description	This 7.5 hectare woodland is an ancient woodland and appears on English Nature's Ancient Woodland Inventory. It has had considerable interference through the planting of non-native species such as poplar and holm oak. Otherwise the dominant tree is ash, with oak, sweet chestnut and alder also occuring. Some areas have been coppiced. Ground flora consists of areas of nettle and dog's-mercury with bugle, ramsons, oppositeleaved golden saxifrage and primrose. There are several small streams in the wood with attendant boggy areas and a large pond. Breeding birds recorded include all three species of woodpecker, nightingale, blackcap and spotted flycatcher.
RNR Number	0
Area	6.86

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:

Designated: 11 March 1996

3. Country:

UK (England)

4. Name of the Ramsar site:

Deben Estuary

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* □;
ii**) an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* □;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

52 02 31 N 01 20 44 E

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Ipswich

Deben Estuary is located in East Anglia, on the east coast of Suffolk. It extends 18 km from the tidal limit above Wilford Bridge near Woodbridge, south to the mouth of the estuary at Felixstowe.

Administrative region: Suffolk

10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 978.93

Min. -1
Max. 4
Mean 1

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

This estuary is relatively narrow and sheltered. It has limited amounts of freshwater input and the intertidal areas are constrained by sea-walls. The site supports nationally and internationally-important flora and fauna.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

2, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 2

Supports a population of the mollusc *Vertigo angustior* (Habitats Directive Annex II (S1014); British Red Data Book Endangered). Martlesham Creek is one of only about fourteen sites in Britain where this species survives.

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in winter:

Dark-bellied brent goose, *Branta bernicla bernicla*,	1953 individuals, representing an average of 1.9% of the GB population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation)**:**

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

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16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	mud, sedimentary
Geomorphology and landscape	lowland, coastal, valley, intertidal sediments (including sandflat/mudflat), estuary
Nutrient status	eutrophic
pH	no information
Salinity	saline / euhaline
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Lowestoft, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/lowestoft.html) Max. daily temperature: 13.0° C Min. daily temperature: 7.0° C Days of air frost: 27.8 Rainfall: 576.3 mm Hrs. of sunshine: 1535.5

General description of the Physical Features:

The Deben Estuary extends south-eastwards for over 12 km from the town of Woodbridge to the sea just north of Felixstowe. It is relatively narrow and sheltered, and has limited amounts of freshwater input. The estuary mouth is the narrowest section and is protected by the presence of shifting sandbanks. The intertidal areas are constrained by sea-walls. The saltmarsh and intertidal mudflats that occupy the majority of the site, however, display the

most complete range of saltmarsh community types in Suffolk. The estuary holds a range of swamp communities that fringe the estuary, and occasionally form larger stands. In general, these are dominated by common reed *Phragmites australis*.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Deben Estuary extends south-eastwards for over 12 km from the town of Woodbridge to the sea just north of Felixstowe. It is relatively narrow and sheltered, and has limited amounts of freshwater input. The estuary mouth is the narrowest section and is protected by the presence of shifting sandbanks. The intertidal areas are constrained by sea-walls. The saltmarsh and intertidal mudflats that occupy the majority of the site, however, display the most complete range of saltmarsh community types in Suffolk.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

No special values known

19. Wetland types:

Marine/coastal wetland

Code	Name	% Area
H	Salt marshes	46.8
G	Tidal flats	36.8
F	Estuarine waters	15.3
U	Peatlands (including peat bogs swamps, fens)	1
E	Sand / shingle shores (including dune systems)	0.1

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The estuary supports a highly complex mosaic of habitat types including:

mudflats, lower and upper saltmarsh, swamp and scrub. The composition of the mosaic varies with substrate, frequency and duration of tidal inundation, exposure, location and management.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site.

Higher Plants.

Althaea officinalis, Bupleurum tenuissimum, Lepidium latifolium, Puccinellia fasciculata, Sarcocornia perennis, Suaeda vera, Zostera angustifolia are nationally scarce plants associated with estuarine habitats.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species with peak counts in spring/autumn:

Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe	307 individuals, representing an average of 1.9% of the GB population (5 year peak mean 1998/9-2002/3)
Common greenshank , *Tringa nebularia*, Europe/W Africa	22 individuals, representing an average of 3.6% of the GB population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Bean goose , *Anser fabalis fabalis*, NW Europe - wintering	5 individuals, representing an average of 1.2% of the GB population (Source period not collated)
Common shelduck , *Tadorna tadorna*, NW Europe	832 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)
Pied avocet , *Recurvirostra avosetta*, Europe/Northwest Africa	167 individuals, representing an average of 4.9% of the GB population (5 year peak mean 1998/9-2002/3)
Spotted redshank , *Tringa erythropus*, Europe/W Africa	3 individuals, representing an average of 2.2% of the GB population (5 year peak mean 1998/9-2002/3)
Common redshank , *Tringa totanus totanus*,	2124 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

Nationally important species occurring on the site.

Invertebrates.

Vertigo angustior (Nationally Scarce)
Vertigo pusilla (Nationally Scarce)

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23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Fisheries production
Non-consumptive recreation
Sport fishing
Sport hunting
Tourism
Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
National/Crown Estate	+	
Private	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Tourism	+	+
Recreation	+	+
Cutting of vegetation (small-scale/subsistence)	+	
Fishing: commercial	+	
Fishing: recreational/sport	+	
Bait collection	+	
Arable agriculture (unspecified)		+
Grazing (unspecified)	+	+
Hunting: recreational/sport	+	
Flood control		+
Irrigation (incl. agricultural water supply)		+
Urban development		+
Non-urbanised settlements		+

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
Erosion	2	Coastal squeeze within the Deben Estuary	+		+

For category 2 factors only.
What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Erosion - English Nature provides advice to the Environment Agency and coastal local authorities in relation to flood and coastal protection management. This will inform the development of the Suffolk Estuaries strategies and the second generation shoreline management plan.

Is the site subject to adverse ecological change? YES

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Site management statement/plan implemented	+	
Other	+	+
Area of Outstanding National Beauty (AONB)	+	
Environmentally Sensitive Area (ESA)	+	

b) Describe any other current management practices:
The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

None reported

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities.

Boating and walking locally and bird watching centred on Martlesham Creek and Felixstowe Ferry. Fishing.

Facilities provided.

Moorings along the river at Woodbridge, Waldring Field, Ramsholt.

Seasonality.

Activities are predominantly undertaken during the summer especially fishing, as this is when thin-lipped grey mullet *Liza ramada* enter the estuary.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

Site-relevant references

Anon. (2002) *Suffolk Coast and Estuaries Coastal Habitat Management Plan: Executive summary*. English Nature, Peterborough (Living with the Sea LIFE Project) www.english-nature.org.uk/livingwiththesea/project_details/good_practice_guide/HabitatCRR/ENRestore/CHaMPs/SuffolkCoast/SuffolkCHaMP.pdf

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Burd, F (1989) *The saltmarsh survey of Great Britain. An inventory of British saltmarshes.* Nature Conservancy Council, Peterborough (Research & Survey in Nature Conservation, No. 17)

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Cranswick, PA, Waters, RJ, Musgrove, AJ & Pollitt, MS (1997) *The Wetland Bird Survey 1995–96: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge

Davidson, NC, Laffoley, D d'A, Doody, JP, Way, LS, Gordon, J, Key, R, Pienkowski, MW, Mitchell, R & Duff, KL (1991) *Nature conservation and estuaries in Great Britain*. Nature Conservancy Council, Peterborough

Doody, JP, Johnston, C & Smith, B (1993) *Directory of the North Sea coastal margin*. Joint Nature Conservation Committee, Peterborough

Hill, TO, Emblow, CS & Northen, KO (1996) *Marine Nature Conservation Review Sector 6. Inlets in eastern England: area summaries*. Joint Nature Conservation Committee, Peterborough (Coasts and seas of the United Kingdom. MNCR series)

McLeod, CR, Yeo, M, Brown, AE, Burn, AJ, Hopkins, JJ & Way, SF (eds.) (2004) *The Habitats Directive: selection of Special Areas of Conservation in the UK*. 2nd edn. Joint Nature Conservation Committee, Peterborough. www.jncc.gov.uk/SACselection

Musgrove, AJ, Langston, RHW, Baker, H & Ward, RM (eds.) (2003) *Estuarine waterbirds at low tide. The WeBS Low Tide Counts 1992–93 to 1998–99*. WSG/BTO/WWT/RSPB/JNCC, Thetford (International Wader Studies, No. 16)

Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999–2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge. www.wwt.org.uk/publications/default.asp?PubID=14

Pritchard, DE, Housden, SD, Mudge, GP, Galbraith, CA & Pienkowski, MW (eds.) (1992) *Important Bird Areas in the United Kingdom including the Channel Islands and the Isle of Man*. Royal Society for the Protection of Birds, Sandy

Ratcliffe, DA (ed.) (1977) *A Nature Conservation Review. The selection of biological sites of national importance to nature conservation in Britain*. Cambridge University Press (for the Natural Environment Research Council and the Nature Conservancy Council), Cambridge (2 vols.)

Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds.) (2001) *The UK SPA network: its scope and content*. Joint Nature Conservation Committee, Peterborough (3 vols.) www.jncc.gov.uk/UKSPA/default.htm

Suffolk Wildlife Trust (1993) *National Vegetation Classification of the saltmarsh of the Deben, Alde–Ore and Blyth estuaries, Suffolk*. Suffolk Wildlife Trust, Saxmundham

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Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone**: +41 22 999 0170** • Fax: **+41 22 999 0169** • email: **ramsar@ramsar.org**

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:

Designated: 13 July 1994

3. Country:

UK (England)

4. Name of the Ramsar site:

Stour and Orwell Estuaries

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* □;
ii**) an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* □;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

051 57 16 N 001 09 38 E

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Felixstowe

The Stour Estuary forms the south-eastern part of Essex/Suffolk boundary.

The Orwell Estuary is a relatively long and narrow estuary with extensive mudflats and some saltmarsh, running from Ipswich in the north, southwards towards Felixstowe.

Administrative region: Essex; Suffolk

10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 3676.92

Min. -1
Max. 3
Mean 0

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Stour and Orwell Estuaries is a wetland of international importance, comprising extensive mudflats, low cliffs, saltmarsh and small areas of vegetated shingle on the lower reaches. It provides habitats for an important assemblage of wetland birds in the non-breeding season and supports internationally important numbers of wintering and passage wildfowl and waders. The site also holds several nationally scarce plants and British Red Data Book invertebrates.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

2, 5, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 2

Contains seven nationally scarce plants: stiff saltmarsh-grass *Puccinellia rupestris*; small cord-grass *Spartina maritima*; perennial glasswort *Sarcocornia perennis*; lax-flowered sea lavender *Limonium humile*; and the eelgrasses *Zostera angustifolia*, *Z. marina* and *Z. noltei*.

Contains five British Red Data Book invertebrates: the muscid fly *Phaonia fusca*; the horsefly *Haematopota grandis*; two spiders, *Arctosa fulvolineata* and *Baryphema duffeyi*; and the Endangered swollen spire snail *Mercuria confusa*.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:
63017 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

Common redshank , *Tringa totanus totanus*,	2588 individuals, representing an average of 2% of the population (5-year peak mean 1995/96-1999/2000)

Species with peak counts in winter:

Dark-bellied brent goose, *Branta bernicla bernicla*,	2627 individuals, representing an average of 1.2% of the population (5-year peak mean 1995/96-1999/2000)
Northern pintail , *Anas acuta*, NW Europe	741 individuals, representing an average of 1.2% of the population (5-year peak mean 1995/96-1999/2000)
Grey plover , *Pluvialis squatarola*, E Atlantic/W Africa -wintering	3261 individuals, representing an average of 1.3% of the population (5-year peak mean 1995/96-1999/2000)
Red knot , *Calidris canutus islandica*, W & Southern Africa (wintering)	5970 individuals, representing an average of 1.3% of the population (5-year peak mean 1995/96-1999/2000)
Dunlin , *Calidris alpina alpina*, W Siberia/W Europe	19114 individuals, representing an average of 1.4% of the population (5-year peak mean 1995/96-1999/2000)
Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe	2559 individuals, representing an average of 7.3% of the population (5-year peak mean 1995/96-1999/2000)
Common redshank , *Tringa totanus totanus*,	3687 individuals, representing an average of 2.8% of the population (5-year peak mean 1995/96-1999/2000)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.
Details of bird species occuring at levels of National importance are given in Section 22

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	shingle, sand, mud
Geomorphology and landscape	lowland, coastal, valley, subtidal sediments (including sandbank/mudbank), intertidal sediments (including sandflat/mudflat), estuary
Nutrient status	
pH	
Salinity	brackish / mixosaline, fresh, saline / euhaline
Soil	no information
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Lowestoft, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/lowestoft.html) Max. daily temperature: 13.0° C Min. daily temperature: 7.0° C Days of air frost: 27.8 Rainfall: 576.3 mm Hrs. of sunshine: 1535.5

General description of the Physical Features:

The Stour and Orwell estuaries include extensive mudflats, low cliffs, saltmarsh and small areas of vegetated shingle on the lower reaches. The site also includes an area of low-lying grazing marsh at Shotley Marshes on the south side of the Orwell.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Stour and Orwell estuaries include extensive mudflats, low cliffs, saltmarsh and small areas of vegetated shingle on the lower reaches. The site also includes an area of low-lying grazing marsh at Shotley Marshes on the south side of the Orwell.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Sediment trapping

19. Wetland types:

Inland wetland, Marine/coastal wetland

Code	Name	% Area
G	Tidal flats	44.2

H	Salt marshes	35
F	Estuarine waters	19.8
4	Seasonally flooded agricultural land	0.7
E	Sand / shingle shores (including dune systems)	0.3

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Orwell is a relatively long and narrow estuary with extensive mudflats bordering the channel that support large patches of eelgrass *Zostera* sp. The saltmarsh tends to be sandy and fairly calcareous with a wide range of communities. There are small areas of vegetated shingle on the foreshore of the lower reaches. Grazing marshes adjoin the estuary at Shotley. The Stour estuary is a relatively simply structured estuary with a sandy outer area and a muddier inner section. The mud is rich in invertebrates and there are areas of higher saltmarsh. The shoreline vegetation varies from oak-dominated wooded cliffs, through scrub-covered banks to coarse grasses over seawalls, with reed-filled borrow dykes behind.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site.

Higher Plants.

Puccinellia rupestris (nationally scarce); *Spartina maritima* (nationally scarce); *Sarcocornia perennis* (nationally scarce); *Limonium humile* (nationally scarce); *Zostera angustifolia* (nationally scarce); *Zostera marina* (nationally scarce); *Zostera noltei* (nationally scarce).

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species regularly supported during the breeding season:

Pied avocet , *Recurvirostra avosetta*, W Europe	21 pairs, representing an average of 2.8% of the GB population (5-year peak mean 1996-2000)

Species with peak counts in spring/autumn:

Ringed plover , *Charadrius hiaticula*, Europe/Northwest Africa	638 individuals, representing an average of 2.1% of the GB population (5-year peak mean 1995/96-1999/2000)

Species with peak counts in winter:

Great crested grebe , *Podiceps cristatus cristatus*, NW Europe	245 individuals, representing an average of 1.5% of the GB population (5-year peak mean 1995/96-1999/2000)
Great cormorant , *Phalacrocorax carbo carbo*, NW Europe	232 individuals, representing an average of 1% of the GB population (5-year peak mean 1995/96-1999/2000)

Common shelduck , *Tadorna tadorna*, NW Europe	2955 individuals, representing an average of 3.8% of the GB population (5-year peak mean 1995/96-1999/2000)
Eurasian curlew , *Numenius arquata arquata*, N. a. arquata Europe (breeding)	1824 individuals, representing an average of 1.2% of the GB population (5-year peak mean 1995/96-1999/2000)
Ruddy turnstone , *Arenaria interpres interpres*, NE Canada, Greenland/W Europe & NW Africa	690 individuals, representing an average of 1.4% of the GB population (5-year peak mean 1995/96-1999/2000)

Species Information

Nationally important species occurring on the site.

Invertebrates.

Phaonia fusca; *Haematopota grandis* (Meigen) (RDB3); *Arctosa fulvolineata* (RDB3); *Baryphyma duffeyi* (RDB3); *Mercuria* (=*Pseudamnicola*) *confusa* (RDB1).

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Archaeological/historical site
Livestock grazing
Non-consumptive recreation
Sport hunting
Tourism
Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	
Local authority, municipality etc.	+	

National/Crown Estate	+	
Private	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	
Tourism	+	+
Recreation	+	+
Cutting of vegetation (small-scale/subsistence)	+	
Bait collection	+	
Permanent arable agriculture		+
Grazing (unspecified)	+	
Hunting: recreational/sport	+	
Sewage treatment/disposal	+	
Harbour/port	+	
Flood control	+	
Transport route	+	+
Urban development		+
Non-urbanised settlements	+	+

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
Erosion	2	Natural coastal processes exacerbated by fixed sea defences, port development and maintenance dredging.	+		+

For category 2 factors only.
What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Erosion - Erosion is being tackled through sediment replacement for additional erosion that can be attributed to port development and maintenance dredging. A realignment site has been created on-site to make up for the loss of habitat due to capital dredging. General background erosion has not been tackled although a Flood Management Strategy for the site is being produced.

Is the site subject to adverse ecological change? YES

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Management agreement	+	
Site management statement/plan implemented	+	
Area of Outstanding National Beauty (AONB)	+	+

b) Describe any other current management practices:
The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna.
Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.
High tide bird counts.

Environment, Flora and Fauna.
Vegetation, bird and invertebrate surveys/monitoring carried out on NGO reserves.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

None reported

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.
A popular area for tourists as it is within an AONB. There are more visitors in the summer. However it is well used throughout the year by walkers, bird watches and for sailing.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

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EC Directive 79/409 on the Conservation of Wild Birds:
Special Protection Area

The Deben Estuary (Suffolk)

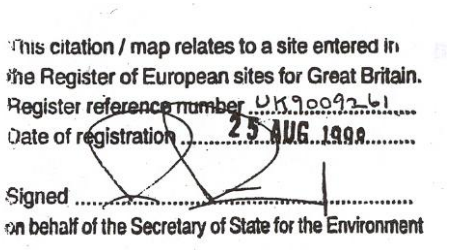
The Deben Estuary Special Protection Area (SP A) extends for about 18km from the mouth of the estuary at Felixstowe, on the east coast of Suffolk to near the tidal limit above Wilford Bridge. It is a relatively narrow and sheltered estuary with a limited amount of freshwater input and intertidal areas constrained by sea walls. Saltmarsh and intertidal mud flats occupy the majority of the site but there are also areas of reedswamp, unimproved neutral grassland and scrub. The estuary is largely surrounded by agricultural land.

The boundary of the SPA is coincident with the Deben Estuary SSSI, notified in 1991, and overlaps with the Ferry Cliff, and Sutton and Ramsholt Cliff geological SSSIs. The site includes all land above mean low water mark up to an inland boundary that follows variable features such as the upper limit of wetland habitat or the sea wall.

The site qualifies under Article 4.1 of the EC Birds Directive by regularly supporting nationally important numbers of avocet *Recurvirostra avosetta,* an Annex 1 species. The five year winter peak mean for the period 1988/89 to 1992/93 was 57 birds, representing 11.4% of the British population. Further Annex 1 species wintering on the site include golden plover *Pluvialis apricaria,* hen harrier *Circus cyaneus* and short-eared owl *Asio flammeus.*

The site qualifies under Article 4.2 of the Directive by regularly supporting internationally important numbers of dark-bellied geese, *Branta bernicula bernicula,* a regularly occurring migratory species. The five year winter peak mean for the period 1988/89 to 1992/93 was 1,889 birds, representing 2.1% of the British and 1.1% of the north-west European population. In addition the site supports nationally important numbers of the following migratory waterfowl (figures are five year winter peak means for the period 1988/89 to 1992/93): 1,046 shelduck *Tadorna tadorna* (1.4% of the British population); 252 grey plover *Pluvialis squatarola* (1.2% of British); 143 black-tailed godwit *Limosa limosa* (2.9% of British); and 1,454 redshank *Tringa totanus* (1.9% of British).

The site also supports a notable assemblage of breeding and wintering wetland birds in addition to the species mentioned above. Breeding species include shelduck, gadwall *Anas strepera,* teal *A. crecca,* shoveler *A. clypeata,* redshank, oystercatcher *Haematopus ostralegus,* ringed plover *Charadrius hiaticula* and snipe *Gallinago gallinago.* Wintering species include cormorant *Phalacrocorax carbo,* teal, pintail *Anas acuta,* wigeon *A. penelope,* goldeneye *Bucephala clangula,* coot *Fulica atra,* oystercatcher, ringed plover, dunlin *Calidris alpina,* snipe, curlew *Numenuis arquata,* turnstone *Areneria interpres* and twite *Carduelis flavirostris.* The estuary is more important for many species of waterfowl in years when severe weather reduces food resources available on the continent.



SPA Citation
March 1996

EC Directive 79/409 on the Conservation of Wild Birds
Special Protection Area (SPA)

Name: Stour and Orwell Estuaries

Unitary Authority/County: Essex, Suffolk.

Site description: The Stour and Orwell estuaries straddle the eastern part of the Essex/Suffolk border in eastern England. The SPA is coincident with Cattawade Marshes Site of Special Scientific Interest (SSSI), Orwell Estuary SSSI and Stour Estuary SSSI. The estuaries include extensive mud-flats, low cliffs, saltmarsh and small areas of vegetated shingle on the lower reaches. The mud-flats hold *Enteromorpha, Zostera* and *Salicornia* spp. The site also includes areas of low-lying grazing marsh at Shotley Marshes on the south side of the Orwell and at Cattawade Marshes at the head of the Stour. Trimley Marshes on the north side of the Orwell includes several shallow freshwater pools, as well as areas of grazing marsh, and is managed as a nature reserve by the Suffolk Wildlife Trust. In summer, the site supports important numbers of breeding avocet *Recurvirostra avosetta*, while in winter it holds major concentrations of waterbirds, especially geese, ducks and waders. The geese also feed, and some waders roost, in surrounding areas of agricultural land outside the SPA. The site has close ecological links with the Hamford Water and Mid-Essex Coast SPAs, lying to the south on the same coast.

Size of SPA: The SPA covers an area of 3,676.92 ha.

Qualifying species:
The site qualifies under **article 4.1** of the Directive (79/409/EEC) as it is used regularly by 1% or more of the Great Britain populations of the following species listed in Annex I in any season:

Annex 1 species	Count and season	Period	% of GB population
Avocet *Recurvirostra avosetta*	21 pairs - breeding	5 year peak mean 1996 – 2000	3.6%

The site qualifies under **article 4.2** of the Directive (79/409/EEC) as it is used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed in Annex I) in any season:

Migratory species	Count and season	Period	% of subspecies/population
Redshank *Tringa totanus*	2,588 individuals – autumn passage	5 year peak mean 1995/96 – 1999/2000	2.0% *brittanica*
Dark-bellied brent goose *Branta bernicla bernicla*	2,627 individuals - wintering	5 year peak mean 1995/96 – 1999/2000	1.2% *bernicla*, Western Siberia (breeding)
Pintail *Anas acuta*	741 individuals - wintering	5 year peak mean 1995/96 – 1999/2000	1.2% Northwestern Europe (non-breeding)
Grey plover *Pluvialis squatarola*	3,261 individuals - wintering	5 year peak mean 1995/96 – 1999/2000	1.3% Eastern Atlantic (non-breeding)
Knot *Calidris canutus islandica*	5,970 individuals - wintering	5 year peak mean 1995/96 – 1999/2000	1.3% *islandica*
Dunlin *Calidris alpina alpina*	19,114 individuals - wintering	5 year peak mean 1995/96 – 1999/2000	1.4% *alpina*, Western Europe (non-breeding)
Black-tailed godwit *Limosa limosa islandica*	2,559 individuals - wintering	5 year peak mean 1995/96 – 1999/2000	7.3% *islandica*
Redshank *Tringa totanus*	3,687 individuals - wintering	5 year peak mean 1995/96 – 1999/2000	2.8% *brittanica*

Bird counts from: Wetland Bird Survey (WeBS) database.

Assemblage qualification:
The site qualifies under **article 4.2** of the Directive (79/409/EEC) as it is used regularly by over 20,000 waterbirds (waterbirds as defined by the Ramsar Convention) in any season:

In the non-breeding season, the area regularly supports 63,017 individual waterbirds (5 year peak mean 1993/94 - 1997/98), including great crested grebe *Podiceps cristatus*, cormorant *Phalacrocorax carbo*, dark-bellied brent goose *Branta bernicla bernicla*, shelduck *Tadorna tadorna*, wigeon *Anas penelope*, gadwall *Anas strepera*, pintail *Anas acuta*, goldeneye *Bucephala clangula*, ringed plover *Charadrius hiaticula*, grey plover *Pluvialis squatarola*, lapwing *Vanellus vanellus*, knot *Calidris canutus islandica*, dunlin *Calidris alpina alpina*, black-tailed godwit *Limosa limosa islandica*, curlew *Numenius arquata*, redshank *Tringa totanus* and turnstone *Arenaria interpres*.

Non-qualifying species of interest: The SPA/Ramsar site as a whole, including the proposed extensions, is used by non-breeding marsh harrier *Circus aeruginosus*, hen harrier *Circus cyaneus*, merlin *Falco columbarius*, peregrine *Falco peregrinus*, short-eared owl *Asio flammeus* and kingfisher *Alcedo atthis* (all species listed in Annex I of the EC Birds Directive) in numbers of less than European importance (less than 1% GB population). It also supports breeding common tern *Sterna hirundo*, little tern *Sterna albifrons* and kingfisher (all listed in Annex I) in numbers of less than European importance.

Status of SPA:
1) Stour and Orwell Estuaries was classified as a Special Protection Area on 13 July 1994.
2) Extensions to the Stour and Orwell Estuaries SPA were classified on 19 May 2005.

European Site Conservation Objectives for Deben Estuary Special Protection Area Site Code: UK9009261

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- **The extent and distribution of the habitats of the qualifying features**
- **The structure and function of the habitats of the qualifying features**
- **The supporting processes on which the habitats of the qualifying features rely**
- **The population of each of the qualifying features, and,**
- **The distribution of the qualifying features within the site.**

This document should be read in conjunction with the accompanying *Supplementary Advice* document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

A046a *Branta bernicla bernicla*; Dark-bellied brent goose (Non-breeding)

A132 *Recurvirostra avosetta*; Pied avocet (Non-breeding)

This is a European Marine Site

This SPA is a part of the Deben Estuary European Marine Site (EMS). These Conservation Objectives should be used in conjunction with the Conservation Advice document for the EMS. Natural England's formal Conservation Advice for European Marine Sites can be found via GOV.UK.

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2017 (as amended) ('the Habitats Regulations'). They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment' including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives, and the accompanying Supplementary Advice (where this is available), will also provide a framework to inform the management of the European Site and the prevention of deterioration of habitats and significant disturbance of its qualifying features

These Conservation Objectives are set for each bird feature for a Special Protection Area (SPA).

Where these objectives are being met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving the aims of the Wild Birds Directive.

Publication date: 21 February 2019 (version 3). This document updates and replaces an earlier version dated 30 June 2014 to reflect the consolidation of the Habitats Regulations in 2017.

European Site Conservation Objectives for Stour and Orwell Estuaries Special Protection Area Site Code: UK9009121

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- **The extent and distribution of the habitats of the qualifying features**
- **The structure and function of the habitats of the qualifying features**
- **The supporting processes on which the habitats of the qualifying features rely**
- **The population of each of the qualifying features, and,**
- **The distribution of the qualifying features within the site.**

This document should be read in conjunction with the accompanying *Supplementary Advice* document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

A046a *Branta bernicla bernicla*; Dark-bellied brent goose (Non-breeding)
A054 *Anas acuta*; Northern pintail (Non-breeding)
A132 *Recurvirostra avosetta*; Pied avocet (Breeding)
A141 *Pluvialis squatarola*; Grey plover (Non-breeding)
A143 *Calidris canutus*; Red knot (Non-breeding)
A149 *Calidris alpina alpina*; Dunlin (Non-breeding)
A156 *Limosa limosa islandica*; Black-tailed godwit (Non-breeding)
A162 *Tringa totanus*; Common redshank (Non-breeding)
Waterbird assemblage

This is a European Marine Site

This SPA is a part of the Stour and Orwell Estuaries European Marine Site (EMS). These Conservation Objectives should be used in conjunction with the Conservation Advice document for the EMS. Natural England's formal Conservation Advice for European Marine Sites can be found via GOV.UK.

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2017 (as amended) ('the Habitats Regulations'). They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment' including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives, and the accompanying Supplementary Advice (where this is available), will also provide a framework to inform the management of the European Site and the prevention of deterioration of habitats and significant disturbance of its qualifying features

These Conservation Objectives are set for each bird feature for a Special Protection Area (SPA).

Where these objectives are being met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving the aims of the Wild Birds Directive.

Publication date: 21 February 2019 (version 3). This document updates and replaces an earlier version dated 30 June 2014 to reflect the consolidation of the Habitats Regulations in 2017.

NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type A

1.2 Site code UK9009261

1.3 Compilation date 199603

1.4 Update 199803

1.5 Relationship with other Natura 2000 sites

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Deben Estuary**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	
date confirmed as SCI	
date site classified as SPA	199603
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	**latitude**
01 20 44 E	52 02 31 N

2.2 Site area (ha) 978.93

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UK403	Suffolk	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment

3.2 Annex I birds and regularly occurring migratory birds not listed on Annex I

		Population				Site assessment			
		Resident	Migratory						
Code	Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global
A046a	*Branta bernicla bernicla*			2516 I		B		C	
A132	*Recurvirostra avosetta*			95 I		B		B	

4. Site description:

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	80.0
Salt marshes. Salt pastures. Salt steppes	18.0
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	1.0
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	1.0
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Mud, Sedimentary

Geomorphology & landscape:

Coastal, Estuary, Intertidal sediments (including sandflat/mudflat), Lowland, Valley

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC)

Over winter the area regularly supports:

Recurvirostra avosetta (Western Europe/Western Mediterranean - breeding)	7.5% of the GB population 5 year peak mean 1991/92-1995/96

ARTICLE 4.2 QUALIFICATION (79/409/EEC)

Over winter the area regularly supports:

Branta bernicla bernicla (Western Siberia/Western Europe)	0.8% of the population 5 year peak mean 1991/92-1995/96

4.3 Vulnerability

The saltmarsh and intertidal habitats are vulnerable to sea level rise and coastal squeeze. These issues are being addressed through the Environment Agency LEAP, the estuary Shoreline Management Plan and research into possible managed retreat in parts of the site.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK04 (SSSI/ASSI)	100.0

NATURA 2000 – STANDARD DATA FORM

Special Protection Areas under the EC Birds Directive.

Each Natura 2000 site in the United Kingdom has its own Standard Data Form containing site-specific information. The data form for this site has been generated from the Natura 2000 Database submitted to the European Commission on the following date:

22/12/2015

The information provided here, follows the officially agreed site information format for Natura 2000 sites, as set out in the Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 (2011/484/EU).

The Standard Data Forms are generated automatically for all of the UK's Natura 2000 sites using the European Environment Agency's Natura 2000 software. The structure and format of these forms is exactly as produced by the EEA's Natura 2000 software (except for the addition of this coversheet and the end notes). The content matches exactly the data submitted to the European Commission.

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

Further technical documentation may be found here
http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal

As part of the December 2015 submission, several sections of the UK's previously published Standard Data Forms have been updated. For details of the approach taken by the UK in this submission please refer to the following document:
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

More general information on Special Protection Areas (SPAs) in the United Kingdom is available from the SPA home page on the JNCC website. This webpage also provides links to Standard Data Forms for all SPAs in the UK.

Date form generated by the Joint Nature Conservation Committee
25 January 2016.

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **UK9009121**

SITENAME **Stour and Orwell Estuaries**

TABLE OF CONTENTS

1. SITE IDENTIFICATION

Back to top

1.1 Type	1.2 Site code
A	UK9009121

1.3 Site name

Stour and Orwell Estuaries

1.4 First Compilation date	1.5 Update date
1994-07	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

1.7 Site indication and designation / classification dates

Date site classified as SPA:	1994-07
National legal reference of SPA designation	Regulations 12A and 13-15 of the Conservation Habitats and Species Regulations 2010, (http://www.legislation.gov.uk/uksi/2010/490/contents/made) as amended by The Conservation of Habitats and Species (Amendment) Regulations 2011 (http://www.legislation.gov.uk/uksi/2011/625/contents/made).

2. SITE LOCATION

Back to top

2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
1.160555556	51.95444444

2.2 Area [ha]:

3667.37

2.3 Marine area [%]

85.6

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKH3	Essex
UKH1	East Anglia

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

Back to top

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo
B	A054	Anas acuta			w	741	741	i		G	B		C	
B	A050	Anas penelope			w	3979	3979	i		G	C		C	
B	A051	Anas strepera			w	97	97	i		G	C		C	
B	A169	Arenaria interpres			w	690	690	i		G	C		C	
B	A062	Aythya marila			w	28	28	i		G	C		C	
B	A675	Branta bernicla bernicla			w	2627	2627	i		G	B		C	
B	A067	Bucephala clangula			w	213	213	i		G	C		C	
B	A672	Calidris alpina alpina			w	19114	19114	i		G	B		C	
B	A143	Calidris canutus			w	5970	5970	i		G	C		C	

B	A137	Charadrius hiaticula			w	372	372	i		G	B		C
B	A137	Charadrius hiaticula			c	638	638	i		G	B		C
B	A036	Cygnus olor			w	239	239	i		G	C		C
B	A616	Limosa limosa islandica			w	2559	2559	i		G	A		C
B	A160	Numenius arquata			w	2153	2153	i		G	C		C
B	A017	Phalacrocorax carbo			w	232	232	i		G	C		C
B	A140	Pluvialis apricaria			w	773	773	i		G	C		C
B	A141	Pluvialis squatarola			w	3261	3261	i		G	B		C
B	A005	Podiceps cristatus			w	245	245	i		G	C		C
B	A132	Recurvirostra avosetta			r	21	21	p		G	B		C
B	A048	Tadorna tadorna			w	2955	2955	i		G	B		C
B	A162	Tringa totanus			c	2588	2588	i		G	B		C
B	A162	Tringa totanus			w	3687	3687	i		G	B		C
B	A142	Vanellus vanellus			w	6242	6242	i		G	C		C

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

Species					Population in the site				Motivation					
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C|R|V|P	IV	V	A	B	C	D
B	WATR	Waterfowl assemblage			63017	63017	i						X	

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see reference portal)
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories: IV, V:** Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

Back to top

4.1 General site character

Habitat class	% Cover
N16	0.2
N06	0.8
N05	0.5
N03	5.0
N07	5.5
N02	88.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: sand,shingle,clay,alluvium,neutral,mud 2 Terrestrial: Geomorphology and landscape: coastal,lowland 3 Marine: Geology: mud,clay,shingle,sand 4 Marine: Geomorphology: intertidal sediments (including sandflat/mudflat),estuary,lagoon,subtidal sediments (including sandbank/mudbank) Ramsar Wetland Types: Marine and coastal wetlands

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: Recurvirostra avosetta (Western Europe/Western Mediterranean - breeding) 3.6% of the population in Great Britain 5-year peak mean 1996-2000 ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: Anas acuta (North-western Europe) 1.2% of the population 5-year peak mean 1995/96-1999/2000 Branta bernicla bernicla (Western Siberia/Western Europe) 1.2% of the population 5-year peak mean 1995/96-1999/2000 Calidris alpina alpina (Northern Siberia/Europe/Western Africa) 1.4% of the population 5-year peak mean 1995/96-1999/2000 Calidris canutus (North-eastern Canada/Greenland/Iceland/North-western Europe) 1.3% of the population 5-year peak mean 1995/96-1999/2000 Limosa limosa islandica (Iceland - breeding) 7.3% of the population 5-year peak mean 1995/96-1999/2000 Pluvialis squatarola (Eastern Atlantic - wintering) 1.3% of the population 5-year peak mean 1995/96-1999/2000 Tringa totanus (Eastern Atlantic - wintering) 2.8% of the population 5-year peak mean 1995/96-1999/2000 On passage the area regularly supports: Tringa totanus (Eastern Atlantic - wintering) 2% of the population 5-year peak mean 1995/96-1999/2000 ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS Over winter the area regularly supports: 63017 waterfowl (5 year peak mean 1991/92-1995/96) Including: Podiceps cristatus , Phalacrocorax carbo , Branta bernicla bernicla , Tadorna tadorna , Anas penelope , Anas strepera , Anas acuta , Bucephala clangula , Charadrius hiaticula , Pluvialis squatarola , Vanellus vanellus , Calidris canutus , Calidris alpina alpina , Limosa limosa islandica , Numenius arquata , Tringa totanus , Arenaria interpres

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts	Positive Impacts

Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	M02		B
H	G01		I
H	M01		B
H	E06		B
H	F02		I

Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	B02		I
H	A02		I
H	G03		I
H	A04		I
H	D05		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification, T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

Back to top

5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	90.4				

6. SITE MANAGEMENT

Back to top

6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE NATURA 2000 STANDARD DATA FORMS

The codes in the table below are also explained in the official European Union guidelines for the Standard Data Form. The relevant page is shown in the table below.

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	Designated Special Protection Area	53
B	SAC (includes candidates Special Areas of Conservation, Sites of Community Importance and designated SAC)	53
C	SAC area the same as SPA. Note in the UK Natura 2000 submission this is only used for Gibraltar	53

3.1 Habitat representativity

CODE	DESCRIPTION	PAGE NO
A	Excellent	57
B	Good	57
C	Significant	57
D	Non-significant presence	57

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha□ rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	15%-100%	58
B	2%-15%	58
C	< 2%	58

3.1 Conservation status habitat

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global grade habitat

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	15%-100%	62
B	2%-15%	62
C	< 2%	62
D	Non-significant population	62

3.2 Conservation status species (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' Or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Assemblages types

CODE	DESCRIPTION	PAGE NO
WATR	Non breeding waterfowl assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code
BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK02	Marine Nature Reserve	67
UK04	Site of Special Scientific Interest (UK)	67

Citation as notified on 7 december 1990, which Council is recommended to confirm without modification

COUNTY: SUFFOLK SITE NAME: BIXLEY HEATH

DISTRICT: IPSWICH BOROUGH AND SUFFOLK COASTAL

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: SUFFOLK COUNTY COUNCIL, Ipswich Borough Council, Suffolk Coastal District Council

National Grid Reference: TM 199430 Area: 4.9 (ha.) 12.1 (ac.)

Ordnance Survey Sheet 1:50,000: 169 1:10,000: TM 14 SE and TM 24 SW

Date Notified (Under 1949 Act): – Date of Last Revision: –

Date Notified (Under 1981 Act): 1990 Dare of Last Revision: –

Other Information:
A new site.

Description and Reasons for Notification:
Bixley Heath is important for its heathland which occurs here in association with a scarce swamp vegetation. The presence of these two habitat types within a single site is a particularly rare feature in the Suffolk Sandlings which have been greatly fragmented and reduced in area during recent decades.

The site lies at approximately 30m above sea level and has a generally southerly aspect. The higher land consists of glaciofluvial drift where the sandy, well-drained, acidic soil is occupied by dry heartland. At the southern end of the site the land dips down to form a small valley which is the head and source of the Mill River.

The dry heathland is characteristically dominated by Heather *Calluna vulgaris* which is present in a range of development phases. Bell-heather *Erica cinerea* is of low abundance and there are scattered tussocks of Sheep's Fescue *Festuca ovina* throughout with Common Bent-grass *Agrostis capillaris* being locally abundant. The presence of Wavy Hair-grass *Deschampsia flexuosa*, Wood Sage *Teucrium scorodonia*, Heath Bedstraw *Galium saxatile*, Field Wood-rush *Luzula campestris*, Sheep's Sorrel *Rumex acetosella* and Birdsfoot *Ornithopus perpusillus* also typify this vegetation community.

Bracken *Pteridium aquilinum* occurs around the margins and as scattered fronds elsewhere together with European Gorse *Ulex europaeus* and Broom *Cytisus scoparius*. Areas of scrub are concentrated on the periphery of the site consisting mainly of Pedunculate Oak *Quercus robur*, Birch *Betula sp*. and Rowan *Sorbus aucuparia*.

Swamp vegetation occupies the valley bottom. This is predominantly a dense stand of Lesser Pond-sedge *Carex acutiformis* with typically associated species being Valerian *Valeriana officinalis*, Common Marsh bedstraw *G. palustre*, Water Mint *Mentha aquatica*, Soft Rush *Juncus effusus* and Cyperus Sedge *C. pseudocyperus*. Great Reedmace *Typha latifolia* is locally prominent and a tall herb element is represented by Great Willowherb *Epilobium hirsutum* and Hemp Agrimony *Eupatorium cannabinum*. Stands of Greater Tussock-sedge *C. paniculata* occur and Sallow *Salix sp.* forms a light canopy over much of the swamp area.

Additional habitat diversity is provided at the lower end of the valley where the sedge community grades into a more open area of reed bed dominated by Common Reed *Phragmites australis*.

CITATION AS NOTIFIED ON 18 FEBRUARY 1991

COUNTY: SUFFOLK SITE NAME: DEBEN ESTUARY

DISTRICT: SUFFOLK COASTAL

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: SUFFOLK COUNTY COUNCIL, Suffolk Coastal District Council

National Grid Reference: TM 295504–TM 330378 Area: 976.0 (ha.) 2411.7 (ac.)

Ordnance Survey Sheet 1:50,000: 169 & 156 1:10,000: TM 24 NE/SE, 255E, 33NW, 34SW

Date Notified (Under 1949 Act): – Date of Last Revision: –

Date Notified (Under 1981 Act): 18.2.91 Date of Last Revision: –

Other Information:
The boundary of this site partially overlaps the boundaries of two geological SSSIs, Ferry Cliff, Sutton and Ramsholt Cliff.

Description and Reasons for Notification:
The Deben Estuary is important for its populations of overwintering 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 12km in a generally south-easterly direction. It is sinuous, relatively sheltered and narrow, particularly at its mouth which is protected by shifting sand banks. Much of the intertidal area is occupied by mudflats with more sandy deposits occurring where exposed Red Crag erodes from cliffs.

The numbers of Redshank *Tringa totanus* overwintering 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 Dark-bellied Brent Goose *Branta bernicla*, Shelduck *Tadorna tadorna* and Black-tailed Godwit *Limosa limosa* with the numbers of Wigeon *Anas penelope*, Pintail *Anas acuta* and Grey Plover *Pluvialis squatarola* approaching this level in some years. The Estuary supports many other species including high numbers of Dunlin *Calidris alpina*, Curlew *Numenius arquata* and Mute Swan *Cygnus olor*.

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.

Low-marsh communities, which are mainly situated towards the head of the Estuary, are characterised by a vegetation dominated by Sea Aster *Aster tripolium*, Annual Seablite *Suaeda maritima*, Glasswort *Salicornia europea*, Sea Poa *Puccinellia maritima* and Sea Purslane *Halimione portulacoides*. In places, particularly where steep cliffs abut the mudflats, virtually pure stands of Common Cord-grass *Spartina anglica* occur. Where the old seawalls have been breached a saltmarsh community that is typical of formerly disturbed sites has established. This is characterised by a mosaic of Sea Poa, Sea-milkwort *Glaux maritima*, Common Sea-lavender *Limonium vulgare*, Sea Arrow-grass *Triglochin maritima* and Sea Plantain *Plantago maritima*. Varying proportions of these species are also to be found in the more typical mid-marsh communities which became prevalent towards the lower end of the Estuary. There are several areas where upper-marsh occurs, characterised by the presence of Sea Rush *Juncus maritimus*, Red Fescue *Festuca rubra*, Saltmarsh Rush *J. gerardii* and Creeping Bent *Agrostis stolonifera*.

Sea couch *Elymus pycnanthus* is mainly confined to sea walls but at the northern-most end of the site it forms extensive stands which show a natural transition to Blackthorn *Prunus spinosa* scrub on the higher ground. In addition, swamp communities occur in several places along the Estuary, usually as relatively narrow fringes but occasionally forming large stands. Such areas may be dominated by Sea Club-rush *Scirpus maritimus*, Greater Pond sedge *Carex riparia* or, most frequently, Common Reed *Phragmites australis*.

The Estuary supports three nationally scarce plant species, namely Marsh Mallow *Althaea officinalis*, Shrubby Seablite *Suaeda fruticosa* and Small Cord-grass *Spartina maritima*. The nationally rare Mollusc *Vertigo augustior* and nationally scarce *V. pusilla* have also been recorded.

COUNTY: SUFFOLK SITE NAME: IPSWICH HEATHS

DISTRICT: SUFFOLK COASTAL

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981.

Local Planning Authority: Suffolk Coastal District Council

National Grid Reference: TM 212427 & TM 238448 Area: 42.8 (ha.) 105.8 (ac.)

Ordnance Survey Sheet 1:50,000: 1:10,000: TM 24 SW & NW

Date Notified (Under 1949 Act): – Date of Last Revision: –

Date Notified (Under 1981 Act): 1988 Date of Last Revision: –

Other Information:
A new site.

Description and Reasons for Notification:
Martlesham and Purdis Heaths are the best remnants of a formerly extensive tract of heathland which lay to the east of Ipswich, and formed the southern limit of the 'sandlings' heaths of East Suffolk. Both contain substantial areas of heather *Calluna vulgaris* heath and acid grassland, together with stands of bracken *Pteridium aquilinum* and gorse *Ulex europaeus* scrub. These communities grade into one another to form a mosaic of habitats of particular value for butterflies. Martlesham Heath is notable for supporting the largest colony of the silver-studded blue butterfly in East Anglia, as well as a number of other species.

The heather heath is of mixed age, reflecting a history of accidental fires. Most areas are showing vigorous regeneration, but invasion by bracken, gorse and birch *Betula pendula* occurs, particularly at Purdis Heath. Amongst regenerating heather, bare ground is often colonized by mosses and lichens, with sheep's sorrel *Rumex acetosella*, rosebay willowherb *Chamerion angustifolium* and other species appearing amongst slightly older stands. Bell heather *Erica cinerea* is quite frequent on mature heath, especially on the transition to acid grassland or bracken.

The acid grassland which occupies substantial areas of the site is composed mainly of bent *Agrostis* spp. and fescue *Festuca* spp grasses, with frequent early hair-grass *Aira praecox*. Where acid grassland forms a mosaic with heath there is a wider range of associated species, such as heath bedstraw *Galium saxatile*, cat's-ear *Hypochoeris radicata*, mouse-ear hawkweed *Hieracium pilosella* and common centaury *Centaurium erythraea*. It is this mixture of short rabbit grazed grassland interspersed with clumps of heather that favours the silver-studded blue, together with common blue and small heath butterflies.

Secondary woodland of young oak *Quercus robur* and birch is confined mainly to the outlying parts of the site and supports a variety of birds including nightingale, whitethroat, willow warbler and tawny owl.

COUNTY: SUFFOLK SITE NAME: NACTON MEADOWS

DISTRICT: SUFFOLK COASTAL

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981, as amended

Local Planning Authority: SUFFOLK COUNTY COUNCIL, Suffolk Coastal District Council

National Grid Reference: TM 232399 Area: 3.5 (ha.) 8.65 (ac.)

Ordnance Survey Sheet 1:50 000: 169 1:10 000: TM 23 NW and TM 24 SW

Data Notified (Under 1949 Act) – Date of Last Revision: –

Date Notified (Under 1981 Act): 1992 Date of Last Revision: –

Other Information:
A new site. Managed as a nature reserve by the Suffolk Wildlife Trust.

Description and Reasons for Notification:
Nacton Meadows are of special interest for their areas of fen-meadow, of a type that is very scarce in Suffolk, being mainly found in the western parts of Britain. In Suffolk, there is a total area of approximately 55 ha of this vegetation type remaining in only five other sites that are of a similar quality to Nacton Meadows. In addition, this site supports a relatively species-rich version of the vegetation community type compared to the other sites in the County.

The site lies at an altitude of approximately 10m above sea level and occupies the south west facing slope of a small tributary valley of the Orwell Estuary. A range of grassland communities are present corresponding to the variation in soil type and drainage conditions.

The upper valley slopes have free-draining sandy soils and support a mosaic of acid to neutral grasslands. Yorkshire-fog *Holcus lanatus*, Common Bent *Agrostis capillaris*, Small-leaved Cat's-tail *Phleum bertolonii*, Sheep's-sorrel *Rumex acetosella*, Ribwort Plantain *Plantago lanceolata* and Cat's-ear *Hypochoeris radicata* typify the acid soils whereas Oat-grass *Arrhenatherum elatius*, Cock's-foot *Dactylis glomerata* and Common Knapweed *Centaurea nigra* predominate on the more neutral areas.

Along the valley sides and bottom conditions are wetter due to seepage from the slopes and the vegetation is more species rich. Yorkshire-fog remains abundant but is associated with Crested Dog's-tail *Cynosurus cristatus*, Sweet Vernal-grass *Anthoxanthum odoratum* and Red Fescue *Festuca rubra* together with several species of rush including Sharp-flowered Rush *Juncus acutiflorus*, Soft-rush *J. effusus* and Jointed Rush *J. articulatus*. There is abundant Greater Bird's-foot-trefoil *Lotus uliginosus* and Meadowsweet *Filipendula ulmaria* with frequent sedges *Carex spp*.,

Meadow Vetchling *Lathyrus pratensis*, Fleabane *Pulicaria dysenterica*, Crosswort *Galium cruciata*, Bog Stitchwort *Stellaria alsine* and Water Mint *Mentha aquatica*. Occasional species here are Southern Marsh-orchid *Dactylorhiza praetermissa*, Ragged Robin *Lychnis flos-cuculi*, Marsh-marigold *Caltha palustris* and Silverweed *Potentilla anserina*. The uncommon Marsh Arrowgrass *Triglochin palustris* is also present. It is considered that this community is representative of the *Juncus effusus/acutiflorus – Galium palustre* rush-pasture as described in the National Vegetation Classification.

Additional habitat diversity is provided by the small drainage channels that run down the slopes to the stream and which support dense stands of Fool's Water-cress *Apium nodiflorum* and Brooklime *Veronica beccabunga*. Around the site's periphery are areas of Hawthorn *Crataegus monogyna* and Elder *Sambucus nigra* scrub with areas of Bracken *Pteridium aquilinum* and Nettles *Urtica dioica*. A small Oak wood occurs on the valley side and a line of Alder *Alnus glutinosa* follows the streamside.

COUNTY: SUFFOLK SITE NAME: NEWBOURN SPRINGS

DISTRICT: SUFFOLK COASTAL

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: SUFFOLK COASTAL DISTRICT COUNCIL

National Grid Reference: TM 272434 Area: 13.0 (ha.) 32.1 (ac.)

Ordnance Survey Sheet 1:50,000: 169 1:10,000: TM 24 SE

Date Notified (Under 1949 Act): 1954 Date of Last Revision: 1965

Date Notified (Under 1981 Act): 1986 Date of Last Revision: –

Other Information:
This site is managed as a nature reserve by Suffolk Trust for Nature Conservation.

Reasons for Notification:
Newbourn Springs is a relatively small site which contains a variety of habitats in close juxtaposition. 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 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.

Tall coppiced spring-line alder woodland with standards of oak and ash occupy the shallow southern slopes of the valley and grade into crack willow and silver birch further west. The spring-flushed soils support a diverse flora dominated largely by Red Currant *Ribes nigrum* with abundant Enchanter's Nightshade *Circaea lutetiana*, Male Fern *Drypoteris filix-mas*, Bittersweet *Solanum dulcamara* and Primrose *Primula vulgaris*. Where alder gives way to ash, Bluebell *Hyacinthoides non-scripta* predominates, whilst more notable species include Common Twayblade *Listera ovata*, Common Spotted Orchid *Dactylorhiza fuschii* and Bee Orchid *Ophrys apifera*.

An interesting flora has developed along the stream banks, particularly in clearings created by recent coppicing. Water Avens *Geum rivale*, Marsh Marigold *Caltha palustris*, Yellow Iris *Iris pseudacorus* and Greater Pond Sedge *Carex riparia* are among the species present.

Tall fen vegetation dominated by reed and reed sweet-grass has developed on the wetter abandoned grazing meadows along the valley floor. Angelica, hemp agrimony and meadowsweet are frequent and other associated species include Reedmace *Typha latifolia* Blunt-flowered Rush *Juncus subnodulosus* and Fen Bedstraw *Galium*

uliginosum. On drier soils this grades into mixed tall neutral grassland and ruderal herb vegetation.

The steep valley side above the stream supports oak-ash-hazel woodland which has grown up into high forest. Associated species include hawthorn and elder with bramble, nettle, primrose and bluebell dominating the ground flora.

Above the valley is a large area of bracken dominated heath fringed by thorn scrub. Some areas have been cleared and patches of dry acid grassland and heather heath have developed. The grassland contains a variety of herb species including Sheep's Sorrel *Rumex acetosella*, Heath Bedstraw *Galium saxatile* and Ragwort *Senecio jacobaea*. Where base-poor springs arise, calcicolous species such as Hairy Rockcress *Arabis hirsuta*, Lady's Bedstraw *Galium verum* and Rockrose *Helianthemum nummularium* also occur.

A variety of birds breed on the site including nightingales, goldcrests, warblers and woodpeckers. Migratory birds such as *sylvia* warblers and fieldfare are regular visitors as are many butterflies including the green hairstreak and white letter hairstreak butterflies.

Site name: Orwell Estuary **County:** Suffolk

District: Ipswich, Suffolk Coastal and Babergh

Status: Site of Special Scientific Interest (SSSI) notified under section 28C of the Wildlife and Countryside Act 1981 as inserted by Schedule 9 to the Countryside & Rights of Way Act 2000.

Local Planning Authority: Ipswich Borough Council, Suffolk Coastal District Council and Babergh District Council

National Grid Reference: TM228379 **Area:** 1336.59 (ha)

Ordnance Survey Sheet: 1:50,000: 169 **1:10,000:** TM 13 NE, TM 14 SE, TM 23 NW, TM 23 SW, TM 22

Date Notified: 9 April 2003

Reasons for Notification:
The Orwell Estuary is of national importance for breeding avocet *Recurvirostra avosetta*, its breeding bird assemblage of open waters and their margins, nine species of wintering waterfowl (including black-tailed godwit *Limosa limosa islandica*), an assemblage of vascular plants, and intertidal mud habitats.

General description:
The Orwell is a long and relatively narrow estuary with extensive mudflats and some saltmarsh.

Extensive mudflats border the channel and support large patches of eelgrass *Zostera marina*, and dwarf eelgrass *Z. noltii* as well as large numbers of invertebrates that are important for feeding waders. Where it occurs, the saltmarsh tends to be sandy and fairly calcareous with a wide range of communities. Glasswort *Salicornia spp.* and small cord-grass *Spartina maritima* are the principal colonisers of the mud, and sea aster *Aster tripolium* is abundant on the lower marsh. The central areas of marsh are dominated by common saltmarsh-grass *Puccinellia maritima*, sea purslane *Atriplex portulacoides,* and common sea-lavender *Limonium vulgare*. Other species include sea arrowgrass *Triglochin maritimum*, annual sea-blite *Suaeda maritima*, sea-milkwort *Glaux maritima*, greater sea-spurrey *Spergularia media*, and sea plantain *Plantago maritima.* There are small areas of vegetated shingle on the foreshore of the lower reaches, but most of the saltmarsh is fringed by sea couch *Elytrigia atherica* or by common reed *Phragmites australis* and sea club-rush *Bolboschoenus maritimus* further upstream.

The freshwater grazing marshes which adjoin the estuary at Shotley, and the wet grassland and standing water of Trimley marshes, each form an integral part of the ornithological interest of the site. Shotley marshes are especially important for feeding dark-bellied brent geese *Branta bernicla bernicla*, wigeon *Anas penelope* and snipe *Gallinago gallinago*, and for breeding redshank *Tringa totanus* and lapwing

Vanellus vanellus. Trimley marshes have become an important refuge for wintering and passage birds, as well as a key breeding site.

Breeding birds
The Orwell Estuary supports a nationally important breeding number of avocet. It also supports a nationally important assemblage of breeding birds characteristic of open waters and their margins comprising little grebe *Tachybaptus ruficollis*, great crested grebe *Podiceps cristatus*, mute swan *Cygnus olor*, shelduck *Tadorna tadorna*, gadwall *Anas strepera*, garganey *Anas querquedula*, shoveler *Anas clypeata*, pochard *Aythya ferina*, tufted duck *Aythya fuligula*, avocet, ringed plover *Charadrius hiaticula*, redshank, and reed bunting *Emberiza schoeniclus*. The breeding bird assemblage is concentrated in three main areas: Trimley Marshes, Shotley Marshes, and Loompit Lake.

Non-breeding birds
The estuary regularly supports an important assemblage of more than 20,000 non-breeding waterfowl. It supports considerable numbers of oystercatcher *Haematopus ostralegus*, ringed plover, knot *Calidris canutus islandica*, curlew *Numenius arquata* and turnstone *Arenaria interpres*, but is particularly important for four other species of wader. These are grey plover *Pluvialis squatarola*, dunlin *Calidris alpina alpina*, black-tailed godwit (which regularly occur in numbers of international importance) and redshank. These regularly attain nationally important numbers in winter. The intertidal mud habitats, saltmarsh and adjacent areas used as high tide roosts are important for these wading birds.

Considerable numbers of wigeon and shoveler use the site, whilst cormorant, shelduck, gadwall and pintail *Anas acuta* regularly occur in numbers of national importance. Also of national importance are the large numbers of dark-bellied brent geese. Numbers often fluctuate because of interchange with neighbouring estuaries. The intertidal mud habitats, saltmarsh, freshwater marshes and river channel are important to these birds for feeding and roosting.

Vascular plant assemblage
The site supports a nationally important vascular plant assemblage, including at least nine nationally scarce plants. They are characteristic of intertidal mud, saltmarsh, shingle and coastal grazing marsh habitats. These are eelgrass, dwarf eelgrass, slender hare's-ear *Bupleurum tenuissimum,* golden-samphire *Inula crithmoides,* lax-flowered sea-lavender *Limonium humile,* shrubby sea-blite *Suaeda vera,* small cord-grass, perennial glasswort *Sarcocornia perennis,* and divided sedge *Carex divisa*.

Intertidal mud habitats
The Orwell Estuary supports a large area of intertidal mud habitat with very rich littoral sediments, particularly sandy muds. There is a high invertebrate species richness within the sediments. The estuary also supports an example of a nationally important tide swept algae community with sponges, ascidians and red algae.

In addition to the reasons for notification, the Orwell Estuary supports an inland nesting colony of cormorants at their only site in Suffolk.

COUNTY: SUFFOLK SITE NAME: WALDRINGFIELD PIT

DISTRICT: SUFFOLK COASTAL

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: SUFFOLK COUNTY COUNCIL, Suffolk Coastal District Council

National Grid Reference: TM 260449 Area: 0.069 (ha.) 0.170 (ac.)

Ordnance Survey Sheet 1:50,000: 169 1:10,000: TM 24 SE

Date Notified (Under 1949 Act): – Date of Last Revision: –

Date Notified (Under 1981 Act): 1991 Date of Last Revision: –

Other Information:
A new site, listed as being of national importance in the Geological Conservation Review.

Description and Reasons for Notification:
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 deformed 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.

VOLUME 8, CHAPTER 7, APPENDIX 7A: ANNEX 7A.3: PRIMARY DATA

Contents

Tables

Plates

None provided.

Figures (refer to Annex 7A.1)

Figure 7.5: Bat Tree Roost Assessment Results for the Freight Management Facility

1. Primary Data

1.1 Introduction

1.1.1 This Annex provides details of the primary data collected for the proposed freight management facility at Seven Hills (from here on referred to as the 'proposed development'). The freight management facility site (herein referred to as the 'site') is located on land to the south-east of the A12 and A14 junction.

1.1.2 No targeted surveys were undertaken for invertebrates, reptiles, birds, or terrestrial mammals as the extended Phase 1 habitat and protected species survey determined suitability of habitats for these species within the site boundary to be non-existent or sub-optimal. As such these taxa are not considered in detail within this Annex.

1.2 Plants and habitats

a) Methodology

i. Extended Phase 1 habitat and protected species survey

1.2.1 The extended Phase 1 habitat and protected species survey was undertaken on 2 May 2019. The survey area consisted of the land within the site boundary (see **Figure 7.3** in **Annex 7A.1**).

1.2.2 The survey involved identifying and mapping the dominant habitat types following the Phase 1 habitat survey methodology recommended by Natural England (Joint Nature Conservation Committee) (Ref 1.1). Dominant plant species were noted, as were any uncommon species or species indicative of particular habitat types. Botanical names follow 'New Flora of the British Isles' (Ref 1.2). Any non-native invasive species present within and adjacent to the proposed development (for example Japanese Knotweed (*Fallopia japonica*)) were also recorded.

1.2.3 Particular attention was paid to hedgerows and trees, and the status of each hedgerow with regard to the Hedgerows Regulations (Ref 1.3) was also assessed using the Wildlife and Landscape Criteria. Further detail of the assessment of hedgerows is detailed in **section 1.2a)ii**.

1.2.4 The survey was extended to involve a critical assessment of the value of the habitats present for their use by protected species or species of conservation interest, as outlined below:

- the value of the site for invertebrates was assessed and any habitats or features of particular value were identified;
- the value of the site for reptiles was assessed and any habitats or features of particular value for reptiles were identified;
- the value of the site for breeding birds was assessed;
- an external ground-level assessment of all trees in the site was carried out to assess their suitability for occupancy by roosting and/or hibernating bats and the likely value of the various habitat features for foraging and commuting bats was also critically assessed;
- the site was investigated for its use by badgers (*Meles meles*) by searching for the characteristic signs of badger activity including setts, latrines, paths, footprints, hairs, and feeding signs;
- the site was assessed for its potential to be used by dormice (*Muscardinus avellanarius*) and for connectivity to areas of woodland habitat in the surrounding area; and
- the site was assessed for its potential to be used by terrestrial mammals and any habitats or features of particular value to terrestrial mammals were identified.

1.2.5 The survey was undertaken in line with the site boundary available at the time of survey; however, please note that the figures in **Annex 7A.1** show the site boundary as at the date of issue. Full access to the entre survey area, was not obtained; however, it was considered that sufficient access was obtained to be able to make a reasonable assessment of the value of the habitats to protected or notable species. Areas where access was not obtained for survey are shown on **Figure 7.3** in **Annex 7A.1**.

ii. Hedgerow Regulations

1.2.6 These Hedgerows Regulations (Ref 1.3) only apply to hedgerows adjacent to land in agricultural/horticultural use. A hedgerow may be classified as 'important' for archaeological/historical reasons, or according to the Wildlife and Landscape criteria. To be classified as 'important' under the Wildlife and

Landscape criteria, the hedgerow must be over 30 years old and should comprise one of the following:

- at least seven woody species (spp)/30m[1];
- at least six woody spp/30m and at least three features[1];
- at least six woody spp/30m including any one of Pn/Sot/Tic/Tip (see **Table 1.1**)[1];
- at least five woody species and at least four features; or
- or if adjacent to a bridleway/footpath, at least four woody species and at least two features.

1.2.7 Note that a hedgerow may also be classified as 'important' due to the presence/recorded presence of particular animal and plant species (see Criteria 6 sub-paragraphs (1)-(4) of the Hedgerows Regulations for details (Ref 1.3)).

1.2.8 The woody species 'recognised' by the Hedgerows Regulations (Ref 1.3) are listed in **Table 1.1**, along with the species codes to be used on the record sheet:

Table 1.1: Woody species recognised by the Hedgerows Regulations (Ref 1.3)

Species code	Scientific name	Common name	Species code	Scientific name	Common name
Ac	*Acer campestre*	Field Maple	**Pa**	*Prunus avium*	Wild Cherry
Ag	*Alnus glutinosa*	Alder	**Pp**	*Prunus padus*	Bird Cherry
Bpe	*Betula pendula*	Silver Birch	**Ps**	*Prunus spinosa*	Blackthorn
Bpu	*Betula pubescens*	Downy Birch	**Pyc**	*Pyrus communis*	Pear
Bxs	*Buxus sempervirens*	Box	**Qp**	*Quercus petraea*	Sessile Oak
Cb	*Carpinus betulus*	Hornbeam	**Qr**	*Quercus robur*	Pedunculate Oak
Cos	*Cornus sanguinea*	Dogwood	**Rc**	*Rhamnus cathartica*	Buckthorn

[1] If the hedgerow is situated wholly or partly in one of the counties listed in Criteria 7 sub-paragraph (2) of the Hedgerows Regulations, the number of woody species should be reduced by one. Note that Suffolk is not one of the counties listed in Criteria 7 sub-paragraph (2) of the Hedgerow Regulations and therefore is not subject to this reduction.

Species code	Scientific name	Common name	Species code	Scientific name	Common name
Ca	*Corylus avellana*	Hazel	**Ruv**	*Ribes uva-crispa*	Gooseberry
Cla	*Crataegus laevigata*	Midland Hawthorn	**Ros**	*Rosa* sp(p)	Rose
Cm	*Crataegus monogyna*	Hawthorn	**Rac**	*Ruscus aculeatus*	Butcher's-broom
Cys	*Cytisus scoparius*	Broom	**Sx**	*Salix* sp(p)	Willow
Dl	*Daphne laureola*	Spurge-laurel	**Sxv**	*Salix viminalis*	Osier
Ee	*Euonymus europaeus*	Spindle	**Sn**	*Sambucus nigra*	Elder
Fs	*Fagus sylvatica*	Beech	**Sac**	*Sorbus aucuparia*	Rowan
Fa	*Frangula alnus*	Alder Buckthorn	**Sor**	*Sorbus* sp(p)	Whitebeam
Fe	*Fraxinus excelsior*	Ash	**Sot**	*Sorbus torminalis*	Wild Service-tree
Hr	*Hippophae rhamnoides*	Sea-buckthorn	**Tb**	*Taxus baccata*	Yew
Ia	*Ilex aquifolium*	Holly	**Tic**	*Tilia cordata*	Small-leaved Lime
Jr	*Juglans regia*	Walnut	**Tip**	*Tilia platyphyllos*	Large-leaved Lime
Jc	*Juniperus communis*	Common Juniper	**Ue**	*Ulex europaeus*	Gorse
Liv	*Ligustrum vulgare*	Wild Privet	**Ug**	*Ulex gallii*	Western Gorse
Ms	*Malus sylvestris*	Crab Apple	**Umi**	*Ulex minor*	Dwarf Gorse
Pal	*Populus alba*	White Poplar	**Um**	*Ulmus* sp(p)	Elm
Pn	*Populus nigra sub-species betulifolia*	Black-poplar	**Vl**	*Viburnum lantana*	Wayfaring-tree
Pot	*Populus tremula*	Aspen	**Vop**	*Viburnum opulus*	Guelder Rose
Pcan	*Populus x canescens*	Grey Poplar			

1.2.9 The presence of several features along a hedgerow influences the classification under the Hedgerows Regulations (Ref 1.3). The terms used to describe these features, and other additional terms, on the record sheet are explained in **Table 1.2**, and their presence in the hedgerow is indicated by a '✓' on the record sheet.

Table 1.2: Explanation of terms used on the Hedgerows Regulations (Ref 1.3) record sheet

Term	Description
Bank/wall	The hedgerow is supported along at least half of its length by a bank/wall.
Bridleway/path	The hedgerow runs parallel to a designated bridleway/footpath.
Connections ≥4 points	A hedgerow must score four or more 'connections points', where connections with an adjoining hedgerow(s) score one point each, and a connection with a pond or woodland (in which the majority of the trees are broad-leaved) scores two points each. A hedgerow is connected if it meets the feature, or if it has a point within 10m of it and would meet it if the line of the hedgerow continued.
Ditch	There is a ditch along at least half of the length of the hedgerow.
Ground flora spp.	A list of the dominant and any notable ground flora species recorded along the hedgerow.
Hedge No.	Hedgerow number (within survey area/site).
Important	Would the hedgerow be classified as 'important' under the Hedgerows Regulations?
Intact	The hedgerow contains less than 10% gaps along its length.
Parallel hedge	A parallel hedgerow is present within 15m.
Pn/Sot/Tic/Tip	The presence of these trees within the hedgerow influences the classification. An explanation of the species codes is given above.
Three flora spp.	The hedgerow supports at least three of the valuable ground flora species defined by the Hedgerows Regulations. The hedgerow is considered to support a plant if it is rooted within 1m (in any direction) of the hedgerow.
Trees	The hedgerow supports at least one standard tree per 50m length of hedgerow (standard trees are defined as those which when measured at 1.3m above ground level have a diameter of at least 20cm, or 15cm for multi-stemmed trees).
Woody species	A list of the woody species found along the hedgerow (this is likely to list more species than are present along 30m length(s)).

1.2.10 **Table 1.3** details valuable ground flora species with regard to the Hedgerows Regulations (Ref 1.3), while **Table 1.4** details species codes for other species often found in hedgerows.

Table 1.3: Valuable ground flora species with regard to the Hedgerows Regulations (Ref 1.3)

Species code	Scientific name	Common name
Amos	*Adoxa moschatellina*	Moschatel
Ajr*	*Ajuga reptans*	Bugle
Alu*	*Allium ursinum*	Ramsons
An*	*Anemone nemorosa*	Wood Anemone

Species code	Scientific name	Common name
Amac	*Arum maculatum*	Lord's-and-Ladies
Aff*	*Athyrium filix-femina*	Lady-fern
Bsp*	*Blechnum spicant*	Hard-fern
Bs*	*Brachypodium sylvaticum*	False-brome
Bram	*Bromopsis ramosa*	Hairy-brome
Clat	*Campanula latifolia*	Giant Bellflower
Ctra	*Campanula trachelium*	Nettle-leaved Bellflower
Cxsy	*Carex sylvatica*	Wood-sedge
Cl*	*Circaea lutetiana*	Enchanter's-nightshade
Cmaj	*Conopodium majus*	Pignut
Daff	*Dryopteris affinis*	Scaly Male-fern
Dcar	*Dryopteris carthusiana*	Narrow Buckler-fern
Dfm	*Dryopteris filix-mas*	Male-fern
Ehel	*Epipactis helleborine*	Broad-leaved Helleborine
Esyl	*Equisetum sylvaticum*	Wood Horsetail
Eamy	*Euphorbia amygdaloides*	Wood Spurge
Fgig	*Schedonorus giganteus*	Giant Fescue
Fv*	*Fragaria vesca*	Wild Strawberry
Godo	*Galium odoratum*	Woodruff
Gsx*	*Galium saxatile*	Heath Bedstraw
Gro*	*Geranium robertianum*	Herb-Robert
Gu*	*Geum urbanum*	Wood Avens
Hn*	*Hyacinthoides non-scripta*	Bluebell
Lgal	*Lamiastrum galeobdolon*	Yellow Archangel
Lsqu	*Lathraea squamaria*	Toothwort
Ls*	*Luzula sylvatica*	Great Wood-rush
Lnem	*Lysimachia nemorum*	Yellow Pimpernel
Mpra	*Melampyrum pratense*	Common Cow-wheat
Msyl	*Melampyrum sylvaticum*	Small Cow-wheat
Muni	*Melica uniflora*	Wood Melick
Mp*	*Mercurialis perennis*	Dog's Mercury
Meff	*Milium effusum*	Wood Millet
Omas	*Orchis mascula*	Early–purple Orchid

Species code	Scientific name	Common name
Oxa*	*Oxalis acetosella*	Wood-sorrel
Pqua	*Paris quadrifolia*	Herb-paris
Psco	*Asplenium scolopendrium*	Hart's-tongue
Pnem	*Poa nemoralis*	Wood Meadow-grass
Pvul	*Polypodium vulgare*	Polypody
Pacu	*Polystichum aculeatum*	Hard Shield-fern
Pset	*Polystichum setiferum*	Soft Shield-fern
Pere	*Potentilla erecta*	Tormentil
Pste	*Potentilla sterilis*	Barren Strawberry
Pela	*Primula elatior*	Oxlip
Pvul	*Primula vulgaris*	Primrose
Raur	*Ranunculus auricomus*	Goldilocks Buttercup
Sne*	*Sanicula europaea*	Sanicle
Tsn*	*Teucrium scorodonia*	Wood Sage
Vmon	*Veronica montana*	Wood Speedwell
Vodo	*Viola odorata*	Sweet Violet
Vrei	*Viola reichenbachiana*	Early Dog-violet
Vriv	*Viola riviniana*	Common Dog-violet

*Denotes code taken from Phase 1 handbook.

Table 1.4: Species codes for other species often found in hedgerows

Species code	Scientific name	Common name
Ae	*Arrhenatherum elatius*	False Oat-grass
Agt	*Agrostis stolonifera*	Creeping Bent
Apet	*Alliaria petiolata*	Garlic Mustard
Aste	*Anisantha sterilis*	Barren Brome
Asy*	*Anthriscus sylvestris*	Cow Parsley
At	*Agrostis capillaris*	Common Bent
Car*	*Cirsium arvense*	Creeping Thistle
Cha	*Chamerion angustifolium*	Rosebay Willowherb
Cop*	*Chrysosplenium oppositifolium*	Opposite-leaved Golden-saxifrage
Cxrm	*Carex remota*	Remote Sedge
Cyc	*Cynosurus cristatus*	Crested Dog's-tail
Ddl*	*Dryopteris dilatata*	Broad Buckler-fern

Species code	Scientific name	Common name
Dp*	*Digitalis purpurea*	Foxglove
Ephir	*Epilobium hirsutum*	Greater Willowherb
Fu*	*Filipendula ulmaria*	Meadowsweet
Gap*	*Galium aparine*	Cleavers
Gh*	*Glechoma hederacea*	Ground-ivy
Gmol	*Galium album*	Hedge Bedstraw
Gro	*Geranium robertianum*	Herb-Robert
Hh*	*Hedera helix*	Ivy
Hl*	*Holcus lanatus*	Yorkshire-fog
Hlup	*Humulus lupulus*	Hop
Ig*	*Impatiens glandulifera*	Indian Balsam
Lped	*Lotus pedunculatus*	Greater Bird's-foot-trefoil
Lpc*	*Lonicera periclymenum*	Honeysuckle
Ocro	*Oenanthe crocata*	Hemlock Water-dropwort
Oreg	*Osmunda regalis*	Royal Fern
Pt*	*Pteridium aquilinum*	Bracken
Pver	*Primula veris*	Cowslip
Rf*	*Rubus fruticosus* agg.	Bramble
Sd	*Solanum dulcamara*	Bittersweet
Shol	*Stellaria holostea*	Greater Stitchwort
Ssyl	*Stachys sylvatica*	Hedge Woundwort
So	*Smyrnium olusatrum*	Alexanders
Hand	*Hypericum androsaemum*	Tutsan
Ud*	*Urtica dioica*	Common Nettle
Vio	*Viola* spp.	Violet species
Vm	*Vaccinium myrtillus*	Bilberry
Vriv	*Viola riviniana*	Common Dog-violet

*Denotes code taken from Phase 1 handbook.

b) Results

i. Extended Phase 1 habitat and protected species survey

1.2.11 **Table 1.5** details the Target Notes of the extended Phase 1 habitat and protected species survey. The Target Notes and the results of the extended

Phase 1 habitat survey and protected species assessment are shown on **Figure 7.3**, **Annex 7A.1**.

Table 1.5: Extended Phase 1 habitat and protected species survey Target Notes

Target note number	Description
1	Arable field.
2	Arable field, recently ploughed.
3	Brown hare observed at this location.
4	Road verge with poor semi-improved grassland (comprising False Oat-grass (*Arrhenatherum elatius*), Cleavers, Broad-leaved Dock (*Rumex obtusifolius*), Hemlock (*Conium maculatum*), Common Nettle, Ribwort Plantain (*Plantago lanceolata*), and Red Campion (*Silene dioica*)), and dense scrub (comprising Bramble, and Gorse).
5	Dense Bramble scrub and tall ruderals including Hemlock and Common Nettle, containing two attenuation ponds.
6	Road verge with poor semi-improved grassland (comprising False Oat-grass, Red Campion, Red Dead-nettle (*Lamium purpureum*), Speedwell sp. (*Veronica spp.*), Lord's-and-Ladies, Bluebell, and Ground-ivy), tall ruderals (comprising Hogweed (*Heracleum sphondylium*), Common Ragwort (*Senecio jacobaea*), Common Nettle, Cow Parsley, Cleavers, Broad-leaved Dock, Wild Carrot (*Daucus carota* subsp. *carota*), and Garlic Mustard), Bracken, and dense Bramble and Blackthorn scrub.
7	Dry ditch, overgrown in many places.
8	Scattered trees and shrubs, including Pedunculate Oak, Hawthorn, Blackthorn, Elder, and Holly.

ii. Hedgerows Regulations

1.2.12 All hedgerows assessed under the Hedgerows Regulations are target-noted with 'hedgerow numbers' (e.g. 'H1') on **Figure 7.3** (**Annex 7A.1**). **Species** abbreviations follow those detailed in **Table 1.1**, **Table 1.3**, and **Table 1.4**.

1.2.13 **Table 1.6** details the Hedgerows Regulations record sheets. Species abbreviations follow those detailed in **Table 1.1**, **Table 1.3**, and **Table 1.4**.

Table 1.6: Hedgerows Regulations record sheet results

Hedge No.	H1	H2	H3
Important	No	No	No
Bridleway/path	✓		
Pn/Sot/Tic/Tip			
No. woody spp./30m	4	2	4
Bank/wall			
Intact			

Hedge No.	H1	H2	H3
Trees	✓	✓	✓
3 flora spp.	Hn		
Ditch			
Connect >4 points			
Parallel hedge			
Woody ssp. present	Cm Qr e Ac Ia Ros Ca Ee	Cm Qr	Cm Qr Sn Ia Ros
Ground flora (dominant)	Ae, Shol, Ud	Hemlock	Hemlock, Ae, Ud
Other ground flora (including notable species)			
Notes			

1.3 Amphibians

a) Methodology

1.3.1 A review of Ordnance Survey (OS) maps and aerial photographs (from the Bing maps website) (Ref 1.4) of land associated with the proposed development was carried out to identify any waterbodies within the site boundary and within 500m of the site boundary, not separated from the site by a major barrier (such as a major road) (see **Figure 7.4** in **Annex 7A.1**).

1.3.2 During the extended Phase 1 habitat and protected species survey, a site visit to each pond was made, where access was obtained. During these visits, detailed site descriptions were taken for each waterbody, including photographs, measurements of the area, descriptions of marginal, aquatic and surrounding vegetation, and a note was made of suitable survey methods for the waterbody.

1.3.3 Where appropriate and where access was obtained, a Habitat Suitability Index for great crested newts (*Triturus cristatus*) (Ref 1.5) was calculated for each waterbody. The Habitat Suitability Index scores a waterbody against ten habitat suitability indices, which include water quality, the likely

presence/absence of fish, and aquatic plant cover. From these ten suitability indices, a geometric mean is calculated, which gives an overall numerical index ranging between zero and one. A score of near zero indicates highly sub-optimal habitat, whilst a score near one represents optimal habitat. Habitat Suitability Index scores are then used to define pond suitability for great crested newts on a categorical scale, from 'poor' to 'below average', 'average', 'good', and 'excellent'.

1.3.4 The Habitat Suitability Index suitability category for each pond was used to compare the general suitability of the ponds present for great crested newts. However, the Habitat Suitability Index is not a substitute for undertaking newt surveys and, if a waterbody is awarded a high Habitat Suitability Index score, this does not guarantee that great crested newts will be present, only that they are likely to be present.

1.3.5 Where access would allow, eDNA surveys would be conducted; however, no access was granted for any pond, therefore, no further surveys other than Habitat Suitability Index were completed.

b) Results

1.3.6 Four waterbodies (ponds) were identified within 500m of the boundary of the site (**Table 1.7**). **Figure 7.4** (**Annex 7A.1**) shows the locations of these ponds classified as follows: ponds where access was not obtained, and ponds that were Habitat Suitability Index assessed but where access was also not obtained.

Table 1.7: Ponds identified within 500m of the proposed development

Pond ID	Scoped in/out	Access provided	Surveyed
P003	In	No	No
P004	In	No	No
P005	In	No	Yes (Habitat Suitability Index only)
P161	In	No	Yes (Habitat Suitability Index only)

1.3.7 All four ponds were scoped in as requiring further survey, but access was not obtained to these ponds. Only Habitat Suitability Index surveys were undertaken on Ponds P005 and P161 as these could be undertaken from within the site boundary.

1.3.8 **Table 1.8** presents the results of the Habitat Suitability Index assessments for the surveyed ponds.

Table 1.8: Pond Habitat Suitability Index assessment results

Feature	Pond ID	
	P005	P161
	Score	Score
Location	1	1
Pond area	1	0.92
Pond drying	1	0.9
Water quality	0.67	0.67
Shade	0.8	0.8
Fowl	0.67	0.67
Fish	0.67	0.33
Ponds	0.72	0.85
Terrestrial habitat	0.67	0.67
Macrophytes	0.3	0.9
Habitat Suitability Index Score	**0.71**	**0.74**
Suitability for Great Crested Newt	**Good**	**Good**

1.3.9 Ponds P005 and P161 are located adjacent to, and to the north of, the site boundary. Both ponds were determined to have 'good' suitability to support great crested newts following Habitat Suitability Index surveys.

1.3.10 Detailed pond descriptions are presented in **Table 1.9**.

Table 1.9: Pond descriptions

Pond 005	
e 	
Grid reference	TM23894088
Description	Small attenuation pond adjacent to the A14 surrounded by dense scrub, arable fields, and hedgerows.
Area	450m^2
Perimeter	100m
Scoped in/out	In

Pond 161	
	
Grid reference	TM23934085
Description	Large established attenuation pond adjacent to A14, surrounded by dense scrub, arable fields, and hedgerows.
Area	1200m^2
Perimeter	241m
Scoped in/out	In

1.3.11 No access was obtained to Ponds P003, P004, P005, and P161, and therefore, eDNA surveys were not undertaken.

1.4 Bats

a) Methodology

1.4.1 During the extended Phase 1 habitat and protected species survey an external inspection of all trees on the site (where access was obtained) was carried out to assess their suitability for occupancy by roosting and/or hibernating bats, following the methodology recommended by the Bat Conservation Trust (Ref 1.6). Potential roost features were observed from

the ground (where accessible) with binoculars and scrutinised for their suitability to be used by bats, alongside searching for any evidence of use, such as staining, feeding remains or droppings. The likely value of the various habitat features for foraging and commuting bats was also critically assessed.

1.4.2 Full access to the entire survey area was not obtained; however, it was considered that sufficient access was obtained to be able to record all trees in the survey area that may be affected by the proposed development and make a reasonable assessment of the potential of these trees to support roosting bats. Areas within 10m of the site boundary were visually assessed from within the site boundary; except the spur of the site boundary in the west of the site along the secondary road, which was not surveyed due to variations in the site boundary following the survey. However, trees in this area will not be affected by the proposed development and, therefore, this is not considered to be a limitation to the assessment. Areas where access was not obtained for survey are shown on **Figure 7.3** in **Annex 7A.1**.

b) Results

i. Extended Phase 1 habitat and protected species survey

1.4.3 During the extended Phase 1 habitat and protected species survey, 18 Pedunculate Oak trees with the potential to support roosting bats (comprising a total of 41 potential roost features) were identified within the site boundary (Trees 1 to 18). These are located along Hedgerows H1, H2, and H3, and along the south-western boundary of the site.

1.4.4 None of these trees have a high potential to support roosting bats. Ten trees have a moderate potential to support roosting bats, and eight trees have a low potential.

1.4.5 There is no woodland within the site and, therefore, no woodland habitats with the potential to support roosting bats or provide foraging opportunities. An area of plantation woodland is present to the west of the site, between the secondary road and the railway line, connecting to larger areas of woodland in the wider area to the west and north of the site. This area is likely to contain trees with potential to support roosting bats and provide foraging and commuting opportunities.

1.4.6 Hedgerows H1, H2, and H3 provide limited foraging and commuting opportunities for bats (details of hedgerows are provided in **Table 1.6** in **section 1.2b)ii** and are illustrated on **Figure 7.3** in **Annex 7A.1**).

ii. Bat tree roost assessment survey

1.4.7 Full details of the features identified during the bat tree roost assessment survey are provided in **Table 1.10** and are the results are illustrated on **Figure 7.5**. in **Annex 7A.1**

Table 1.10: Bat tree roost assessment results

Tree Number.	Tree species and general tree description	Description of Feature	Potential of feature	Overall tree potential
1	Pedunculate Oak, Mature, DBH:90cm, Height: 9m, Multi-stem	Limb, Type: Hazard beam, Height: 6m, Aspect: South-west	Moderate	Moderate
		Limb, Type: Lifting bark, Height: 5m, Aspect: West	Low	
		Limb, Type: Woodpecker hole, Height: 5m, Aspect: South-west	Moderate	
2	Pedunculate Oak, Mature, DBH: 90cm, Height: 10m, Multi-stem	Limb, Type: Hazard beam, Height: 4m, Aspect: South	Low	Moderate
		Stem, Type: Tear out, Height: 9m, Aspect: South-west	Moderate	
3	Pedunculate Oak. Mature, DBH 100cm, Height 10m, Multi-stem 10m tall 1000mm diameter stem	Limb, Type: Knot hole, Height: 5m, Aspect: North	Low	Low
4	Pedunculate Oak, Mature, DBH:60cm, Height: 9m, Multi-stem	Limb, Type: Subsidence split, Height: 3m, Aspect: South-west	Low	Low
5	Pedunculate Oak, Mature, DBH: 50cm, Height: 9m, Multi-stem	Limb, Type: Hazard beam, Height: 7m, Aspect: South-west	Low	Low
6	Pedunculate Oak, Mature, DBH: 90cm, Height: 10m, Single stem	Stem, Type: Subsidence split, Height: 9m, Aspect: South	Moderate	Moderate
		Limb, Type:Hazard beam, Height: 8m, Aspect: South	Low	
		Limb, Type: Knot hole, Height: 7m, Aspect: North	Low	

Tree Number.	Tree species and general tree description	Description of Feature	Potential of feature	Overall tree potential
		Limb, Type: Desiccation fissure, Height: 5m, Aspect: North-east	Low	
7	Pedunculate Oak, Mature, DBH: 40cm, Height: 8m, Multi-stem	Limb, Type: Knot hole, Height: 4m, Aspect: North-west	Low	Low
8	Pedunculate Oak, Mature, DBH: 60cm, Height: 7m, Single stem	Limb, Type: Hazard bean, Height: 6m, Aspect: North-west	Low	Low
9	Pedunculate Oak, Mature, DBH: 70cm, Height: 7m, Multi-stem	Stem, Type: Lifting bark, Height: 7m, Aspect: North	Low	Moderate
		Stem, Type: Desiccation fissure, Height: 7m, Aspect: North	Moderate	
10	Pedunculate Oak, Mature, DBH: 40cn, Height 8m, Single stem	Stem, Type: Knot hole, Height: 4m, Aspect: North-west	Moderate	Moderate
		Limb, Type: Hazard beam, Height: 6m, Aspect: North-east	Low	
		Limb, Type: Lifting bark, Height: 7m, Aspect: South	Low	
11	Pedunculate Oak, Mature, DBH: 90cm, Height:7m, Single stem	Stem, Type: Butt rot, Height: 10cm, Aspect: South	Low	Moderate
		Stem, Type: Wounds, Height: 4m, Aspect: South	Moderate	
		Limb, Type: Knot hole, Height: 3m, Aspect: South	Low	
		Stem, Type: Desiccation fissure, Height: 4m, Aspect: North-east	Moderate	
12	Pedunculate Oak, Over-mature, DBH:90cm, Height: 8m	Limb, Type: Lifting bark, Height: 7.5m, Aspect: North-east	Low	Moderate
		Limbs, Type:Wounds, Height: 6m, Aspect: North-west	Low	

Tree Number.	Tree species and general tree description	Description of Feature	Potential of feature	Overall tree potential
		Stem, Type: Desiccation fissure, Height: 6m, Aspect: North-east	Moderate	
13	Pedunculate Oak, Mature, DBH: 40cm, Height: 9m	Stem, Type: Transverse snap, Height: 4m, Aspect: South	Low	Moderate
		Stem, Type: Wounds, Height: 5m, Aspect: South-east	Low	
		Stem, Type: Wounds, Height: 5m, Aspect: North-west	Moderate	
14	Pedunculate Oak, Mature, DBH: 80cm, Height: 10m	Limb, Type: Subsidence split, Height: 9m, Aspect: South-east	Moderate	Moderate
		Stem, Type: Knot hole, Height: 5m, Aspect: West	Low	
		Limb, Type: Hazard beam, Height: 4m, Aspect: South	Moderate	
		Limb, Type: Transverse snap, Height: 7m, Aspect: West	Low	
15	Pedunculate Oak, Dead, DBH: 70cm, Height: 8m	Limb, Type: Transverse snap, Height: 6m, Aspect: North-east	Low	Moderate
		Stem, Type: Desiccation fissure, Height: 4m, Aspect: South	Low	
		Stem, Type: Tear out, Height: 4m, Aspect: North	Moderate	
16	Pedunculate Oak, Mature, DBH:50cm, Height: 10m	Stem, Type: Ivy, Height: all up the tree, Aspect: West	Low	Low
17	Pedunculate Oak, Mature, DBH: 30cm, Height: 9m	Limb, Type: Hazard beam, Height: 4m, Aspect: South-west	Low	Low
18	Mature Pedunculate Oak	Stem, Type: Wounds, Height: 3m, Aspect: South	Low	Low

Tree Number.	Tree species and general tree description	Description of Feature	Potential of feature	Overall tree potential
	10m tall 500mm diameter stem	Stem, Type: Pruning cut, Height: 4m, Aspect: East	Low	
		Stem, Type: Lifting bark, Height: 6m, Aspect: North	Low	

References

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1.3 The Hedgerows Regulations. 1997. (Online) Available from: http://www.legislation.gov.uk/uksi/1997/1160/contents/made (Accessed 18 July 2016).

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1.5 R.S. Oldham, J. Keeble, M.J.S. Swan & M. Jeffcote. 2000. Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal*, 2000, 10(4): 143-155.

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VOLUME 8, CHAPTER 7, APPENDIX 7A:

ANNEX 7A.4 - NON-LICENSABLE METHOD STATEMENTS:

- ANNEX 7A.4A - BATS
- ANNEX 7A.4B - REPTILES

VOLUME 8, CHAPTER 7, APPENDIX 7A.4A: BAT METHOD STATEMENT

Contents

Plates

Figures

None provided.

Appendices

1. Bat Non-licensable Method Statement

1.1 Introduction

a) Background and scheme overview

1.1.1 SZC Co is proposing to build a new nuclear power station at Sizewell in East Suffolk, known as Sizewell C. Located to the north of the existing Sizewell B power station, the Sizewell C site is located on the Suffolk coast, approximately halfway between Felixstowe and Lowestoft; to the north-east of the town of Leiston. The project is being submitted as a component Nationally Significant Infrastructure Project (NSIP) and will be approved through the Development Control Order Process (DCO).

1.1.2 The proposed Sizewell C nuclear power station would comprise two UK EPR™ units with an expected net electrical output of approximately 1,670 megawatts (MW) per unit, giving a total site capacity of approximately 3,340MW. The design of the UK EPR™ units is based on technology used successfully and safely around the world for many years, which has been enhanced by innovations to improve performance and safety. The UK EPR™ design has passed the Generic Design Assessment process undertaken by UK regulators (Office for Nuclear Regulation and Environment Agency), and has been licenced and permitted at Hinkley Point C. Once operational, Sizewell C would be able to generate enough electricity to supply approximately six million homes in the UK.

1.1.3 In addition to the key operational elements of the UK EPR™ units, the Sizewell C Project comprises other permanent and temporary development to support the construction and operation of the Sizewell C nuclear power station. The key elements are the main development site, comprising the Sizewell C nuclear power station itself, offshore works, land used temporarily to support construction including an accommodation campus and a series of off-site associated development sites in the local area including:

- two temporary park and ride sites; one to the north-west of Sizewell C at Darsham (the ‘northern park and ride’), and one to the south-west at Wickham Market (the ‘southern park and ride’) to reduce the amount of traffic generated by the construction workforce on local roads and through local villages;
- a permanent road to bypass Stratford St Andrew and Farnham (referred to as the ‘two village bypass’) to alleviate traffic on the A12 through the villages;
- a permanent road linking the A12 to the Sizewell C main development site (referred to as ‘Sizewell link road’) to alleviate traffic from the B1122 through Theberton and Middleton Moor;

- permanent highway improvements at the junction of the A12 and B1122 east of Yoxford (referred to as the 'Yoxford roundabout') and other road junctions to accommodate Sizewell C construction traffic;
- a temporary freight management facility at Seven Hills on land to the south-east of the A12/A14 junction to manage the flow of freight to the main development site; and
- a temporary extension of the existing Saxmundham to Leiston branch line into the main development site ('the green rail route') and other permanent rail improvements on the Saxmundham to Leiston branch line, to transport freight by rail in order to remove large numbers of HGVs from the regional and local road network.

1.1.4 The components listed above are referred to collectively as the 'Sizewell C Project'.

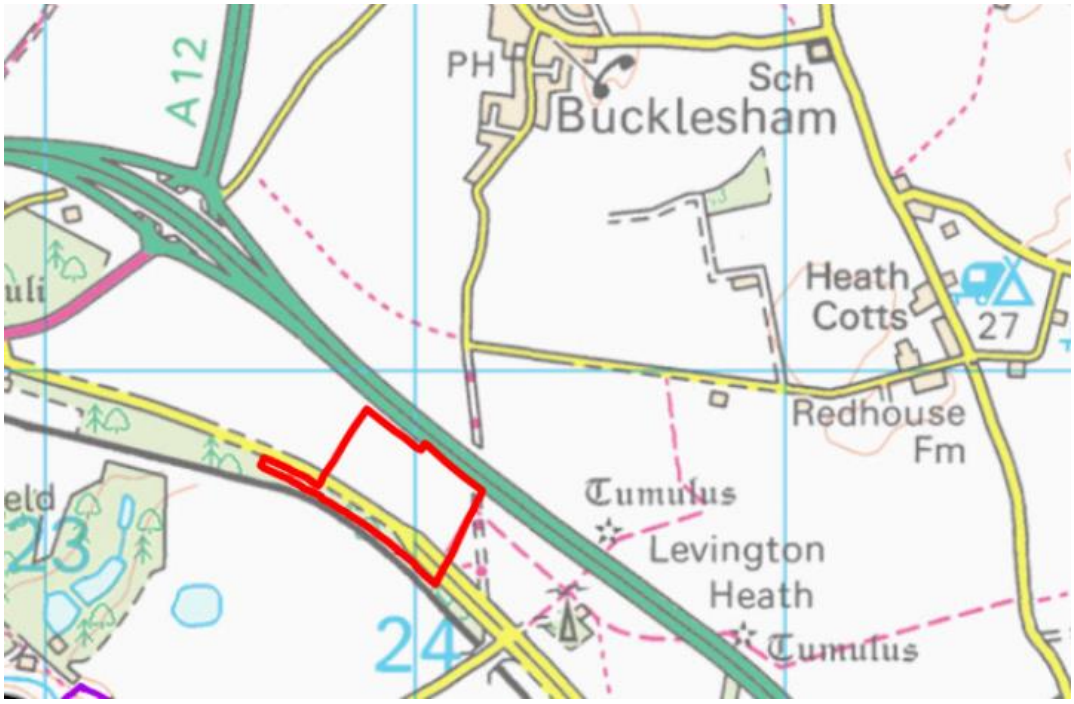
1.1.5 In order to enable the proposed development of the freight management facility, as detailed above, a number of facilitating works (including vegetation clearance works and ground-breaking works) are required. Given the opportunities afforded to bats by the habitats present within the site, the proposed facilitating works have the potential to cause injury / mortality and indirect disturbance of bats that may be present. Accordingly, the purpose of this document is to provide a reasonable avoidance measures method statement that can be used by the ecological consultant, SZC Co. and any relevant subcontractors, to ensure the safeguarding of bats during the facilitation works to be undertaken within the site.

b) Site location and setting

1.1.6 The Site is located in Sizewell, East Suffolk (site centre grid reference OS Grid Reference TM 23962 40698) and is approximately 11 hectares (ha) in area. It is located to the south-west of the A12/A14/A1156 Seven Hills junction near Ipswich. The site is accessed off the Old Felixstowe Road and is bounded by the A1156 to the west, Old Felixstowe Road to the south and the A14 westbound off-slip to the north-east.

1.1.7 The site predominantly comprises intensively managed arable fields. The fields are ploughed and cropped to the hedgerows and fence lines, such that no scarce arable weeds or other notable plant species were recorded on the site. The fields are bounded by fences and hedgerows. The area covered by this method statement is presented in **Plate 1.1** below.

Plate 1.1: Site location



c) Proposed works

1.1.8 The specific works covered by this method statement include vegetation clearance measures specifically in relation to the felling of trees, and the lighting arrangements for the site.

1.1.9 Perimeter and parking area lighting Lanterns will utilise LED based light fittings with zero-degree tilt, and lighting columns along the perimeter would be fitted with a demountable shield to reduce backward spill of light.

d) Key ecological constraints

1.1.10 Within this site, the following are the predicted potential constraints:

- bats; and
- reptiles.

1.1.11 This method statement only covers bats, there is an associated method statements for reptiles.

1.1.12 This document is presented as a first draft. SZC Co. and its consultant ecologists are committed to working with Natural England and other stakeholders to develop the approaches outlined within this document to ensure a legally robust approach to protected species before the document

is finalised. Further surveys will be undertaken as relevant and these will also inform the final draft of this and related documents, sufficient to inform any relevant licence.

1.2 Site Reasonable Avoidance Measures Method Statements for bats

a) Introduction

1.2.1 This section provides a suite of dedicated reasonable avoidance measures Method Statements for the ecological constraints that may be encountered for bats during the facilitation works.

1.2.2 In all cases the aim of the Method Statement is to reduce the risk of causing injury / mortality and disturbance of the protected species and avoid contravention of the relevant legislation. The ECoW will determine exactly when and where it is appropriate to apply the measures described in the reasonable avoidance measures Method Statements. The ECoW will oversee and quality-control the implementation of the tasks undertaken.

1.2.3 It is the responsibility of the site contractors to carry out the works in a manner which will not contravene the legislation with regards to protected species in the areas identified as having potential to support protected species. Any variations from the individual Method Statements may contravene legislation and therefore risk prosecution. Thus, it is their joint responsibility that no changes to the timings or methods outlined below are made without prior agreement from the ECoW.

b) Toolbox talk

1.2.4 Prior to commencement of the facilitation works, all site contractors will be briefed by the ECoW as part of the site induction. The toolbox talk (**Appendix 7A.4A.1**) will provide a basic overview of the life history, habitat requirements, identification and legal protection granted to the legally protected species / other species of conservation concern present on within the site that may be encountered during the works.

1.2.5 Site-specific toolbox talks will also be undertaken as necessary to identify the habitats present on site that have the potential to be used by these species and outline the environmental measures to be followed in order to avoid breaches of legislation and / or adverse effects on protected species that could occur within or in the vicinity of the working area.

1.2.6 There is a declaration (**Appendix 7A.4A.2**) for those present to sign to confirm they have understood the constraints and actions presented.

1.3 Bats

a) Site status and potential impacts

1.3.1 Surveys identified the habitats present on the site to be primarily arable fields of limited value to bats. Mature trees were also recorded, which have potential to support roosting bats and the hedgerows provide limited foraging and commuting opportunities. There is no woodland within the site. An area of plantation woodland is present to the west of the site, between the secondary road and the railway line, connecting to larger areas of woodland in the wider area to the west and north of the site. This area is likely to contain trees with potential to support roosting bats and provide foraging and commuting opportunities.

1.3.2 The bat tree roost assessment survey identified 18 trees with the potential to support roosting bats (supporting a total of 41 potential roost features) within the boundary of the site, (ten trees with moderate potential, and eight trees with low). These trees would be retained, with the exception of two: one low potential tree and one moderate potential tree within the central hedgerow that is to be removed.

1.3.3 The construction of proposed development would result in the loss of primarily arable fields and field margins (11 hectares (ha)), one defunct, species-poor hedgerow (230m in length), and two trees with bat roost potential. Most of the hedgerows and associated trees assessed as suitable to support roosting bats would be retained, therefore this loss would not significantly reduce the overall tree roost resource available. The loss of the hedgerow could remove a linear feature used by commuting bats. Construction could therefore affect foraging, commuting and roosting bats; however, the defunct hedgerow to be lost is sub-optimal for commuting bats due to the existing gaps in the hedgerow.

1.3.4 Bats are potentially impacted by both increased noise levels and increased lighting but only a relatively small number of bats have been recorded within the proposed development site on any one occasion. Evidence suggests that bats using the site are not dependent on the habitats present and will also be using a range of additional habitats in the wider area. No significant effects on bat populations are expected as a result of construction noise or lighting.

b) Legislation

1.3.5 All bat species in England are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (Ref 1.1) in respect of Section 9, which makes it an offence, inter alia, to:

- intentionally or recklessly kill, injure or take a bat;

- intentionally or recklessly damage, destroy or obstruct access to any structure or place that a bat uses for shelter or protection; or
- intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection.

1.3.6 The offence "recklessly" was added by the Countryside and Rights of Way Act 2000 (CRoW) (Ref 1.2).

1.3.7 All bat species in England receive further protection under Regulation 41 of The Conservation of Habitats and Species Regulations 2017 (Ref 1.4). They are listed on Schedule 2 of the Regulations, which makes it an offence, *inter alia*, to:

- deliberately capture, injure or kill a bat;
- deliberately disturb a bat, in particular any disturbance which is likely:
  - impair their ability
    - to survive, to breed or reproduce, or to rear or nurture their young, or
    - to hibernate or migrate
  - affect significantly the local distribution or abundance of that bat species; or
- damage or destroy a breeding site or resting place of a bat.

1.3.8 Noctule (*Nyctalus noctule*), soprano pipistrelle (*Pipistrellus pygmaeus*) and brown long-eared bat (*Plecotus auratus*) are also included on Section 41 of the NERC Act 2006 (Ref 1.3). This Act places a duty upon public bodies to have regard to the purpose of conserving biodiversity within all of their actions. The species listed under Section 41 are 'Species of Principal Importance for the conservation of biodiversity in England' for which conservation steps should be taken or promoted.

c) Toolbox talk for bats

1.3.9 Prior to commencement of the vegetation clearance works, all site contractors will be briefed by the ECoW as part of the site induction to provide them with a basic overview of the life history, habitat requirements, identification and legal protection granted to bats. Site-specific toolbox talks will also be undertaken as necessary to identify the habitats present within the site that have the potential to be used by bats and outline the environmental measures to be followed in order to avoid breaches of legislation and / or adverse effects on reptiles that could occur within or in the vicinity of the working area.

d) Precautionary working methods

1.3.10 Lighting would be provided at the perimeter, and parking areas, for security and safety reasons. Lanterns would utilise LED based light fittings to ensure energy efficiency with zero-degree tilt, and lighting columns along the perimeter would use focused optics to reduce backward spill of light. To further assist on mitigating obtrusive light, a Central Management System has been proposed for the lighting which would be capable of dimming of parts of the site independently from other parts (with the site envisaged to be divided in 6-8 main sections), as usage changes through the day. Guidance within the latest Institution of Lighting Professionals Guidance Note (Ref 1.5) would be followed as far as possible. These measures would minimise impacts on nocturnal species such as bats that use the nearby tree lines or habitats for roosting or foraging;

1.3.11 In addition, although some activities may require 24 hour working, the majority of construction would take place Monday to Saturday 07:00 to 19:00 hours. This means night-time works would be avoided, which is when bats are most active. Incidental mortality associated with traffic movements would therefore not have a significant effect on the bat assemblage.

1.3.12 Initially all trees to be removed will be reassessed for bat roosting potential.

1.3.13 Any trees identified as having low bat roosting potential will be removed using a soft felling methodology with a suitability experienced, appropriately licensed, bat worker or bat worker assistant present. This is outlined below. It is recommended that trees are removed in October, thereby avoiding the sensitive maternity (April-September) and hibernation (November-February) periods for bats.

1.3.14 For any trees with moderate or high roosting potential, a pre works inspection for roosting bats will be undertaken. The methodology and required survey effort for these pre works checks will depend upon the status of the roosting features within the trees, but may include:

- a climbed or ground based tree inspection using an endoscope and / or torch; and
- emergence / re-entry surveys.

1.3.15 Should any of the trees to be removed be found to support bat roosts, an European Protected Species licence is likely to be required. The documents associated with this licence will outline the required mitigation, and the required measures are not discussed further within this report.

1.3.16 If no roosts are found, the approach outlined below will be undertaken.

1.3.17 All trees with potential roost features for bats should be soft felled using the following precautionary measures:

- trees classed as having low potential to support roosting bats, shall be felled under the watching brief of the ECoW;
- where potential roost features for bats cannot be exhaustively checked they should be section felled, with each section carefully lowered to the ground. Cuts should be made at least 50 cm beyond the extent of the potential roost feature;
- if limbs or large branches require felling, consideration should be given to cracks which may close (crushing any bats inside) once the weight of the limb has been removed. If the crack cannot be thoroughly inspected to ensure bats are not present, the crack should be wedged open prior to removal of the limb/branch;
- the stems of dense ivy should be cut at ground level at least 48 hours before the tree is felled; and
- once the trees have been felled the potential roost features should be checked on the ground by a suitably experienced bat ecologist. If any potential roost feature can still not be exhaustively checked that section should be allowed a rest period of at least 24 hours to ensure that any individual bats that may have been missed are given the opportunity to relocate.

1.3.18 If any bats are encountered during the felling operations all works and activity must cease immediately, until the ECoW has advised on the most appropriate manner to deal with the situation.

1.3.19 To mitigate for the loss of the tree and potential roost resources, bat boxes would be installed on retained trees in suitable locations within the site boundary. One bat box would be installed per tree with medium or high bat roost potential that is due to be lost, whether or not a roost has been identified. A variety of bat boxes would be used to support different species.

1.4 Facilitating work requirements

a) Vegetation clearance methods

1.4.1 As set out above, vegetation clearance works are required in order to facilitate the development of the site. Whilst this document has been produced in relation to bats, other species do need to be considered to ensure legal compliance. Given that the works are to take place outside of the active bird breeding season (early March and late August inclusive), it is considered that no nesting bird checks are required prior to the

commencement of works. Nevertheless, should vegetation clearance works take place within the core bird breeding season, a qualified ECoW will need to carry out a nesting bird check at least 48 hours before the commencement of works effecting the vegetation within the site. Once nesting birds have been confirmed absent, then the vegetation clearance contractors will carry out a habitat manipulation exercise in the form of a two stage vegetation cut, with the initial cut reducing the vegetation to a hight of 150mm before a second cut subsequently reduces it to ground level, with a minimum of two hours between cuts to allow reptiles or amphibians to move out of the cutting area.

1.4.2 Vegetation clearance which does not disturb the ground or vegetation below 150mm can be conducted year-round with a low risk of impacting upon reptiles. Any vegetation clearance likely to impact vegetation below 150mm or the removal of places of shelter/hibernation features would be undertaken outside of the reptile hibernating period (October to February inclusive), during periods of warm, dry weather. It this is not possible, vegetation would be cut to the ground (to remove potential bird nesting habitat), but the roots would remain intact until hibernation is complete. The root system of vegetation would then be removed once the hibernation season is over, Clearing of vegetation would be undertaken under the supervision of the suitably experienced Ecological Clerk of Works (ECoW).

1.4.3 The vegetation arisings will be collected and used to create habitat piles in areas adjacent to the site (which are to be retained during the development works).

1.4.4 Works should be undertaken outside of all tree and hedgerow root protection zones that would not be removed as part of the proposed development. Tree protective fencing as described in section 6.2 of British Standard 5837:2012 (Ref 1.6) should be installed (distance of fencing from tree trunk = 12x trunk diameter, distance from hedgerows =1m from the spread of hedgerow canopy), where required, prior to plant and machinery arriving on site and construction works commencing. The fencing should remain intact throughout the duration of the works and only be removed upon completion. Weather-proof notices should be attached to any protective fencing located adjacent to retained trees displaying the words ‘Construction Exclusion Zone’. All personnel must be made aware of these restrictions. If works need to be undertaken within the root protection zones an Arboricultural survey would be required and any advice provided adhered to, to secure the long-term survival of the tree/hedgerow.

References

1.1 Her Majesties Stationary Office (HMSO) (1981). The Wildlife and Countryside Act (as amended). HMSO, London.

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1.3 HMSO (2006). The Natural Environment and Rural Communities Act. HMSO, London

1.4 HMSO (2017). The Conservation of Habitats and Species Regulations. HMSO, London.

1.5 Institute of Lighting Professionals/Bat Conservation Trust (2018). Institution of Lighting Professionals. 2018. Bats and artificial lighting in the UK. Guidance Note 08/2018.

1.6 British Standards Institute. 2012. British Standard for Trees in relation to design, demolition and construction (BS 5837:2012). British Standards Institute. 2012

Appendix 7A4A.1: Ecological Tool Box Talk

1.1 Legislation

Ecology surveys have been completed within the site and have identified the potential for the presence of a legally protected species. The Ecological Method Statement details the mitigation and working methods that should be adopted to avoid contravention of the legislation. If this is not followed, there is a risk that you could break the law by doing actions such as:

- Deliberately capture, injure or kill;
- Damage or destroy a resting place or breeding site;
- Deliberately or recklessly disturb an individual while it's in a structure or place of shelter or protection;
- Block access too structures or places of shelter or protection; or
- Possess, sell, control or transport live or dead individuals.

Any of the following could happen if you're found guilty of any offence:

- You could get an unlimited fine;
- You could be sent to prison for up to 6 months.

1.2 Species identification

	Nesting Birds The bird nesting season extends from March to August inclusive, although in mild climate nesting may start in February. Nesting occurs in a variety of habitats including agricultural fields (ground nesting birds), dense bramble scrub, buildings and other man-made structures and trees.

	Reptiles (slow-worm, common lizard, grass snake and adder) They may be found sheltering in vegetation, under debris such as logs, ricks or piles of rubble or waste items. They may also bask in the open on sunny days. DO NOT leave materials in area where it might be colonised by reptiles. Any debris or materials should be moved with care or moved under direct supervision of a suitably qualified ecologist.
	Bats On site habitats where bats may roost include buildings and tree. If works involve trees with cavities then check with the on-site ecologist that these have been inspected.
	Badgers It is unlikely that the animals would be seen but signs of their presence include: • Setts (d shaped burrow with a large spoil heap); • Latrines or dung pits; and • Snuffle holes and runs.
	Great Crested Newts It is possible that great crested newt may be present on site. Newts are associated with water bodies but during the winter they live / hibernate in terrestrial habitat.

	They can be harmed when clearing vegetation, moving debris such as log piles and ground works.

1.3 Action

- If any species, or signs characteristic of protected species in the vicinity of the works are apparent, OR IF IN ANY DOUBT, stop the works immediately and contact the Project ecologist;
- The species involved may then be identified and appropriate action such as further surveys or mitigation taken; and
- Do not attempt to move any species found unless instructed to do so by an ecologist.

Appendix 7A4A.2: Declaration

By signing the register below you confirm that you have received the ECOLOGY TOOLBOX TALK (**Appendix** 1) AND METHOD STATEMENT briefing provided by the project ecologist for the Wickham Sizewell C Scheme.

Date	Name	Role on Site	Signature

VOLUME 8, CHAPTER 7, APPENDIX 7A.4B: REPTILE METHOD STATEMENT

Contents

Plates

Figures

None Provided.

Appendices

1. Reptiles Non-licensable Method Statement

1.1 Introduction

a) Background and Scheme Overview

1.1.1 SZC Co. is proposing to build and operate a new nuclear power station on the Suffolk coast, known as Sizewell C Power Station (hereafter referred to as 'Sizewell C') located to the north of the existing Sizewell B Power Station.

1.1.2 It is located to the north of the existing Sizewell B power station, the Sizewell C site is located on the Suffolk coast, approximately halfway between Felixstowe and Lowestoft; to the north-east of the town of Leiston.

1.1.3 This Reptile Method Statement would be used by the ecological consultant, SZC Co and any relevant subcontractors, in relation to the proposal to build the Sizewell C.

1.1.4 The proposed Sizewell C nuclear power station would comprise two UK EPR™ units with an expected net electrical output of approximately 1,670 megawatts (MW) per unit, giving a total site capacity of approximately 3,340MW. The design of the UK EPR™ units is based on technology used successfully and safely around the world for many years, which has been enhanced by innovations to improve performance and safety. The UK EPR™ design has passed the Generic Design Assessment process undertaken by UK regulators (Office for Nuclear Regulation and Environment Agency), and has been licenced and permitted at Hinkley Point C. Once operational, Sizewell C would be able to generate enough electricity to supply approximately six million homes in the UK.

1.1.5 In addition to the key operational elements of the UK EPR™ units, the Sizewell C Project comprises other permanent and temporary development to support the construction and operation of the Sizewell C nuclear power station. The key elements are the main development site, comprising the Sizewell C nuclear power station itself, offshore works, land used temporarily to support construction including an accommodation campus and a series of off-site associated development sites in the local area including:

- two temporary park and ride sites; one to the north-west of Sizewell C at Darsham (the 'northern park and ride'), and one to the south-west at Wickham Market (the 'southern park and ride') to reduce the amount of traffic generated by the construction workforce on local roads and through local villages;
- a permanent road to bypass Stratford St Andrew and Farnham (referred to as the 'two village bypass') to alleviate traffic on the A12 through the villages;
- a permanent road linking the A12 to the Sizewell C main development site (referred to as 'Sizewell link road') to alleviate traffic from the B1122 through Theberton and Middleton Moor;
- permanent highway improvements at the junction of the A12 and B1122 east of Yoxford (referred to as the 'Yoxford roundabout') and other road junctions to accommodate Sizewell C construction traffic;
- a temporary freight management facility at Seven Hills on land to the south-east of the A12/A14 junction to manage the flow of freight to the main development site; and
- a temporary extension of the existing Saxmundham to Leiston branch line into the main development site ('the green rail route') and other permanent rail improvements on the Saxmundham to Leiston branch line, to transport freight by rail in order to remove large numbers of Heavy Goods Vehicles (HGVs) from the regional and local road network.

1.1.6 The components listed above are referred to collectively as the 'Sizewell C Project'.

b) Site Location and Setting

1.1.1 The Freight Management Facility site comprises approximately 11ha of agricultural land and highway land located to the south-east of the A12 and A14 junction south-east of Ipswich, and bounded by the A14 to the north, Felixstowe Road to the south and arable land to the east and west (and is centred on Ordnance Survey grid reference TM239406. The site is located approximately 40km to the south-west of the main development site.

1.1.2 The site would provide spaces for up to 154 HGVs, and would allow a controlled pattern of deliveries to the Sizewell C main development site with

reduced movements during peak or sensitive hours on the highway network. It would provide facilities where paperwork and goods can be checked prior to delivery to the Sizewell C main development site, and a location where HGVs can be held while they wait for their delivery time to enter the main development site. In the event of an accident on the local road network which prevents access to the site, HGVs would be held here (or at the Traffic Incident Management Area (TIMA)) at the southern park and ride at Wickham) to take them off of the local highway network. The proposed development of the site is temporary and would remain in situ until the construction of the Sizewell C power station is complete (approximately 9-12 years).

1.1.3 The site is dominated by intensively managed arable fields which lacked any botanically rich arable field margins within the site boundary, although a small area of semi-improved grassland is present along the northern site boundary. Moreover, the boundaries of the site are enclosed by a number of hedgerows, in addition to areas of dense scrub, bracken and tall ruderal vegetation. In addition, two waterbodies are present within an area of dense scrub immediately adjacent to the northern site boundary.

1.1.4 The area covered by this method statement is presented in **Plate 1.1** below.

Plate 1.1: Site location

1.1.5 The purpose of the proposed development would be to allow a controlled pattern of deliveries of construction material to the Sizewell C main development site, with reduced movements during peak or sensitive hours on the network. It would provide buildings and external areas where paperwork and goods can be checked prior to delivery to the Sizewell C main development site, and a location where HGVs can be held while they wait to enter the Sizewell C main development site, or in the event of an accident on the local road network which prevents access to the Sizewell C main development site. However, as a component of this, vegetation clearance and ground-breaking works (collectively referred to as "facilitating works" within this report) will be required in order to facilitate the proposed development. Accordingly, a number of potential ecological constraints are associated with the proposed facilitating works, as are set out below.

c) Key Ecological Constraints

1.1.6 The key potential legislative constraints associated with the facilitation works within the site include:

- bats; and
- reptiles.

This method statement only covers guidance relating to reptiles, however a method statement for bats has also been prepared.

1.1.7 In order to enable the proposed development of the freight management facility site, as detailed above, a number of facilitating works (including vegetation clearance works and ground-breaking works) are required. Given the opportunities afforded to reptiles by the habitats present within the site, the proposed facilitating works have the potential to cause injury/ mortality to this species group should it be present within the site at the time of the works. Accordingly, the purpose of this document is to provide a reasonable avoidance measures method statement that can be used by the ecological consultant, SZC Co and any relevant subcontractors, to ensure the safeguarding of reptiles during the facilitation works to be undertaken within the site.

This document is presented as a first draft. SZC Co and its consultant ecologists are committed to working with Natural England and other stakeholders to develop the approaches outlined within this document to ensure a legally robust approach to protected species before the document

is finalised. Further surveys will be undertaken as relevant and these will also inform the final draft of this and related documents.

1.2 Site Reasonable Avoidance Measures Method Statements for reptiles

a) Introduction

1.2.1 This section provides a suite of dedicated reasonable avoidance measures method statements for the ecological constraints that may be encountered for reptiles during the facilitation works.

1.2.2 In all cases the aim of the Method Statement is to reduce the risk of causing injury / mortality of the protected species and avoid contravention of the relevant legislation. The Ecological Clerk of Works (ECoW) will determine exactly when and where it is appropriate to apply the measures described in the reasonable avoidance measures method statement. The ECoW will oversee and quality-control the implementation of the tasks undertaken.

1.2.3 It is the responsibility of the site contractors to carry out the works in a manner which will not contravene the legislation with regards to protected species in the areas identified as having potential to support protected species. Any variations from the individual Method Statements may contravene legislation and therefore risk prosecution. Thus, it is their joint responsibility that no changes to the timings or methods outlined below are made without prior agreement from the ECoW.

b) Toolbox Talk

1.2.4 Prior to commencement of the facilitation works, all site contractors will be briefed by the ECoW as part of the site induction. The toolbox talk (**Appendix 7A.4B.1)** will provide a basic overview of the life history, habitat requirements, identification and legal protection granted to the legally protected species / other species of conservation concern present on within the site that may be encountered during the works.

1.2.5 Site-specific toolbox talks will also be undertaken as necessary to identify the habitats present on site that have the potential to be used by these species and outline the environmental measures to be followed in order to avoid breaches of legislation and / or adverse effects on protected species that could occur within or in the vicinity of the working area.

1.2.6 There is a declaration (**Appendix 7A.4B.2**) for those present to sign to confirm they have understood the constraints and actions presented.

1.3 Reptiles

a) Site Status

1.3.1 Within the site boundary, suitable habitat for reptiles is extremely limited, but includes marginal habitats, such as field boundaries. These are restricted in extent and often isolated within large tracts of arable farmland, and therefore, of limited value to reptiles. The desk-study data received from the Suffolk Biodiversity Information Service returned no records of reptiles within 2km of the site.

1.3.2 Accordingly, given that the extent of this habitat is quite limited such that it is unlikely that the site is of elevated potential to this species group, targeted presence/ absence surveys for reptiles were not undertaken. Nevertheless, given the presence of suitable habitat within and adjacent to the site, there is limited potential for this species group to be present on the site.

b) Legislation

1.3.3 There are four common and widespread species of reptile that are native to Britain, i.e. common or viviparous lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), adder (*Vipera berus*) and grass snake (*Natrix natrix*). Grass snake is also listed on Schedule 5 of the Wildlife and Countryside Act (as amended) (Ref 1.1) in respect of Section 9, which makes it an offence, inter alia, to intentionally (or recklessly) kill or injure this species (recklessly as added by the Countryside and Rights of Way (CroW) Act 2000 (Ref 1.2)).

1.3.4 Common lizard, slow worm, adder and grass snake are also included on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (Ref 1.3). This Act places a duty upon public bodies to have regard to the purpose of conserving biodiversity within all of their actions. The species listed under Section 41 are 'Species of Principal Importance for the conservation of biodiversity in England' for which conservation steps should be taken or promoted.

c) Toolbox talk

1.3.5 Prior to commencement of the vegetation clearance works, all site contractors will be briefed by the ECoW as part of the site induction to provide

them with a basic overview of the life history, habitat requirements, identification and legal protection granted to reptiles.

1.3.6 Site-specific toolbox talks will also be undertaken as necessary to identify the habitats present within the site that have the potential to be used by reptiles and outline the environmental measures to be followed in order to avoid breaches of legislation and / or adverse effects on reptiles that could occur within or in the vicinity of the working area. The toolbox talk will stress that potential reptile refugia / hibernation features should be left undisturbed; and reptiles should not be handled by contractors.

d) Precautionary working methods

1.3.7 The exact timings of the vegetation clearance works are currently unknown. However, these works will need to consider potential impacts to other receptors in addition to reptiles, particularly nesting birds, dependent upon the timings of the works.

1.3.8 Vegetation clearance which does not disturb the ground or vegetation below 150mm can be conducted year-round with a low risk of impacting upon reptiles, however there are seasonal constraints in relation to birds. Potential impacts to nesting birds will need to be considered of vegetation removal is required between March and August inclusive (generally considered to be the bird nesting season).

1.3.9 Any vegetation clearance likely to impact vegetation below 150mm or which is likely to impact the ground layer or features which offer reptiles shelter or protection should take place during the active reptile period (March to October (inclusive), although the exact timings are weather dependant). In order to avoid disturbing reptiles during hibernation (the period where reptiles are most vulnerable). Accordingly, with respect to the proposed clearance of suitable reptile habitat, it is proposed that a staged vegetation clearance exercise is undertaken under the direct supervision of the ECoW, in order to reduce the suitability of the habitats within the site.

1.3.10 Where it is necessary to undertake vegetation clearance in and around suitable reptile habitat the following precautionary measures will be put in place to avoid encountering and accidentally injuring reptiles:

- vegetation clearance (below 150mm) and ground-breaking works will only be conducted in the active season (March to October inclusive

seasonally dependant)[1] and when the weather is suitable (i.e. it is warm, approximately 8ºC should be the minimum temperature. The works should not be conducted early in the morning before reptiles have had a chance to 'warm up';

- the ECoW will work with the contractor to determine a cutting regime whereby any animals present are encouraged away from the cutting into retained habitats and not isolated in an unsuitable area. This area will be walked by the ECoW to disturb reptiles prior to works commencing;
- the ECoW will also consider any impacts to ground nesting birds, if appropriate and assess any risk. Initially vegetation is to be cleared to reduce cover for reptiles (at a minimum 150mm from the ground in the first pass);
- subsequent to this, a suitable period of time as decided by the ECoW will be given to allow for any reptiles present at the time of works to move away from the cut areas;
- the grassland / remaining vegetation will then be cut to as close to ground level as possible;
- vegetation cuttings are to be piled within the site so as to create additional sheltering opportunities to reptiles within the site;
- any suitable reptile sheltering features (e.g. log piles, compost heaps or debris) will be identified by the on-site ecologist. These will be avoided if possible, if not they will be checked by the ECoW before their removal (should this be required). Any removal of sheltering habitats will be supervised by the ECoW. These will be dismantled by hand; this should be overseen by the ecologist. If a reptile is found the ecologist will decide whether or not it is appropriate to relocate the animal;
- shelter features that require removal should be reinstated near the clearance area in a quiet, sheltered location. This will ensure that no net loss of potential reptile shelter features takes place. If possible, shelter features should be dismantled by hand and moved out of the

[1] Advanced works approach would integrate vegetation clearance in relation to reptiles and bats as necessary; each having preferential periods for vegetation removal; an integrated approach could include cutting to near ground level during winter, then clearance of the lowest trunks and roots under supervision in spring

working area, supervised by the ECoW where appropriate. Such materials will be lifted (not dragged) out of the working area; and

- if reptiles are found, the ECoW will move the animals out of the way to a place of safety. This location would be decided on a case-by-case basis, but it would be within the one designated reptile receptor areas (Kenton Hills, St. James Covert and Broom Covert) near to a suitable refuge or hibernation feature, surrounded by suitable foraging and basking habitat and judged to be a safe distance from the ongoing vegetation clearance works. Reptiles will not be handled by contractors, as common lizards and slow worms may shed their tails if handled inappropriately.

1.3.11 Should any reptiles be found on site during the works when the ECoW isn't present, the ECoW should be contacted immediately for advice.

1.4 Facilitating work requirements

a) Vegetation clearance methods

1.4.1 As set out above, vegetation clearance works are required in order to facilitate the development of the site. A staged vegetation clearance exercise at a suitable time of year will be undertaken in order to safeguard any reptiles present at the time of works. Such works will take place under the supervision of the ECoW. Such an approach will minimise the potential harm caused to reptiles within the site as it will avoid disturbing this species group during the hibernation period.

1.4.2 Prior to commencement of the vegetation clearance works, the ECoW will liaise with the contractor to clearly demarcate the required working areas.

1.4.3 If shelter features are present (i.e. log and vegetation piles), those will be checked by the ECoW before their removal (should this be required).

1.4.4 If shelter features are present that require removal, those should be reinstated near the clearance area in a quiet, sheltered location. This will ensure that no net loss of potential reptile shelter features takes place. If possible, shelter features should be dismantled by hand and moved out of the working area, supervised by the ECoW where appropriate. Such materials will be lifted (not dragged) out of the working area.

1.4.5 Should works be required in winter (November to February inclusive) or in cold weather (below 8^{o}C overnight temperature) the ECoW will advise upon

bespoke working methods. Likely to require a hand search and a staged vegetation clearance approach under direct supervision.

1.4.6 The vegetation arisings will be collected and used to create habitat piles in areas adjacent to the site (which are to be retained during the development works).

b) Vegetation clearance equipment

1.4.7 The vegetation clearance contractors on site will utilise equipment specific to their clearance methods as per their reasonable avoidance measures. For example:

- John Deere 3 series compact with cut and collector flail;
- John Deere 4 series compact tractor with side arm flail; and
- brushcutter, rakes, pitchforks and other hand tools.

Plate 1.2: Vegetation clearing equipment

	
John Deere 3 series compact tractor	*John Deere 4 series tractor*
	
Brushcutter	

c) Ground-breaking works methods

1.4.8 Given that vegetation clearance works are to take place within the site prior to the commencement of any ground-breaking works, it is likely that the risk of encountering reptiles will be reduced, due to the removal of suitable habitat within the areas proposed for ground-breaking works.

1.4.9 Reptiles are known to enter hibernation by burrowing underground, by settling into tree root systems or by entering voids and crevices in the ground or surrounding material. Accordingly, should the works take place during the reptile hibernation period (the dormancy period runs from November to February (inclusive) and ideally should be avoided where possible), it is considered necessary for the ground-breaking works to be undertaken under direct supervision of the ECoW. Small sections of the topsoil removed and inspected by the ECoW. Hand-digging under ECoW supervision may also be required.

d) Ground-breaking works equipment

1.4.10 Contractors will utilise the equipment as per their reasonable avoidance measures, For example:

- JCB 16C-I new generation 1 tonne mini digger;
- spade;
- spill kits; and
- Chapter 8 barrier/ Heras fencing.

Plate 1.3: Ground-breaking works equipment

	
JCB 16C-I New Generation 1 Tonne Mini Digger	*Chapter 8 barrier/ Heras fencing*

References

1.1 Her Majesties Stationary Office (HMSO) (1981). The Wildlife and Countryside Act (as amended). HMSO, London.

1.2 HMSO (2000) The Countryside Rights of Way (CRoW) Act. HMSO, London

1.3 HMSO (2006). The Natural Environment and Rural Communities Act. HMSO, London

Appendix 7A.4B.1: Toolbox Talk

Reptiles

Reptiles in the UK

IF BITTEN SEEK MEDICAL HELP IMMEDIATELY.

Legal Protection
All reptile species are protected.

Likely to be found in:

Reptiles typically dormant between November and February. Sheltering/hibernation sites include log / brash piles, mammal burrows and tree / hedgerow roots.

Appendix 7A.4B.2: Appendix 2: Declaration of Understanding

Toolbox talk title:	Ecology
Given by:	
Site:	
Date:	

Name	Company	Signature

Name	Company	Signature