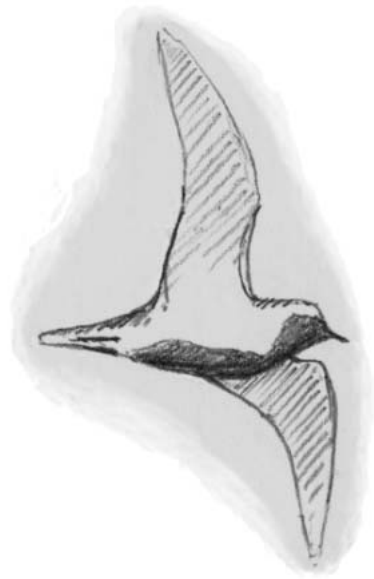


King's Lynn and West Norfolk
Borough Council's
Core Strategy Regulation
25: Local Development
Framework

Habitats Regulations
(Appropriate Assessment) Report



July 2009

Wild Frontier Ecology Ltd

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1. Introduction

The Habitats and Birds Directives¹ protect sites of exceptional importance in respect of rare, endangered or vulnerable natural habitats and species within Europe. These sites are referred to as European Sites and consist of Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Offshore Marine Sites (OMSs), however there are no OMSs designated at present.

Articles 6(3) and 6(4) of the Habitats Directive require Appropriate Assessment (AA) of any plans or projects likely to have a significant effect on a designated feature of a European Site. Appropriate Assessment is an assessment of the potential effects of a proposed plan on all European sites, both within and adjacent to the plan area. The intention is that a plan or project should only be approved after determining that it will not adversely affect the integrity of any European Site. If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, compensatory measures must be incorporated to ensure that the overall coherence of a European Site is protected.

In August 2006 the Government published draft guidance on Appropriate Assessment and this has informed the Appropriate Assessment of the King's Lynn and West Norfolk Borough Council's (KLWNBC) Core Strategy Development Plan Document.

This Regulation 25 Document is not a site specific development proposal but rather sets out the overarching development principles of the council over varying timescales.

The report therefore takes the following format:

- Evidence gathering - Identifying European sites within the district and outside potentially affected, qualifying features, condition of sites, conservation objectives and other relevant plans or projects.
- Task 1 – Screening. Deciding whether or not a policy is likely to have a significant effect. It is considered that at this stage there is sufficient available information to effectively screen policies.
- Task 2 – Appropriate Assessment and ascertaining the effect on site integrity.

It is anticipated that the main outcomes of this report are likely to be changes to policies subsequent to the Assessment. Changes are detailed in tables 2 and 3.

¹ Council Directive 79/409/EEC of 2 April 1979 on the Conservation of Wild Birds
Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora

2 The Appropriate Assessment process

Task 1: Screening for likely significant effects

Identifying whether a plan option is likely to have a significant effect on any European Site. This will determine whether the subsequent steps of Appropriate Assessment are required.

The precautionary principle must be used when assessing whether effects are significant. Where there is any doubt or further research is needed the Appropriate Assessment process should proceed to the next test, rather than reach a conclusion of 'no significant effect'.

The assessment of likely significant effect needs to take account of impacts in combination with other plans and projects, however only those plans or projects which are considered most relevant should be considered.

If there are found to be likely significant effects the plan option must be subject to Appropriate Assessment of its implications for the conservation objectives of the European Site.

Task 2: Appropriate Assessment

The implications for the conservation objectives of the European Site should be examined.

A plan should only be adopted after having ascertained that it will not adversely affect the integrity of the European Site. There may be a need to fine-tune the plan as it emerges to ensure that significant effects on European sites are avoided. This process will render Stage 3 unnecessary, which is important since this task is complex, expensive and not in keeping with the spirit of the Habitats Directive.

Task 3: Alternative Solutions and Mitigation

Where the plan is assessed as having an adverse effect on the integrity of a site, then alternative solutions must be considered.

In considering whether a plan or project will adversely affect the integrity of the site, regard to the manner in which it is proposed to be carried out or to any conditions or restrictions must be considered.

The primary aim of any mitigation of an option should be to allow 'no adverse affect on integrity' to be concluded. Where this is not possible then mitigation should aim to reduce the adverse affect as much as possible. Measures will normally involve the modification of an option.

After mitigation measures and possible alternatives have been exhausted and it still cannot be concluded 'no adverse affect on integrity' as a rule the option should be abandoned.

In exceptional circumstances, and as an exception to that rule, if the pursuit of the option is justified by 'imperative reasons of overriding public interest' consideration can be given to proceeding. Strong justification will be required to support this and it must be demonstrated to the satisfaction of the Secretary of State that there were no possible mitigation measures and/or alternative solutions to cancel out the negative effects. In these cases the Secretary of State shall secure any necessary compensatory measures to ensure the overall coherence of the European site is protected.

3. Consultation and Preparation

Natural England is the statutory nature conservation body responsible for providing advice on Appropriate Assessment, and has been involved throughout the AA process on the KLWNBC Core Strategy Policies.

4. Evidence Gathering for Appropriate Assessment

Prior to beginning the Appropriate Assessment, the following evidence should be gathered:

- European sites within and surrounding the potentially affected areas of the proposed plans;
- The characteristics of those European sites and their conservation objectives; and
- Other relevant plans or projects

4.1. Potentially affected International and European Protected Sites

Special Areas of Conservation (SAC)

- Breckland (directly bordering)
- Norfolk Valley Fens
- Ouse Washes
- Roydon Common and Dersingham Bog
- The Wash and North Norfolk Coast

Special Protection Areas (SPA)

- Breckland (Breckland Farmland and Breckland Forest)
- The North Norfolk Coast
- The Ouse Washes
- The Wash

Wetlands of International Importance (Designated under the Ramsar Convention)

- Dersingham Bog
- North Norfolk Coast
- Ouse Washes
- Roydon Common
- The Wash

INSERT MAP OF SITES WITHIN THE BOROUGH

4.2. Description, Characteristics and Conservation Objectives of European Sites

SAC

Breckland SAC

Designated on 1st April 2005.

Site Area: 7548.06ha, of which 141.2ha borders the Borough for approximately 6.2km. No part of the SAC falls within the Borough.

Site Condition: 100% of the Breckland Farmland sections of the SAC are in "favourable condition". 100% of the Breckland Forest sections of the SAC are in "favourable condition". This is according to information taken from Natural England's website in March 2009.

General site character as given on the Joint Nature Conservation Committee's website:

- Inland water bodies (standing water, running water) (0.5%)
- Bogs. Marshes. Water fringed vegetation. Fens (1%)
- Heath. Scrub. Maquis and garrigue. Phrygana (20%)
- Dry grassland. Steppes (59.4%)
- Improved grassland (0.2%)
- Other arable land (0.1%)
- Broad-leaved deciduous woodland (9%)
- Coniferous woodland (5%)
- Mixed woodland (4%)
- Inland rocks. Scree. Sands. Permanent snow and ice (0.5%)
- Other land (including towns, villages, roads, waste places, mines, industrial sites) (0.3%)

Designated Features are:

Annex I habitats that are a primary reason for selection of this site

2330 Inland dunes with open *Corynephorus* and *Agrostis* grasslands

Wangford Warren and adjoining parts of RAF Lakenheath are included in the Breckland site as the only occurrence of this habitat type in the UK. The site has one of the best-preserved systems of active inland sand dunes in the UK. The habitat type, which is in part characterised by the nationally rare grey hair-grass *Corynephorus canescens* occurring here at its only inland station, is associated with open conditions with active sand movement. The site shows the colonisation sequence from open sand to acidic grass-heath.

3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation

The Breckland meres in Norfolk represent **natural eutrophic lakes** in the east of England. They are examples of hollows within glacial outwash deposits and are fed by water from the underlying chalk aquifer. Natural fluctuations in groundwater tables mean that these lakes occasionally dry out. The flora is dominated by stonewort – pondweed *Characeae* – *Potamogetonaceae* associations.

4030 European dry heaths

The dry heaths of Breckland are representative of **European dry heaths** in East Anglia, in eastern England, developed under a semi-continental climate. Breckland has an average annual precipitation of only 600 mm, relatively hot summers and cold winters. Frosts can occur in any month of the year. The dry acidic heath of Breckland represents H1 *Calluna vulgaris* – *Festuca ovina* heath in the SAC series. The sand sedge-dominated *Carex arenaria* sub-community (H1d) is typical of areas of blown sand – a very unusual feature of this location. The highly variable soils of Breckland, with underlying chalk being largely covered with wind-blown sands, have resulted in mosaics of heather-dominated heathland, acidic grassland and calcareous grassland that are unlike those of any other site. In many places there is a linear or patterned distribution of heath and grassland, arising from fossilised soil patterns that formed under peri-glacial conditions. Breckland is important for rare plants, such as perennial knawel *Scleranthus perennis* ssp. *prostratus*, and rare invertebrates.

6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)

Breckland in East Anglia is the most extensive surviving area of the rare grassland type CG1 *Festuca ovina* – *Hieracium pilosella* – *Thymus praecox* grassland. The grassland is rich in rare species typical of dry, winter-cold, continental areas, and approaches the features of grassland types in central Europe more than almost any other **semi-natural dry grassland** found in the UK. The terrain is relatively flat, with few physical variations, but there are mosaics of calcareous grassland and heath/acid grassland, giving rise to patterns of structural variation.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) * Priority feature

Annex II species present as a qualifying feature, but not a primary reason for site selection

1166 Great crested newt *Triturus cristatus*

Norfolk Valley Fens SAC

Designated on 20th May 2004

Site Area: 616.21ha, of which 62.27ha is within the Borough. This is the SSSI known as East Walton and Adcock's Common.

Site Condition: 100% of the East Walton and Adcock's Common section of the Norfolk Valley Fens site is in "unfavourable declining" condition, according to Natural England's website.

General site character as given on the Joint Nature Conservation Committee's website:

- Inland water bodies (standing water, running water) (5%)
- Bogs. Marshes. Water fringed vegetation. Fens (25%)
- Heath. Scrub. Maquis and garrigue. Phygrana (30%)
- Dry grassland. Steppes (5%)
- Humid grassland. Mesophile grassland (5%)
- Broad-leaved deciduous woodland (30%)

Designated Features are:

Annex I habitats that are a primary reason for selection of this site

7230 Alkaline fens

Norfolk Valley Fens is one of two sites selected in East Anglia, in eastern England, where the main concentration of lowland **Alkaline fens** occurs. This site comprises a series of valley-head spring-fed fens. Such spring-fed flush fens are very rare in the lowlands. Most of the vegetation at this site is of the small sedge fen type, mainly referable to M13 *Schoenus nigricans* – *Juncus subnodulosus* mire, but there are transitions to reedswamp and other fen and wet grassland types. The individual fens vary in their structure according to intensity of management and provide a wide range of variation. There is a rich flora associated with these fens, including species such as grass-of-Parnassus *Parnassia palustris*, common butterwort *Pinguicula vulgaris*, marsh helleborine *Epipactis palustris* and narrow-leaved marsh-orchid *Dactylorhiza traunsteineri*.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

4010 Northern Atlantic wet heaths with *Erica tetralix*

4030 European dry heaths

6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)

6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)

7210 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* * Priority feature

91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) * Priority feature

Annex II species that are a primary reason for selection of this site

1014 Narrow-mouthed whorl snail *Vertigo angustior*

Norfolk Valley Fens represents **narrow-mouthed whorl snail *Vertigo angustior*** in East Anglia. At Flordon Common a strong population occurs in flushed grassland with yellow iris *Iris pseudacorus* maintained by light grazing.

1016 Desmoulin's whorl snail *Vertigo moulinsiana*

Norfolk Valley Fens is one of several sites representing **Desmoulin's whorl snail *Vertigo moulinsiana*** in East Anglia. Within Norfolk Valley Fens there are a number of marginal fens around pingos – pools that formed in hollows left when large blocks of ice melted at the end of the last Ice Age. These are very ancient wetlands and several support strong populations of *V. moulinsiana* as part of a rich assemblage of Red Data Book and Nationally Scarce species in standing water habitat.

Ouse Washes SAC

Designated on 20th May 2004

Site Area: 311.5ha, of which approximately 98.3ha is within the Borough.

Site Condition: 87.07% of the site is in “unfavourable no change” condition and 12.93% is in “favourable” condition, according to Natural England’s website. It should be noted that approximately 31.56% of The Ouse Washes SAC is within the Borough, but it is impossible to distinguish the locations of the areas which are in the conditions given above. It is possible that 100% of the site within the Borough is in “unfavourable no change” condition, but it is also possible that all 12.93% of the area in “favourable” condition could be within the Borough, and the remaining 18.63% could be in “unfavourable no change” condition. In all likelihood the actual percentages will be in between these numbers.

General site character as given on the Joint Nature Conservation Committee’s website:

- Inland water bodies (standing water, running water) (50%)
- Bogs. Marshes. Water fringed vegetation. Fens (20%)
- Improved grassland (30%)

Designated Features are:

Annex II species that are a primary reason for selection of this site

1149 Spined loach *Cobitis taenia*

The Ouse Washes represent **spined loach *Cobitis taenia*** populations within the River Ouse catchment. The Counter Drain, with its clear water and abundant macrophytes, is particularly important, and a healthy population of spined loach is known to occur.

Roydon Common and Dersingham Bog SAC

Designated on 20th May 2004.

Site Area: 351.83ha, entirely within the Borough.

Site Condition:

- Roydon Common: 95.53% of the site is in "unfavourable recovering" condition and 4.47% is in "unfavourable declining" condition according to Natural England's website.
- Dersingham Bog: 62.26% of the site is in "unfavourable recovering" condition and 37.74% is in "favourable" condition according to Natural England's website.

General site character as given on the Joint Nature Conservation Committee's website:

- Inland water bodies (standing water, running water) (0.3%)
- Bogs. Marshes. Water fringed vegetation. Fens (5%)
- Heath. Scrub. Maquis and garrigue. Phygrana (67%)
- Dry grassland. Steppes (1%)
- Improved grassland (1.7%)
- Broad-leaved deciduous woodland (11%)
- Coniferous woodland (7%)
- Mixed woodland (6%)
- Other land (including towns, villages, roads, waste places, mines, industrial sites) (1%)

Designated Features are:

Annex I habitats that are a primary reason for selection of this site

4010 Northern Atlantic wet heaths with Erica tetralix

Roydon Common and Dersingham Bog represent the largest and best examples of M16 Erica tetralix – Sphagnum compactum wet heath in East Anglia. This vegetation community is part of a lowland mixed valley mire, a complex series of plant communities grading from wet acid heath through valley mire to calcareous fen. This gradation is of outstanding interest. The mire is extremely diverse and supports many rare plants, birds and insects, including the dragonfly Sympetrum scoticum, a northern species with a very local distribution in south-east England. Birds protected at European level occurring in the heathland at this site include European nightjar Caprimulgus europaeus, hen harrier Circus cyaneus and merlin Falco columbarius.

7150 Depressions on peat substrates of the Rhynchosporion

Dersingham Bog represents Depressions on peat substrates of the Rhynchosporion in eastern England. There are examples of this habitat type present in natural bog pools of patterned valley mire, in flushes on the margins of valley mire and locally in disturbed areas associated with trackways and paths in mire and wet heath. Mosaics containing this habitat type are important for bog orchid Hammarbya paludosa.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

4030 European dry heaths

River Wensum SAC

Designated: 20th May 2004.

Site Area: 381.74 ha, of which approximately 31.34ha is in the Borough at Broomsthorpe and Helhoughton Commons.

Site Condition: As on 1st April 2009, 41.22% of the site was in favourable condition, with 26.78% “unfavourable recovering”, a further 1.82% being “unfavourable no change” and 30.18% “unfavourable declining”.

General Site Character:

- Inland water bodies 42%
- Bogs, marshes, water-fringed vegetation, fens 12%
- Humid grassland, mesophile grassland 40%
- Broad-leaved deciduous woodland 6%

Designated Features are:

Annex I habitats that are a primary reason for selection of this site

3260 Water courses of plain to montane levels with the *Ranunculus fluitans* and *Callitriche-Batrachion* vegetation

The Wensum represents sub-type 1 in lowland eastern England. Although the river is extensively regulated by weirs, *Ranunculus* vegetation occurs sporadically throughout much of the river's length. Stream water-crowfoot *R. penicillatus* ssp. *pseudofluitans* is the dominant *Ranunculus* species but thread-leaved water-crowfoot *R. trichophyllus* and fan-leaved water-crowfoot *R. circinatus* also occur.

Annex II species that are a primary reason for selection of this site

1092 White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes*

The Wensum is a chalk-fed river in eastern England, and is an eastern example of riverine white-clawed crayfish *Austropotamobius pallipes* populations. As with most of the remaining crayfish populations in the south and east of England, the threats from non-native crayfish species and crayfish plague are severe. Designation of the river as a SAC provides as much protection as can be afforded to such vulnerable populations.

Annex II species present as a qualifying feature, but not a primary reason for site selection

1016 Desmoulin's whorl snail *Vertigo moulinsiana*

1096 Brook lamprey *Lampetra planeri*

1163 Bullhead *Cottus gobio*

The Wash and North Norfolk Coast SAC

Designated on 20th May 2004

Site Area: 107761.28ha, of which <10% is within the Borough, but it directly borders the entire coastline (approximately 56.7km) of the Borough.

Site Condition:

The Wash: 62.24% of the site is in “favourable” condition, 37.25% of the site is in “unfavourable recovering” condition and 0.51% of the site is in “unfavourable declining” condition.

North Norfolk Coast: 96.62% of the site is in "favourable" condition, 2.8% of the site is in "unfavourable recovering" condition and 0.58% is in "unfavourable no change" condition.

It should be noted that neither The Wash nor North Norfolk Coast are entirely within the boundaries of the Borough. It is impossible to distinguish the locations of the areas in different conditions, but in all likelihood, the areas of varying conditions are all present to some degree within the Borough (with the possible exception of "unfavourable declining")

General site character as given on the Joint Nature Conservation Committee's website:

- Marine areas. Sea inlets (51%)
- Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins) (46%)
- Salt marshes. Salt pastures. Salt steppes (3%)

Designated Features are:

Annex I habitats that are a primary reason for selection of this site

1110 Sandbanks which are slightly covered by sea water all the time

On this site sandy sediments occupy most of the subtidal area, resulting in one of the largest expanses of sublittoral **sandbanks** in the UK. It provides a representative example of this habitat type on the more sheltered east coast of England. The subtidal sandbanks vary in composition and include coarse sand through to mixed sediment at the mouth of the embayment. Sublittoral communities present include large dense beds of brittlestars *Ophiothrix fragilis*. Species include the sand-mason worm *Lanice conchilega* and the tellin *Angulus tenuis*. Benthic communities on sandflats in the deeper, central part of the Wash are particularly diverse. The subtidal sandbanks provide important nursery grounds for young commercial fish species, including plaice *Pleuronectes platessa*, cod *Gadus morhua* and sole *Solea solea*.

1140 Mudflats and sandflats not covered by seawater at low tide

The Wash, on the east coast of England, is the second-largest area of intertidal flats in the UK. The sandflats in the embayment of the Wash include extensive fine sands and drying banks of coarse sand, and this diversity of substrates, coupled with variety in degree of exposure, means that there is a high diversity relative to other east coast sites. Sandy intertidal flats predominate, with some soft mudflats in the areas sheltered by barrier beaches and islands along the north Norfolk coast. The biota includes large numbers of polychaetes, bivalves and crustaceans. Salinity ranges from that of the open coast in most of the area (supporting rich invertebrate communities) to estuarine close to the rivers. Smaller, sheltered and diverse areas of intertidal sediment, with a rich variety of communities, including some eelgrass *Zostera spp.* beds and large shallow pools, are protected by the north Norfolk barrier islands and sand spits.

1160 Large shallow inlets and bays

The Wash is the largest embayment in the UK, and represents **Large shallow inlets and bays** on the east coast of England. It is connected via sediment transfer systems to the north Norfolk coast. Together, the Wash and North Norfolk Coast form one of the most important marine

areas in the UK and European North Sea coast, and include extensive areas of varying, but predominantly sandy, sediments subject to a range of conditions. Communities in the intertidal include those characterised by large numbers of polychaetes, bivalve and crustaceans. Sublittoral communities cover a diverse range from the shallow to the deeper parts of the embayments and include dense brittlestar beds and areas of an abundant reef-building worm ('ross worm') *Sabellaria spinulosa*. The embayment supports a variety of mobile species, including a range of fish and **1365 Common seal** *Phoca vitulina*.

1170 Reefs

The Wash is the largest embayment in the UK with extensive areas of subtidal mixed sediment. In the tide-swept approaches to the Wash, with a high loading of suspended sand, the relatively common tube-dwelling polychaete worm *Sabellaria spinulosa* forms areas of biogenic reef. These structures are varied in nature, and include reefs which stand up to 30 cm proud of the seabed and which extend for hundreds of metres (Foster-Smith & Sotheran 1999). The reefs are thought to extend into The Wash where super-abundant *S. spinulosa* occurs and where reef-like structures such as concretions and crusts have been recorded. The site and its surrounding waters is considered particularly important as it is the only currently known location of well-developed stable *Sabellaria* reef in the UK. The reefs are particularly important components of the sublittoral as they are diverse and productive habitats which support many associated species (including epibenthos and crevice fauna) that would not otherwise be found in predominantly sedimentary areas. As such, the fauna is quite distinct from other biotopes found in the site. Associated motile species include large numbers of polychaetes, mysid shrimps, the pink shrimp *Pandalus montagui*, and crabs. *S. spinulosa* is considered to be an important food source for the commercially important pink shrimp *P. montagui* (see overview in Holt *et al.* 1998).

1310 *Salicornia* and other annuals colonising mud and sand

The largest single area of this vegetation in the UK occurs at this site on the east coast of England, which is one of the few areas in the UK where saltmarshes are generally accreting. The proportion of the total saltmarsh vegetation represented by ***Salicornia* and other annuals colonising mud and sand** is high because of the extensive enclosure of marsh in this site. The vegetation is also unusual in that it forms a pioneer community with common cord-grass *Spartina anglica* in which it is an equal component. The inter-relationship with other habitats is significant, forming a transition to important dune, saltmeadow and halophytic scrub communities.

1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

This site on the east coast of England is selected both for the extensive ungrazed saltmarshes of the North Norfolk Coast and for the contrasting, traditionally grazed saltmarshes around the Wash. The Wash saltmarshes represent the largest single area of the habitat type in the UK. The **Atlantic salt meadows** form part of a sequence of vegetation types that are unparalleled among coastal sites in the UK for their diversity and are amongst the most important in Europe. Saltmarsh swards dominated by sea-lavenders *Limonium spp.* are particularly well-represented on this site. In addition to typical lower and middle saltmarsh communities, in North Norfolk there are transitions from upper marsh to freshwater reedswamp, sand dunes, shingle beaches and mud/sandflats.

1420 Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*)

The Wash and North Norfolk Coast, together with the North Norfolk Coast, comprises the only area in the UK where all the more typically Mediterranean species that characterise **Mediterranean and thermo-Atlantic halophilous scrubs** occur together. The vegetation is dominated by a shrubby cover up to 40 cm high of scattered bushes of shrubby sea-blite *Suaeda vera* and sea-purslane *Atriplex portulacoides*, with a patchy cover of herbaceous plants and bryophytes. This scrub vegetation often forms an important feature of the upper saltmarshes, and extensive examples occur where the drift-line slopes gradually and provides a transition to dune, shingle or reclaimed sections of the coast. At a number of locations on this coast perennial glasswort *Sarcocornia perennis* forms an open mosaic with other species at the lower limit of the sea-purslane community.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

1150 Coastal lagoons * Priority feature

Annex II species that are a primary reason for selection of this site

1365 Common seal *Phoca vitulina*

The Wash, on the east coast of England, is the largest embayment in the UK. The extensive intertidal flats here and on the North Norfolk Coast provide ideal conditions for **common seal *Phoca vitulina*** breeding and hauling-out. This site is the largest colony of common seals in the UK, with some 7% of the total UK population.

Annex II species present as a qualifying feature, but not a primary reason for site selection

1355 Otter *Lutra lutra*

SPA Sites

Breckland SPA

Site Area: 39433.66ha, of which approximately 2159.95ha is within the Borough. The only component sections within the Borough are Breckland Farmland and Breckland Forest.

Site description:

The Breckland of Norfolk and Suffolk lies in the heart of East Anglia on largely sandy soils of glacial origin. In the 19th century the area was termed a sandy waste, with small patches of arable cultivation that were soon abandoned. The continental climate, with low rainfall and free-draining soils, has led to the development of dry heath and grassland communities. Much of Breckland was planted with conifers through the 20th century, and elsewhere arable farming is the predominant land use. The remnants of dry heath and grassland that have survived these changes support heathland-breeding birds, where grazing by sheep and rabbits is sufficiently intensive to create short turf and open ground. These species have also adapted to live in forestry and arable

habitats. Woodlark *Lullula arborea* and Nightjar *Caprimulgus europaeus* breed in recently felled areas and open heath areas within the conifer plantations, while Stone Curlew *Burhinus oedicanus* establishes nests on open ground provided by arable cultivation in the spring.

Designated Features are:

This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season;

Nightjar *Caprimulgus europaeus*,

415 pairs representing up to 12.2% of the breeding population in Great Britain (Count as at 1998)

Stone Curlew *Burhinus oedicanus*,

142 pairs representing up to 74.7% of the breeding population in Great Britain (Count as at 1998)

Woodlark *Lullula arborea*,

430 pairs representing up to 28.7% of the breeding population in Great Britain (Count as at 1997)

The North Norfolk Coast SPA

Site Area: 7886.79ha, of which approximately 2267ha is within the Borough and approximately 21.1km of the Borough's coastline directly borders it.

Site description:

The North Norfolk Coast SPA encompasses much of the northern coastline of Norfolk in eastern England. It is a low-lying barrier coast that extends for 40 km from Holme to Weybourne and includes a great variety of coastal habitats. The main habitats – found along the whole coastline – include extensive intertidal sand- and mud-flats, saltmarshes, shingle and sand dunes, together with areas of freshwater grazing marsh and reedbed, which has developed in front of rising land. The site contains some of the best examples of saltmarsh in Europe. There are extensive deposits of shingle at Blakeney Point, and major sand dunes at Scolt Head. Extensive reedbeds are found at Brancaster, Cley and Titchwell. Maritime pasture is present at Cley and extensive areas of grazing marsh are present all along the coast. The grazing marsh at Holkham has a network of clear water dykes holding a rich diversity of aquatic plant species. The great diversity of high-quality freshwater, intertidal and marine habitats results in very large numbers of waterbirds occurring throughout the year. In summer, the site holds large breeding populations of waders, four species of terns, Bittern *Botaurus stellaris* and wetland raptors such as Marsh Harrier *Circus aeruginosus*. In winter, the coast is used by very large numbers of geese, sea-ducks, other ducks and waders. The coast is also of major importance for staging waterbirds in the spring and autumn migration periods. Breeding terns, particularly Sandwich Tern *Sterna sandvicensis*, and wintering sea-ducks regularly feed outside the SPA in adjacent coastal waters.

To the west, the coastal habitats of North Norfolk Coast SPA are continuous with The Wash SPA, with which area the ecology of this site is intimately linked.

Designated Features are:

This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season:

Avocet *Recurvirostra avosetta*,

177 pairs representing at least 30.0% of the breeding population in Great Britain (Count as at 1998)

Bittern *Botaurus stellaris*,

3 individuals representing at least 15.0% of the breeding population in Great Britain (Count as at 1998)

Common Tern *Sterna hirundo*,

460 pairs representing at least 3.7% of the breeding population in Great Britain (Count, as at 1996)

Little Tern *Sterna albifrons*,

377 pairs representing at least 15.7% of the breeding population in Great Britain (5 year mean 1994-1998)

Marsh Harrier *Circus aeruginosus*,

14 pairs representing at least 8.8% of the breeding population in Great Britain (Count as at 1995)

Mediterranean Gull *Larus melanocephalus*,

2 pairs representing at least 20.0% of the breeding population in Great Britain (Count as at 1996)

Roseate Tern *Sterna dougallii*,

2 pairs representing at least 3.3% of the breeding population in Great Britain (5 year mean 1994-1998)

Sandwich Tern *Sterna sandvicensis*,

3,457 pairs representing at least 24.7% of the breeding population in Great Britain (5 year mean 1994-1998)

Over winter:

Avocet *Recurvirostra avosetta*,

153 individuals representing at least 12.0% of the wintering population in Great Britain (Count as at 1997/8)

Bar-tailed Godwit *Limosa lapponica*,

1,236 individuals representing at least 2.3% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

Bittern *Botaurus stellaris*,

5 individuals representing at least 5.0% of the wintering population in Great Britain (5 year peak mean 1993/4 - 1998/9)

Golden Plover *Pluvialis apricaria*,

2,667 individuals representing at least 1.1% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

Hen Harrier *Circus cyaneus*,

16 individuals representing at least 2.1% of the wintering population in Great Britain (5 year mean 1993/4-1997/8)

Ruff *Philomachus pugnax*,

54 individuals representing at least 7.7% of the wintering population in Great Britain (5 year peak mean 1993/4 - 1998/9)

This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

During the breeding season:

Redshank *Tringa totanus*,

700 pairs representing at least 1.2% of the breeding Eastern Atlantic - wintering population (Count as at 1998)

Ringed Plover *Charadrius hiaticula*,

220 pairs representing at least 1.4% of the breeding Europe/Northern Africa - wintering population (Count as at 1998)

On passage:

Ringed Plover *Charadrius hiaticula*,

1,256 individuals representing at least 2.5% of the Europe/Northern Africa - wintering population (5 year peak mean 1994/5 - 1998/9)

Over winter:

Dark-bellied Brent Goose *Branta bernicla bernicla*,

11,512 individuals representing at least 3.8% of the wintering Western Siberia/Western Europe population (5 year peak mean 1991/2 - 1995/6)

Knot *Calidris canutus*,

10,801 individuals representing at least 3.1% of the wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Pink-footed Goose *Anser brachyrhynchus*,

23,802 individuals representing at least 10.6% of the wintering Eastern Greenland/Iceland/UK population (5 year peak mean 1991/2 - 1995/6)

Pintail *Anas acuta*,

1,139 individuals representing at least 1.9% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Redshank *Tringa totanus*,

2,998 individuals representing at least 2.0% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1993/4 - 1997/8)

Wigeon *Anas penelope*,

14,039 individuals representing at least 1.1% of the wintering Western Siberia/Northwestern/Northeastern Europe population (5 year peak mean 1991/2 - 1995/6)

Assemblage qualification: A wetland of international importance.

The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl

Over winter, the area regularly supports 91,249 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including:

Shelduck *Tadorna tadorna*, Avocet *Recurvirostra avosetta*, Golden Plover *Pluvialis apricaria*, Ruff *Philomachus pugnax*, Bar-tailed Godwit *Limosa lapponica*, Pink-footed Goose *Anser brachyrhynchus*, Dark-bellied Brent Goose *Branta bernicla bernicla*, Wigeon *Anas penelope*, Pintail *Anas acuta*, Knot *Calidris canutus*, Redshank *Tringa totanus*, Bittern *Botaurus stellaris*, White-fronted Goose *Anser albifrons albifrons*, Dunlin *Calidris alpina alpina*, Gadwall *Anas strepera*, Teal *Anas crecca*, Shoveler *Anas clypeata*, Common Scoter *Melanitta nigra*,

Velvet Scoter *Melanitta fusca*, Oystercatcher *Haematopus ostralegus*, Ringed Plover *Charadrius hiaticula*, Grey Plover *Pluvialis squatarola*, Lapwing *Vanellus vanellus*, Sanderling *Calidris alba*, Cormorant *Phalacrocorax carbo*.

Ouse Washes SPA

Site Area: 2447.26ha, of which approximately 725.5ha is within the Borough.

Site Description:

The Ouse Washes are located in eastern England on one of the major tributary rivers of The Wash. It is an extensive area of seasonally flooding wet grassland ('washland') lying between the Old and New Bedford Rivers, and acts as a floodwater storage system during winter months. The cycle of winter storage of floodwaters from the river and traditional summer grazing by cattle, as well as hay production, have given rise to a mosaic of rough grassland and wet pasture, with a diverse and rich ditch fauna and flora. The washlands support both breeding and wintering waterbirds. In summer, there are important breeding numbers of several wader species, as well as Spotted Crake *Porzana porzana*. In winter, the site holds very large numbers of swans, ducks and waders. During severe winter weather elsewhere, the Ouse Washes can attract waterbirds from other areas due to its relatively mild climate (compared with continental Europe) and abundant food resources. In winter, some wildfowl, especially swans, feed on agricultural land surrounding the SPA.

Designated Features are:

This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season:

Ruff *Philomachus pugnax*,

1 individuals representing at least 9.1% of the breeding population in Great Britain (5 year mean 1983-1987)

Spotted Crake *Porzana porzana*,

3 individuals representing at least 6.0% of the breeding population in Great Britain (3-4 males = minimum)

Over winter:

Bewick's Swan *Cygnus columbianus bewickii*,

4,639 individuals representing at least 66.3% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

Hen Harrier *Circus cyaneus*,

12 individuals representing at least 1.6% of the wintering population in Great Britain (6 year mean, 1982-1987)

Ruff *Philomachus pugnax*,

137 individuals representing at least 19.6% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

Whooper Swan *Cygnus cygnus*,

963 individuals representing at least 17.5% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

During the breeding season:

Black-tailed Godwit *Limosa limosa limosa*,

26 pairs representing <0.1% of the breeding Western Europe/W Africa population (Count, as at late 1980s-early 1990s)

Gadwall *Anas strepera*,

111 pairs representing at least 1.1% of the breeding Northwestern Europe population

Shoveler *Anas clypeata*,

155 pairs representing at least 1.2% of the breeding Northwestern/Central Europe population (Count, as at late 1980s-early 1990s).

Over winter:

Black-tailed Godwit *Limosa limosa islandica*,

1,198 individuals representing at least 1.7% of the wintering Iceland - breeding population (5 year peak mean 1991/2 - 1995/6)

Gadwall *Anas strepera*,

342 individuals representing at least 1.1% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Pintail *Anas acuta*,

1,755 individuals representing at least 2.9% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Pochard *Aythya ferina*,

3,590 individuals representing at least 1.0% of the wintering Northwestern/Northeastern Europe population

Shoveler *Anas clypeata*,

681 individuals representing at least 1.7% of the wintering Northwestern/Central Europe population (5 year peak mean 1991/2 - 1995/6)

Wigeon *Anas penelope*,

29,713 individuals representing at least 2.4% of the wintering Western Siberia/Northwestern/Northeastern Europe population (5 year peak mean 1991/2 - 1995/6)

Assemblage qualification: A wetland of international importance.

The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl

Over winter, the area regularly supports 64,392 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including:

Lapwing *Vanellus vanellus*, Coot *Fulica atra*, Tufted Duck *Aythya fuligula*, Mallard *Anas platyrhynchos*, Teal *Anas crecca*, Cormorant *Phalacrocorax carbo*, Black-tailed Godwit *Limosa limosa islandica*, Pochard *Aythya ferina*, Shoveler *Anas clypeata*, Pintail *Anas acuta*, Gadwall *Anas strepera*, Wigeon *Anas penelope*, Ruff *Philomachus pugnax*, Whooper Swan *Cygnus cygnus*, Bewick's Swan *Cygnus columbianus bewickii*.

The Wash SPA

Site Area: 62211.66ha, of which approximately 741.9ha is within the Borough and approximately 33.63km of the Borough's coastline directly borders it.

Site description:

The Wash is located on the east coast of England and is the largest estuarine system in the UK. It is fed by the rivers Witham, Welland, Nene and Great Ouse that drain much of the east Midlands of England. The Wash comprises very extensive saltmarshes, major intertidal banks of sand and mud, shallow waters and deep channels. The eastern end of the site includes low chalk cliffs at Hunstanton. In addition, on the eastern side, the gravel pits at Snettisham are an important high-tide roost for waders. The intertidal flats have a rich invertebrate fauna and colonising beds of Glasswort *Salicornia* spp. which are important food sources for the large numbers of waterbirds dependent on the site. The sheltered nature of The Wash creates suitable breeding conditions for shellfish, principally Mussel *Mytilus edulis*, Cockle *Cardium edule* and shrimps. These are important food sources for some waterbirds such as Oystercatchers *Haematopus ostralegus*. The Wash is of outstanding importance for a large number of geese, ducks and waders, both in spring and autumn migration periods, as well as through the winter. The SPA is especially notable for supporting a very large proportion (over half) of the total population of Canada/Greenland breeding Knot *Calidris canutus islandica*. In summer, the Wash is an important breeding area for terns and as a feeding area for Marsh Harrier *Circus aeruginosus* that breed just outside the SPA.

To the north, the coastal habitats of The Wash are continuous with Gibraltar Point SPA, whilst to the east The Wash adjoins the North Norfolk Coast SPA.

Designated Features are:

This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season:

Common Tern *Sterna hirundo*,

152 pairs representing at least 1.2% of the breeding population in Great Britain (Count, as at 1993)

Little Tern *Sterna albifrons*,

33 pairs representing at least 1.4% of the breeding population in Great Britain (5 year mean, 1992-1996)

Marsh Harrier *Circus aeruginosus*,

15 pairs representing at least 9.4% of the breeding population in Great Britain (Count as at 1995)

Over winter:

Avocet *Recurvirostra avosetta*,

110 individuals representing at least 8.7% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

Bar-tailed Godwit *Limosa lapponica*,

11,250 individuals representing at least 21.2% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

Golden Plover *Pluvialis apricaria*,

11,037 individuals representing at least 4.4% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

Whooper Swan *Cygnus cygnus*,

68 individuals representing at least 1.2% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

On passage:

Ringed Plover *Charadrius hiaticula*,

1,185 individuals representing at least 2.4% of the Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6)

Sanderling *Calidris alba*,

1,854 individuals representing at least 1.9% of the Eastern Atlantic/Western & Southern Africa - wintering population (2 year mean Aug 1994 - 1995)

Over winter:

Black-tailed Godwit *Limosa limosa islandica*,

859 individuals representing at least 1.2% of the wintering Iceland - breeding population (5 year peak mean 1991/2 - 1995/6)

Curlew *Numenius arquata*,

3,835 individuals representing at least 1.1% of the wintering Europe - breeding population (5 year peak mean 1991/2 - 1995/6)

Dark-bellied Brent Goose *Branta bernicla bernicla*,

22,248 individuals representing at least 7.4% of the wintering Western Siberia/Western Europe population (5 year peak mean 1991/2 - 1995/6)

Dunlin *Calidris alpina alpina*,

35,620 individuals representing at least 2.5% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1991/2 - 1995/6)

Grey Plover *Pluvialis squatarola*,

9,708 individuals representing at least 6.5% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6)

Knot *Calidris canutus*,

186,892 individuals representing at least 53.4% of the wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Oystercatcher *Haematopus ostralegus*,

25,651 individuals representing at least 2.9% of the wintering Europe & Northern/Western Africa population (5 year peak mean 1991/2 - 1995/6)

Pink-footed Goose *Anser brachyrhynchus*,

33,265 individuals representing at least 14.8% of the wintering Eastern Greenland/Iceland/UK population (5 year peak mean 1991/2 - 1995/6)

Pintail *Anas acuta*,

923 individuals representing at least 1.5% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Redshank *Tringa totanus*,

2,953 individuals representing at least 2.0% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6)

Shelduck *Tadorna tadorna*,

15,981 individuals representing at least 5.3% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Turnstone *Arenaria interpres*,

717 individuals representing at least 1.0% of the wintering Western Palearctic - wintering population (5 year peak mean 1991/2 - 1995/6)

Assemblage qualification: A wetland of international importance.

The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl

Over winter, the area regularly supports 400,273 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including:

Black-tailed Godwit *Limosa limosa islandica*, Avocet *Recurvirostra avosetta*, Golden Plover *Pluvialis apricaria*, Bar-tailed Godwit *Limosa lapponica*, Pink-footed Goose *Anser brachyrhynchus*, Dark-bellied Brent Goose *Branta bernicla bernicla*, Shelduck *Tadorna tadorna*, Pintail *Anas acuta*, Oystercatcher *Haematopus ostralegus*, Grey Plover *Pluvialis squatarola*, Whooper Swan *Cygnus cygnus*, Dunlin *Calidris alpina alpina*, Sanderling *Calidris alba*, Curlew *Numenius arquata*, Redshank *Tringa totanus*, Turnstone *Arenaria interpres*, Little Grebe *Tachybaptus ruficollis*, Cormorant *Phalacrocorax carbo*, White-fronted Goose *Anser albifrons albifrons*, Wigeon *Anas penelope*, Mallard *Anas platyrhynchos*, Ringed Plover *Charadrius hiaticula*, Lapwing *Vanellus vanellus*, Knot *Calidris canutus*, Whimbrel *Numenius phaeopus*.

Ramsar Sites

Dersingham Bog Ramsar

Site Area: 157.75ha, entirely within the Borough.

General overview, as given on "Ramsar Information Sheet: UK11019":

Dersingham Bog is East Anglia's largest remaining example of pure acid valley mire, and supports extensive bog, wet heath and transition communities over peat. These are sustained via groundwater, fed by springs and seepage from the underlying greensand, which in places has caused the development of iron pans. The mire grades into dry heathland along the greensand scarp slope. The scarp slope is a former sea cliff, and the bog habitats are a remnant of the transition mires that formerly existed between this former shoreline and the now mostly land-claimed salt marshes around The Wash. In addition to its internationally important plant communities, the site also supports important assemblages of birds and British Red Data Book invertebrates.

Ramsar Criteria:

2: Supports an important assemblage of invertebrates - nine British Red Data Book species have been recorded.

North Norfolk Coast Ramsar

Site Area: 7862.39ha, of which approximately 2254ha is within the Borough, and approximately 21.1km of the Borough's coastline directly borders it.

General overview as given on Ramsar Information Sheet: UK11048

This low-lying barrier coast site extends for 40km from Holme to Weybourne and encompasses a variety of habitats including intertidal sands and muds, saltmarshes, shingle and sand dunes, together with areas of land-claimed freshwater grazing marsh and reedbed, which is developed in front of rising land. Both freshwater and marine habitats support internationally important numbers of wildfowl in winter and several nationally rare breeding birds. The sandflats, sand dune, saltmarsh, shingle and saline lagoons habitats are of international importance for their fauna, flora and geomorphology.

Ramsar Criteria:

1: The site is one of the largest expanses of undeveloped coastal habitat of its types in Europe. It is a particularly good example of marshland coast with intertidal sand and mud, saltmarshes, shingle banks and sand dunes. There are a series of brackish-water lagoons and extensive areas of freshwater grazing marsh and reed beds.

2: Supports at least three British Red Data Book and nine nationally scarce vascular plants, one British Red Data Book lichen and 38 British Red Data Book invertebrates.

5: Assemblages of international importance:

Species with peak counts in winter: 98462 waterfowl (5 year peak mean 1998/99-2002-03)

6: species/populations occurring at levels of international importance.

Qualifying species/populations (as identified at designation): Species regularly supported during the breeding season:

Sandwich Tern *Sterna (Thalasseus) sandvicensis sandvicensis*, W Europe
4275 apparently occupied nests, representing an average of 7.7% of the breeding population (Seabird 2000 Census)

Common Tern, *Sterna hirundo hirundo*, N & E Europe
408 apparently occupied nests, representing an average of 4% of the GB populations (Seabird 2000 Census)

Little Tern *Sterna albifrons albifrons*, W Europe
291 apparently occupied nests, representing an average of 2.5% of the breeding population (Seabird 2000 Census)

Species with peak counts in spring/autumn:

Red Knot *Calidris canutus islandica*, W & S Africa (wintering)
30781 individuals, representing an average of 6.8% of the population (5 year peak mean 1998/99-2002/03)

Species with peak counts in winter:

Pink-footed Goose *Anser brachyrhynchus*, Greenland, Iceland/UK
16787 individuals, representing an average of 6.9% of the population (5 year peak mean 1998/99-2002/03)

Dark-bellied Brent Goose *Branta bernicla bernicla*
8690 individuals, representing an average of 4% of the population (5 year peak mean 1998/99-2002/03)

Eurasian Wigeon *Anas penelope*, NW Europe
17940 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/99-2002/03)

Northern Pintail *Anas acuta*, NW Europe

1148 individuals, representing an average of 1.9% of the population (5 year peak mean 1998/99-2002/03)

Species/populations identified subsequent to designation for possible future consideration under criterion 6.

Species with peak counts in spring/autumn:

Ringed Plover *Charadrius hiaticula*, Europe/NW Africa

1740 individuals, representing an average of 2.3% of the population (5 year peak mean 1998/99-2002/03)

Sanderling *Calidris alba*, Eastern Atlantic

1303 individuals, representing an average of 1% of the population (5 year peak mean 1998/99-2002/03)

Bar-tailed Godwit, *Limosa lapponica lapponica*, W Palearctic

3933 individuals, representing an average of 3.2% of the population (5 year peak mean 1998/99-2002/03)

Ouse Washes Ramsar

Site Area: 2469.08ha, of which approximately 761.1ha is within the Borough.

General overview as given on Ramsar Information Sheet: UK11051.

This site is an area of seasonally-flooded washland habitat managed in a traditional agricultural manner. The washlands support nationally and internationally important numbers of wintering waterfowl and nationally important numbers of breeding waterfowl. The site is also of note for the large area of unimproved neutral grassland communities which it holds, and for the richness of the aquatic flora within the associated watercourses.

Ramsar Criteria:

1: The site is one of the most extensive areas of seasonally-flooding washland of its type in Britain.

2: The site supports several nationally scarce plants, including small water pepper *Polygonum minus*, whorled water-milfoil *Myriophyllum verticillatum*, greater water parsnip *Sium latifolium*, river water dropwort *Oenanthe fluviatilis*, fringed water-lily *Nymphoides peltata*, long-stalked pondweed *Potamogeton praelongus*, hair-like pondweed *Potamogeton trichoides*, grass-wrack pondweed *Potamogeton compressus*, tasteless water pepper *Polygonum mite* and marsh dock *Rumex palustris*.

3: Invertebrate records indicate that the site holds relict fenland fauna, including British Red Data Book species large darter dragonfly *libellula fulva*, and the rifle beetle *Oulimnius major*.

4: The site also supports a diverse assemblage of nationally rare breeding waterfowl associated with seasonally-flooding wet grassland.

5: Assemblages of international importance:

Species with peak counts in winter: 59133 waterfowl (5 year peak mean 1998/99-2002/03)

6: Species/populations occurring at levels of international importance.

Qualifying species/populations (as identified at designation): Species with peak counts in winter:

- Tundra Swan *Cygnus columbianus bewickii*, NW Europe
1140 individuals, representing an average of 3.9% of the population (5 year peak mean 1998/99-2002/03)
- Whooper Swan *Cygnus cygnus*, Iceland/UK/Ireland
653 individuals, representing an average of 3.1% of the population (5 year peak mean 1998/99-2002/03)
- Eurasian Wigeon *Anas penelope*, NW Europe
22630 individuals, representing an average of 1.5% of the population (5 year peak mean 1998/99-2002/03)
- Gadwall *Anas strepera strepera*, NW Europe
438 individuals, representing an average of 2.5% of the GB population (5 year peak mean 1998/99-2002/03)
- Eurasian Teal *Anas crecca*, NW Europe
3384 individuals, representing an average of 1.7% of the GB population (5 year peak mean 1998/99-2002/03)
- Northern Pintail *Anas acuta*, NW Europe
2108 individuals, representing an average of 3.5% of the population (5 year peak mean 1998/99-2002/03)
- Northern Shoveler *Anas clypeata*, NW & C Europe
627 individuals, representing an average of 1.5% of the population (5 year peak mean 1998/99-2002/03)

Species/populations identified subsequent to designation for possible future consideration under criterion 6.

Species with peak counts in winter:

- Mute Swan *Cygnus olor*, Britain
722 individuals, representing an average of 1.9% of the population (5 year peak mean 1998/99-2002/03)
- Common Pochard *Aythya ferina*, NE & NW Europe
4678 individuals, representing an average of 1.3% of the population (5 year peak mean 1998/99-2002/03)
- Black-tailed Godwit *Limosa limosa islandica*, Iceland/W Europe
2647 individuals, representing an average of 7.5% of the population (5 year peak mean 1998/99-2002/03)"

Roydon Common Ramsar

Site Area: 194.1ha, entirely within the Borough

General overview as given on Ramsar Information Sheet: UK11061.

Roydon Common is an area of lowland mixed valley mire surrounded by heathland. It sits on the Cretaceous greensand of west Norfolk, within a broad south-west-facing valley basin. It has a classic sequence of vegetation types associated with valley mires of this type. The dry heath of the upper slopes is hydrologically linked with wetter lower slopes, which experience seasonal waterlogging and are colonised by wet heath. This grades into the valley bottom, which is permanently waterlogged, and comprises acid bog and nutrient-poor fen communities, blending into more base-rich fen and carr woodland in the valley bottom.

Ramsar Criteria

1: The site is the most extensive example of valley mire-heathland biotype within East Anglia. – It is a mixed valley mire holding vegetation communities which reflect the influence of both base-poor and base-rich water .

3: The vegetation communities have a restricted distribution within Britain. – It also supports a number of acidophilic invertebrates outside their normal geographic range and six British Red Data Book invertebrates.

The Wash Ramsar

Site Area: 62211.66ha, of which approximately 741.9ha is within the Borough and approximately 33.63km of the Borough's coastline directly borders it.

General overview as given on Ramsar Information Sheet: UK11072

The Wash is the largest estuarine system in Britain. It is fed by the rivers Witham, Welland, Nene and Great Ouse. There are extensive saltmarshes, intertidal banks of sand and mud, shallow waters and deep channels. It is the most important staging post and over-wintering site for migrant wildfowl and wading birds in eastern England. It supports a valuable commercial fishery for shellfish and also an important nursery area for flatfish. It holds one of the North Sea's largest breeding populations of common seal *Phoca vitulina* and some grey seals *Halichoerus grypus*. The sublittoral area supports a number of different marine communities including colonies of the reef-building polychaete worm *Sabellaria spinulosa*.

Ramsar Criteria:

1: The Wash is a large shallow bay comprising very extensive saltmarshes, major intertidal banks of sand and mud, shallow water and deep channels.

3: Qualifies because of the inter-relationship between its various components including saltmarshes, intertidal sand and mud flats and the estuarine waters. The saltmarshes and the plankton in the estuarine water provide a primary source of organic material which, together with other organic matter, forms the basis for the high productivity of the estuary.

5: Assemblages of international importance:

Species with peak counts in winter: 292541 waterfowl (5 year peak mean 1998/99-2002/03)

6: Species/populations occurring at levels of international importance.

Qualifying species/populations (as identified at designation):

Species with peak counts in spring/autumn:

Eurasian Oystercatcher *Haematopus ostralegus ostralegus*, Europe & NW Africa - wintering

15616 individuals, representing an average of 1.5% of the population (5 year peak mean 1998/99-2002/03)

Grey Plover *Pluvialis squatarola*, E Atlantic/W Africa – wintering

13129 individuals, representing an average of 5.3% of the population (5 year peak mean 1998/99-2002/03 – spring peak)

Red Knot *Calidris canutus islandica*, W & S Africa (wintering)

68987 individuals, representing an average of 15.3% of the population (5 year peak mean 1998/99-2002/03)

Sanderling *Calidris alba*, Eastern Atlantic

3505 individuals, representing on average 2.8% of the population (5 year peak mean 1998/99-2002/03)

Eurasian Curlew *Numenius arquata arquata*, N. a. arquata Europe (breeding)

9438 individuals, representing an average of 2.2% of the population (5 year peak mean 1998/99-2002/03)

Common Redshank *Tringa totanus totanus*

6373 individuals, representing an average of 2.5% of the population (5 year peak mean 1998/99-2002/03)

Ruddy Turnstone *Arenaria interpres interpres*, NE Canada, Greenland/W Europe & NW Africa

888 individuals, representing an average of 1.7% of the GB population (5 year peak mean 1998/99-2002/03)

Species with peak counts in winter:

Pink-footed Goose *Anser brachyrhynchus*, Greenland, Iceland/UK

29099 individuals, representing an average of 12.1% of the population (5 year peak mean 1998/99-2002/03)

Dark-bellied Brent Goose *Branta bernicla bernicla*

20861 individuals, representing an average of 9.7% of the population (5 year peak mean 1998/99-2002/03)

Common Shelduck *Tadorna tadorna*, NW Europe

9746 individuals, representing an average of 3.2% of the population (5 year peak mean 1998/99-2002/03)

Northern Pintail *Anas acuta*, NW Europe

431 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/99-2002/03)

Dunlin *Calidris alpina alpina*, W Siberia/W Europe

36600 individuals, representing an average of 2.7% of the population (5 year peak mean 1998/99-2002/03)

Bar-tailed Godwit *Limosa lapponica lapponica*, W Palearctic

16546 individuals, representing an average of 13.7% of the population (5 year peak mean 1998/99-2002/03)

Species/populations identified subsequent to designation for possible future consideration under criterion 6.

Species with peak counts in spring/autumn:

Ringed Plover *Charadrius hiaticula*, Europe/Northwest Africa

1500 individuals, representing an average of 2% of the population (5 year peak mean 1998/99-2002/03)

Northern Lapwing *Vanellus vanellus*, Europe – breeding

46422 individuals, representing an average of 1.3% of the population (5 year peak mean 1998/99-2002/03)

4.3. Other Relevant Plans or Projects

The assessment of significant effects of a given option needs to take account of the option's impact in combination with other plans and projects. The guidance states that only those that are considered most relevant should be collected for the 'in combination' test - an exhaustive list could render the assessment exercise unworkable. The following plans or strategies are considered to have potential effects and therefore have been included within the assessment.

- Local Transport Plan for Norfolk 2006-2011;
- King's Lynn Urban Development Strategy 2006;
- Waterfront Regeneration Master Plan (revised 2009) & Project; (Marina project);
- CIF2 transport project (Community Infrastructure Fund) (funding approved 27 Mar 09);
- King's Lynn Town Centre Extension Master Plan 2008;
- Hunstanton Town Centre & Southern Seafront Master Plan July 2008;
- King's Lynn Growth Plan (Integrated Programme of Development 2009/10 – 2010/11) Oct. 2008 (funding announced Dec 08);
- Green Infrastructure Study.
- Water Cycle Study.
- Shoreline Management Plans for North Norfolk and the Wash – Currently being undertaken;
- Wash Biodiversity Action Plan – Currently being prepared;
- Brecks Biodiversity Action Plan – Currently being prepared;
- Grimston Heath is currently being expanded by the Norfolk Wildlife Trust;
- Norfolk Coast Partnership Management Plan (under review);
- AONB Action Plan 2008/9
- AONB Visitor Management Strategy 1995.
- Fen Restoration Project – Currently being undertaken by Norfolk Wildlife Trust;
- "Grasslands: Magical Meadows" – Currently being undertaken by Norfolk Wildlife Trust
- Breckland Stone Curlew 1500m development exclusion zone policy

Neighbouring District/Boroughs

The Borough of King's Lynn and West Norfolk borders North Norfolk, Breckland, Forest Heath, Fenland, East Cambridgeshire and South Holland districts.

5. Appropriate Assessment and Plan Analysis

In order to determine whether the KLWNBC Core Strategy represents an adverse affect to the integrity of any European Site within the Borough a two stage assessment has been carried out.

Task 1 – Identifying whether a plan option is likely to have a significant effect.

Task 2 – Where there is found to be a likely significant effect, assess the affect to the integrity of the European site and explore any mitigation measures that could reduce or remove the impact. Where insufficient information is available to carry out a reasonable assessment, identify gaps in knowledge and outline research programme designed to fill such gaps.

Task 1 is a screening process. Those policies which are considered not to have a significant effect on any European Site need be considered no further. Those that are considered to have a significant effect will be taken forward to Task 2. The screening process involves consultation with the statutory nature conservation body (Natural England), and is a judgement based on a number of factors including the proximity of proposals to the European Sites, the type of impacts likely to be caused by the policy, the qualifying features of the European Site, the probability of the impact, the duration, frequency and reversibility of the impact.

The term “significant” means **not trivial or inconsequential** but an effect that is potentially relevant to the site’s Conservation Objectives. The Conservation Objectives for each site are produced by Natural England, and are the objectives of management necessary to maintain the qualifying features in favourable condition. Maintenance implies restoration where the feature is currently in unfavourable condition.

A series of matrices have been created which seek to assess the following:

- Whether the policy is necessary for the conservation management of a European Site.
- If a ‘likely significant effect’ can be expected.
- What is the likely mechanism for impact and the feature/features affected?
- Is an Appropriate Assessment required?
- Can it be ascertained it will not adversely affect the integrity of the European Site?
- Can it be carried out in a different way or be conditioned or restricted?
- What modifications to the policy/option are required?
- Can the modified policy/option be pursued without adversely affecting the integrity of the European Site?

Considered Impacts

This section sets out the nature of potential impacts that policies within the Local Development Framework document could have upon European sites within or around the Borough. Table 1 below identifies which of these impacts is appropriate to each policy.

The impacts considered are as follows.

Loss of Supporting Habitats

As the European sites themselves are protected, it is unlikely that any developments will take place directly on these sites, but some could be located immediately adjacent to them, hence impacting any protected species which also use neighbouring land. This is particularly relevant to birds, where normally only roosting/nesting sites are protected whereas feeding/foraging areas are often overlooked and can therefore be located beyond the borders of the European site. If such land is used for developments, it reduces the amount of supporting habitat available for use by protected species and can therefore potentially affect the integrity of the SPA populations.

Habitat Fragmentation Impacts

This is where development increases the separation of available habitats, either by removing or degrading intermediate habitats, or splitting extensive areas of suitable habitat. Once again SPA bird populations are the most likely to be affected by this impact.

Proximity Impacts

These are the impacts on protected habitats and species brought about by their proximity to development. They are numerous, diverse and largely site and project specific, but can include the following:

- Disturbance effects from construction activities (including noise and lighting)
- Increased traffic impacts from construction activities.
- Increased human disturbance from use of the development.
- Increased predation from pets and animals associated with urban areas (cats, foxes, magpies, rats).
- Increased fly tipping.
- Increased incidence of fires on heathland.
- Increased levels of lighting.
- Increased random disturbance events.

There is particular concern about proximity impacts on Breckland SPA species, mainly stone curlew. Recent evidence (Sharp et al 2008²) suggests that stone curlews are susceptible to disturbance from proximity to human settlement, and require a buffer of 1500 metres from settlements to ensure that nesting productivity is not significantly affected. Box 1, below, is an extract from the Breckland HRA (Liley et al 2008³) giving a rationale for the recommended buffer.

² Sharp, J., Clarke R. T., Liley D. and Green R.E. (2008). The effect of housing development and roads on the distribution of stone curlews in the Brecks. Unpublished Report, Footprint Ecology, Wareham, Dorset.

³ Liley, D., Hoskin, R., Underhill-Day, J. & Tyldesley, D. (2008). Habitat Regulations Assessment: Breckland Council Submission Core Strategy and Development Control Policies Document. Footprint Ecology, Wareham, Dorset. Report for Breckland District Council.

Box 1. Rationale to support the SPA buffer of 1500 metres (Liley et al 2008b)

The appropriate assessment concluded that it could not be ascertained that adverse effects upon the three Annex 1 bird species; nightjar, woodlark and stone curlew, would not occur as a result of the Core Strategy in terms of the proposed new built development set out within the Core Strategy that would be located in close proximity to habitat used by the three species. The assessment determined that, based upon the best ecological information available, the point at which effects could no longer be considered to be adverse was at a distance of between 1000m and 2500m between the new development and the Annex 1 bird species habitat. The habitat may lie within the SPA or occur as supporting habitat outside the SPA boundary.

There is no evidence to show that screening (such as shelter belts or landscaping) might reduce the avoidance of built development by stone curlews and enable the distance at which the effects are considered to be adverse to be reduced. Many fields do have existing shelterbelts, and the avoidance of housing is still clear across suitable arable land, suggesting that screening will not work as mitigation.

The creation of new areas of supporting habitat, replacing supporting habitat outside the SPA, away from buildings and disturbance could provide potential nesting locations for displaced birds that utilise land outside the SPA boundary. Such mitigation measures could not be applied to those territories that lie within the SPA boundary however, as SPA land cannot normally be replaced with other non-SPA land in order to prevent an adverse effect upon site integrity. Furthermore, it is unlikely that suitable areas could actually be found for stone curlews as this species uses existing arable land in close proximity to the SPA.

In developing strategies to avoid the effects of housing on heathland birds, competent authorities in close proximity to the Thames Basin Heaths and Dorset Heathlands have considered research findings that cat predation can affect heathland bird populations. The Dorset and Thames Basin strategies took the distance of 400m as a no build zone around the edge of SPA heathland sites, this distance chosen to minimize additional cat predation on the adjacent heaths and also to reduce additional visitor pressure (with 400m being a typical distance that many people will travel on foot). Research in Dorset has indicated that cat predation is a particular problem for Dartford warbler populations (Murison, 2007), a species that does not occur in Breckland. Furthermore, the nesting patterns and densities of woodlark and nightjar within and around the Breckland SPA are quite different, with the range of habitat available and limited urbanisation around parts of the SPA utilised by these two Annex 1 species. Development proposals within 400m that occur close to nightjar or woodlark habitat will be few, and it is therefore proposed that the Core Strategy simply states that development within 400m of the SPA will need to undertake a project level HRA.

It is therefore concluded that the way to prevent adverse effects upon the three Annex 1 species is to ensure the Core Strategy is amended to make certain that:

- Built development promoted within the Core Strategy does not occur within 1500m of the SPA boundary for those parts of the SPA that are classified for stone curlews. Any housing proposal within this buffer should not be supported by the Core Strategy. However, locations within this buffer, where housing already screens the development location from the SPA boundary, could potentially be built on without adverse affect. Whilst at a plan level any development within the zone would not be supported, a project level assessment could be undertaken and in such circumstances may be able to demonstrate that the development would not result in an adverse effect upon the integrity of the SPA. At project level, assessment of development plans will be necessary to ensure of no net loss of feeding habitat for stone curlews.
- For the any development within 400m of the SPA, a project level HRA will be required to demonstrate that the development will not have an adverse effect upon the integrity of the SPA.
- Areas outside the SPA that support stone curlews (we suggest 1km squares that have supported at least five nesting attempts since 1995) should also be buffered to 1500m in the Core Strategy. In these areas new development will need to be assessed at the project level and mitigation (such as new areas of suitable habitat for stone curlews) be provided.
- These zones will possibly need to change in the future, in response to new survey information and in recognition that supporting habitat may change over time. The different zones should therefore be reconsidered at plan review.

Hydrological Impacts

Hard Surface Runoff

Changes in hard surface runoff (i.e. over urban areas) may lead to altered flow patterns in watercourses (storm water surges), and during the construction phase could increase nutrient and sediment discharge into watercourses. Ouse Washes and The Wash could be affected by increased sediment discharge and deposition.

Groundwater Supply

This is where water stored in aquifers or porous strata are depleted or contaminated by development activity. Dersingham Bog and Roydon Common would be particularly vulnerable to this, as they are both dependent on a relatively stable water level in the areas surrounding them. Any depletion or contamination could disastrously affect these sites as all protected species and habitats would be highly sensitive to such changes.

Sewerage Capacity

The capacity of the current sewerage system to process increased levels of human waste could form a limitation to development where nutrient levels are likely to exceed targets set for European sites, including the River Wensum SAC where phosphate levels are of critical importance to site condition.

Sewage discharge into the North Sea could also increase as the number of people living in the new housing developments rises. This could impact the mudflats, sandbanks and shingle of The Wash and North Norfolk Coast through changes in nutrient status.

Flood Risk Management

This impact may arise due to flood management proposals, altering river flows and possibly the extent of important habitats. Some of the Borough's European Sites are highly reliant on sustainable hydrological conditions.

Impacts from Increased Recreation and Leisure Pressures

As many of these policies refer to increasing the volume of housing in the Borough, the population will inevitably rise. The projected rise in housing in the Borough 2001 to 2025 is for 16,200 new houses. The latest population estimate for the Borough in 2004 was 139,100 people.

There is also likely to be increased use of the Borough for tourism, though no projected figures are available.

This will increase the usage of sites for informal recreation and leisure, such as coastal areas along The Wash and North Norfolk Coast. A further potential impact is that of dog walkers disturbing protected birds. The use of sites by resident populations may be significant in that there is likely to be less of a seasonal bias, and a resulting increase in winter use of European sites.

Horse riders, cyclists/mountain bikers and joggers use protected European Sites, such as the coastline of The Wash, North Norfolk Coast and Breckland. Increased levels of these activities could also disrupt protected birds' usage of these sites. However, the indications are that the populations of many species using the SPA are increasing, and have not adversely suffered from increasing visitor levels over recent years.

The Draft Green Infrastructure Strategy for the Borough takes the following strategy approach to "Maintain and where appropriate enhance the value of The Wash and Norfolk Coast, Brecks and Ouse Washes as a resource for wildlife, whilst also conserving and, where appropriate enhancing their landscape and historic value and their value as a resource for people." Such an approach suggests an approach to leisure use of these sites which puts the interests of the wildlife (and presumably the designated European features) very much at the forefront while indicating pragmatism towards sensible development of leisure facilities.

Two SPA species of the North Norfolk Coast, Ringed Plover and Little Tern, have been identified as being in particular risk of recreational disturbance associated with use of the North Norfolk Coast. Nesting numbers of both species have declined at some localities, with human disturbance being a likely contributory cause. While Little Terns are colonial and are largely situated within Nature reserves, and therefore relatively easy to defend against accidental disturbance, Ringed Plovers are more dispersed, and more challenging to conserve. The nesting period coincides with increased visitor numbers in the April to June period. Main concentrations of Little Terns in West Norfolk are found at Holme, Scolt Head and Burnham Overy, while Ringed Plovers are found at Holme, Titchwell and Scolt Head. Impacts from disturbance are best alleviated by effective on-site protection, such as by wardening or temporary fencing of nesting sites.

The two SPA species in the Breckland which are likely to be vulnerable to recreational disturbance, woodlark and nightjar, have been studied in some detail in work commissioned by Breckland District Council. The indications from this work are that "the low level of disturbance is not likely to have a significant effect, yet a lack of research to the contrary led to the precautionary conclusion that adverse effects could not be ruled out with the necessary certainty" (Liley et al 2008).

Impacts from Increased Use of Roads

This refers to the impacts of increased traffic flows resulting from new development, including increased noise impacts (volume, duration), increased vehicular emissions, increasing road mortality, and increasing fragmentation impacts. These impacts are most likely to be important for SPA bird species and certain SAC habitats. However transport planning is undertaken at a county-wide level, and is detailed in the County Transport Plan identified in section 4.3.

Effects from vehicular emissions on Breckland SAC and SPA are noted as being small in the AA report of the Regional Spatial Strategy, and not likely to adversely affect the integrity of the European sites. This report has no

evidence to present contradicting this assessment, and therefore does not identify emissions as a likely source of impacts on European sites.

Cumulative Impacts

Cumulative impacts are those where an impact in itself may not be significant, but in combination with other impacts from this plan, or from other plans and projects, may amount to a significant impact. Such impacts may arise from conflicting policies between districts, or from impacts on European sites shared between districts.

Other Impacts

It should be noted that none of the policies in the LDF are considered necessary for the conservation management of European Sites.

It should also be made clear that impacts on European sites could arise within the Borough that are outside the scope of Local Plans and policies, such as those arising from changes in agriculture or those policies delivered at a county level such as mineral extraction and road network planning.

Table 1. Task 1: Screening for Likely Significant Effects.

Policy	Likely significant effect?	European Site(s) Affected:	Possible Mechanism by which Policy may impact European Site(s)	Possible Feature(s) Impacted	Appropriate Assessment required?
CS1: Spatial Strategy (Housing and Jobs Provision)	Yes	Breckland SPA	<p>Proximity impacts – protected species may avoid land near developed areas or be directly displaced by development on it. This impact is mainly referable to stone curlew .</p> <p>Housing provision will increase recreational use of the surrounding areas, leading to disturbance which could result in direct mortality, reduction in breeding success and/or avoidance of heavily used areas. This impact is mainly referable to nightjar and woodlark. It is doubtful that the scale of proposed development within West Norfolk is likely to create significant recreational effects alone, however there may be in-combination effects with other districts.</p>	All SPA birds. Stone curlews are particularly sensitive to direct human disturbance in farmland areas, while nightjar and woodlark are vulnerable in woodland areas.	Yes
		<p>Norfolk Valley Fens SAC (East Walton and Adcock’s Common SSSI)</p> <p>Roydon Common SAC/Ramsar</p>	<p>Extra demand on water resources may reduce groundwater supplies and have negative effects on water levels. However, the Water Cycle Study states that “The Environment Agency has indicated that any modifications to the abstractions affecting [East Walton and Adcock’s Common] (Marham and Gayton) will not affect their deployable output. The Environment Agency also indicated that a management arrangement has been agreed with Anglian Water in relation to the Sandringham Sands licence with regard to its impact of [sic] Roydon Common SSSI which specifies a modified</p>	Wet heaths and depressions on peat substrates	No

Policy	Likely significant effect?	European Site(s) Affected:	Possible Mechanism by which Policy may impact European Site(s)	Possible Feature(s) Impacted	Appropriate Assessment required?
			<p>abstraction pattern between boreholes under drought conditions but again this will not affect the deployable output. The Habitats Review of Consents for the other European sites in the Borough does not identify adverse impacts from the water supply licences related to water supply in the Borough. Overall, therefore, impacts on habitats will not restrict water supply within the Borough and current resource planning". This is interpreted as meaning that the plan policies as they stand will not impact on European sites in this way.</p>		

Policy	Likely significant effect?	European Site(s) Affected:	Possible Mechanism by which Policy may impact European Site(s)	Possible Feature(s) Impacted	Appropriate Assessment required?
		North Norfolk Coast SPA/Ramsar	Recreational activities of extra population may cause disturbance by dog walkers, horse riders, joggers and rambles. However, with the exception of Ringed Plover and Little Tern, SPA bird populations have increased over the last 20 years in the face of increasing human pressure. Indirect impacts on these two species are not likely to be significant from individual settlements, but are potentially significant with the overall level of housing proposed.	Ringed Plovers and Little Terns are particularly sensitive to disturbance as they are beach nesters. Other species largely nest on nature reserves where they are closely monitored.	Yes
		River Wensum SAC	Increased sewage discharge may raise nitrate and phosphate levels. However the Water Cycle Study indicates that the only relevant sewage treatment works, East Rudham, has adequate capacity to accommodate another 200 or so houses.	All features	No
CS2: Settlement Hierarchy of King's Lynn and West	Yes	<i>See Table 1a, below</i>	<i>See Table 1a, below</i>	<i>See Table 1a, below</i>	Yes

Policy	Likely significant effect?	European Site(s) Affected:	Possible Mechanism by which Policy may impact European Site(s)	Possible Feature(s) Impacted	Appropriate Assessment required?
Norfolk					
CS3/4: Strategic development within King's Lynn (2 policies considered together)	Yes:	The Wash SPA/Ramsar	Recreational activities of extra population (dog walkers, horse riders, joggers and rambler) may cause additional disturbance. The Green Infrastructure Strategy specifies increasing links from King's Lynn to the Wash. However, SPA bird populations in the Wash SPA have increased over the last 20 years in the face of increasing human pressure.	SPA Birds.	No
CS5: Policy approach to development in Downham Market	No: Not sufficiently near to European sites	None	None	None	No
CS6 : Policy approach to development in Hunstanton	Yes	North Norfolk Coast SPA/Ramsar The Wash SAC/SPA/Ramsar	Increased recreation and leisure pressures such as dog walking could disturb SPA populations. However, with the exception of Ringed Plover and Little Tern, SPA bird populations have increased over the last 20 years in the face of increasing human pressure. As the recreational impacts on nesting birds along the North Norfolk Coast are identified as having a likely significant effect at a cumulative (Borough) level and not at the individual settlement level, they are not considered to have a likely significant effect in this policy.	Ringed Plovers and Little Terns are particularly sensitive to disturbance as they are beach nesters. Other species largely nest on nature reserves where they are closely monitored.	No

Policy	Likely significant effect?	European Site(s) Affected:	Possible Mechanism by which Policy may impact European Site(s)	Possible Feature(s) Impacted	Appropriate Assessment required?
			Wastewater from the urban drainage systems at Heacham and Hunstanton may cause impacts from nutrient enrichment. However the water cycle study appears to indicate there is sufficient capacity in the sewerage treatment system to accommodate new housing proposals without any reduction in output quality.	SAC habitats (sandbanks, mudflats, large shallow inlets and bays).	No
CS7: Development in Rural Areas (non site specific)	Yes:	Breckland SPA	Proximity impacts – protected species may avoid land near developed areas or be directly displaced by development on it. This impact is mainly referable to stone curlew around Feltwell and Hockwold. Housing provision will increase recreational use of the surrounding areas, leading to disturbance which could result in direct mortality, reduction in breeding success and/or avoidance of heavily used areas. This impact is mainly referable to nightjar and woodlark. It is doubtful that the scale of proposed development within West Norfolk is likely to create significant recreational effects alone, however there may be in-combination effects with other districts.	SPA birds (stone curlew , woodlark, nightjar)	Yes

Policy	Likely significant effect?	European Site(s) Affected:	Possible Mechanism by which Policy may impact European Site(s)	Possible Feature(s) Impacted	Appropriate Assessment required?
		Norfolk Valley Fens SAC (East Walton and Adcock's Common SSSI) Roydon Common SAC/Ramsar	Extra demand on water resources may reduce groundwater supplies and have negative effects on water levels. However see comments in CS1 above, leading to the conclusion that the plan policies as they stand will not impact on European sites in this way.	SAC and Ramsar protected wetland habitats (wet heaths, depressions on peat substrate, and calcareous fens)	No
		North Norfolk Coast SPA/Ramsar The Wash SPA/Ramsar	Loss of supporting habitats for SPA birds. However, with the exception of Ringed Plover and Little Tern, SPA bird populations have increased over the last 20 years in the face of increasing human pressure.	Ringed Plovers and Little Terns are particularly sensitive to disturbance as they are beach nesters. Other species largely nest on nature reserves where they are closely monitored.	Yes (North Norfolk Coast SPA only)
CS8: Policy approach to development in Coastal Areas	Yes	North Norfolk Coast SAC/SPA/Ramsar The Wash SAC/SPA/Ramsar	The policy's aim to achieve a sustainable economy year round by not relying chiefly on tourists in the summer months will likely lead to increasing the coast's role as a visitor destination throughout the year. This could directly impact the large numbers of wintering birds which use this coastline for wintering or migration through proximity and disturbance impacts. However,	SPA birds, particularly wintering and migrating species	No

Policy	Likely significant effect?	European Site(s) Affected:	Possible Mechanism by which Policy may impact European Site(s)	Possible Feature(s) Impacted	Appropriate Assessment required?
			<p>wintering SPA bird populations have increased over the last 20 years in the face of increasing human pressure.</p> <p>Were new facilities required to achieve sustained year round economic activity, there could be disturbance and displacement impacts on SPA birds. However, with the exception of Ringed Plover and Little Tern (nesting species), SPA bird populations have increased over the last 20 years in the face of increasing human pressure.</p>		
			<p>The Shoreline Management Plan advocates the adoption of a "hold the line" policy along the majority of the Borough's coastline, with one area of "no active intervention". Any hard engineering required to achieve holding the line could have a significant impact on birds and the wetland habitats reliant on tidal exchange, which the birds depend upon. However the emerging Shoreline Management Plan should be subject to its own Habs Regs Assessment, which is currently being undertaken. Since this policy does not imply variance from the SMP, no further impacts are predicted.</p>	<p>SAC and Ramsar protected wetland habitats and the associated flora and fauna</p>	<p>No</p>

Policy	Likely significant effect?	European Site(s) Affected:	Possible Mechanism by which Policy may impact European Site(s)	Possible Feature(s) Impacted	Appropriate Assessment required?
CS9: Renewable Energy and Climate Change	Yes	Breckland SPA North Norfolk Coast SAC/SPA/Ramsar Ouse Washes SPA/Ramsar The Wash SAC/SPA/Ramsar	<p>Building projects could result in the loss of supporting habitat for protected birds, via displacement.</p> <p>Direct damage to European sites could occur where grid connection cables for offshore developments come onshore.</p> <p>The policy to increase sustainable energy production in the Borough will likely take advantage of wind resources. Wind turbines have the potential to cumulatively impact protected bird species through avoidance and collision. This is particularly relevant to birds which fly at heights equivalent to turbine rotor blades, such as geese and birds or prey.</p>	SPA birds, particularly geese and birds of prey.	Yes
CS10: Housing Distribution	Yes	Breckland SPA	<p>Proximity impacts – protected species may avoid land near developed areas or be directly displaced by development on it. This impact is mainly referable to stone curlew .</p> <p>Housing provision will increase recreational use of the surrounding areas, leading to disturbance which could result in direct mortality, reduction in breeding success and/or avoidance of heavily used areas. This impact is mainly referable to</p>	SPA birds (stone curlew , woodlark, nightjar)	Yes

Policy	Likely significant effect?	European Site(s) Affected:	Possible Mechanism by which Policy may impact European Site(s)	Possible Feature(s) Impacted	Appropriate Assessment required?
			nightjar and woodlark. It is doubtful that the scale of proposed development within West Norfolk is likely to create significant recreational effects alone, however there may be in-combination effects with other districts.		
		Dersingham Bog SAC/Ramsar Roydon Common SAC/Ramsar	Extra demand on water resources may reduce groundwater supplies and have negative effects on water levels. However see comments in CS1 above, leading to the conclusion that the plan policies as they stand will not impact on European sites in this way.	SAC Habitats - Wet heaths and depressions on peat substrates	No

Policy	Likely significant effect?	European Site(s) Affected:	Possible Mechanism by which Policy may impact European Site(s)	Possible Feature(s) Impacted	Appropriate Assessment required?
		North Norfolk Coast SAC/SPA/Ramsar The Wash SAC/SPA/Ramsar	Recreational activities of extra population may cause trampling, disturbance by dog walkers, horse riders, joggers and ramblers. However, with the exception of Ringed Plover and Little Tern, SPA bird populations have increased over the last 20 years in the face of increasing human pressure.	Ringed Plovers and Little Terns are particularly sensitive to disturbance as they are beach nesters. Other species largely nest on nature reserves where they are closely monitored. Pink-footed Geese are particularly sensitive to disturbance adjacent to North Norfolk and Wash SPA, because of their reliance upon surrounding areas for feeding. However numbers have increased in recent years despite greater visitor and population numbers.	Yes (North Norfolk Coast SPA only)

Policy	Likely significant effect?	European Site(s) Affected:	Possible Mechanism by which Policy may impact European Site(s)	Possible Feature(s) Impacted	Appropriate Assessment required?
CS11: The Economy	Yes: Dependin g on location and industry of jobs	Breckland SPA	Proximity impacts – any development on land adjacent to European sites is likely to disturb and potentially deter birds. Policy of rural diversification may also have implications for SPA birds	SPA birds. Policy has the potential to impact bird populations. In Breckland, rural exception sites could cause impacts on stone curlew populations.	Yes
CS12: Transportation	Yes	Dersingham Bog SAC/Ramsar	Re-establishment of a light railway to Hunstanton from King's Lynn could have direct and indirect impacts on Dersingham Bog SAC if it utilises the old railway track, which skirts the western edge of the SAC.	Potential for impacting Dersingham SAC and Ramsar protected habitats.	Yes
CS13: Green Infrastructure and Biodiversity	Yes	Breckland SPA North Norfolk Coast SPA	The policy incorporates actions specified in the Green Infrastructure Management Plan, which place European sites within the context of the Borough as a whole in terms of its environmental, social and economic needs. The balance achieved in such a plan has potential to impact on European sites, and might reasonably be expected to relate to recreational impacts such as those identified as indirect impacts for other policies. The effects of such a plan are addressed through the impacts of other policies, i.e. CS1, CS2, CS7, CS10 and CS14.	SPA Birds	No
CS14: Delivering community	Yes	North Norfolk Coast	The natural amenity attraction of coastal areas could further focus development of amenity opportunities in these areas, hence increasing	SPA birds (Ringed Plover and Little Tern)	Yes

Policy	Likely significant effect?	European Site(s) Affected:	Possible Mechanism by which Policy may impact European Site(s)	Possible Feature(s) Impacted	Appropriate Assessment required?
well-being and enhancing quality of life		SPA/Ramsar	the potential for and scale of disturbance to SPA birds. However, with the exception of Ringed Plover and Little Tern, SPA bird populations have increased over the last 20 years in the face of increasing human pressure. The Green Infrastructure Strategy for the Borough (Entec 2009) takes the strategy approach to "Maintain and where appropriate enhance the value of The Wash and Norfolk Coast, Brecks and Ouse Washes as a resource for wildlife, whilst also conserving and, where appropriate enhancing their landscape and historic value and their value as a resource for people." This is interpreted as placing the European designated features as the top priority in determining locations for suitable development.		
CS15: Infrastructure provision	No	Breckland SPA North Norfolk Coast SPA	The policy incorporates actions specified in the Green Infrastructure Management Plan, which place European sites within the context of the Borough as a whole in terms of its environmental, social and economic needs. The balance achieved in such a plan has potential to impact on European sites, and might reasonably be expected to relate to recreational impacts such as those identified as indirect impacts for other policies. The effects of such a plan are addressed through the assessment of other policies, i.e. CS1, CS2, CS7, CS10 and CS14.	SPA Birds	No

Table 1a below follows on from the above Table 1 by assessing the individual settlement hierarchy proposals of CS2 and Housing Distribution Policy in CS10. Policy CS2 specifies the hierarchy. Policy CS10 states that there will be provision for 7100 new dwellings (with 400 new allocations) in King's Lynn, 3000 (with 500 new allocations) in Downham Market, and 530 (with 200 new allocations) in Hunstanton. 4,300 new homes will be built at sites shared between Wisbech fringe (500) and Key Service Centres (3,800 in total with 740 new allocations). Finally, there will be provision for 1000 dwellings (with 320 new allocations) in rural villages.

Only those settlements for which impacts are predicted are listed. No impacts are predicted, therefore, for the following Key Service Centres: Brancaster: Brancaster Staithe/ Burnham Deepdale; Burnham Market; Heacham Castle Acre, Clenchwarton, Dersingham; Docking; Emneth, Gayton, Great Massingham, Hilgay, Marham, North Wootton: Old Hunstanton: Outwell, South Wootton, Snettisham; Southery, Stoke Ferry, Terrington St Clement, Terrington St John, Tilney St Lawrence, St John's Highway, Upwell, Walsoken, Watlington, West Walton, West Walton Highway, West Winch and Wiggshall St Germans.

As the recreational impacts on nesting birds along the North Norfolk Coast are identified in Table 1 as having a likely significant effect at a cumulative (Borough) level and not at the individual settlement level, they are not outlined in Table 1a.

Table 1a. Settlements – Potential Effects on European Sites

Type/Location of Settlement Hierarchy Plan	Likely significant effect?	European Site(s) Affected	Possible Mechanism by which Policy may impact European Sites (s)	Possible Feature(s) Impacted	Appropriate Assessment required?
Sub-Regional Centre					
King’s Lynn town and adjacent built up area	Yes	The Wash SAC/SPA/Ramsar	Hydrological Impacts – increased sewage discharge. However the Water Cycle Study indicates there is sufficient capacity in the sewerage treatment system to accommodate new housing proposals without any reduction in output quality.	SAC features	No
Main Towns					
Hunstanton	Yes	North Norfolk Coast SAC/SPA/Ramsar, The Wash SAC/SPA/Ramsar	Hydrological Impacts – increased sewage discharge. However the Water Cycle Study indicates there is sufficient capacity in the sewerage treatment system to accommodate new housing proposals without any reduction in output quality.	SAC features	No
Key Service Centres					
East Rudham	Yes	River Wensum SAC	Increase in phosphate levels caused by increased sewage output in upper reaches of the River Wensum. However the Water Cycle Study indicates that	SAC features	No

Type/Location of Settlement Hierarchy Plan	Likely significant effect?	European Site(s) Affected	Possible Mechanism by which Policy may impact European Sites (s)	Possible Feature(s) Impacted	Appropriate Assessment required?
			the East Rudham sewage treatment works has adequate capacity to accommodate another 200 or so houses.		
Feltwell, Hockwold Cum Wilton, Methwold	Yes	Breckland SPA	Proximity impacts for birds sensitive to human presence. Recreational impacts from daily activities such as dog walking in the forest. The recreational impacts are thought to be insufficient in scale from the proposed allocations alone to cause likely significant effects, but may do so in combination with plans from neighbouring authorities.	SPA birds, particularly Stone Curlew for sensitivity to human presence, and nightjar and woodlark for recreational impacts.	Yes
Grimston	Yes	Roydon Common SAC/Ramsar	Hydrological Impacts – increased drainage of the water table upon which Roydon Common relies, could have impacts on the sensitive wetland habitats found here. However see comments in CS7 above, leading to the conclusion that the plan policies as they stand will not impact on European sites in this way.	SAC/Ramsar habitats and associated species	No
Rural Villages					
Pott Row , Roydon	Yes	Roydon Common SAC/Ramsar	Hydrological Impacts – increased drainage of the water table upon which Roydon Common relies, could have impacts on the sensitive wetland habitats found here. However see comments in CS7 above, leading to the conclusion that the plan policies as they stand will not impact on European sites	SAC/Ramsar habitats and associated species	No

Type/Location of Settlement Hierarchy Plan	Likely significant effect?	European Site(s) Affected	Possible Mechanism by which Policy may impact European Sites (s)	Possible Feature(s) Impacted	Appropriate Assessment required?
			in this way.		

For the Appropriate Assessment of these potential effects, please see table 2. The effects from individual settlements are incorporated into this table.

Task 2: Appropriate Assessment

Using the above tables the following policies have been screened out as not likely to have any significant impact on European sites, and therefore require no further Appropriate Assessment:

- CS3/ 4: Strategic development within King's Lynn.
- CS5: Policy approach to development in Downham Market.
- CS6: Policy approach to development in Hunstanton.
- CS13: Green Infrastructure and Biodiversity.
- CS15: Infrastructure.

Also, development at the proposed levels in the following Key Service Centres is considered unlikely to result in impacts, in isolation, on the designated features of European sites: Castle Acre, Clenchwarton, Emneth, Gayton, Great Massingham, Grimston, Hilgay, Marham, Outwell, South Wootton, Southery, Stoke Ferry, Terrington St Clement, Terrington St John, Tilney St Lawrence/ St Johns Highway, Upwell, Walsoken, Watlington, West Walton/ West Walton Highway, West Winch and Wiggshall St Germans.

In Table 2, below, the multiple potential impacts from the strategic policies are identified. The impacts from these policies include both direct (e.g. change of land use, additional use of resources), and indirect (e.g. recreational impacts, impacts of proximity to development). The table, most importantly, suggests modifications to the plan or policy and identifies any residual impacts after modification.

Table 2. Appropriate Assessment Table.

European Sites and mechanisms for impacts	Can it be ascertained it will not adversely affect the integrity of the European Site	Can it be carried out in a different way or be conditioned or restricted?	Modification to original policy	Can it be ascertained that the modified policy will not adversely affect the integrity of the European Site
<p>European Site: Breckland SPA</p> <p>Possible Mechanism(s): Direct Impacts - Proximity And Disturbance.</p> <p>Affected Policies: CS1 Housing And Jobs CS2 Settlement Hierarchy CS7 Rural Development CS10 Housing Distribution</p>	No	The policy can be altered to take into account disturbance/ displacement to stone curlews around Breckland SPA, in line with the approach taken by neighbouring local authorities.	New built development will be restricted within 1,500m of the Breckland SPA. Development will be restricted to the re-use of existing buildings or where existing development completely masks the new proposal from Breckland SPA. Beyond the SPA, a 1,500m buffer will be applied to areas where the qualifying features are known to exist, or where nesting attempts have been made. In this area, development may be acceptable where suitable alternative habitat (outside the SPA) can be secured.	Yes – no residual impacts
<p>European site: Breckland SPA</p> <p>Possible Mechanism(s): Indirect impacts - recreation (woodlark and nightjar).</p> <p>Affected Policies: CS1 Housing And Jobs CS2 Settlement Hierarchy CS7 Rural Development</p>	No	The core strategy document can be modified to stress a partnership approach to recreation management in the SPA.	Include policy wording or supporting text to explain that the council is committed to ensuring sustainable levels of recreation in and around the Breckland SPA, and work with partners including Natural England, RSPB and Forestry Commission to develop a strategy that sets out an access management and monitoring programme that	Yes – no residual impacts

European Sites and mechanisms for impacts	Can it be ascertained it will not adversely affect the integrity of the European Site	Can it be carried out in a different way or be conditioned or restricted?	Modification to original policy	Can it be ascertained that the modified policy will not adversely affect the integrity of the European Site
CS10 Housing Distribution CS11 The Economy			provides measures to prevent increasing visitor pressure. Suitable mitigation will be installed should monitoring indicate that the Annex1 species are failing to meet conservation objectives due to recreational pressure.	
<p>European site(s): North Norfolk Coast SPA/ Ramsar;</p> <p>Possible Mechanism(s): Recreational disturbance impacts to SPA species, especially Ringed Plover and Little Tern.</p> <p>Affected Policies: CS1 Housing And Jobs CS2 Settlement Hierarchy CS8 Coastal Development CS10 Housing Distribution CS14 Delivering Community Well-Being and Enhancing Quality of Life</p>	No	The core strategy document can be modified to stress a partnership approach to recreation management in the SPA.	Supporting text should recognise that coastal competent authorities promoting visitor access will need to consider the necessary measures required to meet the requirements of the Habitats Regulations and protect the integrity of the coastal European sites, and that it is possible that additional housing within the Borough may contribute to that visitor pressure, in-combination with new housing in other districts. The text should therefore commit to working in partnership with neighbouring authorities and other relevant partners to prevent adverse effects when monitoring indicates it could occur. See footnote*	Yes – no residual impacts
<p>European Site(s): Breckland SPA; The North</p>	No	Renewable energy sources in the Borough	Specify that any wind farm developments or other renewable	Yes – no residual impacts

European Sites and mechanisms for impacts	Can it be ascertained it will not adversely affect the integrity of the European Site	Can it be carried out in a different way or be conditioned or restricted?	Modification to original policy	Can it be ascertained that the modified policy will not adversely affect the integrity of the European Site
Norfolk Coast SPA/SAC/Ramsar; The Ouse Washes SPA; The Wash SPA/SAC/Ramsar. Possible Mechanism(s): Proximity Impacts; Fragmentation of habitat; Loss of supporting habitat Affected Policies: CS9 Renewable Energy		(wind farms) should be subject to detailed EIA including cumulative impact assessment.	energy projects should be assessed accordingly (where necessary by project level HRA) to ensure minimal ecological impact, and should undergo a detailed cumulative impact assessment with regard to other similar developments.	
European Site(s): Dersingham Bog SAC/Ramsar Possible Mechanism(s): Indirect and direct damage from light railway development Affected Policies: CS12 Transport Infrastructure Improvements	No	As disturbance is likely to be peripheral to the site, there is scope to qualify the policy.	Modify policy wording or supporting text to specify proposals must be able to demonstrate, through HRA, no adverse effects on Dersingham Bog SAC/ Ramsar.	Yes – no residual impacts

*Measures to alleviate recreational disturbance to SPA bird species along the North Norfolk Coast might include the following:

- Redistribution of parking locations and number of spaces.

- Changes in car-parking fees to help redistribute people.
- Provision of additional board walks or way marked routes to direct people away from sensitive locations.
- Wardening / ranger staff present on sites to promote responsible access.
- Restrictions on where dogs are allowed.
- Zoning of activities and provision of exclosures to prevent access where there are important concentrations of ground nesting birds or seals.
- Changes to public transport to reduce dependency on the car and ensure access is to particular hubs where visitor flows can be monitored and easily controlled.
- Provision of publicity material promoting responsible access, places to visit etc.

Conclusions

Demonstration of an adverse effect on the integrity of the SPA/ SAC from any of these potential sources would require Task 3 of the AA process to be undertaken, involving consideration of alternative solutions and/ or mitigation. The guidance (DCLG, RSPB) states that mitigation be considered first, which would entail modifying the preferred option until no adverse effects are likely. After mitigation measures have been exhausted on an emerging option, and it is shown still to have a potentially negative effect on the integrity of a European site, and in absence of any other alternative solution, the option should be dropped. However in an exception to that rule, if the pursuit of the option is justified by "imperative reasons of overriding public interest", consideration can be given to proceeding in the absence of any other alternative solution. In those cases, compensatory measures must be put in place to offset negative impacts.

However, the effects tabulated above can be satisfactorily avoided by modifying the relevant policies as shown in Table 2. There is therefore no requirement to undertake Task 3.

In accordance with Regulation 85B(1) of the Habitats Regulations, the final Core Strategy, as presented for Examination should be re-checked to ensure that it can be ascertained that the plan in its final form is fully compliant, and that any potential adverse effects upon the integrity of any European site have been either avoided or mitigated for.

References