Pegasus Group

SC/CIR.I.0106

29th April 2013

C Robinson
Planning Services
Rochford District Council
Council Offices
South Street
Rochford
Essex
SS4 1BW

Dear Ms Robinson

Former Star Lane Brickworks, Star Lane, Great Wakering: PA Reference 12/00252/FUL

Please find enclosed four copies of the Ecological Assessment in relation to the above planning application.

Yours sincerely,

Simon Chamberlayne
Principal Environmental Planner

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ecology solutions ltd

STOCK WOOLSTENCROFT FOR
INNER LONDON GROUP

FORMER BRICKWORKS SITE, STAR LANE, GREAT WAKERING, SOUTHEND ON SEA

Ecological Assessment

April 2013
5080.EcoAss. Brickworks.vf3

ecology solutions for
planners and developers

CONTENTS

PLANS

APPENDICES

1. INTRODUCTION

1.1. Background & Proposals

1.1.1. Ecology Solutions was commissioned by Stock Woolstencroft on behalf of Inner London Group in August 2010 to prepare an Ecological Assessment for the Former Brickworks Site, Star Lane, Great Wakering, Essex (see Plan ECO1).

1.1.2. The proposals for the application site are for the construction of residential development.

1.2. Site Characteristics

1.2.1. The application site is located to the southwest of the town of Great Wakering, Essex. The application site is bordered to the west by Star Lane, to the north by industrial and existing residential development, to the south by arable fields and to the east by the Star Lane Pits Local Wildlife Site (LWS).

1.2.2. The application site comprises predominately hardstanding and recolonising ground and recolonising grassland, scattered scrub and a hedgerow.

1.3. Consultation

1.3.1. Consultation was had with Natural England regarding the proposals to the submission of a formal scoping report. Natural England stated they did not object to the allocation of the application site for residential development within the Rochford Local Development Framework (LDF). They also stated they did not anticipate any significant effects on the Foulness SSSI, SPA and Ramsar site to the southeast of the application site, as this area of the coast is not accessible to the public, being an MoD range site. Neither did they anticipate any adverse effects on the Foulness SSSI, SPA and Ramsar site to the north of the application site (Natural England refer to the Crouch and Roach Estuaries SSSI, SPA and Ramsar site approximately 2km to the north of the application site, although it is considered they are referring to the Foulness SSSI, SPA and Ramsar site that lies just over 2km north of the application rather than the Crouch and Roach Estuaries SSSI, SPA and Ramsar site that lies over 3km north of the application site) as any dog walkers driving to this part of the designated site are not envisaged to result in a significant increase in the recreational pressure on this designated site. Natural England has expressed a wish to see open space areas created around the Star Lane Pits LWS and to see this LWS maintained and enhanced for the benefit of wildlife. A copy of this correspondence is included at Appendix 1.

1.3.2. A scoping report was submitted to Rochford District Council and consultation responses were received.

1.3.3. Natural England's response, dated 13th September 2011, states:

"Natural England considered that the proposed scope of work and layout of the Environmental Statement, as detailed in the document CIR.I.0106, appears to adequately address all of the issues relevant to our remit.

The ES should pay particular attention to the following issues:

- *The application site includes a non-statutory Local wildlife Site – we will expect to see detailed proposals for how the interest of this site will be protected and enhanced.*
- *The application site and adjacent land are believed to support a substantial meta-population of great crested newts – we will expect to see detailed survey information and proposals for how any impacts will be mitigated.*
- *The application site is relatively close to both the Crouch and Roach SSSI, SPA and Ramsar site and the Foulness SSSI SPA and Ramsar site, particularly by dog walkers, we will expect the proposals to include details for the provision of Green Infrastructure onsite, and/or for enhanced access to such areas off-site.*
- *The proposed development would significantly increase the pressure on the water supply and sewage treatment infrastructure - in order to reduce any risk of damage to the nationally- and internationally-important sites described above, we will expect the ES to include confirmation that the existing infrastructure has sufficient capacity to cope with this increased demand and/or proposals for infrastructure enhancements."*

1.3.4. The Environment Agency's response, dated 13th September 2011, states:

"We have concerns that the proposed residential development will lead to detrimental impacts on the ecology of Star Lane Pits Local Wildlife Site. There should be a presumption against development on LoWS and their importance must be recognised by local authorities in the planning process. We do not know the importance of the waterbodies in the LoWS, therefore surveys of the aquatic ecology, specifically the freshwater invertebrates, fish, water voles and great crested newts should be undertaken and included in the scope of the EIA. This will allow any likely impacts from the proposed development to ascertained."

1.3.5. The Essex Wildlife Trust's response, dated 3rd October 2011, states:

"The desk study should include a request to the Essex Field Club for invertebrate records for the site:

In addition to the surveys mentioned to record habitats and protected species, it is recommended that an invertebrate survey be carried out in line with guidance available from Natural England (NERR005 Surveying freshwater and terrestrial invertebrates for conservation evaluation), as the site has known invertebrate interest;

The EIA should include a consideration of the impacts to the following ecological receptors:

- *Nearby sites with national and international designations;*
- *Local Wildlife Sites, within and close to the development site;*

- *Species receiving legal protection under UK and European legislation;*
- *UK Biodiversity Action Plan Priority species and habitats;*
- *Species and communities of county significance;*

The impact assessment should make specific reference to the indirect impact of a large number of new residents and their pets on the ecology of the Local Wildlife Site and adjoining countryside;

Mitigation and enhancement measures should focus on a mechanism to ensure the security and future management of the Local Wildlife Site in line with the results of any surveys carried out, as well as seeking to maximise the ecological potential of the new houses and open spaces within the development. It would be hoped that features such as bird and bat nest boxes would be built into all of the new buildings and that lighting systems would be designed in such a way as to minimise the disturbance of wildlife. Landscaping designs should seek to create natural habitats stocked with native species.

It is recommended that the assessment also considers opportunities for enhancement in line with the Living Landscape concept, whereby communities are better integrated with habitats of conservation significance and the countryside as a whole (the developers should contact Essex Wildlife Trust for further information)."

1.4. Ecological Assessment

1.4.1. This document assesses the ecological interest of the application site at the Former Brickworks Site, Star Lane, Great Wakering, Essex, and seeks to address the points made in consultation to the scoping report. The importance of the habitats within the site is evaluated with due consideration given to the current guidance published by the Institute of Ecology and Environmental Management (IEEM)[1].

1.4.2. Where necessary mitigation measures are recommended so as to safeguard any significant existing ecological interest within the site and, where appropriate, potential enhancement measures are put forward and reference made to both National and Local Biodiversity Action Plans (BAP).

[1]Institute of Ecology and Environmental Management (2006) *Guidelines for Ecological Impact Assessment in the United Kingdom* (version 7 July 2006). http://www.ieem.org.uk/ecia/index.html

2. SURVEY METHODOLOGY

2.1. The methodology utilised for the survey work can be split into three areas, namely desk study, habitat survey and faunal survey. These are discussed in more detail below.

2.2. Desk Study

2.2.1. In order to compile background information on the application site and the surrounding area, Ecology Solutions contacted the Essex Ecology Services (EECOS), the county mammal recorder, the county bird recorder and the Essex Field Club.

2.2.2. Further information on designated sites from a wider search area was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC)[2] database and Natural England's Nature on the Map website[3]. This information is reproduced at Appendix 2 and where appropriate on Plan ECO1.

2.3. Habitat Survey Methodology

2.3.1. An initial walkover survey was carried out in December 2010, while specific habitat surveys were carried out between April and September 2011 in order to ascertain the general ecological value of the site and to identify the main habitats and associated plant species.

2.3.2. The site was surveyed based around extended Phase 1 survey methodology[4], as recommended by Natural England, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail.

2.3.3. Using the above method, the site was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified.

2.3.4. All the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent at different seasons. Nonetheless the surveys were undertaken within the optimum period for Phase 1 habitat surveys and botanical surveys.

2.4. Faunal Survey

2.4.1. Obvious faunal activity, such as birds or mammals observed visually or by call during the course of the surveys, was recorded. Specific attention was paid to any potential use of the site by protected species, Biodiversity Action Plan (BAP) species, or other notable species.

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[2] http://www.magic.gov.uk
[3] http://www.natureonthemap.gov.uk
[4] Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*. England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

2.4.2. In addition to general observations of faunal activity, specific surveys were undertaken for bats, Badgers *Meles meles,* Water Vole *Arvicola amphibius*, reptiles and Great Crested Newts *Triturus cristatus* within the application site and wider study area.

2.4.3. Experienced ecologists undertook the faunal surveys with regard to established best practice and guidance issued by Natural England. Details of the methodologies employed are given below.

Bats

2.4.4. All buildings within the wider study area (none are present within the application site) were assessed for their potential to support roosting bats during surveys undertaken in December 2010. Field surveys were undertaken within the application site and wider study area with regard to best practice guidelines issued by, the Joint Nature Conservation Committee (2004[5]) and the Bat Conservation Trust (2007[6]).

2.4.5. The buildings within the wider study area were subject to internal and external surveys using ladders, torches, mirrors, binoculars and an endoscope where necessary.

2.4.6. Evidence of the presence of bats was searched for, with particular attention paid to the roof areas and gaps between rafters and beams. Specific searches were made for bat droppings, which can indicate present or past use and extent of use, and other signs to indicate the possible presence of bats e.g. presence of stained areas, or areas that are conspicuously cobweb-free.

2.4.7. In addition, surveyors undertook two activity surveys in April and September of the application site and wider study area. During the survey on the 11th April 2011, Bat Box Duet heterodyne recorders were used, and the results analysed using BatSound analysis software. During the survey on the 8th September, Anabat SD1 and Anabat SD2 bat detectors to record the data, which was subsequently analysed using Analook bat sound analysis software. This survey method aimed to identify the level of activity and species present along the hedgerows within the site. Anabat SD1 and SD2 bat detectors were also left within the wider study area in September 2011 to record overnight at strategic positions along potential flightlines. These positions can be seen on Plan ECO4.

2.4.8. All trees within the site were assessed for their potential to support roosting bats. Features typically favoured by bats were searched for, including:

- Obvious holes, e.g. rot holes and old Woodpecker holes;
- Dark staining on the tree, below the hole;
- Tiny scratch marks around a hole from bat claws;

[5] Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). *Bat Workers' Manual*. 3rd edition. Joint Nature Conservation Committee, Peterborough.
[6] Bat Conservation Trust (2007). *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust, London.

- Cavities, splits and or loose bark from broken or fallen branches, lightning strikes etc; and
- Very dense covering of mature Ivy over trunk.

Badgers

2.4.9. Specific surveys for Badgers were carried out over a number of visits between December 2010 and September 2011.

2.4.10. The surveys comprised two main elements. Firstly searching thoroughly for evidence of Badger setts. For any setts that were encountered standard survey practice would record the location of each sett entrance, even if the entrance appeared disused. The following specific information was recorded where appropriate:

i) The number and location of well used or very active entrances; these are clear of any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently.

ii) The number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance or have plants growing in or around the edge of the entrance.

iii) The number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be together with the remains of the spoil heap.

2.4.11. Secondly, any evidence of Badger activity such as well worn paths, run-throughs, snagged hair, footprints, latrines and foraging signs was recorded so as to build up a picture of the use of the application site by this species.

Water Voles

2.4.12. Specific surveys for Water Voles were undertaken within the wider study area during April and September 2011.

2.4.13. The survey work involved careful searching along the banks of suitable water habitat within the wider study area, using the standard methodology as advocated within the Water Vole Conservation Handbook[7] and recommended by Natural England.

2.4.14. The basis of the surveys undertaken was to determine the presence / absence, and where necessary distribution and abundance, of Water Voles within the wider study area through the detection of signs such as burrows, feeding stations, latrines, faeces, and potentially from sightings of the animals themselves.

[7] Strachan, R (1998), 'Water Vole Conservation Handbook' - from Environment Agency

2.4.15. The surveys also allowed an assessment of the suitability of the existing habitats present to support Water Voles, to be undertaken.

Reptiles

2.4.16. Specific surveys for reptiles were carried out between April and October 2011 within the rough grassland habitats within the application site and wider study area. The methodology utilised principally derived from guidance given in the Herpetological Workers Manual.

2.4.17. Areas of suitable habitat were surveyed for the presence of reptiles using artificial refugia ("tins"). A total of 89 0.5m x 0.5m roofing felt tins were placed within areas of suitable reptile habitat within the application site and wider study area.

2.4.18. The tins provide shelter and heat up quicker than the surroundings in the morning and can remain warmer than the surroundings in the late afternoon. Being ectothermic (cold blooded), reptiles use them to bask under and raise their body temperature which allows them to forage earlier and later in the day.

2.4.19. To determine presence/absence the tins are checked for reptile activity over seven visits at appropriate times of the day (avoiding the middle of the day when the ambient air temperature is at its highest) in accordance with Natural England advice. Optimum weather conditions for reptile surveying are temperatures between 10°C and 17°C, intermittent or hazy sunshine and little or no wind.

Great Crested Newts

2.4.20. The Star Lane Pits LWS within the wider study area comprises four large fishing lakes and one small, seasonal pond. These were all surveyed for the presence of Great Crested Newts.

2.4.21. The surveys were completed in suitable weather conditions using three methods (namely torch survey, netting and bottle-trapping) in accordance with Natural England guidance[8] to determine the presence or absence of Great Crested Newts. In addition egg searches were also conducted.

2.4.22. Suitable survey weather conditions are deemed to be those nights when the night-time air temperature is more than 5°C, with little or no wind, and no rain; surveys were conducted during such conditions.

2.4.23. Torch counting involves the use of high-powered torches to find and count the number of adults of each amphibian species. As recommended by Natural England, the entire margin of the ponds was walked once, slowly checking for Great Crested Newts.

2.4.24. In theory, netting involves sampling for a period dictated by the size of the water body, and Natural England recommends 15 minutes of search time for every 50 metres of shoreline.

[8] English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

2.4.25. Bottle-trapping involved setting traps made from 2-litre plastic bottles around the pond margins, and leaving the traps set overnight before checking them the following morning.

2.4.26. Terrestrial habitats were also searched for Great Crested Newts. This involved searching under logs, rocks and rubbish, which are favoured hiding places.

2.4.27. The land within and surrounding the application site and wide study area was assessed in terms of its habitat quality and its ability to support Great Crested Newts.

3. ECOLOGICAL FEATURES

3.1. Habitat surveys were undertaken within the site in December 2010 and between during April and September 2011.

3.2. The location of these habitats can be seen on Plan ECO2.

3.3. The following main habitat / vegetation types were identified within the application site:

- Hardstanding / Recolonising Ground;
- Recolonising Grassland;
- Rough Grassland;
- Hedgerow;
- Scattered Scrub.

Hardstanding / Recolonising Ground

3.4. The majority of the application site comprises hardstanding and bare, cleared ground. Recolonising species are present between cracks in the hardstanding and on the bare ground. Species present include Butterfly Bush *Buddleja davidii*, Creeping Thistle *Cirsium arvense*, Bramble *Rubus fruticosus*, Bristly Oxtongue *Picris echioides*, Elder *Sambucus nigra* saplings, Common Ragwort *Senecio jacobaea*, Broad-leaved Dock *Rumex obtusifolius*, Spear Thistle *Cirsium vulgare*, Teasel *Dipsacus fullonum*, Colt's Foot *Tussilago farfara*, Common Nettle *Urtica dioica*, White Dead-nettle *Lamium album*, Hogweed *Heracleum sphondylium* and Cleavers *Galium aparine*.

Recolonising Grassland

3.5. There are areas of recolonising grassland within the application site, associated with the boundary features. This recolonising grassland generally has a short sward length. Species present within the sward include Cock's Foot *Dactylis glomerata*, False Oat-grass *Arrhenatherum elatius* and Fescues *Festuca*, while the herbaceous species present include those recolonising species listed above, as well as Dandelion *Taraxacum officinale agg.*, Scentless Mayweed *Tripleurospermum inodorum*, Clover *Trifolium* sp., Weld *Reseda luteola*, Ribwort Plantain *Plantago lanceolata*, Bird's-foot Trefoil *Lotus corniculatus*, Petty Spurge *Euphorbia peplus*, Silver Birch *Betula pendula* saplings, Yarrow *Achillea millefolium* and Red Dead-nettle *Lamium purpureum*.

Rough Grassland

3.6. A strip of rough grassland with a longer sward length is present associated with hedgerow H1 in the west of the application 1 site. Species also recorded include Cow Parsley *Anthriscus sylvestris*, Dove's-foot Crane's-bill *Geranium molle*, Creeping Cinquefoil *Potentilla reptans*, Black Knapweed *Centaurea nigra*, Bluebell *Hyacinthoides* sp., suckering Blackthorn *Prunus spinosa*, Field Maple *Acer campestre* saplings and Elder saplings.

Hedgerow

3.7. There is one hedgerow present within the application site, H1, which borders the western boundary of the site. Species present include Elder, Hawthorn

Crataegus monogyna, Field Maple, Blackthorn, Dog Rose *Rosa canina*, Silver Birch and Elm *Ulmus* sp.. Species present in the understory include White Dead-nettle, Dandelion, Ivy *Hedera helix*, Ground Ivy *Glechoma hederacea*, Broad-leaved Dock, Bramble, Spear Thistle, Rosebay Willowherb *Chamerion angustifolium*, Black Knapweed and Traveller's Joy *Clematis vitalba*.

Scattered Scrub

3.8. Areas of scattered scrub are present associated with the boundaries of the application site. Species present include Bramble, Silver Birch saplings, Elder, *Cotoneaster* sp., Privet *Ligustrum* sp., Honeysuckle *Lonicera* sp., Hawthorn, Apple *Malus* sp. and Cherry. Other species present include Mugwort *Artemisia vulgaris*, Broad-leaved Dock, Pampas Grass *Cortaderia selloana*, Traveller's Joy, Hedge Bindweed *Calystegia sepium* and Common Nettle.

Wider Study Area

3.9. The following main habitat / vegetation types were identified within the wider study area:

- Arable set-aside;
- Ditch;
- Scrub;
- Rough Grassland;
- Recolonising Ground;
- Wooded Belt;
- Lakes; and
- Buildings and Hardstanding.

3.10. The location of these habitats is shown on Plan ECO2.

Arable set-aside

3.11. There are two arable fields in the north of the wider study area that have been left as set-aside. Species present in these fields include Goosefoot *Chenopodium sp.*, Field Poppy *Papaver rhoeas*, Bristly Oxtongue, Common Mallow *Malva sylvestris*, Bittersweet *Solanum dulcamara*, Smooth Sow-thistle *Sonchus oleraceus*, Brassica sp., Ribwort Plantain, Common Field Speedwell *Veronica persica*, Chickweed *Stellaria media*, Shepherd's Purse *Capsella bursa-pastoris*, Scentless Mayweed, Lesser Burdock *Arctium minus*, Broad-leaved Dock, Prickly Lettuce *Lactuca serriola*, Spear Thistle, Greater Plantain *Plantago major*, Cut-leaved Crane's-bill *Geranium dissectum*, Mugwort, Hedge Mustard *Sisymbrium officinale*, Cleavers, Dove's-foot Crane's-bill, Annual Mercury *Mercurialis annua*, Pale Flax *Linum bienne*, Narrow-leaved Bird's-foot Trefoil *Lotus glaber*, Dandelion, Ivy and Prickly Sow-thistle. The grass species Wall Barley *Hordeum murinum*, Cock's Foot, False Oat-grass, Perennial Rye *Lolium perenne*, Barren Brome *Anisantha sterilis* as well as Oats were also recorded within these fields.

Ditch

3.12. There is one ditch present running on a north-south orientation through field F1 within the wider study area. This ditch was seen to be wet during the walkover survey in December 2010, although was dry during the spring / summer

months (and noted as dry during the final visit in September 2011). No true emergent or aquatic vegetation is present within this ditch, with species present being dominated by Common Nettle and Great Willowherb *Epilobium hirsutum*, as well as species present within the arable set-aside field F1.

Scrub

3.13. There are areas of scrub at the boundaries of the arable fields, in the east of the wider study area and within the Star Lane Pits LWS.

3.14. The species present at the boundaries of the wider study area include Bramble, with Ash, Sycamore *Acer pseudoplatanus*, Hawthorn and Leyland Cypress *Cupressus macrocarpa x Chamaecyparis nootkatensis = X Cupressocyparis leylandii* trees. Common Nettle, Bristly Oxtongue, Hedge Bindweed, Mugwort, Ivy, Pampas Grass and Russian Vine *Fallopia baldschuanica* are also present.

3.15. In the east of the wider study area there is a large area of dense scrub, which is dominated by Dogwood *Cornus sanguinea* and Bramble, with Hawthorn, Blackthorn, Dog Rose, Cherry, Elm, Wild Privet *Ligustrum vulgare*, Willow sp. *Salix sp.*, Oak *Quercus robur*, Ash, Cotoneaster, Sweet Chestnut *Castanea sativa*, Sycamore, Field Maple, while Cleavers, Herb Robert *Geranium robertianum*, Fennel *Foeniculum vulgare*, Hogweed, Traveller's Joy and Honeysuckle are also present. There are tracks running through this scrub, where areas of rough grassland area present.

3.16. Within the Star Lane Pits LWS, the areas of dense scrub present include Apple, Blackthorn, Sweet Chestnut, Hawthorn, Bramble, Dog Rose, Dogwood, Willow species, Wild Privet and Sycamore. Areas of more scattered scrub are also present, and species present include Teasel, Bristly Oxtongue, Spear Thistle, Brassica, Common Nettle, Colt's Foot, Hard Rush *Juncus inflexus*, Broad-leaved Dock, Coralberry *Symphoricarpos orbiculatus*, Broom *Cytisus scoparius*, Gorse *Ulex europaeus*, Common Reed *Phragmites australis*, Butterfly Bush, Hemlock *Conium maculatum* and Traveller's Joy.

Rough Grassland

3.17. Areas of rough grassland are present in the east of the wider study area, associated with trackways through this dense scrub. Species present include False Oat-grass, Yorkshire Fog, Fescues, Wall Barley and Perennial Rye with Common Ragwort, Red Clover *Trifolium pratense*, Black Knapweed, Ribwort Plantain, Greater Plantain, Michaelmas Daisy *Aster novi-belgii x lanceolatus = A. x salignus*, Creeping Thistle, Common Fleabane *Pulicaria dysenterica*, Teasel, Bristly Oxtongue, Dandelion, Rough Hawkbit *Leontodon hispidus*, Dove's-foot Crane's-bill, Red Bartsia *Odontites vernus*, Cow Parsley and Wood Sorrel *Oxalis acetosella* also present.

3.18. The rough grassland habitats within the Star Lane Pits LWS were seen to include Cock's Foot, Yorkshire Fog *Holcus lanatus*, False Oat-grass, Common Couch *Elytrigia repens* and Fescues, with Ribwort Plantain, Yarrow, Creeping Thistle, Colt's Foot, Common Ragwort, Mugwort, Clover, Bristly Oxtongue, Traveller's Joy, Hogweed, Broad-leaved Dock, Hedge Mustard, Red Dead Nettle, Teasel, Weld, Bramble, Violet *Viola sp.*, Common Fleabane, Hard Rush, Common Centaury *Centaurium erythraea*, Parsley sp., Traveller's Joy, Narrow-leaved Bird's-foot Trefoil, Red Campion *Silene dioica*, Spear Thistle, White

Dead-nettle, Dove's-foot Crane's-bill, Common Mouse-ear *Cerastium fontanum*, Common Mallow, Mignonette *Reseda sp.*, Tufted Vetch *Vicia cracca*, Creeping Cinquefoil, Sycamore saplings, Ferns, Everlasting Pea *Lathyrus sp.*, Perforate St. John's-wort *Hypericum perforatum*, Common Bird's-foot Trefoil, Oak saplings, Common Toadflax *Linaria vulgaris*, Ground Ivy, Moss, Tansy *Tanacetum vulgare*, Hedge Bedstraw *Galium mollugo*, Field Horsetail *Equisetum arvense* and Soft Rush *Juncus effusus*.

3.19. There is another small strip of rough grassland present along the southern boundary of the wider study area, associated with the wooded belt. Species present within the sward include Cock's Foot, False Oat-grass and Fescues, with Ribwort Plantain, Yarrow, Creeping Thistle, Colt's Foot, Common Ragwort, Mugwort, Fennel, Clover, Bristly Oxtongue, Traveller's Joy, Hogweed, Broad-leaved Dock and Hedge Mustard.

Recolonising Ground

3.20. There is an area of recolonising ground associated with building B1 that lies within the Star Lane Pits LWS. Species present include Great Mullein *Verbascum thapsus*, Brassica, Common Fleabane, Broad-leaved Willowherb, Creeping Buttercup *Ranunculus repens*, Bristly Oxtongue, Creeping Thistle, Traveller's Joy, Butterfly Bush and Clover.

Wooded Belt

3.21. There is a small strip of immature wooded belt in the southwest of the application site which comprise the tree species Field Maple, Hawthorn, Hazel *Corylus avellana*, Dog Rose, Cherry *Prunus* sp. and Ash *Fraxinus excelsior*, as well as Snowberry *Symphoricarpos albus*, with Wood Avens *Geum urbanum*, Ivy and Bramble present in the ground flora.

Lakes

3.22. There are four large fishing lakes present within the Star Lane Pits LWS, as well as a small, seasonal pond. These lakes are surrounded by scrub and overhanging Willow trees. These lakes generally have little aquatic vegetation, although Common Reed, Typha *Typha latifolia* and White Water Lily *Nymphaea alba*, Water Plantain *Alisma plantago-aquatica* and Duckweed *Lemna minor* are present. The seasonal pond is shaded by dense scrub, is shallow in nature and has a large amount of leaf litter and fallen branches present. No aquatic vegetation is present.

Buildings and Hardstanding

3.23. There are four agricultural buildings present within the wider study area.

3.24. **B1** is a single storey shed constructed of brick with a pitched, corrugated asbestos roof that has skylights present. This building is considered to have negligible potential to support roosting bats.

3.25. **B2** and **B3** are open-sided sheds in the north of the wider study area. These sheds are of a timber construction with corrugated steel sides and slanting, corrugated steel roofs. These buildings are considered to have negligible potential to support roosting bats.

3.26. **B4** is a domed, corrugated steel shed in the north of the wider study area. This building is open ended at both ends and has negligible potential to support roosting bats.

3.27. There are small areas of hardstanding within the Star Lane Pits LWS, in the form of access roads and car parking associated with the former fishing club.

Background Records

3.28. EECOS returned no notable plant records from within the application site or search area. The Star Lane Pits LWS is recorded as supporting the Essex Red List species Pyramidal Orchid *Anacamptis pyramidalis* and the Essex rare aquatic Hemlock Water-dropwort *Oenanthe crocata*. Neither of these species were recorded within the application site.

4. WILDLIFE USE OF THE SITE

4.1. General observations were made during the surveys of any faunal use of the site, with specific attention paid to the potential presence of protected species. Specific surveys were undertaken with regard to bats, Badgers, Water Vole, reptiles and Great Crested Newts within the application site and wider study area.

Bats

4.2. No trees within the application site were identified as having developed features suitable for roosting bats.

4.3. On the 11th April 2011, bat activity surveys were carried out within the application site and wider study area using Batbox Duet bat detectors. On the 8th September 2011 activity surveys were carried out within the application site and wider study area using Anabat SD1 and SD2 bat detectors.

4.4. No bat activity was recorded within the application site itself, although one Soprano Pipistrelle *Pipistrellus pygmaeus* bat was recorded just to the southeaste of the application site during the survey on the 11th April. During the survey on the 8th September, one single registration of a Soprano Pipistrelle bat was also recorded just to the southeaste of the application site.

4.5. The results of the activity survey show very little activity and although it is considered that the hedgerow H1 along the western boundary provide foraging and navigational opportunities for bats, the majority of the area is of limited value to this group.

Wider Study Area

4.6. During the walked transects carried out on 11th April 2011 within the wider study area, the majority of the activity recorded was within the Star Lane Pits LWS boundary, associated with the lakes and scrub boundaries, where both Common *Pipistrellus pipistrellus* and Soprano Pipistrelle bats were recorded. Little bat activity was recorded associated with the boundary of Field F1. As stated above, one Soprano Pipistrelle was recorded associated with the wooded belt and scrub just to the southeast of the application site boundary.

4.7. During the walked transects conducted on the 8th September 2011 within the wider study area, a total of 84 registrations by Common Pipistrelle were recorded within the wider study area, the majority of which were recorded associated with the northern edge of the Star Lane Pits LWS. A total of 92 registrations by Soprano Pipistrelle were also recorded within the wider study area, again the majority of which were recorded associated with the northern edge of the Star Lane Pits LWS. A total of 19 registrations by Noctule *Nyctalus noctula* bats were also recorded across the wider study area. As stated above, one registration of a Soprano Pipistrelle was recorded associated with the wooded belt and scrub just to the southeast of the application site boundary.

4.8. Anabat SD1 and SD2 bat detectors were positioned at strategic locations and left overnight within the wider study area. No further bat species were recorded during this time, and the majority of registrations were associated with the northern boundary of the Stat Lane Pits LWS (location 2 on Plan ECO4), where

a total of 415 registrations by Common Pipistrelle and 387 registrations by Soprano Pipistrelle were recorded. An Anabat bat detector was also positioned in the west of the wider study area, associated with a line of Leyland Cypress trees at the western boundary of F1 (location 1 on Plan ECO4). The Anabat positioned here recorded a total of 190 registrations by Common Pipistrelle, 19 registrations by Soprano Pipistrelle and 8 registrations by Noctule bats.

4.9. Given the results of the surveys, it is considered the scrub habitats within the wider study area, particularly that associated with the Star Lane Pits LWS, as well as the lakes within the Star Lane Pits LWS offer good foraging and navigational resources for common species of bat.

4.10. **Background Records.** EECOS returned no records of any bats within the application site. The nearest record bat foraging record returned was for Soprano Pipistrelle, recorded at the northern boundary of the wider study area in 2007. The nearest roost record was for Serotine, recorded approximately 1.1km southwest of the application site in 1993. The nearest record of a Pipistrelle sp. roost was recorded approximately 1.4km east of the application site in 2009, while the nearest Brown Long-eared *Plecotus auritus* roost was recorded approximately 1.6km northwest of the application site in 1997.

Badgers

4.11. No evidence of any Badger activity was recorded within the application site itself.

4.12. In general, given the predominance of hardstanding, the application site offers, limited foraging opportunities or other suitable habitat for Badgers.

Wider Study Area

4.13. Evidence of Badger excavations were recorded to the southwest of the application site, with an exploratory hole dug into a small mound of sand. Badger hairs and a latrine were recorded associated with this exploratory hole. However, no setts are present in this area.

4.14. Evidence of a Badger push-through, with Badgers hairs associated with this, was recorded at the eastern boundary of the wider study area. Badger latrines were recorded associated with this push-through as well as within the Star Lane Pits LWS and within field F1. No evidence of Badger setts was recorded within the application site. The scrub in the east of the wider study area is very dense and thus could conceal a sett that could not be accessed although no obvious pathways, or other signs of Badger activity into the scrub, was recorded. The location of the push-through and latrines can be seen on Plan ECO2.

4.15. It is considered the scrub, wooded belt, rough grassland and arable set-aside habitats within the wider study area offer suitable foraging opportunities for Badgers.

4.16. **Background Records.** The nearest record of a Badger sett returned by EECOS was recorded approximately 1.4km northwest of the application site in 2003.

Water Vole

4.17. No evidence of Water Vole was recorded within the application site and it is not considered the habitats present offer suitable opportunities for this species.

Wider Study Area

4.18. Evidence of Water Vole (a local and UK BAP species) was recorded within the Star Lane Pits LWS during the surveys carried out in the wider study area. The location of the latrine recorded can be seen on Plan ECO3.

4.19. **Background Records.** EECOS returned no records of Water Vole from within the application site or search area.

Other Mammals

4.20. Evidence of Rabbits *Oryctolagus cuniculus* was recorded within the application site and wider study area, with evidence of burrows and grazing present. No evidence of any other mammals was recorded within the application site, although given the habitats present, it is considered a range of small mammal species would be present within the rough grassland, scrub and hedgerow habitats within the application site and the scrub, rough grassland, wooded belt and arable set-aside habitats within the wider study area.

4.21. **Background Records.** EECOS returned no records of any other notable mammals within the application site. The nearest record of Brown Hare *Lepus europaeus* (a local and UK BAP species) was returned approximately 1.7km north of the application site in 1993. It is not considered the habitats present within the application site offer suitable opportunities for this species.

Birds

4.22. General observations of the use by birds of the application site and wider study area were made between December 2010 and September 2011.

4.23. Species recorded within the application site include Magpie *Pica pica*, Wren *Troglodytes troglodytes*, Dunnock *Prunella modularis*, Whitethroat *Sylvia communis*, Greenfinch *Carduelis chloris*, Goldfinch *Carduelis carduelis*, Chiffchaff *Phylloscopus collybita* and Coal Tit *Parus ater*. In December 2010, Lapwing *Vanellus vanellus* (a Red list species) were recorded on the hardstanding areas of the application site.

4.24. It is considered the hedgerows and scrub within the application site offer suitable foraging and nesting habitat for bird species, although in general, the site is of limited suitability due to the predominance of hardstanding.

Wider Study Area

4.25. Other bird species recorded within the wider study area include Blackbird *Turdus merula*, Carrion Crow *Corvus corone*, Robin *Erithacus rubecula*, Woodpigeon *Columba palumbus*, Moorhen *Gallinula chloropus* and Mallard *Anas platyrhynchos*. The Schedule 1 species Cetti's Warbler *Cettia cetti* and the Red List species Starling *Sturnus vulgaris*, House Sparrow *Passer*

domesticus, Linnet *Carduelis cannabina* (also a UK BAP species) and Cuckoo *Cuculus canorus* were also recorded within the wider study area.

4.26. It is considered the wooded belt, scrub habitats and reed beds offer suitable foraging and nesting habitat for birds, while the lakes offer suitable nesting opportunities for aquatic birds. The arable set-aside and rough grassland habitats also offer suitable foraging habitat for a range of bird species.

4.27. **Background Records.** EECOS returned no records of any notable birds from within the search area.

Reptiles

4.28. Specific reptile surveys were carried out within the application site and wider study area between April and October 2011.

4.29. Specific reptile surveys were carried out within the recolonising grassland and rough grassland within the application site between April and October 2011.

4.30. A small population of Common Lizard *Zootoca vivipara* was recorded within the recolonising grassland habitats within the application site. A total of two individuals were recorded, the locations of which can be seen on Plan ECO3.

Wider Study Area

4.31. Specific reptile surveys were carried out within the rough grassland habitats within the wider study area between September and October 2011. The results of these surveys can be seen in Table 1 below and on Plan ECO3.

Survey Number	Common Lizard		Slow Worm		Grass Snake	
	Male / Female	Juvenile	Male / Female	Juvenile	Male / Female	Juvenile
1	3	2	0	0	0	0
2	0	0	1	0	0	0
3	0	0	0	0	0	0
4	1	1	1	0	1	0
5	0	0	2	0	0	0
6	4	4	0	0	0	0
7	7	13	0	0	0	0
8	3	0	0	0	0	0

Table 1. Reptile survey results wider study area – 2011.

4.32. As can be seen from the results, small populations of Common Lizard, Slow Worm *Anguis fragilis* and Grass Snake *Natrix natrix* were recorded within the rough grassland habitats of the wider study area.

4.33. **Background Records.** Grass Snake are included within the citation for the Great Wakering Common LWS, which lies approximately 1.5km northeast of the application site. No reptile species are included within the citation for the Star Lane Pits LWS.

Great Crested Newts

4.34. No ponds or suitable aquatic habitat is present within the application site although the hedgerows and scrub provides some limited areas of suitable terrestrial habitat for amphibians, although the majority of the application site is of no suitability for this group being dominated by hardstanding.

Wider Study Area

4.35. Specific surveys for Great Crested Newt were carried out on the four lakes and one pond within the Star Lane Pits LWS within the wider study area between April and June 2011.

4.36. No evidence of Great Crested Newts was recorded during these surveys in any of the lakes or pond surveyed. A single female Smooth Newt *Lissotriton vulgaris* was recorded in the small seasonal pond within the wider study area on one occasion.

4.37. **Background Records.** The nearest amphibian record returned by EECOS was for Great Crested Newt within the wider study area, although this record is unconfirmed and no date was given. The citation for the Great Wakering LWS, that lies approximately 1.5km northeast of the application site, also includes Great Crested Newts, as well as Smooth Newt, Common Toad *Bufo bufo* and Common Frog *Rana temporaria*.

Invertebrates

4.38. Given the habitats present within the application site it is likely an assemblage of common invertebrate species would be present within the application site. However, there is no evidence to suggest that any rare or notable species would be present, given the predominance of hardstanding.

Wider Study Area

4.39. The Star Lane Pits LWS is designated for its invertebrate community, including the Essex Red List and Regionally Important species of spider *Zilla diodia*, the bees *Nomada fucata, Odynerus melanocephalus* (also a UK BAP species) and *Andrena tibialis*, as well as the Essex Red List and Essex Threatened wasp *Ancistrocerus parietum,* the Essex Red List and Nationally Scarce beefly *Bombylius discolour*, and the Essex Red List and Essex Vulnerable bee *Sphecodes spinulosus*. Following consultation with the Essex Wildlife Trust, it was considered the invertebrate interest at the Star Lane Pits LWS site is in relation to terrestrial, rather than aquatic, invertebrates.

4.40. **Background Records.** Information received from the Essex Field Club returned a number of records of notable invertebrates from the Star Lane Pits LWS within the wider study area. Species recorded within the Star Lane Pits LWS, and included within this LWS's citation, include the Essex Red List species *Zilla diodia* (also a Regionally Important species), *Bombylius discolour* (also an Essex Endangered species), *Andrena tibialis* (also a Regionally Important species), *Nomada fucata* (also a Regionally Important species), *Ancistrocerus parietum* (also an Essex Threatened species), *Odynerus melanocephalus* (also a Regionally Important and UK BAP species) and

Sphecodes spinulosus (also an Essex Vulnerable species), all recorded in 1998.

4.41. Species recorded within the Star Lane Pits LWS, but not included within the citation, include the Essex Red List species *Neoascia interrupta*, *Andrena pilipes sens. str.* (also a Regionally Important species), and *Melitta tricincta* (also a Regionally Important species), all recorded in 1998, as well as the Essex Red List and Essex Threatened species *Coelioxys inermis,* recorded in 1996.

4.42. Other invertebrate species recorded within the Star Lane Pits LWS include *Hilara pseudocomicula, Xanthogramma citrofasciatum* and *Lasioglossum malachurum* in 1998, while *Philanthus triangulum* was recorded in 2002.

5. ECOLOGICAL EVALUATION

5.1. The Principles of Ecological Evaluation

5.1.1. The latest guidelines for ecological evaluation produced by IEEM[9] propose an approach that involves professional judgement, but makes use of available guidance and information, such as the distribution and status of the species or features within the locality of the project.

5.1.2. The methods and standards for site evaluation within the British Isles have remained those defined by Ratcliffe[10]. These are broadly used across the United Kingdom to rank sites so priorities for nature conservation can be attained. For example, current sites of Special Scientific Interest (SSSI) designation maintains a system of data analysis that is roughly tested against Ratcliffe's criteria.

5.1.3. In general terms, these criteria are size, diversity, naturalness, rarity and fragility, while additional secondary criteria of typicalness, potential value, intrinsic appeal, recorded history and the position within the ecological / geographical units are also incorporated into the ranking procedure.

5.1.4. Any assessment should not judge sites in isolation from others, since several habitats may combine to make it worthy of importance to nature conservation.

5.1.5. Further, relying on the national criteria would undoubtedly distort the local variation in assessment and therefore additional factors need to be taken into account, e.g. a woodland type with a comparatively poor species diversity, common in the south of England, may be of importance at its northern limits, say in the border country.

5.1.6. In addition, habitats of local importance are often highlighted within a local Biodiversity Action Plan (BAP). The 1999 Essex BAP[11] listed 10 habitats and 26 species from this list that are of importance in the County of Essex. The Essex BAP is currently being re-written and the original 1999 Action Plan is now withdrawn. The new format will include targets and actions at a district level, where appropriate, and are intended to be realistic and achievable. Habitat groups have been formed to frame the review process: Lowland Grassland, Lakes and Ponds, Rivers, Wetlands, Coastal, Marine, Urban and Brownfield. Each Group will contain sub-plans for more specific habitats. There will be no Species Action Plans as species will be addressed within the habitats where they are found. The Urban and Brownfield Habitats local BAP is considered in relation to the application site, although the application site would not conform to the Open Mosaic Habitats on Previously Developed Land UK BAP from which the Local BAP is to be derived (plan currently unpublished).

5.1.7. Living Landscapes are an initiative spearheaded by the Wildlife Trusts. The Essex Wildlife Trust and its partners have produced a Living

[9] Institute of Ecology and Environmental Management (2006). Guidelines for Ecological Impact Assessment in the United Kingdom (version 7 July 2006). http://www.ieem.org.uk/ecia/index.html.
[10] Ratcliffe, D A (1977). *A Nature Conservation Review: the Selection of Study areas of Biological National Importance to Nature Conservation in Britain*. Two Volumes. Cambridge University Press, Cambridge.
[11] http://www.ukbap-reporting.org.uk

Landscapes Map of Essex to identify 80 Living Landscape areas, based upon their existing ecological value and their potential. The application site does not fall within any of the Key Biodiversity Network areas but lies approximately 1.5km southwest of the Foulness Islands KBN (number 79) which is classed as 'Coastal and Estuarine'.

5.1.8. Levels of importance can be determined within a defined geographical context from the immediate site or locality through to the International level.

5.1.9. The legislative and planning policy context are also important considerations and have been given due regard throughout this assessment.

5.2. Habitat Evaluation

Designated Sites

5.2.1. **Statutory Sites:** There are no statutory designations of nature conservation value within or immediately adjacent to the site. The nearest statutory designation are Foulness Special Protection Area (SPA), also designated as a Ramsar and Site of Special Scientific Interest (SSSI), and Essex Estuaries Special Area of Conservation (SAC), which lie approximately 1.5km north of the application site at their closest point (citations for these designated sites can be seen at Appendices 3 and 4). The Foulness SSSI / SPA / Ramsar and the Essex Estuaries SAC both wrap around the east coast of Essex and as such the Foulness SSSI / SPA / Ramsar also lies approximately 1.8km southeast while the Essex Estuaries SAC lies approximately 2.2km southeast of the application site. The Foulness SSSI / SPA / Ramsar and Essex Estuaries SAC are separated from the application site by the village of Great Wakering, roads and open countryside.

5.2.2. The Crouch and Roach Estuaries SSSI / SPA / Ramsar site lies approximately 3.6km north of the application site, and is well separated from the application site by the village of Great Wakering, roads, open countryside and the Foulness SSSI / SPA / Ramsar. The citation for these designated sites can be seen at Appendix 5.

5.2.3. By definition the Foulness SSSI / SPA / Ramsar, Essex Estuaries SAC and the Crouch and Roach Estuaries SSSI / SPA / Ramsar areas are of international ecological importance.

5.2.4. The Conservation of Habitats and Species Regulations 2010, referred to as the "Habitats Regulations" implement in Great Britain the requirements of the EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, referred to as the "Habitats Directive" (Council Directive 92/43/EEC). The Regulations aim to protect a network of sites in the UK that have rare or important habitats and species in order to safeguard biodiversity.

5.2.5. Under the EC Habitats Directive, Member States are required to take special measures to maintain the distribution and abundance of certain priority habitats and species (listed in Annexes I and II of the Directive). In

particular each Member State is required to designate the most suitable sites as SACs or SPAs. All such SACs and SPAs will form part of the Natura 2000 network under article 3(1) of the Habitats Directive.

5.2.6. Under the Habitats Regulations, competent authorities have a duty to ensure that all the activities they regulate have no adverse effect on the integrity of any of the Natura 2000 sites. Regulation 61 of the Habitats Regulations 2010 requires that:

"61(1) A competent authority before deciding to undertake, or give any consent, permission or other authorisation for a plan or project, which: -

(a) is likely to have a significant effect on a European site or a European offshore marine Site (either alone or in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of that site,

must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.

...

61(5) In light of the conclusions of the assessment, and subject to regulation 62 (considerations of overriding public interest), the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).

...

61(6) In considering whether a plan or project will adversely affect the integrity of the site, the authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which they propose that the consent, permission or other authorisation should be given...."

5.2.7. The question of ascertaining whether a significant effect is likely at the screening stage, and in particular the issue of whether or not it is appropriate to consider avoidance and mitigation measures during the screening process (i.e. at Regulation 61(1) of the Habitats Regulations), has received considerable attention and been the subject of extensive debate, not least through a number of legal opinions offered by leading barristers.

5.2.8. In the High Court judgement passed in respect of Dilly Lane, Hartley Wintney, the judge, Mr Justice Sullivan, ruled that measures designed to avoid or mitigate adverse effects on the European site should be taken into account; if they are part of the plan or project, and should be considered at the screening stage since avoiding adverse effects on the European site is precisely what they are designed to do.

5.2.9. By supporting the principle that avoidance and mitigation measures should be considered at the screening stage, the judgement avoids the need for an appropriate assessment of each and every planning application.

5.2.10. In this case, the proximity of the Foulness SPA / Ramsar site, the Essex Estuaries SAC and the Crouch and Roach SPA / Ramsar site has prompted consideration to be given to potential impacts on these Natura 2000 sites in line with the above legislative context.

5.2.11. Natural England's scoping response suggests that any potential effects on the Foulness SSSI / SPA / Ramsar and Crouch and Roach SSSI / SPA / Ramsar would be limited to possible increased use by dog walkers in the absence of on-site green infrastructure and effects of increased pressure on the existing water supply and sewerage treatment infrastructure risking damage to the SSSI / SPA / Ramsar.

5.2.12. In line with correspondence had with Natural England (see Appendix 1), the Foulness SSSI / SPA / Ramsar site and Crouch and Roach SSSI / SPA / Ramsar site are both considered to be well removed from the application site so as not to be accessible on foot, and some areas of the Foulness SSSI / SPA / Ramsar are inaccessible to the public, forming part of an MoD trials range. Natural England stated that it was not considered likely that there would be a significant increase in recreational pressure on this statutory designated site as a result of the proposals. Indeed, open spaces in the vicinity will provide areas of suitable alternative recreational opportunities for any new residents on the doorstep of the development.

5.2.13. Anglian Water would need to conduct a capacity check to ensure that the existing water and sewage infrastructure has capacity to cope with increased demand. Following any capacity check there are two ways in which the system could be upgraded, if upgrading were deemed to be required. The first would be to keep the pumping chamber pumping at its current level, providing any required foul water storage to ensure the pumps aren't over loaded. The second is to upgrade the pumps and off site drainage – which Anglian Water would do, but with a developers contribution – and have no foul storage.

5.2.14. As such, in the context of the above, it is considered unlikely that the development proposals will have any significant adverse effect on the Foulness or Crouch and Roach SSSI / SPA / Ramsar sites either alone or in combination with any other plans or projects.

5.2.15. The nearest Local Nature Reserve (LNR) is Shoeburyness Old Ranges LNR, which lies approximately 2.9km south of the application site. This LNR is well separated from the application site by the extensive residential and industrial development of Shoeburyness and Southend on Sea, as well as major and minor roads, and a rail terminal. As such, it is not considered the development proposals will have any adverse effects of this statutory designated site.

5.2.16. **Non-statutory Sites:** Star Lane Pits Local Wildlife Site (LWS) lies adjacent to the application site boundary, within the wider study area. This LWS is designated for its rough grassland and scrub mosaic and aquatic habitats, including the Essex rare species Hemlock Water-dropwort and

the Essex Red List species Pyramidal Orchid, and includes areas of reedbeds, a UK BAP priority habitat. This LWS also supports nationally significant and Essex Red List invertebrate species. The selection criteria (published March 2007) for this LWS include:

- *"scrub that forms part of a mosaic of good quality wildlife habitat in association with at least two other habitats from the following list: woodland, open water, heath, acid grassland, neutral grassland, calcareous grassland, marsh and swamp.*
- *Smaller or narrower stands of reedbed... [that form] part of a mosaic of other habitats, including open water, wet woodland, marsh and other swamp communities.*
- *...lakes or ponds [that] hold species or vegetation stands of interest..."*

5.2.17. The Wildlife Trust has also confirmed that under more recently published criteria (revised January 2010), the lakes would possibly qualify under species selection guidelines SC18 – UK BAP priority invertebrates (on the strength of the presence of the BAP species *Odynerus melanocephalus*) and SC19 – important invertebrate assemblages, although specific surveys would be required to determine the current status of this LWS.

5.2.18. Potential impacts on this LWS are considered to be limited to an increase in light spillage, hydrological effects and construction effects. This LWS is dominated by lakes and dense scrub.

5.2.19. None of the species within the Star Lane pits LWS selection criteria have been recorded within the application site, and given the habitats present it is not considered the habitats within the application site offer suitable opportunities for these species.

5.2.20. A sympathetic lighting scheme will be incorporated into the development proposals, which will minimise light spillage into the Star Lane Pits LWS. The position of back gardens adjacent to this LWS boundary will also serve to create a buffer and prevent light spillage into this LWS. In addition, the adopted lighting scheme will be designed to be generally low level and, if necessary, there will be a restriction of light to selected areas by fitting hoods that direct the light below the horizontal plane (preferably at an angle less than 70 degrees).

5.2.21. Shading on the Star Lane Pits LWS and its associated invertebrate interest from the proposed development will be minimised, with houses (as opposed to high-rise buildings) set back from the LWS boundary, and buffered from this LWS by back gardens. As such it is not considered that there will be any significant adverse effects on the habitats or species within the LWS from shading.

5.2.22. The Star Lane Pits is not formally accessible to the public, although it was used by members of an angling club to fish from the lakes it is understood that the licence has now lapsed. As such, it is not considered the there will be any recreational effects arising on this LWS from the proposed application site development.

5.2.23. In any event, the dense scrub serves to limit walkers to clear paths, such that any effects of any increased usage would be very restricted and of negligible significance.

5.2.24. Leaflets will be provided to new householders detailing the sensitivities of the surrounding areas and include advice to new owners in relation to keeping cats in at night and with bells on collars so as to significantly reduce any possible predation effects, although there is no conclusive scientific evidence to demonstrate that predation has any significant population effects. However, the interest of the LWS (as per the citation) is largely of a type (habitats and invertebrates) which would not be relevant to predation by pets.

5.2.25. The proposed development will increase the permeability of the site by around 40%. The proposed development will utilise soakaways within the application site area, and there will be no outfall to the lakes within the adjacent Star Lane Pits LWS. As such, it is not considered there will be any adverse effects on the quality or quantity of water entering the lakes within the LWS as result of the proposed development. For further detail, please see the drainage Strategy in the Flood Risk Assessment by Bureau Veritas.

5.2.26. Standard engineering practice in respect of pollution control, as part of the development proposals will negate any other potential effects to this LWS. As such, it is considered there will be no adverse effects on the Star lane Pits LWS from the proposed development of the application site.

5.2.27. A number of additional statutory and non-statutory sites are located in the wider area and these are identified on Plan ECO1.

Habitats

Hardstanding / Recolonising Ground

5.2.28. The majority of the application site comprises hardstanding and recolonising ground, which are of negligible ecological significance. These habitats are to be lost to the development proposals.

5.2.29. **Mitigation and Enhancements.** It is considered that no specific mitigation or enhancement measures would be required for the loss of these habitats. However, the replacement of extensive hardstanding with garden areas will be of significant biodiversity benefit overall.

Recolonising Grassland

5.2.30. The recolonising grassland within the application site has limited ecological significance in terms of its species content, comprising only common and widespread species, although use by a small number of Common Lizards has been recorded in this habitat (see below). This recolonising grassland is to be lost to the development proposals.

5.2.31. **Mitigation and Enhancements.** Loss of this habitat will be mitigated for through the provision of new species-rich or wildflower grassland areas

(sown with Emorsgate Seed's EM4 Meadow Mixture for Clay Soils) at the western boundary of the application site, associated with the hedgerow base, and within new open space areas in the centre and south of the application site. These areas of grassland should be subject to a suitable cutting regime to maximise botanical diversity accordingly.

Rough Grassland

5.2.32. The rough grassland in the within the application site has limited ecological significance in terms of its species content, comprising only common and widespread species, although does offer some limited foraging resources for Badgers and birds (see below). The majority of this habitat is to be lost to the development proposals.

5.2.33. **Mitigation and Enhancements.** Losses of this habitat will be mitigated for through the provision of new species-rich or wildflower grassland areas (sown with Emorsgate Seed's EM4 Meadow Mixture for Clay Soils). These areas of grassland (see above) should subject to a suitable cutting regime to maximise botanical diversity accordingly.

Hedgerow

5.2.34. There is one hedgerow along the western boundary of the application site that is of greater ecological significance in the context of the site. This hedgerow comprises seven native woody species, and offers some limited foraging habitat for Badgers, foraging and navigational opportunities for bats and foraging and nesting opportunities for birds (see below).

5.2.35. **Mitigation and Enhancements.** New hedgerow planting will be undertaken to offset losses of this hedgerow required for visibility splay purposes. The replacement hedgerow along the western boundary of the application site will comprise native species. Additional native hedgerow planting as part of the landscape proposals, around the perimeter of the application site and within the application site, would increase the length of hedgerow within application site post-development.

Scrub

5.2.36. The scrub within the application site is of limited ecological value in terms of its species content, comprising only common and widespread species. This scrub does offer very limited opportunities for foraging Badgers as well as limited foraging and nesting opportunities for birds (see below). This scrub habitat is to be lost to the development proposals.

5.2.37. **Mitigation and Enhancements.** Where losses occur, these will be offset by the planting of new native shrubs / shrubs of benefit to wildlife (see Appendix 6) to provide alternative scrub blocks. Shrubs will inevitably be included in proposed garden areas, which will be created on existing areas dominated by hardstanding, thus further offsetting such losses.

5.3. Faunal Evaluation

Bats

5.3.1. **Legislation.** All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 ("the Habitats Regulations"). These include provisions making it an offence to:

- Deliberately kill, injure or take (capture) bats;
- Deliberately disturb bats in such a way as to be likely to significantly affect:-
  (i) the ability of any significant group of bats to survive, breed or rear or nurture their young; or to hibernate; or
  (ii) to affect significantly the local distribution or abundance of the species concerned;
- Damage or destroy any breeding or resting place used by bats;
- Intentionally or recklessly obstruct access to any place used by bats for shelter or protection.

5.3.2. The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.

5.3.3. The offence of damaging (making it worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.

5.3.4. In accordance with the Habitats Regulations the licensing authority (Natural England) must apply the three derogation tests as part of the process of considering a licence application. These tests are that:

1. the activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
2. there must be no satisfactory alternative; and
3. the favourable conservation status of the species concerned must be maintained.

5.3.5. Licences can usually only be granted if the development is in receipt of full planning permission.

5.3.6. **Site Usage.** There are no roosts and no bat activity was recorded within the application site, although individual Soprano Pipistrelle bats were recorded at the southeastern corner of the application site.

5.3.7. **Mitigation and Enhancements.** The hedgerow within the application site is a feature that could be used by foraging / navigating bats. Losses are to occur to the hedgerow, although losses to the hedgerow will be offset through new native hedgerow and tree planting to maintain an availability of existing features for bats. These features will also be subject to management to maximise benefits to biodiversity including bats. New native hedgerows are to be planted as part of the landscape proposals, which will provide enhanced foraging and navigational resources for bats.

5.3.8. The bat species recorded to the southeast of the application site boundary (Soprano Pipistrelle) is relatively tolerant of lighting. Nonetheless, a sympathetic lighting scheme is recommended to minimise light spillage into key areas such as new hedgerows. It is recommended that the use of sodium lights, which produce less light spillage than other types of lighting, should be employed to reduce the light spillage on existing bat flight lines. In addition, the spillage of the light can be reduced further through use of low-level lights and the employment of lighting 'hoods' which will direct light below the horizontal plane, preferably at an angle less than 70 degrees.

5.3.9. In addition it is recommended that bat boxes, such as Schwegler 1FF boxes (see Appendix 7 for suitable examples), are erected on new buildings or retained semi-mature trees within the application site / wooded belt within the wider study area and positioned out of reach of opportunistic predators such as cats. This model of bat box is known to be attractive to Pipistrelle species, which are known to be present within the application site. This measure will provide roosting opportunities that are currently absent from the application site.

Badgers

5.3.10. **Legislation.** The Protection of Badgers Act 1992 consolidates the previous Badgers Acts of 1973 and 1991. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain.

5.3.11. As well as protecting the animal itself, the 1992 Act also makes the intentional or reckless destruction, damage or obstruction of a Badger sett an offence. A sett is defined as "any structure or place which displays signs indicating current use by a Badger". 'Current use' of a Badger sett is defined by Natural England as "how long it takes the signs to disappear, or more precisely, to appear so old as to not indicate "current use".

5.3.12. In addition, the intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence by constituting 'cruel ill treatment' of a Badger.

5.3.13. 'Interim guidance' issued by Natural England in September 2007 specifically states *"it is not illegal, and therefore a licence is not required, to carry out disturbing activities in the vicinity of a sett if no Badger is disturbed and the sett is not damaged or obstructed."*

5.3.14. However, guidance produced by Natural England in 2009 states that Badgers are relatively tolerant of moderate levels of disturbance and that low levels of disturbance at or near to Badger setts do not necessarily disturb the Badgers occupying those setts. However, Natural England's guidance continues by stating that any activity that will, or is likely to cause one of the interferences defined under the "current use" section (such as damaging a sett tunnel or chamber or obstructing access to a sett entrance) will continue to be licensed.

5.3.15. The guidance no longer makes reference to any 30m/20m/10m radius as a threshold for whether a licence would be required. Nonetheless, it is stated that tunnels may extend for 20m so care needs to be taken when implementing excavating operations within the vicinity of a sett and to take appropriate precautions with vibrations and noise, etc. Fires / chemicals within 20m of a sett should specifically be avoided.

5.3.16. This interim guidance allows greater professional judgement as to whether an offence is likely to be committed by a particular development activity and therefore whether a licence is required or not. For example, if a sett clearly orientates southwards into an embankment it may be somewhat redundant to have a 30m-exclusion zone to the north.

5.3.17. It should be noted that a licence cannot be issued until the site is in receipt of a full and valid planning permission and that generally licences are not granted for work between December and June inclusive to avoid disruption to the Badger breeding cycle.

5.3.18. Local authorities are obliged to consult Natural England over any work which is considered likely to adversely affect Badgers.

5.3.19. **Site Usage.** No evidence of Badgers was recorded within the application site itself, although evidence of exploratory excavations and latrines were recorded to the southwest of the application site but no setts are present. It is considered the hedgerows, rough grassland and recolonising grassland within the application site offer some limited habitat for this species, although the hardstanding that dominates the application site is of no value to Badgers either for foraging sett building.

5.3.20. **Mitigation and Enhancements.** New wildflower grassland and compensatory hedgerow planting will maintain the limited exiting resources for Badgers. While not part of the proposed mitigation, the provision of new gardens as part of the development proposals, will act as additional foraging resources for Badgers over the existing situation and likely represents a significant improvement for Badgers as they will replace extensive areas of hardstanding of no value to this species.

Birds

5.3.21. **Legislation.** Section 1 of the Wildlife and Countryside Act 1981 (as amended) is concerned with the protection of wild birds, whilst Schedule 1 lists species that are protected by special penalties. All species of birds receive general protection whilst nesting.

5.3.22. **Site Usage.** The hedgerow and scattered scrub within the application site offers suitable foraging and nesting habitat for birds.

5.3.23. **Mitigation and Enhancements.** Areas of scattered scrub and hedgerow are to be lost to the development proposals. Where such habitats are lost, these will be offset by the provision of new native tree and hedgerow planting as well as new landscape planting of benefit to wildlife. Where rough grassland and recolonising grassland is to be lost these losses will be offset through the provision of new species-rich grassland, planted

utilising a diverse mix of native species and be subject to a suitable cutting regime, to increase the floristic diversity accordingly.

5.3.24. It is recommended that the clearance of any suitable nesting vegetation (including tree felling) be undertaken outside the bird nesting season (March to July inclusive) to avoid any potential offence. Should the above timing constraints conflicts with any timetabled works, it is recommended that works commence only after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present.

5.3.25. The erection of bird nest boxes could provide further enhancements for this group if placed on buildings post-development (or on trees within the wooded belt in the wider study area). Using nest boxes of varying designs would maximise the species complement attracted to the site, and where possible these could be tailored to provide opportunities for red listed/BAP species known from within the local area, e.g. House Sparrow Terrace. See Appendix 8 for suitable examples.

5.3.26. Simple enhancement measures could ensure the ornithological interest at the site is increased. Any landscape scheme should comprise native species of known value to birds, including berry-bearing species. This will provide enhanced nesting and foraging opportunities.

Reptiles

5.3.27. **Legislation.** All six British reptile species receive a degree of legislative protection that varies depending on their conservation importance.

5.3.28. Rare, endangered or declining species receive 'full protection' under the Wildlife and Countryside Act 1981 as well as protection under the Conservation (Natural Habitats &c.) Regulations 1994, which transposed into UK law the European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, more commonly known as the Habitats Directive. Species that are fully protected include Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis*. Due to the habitat requirements of these species it is considered highly unlikely that these species would be present in this case, and indeed they were not recorded in the surveys.

5.3.29. Due to their abundance in Britain, Common Lizard *Zootoca vivipara,* Slow Worm *Anguis fragilis*, Grass Snake and Adder *Vipera berus* are only 'partially protected' under the Wildlife and Countryside Act 1981 (as amended), and as such only receive protection from:

- deliberate killing and injuring;
- being sold or other forms of trading.

5.3.30. As such, although the animals themselves are protected, their habitat does not receive protection. Therefore, the presence of these species is a legal compliance matter rather than a constraint to the principal of development *per se*.

5.3.31. All reptiles are also UK BAP priority species.

5.3.32. **Site Usage.** Two Common Lizards were recorded within the recolonising grassland within the application site, and thus only low numbers are likely to be present in this area (with populations centred on habitat in the adjacent LWS).

5.3.33. **Mitigation and Enhancements.** Given the loss of the small areas of grassland where Common Lizard have been recorded, the reptiles present within these areas within the application site will need to be moved, prior to the commencement of the site clearance, due to this group being partially protected by current legislation. These reptiles will be moved to a suitable off-site receptor site or persuaded to move into rough grassland of the adjacent LWS through habitat manipulation.

Invertebrates

5.3.34. **Site Usage.** Given the predominance of hardstanding, it is not likely that any notable invertebrates are present.

5.3.35. **Mitigation and Enhancements.** As such, no specific mitigation is required on the application site. Nonetheless, the implementation of the measures recommended above would likely provide knock-on benefits for invertebrates, e.g. through tree planting and use of planting of wildlife benefit. Further, the creation of gardens on the existing extensive hardstanding would inevitably provide enhanced habitat for invertebrates in general.

6. PLANNING POLICY CONTEXT

6.1. The planning policy framework that relates to nature conservation in Great Wakering, is issued at main four administrative levels: nationally through the National Planning Policy Framework (March 2012); at the county level through the Essex and Southend-on-Sea Structure Plan, (adopted 2001); and locally through the Rochford District Replacement Local Plan (adopted 2006) and the emerging LDF Core Strategy Submission Document. Any proposed development will be judged in relation to the policies contained within these documents. Following a direction by the Secretary of State (issued on the 11th December 2012) the East of England Plan was revoked on the 3rd January 2013, and as such this no longer forms part of the Development Plan Framework.

6.2. National Policy

National Planning Policy Framework

6.2.1. The National Planning Policy Framework (NPPF) sets out the Government's requirements for the planning system and was recently adopted on 27th March 2012. It replaces previous national planning policy, including PPS9 (Biodiversity and Geological Conservation) published in 2005.

6.2.2. The key element of the NPPF is that there should be '*a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking*' (paragraph 14). It is important to note that this presumption '*does not apply where development requiring Appropriate Assessment under the Birds or Habitats Directives is being considered, planned or determined*' (paragraph 119).

6.2.3. A number of policies in the NPPF are comparable to those in PPS9, including reference to minimisation of impacts to biodiversity and provision of net gains to biodiversity where possible (paragraph 109) and ensuring that Local Authorities place appropriate weight to statutory and non-statutory nature conservation designations, protected species and biodiversity.

6.2.4. The NPPF also considers the strategic approach which Local Authorities should adopt with regard to the protection, enhancement and management of green infrastructure, priority habitats and ecological networks, and the recovery of priority species.

6.2.5. Paragraph 118 of the NPPF comprises a number of principles which Local Authorities should apply, including encouraging opportunities to incorporate biodiversity in and around developments, provision for refusal of planning applications if significant harm cannot be avoided, mitigated or compensated for, applying the protection given to European sites to potential SPAs, possible SACs, listed or proposed Ramsar sites and sites identified (or required) as compensatory measures for adverse effects on European sites, and the provision for the refusal for developments resulting in the loss or deterioration of 'irreplaceable' habitats unless the

need for, and benefits of, the development in that location clearly outweigh the loss.

National policy therefore implicitly recognises the importance of biodiversity and that with sensitive planning and design, development and conservation of the natural heritage can co-exist and benefits can, in certain circumstances, be obtained.

6.3. County Policy

Essex and Southend-on-Sea Structure Plan (adopted 2001) – saved policies

6.3.1. Most of the planning policies contained in the adopted Structure Plan expired on the 27th September 2007 and are therefore no longer in effect. However, the Secretary of State has decided that a limited number of adopted Structure Plan policies should be 'saved' and should apply after this date. Of the six 'saved' policies, one has specific relevance to nature conservation: Policy CC1 The Undeveloped Coast – Coastal Protection Belt (protecting any undeveloped land within the coastal protection belt shall not adversely affect wildlife).

6.4. Local Policy

Rochford District Replacement Local Plan (adopted 2006)

6.4.1. The current document in use for planning control purposes is the Rochford District Replacement Local Plan. There are seven policies relevant to ecology and nature conservation (policies **NR4 – NR10**). Policy **NR4** is concerned with the biodiversity within development sites, including local BAP habitats and species, while policies **NR5 – NR7** are concerned with the protection of designated sites including international, national and locally designated sites.

6.4.2. Policy NR7 states:

"Proposals for development which will adversely affect areas identified as Local Nature Reserves, Wildlife Sites or Regionally Important Geological Sites, will not be permitted unless it can be demonstrated that the justification for the proposal clearly outweighs the need to safeguard the nature conservation value of the site.

In cases where justification for a development proposal clearly outweighs the need to safeguard the nature conservation value of the site, compensation may be provided for within or close to the development site, but when this is not possible, elsewhere in the plan area. Development will not be permitted where such agreements cannot be secured, through legal agreements, or planning conditions."

6.4.3. Policy **NR8** refers to the protection of landscape features of important to wildlife. Policy **NR9** refers to protected species and policy **NR10** refers to protection of the coastal belt.

6.4.4. Following a direction by the Secretary of State on the 5th June 2009, only policies NR7 and NR8 of these have been saved until the adoption of the Local Development Framework (LDF).

Local Development Framework

6.4.5. Rochford District Council are currently preparing a collection documents that will comprise the LDF. The LDF Core Strategy Submission Document was submitted to the Secretary of State and has been examined by an Inspector from the Planning Inspectorate (on behalf of the Secretary of State). The Inspector's Report concluded that the plan is sound and legally compliant, subject to changes. Although not formally adopted the policies within the document indicate the future of planning policy in Rochford district.

6.4.6. There are two policies within the Core Strategy Submission Document relating to ecology and nature conservation (ENV1 and ENV2).

6.4.7. Policy **ENV1** relates to the protection of internationally, nationally and locally designated sites. With regard to LWS, the Core Strategy Submission Document states:

"Local Wildlife Sites (LoWSs) are areas which, despite their lack of national or international statutory protection, are of significant local wildlife value. In 1992 the UK signed the Convention on Biological Diversity which led to the production of the UK Biodiversity Action Plan. However, it is at the local level where the success of biodiversity lies. The Council carried out a Local Wildlife Sites Review in 2007, which showed that Rochford District contains 39 LoWSs. These are predominantly woodland, but there are also significant areas of grassland, mosaic coastal and freshwater habitat types. The Council will work with key stakeholders to promote designing in wildlife schemes in order to obtain a gain in biodiversity, and ensuring any unavoidable impacts from development are appropriately mitigated against."

6.4.8. Policy **ENV2** relates to the protection and enhancement of the coastal belt for wildlife.

6.5. Discussion

6.5.1. Recommendations have been put forward in this report to fully safeguard the existing ecological interest of the site, and wherever possible, measures to enhance ecological and biodiversity value have been set out.

6.5.2. In line with discussions held with Natural England (see above), it is not considered the proposals will have any adverse effect on any statutory designated sites of nature conservation in the vicinity and thus the proposals accord with policy NR7 of the Rochford District Replacement Local Plan as well as policy ENV1 of the emerging LDF Core Strategy Submission Document with regard to internationally and nationally designated sites.

6.5.3. The Star Lane Pits LWS will be buffered from the development boundary, and will not be adversely affected directly or indirectly by the development

proposals. As such, it is considered the proposed development accords with policy NR7 of the Rochford District Replacement Local Plan as well as policy ENV1 of the emerging LDF Core Strategy Submission Document with regard to non-statutory designated sites.

6.5.4. Features of greater ecological importance within the application site will be retained, safeguarded and enhanced wherever possible, or mitigated through alternative / replacement provision within the scheme, and thus accord with policy NR8 of the Rochford District Replacement Local Plan.

6.5.5. The proposed development is not within the coastal belt and as such will accord with policy ENV2 of the emerging LDF Core Strategy Submission Document.

6.5.6. In conclusion, implementation of the measures set out in this report enable development of the application site to fully accord with planning policy for ecology and nature conservation at all administrative levels.

7. SUMMARY AND CONCLUSIONS

7.1. Ecology Solutions was commissioned by Stock Woolstencroft on behalf of Inner London Group in August 2010 to prepare an Ecological Assessment for the Former Brickworks Site, Star Lane, Great Wakering, Essex.

7.2. The proposals for the application site are for the construction of residential development.

Statutory sites.

7.3. There are no statutory designations of nature conservation value within or immediately adjacent to the site. The nearest statutory designation are Foulness Special Protection Area (SPA), also designated as a Ramsar and Site of Special Scientific Interest (SSSI), and Essex Estuaries Special Area of Conservation (SAC), which lie approximately 1.5km north of the application site at their closest point. The Foulness SSSI / SPA / Ramsar and the Essex Estuaries SAC both wrap around the east coast of Essex and as such the Foulness SSSI / SPA / Ramsar also lies approximately 1.8km southeast while the Essex Estuaries SAC lies approximately 2.2km southeast of the application site. The Foulness SSSI / SPA / Ramsar and Essex Estuaries SAC are separated from the application site by the village of Great Wakering, roads and open countryside.

7.4. The Crouch and Roach Estuaries SSSI / SPA / Ramsar site lies approximately 3.6km north of the application site, and is well separated from the application site by the village of Great Wakering, roads, open countryside and the Foulness SSSI / SPA / Ramsar.

7.5. Natural England's scoping response suggests that any potential effects on the Foulness SSSI / SPA / Ramsar and Crouch and Roach SSSI / SPA / Ramsar would be limited to possible increased use by dog walkers in the absence of on-site green infrastructure and effects of increased pressure on the existing water supply and sewerage treatment infrastructure risking damage to the SSSI / SPA / Ramsar.

7.6. In line with correspondence had with Natural England, the Foulness SSSI / SPA / Ramsar site and Crouch and Roach SSSI / SPA / Ramsar site are both considered to be well removed from the application site so as not to be accessible on foot, and some areas of the Foulness SSSI / SPA / Ramsar are inaccessible to the public, forming part of an MoD trials range. Natural England stated that it was not considered likely that there would be a significant increase in recreational pressure on this statutory designated site. Indeed, open spaces within the vicinity will provide extensive areas of suitable alternative recreational opportunities for any new residents on the doorstep of the development.

7.7. Options are available to ensure that the existing water and sewage infrastructure has capacity to cope with increased demand.

7.8. As such, in the context of the above, it is considered unlikely that the development proposals will have any significant adverse effect on the Foulness or Crouch and Roach SSSI / SPA / Ramsar sites either alone or in combination with other plans or projects.

7.9. The nearest Local Nature Reserve (LNR) is Shoeburyness Old Ranges LNR, which lies approximately 2.9km south of the application site. This LNR is well separated from the application site by the extensive residential and industrial development of Shoeburyness and Southend on Sea, as well as major and minor roads, and a rail terminal. As such, it is not considered the development proposals will have any adverse effects of this statutory designated site.

Non-statutory sites.

7.10. The Star lane Pits LWS lies adjacent to the eastern boundary of the application site. Potential impacts on this LWS are considered to be limited to an increase in light spillage, hydrological effects and construction effects.

7.11. None of the species within the Star Lane pits LWS selection criteria have been recorded within the application site, and given the habitats present it is not considered the habitats within the application site offer suitable opportunities for these species.

7.12. The Star Lane Pits is not formally accessible to the public, although it was used by members of an angling club to fish from the lakes it is understood that this licence has now lapsed. As such, it is not considered the there will be any recreational effects arising on this LWS from the proposed application site development.

7.13. In any event, should residents utilise the LWS informally, the dense scrub serves to limit walkers to clear paths, such that any effects of any increased usage would be very restricted and of negligible significance.

7.14. Standard engineering practice in respect of pollution control, as part of the development proposals will negate any other potential effects to this LWS. As such, it is considered there will be no adverse effects on the Star lane Pits LWS from the proposed development of the application site.

Habitats.

7.15. Where losses to areas of hedgerows are to occur, these will be offset through the creation of new wildflower grassland planting, native hedgerow and tree planting and new native planting of known value to wildlife.

Protected Species.

7.16. The recolonising grassland supports a low population of Common Lizard, which would need to be moved to an off-site receptor site or persuaded to move to adjacent habitats through habitat manipulation prior to the commencement of any site clearance.

7.17. The hedgerows within the application site offer suitable foraging and navigational opportunities for bats, while the hedgerows and, to a lesser extent the scattered scrub, offer suitable foraging and nesting opportunities for birds. The hedgerow as well as the rough grassland and recolonising grassland to a lesser extent, offer suitable foraging resources for Badgers.

7.18. The planting of new native hedgerows, trees and wildflower grassland will offset losses to the hedgerow, recolonising and rough grassland habitats within the application site.

7.19. The felling of any suitable bird nesting habitat will be implemented outside of the bird breeding season (March – July inclusive) to ensure that no offence is committed.

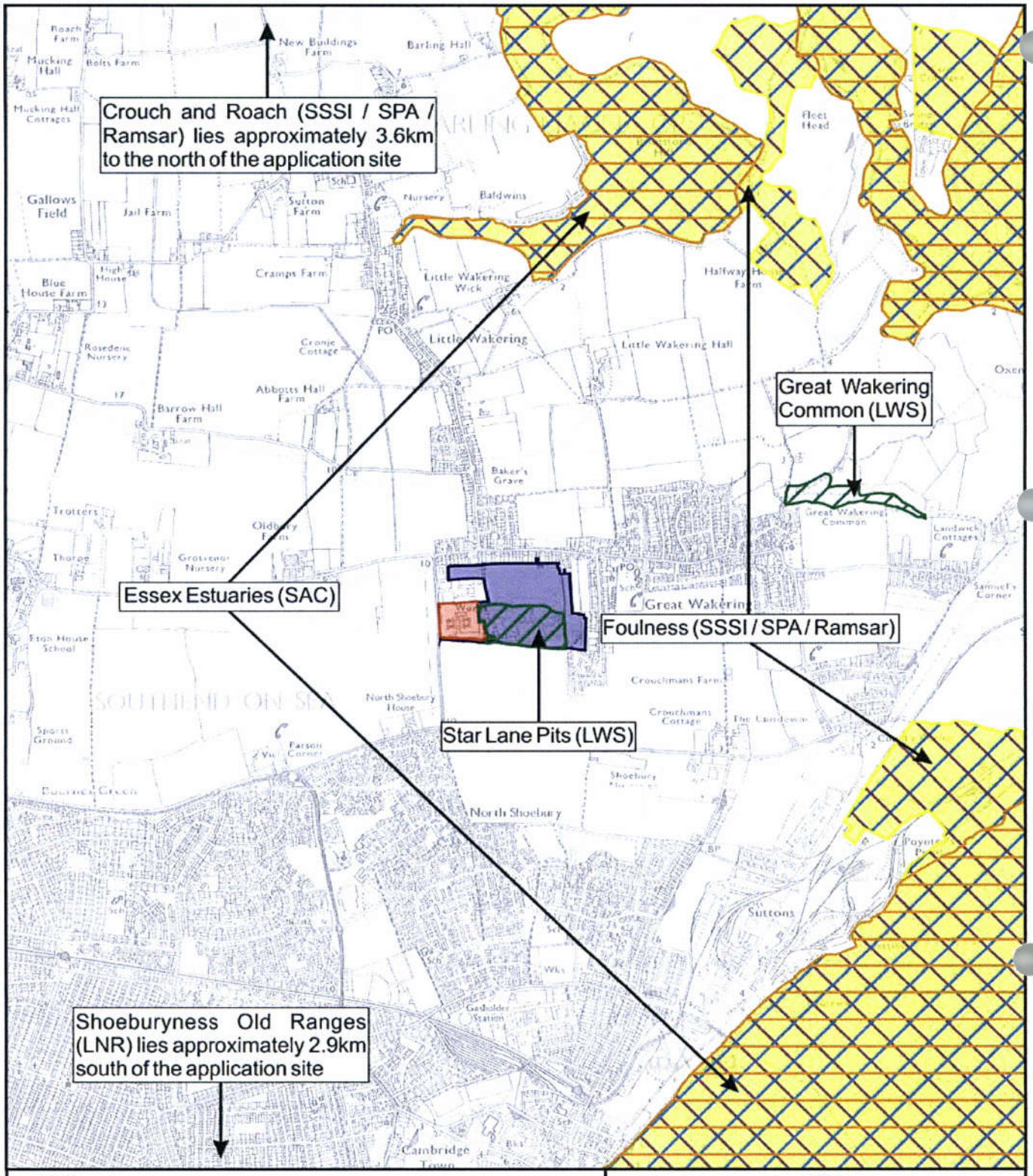
7.20. Where appropriate, measures have been put forward to erect new bat and bird boxes and to create new habitats to achieve biodiversity gains.

7.21. In conclusion, following the implementation of the recommendations set out within this report it is considered that there is no ecological constraint to development within the application site and that the proposals would accord with planning policy with regard to nature conservation at all administrative levels.

PLANS

PLAN ECO1

Site Location & Ecological Designations



PLAN ECO2

Ecological Features


KEY:
APPLICATION SITE BOUNDARY
WIDER STUDY AREA
LOCAL WILDLIFE SITE BOUNDARY
ARABLE SET-ASIDE
ROUGH GRASSLAND
SCRUB
WOODED BELT
LAKE / POND
RECOLONISING GROUND
HARDSTANDING
HEDGEROW
TREE
DITCH
BUILDING
F1
F2
B1
B2
B3
B4
P1
P2
P3
P4
P5
N
Based on Davis Landscape Architecture Drawing L0176L02
ecology solutions ltd
5080: FORMER BRICKWORKS SITE, STAR LANE, GREAT WAKERING, ESSEX
PLAN ECO2: ECOLOGICAL FEATURES

PLAN ECO3

Protected Species


KEY:
APPLICATION SITE BOUNDARY
WIDER STUDY AREA
LOCAL WILDLIFE SITE BOUNDARY
ARABLE SET-ASIDE
ROUGH GRASSLAND
SCRUB
WOODED BELT
LAKE / POND
RECOLONISING GROUND
HARDSTANDING
HEDGEROW
TREE
DITCH
BUILDING
BADGER PUSH-THROUGH
BADGER LATRINE
BADGER EXPLORATORY EXCAVATIONS
WATER VOLE LATRINE
LOCATION COMMON LIZARD RECORDED
LOCATION SLOW WORM RECORDED
LOCATION GRASS SNAKE RECORDED
N
Based on Davis Landscape Architecture Drawing L0176L02
F1
F2
B1
B2
B3
B4
P1
P2
P3
P4
P5
ecology solutions ltd
5080: FORMER BRICKWORKS SITE, STAR LANE, GREAT WAKERING, ESSEX
PLAN ECO3: PROTECTED SPECIES

PLAN ECO4

Bat Survey Results


KEY:
APPLICATION SITE BOUNDARY
WIDER STUDY AREA
LOCAL WILDLIFE SITE BOUNDARY
COMMON AND SOPRANO PIPISTRELLE FORAGING AND COMMUTING ROUTES APRIL 2011
SOPRANO PIPISTRELLE RECORDED APRIL 2011
COMMON AND SOPRANO PIPISTRELLE FORAGING AND COMMUTING ROUTES SEPTEMBER 2011
SOPRANO PIPISTRELLE REGISTRATION SEPTEMBER 2011
NOCTULE REGISTRATION SEPTEMBER 2011
ANABAT OVERNIGHT LOCATION SEPTEMBER 2011
F1
F2
B1
B2
B3
B4
P1
P2
P3
P4
P5
1
2
N
Based on Davis Landscape Architecture Drawing L0176L02
ecology solutions ltd
5080: FORMER BRICKWORKS SITE, STAR LANE, GREAT WAKERING, ESSEX
PLAN ECO4: BAT SURVEY RESULTS

APPENDICES

APPENDIX 1

Correspondence with Natural England

From: Wyatt, Gordon (NE)
Sent: 03 December 2010 10:48
To: Dominic Farmer
Subject: RE: Star Lane, Essex (our ref 5080)

Dominic,

As discussed over the phone, I am fairly relaxed about this proposed development and, indeed, Natural England did not object to the allocation of this site for residential development within the Rochford LDF.

We do not anticipate any significant impact upon the area of the Foulness SSSI, SPA and Ramsar site to the southeast of the proposal site because the designated land is mostly within an MoD trials range and is, therefore, largely inaccessible to the public.

The area of the Foulness SSSI, SPA and Ramsar site to the north is approximately 2km from the proposal site, which probably puts it at or beyond the average distance which dog walkers would be likely to walk from the proposal site. There is a risk that dog walkers may drive to the edge of the SSSI, SPA and Ramsar site before commencing their walk. However, the proposed development is relatively small and is further away from the SSSI, SPA and Ramsar site than the existing settlements of Great Wakering and Little Wakering. Therefore, walkers and dog walkers originating from the proposal site would probably not represent a significant increase to the recreational pressure upon the SSSI, SPA and Ramsar site.

Natural England would expect there to be some on-site provision of green infrastructure and, if at all possible, this should be so located as to be contiguous with the adjacent Local Wildlife Site, thus forming a larger overall area of open space.

Ideally, we would also wish to see the adjacent Local Wildlife Site managed in such a way as to maintain and enhance its wildlife interest. However, we understand that this may not be possible; particularly if the Local Wildlife Site is in a different ownership to the proposal site.

Gordon Wyatt
Planning and Conservation Lead Adviser
Four Counties Team, East of England Region
Natural England
Harbour House
Hythe Quay
Colchester
Essex, CO2 8JF

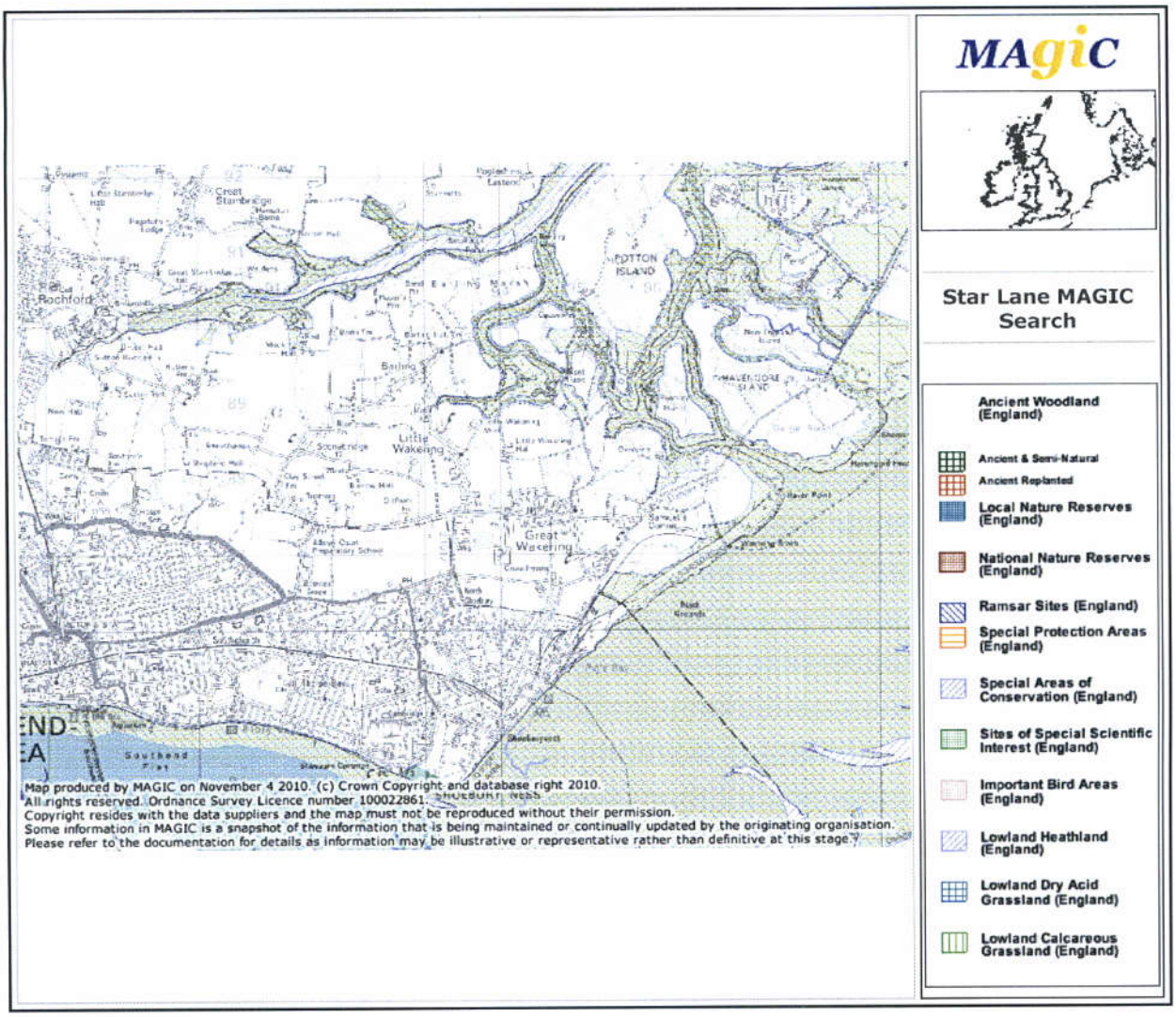
www.naturalengland.org.uk

We are here to secure a healthy natural environment for people to enjoy, where wildlife is protected and England's traditional landscapes are safeguarded for future generations.

In an effort to reduce Natural England's carbon footprint, I will, wherever possible, avoid travelling to meetings and attend via audio, video or web conferencing.

APPENDIX 2

Information downloaded from Magic and Nature on the Map


MAGIC
Star Lane MAGIC Search
Ancient Woodland (England)
Ancient & Semi-Natural
Ancient Replanted
Local Nature Reserves (England)
National Nature Reserves (England)
Ramsar Sites (England)
Special Protection Areas (England)
Special Areas of Conservation (England)
Sites of Special Scientific Interest (England)
Important Bird Areas (England)
Lowland Heathland (England)
Lowland Dry Acid Grassland (England)
Lowland Calcareous Grassland (England)
Great Wakering
Little Wakering
POTTON ISLAND
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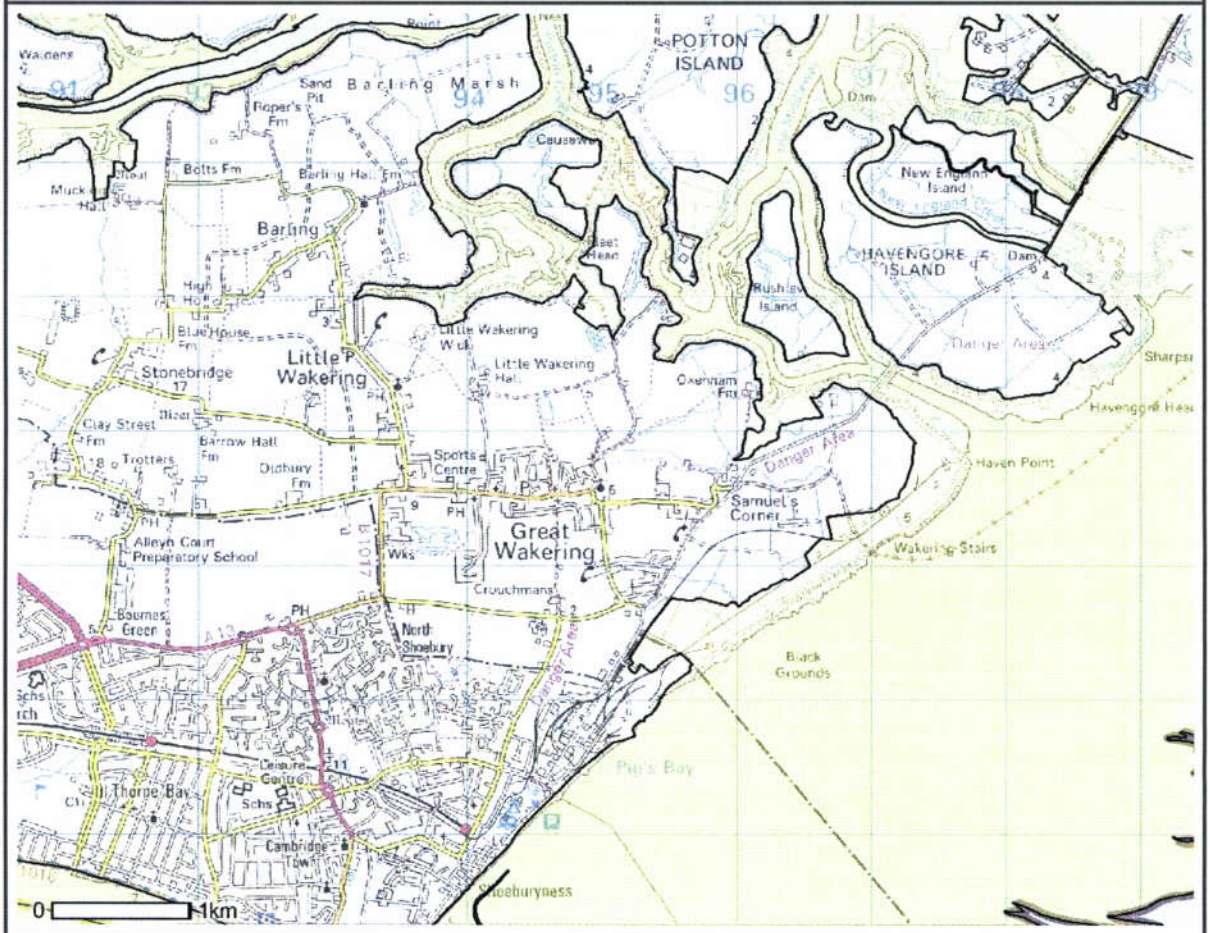
Please refer to the documentation for details as information may be illustrative or representative rather than definitive at this stage.

Nature on the Map

My Map

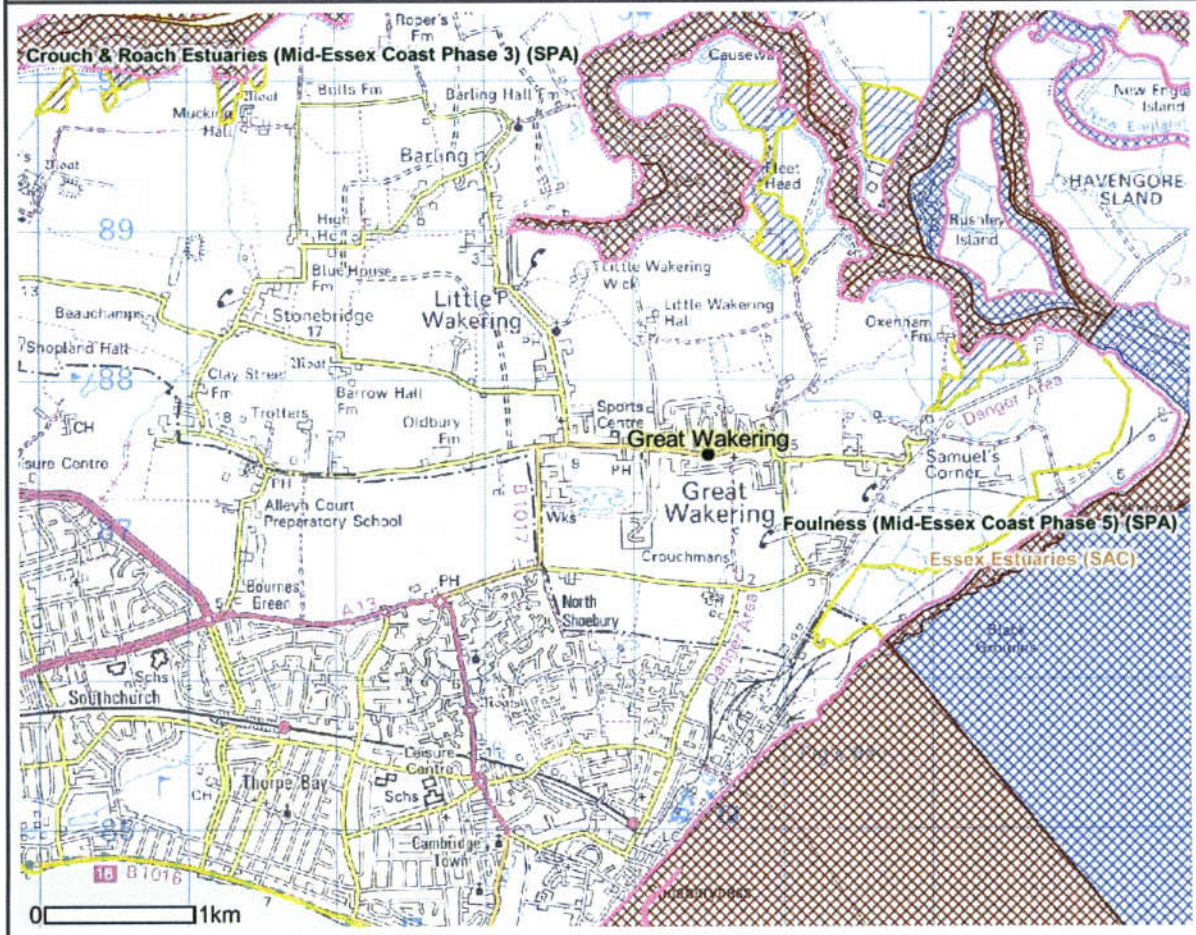


- ★ Natural England Offices
- National Nature Reserves
- Selected Local Nature Reserves
- Local Nature Reserves
- Country Parks
- Green Flag Country Park
- Non Green Flag Country Park
- Millennium Greens
- Doorstep Greens
- Sites of Special Scientific Interest
- Natural England Regions
- Natural England Area Teams
- Scotland, Wales and Ireland
- Ordnance Survey background mapping
- England

NATURAL ENGLAND

Nature on the Map

5080. NOTM Search (International Sites



- Natural England Offices
- Special Areas of Conservation
- SAC Water Framework Unit Condition
  - Favourable Condition
  - Unfavourable Condition
- Special Protection Areas
- SPA Water Framework Unit Condition
  - Favourable Condition
  - Unfavourable Condition
- Ramsar Sites
- Sites of Special Scientific Interest
- Natural England Regions
- Natural England Area Teams
- Scotland, Wales and Ireland
- Ordnance Survey background mapping
- England

APPENDIX 3

Foulness SSSI / SPA / Ramsar Citations

COUNTY: ESSEX SITE NAME: FOULNESS

DISTRICT: ROCHFORD AND SOUTHEND-ON-SEA

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981. Gunners Park is a Local Nature Reserve (LNR) declared under Section 21 of the National Parks and Access to the Countryside Act 1949.

Local Planning Authority: Rochford District Council, Southend-on-Sea Borough Council

National Grid Reference: TR 030905 Area: 10,702 (ha.) 26,433.9 (ac.)

Ordnance Survey Sheet 1:500,000: 178 1:10,000: TM 10 SW; TQ 98 NE, NW, SE, SW; TQ 99 SE, SW; TR 08 NE, NW; TR 09 NE, NW, SE, SW; TR 19 NW, SW

Date Notified (Under 1949 Act): 1956 Date of Last Revision: 1974 and 1980

Date Notified (Under 1981 Act): 1993 Date of Last Revision: –

Other Information:
Foulness is a key site in 'A Nature Conservation Review' edited by D A Ratcliffe (Pub: Cambridge University Press, 1977). As such, the safeguarding of this site is regarded as an essential element in the success of nature conservation in Britain. It is also proposed as part of the mid-Essex Coast Special Protection Area, under the EEC Directive on the Conservation of Wild Birds (Directive 79/409/EEC), and as a Wetland of International Importance, under the Ramsar Convention.

The majority of the site is owned and managed by the Ministry of Defence. A Local Nature Reserve (LNR) at Shoeburyness is managed by the Essex Wildlife Trust. The boundary of the site has been modified at this renotification to include a small area of grazing marsh at Little Wakering and coastal habitats of saltmarsh, mudflats and sea wall at Little Wakering Creek. Land which has lost its special interest, since the last notification, has been excluded.

Description and Reasons for Notification:
Foulness lies on the north shore of the Thames Estuary between Southend in the south and the Rivers Roach and Crouch in the north. It comprises extensive intertidal sand-silt flats, saltmarsh, beaches, grazing marshes, rough grass and scrubland. The flats are of national and international importance as winter feeding grounds for nine species of wildfowl and wader, with the islands, creeks and grazing land forming an integral part as sheltered feeding and roosting sites. The shell banks support nationally important breeding colonies of Little Terns, Common Terns and Sandwich Terns. The complex matrix of habitats also supports nationally important numbers of breeding Avocets along with plants and invertebrates. Numerous species are locally restricted in their distribution and nationally uncommon or rare.

During the winter months Foulness is a refuge for tens of thousands of waders and wildfowl, which migrate from breeding grounds to overwintering sites. These include over 13,000 dark-bellied brent geese (14.7% of the British population and 7.8% of the world population). This is a reflection of the abundance of their favoured food plant, the rare dwarf eelgrass *Zostera noltii*, which unlike the more common eelgrass *Z. marina*, does not lose its leaves in autumn before the brent arrive from their breeding grounds in Siberia. The uncommon narrow-leaved eelgrass *Z. angustifolia* is also present. Once this food source is exhausted by the brent geese, alternative feeding is

provided by the adjacent fields on New England and Foulness Islands. The site also supports nationally important numbers of Shelduck (on average 826, 1.1% of the British population). Of the waders, Curlew and Dunlin occur in nationally important numbers, whilst five species, bar-tailed godwit, grey plover, knot, redshank and oystercatcher, occur in internationally important numbers. This is due to the rich invertebrate food supply in the mudflats, such as *Hydrobia* snails on the surface of the mud which are favoured by dunlin. Mudhopper crustaceans, *Corophium*, inhabit the upper surface layers and are preferred by redshank, whilst knot and grey plover take the small bivalve mollusc, *Macoma*, and deeper in the mud, ragworm (*Neris* and *Nepthys*) provide food for the curlew. On sandier areas, the lugworm *Arenicola* supports the bar-tailed godwit, and oystercatchers feed on cockles *Cerastoderma edule*.

Empty cockle shells are washed up at Foulness Point to form the most extensive shell beach in Britain. Additionally, during work associated with proposals to create an airport on the Maplin Flats in the 1970s an artificial island was created towards the south west of the site. Together these areas support nationally important breeding colonies of little, common and sandwich terns. Breeding pairs of little tern fluctuate from a high of 87 in 1987 to none in 1990, with an average in excess of 26 pairs between 1987 and 1991. Sandwich terns have increased steadily and now over 500 pairs breed on the artificial island created (over 3% of the total British population). Large numbers of ringed plover also breed across the site. In recent years the Island has become a favoured breeding ground for avocets. Presently there are four sites with an average of about 30 breeding pairs. At present this represents almost 6% of the British breeding population. The beach at Foulness Point also forms an important high tide roost for waders and wildfowl, not only from Foulness but also from the neighbouring Crouch Estuary and the Dengie Flats. The beach flora at Foulness Point includes yellow horned-poppy *Glaucium flavum*, sea rocket *Cakile maritima* and prickly saltwort *Salsola kali* subsp. *kali*. Further south, along the beach of Pig's Bay, typical colonisers include abundant sea holly *Erynigium maritimum* together with sea rocket, sand sedge *Carex arenaria*, sea sandwort *Honkenya peploides* and sea bindweed *Calystegia soldanella*. The low natural cliff-line has a strong colony of the rare Bermuda-grass *Cynodon dactylon*.

The saltmarsh and hinterland also provides high tide roosting sites for the birds. The dominant saltmarsh plants include common saltmarsh-grass *Puccinellia maritima*, sea purslane *Halimione portulacoides* and common sea-lavender *Limonium vulgare*, with sea aster *Aster tripolium* and annual sea-blite *Suaeda maritima* at the lower levels. There are a number of uncommon plants associated with the saltmarshes, including borrer's saltmarsh-grass *Puccinellia fasciculata* and stiff saltmarsh-grass *P. rupestris*, lax-flowered sea-lavender *L. humile* and annual beard-grass *Polypogon monspeliensis*. On the upper saltings, uncommon plants include two glassworts *Salicornia perennis* and *S. pusilla*, together with golden samphire *Inula crithmoides* and shrubby sea-blite *Suaeda vera*; the latter two particularly favour the drift-line at the foot of the seawall.

The seawalls are generally dominated by coarse grasses, especially sea couch *Elymus pycnanthus*. However, they also provide suitable conditions for a number of plants with a restricted distribution, for example, slender hare's-ear *Bupleurum tenuissimum*, sea barley *Hordeum marinum*, upright chickweed *Moenchia erecta* and sea clover *Trifolium squamosum*. The accompanying borrowdykes and island ditches also support a distinctive flora. Sea club-rush *Scirpus maritimus* and common reed *Phragmites australis* are generally dominant, whilst nationally uncommon plants include soft hornwort *Ceratophyllum submersum* and spiral tasselwood *Ruppia cirrhosa*. In 1987 a plant previously considered extinct in Britain was discovered. Foulness is now the only known locality for annual sea purslane *Halimione pedunculata*.

At Gunners Park, unimproved grassland has developed over relict sand dunes and in consequence supports a flora which is unique in Essex. There are large stands dominated by grass and sedge communities, with rushes in damp hollows, together

with low-growing vegetation maintained by rabbit grazing. The tall grassland is dominated by false oat-grass *Arrhenatherum elatius*, cock's-foot *Dactylis glomerata*, red fescue *Festuca rubra* and Yorkshire-fog *Holcus lanatus*, amongst which are found the locally uncommon distant sedge *Carex distans* and divided sedge *C. divisa*. The shorter turf is unusually rich in lichens, with the more compacted areas also supporting suffocated clover *Trifolium suffocatum*, curved hard-grass *Parapholis incurva* and stiff saltmarsh-grass *Puccinellia rupestris*, all three of local distribution in Britain. On loose sand, particularly near rabbit burrows, dune fescue *Vulpia membranacea* and bulbous meadow-grass *Poa bulbosa* grow alongside more frequent dune species such as sea fern-grass *Desmazeria marina*, sand cat's-tail *Phleum arenarium* and sand sedge. Marram *Ammophilia arenaria*, sea bindweed and yellow horned-poppy provide further evidence of the sand dune origin of the area.

Foulness, in addition to its bird and plant interest, is also of prime importance for its invertebrates. The combination of saltmarsh, ditches, long grass on the seawalls, lightly-grazed marshes, and scrub such as found at Wakering Stairs, provides habitats for numerous species. There are no less than 71 listed as of notable occurrence or nationally rare, including such Red Data Book species as the scarce emerald damselfly *Lestes dryas*, the beetles *Tachys scutellaris* and *Berosus spinosus* and the flies *Stratiomys longicornis* and *Paragus albifrons*.

NATURA 2000

STANDARD DATA FORM

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

1. Site identification:

1.1 Type J

1.2 Site code UK9009246

1.3 Compilation date 199610

1.4 Update 199902

1.5 Relationship with other Natura 2000 sites

U	K	0	0	1	3	6	9	0

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Foulness (Mid-Essex Coast Phase 5)**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	
date confirmed as SCI	
date site classified as SPA	199610
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	**latitude**
00 55 17 E	51 34 26 N

2.2 Site area (ha) 10968.9

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UK54	Essex	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

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

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

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

		Population				Site assessment			
		Resident	Migratory						
Code	Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global
A046a	*Branta bernicla bernicla*			13075 I		B		C	
A143	*Calidris canutus*			40429 I		B		C	
A137	*Charadrius hiaticula*		<135 P			C		C	
A082	*Circus cyaneus*			<19 I		B		C	
A130	*Haematopus ostralegus*			11756 I		B		C	
A157	*Limosa lapponica*			7639 I		B		C	
A141	*Pluvialis squatarola*			4209 I		B		C	
A132	*Recurvirostra avosetta*			100 I		B		B	
A132	*Recurvirostra avosetta*		26 P			B		B	
A195	*Sterna albifrons*		>24 P			C		C	
A193	*Sterna hirundo*		220 P			C		C	
A191	*Sterna sandvicensis*		320 P			B		C	
A162	*Tringa totanus*			1369 I		C		C	

4. Site description:

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	92.0
Salt marshes. Salt pastures. Salt steppes	5.0
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	3.0
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Clay, Gravel, Mud, Nutrient-rich, Sand, Sedimentary, Shingle

Geomorphology & landscape:

Coastal, Estuary, Floodplain, Intertidal sediments (including sandflat/mudflat), Lowland, Open coast (including bay), Subtidal sediments (including sandbank/mudbank)

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC)

During the breeding season the area regularly supports:

Recurvirostra avosetta (Western Europe/Western Mediterranean - breeding)	5.8% of the GB breeding population 5 year mean, 1987-1991
Sterna albifrons (Eastern Atlantic - breeding)	at least 1% of the GB breeding population 5 year mean, 1992-1996
Sterna hirundo (Northern/Eastern Europe - breeding)	1.8% of the GB breeding population Count, as at 1996
Sterna sandvicensis (Western Europe/Western Africa)	2.3% of the GB breeding population 5 year mean, 1992-1996

Over winter the area regularly supports:

Circus cyaneus	up to 2.5% of the GB population 5 year mean, 1987/8-1991/2
Limosa lapponica (Western Palearctic - wintering)	14.6% of the GB population 5 year peak mean 1991/92-1995/96
Recurvirostra avosetta (Western Europe/Western Mediterranean - breeding)	7.9% of the GB population 5 year peak mean 1991/92-1995/96

ARTICLE 4.2 QUALIFICATION (79/409/EEC)

During the breeding season the area regularly supports:

Charadrius hiaticula (Europe/Northern Africa - wintering)	up to 1.6% of the population in Great Britain 5 year mean, 1987/8-1991/2

Over winter the area regularly supports:

Branta bernicla bernicla (Western Siberia/Western Europe)	4.4% of the population 5 year peak mean 1991/92-1995/96
Calidris canutus (North-eastern Canada/Greenland/Iceland/North-western Europe)	11.7% of the population 5 year peak mean 1991/92-1995/96
Haematopus ostralegus (Europe & Northern/Western Africa)	1.3% of the population 5 year peak mean 1991/92-1995/96
Pluvialis squatarola (Eastern Atlantic - wintering)	2.5% of the population 5 year peak mean 1991/92-1995/96
Tringa totanus (Eastern Atlantic - wintering)	0.8% of the population 5 year peak mean 1991/92-1995/96

ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS

Over winter the area regularly supports:

107999 waterfowl (5 year peak mean 01/04/1998)

Including:
Branta bernicla bernicla , Haematopus ostralegus , Recurvirostra avosetta , Pluvialis squatarola , Calidris canutus , Limosa lapponica , Tringa totanus .

4.3 Vulnerability

Much of the area is owned by the Ministry of Defence and is not, therefore, subject to development pressures or public disturbance. Offshore aggregate dredging and seismic surveys, which could possibly adversely affect the Maplin sands, will be addressed through the Essex Estuaries marine Special Area of Conservation (SAC) management scheme, of which Foulness is part.
Natural processes are adversely affecting the south-east coastline and saltmarshes are being eroded. Maintenance of the integrity of the intertidal and saltmarsh habitats of the Mid-Essex Coast Ramsar sites as a whole is being addressed by soft sea defence measures, managed retreat and foreshore recharge.
The cockel beds on the Maplin Sands support internationally important numbers of wading birds: the Kent and Essex Sea Fisheries Committee control the cockle fishery through regulatory orders.
The site includes areas of grazing marsh and ditches. These areas are low lying, protected by sea walls and surrounded by areas of arable land. The main ditches that run through these marshes are saline and are fed from sea water which floods through sluices. The combination of lower rainfall and improved drainage to facilitate arable production means that the grazing marshes are becoming too dry. The rainfall has been too low in recent years to enable maintenance of the waterlevels by selecting damming ditches. To offset this the main ditch is deliberately fed with sea water to keep it topped up. This operation has increased in frequency in the past 8-10 years.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK04 (SSSI/ASSI)	100.0

Information Sheet on Ramsar Wetlands (RIS)

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

Notes for compilers:

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

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

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

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

FOR OFFICE USE ONLY.

DD MM YY

Designation date

Site Reference Number

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

2. Date this sheet was completed/updated:

Designated: 04 October 1996

3. Country:

UK (England)

4. Name of the Ramsar site:

Foulness (Mid-Essex Coast Phase 5)

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

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

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

a) Site boundary and area:

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

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

7. Map of site included:

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

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

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

b) Describe briefly the type of boundary delineation applied:

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

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

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

8. Geographical coordinates (latitude/longitude):

51 34 25 N 00 55 17 E

9. General location:

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

Nearest town/city: Southend-on-Sea

Foulness is an open coast system at the wide northern mouth of the Thames estuary.

Administrative region: Essex

10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 10932.95

Min. -1
Max. 3
Mean 0

12. General overview of the site:

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

Foulness is part of an open coast estuarine system comprising grazing marsh, saltmarsh, intertidal mudflats and sandflats which support nationally rare and nationally scarce plants, and nationally and internationally important populations of breeding, migratory and wintering waterfowl.

13. Ramsar Criteria:

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

1, 2, 3, 5, 6

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

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

Ramsar criterion 1

This site qualifies by virtue of the extent and diversity of saltmarsh habitat present. This and four other sites in the Mid-Essex Coast Ramsar site complex, include a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain.

Ramsar criterion 2

The site supports a number of nationally-rare and nationally-scarce plant species, and British Red Data Book invertebrates.

Ramsar criterion 3

The site contains extensive saltmarsh habitat, with areas supporting full and representative sequences of saltmarsh plant communities covering the range of variation in Britain.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:
82148 waterfowl (5 year peak mean 1998/99-2002/2003)

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

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

Common redshank , *Tringa totanus totanus*,	2586 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Dark-bellied brent goose, *Branta bernicla bernicla*,	6475 individuals, representing an average of 3% of the population (5 year peak mean 1998/9-2002/3)
Eurasian oystercatcher , *Haematopus ostralegus ostralegus*, Europe & NW Africa -wintering	14674 individuals, representing an average of 1.4% of the population (5 year peak mean 1998/9-2002/3)
Grey plover , *Pluvialis squatarola*, E Atlantic/W Africa -wintering	4343 individuals, representing an average of 1.7% of the population (5 year peak mean 1998/9-2002/3)
Red knot , *Calidris canutus islandica*, W & Southern Africa (wintering)	22439 individuals, representing an average of 4.9% of the population (5 year peak mean 1998/9-2002/3)
Bar-tailed godwit , *Limosa lapponica lapponica*, W Palearctic	4095 individuals, representing an average of 3.4% of the population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.
See Sections 21/22 for details of noteworthy species
Details of bird species occuring at levels of National importance are given in Section 22

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

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

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

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

Soil & geology	shingle, sand, mud, clay, nutrient-rich, sedimentary, gravel
Geomorphology and landscape	lowland, coastal, floodplain, subtidal sediments (including sandbank/mudbank), intertidal sediments (including sandflat/mudflat), open coast (including bay), estuary
Nutrient status	eutrophic
pH	circumneutral
Salinity	brackish / mixosaline, fresh, saline / euhaline
Soil	mainly organic
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Lowestoft, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/lowestoft.html) Max. daily temperature: 13.0° C Min. daily temperature: 7.0° C Days of air frost: 27.8 Rainfall: 576.3 mm Hrs. of sunshine: 1535.5

General description of the Physical Features:

Foulness is part of an open coast estuarine system comprising grazing marsh, saltmarsh, intertidal mudflats, cockle-shell banks and sandflats. It includes one of the three largest continuous sand-silt flats in the UK.

17. Physical features of the catchment area:

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

Foulness is part of an open coast estuarine system comprising grazing marsh, saltmarsh, intertidal mudflats, cockle-shell banks and sandflats. It includes one of the three largest continuous sand-silt flats in the UK.

18. Hydrological values:

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

Shoreline stabilisation and dissipation of erosive forces, Sediment trapping

19. Wetland types:

Human-made wetland, Marine/coastal wetland

Code	Name	% Area
G	Tidal flats	89.5

Ts	Freshwater marshes / pools: seasonal / intermittent	3.7
B	Marine beds (e.g. sea grass beds)	2.7
H	Salt marshes	2.1
Other	Other	1.4
Q	Saline / brackish lakes: permanent	0.5
E	Sand / shingle shores (including dune systems)	0.1

20. General ecological features:

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

The main habitat types of this site are:

mudflats, sandflats, saltmarsh, brackish-water lagoon, freshwater, grazing marsh.

Pioneer saltmarsh communities with *Spartina maritima*, *Sarcocornia perennis* and *Suaeda vera*; mature saltmarsh communities with *Atriplex pedunculata*. Species-rich perennial saltmarsh and drift-like communities with *Suaeda vera*, eelgrass *Zostera* beds. Brackish-water vegetation dominated by *Bolboschoenus maritimus*. Grazing marsh with *Alopecurus geniculatus*, *Hordeum secalinum* and fescues *Festuca* spp.

Ecosystem services

21. Noteworthy flora:

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

Nationally important species occurring on the site.

Higher Plants.

Atriplex pedunculata, Cynodon dactylon, Bupleurum tenuissimum, Carex divisa, Hordeum marinum, Inula crithmoides, Limonium humile, Parapholis incurva, Poa bulbosa, Polypogon monspeliensis, Puccinellia fasciculata, Puccinellia rupestris, Ruppia cirrhosa, Salicornia pusilla, Spartina maritima, Suaeda vera, Trifolium squamosum, Trifolium suffocatum, Vulpia fasciculata, Zostera angustifolia, Zostera noltei.

22. Noteworthy fauna:

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

Birds

Species currently occurring at levels of national importance:

Species regularly supported during the breeding season:

Sandwich tern , *Sterna (Thalasseus) sandvicensis sandvicensis*, W Europe	320 pairs, representing an average of 3% of the GB population (5 year mean 1992-1996)
Common tern , *Sterna hirundo hirundo*, N & E Europe	134 apparently occupied nests, representing an average of 1.3% of the GB population (Seabird 2000 Census)
Little tern , *Sterna albifrons albifrons*, W Europe	24 pairs, representing an average of 1.2% of the GB population (5 year mean 1992-1996)

Species with peak counts in spring/autumn:

Little egret , *Egretta garzetta*, West Mediterranean	55 individuals, representing an average of 3.3% of the GB population (5 year peak mean 1998/9-2002/3)
Ringed plover , *Charadrius hiaticula*, Europe/Northwest Africa	547 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3)
Sanderling , *Calidris alba*, Eastern Atlantic	432 individuals, representing an average of 2.1% of the GB population (5 year peak mean 1998/9-2002/3)
Ruff , *Philomachus pugnax*, Europe/W Africa	20 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9-2002/3)
Whimbrel , *Numenius phaeopus*, Europe/Western Africa	34 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3)
Eurasian curlew , *Numenius arquata arquata*, N. a. arquata Europe (breeding)	2948 individuals, representing an average of 2% of the GB population (5 year peak mean 1998/9-2002/3)
Common greenshank , *Tringa nebularia*, Europe/W Africa	139 individuals, representing an average of 23.2% of the GB population (5 year peak mean 1998/9-2002/3)
Species with peak counts in winter:	
Little grebe , *Tachybaptus ruficollis ruficollis*, Europe to E Urals, NW Africa	97 individuals, representing an average of 1.2% of the GB population (5 year peak mean 1998/9-2002/3)
Common shelduck , *Tadorna tadorna*, NW Europe	1305 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3)
Hen harrier, *Circus cyaneus*, Europe	<19 individuals, representing an average of 2.5% of the GB population (5 year mean 1987/8-1991/2)
Pied avocet , *Recurvirostra avosetta*, Europe/Northwest Africa	255 individuals, representing an average of 7.5% of the GB population (5 year peak mean 1998/9-2002/3)
European golden plover , *Pluvialis apricaria apricaria*, P. a. altifrons Iceland & Faroes/E Atlantic	4066 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3)
Dunlin , *Calidris alpina alpina*, W Siberia/W Europe	9905 individuals, representing an average of 1.7% of the GB population (5 year peak mean 1998/9-2002/3)
Spotted redshank , *Tringa erythropus*, Europe/W Africa	5 individuals, representing an average of 3.6% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

Nationally important species occurring on the site.

Invertebrates.

Lestes dryas, Aethes margarotana, Malacosoma castrensis, Hybomitra expollicata, Lejops vittata, Poecilobothrus ducalis, Stratiomys longicornis, Parydroptera discomyzina, Paragus albifrons, Tachys scutellaris, Berosus spinosus, Gammarus insensibilis

23. Social and cultural values:

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

Aesthetic
Archaeological/historical site
Fisheries production
Livestock grazing
Sport hunting

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

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

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

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

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

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

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
Local authority, municipality etc.	+	+
National/Crown Estate	+	+
Private	+	

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Tourism		+
Recreation		+
Current scientific research		+
Fishing: commercial	+	+
Fishing: recreational/sport		+
Bait collection		+
Arable agriculture (unspecified)	+	+
Grazing (unspecified)	+	+
Hunting: recreational/sport	+	+
Flood control	+	+
Mineral exploration (excl. hydrocarbons)		+

Transport route	+	+
Urban development		+
Non-urbanised settlements	+	+
Military activities	+	

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

Explanation of reporting category:

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

NA = Not Applicable because no factors have been reported.

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

For category 2 factors only.
What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Erosion - The Essex Coast and Estuaries Coastal Habitat Management Plan (CHaMP) (Anon. 2002) covers the site and it is expected to inform the shoreline management plan as well as local plan policies. The MoD are responsible for the site and there are discussions underway as to the possibility of managed realignment.

Is the site subject to adverse ecological change? YES

27. Conservation measures taken:

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

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	+
National Nature Reserve (NNR)		+
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation		+
Management agreement	+	
Site management statement/plan implemented	+	
Environmentally Sensitive Area (ESA)	+	+
Special Area of Conservation (SAC)	+	

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

28. Conservation measures proposed but not yet implemented:

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

No information available

29. Current scientific research and facilities:

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

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

Flora.
Reintroduction of *Atriplex pedunculata* as part of the English Nature Species Recovery Programme.

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

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

None reported

31. Current recreation and tourism:

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

Activities, Facilities provided and Seasonality.
There is no significant regular use of the site for recreation or tourism.

32. Jurisdiction:

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

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

33. Management authority:

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

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

34. Bibliographical references:

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

Site-relevant references

Anon. (2002) *Essex Coast and Estuaries Coastal Habitat Management Plan: Executive summary*. English Nature, Peterborough (Living with the Sea LIFE Project). www.english-nature.org.uk/livingwiththesea/champs/pdf/ESSEX.FINALEXEC.SUMMARY.pdf

Barne, JH, Robson, CF, Kaznowska, SS, Doody, JP, Davidson, NC & Buck, AL (eds.) (1998) *Coasts and seas of the United Kingdom. Region 7 South-east England: Lowestoft to Dungeness*. Joint Nature Conservation Committee, Peterborough. (Coastal Directories Series.)

Buck, AL (ed.) (1993) *An inventory of UK estuaries. Volume 5. Eastern England*. Joint Nature Conservation Committee, Peterborough

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

Cottle, R, Pethick, J & Dalton, H (2002) *Essex Estuaries Coastal Habitat Management Plan: final report*. English Nature, Peterborough (Living with the Sea LIFE Project)

Covey, R (1998) Chapter 6. Eastern England (Bridlington to Folkestone) (MNCR Sector 6). In: *Benthic marine ecosystems of Great Britain and the north-east Atlantic*, ed. by K. Hiscock, 179-198. Joint Nature Conservation Committee, Peterborough. (Coasts and Seas of the United Kingdom. MNCR series)

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

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

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

May, VJ & Hansom, JD (eds.) (2003) *Coastal geomorphology of Great Britain*. Joint Nature Conservation Committee, Peterborough (Geological Conservation Review Series, No. 28)

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

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

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

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

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

Shirt, DB (ed.) (1987) *British Red Data Books: 2. Insects*. Nature Conservancy Council, Peterborough

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

Thames Estuary Conservation Group (n.d.) *The Thames estuary*. Thames Estuary Conservation Group

Worley, A & Simpson, M (1998) Littoral and sublittoral biotope mapping and data capture exercise for the Essex estuaries candidate Marine Special Area of Conservation. *English Nature Research Reports*, No. **305**

Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
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APPENDIX 4

Essex Estuaries SAC Citation

NATURA 2000

STANDARD DATA FORM

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

1. Site identification:

1.1 Type K

1.2 Site code UK0013690

1.3 Compilation date 199610

1.4 Update 200105

1.5 Relationship with other Natura 2000 sites

U	K	9	0	0	9	1	7	1
U	K	9	0	0	9	2	4	2
U	K	9	0	0	9	2	4	3
U	K	9	0	0	9	2	4	4
U	K	9	0	0	9	2	4	5
U	K	9	0	0	9	2	4	6
U	K	9	0	2	0	3	0	9

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Essex Estuaries**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	199610
date confirmed as SCI	200412
date site classified as SPA	
date site designated as SAC	200504

2. Site location:

2.1 Site centre location

longitude	latitude
01 02 37 E	51 42 06 N

2.2 Site area (ha) 46140.82

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UK54	Essex	13.27%
0	Marine	86.73%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

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

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment
Sandbanks which are slightly covered by sea water all the time	3.89	B	C	C	C
Estuaries	40.93	A	B	B	B
Mudflats and sandflats not covered by seawater at low tide	51.16	A	B	B	B
Perennial vegetation of stony banks	0	D			
Salicornia and other annuals colonising mud and sand	0.72	A	B	A	A
Spartina swards (*Spartinion maritimae*)	0.04	A	A	A	A
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	7.37	B	B	A	B
Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*)	0.05	B	A	A	A
Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")	0	D			

3.2 Annex II species

		Population			Site assessment			
	Resident	Migratory						
Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global
Alosa alosa	Rare	-	-	-	D			
Alosa fallax	Very rare	-	-	-	D			
Phoca vitulina	Present	-	-	-	D			

4. Site description

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	30.0
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	56.5
Salt marshes. Salt pastures. Salt steppes	11.0
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	0.5
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	2.0
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Clay, Cobble, Mud, Neutral, Nutrient-rich, Pebble, Sand, Sedimentary, Shingle

Geomorphology & landscape:

Coastal, Estuary, Floodplain, Intertidal sediments (including sandflat/mudflat), Islands, Lowland, Open coast (including bay), Subtidal sediments (including sandbank/mudbank)

4.2 Quality and importance

Sandbanks which are slightly covered by sea water all the time
- for which the area is considered to support a significant presence.

Estuaries
- for which this is considered to be one of the best areas in the United Kingdom.

Mudflats and sandflats not covered by seawater at low tide
- for which this is considered to be one of the best areas in the United Kingdom.

Salicornia and other annuals colonising mud and sand
- for which this is considered to be one of the best areas in the United Kingdom.

Spartina swards (*Spartinion maritimae*)
- for which this is one of only two known outstanding localities in the United Kingdom.
- which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 100 hectares.

Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- for which this is considered to be one of the best areas in the United Kingdom.

Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*)
- for which this is one of only four known outstanding localities in the United Kingdom.
- which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares.

4.3 Vulnerability

The saltmarshes and mudflats are under threat from 'coastal squeeze' - man-made sea defences prevent landward migration of these habitats in response to sea-level rise. These habitats are also vulnerable to plans or projects (onshore and offshore) which have impacts on sediment transport. English Nature's Regulation 33 advice was issued June 2000. A scheme of management is being established with the aim of addressing such problems.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK01 (NNR)	8.3
UK00 (N/A)	55.2
UK04 (SSSI/ASSI)	44.8

APPENDIX 5

Crouch and Roach Estuaries SSSI / SPA / Ramsar Citations

File ref:

County: **Essex** **Site Name: Crouch and Roach Estuaries**

District: **Maldon, Rochford and Chelmsford**

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

Local Planning Authority: Maldon District Council/Rochford District Council/ Chelmsford Borough Council

National Grid Reference: TQ 870970 **Area:** 1735.58 (ha)

Ordnance Survey Sheet 1: 50 000: 167, 169, 178 **1: 10 000:** TQ 79 SE, TQ 79 NE, TQ 88 NE, TQ 98 NW, TQ 89 NE, TQ 89 SW, TQ 89 NW, TQ 89 SE, TQ 99 SE, TQ 99 NE, TQ 99 SW, TQ 99 NW, TQ 99 NW

Date Notified (Under 1949 Act): 1955 (part) 1966 (part) **Date of Last Revision:** 1975 (part) 1971 (part)

Date Notified (Under 1981 Act): 1984 (part) 1990 (part) 11 April 1996 **Date of Last Revision:** -

Other Information:

The site comprises the former River Crouch Marshes SSSI with extensions and deletions. The extensions include areas of salt marsh and intertidal mud along the Crouch and Roach estuaries as well as additional areas of grazing marsh and a fresh water reservoir. The deletions are areas of defunct saltmarsh.

The Crouch and Roach Estuaries SSSI is contiguous with both the Dengie SSSI and the Foulness SSSI. These sites run from the mouth of the River Crouch, the Dengie SSSI to the north, and the Foulness SSSI running southwards including the south bank of the River Crouch downstream. Part of the site overlaps the geological SSSI known as The Cliff, Burnham on Crouch.

A proportion of the site forms part of the Mid-Essex Coast Special Protection Area under the EC Directive on the Conservation of Wild Birds (Directive 79/409/EEC), and as a wetland of international importance under the Ramsar convention. The tidal reaches of the Crouch and Roach estuaries are part of the Essex Estuaries possible Special Area of Conservation under the Habitats Directive (Directive 92/43/EEC).

cont.....

Crouch and Roach Estuaries (cont...)

Description and Reasons for Notification:

The rivers Crouch and Roach are situated in South Essex. The River Crouch occupies a shallow valley between two ridges of London Clay, whilst the River Roach is set predominantly between areas of brickearth and loams with patches of sand and gravel. The intertidal zone along the rivers Crouch and Roach is 'squeezed' between the sea walls on both banks and the river channel. This leaves a relatively narrow strip of tidal mud in contrast with other estuaries in the county. This however is used by significant numbers of birds, and together with the saltmarsh and grazing marsh which comprise the Crouch and Roach Estuaries SSSI regularly support internationally important numbers of one species, and nationally important numbers of three species of waders and wildfowl. Additional interest is provided by the aquatic and terrestrial invertebrates and by an outstanding assemblage of nationally scarce plants.

Most of the tidal reaches of the Crouch and Roach were originally fringed with saltmarsh but since the middle ages they have been progressively embanked to provide safe grazing and, more recently, arable land. Only relatively small areas of saltmarsh have never been embanked, including Woodham Fen, White House Farm, and the upper sections of Paglesham pool. Two of these sites are notable in that the natural transition from saltmarsh to grassland is uninterrupted by a sea wall, an increasingly rare feature on the Essex coast. Other salt marshes have formed where the sea defences have been breached, including Bridgemarsh Island, Brandy Hole and North Fambridge Marsh. These are three important and extensive stretches of salt marsh which have developed during the course of this century.

The salt marshes contain a range of characteristic plant species: the lower marshes, covered by most tides, are dominated by Glasswort *Salicornia spp.*, Annual Sea-blite *Suaeda maritima* and Sea Aster *Aster tripolium*, whilst on the higher land, Common Saltmarsh-grass *Puccinellia maritima*, Sea Purslane *Atriplex portulacoides*, Common Sea-lavender *Limonium vulgare* and Thrift *Armeria maritima* become progressively more frequent. Several uncommon plants can also be found, including Lax-flowered Sea-lavender *Limonium humile*, One-flowered Glasswort *Salicornia pusilla* and, locally on the drift line, Shrubby Sea-blite *Suaeda vera*. At the uppermost tidal levels and on the sea walls, Sea Couch *Elymus pycnanthus* is dominant. This rough grassland supports dense populations of the nationally scarce Roesel's Bush-cricket *Metrioptera roeselii*, whose persistent 'reeling' song is a constant feature of mid to late summer.

The sea walls, and their associated berms form important integral parts of the coastal habitat. There are a number of typically coastal species to be found such as Narrow-leaved Bird's-foot trefoil *Lotus tenuis* and Grass Vetchling *Lathyrus nissolia* as well as a range of nationally scarce species such as Sea Barley *Hordeum marinum*, Sea Clover *Trifolium squamosum*, Curved-Hard-grass *Parapholis incurva*, Slender Hare's-ear *Bupleurum tenuissimum* and two scarce saltmarsh grasses *Puccinellia fasciculata* and *P. rupestris*. Furthermore the species complement of this grassland habitat is a reflection of that within the old unimproved grazing marsh. The grassland of the sea wall will therefore act as a natural seed source in the event that arable land is converted back to grazing marsh.

cont...

Crouch and Roach Estuaries (cont...)

There are also some areas of grazing marsh landward of the sea wall. This is a characteristic, but increasingly uncommon, habitat in the county. These grazing marshes, apart from their botanical interest, are used by large numbers of Skylark *Alauda arvensis* and Corn Bunting *Miliaria calandra*. The cattle or sheep grazed sward is dominated by Creeping Bent *Agrostis stolonifera*, Perennial Rye-grass *Lolium perenne*, Red Fescue *Festuca rubra* and Meadow Barley *Hordeum secalinum*. Other less common plants of this habitat are Spiny Rest-harrow *Ononis spinosa* and Hairy Buttercup *Ranunculus sardous*. Some of the grazing marsh has been intensively improved and has therefore lost most of its botanical interest. This improved grassland however provides excellent grazing for the internationally important numbers of Dark-bellied Brent Geese *Branta bernicla* which use the estuary.

The brackish dykes and pools within the grazing marsh, together with the borrow dykes adjacent to the sea walls are fringed with dense stands of Sea Club-rush *Bolboschoenus maritimus*, or more locally Common Reed *Phragmites australis* and Lesser Reedmace *Typha angustifolia*. Fennel Pondweed *Potamogeton pectinatus* and Beaked Tasselweed *Ruppia maritima* are the most common aquatic plant species. Soft Hornwort *Ceratophyllum submersum*, Brackish Water-crowfoot *Ranunculus baudotii* and Spiral Tasselweed *Ruppia cirrhosa* also occur. These three species are all fairly uncommon nationally, the latter species being nationally scarce. These water bodies also have a rich invertebrate fauna, including several rare and local species of water beetle and Soldier Fly. Most noticeable are the dragonflies and damselflies, which include the Ruddey Darter *Sympetrum sanguineum*, a typical south eastern species, and the Red Data Book species Scarce Emerald Damselfly *Lestes dryas*.

The complex of salt marsh, grazing marsh and intertidal habitats is of major important especially as feeding and roosting sites for large numbers of waders and waterfowl. Wintering Dark-bellied Brent Geese regularly occur in internationally important numbers, whilst wintering Black-tailed Godwit *Limosa limosa*, Shelduck *Tadorna tadorna* and Shoveler *Anas clypeata* regularly occur in nationally important numbers. In addition the intertidal mud along the Crouch and Roach is used by nationally important numbers of Redshank *Tringa totanus* and Dunlin *Calidris alpina* for feeding and as a roosting site for up to 10,000 Lapwing *Vanellus vanellus* and 6,000 Golden Plover *Pluvialis apricaria*. Several more species of wader and wildfowl reach nationally important levels during harsh winters, using upstream areas of the Crouch and Roach which provide relatively sheltered conditions. Redshank, Oystercatcher *Haematopus ostralegus* and Lapwing breed in small numbers, especially on the grazing marshes within the borrow dykes, and at migration time the muddy saltmarsh creeks and tidal flats are frequented by Greenshank *Tringa nebularia*, Common Sandpiper *Actitis hypoleucos*, Spotted Redshank *Tringa erythropus*, Little Stint *Calidris minuta*, Curlew Sandpiper *Calidris ferruginea* and Ruff *Philomachus pugnax*. Many other birds use the site, including Grey Herons *Ardea cinerea* (probably from the nearby Heronries at North Fambridge and Foulness), Green Sandpiper *Tringa ochropus*, Short-eared Owls *Asio flammeus*, Hen Harriers *Circus cyaneus* and Merlin *Falco columbarius* which have a roost at Hullbridge. The Essex Wildlife Trust reserve at Woodham Fen is often used by Jack Snipe *Lymnocryptes minimus*, Water Pipit *Anthus spinoletta* and Barn Owls *Tyto alba* and Bridgemarsh Island has a large colony of Black-headed gulls *Larus ridibu*

cont.....

Crouch and Roach Estuaries (cont.....)

Included within the site are open areas of fresh to brackish water. There are mildly brackish lagoons at Saltcoats and Lower Raypits, and a fresh water reservoir adjacent to Stannetts Creek north of the Roach. All these water bodies are important for watering and preening for wildfowl that use the estuary.

The Essex coast is a renowned wintering site for Dark-bellied Brent Geese, supporting up to one fifth of the world population in more or less discrete groups centred on the major estuaries. One such group, with an average peak of 6,100 birds (over 2% of the international population), is found around the Crouch and Roach Estuaries SSSI. They feed along both estuaries, on both grazing marsh and arable land. The areas of permanent, ley and rotational grassland included within the Crouch and Roach Estuaries SSSI are therefore essential for the conservation of this particular wintering population. The inter-tidal mud adjacent to these areas of grassland is also of great importance to the geese, as they use the inter-tidal area for roosting, congregating, bathing and feeding.

The various habitats found within the Crouch and Roach Estuaries SSSI all have significant invertebrate interest. In particular the brackish marsh and salt marsh are outstanding in a national context. These marshes are home to a highly specialised invertebrate fauna, several of which are listed in the Red Data Books; the Ground Lackey moth *Malacosoma castrensis*, the large horsefly *Hybomitra expollicata* and the beetle *Malachius vulneratus* are a few examples. In addition, within the brackish creeks, ditches and borrow dykes, the shorefly *Parydroptera discomyzina* and the soldierfly *Stratiomys singularior* have been recorded.

NATURA 2000

STANDARD DATA FORM

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

1. Site identification:

1.1 Type J **1.2 Site code** UK9009244

1.3 Compilation date 199806 **1.4 Update**

1.5 Relationship with other Natura 2000 sites

U	K	0	0	1	3	6	9	0

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Crouch and Roach Estuaries (Mid-Essex Coast Phase 3)**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	
date confirmed as SCI	
date site classified as SPA	199806
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	**latitude**
00 43 06 E	51 38 23 N

2.2 Site area (ha) 1735.58 **2.3 Site length (km)**

2.5 Administrative region

NUTS code	Region name	% cover
UK54	Essex	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

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

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

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

		Population				Site assessment			
		Resident	Migratory						
Code	Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global
A046a	*Branta bernicla bernicla*			3074 I		B		C	
A082	*Circus cyaneus*			<19 I		B		C	

4. Site description:

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	25.0
Salt marshes. Salt pastures. Salt steppes	35.0
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	10.0
Bogs. Marshes. Water fringed vegetation. Fens	5.0
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	5.0
Alpine and sub-alpine grassland	
Improved grassland	20.0
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Acidic, Alluvium, Clay, Gravel, Mud, Neutral, Nutrient-rich, Sand, Sedimentary, Shingle

Geomorphology & landscape:

Cliffs, Coastal, Estuary, Intertidal sediments (including sandflat/mudflat), Islands, Lagoon, Lowland, Subtidal sediments (including sandbank/mudbank), Valley

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC)

Over winter the area regularly supports:

Circus cyaneus	up to 2.5% of the GB population 5 year mean, 1987-1991

ARTICLE 4.2 QUALIFICATION (79/409/EEC)

Over winter the area regularly supports:

Branta bernicla bernicla (Western Siberia/Western Europe)	1% of the population 5 year peak mean 1991/92-1995/96

ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS

Over winter the area regularly supports:

18607 waterfowl (5 year peak mean 30/06/1999)

Including:

Branta bernicla bernicla .

4.3 Vulnerability

The site is vulnerable to coastal squeeze and changes to the sediment budget. A hydraulic numerical model study of the Crouch and Roach Estuaries is being initiated to explore the various options, including managed retreat.

Some disturbance of feeding and roosting waterfowl is likely through recreational use of sea wall footpaths by dog walkers, bird watchers etc but this and other recreational issues will be tackled through the management scheme for this European marine site. Water-skiing is largely controlled by the Crouch Harbour Authority. Most grazing marshes are managed under ESA/Countryside Stewardship Agreements and/or management agreements with English Nature. Low water levels caused by abstraction will be tackled through the provisions for reviews of licenses under the Habitats Regulations. Many borrow dykes and drainage ditches remain vulnerable to run off and seepage of chemicals from adjacent farm land. Wherever possible arable farmers are being encouraged into Countryside Stewardship schemes to control the application of these chemicals, whilst on most of the adjacent grassland it is controlled by ESA or Stewardship agreements. Sea wall management by mowing may be potentially damaging and this is being addressed through consultation with the Environment Agency and individual owners. To secure protection of the site, the Marine Scheme of Management is in preparation, which will work alongside the Essex Shoreline Management Plan and various management plans and Site Management Statements for parts of the site.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK01 (NNR)	0.1
UK04 (SSSI/ASSI)	100.0

Information Sheet on Ramsar Wetlands (RIS)

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

Notes for compilers:

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

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

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

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

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

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

2. Date this sheet was completed/updated:

Designated: 29 June 1998

3. Country:

UK (England)

4. Name of the Ramsar site:

Crouch and Roach Estuaries (Mid-Essex Coast Phase 3)

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

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

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

a) Site boundary and area:

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

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

7. Map of site included:

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

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

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

b) Describe briefly the type of boundary delineation applied:

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

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

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

8. Geographical coordinates (latitude/longitude):

51 38 16 N 00 40 10 E

9. General location:

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

Nearest town/city: Southend-on-Sea

The River Crouch and the River Roach are between the Dengie Peninsula and Southend-on-Sea in Essex, south-east England.

Administrative region: Essex

10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 1735.58

Min. No information available
Max. No information available
Mean No information available

12. General overview of the site:

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

The Rivers Crouch and Roach are situated in South Essex. The River Crouch occupies a shallow valley between two ridges of London Clay, whilst the River Roach is set predominantly between areas of brick earth and loams with patches of sand and gravel. The intertidal zone along the Rivers Crouch and Roach is 'squeezed' between the sea walls of both banks and the river channel. This leaves a relatively narrow strip of tidal mud unlike other estuaries in the county, which, nonetheless, is used by significant numbers of birds. One species is present in internationally important numbers, and three other species of wader and wildfowl occur in nationally important numbers. Additional interest is provided by the aquatic and terrestrial invertebrates and by an outstanding assemblage of nationally scarce plants.

13. Ramsar Criteria:

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

2, 5, 6

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

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

Ramsar criterion 2

Supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant and animal including 13 nationally scarce plant species: slender hare's ear *Bupleurum tenuissimum*, divided sedge *Carex divisa*, sea barley *Hordeum marinum*, golden-samphire *Inula crithmoides*, lax-flowered sea-lavender *Limonium humile*, curved hard-grass *Parapholis incurva*, Borrer's saltmarsh grass *Puccinellia fasciculata*, stiff saltmarsh grass *Puccinellia rupestris*, spiral tasselweed *Ruppia cirrhosa*, one-flowered glasswort *Salicornia pusilla*, small cord-grass *Spartina maritima*, shrubby sea-blite *Suaeda vera* and sea clover *Trifolium squamosum*. Several important invertebrate species are also present on the site, including scarce emerald damselfly *Lestes dryas*, the shorefly *Parydroptera discomyzina*, the rare soldier fly *Stratiomys singularior*, the large horsefly *Hybomitra expollicata*, the beetles *Graptodytes bilineatus* and *Malachius vulneratus*, the ground lackey moth *Malacosoma castrensis* and *Eucosoma catoprana*.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:
16970 waterfowl (5 year peak mean 1998/99-2002/2003)

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

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

Dark-bellied brent goose, *Branta bernicla bernicla*,	2103 individuals, representing an average of 2.1% of the GB population (5 year peak mean 1998/9-2002/3)

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

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

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

a) biogeographic region:
Atlantic

b) biogeographic regionalisation scheme (include reference citation):
Council Directive 92/43/EEC

16. Physical features of the site:

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

Soil & geology	acidic, neutral, mud, clay, alluvium, nutrient-rich, sedimentary, gravel, shingle
Geomorphology and landscape	lowland, island, coastal, valley, subtidal sediments (including sandbank/mudbank), intertidal sediments (including sandflat/mudflat), estuary, islands, lagoon, cliffs

Nutrient status	eutrophic
pH	acidic, circumneutral
Salinity	brackish / mixosaline, fresh, saline / euhaline
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Lowestoft, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/lowestoft.html) Max. daily temperature: 13.0° C Min. daily temperature: 7.0° C Days of air frost: 27.8 Rainfall: 576.3 mm Hrs. of sunshine: 1535.5

General description of the Physical Features:

The River Crouch occupies a shallow valley between two ridges of London Clay, whilst the River Roach is set predominantly between areas of brick earth and loams with patches of sand and gravel. The intertidal zone along the Rivers Crouch and Roach is 'squeezed' between the sea-walls along both banks and the river channel. Unlike more extensive estuaries elsewhere in Essex, this leaves a relatively narrow strip of tidal mud.

17. Physical features of the catchment area:

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

The River Crouch occupies a shallow valley between two ridges of London Clay, whilst the River Roach is set predominantly between areas of brick earth and loams with patches of sand and gravel. The intertidal zone along the Rivers Crouch and Roach is 'squeezed' between the sea-walls along both banks and the river channel. Unlike more extensive estuaries elsewhere in Essex, this leaves a relatively narrow strip of tidal mud.

18. Hydrological values:

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

Maintenance of water quality (removal of nutrients)

19. Wetland types:

Inland wetland, Marine/coastal wetland

Code	Name	% Area
H	Salt marshes	35
G	Tidal flats	25
Other	Other	20
4	Seasonally flooded agricultural land	5
K	Coastal fresh lagoons	5
J	Coastal brackish / saline lagoons	5
Tp	Freshwater marshes / pools: permanent	2.5
Sp	Saline / brackish marshes: permanent	2.5

20. General ecological features:

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

Most of the tidal reaches of the Crouch and Roach were originally fringed with saltmarsh but since the middle ages they have been progressively embanked to provide safe grazing and, more recently, arable land. Only relatively small areas of saltmarsh have never been embanked, including Woodham Fen, White House Farm, and the upper sections of Paglesham pool. Two of these sites are notable in that the natural transition from saltmarsh to grassland is uninterrupted by a sea wall, an increasingly rare feature on the Essex coast. Other saltmarshes have formed where the sea defences have been breached, including Bridgemarsh Island, Brandy Hole and North Fambridge Marsh. These are three important and extensive stretches of saltmarsh which have developed during the course of the 20th century.

The saltmarshes contain a range of characteristic plant species. The lower marshes, covered by most tides, are dominated by glasswort *Salicornia* spp., annual sea-blite *Suaeda maritima* and sea aster *Aster tripolium*, whilst on higher land, common saltmarsh-grass *Puccinellia maritima*, sea purslane *Atriplex portulacoides*, common sea-lavender *Limonium vulgare* and thrift *Armeria maritima* become progressively more frequent. Several uncommon plants can also be found, including lax-flowered sea-lavender *Limonium humile*, one-flowered glasswort *Salicornia pusilla*, and, locally on the drift line, shrubby sea-blite *Suaeda vera*. At the uppermost tidal levels and on the sea walls, sea couch *Elytrigia atherica* is dominant. This rough grassland supports dense populations of the nationally scarce Roesel's bush-cricket *Metrioptera roeselii*, whose persistent reeling song is a constant feature of mid to late summer.

The sea walls and their associated berms form important integral parts of the coastal habitat. There are a number of typically coastal species to be found, such as narrow-leaved birds-foot-trefoil *Lotus tenuis*, grass vetchling and *Lathyrus nissolia*. There is also a range of nationally scarce species such as, sea barley *Hordeum marinum*, sea clover *Trifolium squamosum*, curved hard-grass *Parapholis incurva*, slender hare's-ear *Bupleurum tenuissimum* and two scarce saltmarsh grasses *Puccinellia fasciculata* and *P. rupestris*. Furthermore, the species complement of this grassland habitat is a reflection of that within the old improved grazing marsh. The grassland of the sea wall will therefore act as a natural seed source in the event that arable land is converted back to grazing marsh.

There are also some areas of grazing marsh landward of the sea wall. This is a characteristic, but increasingly uncommon, habitat in the country. Other less common plants typical of grazing marsh are spiny rest-harrow *Ononis spinosa* and hairy buttercup *Ranunculus sardous*.

The brackish dykes and pools within the grazing marsh, together with the borrow dykes adjacent to the sea wall are fringed with dense stands of the sea club-rush *Bolboschoenus maritimus*, or more locally common reed *Phragmites australis*, and lesser reedmace *Typha angustifolia*. Fennel pondweed *Potamogeton pectinatus* and beaked tasselweed *Ruppia maritima* are the most common aquatic plant species. Soft hornwort *Ceratophyllum submersum*, brackish water-crowfoot *Ranunculus baudotii*, and spiral tasselweed *Ruppia cirrhosa* also occur. These three species are all fairly uncommon nationally, the latter species being nationally scarce.

Ecosystem services

21. Noteworthy flora:

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

Nationally important species occurring on the site.

Higher Plants.

Bupleurum tenuissimum (nationally scarce), *Carex divisa* (nationally scarce), *Hordeum marinum* (nationally scarce), *Inula crithmoides* (nationally scarce), *Limonium humile* (nationally scarce), *Parapholis incurva* (nationally scarce), *Puccinellia fasciculata* (nationally scarce), *Puccinellia rupestris* (nationally scarce), *Ruppia cirrhosa* (nationally scarce), *Salicornia pusilla* (nationally scarce), *Spartina maritima* (nationally scarce), *Suaeda vera* (nationally scarce), *Trifolium squamosum* (nationally scarce).

22. Noteworthy fauna:

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

Birds

Species currently occurring at levels of national importance:

Species with peak counts in spring/autumn:

Little egret , *Egretta garzetta*, West Mediterranean	17 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)
Ruff , *Philomachus pugnax*, Europe/W Africa	13 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3)
Whimbrel , *Numenius phaeopus*, Europe/Western Africa	40 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3 - spring peak)
Spotted redshank , *Tringa erythropus*, Europe/W Africa	5 individuals, representing an average of 3.6% of the GB population (5 year peak mean 1998/9-2002/3)
Common greenshank , *Tringa nebularia*, Europe/W Africa	23 individuals, representing an average of 3.8% of the GB population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Hen harrier, *Circus cyaneus*, Europe	<19 individuals, representing an average of 2.5% of the GB population (5 year mean 1987-1991)
Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe	163 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

Nationally important species occurring on the site.

Invertebrates.

Graptodytes bilineatus (RDB3), *Hybomitra expollicata* (RDB1), *Lestes dryas* (RDB2), *Malachius vulneratus* (RDB3), *Malacosoma castrensis* (RDB3), *Parydroptera discomyzina* (RDB2), *Stratiomys longicornis* (RDB2), *Eucosma catoptrana* (potential RDB3 species – not currently listed)

23. Social and cultural values:

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

Aesthetic
Archaeological/historical site
Environmental education/ interpretation
Fisheries production
Livestock grazing
Non-consumptive recreation

Scientific research
Sport fishing
Sport hunting
Tourism
Transportation/navigation

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

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

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

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

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

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

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
Local authority, municipality etc.	+	+
National/Crown Estate	+	+
Private	+	+
Other	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Tourism	+	+
Recreation	+	+
Current scientific research	+	+
Fishing: commercial	+	+
Fishing: recreational/sport	+	+
Marine/saltwater aquaculture	+	+
Gathering of shellfish	+	+
Bait collection	+	+
Shifting arable agriculture	+	
Permanent arable agriculture	+	+
Rough or shifting grazing	+	+
Permanent pastoral agriculture	+	+
Hay meadows		+
Hunting: recreational/sport	+	+
Sewage treatment/disposal	+	+

Harbour/port	+	
Flood control	+	+
Irrigation (incl. agricultural water supply)	+	+
Urban development		+
Non-urbanised settlements	+	
Military activities		+

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

Explanation of reporting category:

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

NA -- Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
Erosion	2	Sea defences are amplifying erosion in undefended areas	+		+
Persistent drought	1	Lack of freshwater flowing into site, particularly as the region is the driest part of the country.	+	+	+

For category 2 factors only.
What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Erosion - The Essex Coast and Estuaries Coastal Habitat Management Plan (CHaMP) covers the site and it is expected to inform the shoreline management plan as well as local plan policies.

Is the site subject to adverse ecological change? YES

27. Conservation measures taken:

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

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	+
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	+
Management agreement	+	+
Environmentally Sensitive Area (ESA)	+	+

Special Area of Conservation (SAC)	+	
Management plan in preparation	+	

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

28. Conservation measures proposed but not yet implemented:

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

No information available

29. Current scientific research and facilities:

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

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

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

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

A farm, Marsh Farm, within the Ramsar site is owned and maintained by Essex County Council. The farm is an education facility which, through farm tours, provides information about wildlife and the countryside.
The local wildlife trust has two reserves on site, Blue House Farm and Lower Raypits, at which they conduct conservation education.

31. Current recreation and tourism:

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

Activities.
Dog walking, wildfowling, boating, birdwatching, waterskiing.

Facilities provided.
Some hides for wildfowling are provided, moorings and marina areas, hides for birdwatching, allocated waterskiing areas and landing stages along the shore to allow access.

Seasonality.
Wildfowling during shooting season (winter).

32. Jurisdiction:

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

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

33. Management authority:

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

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

34. Bibliographical references:

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

Site-relevant references

Anon. (2002) *Essex Coast and Estuaries Coastal Habitat Management Plan: Executive summary*. English Nature, Peterborough (Living with the Sea LIFE Project). www.english-nature.org.uk/livingwiththesea/champs/pdf/ESSEX.FINALEXEC.SUMMARY.pdf

Barne, JH, Robson, CF, Kaznowska, SS, Doody, JP, Davidson, NC & Buck, AL (eds.) (1998) *Coasts and seas of the United Kingdom. Region 7 South-east England: Lowestoft to Dungeness*. Joint Nature Conservation Committee, Peterborough. (Coastal Directories Series.)

Buck, AL (ed.) (1993) *An inventory of UK estuaries. Volume 5. Eastern England*. Joint Nature Conservation Committee, Peterborough

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

Cottle, R, Pethick, J & Dalton, H (2002) *Essex Estuaries Coastal Habitat Management Plan: final report*. English Nature, Peterborough (Living with the Sea LIFE Project)

Covey, R (1998) Chapter 6. Eastern England (Bridlington to Folkestone) (MNCR Sector 6). In: *Benthic marine ecosystems of Great Britain and the north-east Atlantic*, ed. by K. Hiscock. 179-198. Joint Nature Conservation Committee, Peterborough. (Coasts and Seas of the United Kingdom. MNCR series)

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

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

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

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

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

Moroney, MJA (1998) *The effect of disturbance on the number of waders and wildfowl on the River Crouch, using the shelduck (*Tadorna tadorna*) and the redshank (*Tringa totanus*) as study species (a comparison between urban and rural sites during the day and night)*. Unpublished BSc dissertation, University College Suffolk, School of Science, Ipswich

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

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

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

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

Shirt, DB (ed.) (1987) *British Red Data Books: 2. Insects*. Nature Conservancy Council, Peterborough

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

Worley, A & Simpson, M (1998) Littoral and sublittoral biotope mapping and data capture exercise for the Essex estuaries candidate Marine Special Area of Conservation. *English Nature Research Reports*, No. **305**

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Telephone: **+41 22 999 0170** • Fax: **+41 22 999 0169** • email: **ramsar@ramsar.org**

APPENDIX 6

Stock Woolstencroft's Roof Plan (Drawing No. PL113 rev. A)

STAR LANE OPTION 14D
DESIGN FREEZE
CONSULTANT ISSUE 01/02/13

STOCK WOOLSTENCROFT

Client
Inner London Group

Project
Star Lane, Great Wakering

Drawing
Roof Plan as Proposed
The Brickworks Site

Scale 1:500 @ A1

Project no. 3201

Drawing no. PL110

Revision

APPENDIX 7

Suitable Examples of Bat Boxes

Bat Boxes

Schwegler bat boxes are made from 'woodcrete' and have the highest rates of occupation of all types of box.
The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.
Boxes can be hung from a branch near the tree trunk or fixed using 'tree-friendly' aluminum nails.

1FF Bat Box

The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Width: 27cm
Height: 43cm
Weight: 8.3kg

Bat Boxes

Schwegler bat boxes are made from 'woodcrete' and have the highest rates of occupation of all types of box.
The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.
Boxes can be hung from a branch near the tree trunk or fixed using 'tree-friendly' aluminum nails.

2F Bat Box

A standard bat box, attractive to the smaller British bat species. Simple design with a narrow entrance slit on the front.

Woodcrete construction, 16cm diameter, height 33cm.

2FN Bat Box

A large bat box featuring a wide access slit at the base as well as an access hole on the underside. Particularly successful in attracting Noctule and Bechstein's bats.

Woodcrete construction, 16cm diameter, height 36cm.

1FD Bat Box

A larger than standard bat box, with two additional roughened I wooden panels inside to be used by the bats as perches.

Woodcrete construction, 16cm diameter, height 36cm.

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APPENDIX 8

Suitable Examples of Bird Boxes

Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting. Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.

1B Bird Box

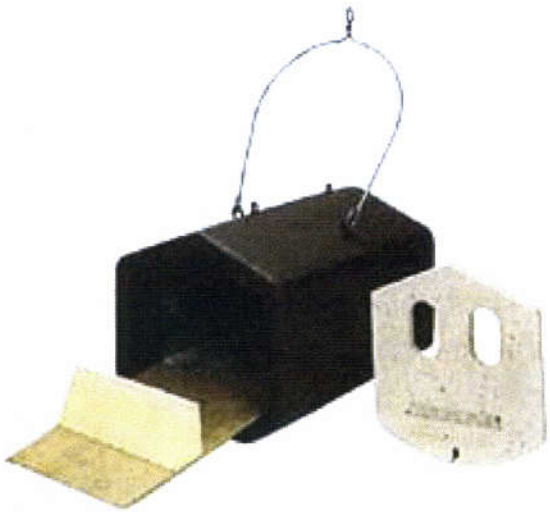
This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

Available in four colours and three entrance hole sizes. 26mm for small tits, 32mm standard size and oval, for redstarts.

2GR Nest Box

Because of the special design of the large nesting area and front panel, this box is especially well protected against predators.

Available as shown with three 27mm holes for small tits or with a single oval entrance hole.
Nesting area 14cm x 19cm.



1N Deep Nest Box

A deeper than standard nest box which is ideal for robins, spotted flycatchers, pied wagtails, tits and sparrows. Its depth offers protection from cats, magpies, jays and martens.

2 *Entrance holes, 30 x 50mm. Nesting area 15 x 21cm.*

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Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting. Many boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.

Sparrow Terrace

House sparrows are gregarious and prefer to nest close to each other, so this woodcrete box provides room for three families under one roof. Made from long-lasting, breathable woodcrete. No maintenance required.

Colour: stone or brown.
Dimensions 245 x 430 x 200 mm.
Weight 13kg.
Designed for fixing to walls
(not suitable for fences or sheds
due to the weight of the box).

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