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HRA Screening of the Forest Heath Single Issue Review (SIR) of Core Strategy Policy CS7 Overall Housing Provision and Distribution

(Further) Issues and Options 2nd Regulation 18 Consultation August 2015

Prepared by LUC
August 2015

Project Title: HRA Screening of the Forest Heath Single Issue Review (SIR) of Core Strategy Policy CS7 Overall Housing Provision and Distribution

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1 Introduction

1.1 LUC has been contracted by Aecom on behalf of Forest Heath District Council to carry out the Habitats Regulations Assessment (HRA) Screening of the Forest Heath Single Issue Review (SIR) of Core Strategy Policy CS7 Overall Housing Provision and Distribution and of the Site Allocations Local Plan. This report documents the results of the HRA Screening at the (Further) Issues and Options second Regulation 18 Consultation stage of preparation of the SIR.

Background to the Forest Heath SIR and Site Allocations Local Plan

1.2 Forest Heath's Core Strategy was adopted in May 2010. Parts of Policy CS7 were, however, subsequently quashed following a successful High Court challenge (with consequential amendments also made to Policies CS1 and CS13). Essentially, the quashing of Policy CS7 removed the spatial strategy, although there remains in place a policy to deliver a certain growth quantum over the plan period. As a result, Forest Heath District Council ('the Council') has resolved to revisit those parts of the Core Strategy that were quashed by the High Court ruling in order to reconsider the most appropriate locations for housing growth across the District. The plan now in development is known as the Core Strategy Single Issue Review (SIR). As well as addressing the spatial strategy, the SIR will revisit the overall growth quantum policy, an approach that is necessary in order to ensure a holistic strategy is in place, and also necessary given the National Planning Policy Framework (NPPF) (para 47) policy on meeting full, objectively assessed housing needs.

1.3 A SIR 'Issues and Options' consultation document was published in July 2012 with a view to: 1) exploring alternative housing growth quanta (ranging from 351 dwellings per annum 'dpa' to 669 dpa); and 2) presenting information on the constraints/opportunities at each of the main settlements in order to gather views on the proportion of growth that should be distributed to each. The responses received were subsequently considered by Officers and Members, and were used to inform preparation of a Proposed Submission (Regulation 19) consultation document.

1.4 At about this time, in November 2013, the Planning Committee also approved a Site Allocations Local Plan 'Issues and Options' document for consultation. Issues and options relating to site allocations had been in development for a number of years, although no formal consultation had taken place. However, the decision was subsequently taken not to proceed with consultation on the two documents as further SA work was required. Consideration was given to progressing the two documents in tandem.

1.5 In January 2015the Council published a Local Development Scheme Update, which committed to progressing the two plan documents (SIR and Site Allocations) separately but at the same time. The Council has now decided that two Regulation 18 consultation stages will be held for each of the Plan documents, a high level 'Issues and Options' type document (being published for consultation in early August 2015) followed by a more detailed 'Preferred Options' type document (currently expected to be published in early 2016).

1.6 In addition to these strategic planning policy and site allocations documents, the Council adopted a joint development management policies Local Plan document with neighbouring St Edmundsbury Borough in February 2015.

The need for HRA

1.7 The requirement to undertake HRA of development plans was confirmed by the amendments to the "Habitats Regulations" published for England and Wales (UK Government, 2007) and

subsequently updated (UK Government, 2010). Therefore, when preparing the SIR, the Council is required by law to carry out an HRA.

1.8 HRA refers to the assessment of the potential effects of a development plan on one or more European sites, including Special Protection Areas (SPAs) and Special Areas of Conservation (SACs):

- SPAs are classified under the European Council Directive 'on the conservation of wild birds' (79/409/EEC; 'Birds Directive') for the protection of wild birds and their habitats (including particularly rare and vulnerable species listed in Annex 1 of the Birds Directive, and migratory species).
- SACs are designated under the Habitats Directive and target particular habitats (Annex 1) and/or species (Annex II) identified as being of European importance.

1.9 Potential SPAs (pSPAs)[1], candidate SACs (cSACs)[2], Sites of Community Importance (SCIs)[3] and Ramsar sites should also be included in the assessment.

- Ramsar sites support internationally important wetland habitats and are listed under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention, 1971).

1.10 For ease of reference during this HRA, these designations are collectively referred to as 'European sites' (despite Ramsar designations being at the international level).

1.11 The HRA of development plans is undertaken in stages (as described below) and should conclude whether or not a proposal would adversely affect the integrity of the European site in question.

1.12 Although there is no requirement to undertake HRA at an early stage of the plan-making process when options are still being identified, the Council has decided to begin the HRA at the Issues and Options stage of the SIR so that it can help to inform selection and refinement of Plan options.

HRA method

Procedural requirements of the Habitats Regulations

1.13 In assessing the effects of a Local Plan in accordance with Regulation 102 of the Conservation of Habitats and Species Regulations 2010, there are potentially two tests to be applied by the competent authority: a 'Significance Test', followed if necessary by an Appropriate Assessment which would inform the 'Integrity Test'. The relevant sequence of questions is as follows:

- Step 1: Under Reg. 102(1)(b), consider whether the plan is directly connected with or necessary to the management of the sites. If not, as is the case for the Forest Heath SIR and Site Allocations Local Plan, proceed to Step 2.
- Step 2: Under Reg. 102(1)(a) consider whether the plan is likely to have a significant effect on the European site, either alone or in combination with other plans or projects (the 'Significance Test'). Steps 1 and 2 are undertaken as part of what is generally referred to as **HRA Screening**. If yes, proceed to Step 3.
- Step 3: Under Reg. 102(1), make an **Appropriate Assessment** of the implications for the European site in view of its current conservation objectives (the 'Integrity Test'). In so doing, it is mandatory under Reg. 102(2) to consult Natural England, and optional under Reg. 102(3) to take the opinion of the general public.
- Step 4: In accordance with Reg. 102(4), but subject to Reg. 103, give effect to the land use plan only after having ascertained that the plan would not adversely affect the integrity of the European site.

[1] Potential SPAs are sites that have been approved by Government and are currently in the process of being classified as SPAs.
[2] Candidate SACs are sites that have been submitted to the European Commission, but not yet formally adopted.
[3] SCIs are sites that have been adopted by the European Commission but not yet formally designated as SACs by the Government.

- Step 5: Under Reg. 103, if Step 4 is unable to rule out adverse effects on the integrity of a European site and no alternative solutions exist then the competent authority may nevertheless agree to the plan or project if it must be carried out for 'imperative reasons of overriding public interest (IROPI).

Stages of HRA

1.14 The Habitats Regulations do not prescribe a particular methodology for carrying out the assessment of a plan, or how to report the outcome. In the continuing absence of finalised Government guidance, the former DCLG's 2006 consultation paper on Appropriate Assessment of Plans (DCLG, 2006) remains the principal official guidance. We have also had regard to other guidance of relevance to the HRA of land use plans, for example: (European Commission, 2001) (ODPM, 2005) (Natural England, 2007) (Dodd A.M., 2007) (DEFRA, 2012) (David Tyldesley Associates, 2015).

1.15 Table 1.1 summarises the stages and associated tasks and outcomes typically involved in carrying out a full HRA.

Table 1.1 Stages in HRA

Stage	Task	Outcome
Stage 1: Screening	Identification of potentially affected European sites and factors contributing to their integrity. Review of other plans and projects. Consideration of development plan and assessment of likely significant effects alone or in-combination.	Where effects are unlikely, prepare a 'finding of no significant effect report'. Where effects judged likely, or lack of information to prove otherwise, proceed to Stage 2.
Stage 2: Appropriate Assessment (where Stage 1 does not rule out likely significant effects)	Information gathering (development plan and European Sites). Impact prediction. Evaluation of development plan impacts in view of conservation objectives. Where impacts are considered to affect qualifying features, identify and assess alternative development plan options. If no alternatives exist, define and evaluate mitigation measures, where necessary.	Appropriate assessment report describing the plan, European site baseline conditions, the adverse effects of the plan on the European site, how these effects will be avoided through, firstly, avoidance, and secondly, mitigation including the mechanisms and timescale for these mitigation measures. If effects remain after all alternatives and mitigation measures have been considered proceed to Stage 3.
Stage 3: Assessment where no alternatives exist and adverse impacts remain taking into account mitigation	Identify 'imperative reasons of overriding public interest' (IROPI). Identify potential compensatory measures.	This stage should be avoided if at all possible. The test of IROPI and the requirements for compensation are extremely onerous.

1.16 It is normally anticipated that an emphasis on Stages 1 and 2 of this process will, through a series of iterations, help ensure that potential adverse effects are identified and eliminated through the inclusion of mitigation measures designed to avoid, reduce or abate effects. The need to consider alternatives could imply more onerous changes to a plan document. It is generally understood that so called 'imperative reasons of overriding public interest' (IROPI) are likely to be justified only very occasionally and would involve engagement with both the Government and European Commission.

1.17 The HRA should be undertaken by the 'competent authority', in this case Forest Heath District Council, and LUC has been commissioned to begin this process by carrying out HRA Screening on the Council's behalf. The HRA also requires close working with Natural England as the statutory

nature conservation body[4] in order to obtain the necessary information, agree the process, outcomes and mitigation proposals.

Stage 1: Screening

1.18 The purpose of this HRA Screening is to determine whether the SIR will result in **likely significant effects** on any European site, either alone or in-combination with other plans and projects. In this context:

- An effect should be considered '**likely**' *"if it cannot be excluded on the basis of objective information that it will have a significant effect on the site"*[5]. In other words, the precautionary principle is applied such that if likely significant effects cannot be objectively ruled out, then they should be assumed to exist. However, the precautionary approach needs to be applied in a proportionate manner and there should be "*credible evidence that there was a real, rather than a hypothetical, risk*"[6].
- An effect should be considered '**significant**' if it "*undermines the conservation objectives*"[7] of a European site. Natural England has defined conservation objectives for SACs and SPAs and the assessment of whether an effect of the development plan is likely to undermine them is made in light of information on the designated interest features of European sites and their vulnerabilities.

1.19 The tasks carried out as part of the HRA Screening are summarised in Table 1.1 and described more fully along with their results in the remainder of this report .

1.20 When carrying out the HRA Screening, particular consideration was given to the possible pathways through which effects may be transmitted to features contributing to the integrity of the European sites (e.g. via groundwater, air and river catchments). A risk-based approach involving the application of the precautionary principle was adopted in the assessment, such that a conclusion of 'no significant effect' was only reached where it was considered unlikely, based on current knowledge and the information available, that a SIR policy option would have a significant effect on a European site.

Structure of the HRA report

1.21 This chapter has introduced the requirement to undertake HRA for the Forest Heath SIR. The remainder of the report is structured into the following chapters:

- **Section 2: European sites** lists the European sites potentially affected by the SIR, describes the reasons they were selected and summarises relevant information about each of them.
- **Section 3: Review of other plans and projects** considers the other plans and projects with which the SIR could act in combination to have a significant effect on a European site.
- **Section 4: Evidence review and assumptions** reviews the extensive HRA work taken previously undertaken in the District and any more recent evidence reviews in order to establish the assumptions to be made in carrying out the HRA.
- **Section 5: HRA Screening of options for total housing provision** describes and screens the two SIR policy options for the total amount of housing to be provided and concludes whether likely significant effects can be ruled out.
- **Section 6: HRA Screening of housing distribution options** describes and screens the four SIR policy options for the distribution of housing between settlements and concludes whether likely significant effects can be ruled out.

[4] Regulation 5 of the Habitats Regulations 2010.
[5] European Court of Justice judgment in the Waddenzee case (C-127/02)
[6] Peter Charles Boggis and Easton Bavants Conservation v Natural England and Waveney District Council, High Court of Justice Court of Appeal case C1/2009/0041/QBACF Citation No [2009] EWCA Civ. 1061 20th October 2009
[7] European Court of Justice judgment in the Waddenzee case (C-127/02)

- **Section 7: Conclusions and next steps** summarises the findings of the HRA Screening and describes the next steps, including the consultation process.

2 European sites

2.1 This chapter identifies and describes the European sites that could be affected by the SIR.

Identification of European sites

2.2 It is common practice in HRA screening to define a buffer around the plan area as a starting point to identifying European sites to be examined and this approach has been accepted by Natural England elsewhere. This reflects the fact that development-related activities such as water abstraction, waste water discharge, air pollution from traffic, and increased recreation can have effects well beyond the Plan area. Some of these European sites may then be scoped out or more distant ones added, depending on the pathways that exist for potentially significant effects to occur.

2.3 In the case of the HRA of the Core Strategy (Forest Heath District Council, 2009), a 20 km buffer was used to reflect evidence from studies in other parts of the country that coastal sites or large tracts of semi-natural habitat can attract a relatively high proportion of residents from up to 20 km away from the site. This approach identified seven SACs, two SPAs, and four Ramsar sites that lie entirely or partly within 20 km of the Forest Heath District boundary, as follows:

- SACs: Breckland, Devil's Dyke, Rex Graham Reserve, Fenland, Norfolk Valley Fens, Ouse Washes, Waveney and Little Ouse Valley Fens.
- SPAs: Breckland, Ouse Washes.
- Ramsar sites: Chippenham Fen, Ouse Washes, Redgrave and South Lopham Fens, Wicken Fen.

2.4 This list of European sites has been checked against current spatial data identifying European sites, as shown in Figure 2.1, and remains valid. The following map, Figure 2.2, shows the avoidance zones for Breckland SPA and the recreation buffer for Breckland SAC/SPA described in Section 4.

2.5 The HRA of the Core Strategy (Forest Heath District Council, 2009) also considered the potential for effects on the three more distant European sites of The Wash since the District's main rivers drain into them and their qualifying features include ones which are sensitive to deterioration in water quality.

2.6 From the list of European sites above, the HRA of the Core Strategy screened out two sites from detailed consideration for the following reasons:

- Waveney and Little Ouse Valley Fens SAC: The three sites which make up this SAC are located on the eastern edge of the 20 km buffer. Overall the sites are unlikely to attract significantly increased numbers of visitors due to their location. They are upstream of any development which will occur in Forest Heath and it is understood that water abstraction and wastewater discharges for developments in Forest Heath will not affect this site.
- Redgrave and Lopham Fen Ramsar site: This site is also part of the Waveney and Little Ouse Valley Fens SAC and lies on the eastern edge of the 20 km buffer. Although the site has a visitor centre and is relatively well known, it is unlikely that development in Forest Heath will result in significantly increased visitor numbers due to the site's distance from the District, and the existence of alternative recreational areas closer to or within Forest Heath District, such as large parts of the extensive Thetford Forest. The SAC is upstream of Forest Heath and it is understood that water abstraction or discharges in Forest Heath will not affect the site.

Table 2.1 European sites scoped into the HRA

SAC	SPA	Ramsar site
Sites lying wholly or partly within Forest Heath District		
Breckland Devil's Dyke Rex Graham Reserve	Breckland	-
Sites lying outside Forest Heath District but wholly or partly within 20 km of its boundary		
Fenland Norfolk Valley Fens Ouse Washes	Ouse Washes	Chippenham Fen Ouse Washes Wicken Fen
Sites lying entirely beyond 20 km of the Forest Heath District boundary but scoped into HRA due to hydrological connection		
The Wash and North Norfolk Coast	The Wash	The Wash

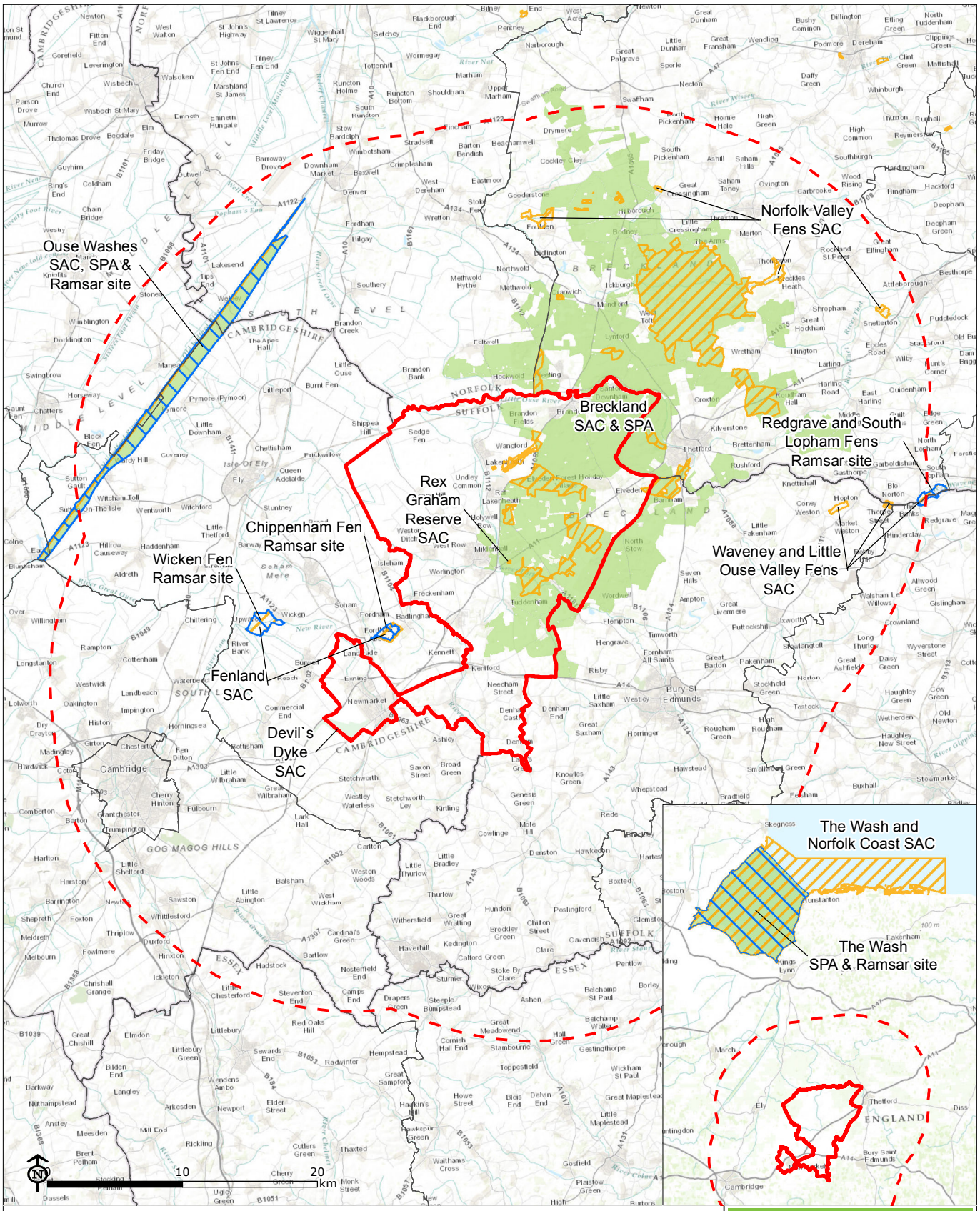
2.7 Having considered the nature of the Local Plan to be assessed and the sensitivities of the European sites in Table 2.1, it is judged that the basis described above for screening European sites into the HRA remains reasonable. The HRA of the SIR therefore considers all of the European sites in Table 2.1. Should any new evidence emerge during the HRA which indicates that additional European sites need to be considered, these will also be scoped into the assessment.

Information on European sites

2.8 Information on the scoped-in European sites that was previously presented in the HRA of the Core Strategy has been validated and amended as necessary by reference to the JNCC and Natural England websites. This covers reasons for designation, conservation objectives, threats, improvement plans and other key issues and is appropriate to inform HRA screening, as set out in Table 2.2.

2.9 Table 2.2 also includes updated information on the component SSSIs of the European sites, including Natural England's condition assessments. This is not a requirement for HRA and some of the designated features of these SSSIs do not form part of the reasons for designation of the European sites they intersect with. The information has nevertheless been included as it may be useful to inform later stages of the HRA if there is a need to identify which parts of an individual European site are, for example, most important for a particular designated feature or are subject to particular pressures.

2.10 All of this information is presented in Table 2.2.



Forest Heath District Boundary

20km Buffer

District Boundary

Ramsar Site

SAC

SPA

Forest Heath Local Plan
SA and HRA

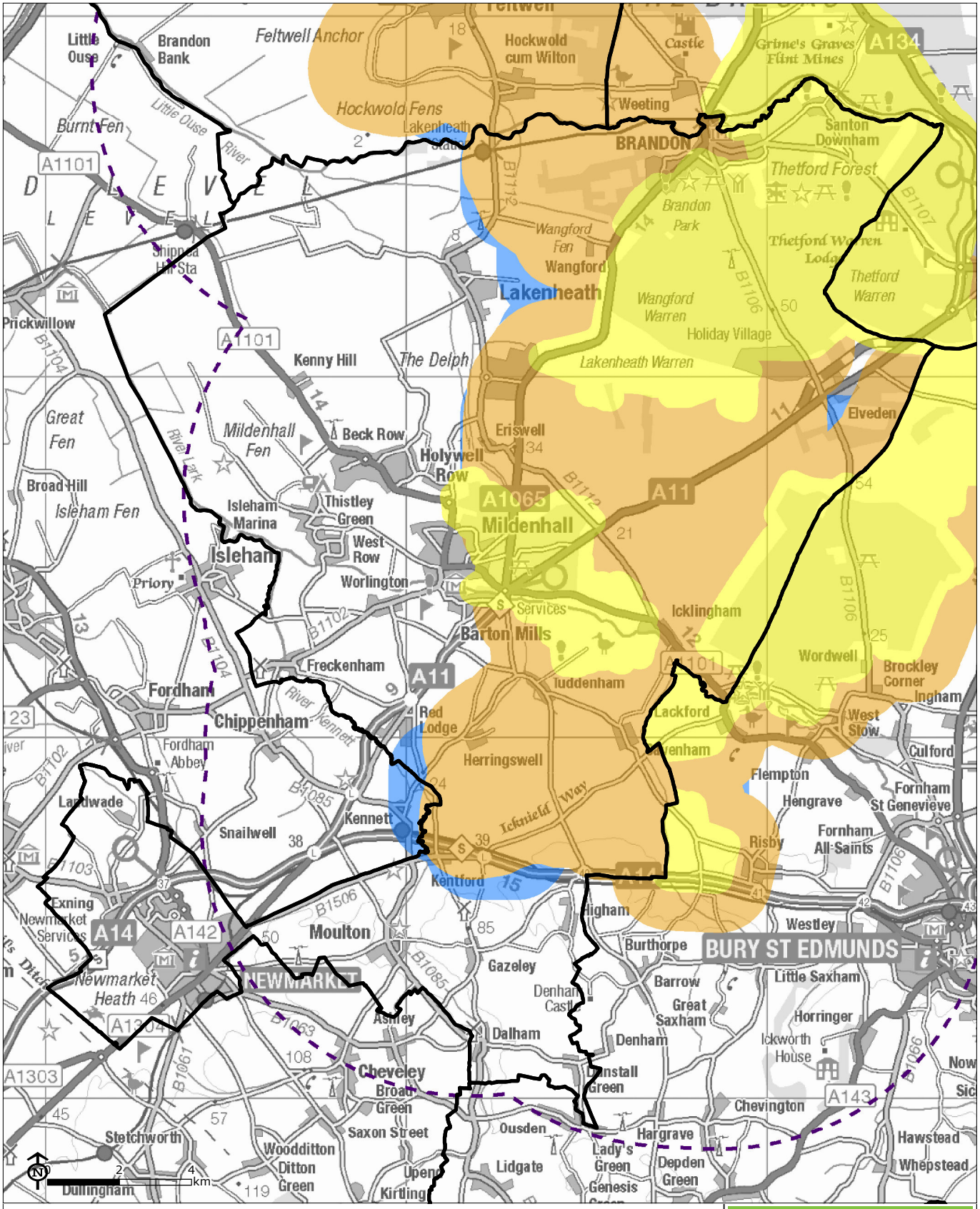
Figure 2.1: European Sites

Source: JNCC. Natural England

LUC

CB:JH EB:Johnny_H LUCGLA 6446-01_001_European_Sites 02/06/2015

Map Scale @ A4: 1:400,000



District Boundary

Breckland SPA 7.5 km recreation buffer

Breckland SPA Constraint Zones

- Stone Curlew
- Stone Curlew Nesting Attempts
- Woodlark and Nightjar

Forest Heath Local Plan
SA and HRA

Figure 2.2
Breckland SPA Avoidance Zones and Recreation Buffer within Forest Heath District

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Map Scale @ A4: 1:150,000

Table 2.2 European sites information

Site	Summary of reasons for designation	Condition	Threats and reasons for adverse conditions	Conservation Objectives	Other notes
Breckland SPA Low rainfall and free-draining soils led to the development of dry heath and grassland communities. Much of Breckland was planted with conifers through the 20th century, and elsewhere arable farming is the predominant land use. The remnants of dry heath and grassland that have survived these changes support heathland-breeding birds, where grazing by sheep and rabbits is sufficiently intensive to create short turf and open ground. These species have also adapted to live in forestry and arable habitats. Component SSSIs within Forest Heath are listed below.	Article 4.1, Annex I species: Breeding populations of Stone Curlew (60.1% GB breeding population), Nightjar (12.2% GB breeding population) and Woodlark (28.7% GB breeding population).	Increasing Stone Curlew populations (on arable but not heathland), recent declines in Nightjars and Woodlarks.	Agricultural operations: disturbance to Annex 1 birds; high nitrogen loads causing undesirable habitat change; development pressures and infrastructure; egg collecting.	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring: • The extent and distribution of the habitats of the qualifying features; • The structure and function of the habitats of the qualifying features; • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features; and • The distribution of the qualifying features within the site.	None.
Breckland Forest SSSI	Breeding Woodlark and Nightjar (recent declines), rare plants and invertebrates, geology. Also red squirrel.	99.91% Un-favourable, recovering. 0.09% favourable	Unclear – available habitat has remained more or less stable.	Not applicable.	None.
Breckland Farmland SSSI	Stone curlew population (increasing)	100% Favourable	No information.	Not applicable.	None.
How Hill Track SSSI	Rare plants.	100% favourable	No information.	Not applicable.	Rare plants doing well.

Site	Summary of reasons for designation	Condition	Threats and reasons for adverse conditions	Conservation Objectives	Other notes
West Stow Heath SSSI	Rare plants (grassland and heath)	14.51% Favourable, 85.49% Unfavourable recovering	Inappropriate scrub control and inappropriate cutting/ mowing in some areas.	Not applicable.	None.
Eriswell Low Warren SSSI	Rare plants	100% Favourable	No information.	Not applicable.	None.
Individual SSSIs which are components of both Breckland SPA and Breckland SAC are listed once under Breckland SAC below.	Stone curlew (population declining on heathland sites), Nightjar and Woodlark. Grassland and heathland habitats (see details in Breckland SAC).	Various (see SSSIs listed under Breckland SAC)	Nutrient deposition, run-off, scrub invasion and inappropriate recreation.	Not applicable.	None.
Breckland SAC Component SSSIs within Forest Heath are listed below.	Annex I habitats: inland dunes with open *Corynephorus* and *Agrostis* grasslands; natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation; European dry heaths; semi-natural dry grasslands and scrubland facies on calcareous substrates; alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*. Annex II species: Great Crested Newts *Triturus cristatus*.		Nutrient deposition and agricultural run-off. Woodland and scrub invasion of open grassland and heaths and uncontrolled and inappropriate recreational activities.	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats and habitats of qualifying species; • The structure and function (including typical species) of qualifying natural habitats; • The structure and function of the habitats of qualifying species; • The supporting processes on which qualifying natural	Inland dunes with open Corynephorus and Agrostis grasslands for which this is the only known outstanding locality in the UK and is considered to be rare as its total extent is estimate to be less than 1,000 hectares.

Site	Summary of reasons for designation	Condition	Threats and reasons for adverse conditions	Conservation Objectives	Other notes
				habitats and the habitats of qualifying species rely; • The populations of qualifying species; and, • The distribution of qualifying species within the site.	
Berner's Heath, Icklingham SSSI	Largest remaining area of heather-dominated heath in Breckland, also rare plants.	97.09% Favourable, 2.91% Destroyed	2.91% destroyed by conversion to agriculture in early 1980's	Not applicable.	None.
Thetford Heath SSSI	Rare plants (grassland, heather heath and lichen/moss heath)	36.32% Favourable, 57.06% Unfavourable recovering, 6.62% unfavourable no change.	Agriculture (under-grazing), forestry and woodland management	Not applicable.	None.
Foxhole Heath, Eriswell SSSI	Rare plants (lichen/moss heath, heather heath and grassland), Stone Curlew.	100% Favourable	No information.	Not applicable.	None.
Cavenham-Icklingham Heaths SSSI	Rare plants (grassland, heather heath, lichen/moss) and birds including breeding Stone Curlew, Nightjar and Woodlark. Also rare invertebrates.	30.59% Favourable, 65.03% Unfavourable recovering, 1.78% Unfavourable no change, 2.59% destroyed	Various reasons including air pollution, drainage, inappropriate water levels and water abstraction.	Not applicable.	3% destroyed by mineral extraction.
Weather and Horn Heaths SSSI	Good example of Breckland heath and grassland communities, rare plants.	97.77% Unfavourable declining, 2.23% partially destroyed.	Lack of regeneration and heather die-back. Dualling of A11 destroyed majority of one unit.	Not applicable.	Heather die-back to be investigated as per Site Improvement Plan.

Site	Summary of reasons for designation	Condition	Threats and reasons for adverse conditions	Conservation Objectives	Other notes
Deadman's Grave, Icklingham SSSI	Species rich calcareous grassland, rare plants and breeding Stone Curlews.	14.17% Favourable, 83.8% Unfavourable recovering, 2.03% Unfavourable declining	Agriculture- under-grazing	Not applicable.	None.
Wangford Warren and Carr SSSI	Best preserved active sand dune system in Breckland interspersed with fen and grass heath areas, rare plants.	22.65% Favourable, 77.35% Unfavourable recovering,	Drainage, inappropriate water levels, water abstraction and under-grazing in some areas.	Not applicable.	Correct management now in place.
Lakenheath Warren SSSI	Largest heathland site remaining in Suffolk Breckland, contains full range of Breck grass-heath types, rare plants. Rare birds including Nightjar.	1.62% Favourable, 63.4% Unfavourable recovering, 34.99% unfavourable no change	Agriculture (under-grazing)	Not applicable.	Recovering following management activities.
RAF Lakenheath SSSI (NB. this site is only part of the Breckland SAC not the SPA as well)	Species-rich Breckland grassland, rare plants. Rare invertebrates.	100% Favourable,	No information.	Not applicable.	Previous vehicle damage no longer evident within one unit.
Weeting Heath SSSI (NB. This site is adjacent to but not within Forest Heath)	Rabbit grazed Breckland grass heath. Up to nine pairs of Stone Curlew	40.15% Favourable, 38.97% unfavourable recovering, 20.88% Unfavourable no change	Inappropriate weed control (ragwort)	Not applicable.	Mostly National Nature Reserve, owned by Norfolk Wildlife Trust.
Rex Graham Reserve SAC This is a disused chalk pit with developing dry grassland characterised by false oat-grass *Arrhenatherum elatius*. The site has been selected as it supports the largest population of military orchid	Annex I habitats: Semi-natural dry grasslands and scrubland facies on calcareous substrates (important orchid sites)	100% Favourable		Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying	Managed by Suffolk Wildlife Trust

Site	Summary of reasons for designation	Condition	Threats and reasons for adverse conditions	Conservation Objectives	Other notes
Orchis militaris in the UK, comprising more than 95% of the current total population.				Features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats; • The structure and function (including typical species) of qualifying natural habitats; and • The supporting processes on which qualifying natural habitats rely.	
Devil's Dyke SAC (on FH boundary, part in FH and part in East Cambridgeshire DC) Devil's Dyke consists of a mosaic of CG3 *Bromus erectus* and CG5 *Bromus erectus – Brachypodium pinnatum* calcareous grasslands. It is the only known UK semi-natural dry grassland site for lizard orchid *Himantoglossum hircinum*.	Annex I habitats: Semi-natural dry grasslands and scrubland facies on calcareous substrates (important orchid sites)	50% Favourable, 36% Unfavourable recovering, 14% Unfavourable no change	Under-grazing in one component unit.	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: • The extent and distribution of qualifying natural habitats; • The structure and function (including typical species) of qualifying natural habitats; and • The supporting processes on which qualifying natural habitats rely.	None.
Fenland SAC (outside FH) Component SSSIs: Chippenham Fen (Ramsar, SSSI) and Wicken Fen (Ramsar, SSSI) - details	Annex I habitats: Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) Annex II species: Spined		Some problems with inappropriate scrub control, inappropriate cutting/ mowing and inappropriate water	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes	National Trust undertaking remedial land management work.

Site	Summary of reasons for designation	Condition	Threats and reasons for adverse conditions	Conservation Objectives	Other notes
below. Fenland contains, particularly at Chippenham Fen, one of the most extensive examples of the tall herb-rich East Anglian type of M24 *Molinia caerulea – Cirsium dissectum* fen-meadow. The individual sites within Fenland SAC each hold large areas of calcareous fens, with a long and well-documented history of regular management.	Loach (*Cobitis taenia*), Great Crested Newt (*Triturus cristatus*)		levels in some SSSI units.	to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats and habitats of qualifying species; • The structure and function (including typical species) of qualifying natural habitats; • The structure and function of the habitats of qualifying species; • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; • The populations of qualifying species; and, The distribution of qualifying species within the site.	
Chippenham Fen and Snailwell Poor's Fen SSSI (outside FH)	Wetland habitats and associated birds and insects. Areas of tall and often rich fen, fen grassland and basic flush. Site also contains calcareous grassland, neutral grassland, woodland, mix scrub and open water. Rare plants, birds and invertebrates.	90.27% Favourable, 9.73% Unfavourable recovering	Under-grazing in 2010 season coupled with encroachment of hard rush.	Not applicable.	None.

Site	Summary of reasons for designation	Condition	Threats and reasons for adverse conditions	Conservation Objectives	Other notes
Wicken Fen SSSI (outside FH)	One of the best surviving examples of East Anglian peat fen. Rare plants and invertebrates.	47.08% Favourable, 52.92% Unfavourable recovering	Inappropriate water levels (possibly caused by work carried out on the nearby river system in the 1960's to prevent flooding) and inappropriate scrub control in some units.	Not applicable.	Water level management plan (WLMP) in place to counteract low water levels.
Ouse Washes SAC, SPA and Ramsar site (outside FH) An extensive area of seasonally flooding wet grassland ('washland') with a diverse and rich ditch fauna and flora located on a major tributary of The Wash. The washlands support both breeding and wintering waterbirds.	<u>SAC qualifying species</u> Annex II: Spined loach *Cobitis taenia* <u>SPA qualifying species</u> Article 4.1, Annex 1 species (breeding season): Ruff *Philomachus pugnax;* Spotted Crake *Porzana porzana* Annex I species (over winter): Bewick's Swan *Cygnus columbianus bewickii*; Hen Harrier *Circus cyaneus*; Ruff *Philomachus pugnax*; Whooper Swan *Cygnus cygnus,* Article 4.2 (migratory species – breeding season): Black-tailed Godwit *Limosa limosa limosa*; Gadwall *Anas strepera*; Shoveler *Anas clypeata* Article 4.2 (migratory species – over winter): Black-tailed Godwit *Limosa limosa islandica;* Gadwall *Anas strepera;* Pintail *Anas acuta;* Pochard *Aythya farina;* Shoveler *Anas clypeata;* Wigeon *Anas Penelope* Article 4.2 Assemblage	Declines in most species of breeding waders (except redshank) and wildfowl. Increasing wintering wildfowl and wader numbers to 2005/6. Spined loach populations. SSSI conditions: 15.56% Favourable, 3.57% unfavourable recovering, 80.87% Unfavourable no change	Freshwater – inappropriate water levels, pollution and agricultural run-off. Assessment based on decline of most breeding bird features, some wintering bird features, and neutral grassland condition. Total 0.1mg/l phosphorus target. Vegetation change from changing hydrological regime and high nutrient status of receiving water causing eutrophication. Increases in spring and summer flooding and depth of water flooding. Saline intrusions, turbidity and sediment levels. Increased phosphates from new discharges.	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving… - the Favourable Conservation Status of its Qualifying Features (SAC), or - the aims of the Wild Birds Directive (SPA) …by maintaining or restoring: • The extent and distribution of the habitats of qualifying species/features • The structure and function of the habitats of the qualifying species/features • The supporting processes on which the habitats of qualifying species/features rely • The populations of qualifying species/features, and,	Long term tidal strategy - regular problems summer flooding- severe siltation of Great Ouse River. Discharges into River Lark, River Little Ouse (and various other smaller watercourses in Forest Heath) could drain into Great Ouse River and to Ouse Washes SPA/SAC. Large land holdings by RSPB, Cambridgeshire Wildlife Trust and Wetlands and Wildfowl Trust.

Site	Summary of reasons for designation	Condition	Threats and reasons for adverse conditions	Conservation Objectives	Other notes
	qualification: regularly supports at least 20,000 waterfowl Ramsar criteria 1. Extensive area of seasonally-flooding washland 2. Nationally scarce aquatic plants, relict invertebrates, assemblage of nationally rare breeding waterfowl. 5. Bird assemblages of international importance. 6. Water birds for potential future consideration			• The distribution of qualifying species/features within the site.	
The Wash SPA/Ramsar (outside FH) The largest estuarine system in the UK, fed by the rivers Witham, Welland, Nene and Great Ouse that drain much of the east Midlands of England. The Wash comprises very extensive saltmarshes, major intertidal banks of sand and mud, shallow waters and deep channels. The intertidal mudflats and saltmarshes represent one of Britain's most important winter feeding areas for waders and wildfowl outside of the breeding season. The saltmarsh and shingle communities are of considerable botanical interest and the mature saltmarsh is a	SPA qualifying species Article 4.1, Annex 1 species (breeding season): Common Tern *Sterna hirundo*; Little Tern *Sterna albifrons*; Marsh Harrier *Circus aeruginosus* Article 4.1, Annex 1 species (over winter): Avocet *Recurvirostra avosetta*; Bar-tailed Godwit *Limosa lapponica*; Golden Plover *Pluvialis apricaria*, Whooper Swan *Cygnus cygnus* Article 4.2 (migratory): Ringed Plover Charadrius hiaticula; Sanderling Calidris alba; Black-tailed Godwit *Limosa limosa islandica*; Curlew *Numenius arquata*; Dark-bellied Brent Goose *Branta bernicla bernicla*;	SSSI conditions: 67.98% Favourable, 31.61% Unfavourable recovering, 0.41% Unfavourable declining	Small area of saltmarsh is unfavourable recovering due to being heavily overgrazed by cattle.	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; • The extent and distribution of the habitats of the qualifying features • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features,	None.

Site	Summary of reasons for designation	Condition	Threats and reasons for adverse conditions	Conservation Objectives	Other notes
valuable bird breeding zone. Also very important as a breeding ground for Common seals.	Dunlin *Calidris alpina alpine*; Grey Plover *Pluvialis squatarola*; Knot *Calidris canutus*; Oystercatcher *Haematopus ostralegus*; Pink-footed Goose *Anser brachyrhynchus*; Pintail *Anas acuta*; Redshank *Tringa tetanus*; Shelduck *Tadorna tadorna*; Turnstone *Arenaria interpres* Article 4.2 Assemblage qualification: regularly supports at least 20,000 waterfowl			and, • The distribution of the qualifying features within the site.	
The Wash and North Norfolk Coast SAC (outside FH)	Annex I habitats: Sandbanks slightly covered by sea water all the time; mudflats and sandflats not covered by sea water at low tide; large shallow inlets and bays; reefs; *Salicornia* and other annuals colonising mud and sand; Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*); Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*); coastal lagoons. Annex II species: Common seal (*Phoca vitulina*); otter (*Lutra lutra*)	SSSI conditions: North Norfolk Coast: 99.4% Favourable, 0.6% unfavourable recovering The Wash: 67.98% Favourable, 31.61% Unfavourable recovering, 0.41% Unfavourable declining	Unfavourable recovering: scrub encroachment just within limits of condition assessment.	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats and habitats of qualifying species • The structure and function (including typical species) of qualifying natural habitats • The structure and function of the habitats of qualifying species • The supporting processes on which	None.

Site	Summary of reasons for designation	Condition	Threats and reasons for adverse conditions	Conservation Objectives	Other notes
				qualifying natural habitats and the habitats of qualifying species rely • The populations of qualifying species, and, The distribution of qualifying species within the site.	
Chippenham Fen Ramsar (outside FH)	Criterion 1: Spring-fed calcareous basin mire with a long history of management, which is partly reflected in the diversity of present-day vegetation. Criterion 2: The invertebrate fauna is very rich, partly due to its transitional position between Fenland and Breckland. The species list is very long, including many rare and scarce invertebrates characteristic of ancient fenland sites in Britain. Criterion 3: The site supports diverse vegetation types, rare and scarce plants. The site is the stronghold of Cambridge milk parsley (*Selinum carvifolia*).	SSSI conditions: 90.27% Favourable, 9.73% Unfavourable recovering	Unfavourable no change: Unit 3 - much scrub remains to be removed. Unit 4 - most of unit is unmanaged fen with scrub (management dangerous due to deep hidden pits). Unit 13 - tree removal needed to restore fen.	Not applicable.	Inappropriate scrub control, cutting and mowing in several units contributing to unfavourable no change status.
Wicken Fen Ramsar (outside FH)	Criterion 1: One of the most outstanding remnants of the East Anglian peat fens. The area is one of the few which has not been drained. Traditional management has created a mosaic of habitats from open water to sedge and litter fields. Criterion 2: The site supports one species of British Red Data Book plant, fen violet (*Viola persicifolia*),	SSSI conditions: 47.08% Favourable, 52.92% Unfavourable no change	Unfavourable declining: Units 1 and 2: Inappropriate supply and levels of water, National Trust have been undertaking good remedial land management works but this alone may not be enough to maintain notified interest features.	Not applicable.	Issues caused by inappropriate water levels and scrub control in some areas. WLMP in place to address these issue.

Site	Summary of reasons for designation	Condition	Threats and reasons for adverse conditions	Conservation Objectives	Other notes
	which survives at only two other sites in Britain. It also contains eight nationally scarce plants and 121 British Red Data Book invertebrates.		Unfavourable no change: Unit 3: Fen invaded by sallow, birch, aspen and rose (area dangerous to enter).		

Sources: Natural England website (www.naturalengland.gov.uk) and JNCC website (www.jncc.gov.uk), accessed 01/06/2015

3 Review of other plans and projects

Other plans and projects

3.1 Regulation 102 of the Habitats Regulations 2010 (UK Government, 2010) requires an Appropriate Assessment of '*any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plan or projects*'.

3.2 The first stage in identifying 'in-combination' effects involved identifying which other plans and projects may affect the European sites within the scope of the HRA. There is a large number of plan and strategy documents which could be considered. We have focussed our attention on county and district level plans which provide for development in Forest Heath and adjacent districts, and reviewed the findings of any associated HRA work for these plans, where available. We also reviewed the National Infrastructure Planning website but no projects were found that should also be considered for their potential in-combination effects on the European sites scoped into this HRA.

3.3 The plans and projects which we considered for their potential in-combination effects were as follows:

- Breckland Core Strategy, adopted 2009 and emerging 'new style' Local Plan.
- St Edmundsbury Core Strategy, adopted 2010.
- East Cambridgeshire Local Plan, adopted 2015.
- King's Lynn and West Norfolk Core Strategy, adopted 2011.
- Suffolk Minerals Core Strategy DPD, adopted 2008.
- Suffolk Waste Core Strategy DPD, adopted 2011.
- Suffolk Local Transport Plan 2011-2031.

3.4 The review is set out in Appendix 1.

Consideration of effects in combination with other plans and projects

3.5 HRA guidance (David Tyldesley Associates, 2015) states that the testing of a plan's effects in-combination with those of other plans and projects need only consider those effects (of the plan being assessed and those of other plans or projects) which, when acting alone rather than in-combination, have been assessed as minor. There is no need to consider policies or proposals that could not have any effect on a European site. There is also no need to consider any policies or proposals that have already been assessed as likely to have a significant effect alone and therefore flagged up for Appropriate Assessment and, if necessary, for action to avoid or mitigate them. This in-combination test is, for example, relevant to plans which would have some potential effect on a European site, but that effect alone would not be likely to be significant, and there are other plans or projects that would add to the plan's effects, either by making them more likely, or more significant, or both.

3.6 This principle has been applied in Sections 5 and 6 by highlighting any effects of the SIR which have not been assessed as either significant or 'no effect' and then giving consideration to the potential for effects in-combination with those described for other plans and projects in Appendix 1.

4 Evidence review and assumptions

4.1 This section reviews the extensive HRA work previously undertaken in the District and any more recent evidence reviews in order to establish the assumptions to be made in carrying out the HRA of the SIR. LUC has currently only been contracted to carry out the screening stage of HRA, i.e. considering whether it is possible to rule out likely significant effects; any subsequent Appropriate Assessment will be subject to a separate commission. However, we have included suggestions on the approach to the Appropriate Assessment stage as this is likely to be required following screening.

4.2 The issues surrounding the potential effects of development in Forest Heath District and neighbouring districts on European sites have been heavily studied and these studies have informed an extensive body of previous HRA work. The HRA of the Core Strategy (Forest Heath District Council, 2009) was, in turn, subject to extensive consultation with Natural England and other stakeholders (notably the RSPB) in order to reach agreement on a suitable approach. We have taken this previous body of work as the starting point in formulating the assumptions to be made in carrying out the HRA of the SIR. We have also reviewed further relevant information that has been published since that HRA was carried out and considered whether this suggests a need to amend the previously adopted approach. No primary data collection (e.g. breeding bird surveys or visitor surveys) has been carried out to inform the HRA Screening although this may be necessary to inform future Appropriate Assessment at the plan or project level, should these be required.

4.3 This section begins by considering the types of potential effect that the SIR may have on European sites. For each type of potential effect, it then:

- Reviews the approach taken by the HRA of the Core Strategy, the evidence on which that approach was based, and changes made to the Core Strategy as a result of the emerging Appropriate Assessment findings to avoid or mitigate adverse effects on integrity which were unable to be ruled out.
- Reviews new evidence which could suggest the need for a different approach.
- Sets out the approach to be taken in assessing the SIR for its potential to have that type of effect. A suggested approach to any subsequent Appropriate Assessment that may be required is also set out, although LUC has not currently been contracted to carry this out.

4.4 Where HRA Screening is unable to rule out likely significant effects from a particular Plan proposal, we will then consider whether any existing mitigation, such as adopted policies in the Core Strategy (other than Policy CS7 which is the subject of the SIR) or the Development Management Local Plan, allow these to be ruled out. It is also appropriate to consider at the Screening stage of HRA whether there are any straightforward additional mitigation measures that could be incorporated into future iterations of the emerging Plan. The HRA Screening Report makes recommendations on such mitigation measures, as appropriate.

Potential effects and approach to their assessment

Previous approach to HRA

4.5 The Screening and Appropriate Assessment stages of the HRA of the previously adopted Core Strategy are contained in a single HRA Report (Forest Heath District Council, 2009).

4.6 The Screening stage of the HRA identified the European sites in and around the Plan area and set out the reasons for their designation and current threats to their favourable condition. It concluded that likely significant effects could be ruled out in respect of two of the European sites within 20 km of the District boundary (use of the 20 km boundary is explained above) and for all Core Strategy policies except the following:

- CS2 - Town Centre and Key Service Centre Strategies
- CS6 - Economy and Tourism
- CS7 - Overall Housing Provision
- CS10 - Strategic Transport Improvements
- CS12 - Infrastructure and Sustainable Communities

4.7 The HRA Report for the Core Strategy did not present a formal screening of the policies and proposals within the Core Strategy for likely significant effects to justify the need for the Appropriate Assessment, appearing to rely on screening undertaken at earlier stages of plan making. A very brief re-screening of the proposed submission Core Strategy was presented in Appendix 1 of the HRA although this provided no information on the types of effect which might arise from the screened-in policies.

4.8 The HRA of the Core Strategy then proceeded to full Appropriate Assessment in respect of the screened-in policies and European sites. The Appropriate Assessment considered the potential for that Plan to have the following types of potential effect on European sites in and around the District:

- Direct effects of built development.
- Disturbance to Annex I birds.
- Avoidance of roads by Stone Curlew.
- Other urban effects.
- Flood risk.
- Water quality and waste water discharge.
- Water supply.
- Air pollution from roads.

4.9 It is considered that all of these types of potential effect should also be considered in carrying out HRA Screening of the SIR.

Direct effects of built development

4.10 Adverse effects on the integrity of any of the four European sites within Forest Heath District could result from built development within their boundaries due to direct loss of designated features or of the habitats on which designated species rely. The Stone Curlew, Nightjar and Woodlark populations of Breckland SPA may also be directly affected by built development at some distance from the habitats used by these designated features, as described below.

Approach taken by HRA of the Forest Heath Core Strategy

4.11 No development was proposed by the Forest Heath Core Strategy within the boundaries of European sites.

4.12 In addition, the Appropriate Assessment of Forest Heath Core Strategy identified the possibility for built development in close proximity to habitat used by the three Annex I birds species for which Breckland SPA is designated (Stone Curlew, Woodlark and Nightjar) to have adverse effects on its integrity.

4.13 The Appropriate Assessment of the Forest Heath Core Strategy relied heavily on work carried out for the HRA of neighbouring Breckland District Council's Core Strategy (Liley, et al., 2008) to assess the potential for built development to have adverse effects on the integrity of Breckland SPA in relation to these Annex I birds. Much of this work is directly relevant to Forest Heath because it also covers the elements of the Breckland SPA within Forest Heath District. Combining reviews of existing studies with original survey and modelling work, it represented the most accurate and up to date information available at the time of the HRA of Forest Heath Core Strategy, as summarised below.

4.14 Correlative studies of Stone Curlews (Sharp, et al., 2008), Nightjars (Clarke, et al., 2008) (Liley & Clarke, 2003) (Liley & Clarke, 2002) (Liley, et al., 2006) and Woodlarks (Mallord, 2005) have found lower densities of these Annex I species in areas close to housing or surrounded by high densities of housing. The reasons for this avoidance are difficult to pin-point and may, in part, be due to indirect effects of housing development such as increased visitor pressure/disturbance, increased occurrence of fires and higher densities of predators such as cats and foxes. Some evidence also exists, however, that reduced bird densities may be directly related to the built environment.

4.15 Based upon a wide variety of ecological information, the Appropriate Assessment of the Core Strategy concluded that the point at which direct effects of built development could no longer be considered to be adverse was at a distance of between 1,000 m and 2,500 m between the new development and the Annex I bird species habitat. The habitat may lie within the SPA or occur as supporting habitat outside the SPA boundary. The Appropriate Assessment of the Core Strategy therefore went on to consider options for mitigation or avoidance.

4.16 No evidence was found to show that screening (such as by shelter belts or landscaping) might reduce avoidance of built development by Stone Curlew or allow the distance at which adverse effects occur to be reduced. Many fields do have existing shelterbelts, and the avoidance of housing is still clear across suitable arable land, suggesting that screening will not work as mitigation.

4.17 Provision of mitigation land or improved management of land within the SPA may be appropriate as mitigation for development within the proposed buffer zone. The creation of new areas of supporting habitat, replacing supporting habitat outside the SPA, away from building and disturbance could provide potential nesting locations for displaced birds that utilise land outside the SPA boundary. Given that it is unknown what impact an increased Stone Curlew population could have on the observed avoidance, further research and monitoring of such effects was suggested.

4.18 In relation to avoidance of the direct effects of development on Woodlark or Nightjar (particularly in relation to cat predation), the Core Strategy HRA notes the 400 m 'no build zone' used to avoid the effects of housing on heathland birds of The Dorset heaths and Thames Basin Heaths SPAs. The 400 m distance was chosen to minimise additional cat predation and visitor pressure on the heathlands adjacent to development. Research in Dorset has indicated that cat predation is a particular problem for Dartford Warbler populations, a species that does not occur in the Brecks. Furthermore, the nesting patterns and densities of Woodlark and Nightjar within and around the Breckland SPA are quite different to those in Dorset such that development proposals within 400 m of Breckland SPA that are close to Nightjar or Woodlark habitat will be few. Taking all of this into account, the HRA of the Core Strategy concluded that that development within 400 m of Breckland SPA should undertake project level HRA.

4.19 In summary, the HRA of the Core Strategy concluded that direct adverse effects of built development on the three Annex I species of Breckland SPA could be avoided by amending the Core Strategy to include the following requirements:

- *"New built development will be restricted within 1,500m of components of the Breckland SPA designated for Stone Curlew. Proposals for development in these areas will require a project level Habitat Regulations Assessment (HRA) (see Figure 3)…"* [of Core Strategy]. *"Development which is likely to lead to an adverse effect on the integrity of the SPA will not be allowed."*
- *"Where new development is proposed within 400m of components of the Breckland SPA designated for Woodlark or Nightjar a project level Habitats Regulation Assessment (HRA) will be required (see Figure 3)…"* [of Core Strategy]. *"Development which is likely to lead to an adverse effect on the integrity of the SPA will not be allowed."*
- *New development will also be restricted within 1,500m of any 1km grid squares which has supported 5 or more nesting attempts by Stone Curlew since 1995. Proposals for development within these areas will require a project level HRA (see Figure 3)…"* [of Core Strategy]. *"Development which is likely to lead to an adverse effect on the integrity of the SPA will not be allowed."*

4.20 These recommended changes were made to Policy CS2 Natural Environment of the adopted Core Strategy and the avoidance zones created by these buffers were plotted in Appendix 2 of the HRA of the Core Strategy. It is understood from the Council that the areas of habitat important for Stone Curlew and for Woodlark or Nightjar around which the buffers were drawn were based on the SSSI citations for each of the SPA component parts.

New evidence which could suggest a different approach to the HRA of Forest Heath SIR and Site Allocations Local Plan

4.21 Before carrying forward the approach taken in the HRA of the Forest Heath Core Strategy to HRA of the SIR and Site Allocations Local Plan we have considered whether:

- Any new surveys of bird presence or supporting habitat indicate the need to update the maps showing the important areas of habitat for Annex I birds around which the buffers are drawn, i.e. those areas of Breckland SPA designated for Stone Curlew and for Woodlark or Nightjar plus areas outside the SPA that support the population of Stone Curlew for which it is designated.
- Any new ecological research suggests the need to revise the buffer distances applied in the HRA of the Core Strategy or otherwise affects the assumptions underlying them.

4.22 In relation to potentially important areas of habitat outside of the Breckland SPA, LUC is aware that Suffolk Wildlife Trust is currently undertaking a wildlife audit (extended phase 1) of the Forest Heath Local Plan site allocation options. They have access to the Suffolk Biological Records Centre data which is shared with the local planning authorities in Suffolk, although Stone Curlew records are kept by the RSPB and not by SBRC and these are not normally included in any documents that are to be made public. The survey report sheet for each site will include information on 'protected species (present or previously recorded)' and 'protected species potential'. Findings will not be available until the end of August 2015 (after the deadline for delivery of the HRA Screening Report to accompany the 'Issues and Options' draft of the SIR; the findings will therefore be considered in HRA at the next stage of Plan-making). It is noted that these wildlife audits only cover land within the potential allocation sites and do not extend to other areas within 1,500 m of them.

4.23 In relation to the previously applied 1,500 m buffer distance between new development and areas of habitat important for Stone Curlew, LUC has reviewed the following study published since the HRA of the Forest Heath Core Strategy:

- Further assessments of the relationship between buildings and Stone Curlew distribution (Clarke & Liley, 2013).

4.24 Whilst the study indicates that the effect of buildings is from residential properties as opposed to commercial or other building types, it advises caution with regards non-residential development types (due to the small sample size of these types of buildings in the study and difficulties with reliably classifying them) and suggests that applications for any non-residential development buildings close to the SPA should be carefully considered on an individual basis.

4.25 The study also found that where there is existing development close to suitable Stone Curlew habitat, or high levels of development already, then further development has relatively little additional impact. Although this suggests that infill development within the 1,500 m Stone Curlew avoidance zones may not have a significant effect in some cases, Natural England's position remains that all proposals for building within the zone be accompanied by project level HRA[8].

4.26 Finally, the analysis was unable to find any evidence that trees, other screening, or reduced lighting levels around buildings may act as mitigation. The overall conclusion of the study is that the further work carried out provides strong support for the continuation of a 1,500m zone around areas capable of supporting Stone Curlew on the basis that additional development in this zone would have a likely significant effect on Breckland SPA.

[8] Confirmed in correspondence with Natural England dated 3 July 2015.

Approach to assessing direct effects of built development within the HRA of Forest Heath SIR

4.27 Provided that no built development is proposed within the boundary of any European site, direct effects of built development on the three SACs within Forest Heath District are screened out. The potential for built development to have an indirect effect on SACs due to air pollution from increased road traffic is dealt with separately below.

4.28 The HRA Screening assumes that the system of avoidance zones around Breckland SPA established through the HRA of the Core Strategy (following the methodology first set out in (Liley, et al., 2008)) is also valid for identifying locations where likely significant direct effects from built development cannot be ruled out. Likely significant effects will be identified for any provisions for built development within the avoidance zones and a finding of no effect will be made for built development outside of the avoidance zones. The 1,500 m avoidance zones for Stone Curlew/Stone Curlew nesting attempts and the 400 m avoidance zone for Woodlark or Nightjar are shown on Figure 2.2.

4.29 It is likely that any future Appropriate Assessment will need to assume that where this HRA Screening approach is unable to rule out likely significant effects, no strategic mitigation measures are likely to be capable of avoiding direct adverse effects from built development within the buffer zones on the integrity of Breckland SPA and that it will only be possible by project level HRA to rule such effects out. Policy CS2 of the Core Strategy requires project level HRA for development proposals within the Breckland SPA avoidance zones and states that development likely to lead to an adverse effect on integrity will not be allowed. In practice, this means that if the Local Plan were to allocate sites for development within the avoidance zones, this could call into question the deliverability of the Plan and its ability to rely on such sites to contribute to meeting objectively assessed needs. As part of the Appropriate Assessment of the Core Strategy, this issue was addressed in relation to housing provisions to settlements within the avoidance zones (provisions to Brandon, Mildenhall, Red Lodge and Kentford) by carrying out (in partnership with the RSPB) a high level assessment of the likelihood of SHLAA sites having a significant adverse effect on the SPA (see Appendix 3 to HRA of Core Strategy).

Disturbance to Annex I birds

4.30 There is an extensive evidence base on the effects of recreational disturbance on Stone Curlews, Nightjars and Woodlarks, the three Annex I bird species of Breckland SPA. Although national populations of all three species have generally increased in recent years, prospects for further recovery, for Nightjar and Woodlark at least, may be limited by factors including the effects of recreational disturbance (Langston, et al., 2007).

Approach taken by HRA of the Forest Heath Core Strategy

4.31 The Appropriate Assessment of the Core Strategy considered the potential for adverse recreational effects on the integrity of Breckland SPA in respect of its three Annex I bird species (Stone Curlew, Nightjars and Woodlark) as follows.

4.32 A study of incubating Stone Curlews on Salisbury Plain (Taylor, et al., 2007) has shown that they leave the nest in response to disturbance at considerable distances (>300 m) and that the closer a potential source of disturbance, the greater likelihood that the birds would respond by leaving the nest. Birds were more likely to respond by running or flying from a walker with a dog than a walker without a dog, or than a motor vehicle.

4.33 Studies of Nightjars have shown that breeding success is lower on sites with higher levels of access, and for nests close to footpaths. Recreational disturbance, particularly from dogs, causes adults to be flushed from the nest, potentially betraying the presence of the nest to predators such as crows (Langston, et al., 2007) (Langston, et al., 2007) (Murison, 2002) (Woodfield & Langston, 2004).

4.34 Woodlarks have been intensively studied in conifer plantations and heathland habitats in the Dorset Heaths (Mallord, 2005). Mallord's work has shown that otherwise suitable habitat with

high levels of recreational access holds lower densities of Woodlarks. Whilst breeding success in such areas is actually better, due to reduced competition between Woodlarks (Mallord, et al., 2007) (Mallord, et al., 2006) this is not sufficient to compensate for the effect of disturbance and the net effect on the Woodlark population is negative (Mallord, et al., 2006).

4.35 Having established that the designated bird species of Breckland SPA are sensitive to human disturbance, the Appropriate Assessment of the Core Strategy (Forest Heath District Council, 2009) considered existing levels of recreation in the SPA and the extent to which these are likely to increase as a result of the development provided for by the Core Strategy.

4.36 In establishing its geographic scope, the HRA of the Core Strategy noted that work in other parts of the country (Liley, et al., 2008), (Sharp, et al., 2008) has shown that coastal sites or large tracts of semi-natural habitat will attract a relatively high proportion of residents from up to 20 km away from the site. Patterns of recreational use of the Thetford Forest area of Breckland SPA established through visitor surveys (Dolman, et al., 2008) show that whilst many visitors are relatively local (43% had travelled less than 5 km from their home postcode to the interview location within the Forest), 37% had travelled more than 10 km from home. Almost all of Forest Heath District lies within 10 km of the Breckland SPA, as do all of its major settlements.

4.37 Similarly to its consideration of the direct effects of built development, the Appropriate Assessment of the Forest Heath Core Strategy drew heavily on HRA work carried out for the neighbouring Breckland Core Strategy (Liley, et al., 2008). Parallels were drawn with statistical modelling of increases in visitor use of paths in the Breckland SPA as a result of different housing growth scenarios for the town of Thetford (Dolman, et al., 2008). The three housing growth scenarios examined provided for different distributions of housing to Thetford's existing urban area, an urban extension to its northern boundary and an urban extension to the south east by 2021. All three featured total housing growth of 7,743 houses during 2007-2031. The fact that more housing growth was proposed for Thetford than for any individual settlement in Forest Heath meant that applying the results from the HRA of the Breckland Core Strategy to understand the potential scale of increased recreational disturbance around settlements on Forest Heath represented a precautionary approach, consistent with the requirements of by the Habitat Regulations.

4.38 Modelled visitor growth around Thetford was used by the RSPB[9] to explore the potential for increased flushing of Stone Curlews using their 'SCARE' model as a result of an increase in access levels resulting from new housing. Although this work used proposed housing growth in and around Thetford it was felt that the results could equally be applied to settlements in Forest Heath, given the close geographical location of the two areas. The model predicted visitor numbers associated with baseline and future housing numbers to paths in Breckland SPA. The resulting calculation of mean number of disturbance events per hour (averaged across all path sections within each 3 km grid square) increased from 0.04-1.10 with current housing levels to 0.06-1.80, as an average for all future housing scenarios. The mean number of disturbance events per grid square per grid square increased from 0.25 to 0.27.

4.39 The Appropriate Assessment of the Forest Heath Core Strategy reproduced an analysis from the HRA of the Breckland Core Strategy (Liley, et al., 2008) of how visitor levels in Breckland SPA compare to two other SPAs which support Woodlark and Nightjar, namely Dorset Heaths SPA and Thames Basin Heaths SPA. This comparison is useful because the effects of visitor disturbance and of disturbance mitigation have been widely examined at Dorset Heaths SPA and Thames Basin Heaths SPA. The comparison established that compared to the other two SPAs, Breckland SPA represents a much larger parcel of land with public access and has far fewer houses nearby (within 500m or within 5 km). Directly comparable visitor data were unavailable for the three designated sites but very broad brush estimates suggested that visitor pressure on Breckland SPA was low relative to the other to SPAs and likely to remain so, even after the increases in visitors as a result of planned new housing. Taken together, this information suggests that visitor pressure at Breckland SPA is very broadly comparable to (and likely to remain below) that at Dorset Heaths SPA and Thames Basin Heaths SPA. They can therefore provide a reasonable benchmark for visitor disturbance rates and a model for visitor mitigation measures at Breckland SPA.

[9] Early draft report provided by R. Langston, RSPB, on 21/9/08

4.40 The Appropriate Assessment of the Forest Heath Core Strategy concluded that increases in visitor disturbance to the Annex I bird species of Breckland SPA as a result of planned housing growth would be small and unlikely to reach the same levels experienced by broadly comparable SPAs (Thames Basin Heaths and Dorset Heaths) designated for Woodlark and Nightjar. This was based on the results of the modelling described above and the observation that the scale of housing growth at each of Forest Heath's settlements would be less than was planned for Thetford. The Appropriate Assessment also observed that many of the Breckland grass heaths have 'open access land' designated under the Countryside and Rights of Way Act 2000 (CRoW) but that restrictions are put in place each year due to the presence of Stone Curlews and this will minimise disturbance effects on those sites. Nevertheless, the modelling provided evidence that some areas of habitat would be less likely to be used by Stone Curlews as a result of new housing development. Also, uncertainty is created by the fact that bird distributions change over time, particularly those of Nightjar and Woodlark, in relation to forestry management. The conclusion of the Appropriate Assessment of the Forest Heath Core Strategy was therefore that, whilst the increase in recreation associated with the Core Strategy was likely to be low, an adverse effect on the integrity of Breckland SPA in relation to its Annex I birds could not be ruled out on a precautionary basis.

4.41 The Appropriate Assessment therefore went on to consider options for avoidance and mitigation and concluded that indirect disturbance effects on the three Annex I species of Breckland SPA could be avoided by the following amendment to the Core Strategy:

> *"Include policy wording or supporting text to explain that the Council is committed to ensuring sustainable levels of recreation in and around the Breckland SPA, and work with partners including Natural England, RSPB and Forestry Commission to develop a strategy that sets out an access management and monitoring programme that provides measures to prevent increasing visitor pressure, and suitable mitigation (should monitoring indicate that Annex I species are failing to meet conservation objectives due to recreational pressure)."*

4.42 Further to this requirement, a visitor study was undertaken (Fearnley, et al., 2010) and the following text included in Policy DM12 of the recently adopted Development Management Local Plan document (Forest Heath District and St Edmundsbury Borough Councils, 2015):

> *"All new development (excluding minor household applications) shown to contribute to recreational disturbance and visitor pressure within the Breckland SPA and SAC will be required to make appropriate contributions through S106 agreements towards management projects and/or monitoring of visitor pressure and urban effects on key biodiversity sites."*

4.43 More generally, Core Strategy Policy CS2 Natural Environment requires *"promotion of Green Infrastructure enhancement and/or provision on all new developments"*, incorporation of *"adequate and appropriate natural areas informed by Landscape Character Assessment",* and *"increased public access to the countryside through green corridors"*. Policy CS13 Infrastructure and Developer Contributions states that release of land for development will be dependent on there being sufficient capacity in local infrastructure, with one of the areas to be addressed being open space.

New evidence which could suggest a different approach to the HRA of Forest Heath SIR and Site Allocations Local Plan

4.44 Before carrying forward the approach taken in the HRA of the Forest Heath Core Strategy to HRA of the SIR and Site Allocations Local Plan it is necessary to consider whether any new evidence on visitors to the Breckland SPA or on the sensitivity of its Annex I birds to recreational disturbance suggests that likely significant effects from additional residential development anywhere in the District can be ruled out.

4.45 LUC has reviewed the following study published since the HRA of the Forest Heath Core Strategy:

- Visitor survey results from Breckland SPA (Fearnley, et al., 2010).

4.46 The study concentrates on heathland and forest ('Thetford Forest') areas of the SPA rather than farmland on the basis that these areas attract more visitors, and from further afield, since access to arable farmland is available close to home for many of the District's residents.

It notes the precautionary approach taken by the HRA of the Breckland Core Strategy to potential recreational disturbance due to a lack of firm evidence to determine whether the Annex I birds of Breckland SPA are being adversely affected by recreational disturbance. Based on the new visitor survey work carried out, the study goes on to advise a continued need for a precautionary approach when considering the future growth proposals for both St Edmundsbury Borough and Forest Heath District.

4.47 A key finding of the research is that the majority of visitors are local residents (87%), living within a 10 km radius (measured from home postcode to the survey location within the SPA) and using Thetford Forest as their local green space which they visit at least weekly. The research recommends that:

> *"Any new housing within this radius should be identified as development that would be likely to have a significant effect as a result of recreational disturbance upon the SPA, in the absence of any counteracting measures and taking a precautionary approach. It is also likely that, the closer new housing is to the Forest, the greater the additional recreational pressure will be."*

4.48 The research notes that its findings on the relationship between visitor rates and distance from home are similar to those obtained during earlier HRA (Breckland District Council, 2010) from a different data set. The earlier study showed that visitor rates flatten out at about 7.5 km from home to the edge of Thetford Forest (rather than survey locations within the Forest).

Approach to assessing disturbance to Annex I birds within the HRA of Forest Heath SIR

4.49 The HRA of the Core Strategy assumed that it was not possible to rule out likely significant recreational disturbance effects on the Annex I bird species of Breckland SPA from residential development anywhere in the District. However, given the general alignment of findings of the two Breckland SPA visitor studies discussed above, the HRA Screening of the SIR and Site Allocations Local Plan assume that the potential for likely significant effects cannot be ruled out from housing development within 7.5 km from the development location to the edge of Breckland SPA. Development more than 7.5 km from Breckland SPA is assumed to have no effect. The 7.5 km recreation buffer is shown in Figure 2.2. These assumptions are based on the sensitivity of the SPA's Annex I birds to recreational disturbance, the proximity of the SPA to the Plan area, visitor survey and modelling evidence and uncertainty created by the fact that areas important for the Annex I birds are likely to change with future changes in forestry management. In determining whether likely significant effects can be ruled out, consideration will also be given to mitigation from Policy DM12 (see above).

4.50 Recreational disturbance effects on other European sites will be screened out (a finding of no effect) due to their designated features not being sensitive to this type of effect (e.g. Rex Graham Reserve SAC) and/or due to the distance from development locations within the District to European sites (e.g. Ouse Washes SAC, SPA and Ramsar site).

4.51 The Appropriate Assessment is likely to need to assume that adverse effects on the integrity of Breckland SPA can only be ruled out via a package of mitigation measures. Recommendations on these measures are likely to take the package described in the HRA of the Core Strategy as a starting point and consider the extent to which these are being implemented by the Council or through partnership working with the Forestry Commission and other local landowners or have been secured by legal agreements. The visitor survey (Fearnley, et al., 2010) provides useful information on visitor patterns to Breckland SPA and discussion of possibilities for diverting some recreational pressure away from the SPA and the key areas for birds. This is likely to be useful for informing mitigation in the form of access management and green infrastructure provision. For the Site Allocations Local Plan, these requirements may include site-specific requirements, particularly at strategic growth locations. Such measures could be funded by a Local Plan requirement for developer contributions, secured by legal agreement, to deliver mitigation measures with the primary purpose of achieving European site conservation objectives. The views of Natural England and other relevant conservation bodies will also be relevant.

Avoidance of roads by Stone Curlew

4.52 A clear avoidance by Stone Curlews of otherwise suitable habitat adjacent to major roads has been demonstrated in a number of studies (Day, 2003) (Green, et al., 2000) (Sharp, et al., 2008). These effects exist up to a distance of at least 1,000 m from trunk roads and possibly up to 2,000 m.

Approach taken by HRA of the Forest Heath Core Strategy

4.53 The Appropriate Assessment of the Forest Heath Core Strategy considered the available scientific research with regard to the avoidance of roads by Stone Curlew, and concluded that it could not be ascertained that there would be no adverse effect on the integrity of Breckland SPA due to increased traffic levels, new roads or road improvements that are likely to arise as a result of the proposed development promoted within the Core Strategy. Natural England and the RSPB considered the evidence in the Appropriate Assessment of the Forest Heath Core Strategy (Forest Heath District Council, 2009) and the HRA of the Breckland Core Strategy (Liley, et al., 2008) in relation to the avoidance of roads by Stone Curlew. They took a precautionary approach and determined that the distance at which it can be assumed that Stone Curlews will not be significantly affected by road infrastructure improvements or new roads is the same as that for buildings, being 1,500 m.

4.54 The Appropriate Assessment therefore went on to consider options for avoidance and mitigation. It concluded that adverse effects on the integrity of Breckland SPA in relation to avoidance of roads by its Annex I Stone Curlew interest could be avoided by the following Core Strategy requirement:

> *"Road infrastructure improvements or new roads within 1,500m of Breckland SPA designated for Stone Curlews will require a project level Habitats Regulations Assessment (HRA) to ensure no adverse effect is had on the qualifying feature."*

4.55 This requirement was met via the general restrictions in Policy CS2 on all types of development within 1,500 m components of the Breckland SPA designated for Stone Curlew and within 1,500 m of 1 km grid squares that have supported five or more nesting attempts since 1995, as reproduced under *'Direct effects of built development'* above.

New evidence which could suggest a different approach to the HRA of Forest Heath SIR and Site Allocations Local Plan

4.56 Before carrying forward the approach taken in the HRA of the Forest Heath Core Strategy to HRA of the SIR and Site Allocations Local Plan it is necessary to consider whether:

- Any new ecological research suggests the need to revise the 1,500 m buffer distance or otherwise affects the assumptions underlying it.
- New surveys of bird presence or supporting habitat indicate the need to update the maps showing the areas of importance to Stone Curlew within and outside the Breckland SPA around which the buffers are drawn.
- Whether any traffic modelling is available which could identify roads that are likely to see significant traffic growth as a result of the growth proposed in the SIR and Site Allocations Local Plan.

4.57 In relation to the continued validity of the 1,500 m avoidance buffer between any new development (including road infrastructure) and areas of habitat important for Stone Curlew, LUC has reviewed the following study published since the HRA of the Forest Heath Core Strategy:

- Further assessments of the relationship between buildings and Stone Curlew distribution (Clarke & Liley, 2013).

4.58 This study updates and expands previous work (Sharp, et al., 2008) which found significant effects of existing roads on the density of Stone Curlew breeding attempts. The new analysis of Stone Curlew data in and around Breckland SPA showed that, regardless of the amount of nearby buildings, the nest density was always lowest in the subset of areas within 0.5 km of the nearest trunk road (A11, A14 or A47) and highest in the areas furthest from the nearest trunk road. No

consistent pattern was found for non-trunk roads. The overarching conclusion of the study authors is that the latest analysis provides strong support for the continuation in planning policy of a 1,500 m avoidance zone around areas capable of supporting Stone Curlew.

4.59 LUC is not aware of any new information which may reveal the presence of areas outside the Breckland SPA boundary which are of importance to Stone Curlew (the wildlife audit noted under the "Direct effects of built development" topic above will only examine the potential development sites and not surrounding areas).

4.60 The Council has confirmed that no modelling is currently planned of the likely changes in traffic on the local road network that may result from the scale and broad locations of growth set out in the SIR. We have reviewed the Suffolk Local Transport Plan "LTP" (Suffolk County Council, 2011) which was published subsequent to the HRA of the Forest Heath Core Strategy. In relation to the effects of growth in Forest Heath District, the Local Transport Plan states:

> *"It is likely that Forest Heath will grow by around 4,500 homes and 7,000 jobs by 2021. Most of the growth is expected to be in the major settlements of Newmarket, Brandon and Mildenhall. These developments will put additional strain onto the transport network, and where they are located on greenfield sites would be expected to be further away from traditional transport hubs and routes and so require greater investment to make them sustainable. Proposed development to the west of Mildenhall for example raises difficult issues about connectivity with the rest of the town."*

4.61 Key improvements that the LTP sought in the strategic road network within Forest Heath District were:

- Dualling of the A11 between Mildenhall ('Fiveways') and Thetford. This trunk road is managed by the Highways Agency and most of the section to be dualled runs through Breckland SAC/SPA (the Council confirms that this is now substantially complete and operational).
- Work with the Highways Agency to tackle congestion at the A14 / A142 junction to the north east of Newmarket (it is assumed that this will include enhancements to the road network).

4.62 The LTP notes a strong local aspiration for a bypass or relief road at Brandon but does not go so far as to propose this. It also makes clear that project level HRA would be required for any such scheme.

4.63 The LTP therefore appears to support the assumption of the HRA of the Core Strategy that the road network in the District is likely to experience traffic growth and new roads or road improvements as a result of growth proposed by the Local Plan.

4.64 The draft LTP was subject to HRA Screening (Suffolk County Council, 2011) which identified potential likely significant effects from several policies including Policy 1.4 which seeks improvement to the A11, A12 and A14 trunk. The effects from policies were ruled out by inclusion in the final LTP of a generic requirement that any development likely to have a significant effect on a European site will be subject to project level HRA. The HRA was also unable to rule out likely significant effects on Breckland SPA from one specific potential scheme, the Brandon relief road. This effect was ruled out by including the following caveat for the Brandon scheme in the final LTP:

> *"A project level Habitats Regulations Assessment will need to screen for any likely significant effects on European sites and measures will need to be implemented to avoid, reduce and compensate for any impacts and enhance biodiversity habitats and species. This would include timing of works and habitat enhancements as part of the scheme design. If it cannot be ascertained that there would be no adverse effects on site integrity the project will have to be refused or pass the tests of Regulation 62, in which case any necessary compensatory measures will need to be secured in accordance with Regulation 66.* "

4.65 Whilst the HRA of the LTP was able to rule out likely significant effects by specifying a requirement for project level HRA, where relevant, it gives no detailed consideration to the potential for the effects of increased traffic along existing roads on European sites. In particular, neither the LTP nor its HRA set out any assumptions about the scale of traffic growth that the

road improvements the LTP provides for could facilitate. Whilst it is accepted that such traffic growth would not be a direct effect of the LTP, this limitation means that information within the LTP and its HRA are not sufficient to allow the HRA of the SIR to screen out the possibility of significant traffic growth on any particular roads within the District.

Approach to assessing avoidance of roads by Stone Curlew within the HRA of Forest Heath SIR

4.66 The HRA Screening will assume that significant increases in road traffic will occur wherever new road infrastructure or road improvements to increase capacity (e.g. road widening) are proposed. Likely significant effects will be assumed to occur on any area of habitat of importance to the Breckland SPA Stone Curlew population within 1,500 m of the road infrastructure improvement; a finding of no effect will be made for road infrastructure improvements more than 1,500 m from these areas of Stone Curlew habitat. Whilst provision for new housing is likely to increase road traffic and demand for road infrastructure improvements, these indirect effects are more appropriately assessed via HRA of the Local Transport Plan and of individual road schemes.

4.67 The Appropriate Assessment is likely to need to assume that strategic mitigation measures are not likely to be capable of avoiding adverse effects the integrity of Breckland SPA and that if such effects are to be ruled out, this will only be possible through site-specific mitigation determined by project level HRA. In practice, this would mean that the Local Plan could not provide for development that would result in new or upgraded roads within 1,500 m of areas of habitat of importance to the Breckland SPA Stone Curlew population.

Other urban effects

4.68 A wide range of urban effects other than those described under 'Disturbance to Annex I birds' above can operate synergistically to adversely affect the conservation interest of European sites close to areas of high housing density.

Approach taken by HRA of the Forest Heath Core Strategy

4.69 Table 4.1, drawn from the HRA of the Breckland Core Strategy (Liley, et al., 2008) and reproduced in the Appropriate Assessment of the Forest Heath Core Strategy (Forest Heath District Council, 2009) summarises the key negative effects, other than disturbance to birds, of development close to European heathland sites.

Table 4.1 Potential negative effects (other than bird disturbance) of development close to European heathland sites (Liley, et al., 2008)

Effect	Description and impact	Example of species / species groups affected	Key references
Fragmentation	Loss of supporting habitats	Nectar feeding invertebrates, Nightjar, Woodlark, invertebrates, plants, reptiles, birds and mammals	(Alexander & Cresswell, 1990)
	Lack of connectivity between sites preventing movement / genetic exchange between sites.	Invertebrates and plants	(Webb, 1989) (Webb & Vermaat, 1990) (Webb, 1990) (Webb & Thomas, 1994)
	Smaller site size increases edge effects from non-heathland species.		
Predation and increased mortalities	Access by pet cats, some of which feed on the heath and which can roam up to 1.5 km at night	Birds, invertebrates, reptiles and amphibians	(Woods, et al., 2003) (Sims, et al., 2008)

Effect	Description and impact	Example of species / species groups affected	Key references
	Different densities of mammalian predators such as foxes present on more urban heaths	Birds, reptiles, mammals	(Taylor, 2002)
	Increase in crows and magpies on sites with greater human activity	Birds, invertebrates, reptiles and amphibians	(Marzluff & Netherlin, 2006)
Roads	Road kills from traffic	Birds, invertebrates, reptiles and amphibians	(Erritzoe, 2002)
	Increased levels of noise and light pollution	Birds, invertebrates	(Reijnen, et al., 1997)
	Roads are barriers to species mobility	Invertebrates	(Mader, et al., 1990)
Pollution / Hydrology	Ground and surface water pollution from roads and hard surfaces, spills and dumping	Vegetation communities, macro invertebrates in watercourses	(Armitage, et al., 1994)
	Air pollution from industrial uses, fires and vehicles	Vegetation communities	(Bobbink, et al., 1998) (Angold, 1997) (Bignal, et al., 2007)
Trampling	Soil compaction	Plant communities and species. Invertebrates Plant communities and species, some invertebrates benefit Invertebrates and reptiles	(Taylor, 2002)
	Soil erosion from walkers, cyclists and horse riders		
	Damage to breeding and wintering sites		
	Creation of extensive path network increases spatial disturbance	Birds, reptiles	
Vandalism	Damage to signs, fences, gates		
Eutrophication	Enrichment of soils from dogs excrement	Plant communities and species, invertebrates	(Bonner & Agnew, 1983) (Taylor, et al., 2005)
	Dumping of household and garden rubbish.		(Liley, 2004)
	Enrichment along road corridors, effects of dust, salt, run-off	Plant communities and species, invertebrates	(Angold, 1997)
Fires	High fire incidence on urban heaths. Direct mortality of fauna. Temporary removal of breeding and foraging habitat.	Birds, invertebrates, reptiles and amphibians	(Kirby & Tantrum, 1999)
	Long term vegetation change from repeated fires	Vegetation communities	(Bullock & Webb, 1994)
Restrictions on management	Stock grazing, gates left open, dogs chasing animals, injury to stock.		(Woods, 2002)
	Objections to management e.g. Tree clearance.		
	Increased costs of wardening		
Negative public perception	Disregard of access and activity restrictions, hence trampling, dog fouling, fire lighting, illegal motorcycling etc.	Vegetation communities, birds, invertebrates, reptiles and amphibians	

4.70 For most of these urban effects, their occurrence and scale of impact is likely to be related to the amount of housing surrounding European sites. Much of the work on urban effects to heathlands has come from the Dorset Heaths, where some heaths lie in the middle of the Poole/Bournemouth conurbation. A comparison of the degree of urbanisation surrounding the Breckland heaths with that of the Dorset Heaths (Liley, et al., 2008) has shown that their surroundings are, largely, much less urbanised than the Dorset sites. GIS analysis of the number of houses surrounding component parts of the respective SACs showed, for example, that the median number of residential properties within 2,500 m of the Breckland sites is 747 dwellings and for the Dorset Heaths the median is 6,351 dwellings.

4.71 Despite this general picture, there are a few Breckland SAC/SPA component SSSIs with relatively high numbers of surrounding dwellings. The Appropriate Assessment of the Core Strategy identified those within Forest Heath District with more than 4,000 dwellings within 2,500 m of the SSSI boundary, as shown in Table 4.2. It was these more urban heaths in the vicinity of the three Market Towns where the other urban effects described above were considered most likely to be a baseline issue. Note that RAF Lakenheath SSSI is within 2.5km of 4,000 dwellings but this site is not publicly accessible so was not considered to be subject to the same pressures as the urban heaths in Table 4.2. There is no evidence in Natural England's condition assessments for the SSSIs in Table 4.2, however, that 'other urban effects' are a particular issue at these sites.

Table 4.2 Component SSSIs of Breckland SAC/SPA with more than 4,000 dwellings within 2.5 km of SSSI boundary

Component SSSI	FHDC Market Towns within 2.5 km	FHDC Key Service Centres within 2.5 km	Other settlements within 2.5 km
Weeting Heath (close to the Market Town of Brandon)	Brandon	None	Hockwold cum Wilton (King's Lynn & West Norfolk), Weeting (Breckland)
Wangford Warren and Carr	Brandon	None (Lakenheath 3.2 km)	RAF Lakenheath
Cavenham-Icklingham Heaths	Mildenhall	None	Icklingham, Barton Mills, Tuddenham, Cavenham

Source: (Liley, et al., 2008)

4.72 The Appropriate Assessment of the Core Strategy concluded that other urban effects would be likely to operate synergistically to adversely affect the conservation interest of heathland European sites that are close to areas of high housing density. The distance over which likely significant effects might occur was not defined.

4.73 The Appropriate Assessment therefore went on to consider options for avoidance and mitigation. It concluded that adverse effects on the integrity of heathland European sites could be avoided by the following Core Strategy requirement:

> *"The Council will need to commit to developing a framework of developer contributions, secured by legal agreement, for any new development where heaths are likely to be used as local greenspace by the new residents or employees. Contributions will be used for the implementation of an urban heaths management plan, with the primary purpose of achieving SPA/SAC conservation objectives."*

4.74 As noted above under the topic 'Disturbance to Annex I birds', this was addressed via a requirement in Policy DM12 of the Development Management Local Plan document.

New evidence which could suggest a different approach to the HRA of Forest Heath SIR and Site Allocations Local Plan

4.75 Before carrying forward the approach taken in the HRA of the Forest Heath Core Strategy to HRA of the SIR and Site Allocations Local Plan it is necessary to consider whether:

- Any new ecological research suggests that urban effects other than disturbance are unlikely to have significant effects on heathland European sites close to areas of high density.
- There is evidence that any other heathland components of European sites need to be considered for potential 'other urban' effects.

4.76 LUC is unaware of any new evidence which would suggest the need to alter the approach taken by the HRA of the Core Strategy.

Approach to assessing other urban effects within the HRA of Forest Heath SIR

4.77 The HRA Screening assumes that likely significant other urban effects (excluding recreational disturbance) on Breckland SAC/SPA cannot be ruled out for any housing development close to Weeting Heath SSSI, Wangford Warren and Carr SSSI or Cavenham-Icklingham Heaths SSSI (i.e. components of Breckland SAC/SPA) which are likely to already be experiencing the greatest pressure due to the surrounding high density of housing. In the absence of any clear evidence on an appropriate buffer distance around European sites over which other urban effects may occur, a distance of 1,500 m is used. This provides consistency with the avoidance buffer for built development around areas of importance for Stone Curlew, is the maximum likely distance over which predation by pet cats may occur (see Table 4.1) and appears reasonable in light of the nature of the other types of potential effect listed in Table 4.1. In determining whether likely significant effects can be ruled out, consideration is also given to mitigation from Policy DM12 (see above). A finding of no effect is made for development more than 1,500 m from the above-named components of Breckland SAC/SPA.

4.78 If potential site allocations for which likely significant other urban effects cannot be ruled out are preferred and taken forward in the Site Allocations Plan, the Appropriate Assessment is then likely to need to consider connectivity between the proposed development site and Breckland SAC/SPA. Unless access to European sites from new housing is hampered by significant barriers (for example a river or dual carriageway with no convenient crossing point) then mitigation is likely to be required. This could be in the form of a Local Plan requirement for developer contributions, secured by legal agreement, to deliver mitigation measures with the primary purpose of achieving European site conservation objectives. The Appropriate Assessment would also need to explore the types of measures these developer contributions would fund, how that might be coordinated, and the likelihood of their success.

Flood risk and associated water contamination

4.79 Many forms of flooding do not constitute a risk to European sites, with some wetland sites more at risk from drying out. However, contaminated surface run-off or combined sewer overflows may constitute a risk where they drain to watercourses that discharge to or flow through European sites.

Approach taken by HRA of the Forest Heath Core Strategy

4.80 The Level 1 Strategic Flood Risk Assessment (SFRA) and outline Water Cycle Study (Hyder Consulting, 2009) on which the HRA of the Core Strategy was based noted that:

> *"Foul flows from new development areas entering parts of the wastewater network containing combined sewers may increase the frequencies and volumes of storm sewage discharges with the potential for negative impacts on the receiving watercourses."*

4.81 The sewerage network is identified as an issue across the whole District but the European sites which might be affected by contaminated surface water flooding were not identified. This stage of the Water Cycle Study was not able to reach firm conclusions as to the extent of major sewerage network upgrades required to accommodate the development provided for by the Core Strategy but noted that any development to the south of Newmarket town centre was likely to require new sewerage facilities through the centre and that upgrades for sewerage rising mains between

Kentford and Newmarket Wastewater Treatment Works (WwTW) and between Ixworth and Stanton WwTW would be likely to be required.

4.82 The Appropriate Assessment of the Core Strategy was unable to rule out adverse effects on the integrity of European sites due to foul water drainage from new developments contributing to the overloading of existing sewer systems, or an increase in surface water drainage containing contaminants from hard surfaces. The European sites at risk were not identified but are likely to include most of those scoped into the HRA due to the diffuse nature of sewerage infrastructure capacity issues across the District and the sensitivity of most designated features to contaminated water. Due to the distances involved and the effects of dilution from main rivers and side streams, the potential for adverse effects from polluted waters on the integrity of the Wash SPA/Ramsar and the Wash and North Norfolk SAC was ruled out.

4.83 The Appropriate Assessment therefore went on to consider options for avoidance and mitigation and concluded that flood risk and associated water contamination effects on European sites could be avoided by the following:

- A Core Strategy requirement that any inadequate waste water infrastructure serving new development be upgraded as required and operational in time to meet the demands of development.
- A Core Strategy requirement that all new developments install infiltration and attenuation measures to dispose of surface water in accordance with recommended Sustainable Urban Drainage Systems (SUDS).
- Confirmation through Stage 2 of the SFRA/Water Cycle Study that existing capacity and available headroom in existing sewage systems is adequate to absorb additional discharges from new development, or that upgraded infrastructure is planned and implemented within the Core Strategy period.

4.84 The two points relating to waste water infrastructure capacity were addressed via a Core Strategy commitment in Policy CS13 Infrastructure and Developer Contributions to put in place arrangements to provide for additional/upgraded strategic waste water treatment capacity in accordance with the Strategic Flood Risk Assessment and Water Cycle Study and for this to be operational in time to meet the demands of the development. A requirement for SUDS in new development, where technically feasible, was included in Policy CS4 Reduce Emissions, Mitigate and Adapt to future Climate Change. More recently, Policy DM6 of the Development Management Local Plan document also requires all new development to manage on-site drainage so as to avoid increased flood risk elsewhere.

New evidence which could suggest a different approach to the HRA of Forest Heath SIR and Site Allocations Local Plan

4.85 Before carrying forward the approach taken in the HRA of the Forest Heath Core Strategy to HRA of the SIR and Site Allocations Local Plan it is necessary to consider whether more recent evidence is available on the particular locations where capacity in existing combined sewerage networks is inadequate to absorb additional discharges from the amounts of development now proposed or on commitments to upgrade such infrastructure within the Local Plan period. This may enable the potential for likely significant effects on some European sites to be screened out.

4.86 LUC has reviewed the following new evidence, published since the HRA of the Forest Heath Core Strategy, in this regard:

- Stage 2 Water Cycle Study (Hyder Consulting, 2011).
- Level 2 Strategic Flood Risk Assessment (Hyder Consulting, 2011).
- A study into wastewater treatment and sewerage network capacity constraints at Red Lodge (Hyder Consulting, 2014).
- 'Composite summary' note of 13th April 2015 meeting between the Council and infrastructure and service providers to discuss infrastructure/service issues in relation to growth in each settlement and the impacts of implementing each of the spatial distribution options being considered by the SIR.

- Comments supplied by AWS to the Council dated May 2015 in relation to waste water treatment and sewerage network capacity.

4.87 The Stage 2 Water Cycle Study states that Forest Heath District's market towns, key service centres and primary villages are served by separate foul and surface water systems rather than the combined sewers suggested by the HRA of the Core Strategy. Nevertheless, an increased risk of sewer overflows during storm events still exists due to historic misconnections as well as infiltration. The study provides an assessment of capacity constraints in the foul sewer network for each proposed site allocation in the Council's draft Site Allocations Plan at that time (see Table 12-16 of that study). A number of proposed development sites were identified as requiring significant upgrades to the existing sewerage network; for some of those located in Beck Row, Brandon, Lakenheath, Mildenhall and West Row the feasibility of providing the required upgrades was in doubt.

4.88 A follow-up study into the wastewater treatment and sewerage network capacity constraints at Red Lodge, as identified by the Stage 2 Water Cycle Study, was published in October 2014 (Hyder Consulting, 2014). This concluded that many of the historic sewerage network issues are unrelated to growth. Furthermore, changes in network connectivity undertaken by AWS since the Stage 2 Water Cycle Study would allow a strategy of connecting the development sites proposed at that time into the network by utilising recent capacity improvements, and avoiding the areas of the network with historic capacity concerns.

4.89 The note of the 13th April 2015 meeting with infrastructure and service providers and the May 2015 correspondence with Anglian Water Services (AWS) highlight potential sewerage network capacity issues/ need for upgrades at all settlements considered for growth (Beck Row, Brandon, Exning, Kentford, Lakenheath, Mildenhall, Newmarket, Red Lodge, and West Row) and a need for engagement with AWS and the Environment Agency throughout Local Plan preparation period to ensure appropriate phasing of delivery of sewerage infrastructure improvements.

Approach to assessing flood risk and associated water contamination within the HRA of Forest Heath SIR

4.90 The European sites to which overloaded sewers or contaminated surface water drainage may flow are not identified by either stage of the Water Cycle Study. On a precautionary basis, all scoped-in European sites will therefore be assumed to have the potential to be affected except for:

- Norfolk Valley Fens SAC – outside the boundary and upstream of Forest Heath District.
- The Wash and North Norfolk Coast SAC – long distance downstream of Forest Heath District and significant dilution of contaminants would occur from rivers and streams with catchments outside of the District.
- The Wash SPA and Ramsar site - long distance downstream of Forest Heath District and significant dilution of contaminants would occur from rivers and streams with catchments outside of the District.

Flood risk: combined sewer overflows

4.91 In relation to foul water drainage from new developments contributing to the overloading of existing sewer systems, the note of the recent meeting with infrastructure and service providers confirms that capacity issues still exist. It is not possible to rely on the site-based analysis of foul sewer capacity constraints provided in the Stage 2 Water Cycle Study since development or sewer upgrades in the intervening period may have altered the capacity to accommodate new development. The Council has stated that there is likely to be an update to the Water Cycle Study later in the plan making process but until that time the HRA Screening assumes it is not possible to rule out likely significant effects on European sites.

4.92 If an updated Water Cycle Study at a later stage of plan making does not reveal any insurmountable sewer capacity constraints, HRA Screening at that stage may then be able to rule out likely significant effects from combined sewer overflows on any European site by reliance on:

- Ongoing engagement between the Council and AWS and the Environment Agency in relation to sewer capacity.

- The stipulation of Core Strategy Policy CS13 that land will not be released for development unless there is sufficient capacity in all types of local infrastructure.

Flood risk: contaminated surface water drainage

4.93 In relation to effects from new development on European sites due to an increase in surface water drainage containing contaminants from built surfaces, HRA Screening assumes that these can be ruled out by reliance on the requirements for SUDS in new developments contained in Core Strategy Policy CS4 and Development Management Policy DM6.

Water quality and wastewater discharge

4.94 Development within Forest Heath District may affect the water quality of European sites via increased volumes of treated wastewater discharged from the wastewater treatment works serving communities in the District. This could, in turn, result in nutrient enrichment of water and potential lowering of dissolved oxygen as well as increased water velocities and levels for a distance downstream of the WwTW outfall.

Approach taken by HRA of the Forest Heath Core Strategy

4.95 Table 4.3, reproduced from the Appropriate Assessment of the Core Strategy (Forest Heath District Council, 2009), summarises the WwTWs serving the District, the areas served, the receiving water courses and the downstream European sites. Each of these European sites has some designated features with the potential to be adversely affected by increased wastewater discharges.

Table 4.3 WwTWs serving Forest Heath District, their discharge locations and downstream European sites

WwTW (area served)	Receiving water course	European sites potentially affected
Brandon (Brandon)	Little Ouse	Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, The Wash and North Norfolk Coast SAC, Breckland SAC (Weeting Heath component SSSI)
Lakenheath (Lakenheath)	Twelve Foot Drain (via Crooked Dyke)	Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, The Wash and North Norfolk Coast SAC
Mildenhall (Mildenhall, Beck Row and West Row)	River Lark	Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, The Wash and North Norfolk Coast SAC
Newmarket (Newmarket, Kentford and Exning)	River Snail	Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, The Wash and North Norfolk Coast SAC, Fenland SAC, Chippenham Fen Ramsar site, Wicken Fen Ramsar site
Tuddenham (Tuddenham, Red Lodge and Herringswell)	Tuddenham Mill Stream	Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, The Wash and North Norfolk Coast SAC

4.96 The Stage 1 SFRA/Water Cycle Study (Hyder Consulting, 2009) that informed the Appropriate Assessment of the Core Strategy concluded that the Lakenheath WwTW and the Tuddenham WwTW had limited capacity to accommodate new development. In order to accommodate the growth proposed in the Core Strategy, Lakenheath WwTW would need to be upgraded before it reached its dry weather flow (DWF) consent between 2010 and 2015, and the Tuddenham WwTW would need to be upgraded prior to reaching its DWF in the period 2025 to 2031.

4.97 Brandon WwTW would reach its DWF consented capacity around 2031 and so might require upgrading prior to this. It would also require upgrading in terms of phosphorus removal during the Plan period as failure to do this would probably result in the river Little Ouse failing Water Framework Directive (WFD) "good" status for phosphorus levels.

4.98 WwTWs at Mildenhall and Newmarket had enough consented headroom to accommodate the growth proposed in the Core Strategy and it may have been possible for the Mildenhall WwTW to accept some of the demand created by new development at Red Lodge.

4.99 There were also concerns that the water quality of the receiving watercourses would not reach WFD "good" status, particularly for phosphate levels, and it was considered likely that discharges from the District's WwTWs were contributing to this, together with other sources. The Appropriate Assessment of the Core Strategy also noted that discharges upstream and outside of Forest Heath were having some effect on the quality of the water in the watercourses in the District. This was particularly true of the water in the River Lark, which receives discharges from Fornham All Saints and Barrow WwTWs which serve Bury St Edmunds and the surrounding villages.

4.100 Since all of the receiving water courses from the District's WwTWs are hydrologically connected to European sites (as shown in Table 3.3) and all of these sites are sensitive to changes in water quality, the Appropriate Assessment of the Core Strategy was unable to conclude that waste water discharges from the proposed developments would not have an adverse impact on the integrity of European sites.

4.101 The Appropriate Assessment therefore went on to consider options for avoidance and mitigation. It concluded that adverse effects on the integrity of European sites in relation to water quality and waste water discharge could be avoided by including a reference in Core Strategy policies to ensure that appropriate Waste Water Treatment Works capacity is in place prior to new development being completed and a commitment to work with the Environment Agency and Anglian Water Services (AWS) to ensure that appropriate WwTW capacity upgrades are timetabled and brought forward where necessary.

4.102 These Appropriate Assessment requirements appear to have been met by inclusion of the following text in Policy CS13 Infrastructure and Developer Contributions. Within the list of infrastructure issues to be addressed, the policy includes:

> *"Providing for additional strategic waste water treatment capacity in accordance with Strategic Flood Risk Assessment and Water Cycle Study. This waste water infrastructure will be upgraded as required and operational in time to meet the demands of the development."*

New evidence which could suggest a different approach to the HRA of Forest Heath SIR and Site Allocations Local Plan

4.103 Before carrying forward the approach taken in the HRA of the Forest Heath Core Strategy to HRA of the SIR and Site Allocations Local Plan it is necessary to consider the capacity of the District's WwTWs to accommodate the scale and location of development now envisaged by the Local Plan without deterioration in downstream water quality.

4.104 LUC has reviewed the following new evidence, published since the HRA of the Forest Heath Core Strategy, in this regard:

- Stage 2 Water Cycle Study (Hyder Consulting, 2011).
- A study into wastewater treatment capacity constraints at Red Lodge (Hyder Consulting, 2014).
- 'Composite summary' note of 13th April 2015 meeting between the Council and infrastructure and service providers to discuss infrastructure/service issues in relation to growth in each settlement and the impacts of implementing each of the spatial distribution options being considered by the SIR.
- Comments supplied by AWS to the Council dated May 2015 in relation to waste water treatment and sewerage network capacity.

4.105 The Stage 2 Water Cycle Study's findings on the capacity of the WwTWs and water environment to accommodate the increased wastewater from the development proposed at that time (as per the scale, locations and timing of development set out in Policy CS7 plus development already committed) are summarised in its Table 12-15. Consistent with the Stage 1 study, the need for increased treatment capacity, an upgraded standard of treatment or an increase to the consented

volume of treated discharges was identified for three of the WwTWs serving the District - Brandon, Lakenheath and Tuddenham. In all cases, it was judged that the required upgrades could be achieved with no deterioration in the quality of the receiving waters provided that there was no acceleration of the timings of growth set out in Policy CS7. As identified in the Stage 1 study, the provision of sufficient wastewater treatment capacity, whilst complying with strict environmental standards, remained the largest constraining factor to growth. Whilst Lakenheath and Red Lodge remained areas of concern; it was concluded that the Forest Heath Core Strategy policy to postpone additional development here should allow the stakeholders to design and implement the required infrastructure improvements.

4.106 A follow-up study into the wastewater treatment and sewerage network capacity constraints at Red Lodge, as identified by the Stage 2 Water Cycle Study, was published in October 2014 (Hyder Consulting, 2014). This recognised wastewater treatment capacity improvements at Tuddenham WwTW undertaken by AWS since the publication of the Stage 2 Water Cycle Study. In light of these upgrades and based on a growth trajectory of 937 homes during 2013-2021 and 640 homes during 2021-2031 (totalling 1,577 homes during 2013-2031) it was concluded that this trajectory of growth could be accommodated up to approximately 2021 at which point additional modifications/extensions will be required. It further concluded that AWS should readily be able to deliver such improvements at that time and that discharges should remain within the existing consent for Tuddenham WwTW up until approximately 2029/30. At that time, alternative treatment or discharge options may be required.

4.107 The waste water treatment capacity information provided by AWS in its May 2015 correspondence with the Council is summarised in Table 4.4.

Table 4.4 Potential waste water treatment capacity issues identified by AWS in May 2015 correspondence

WwTW (area served)	AWS comments on scale of growth and potential impact on infrastructure
Brandon (Brandon)	Currently spare capacity to accommodate growth up to 500-1,000 homes; the largest scale of growth (1,000-2,500) may require upgrades. Any required upgrades will be funded by Anglian Water however they will need to be planned and funded through our 5 year business plan, approved by our economic regulator Ofwat. We can look at this in more detail when potential sites have been identified to assess the impact of potential growth.
Lakenheath (Lakenheath)	Currently spare capacity to accommodate growth up to 500-1,000 homes; the largest scale of growth (1,000-2,500) may require upgrades. Any required upgrades will be funded by Anglian Water however they will need to be planned and funded through our 5 year business plan, approved by our economic regulator Ofwat. We can look at this in more detail when potential sites have been identified to assess the impact of potential growth.
Mildenhall (Mildenhall, Beck Row and West Row)	Currently capacity to accommodate all levels of growth indicated (i.e. up to 1000-2,500 homes at each settlement) at any one of the three settlements served by this WwTW, although maximum growth at all three settlements might require upgrades.
Newmarket (Newmarket, Kentford and Exning)	Currently capacity to accommodate all levels of growth indicated (i.e. up to 1,000-2,500 homes in total across these three settlements).
Tuddenham (Tuddenham, Red Lodge and Herringswell)	Currently spare capacity to accommodate growth up to 500-1,000 homes at Red Lodge; the largest scale of growth (1,000-2,500) may require upgrades. AWS were not asked about growth at Tuddenham and Herringswell although the stated capacity can be taken to be an aggregate for all settlements within the WwTW catchment.

Approach to assessing water quality and wastewater discharge within the HRA of Forest Heath SIR

4.108 A number of European sites are hydrologically connected to the District's WwTWs, have qualifying features that are vulnerable to nutrient enrichment and may already be suffering adverse water quality effects (see Tables 2.2 and 4.3).

4.109 It is not possible to determine from the Stage 2 Water Cycle Study how much additional housing growth over that proposed by the Core Strategy could be accommodated at the District's WwTWs. However, May 2015 correspondence between AWS and the Council provides an update on spare capacity (as summarised in Table 4.4).

4.110 Where AWS correspondence confirms that planned growth can be accommodated within current spare capacity then this plus the assurance provided by the Environment Agency's discharge consenting regime will be relied on to reach a conclusion of no effect.

4.111 Where AWS correspondence indicates that additional waste water treatment may be required to accommodate planned growth then it is possible that increased discharges of treated waste water would result in significant deterioration in the quality of receiving waters. The Environment Agency's consenting regime and the requirements of Core Strategy Policy CS13 (see above) should ensure that such Planned growth does not go ahead until additional treatment capacity and higher treatment standards (if required and technically feasible) are in place.

4.112 In these circumstances, the HRA Screening identifies the potential for likely significant effects but it should be possible for Appropriate Assessment to conclude that the mitigation available allows these to be ruled out once the deliverability of the Plan in these circumstances has been confirmed with AWS and the Environment Agency.

4.113 In any event, it is recommended that the Council's planned update to the Water Cycle Study confirms that wastewater treatment capacity exists or can be provided to the required timescale to accommodate planned development and without a significant deterioration in downstream water quality.

Water supply

4.114 Development within Forest Heath District may affect water levels and flow regimes at hydrologically connected European sites via increased abstraction of surface or ground water to serve its potable water needs.

4.115 Water companies have a statutory duty to establish how planned development in their area can be serviced. These plans are set out in their Water Resources Management Plan (WRMP). Investments to deliver the plans are based on five year planning cycles known as Asset Management Periods (AMP) so the water company programme for water infrastructure upgrades may constrain the rate at which residential growth can be supported. Through its abstraction licensing regime, the Environment Agency monitors the state of the environment and existing abstractions and uses this information to determine how much water is permitted to be abstracted from rivers, groundwater and other sources. This process has led the Environment Agency to reduce licensed abstraction to more sustainable amounts in the former Cambridgeshire and West Suffolk Resource Zone 09 (RZ09), into which Forest Heath District fell at the time of the HRA of the Core Strategy. This and the relatively poor connectivity in the area has led to RZ09 being disaggregated into five smaller RZs, with Forest Heath District falling within three: Ely, Newmarket and West Suffolk Resource Zones (Anglian Water Services, 2015).

Approach taken by HRA of the Forest Heath Core Strategy

4.116 The draft Water Resource Management Plan (Anglian Water Services, 2008) at the time of the Appropriate Assessment of the Core Strategy showed that Forest Heath was in a water deficit area. The SFRA/Water Cycle Study (Hyder Consulting, 2009) identified that Forest Heath and St Edmundsbury Districts are part of Anglian Water's 'Bury' supply area and that a number of major water resource issues existed for this supply area. A number of supply network improvements were planned in WRZ09 to help address these.

4.117 The SFRA/Water Cycle Study (Hyder Consulting, 2009) concluded that once the supply improvement schemes for AMP4, together with further measures, such as leakage reduction and water efficiency strategies, were implemented in the AMP5 period (2010-2015), then there would be sufficient water resources to accommodate the growth provided for by the Core Strategy without increased abstraction having negative effects on any European sites. Although this could

not be confirmed with certainty until Stage 2 of the SFRA/Water Cycle Study was complete, the Appropriate Assessment of the Core Strategy placed reliance on the continued ability of the Environment Agency's abstraction licensing system to protect European sites from the potential negative effects of over-abstraction.

4.118 The Appropriate Assessment of the Core Strategy therefore reached a conclusion of no adverse effects on the integrity of European sites in relation to water supply and no avoidance or mitigation was required.

New evidence which could suggest a different approach to the HRA of Forest Heath SIR and Site Allocations Local Plan

4.119 Before carrying forward the approach taken in the HRA of the Forest Heath Core Strategy to HRA of the SIR and Site Allocations Local Plan we have considered more recent evidence on the ability of the District's water resources to accommodate the growth in the study area provided for by the Local Plan without increased abstraction having negative effects on any European sites. This is summarised below.

4.120 The Stage 2 Water Cycle Study (Hyder Consulting, 2011), states that total potable water demand from businesses in the District is not expected to increase in the foreseeable future because the effects of employment growth are expected to be offset by replacement of industries that have high water demand with service industry. It then examines six scenarios for residential water demand, each based on the scale of growth set out in the Core Strategy but different assumptions about demand reduction. The scenario based on the water efficiency requirements for new homes in Policy CS4 (achieving Code for Sustainable Homes Level 3 target of 105 litres/person/day) and no future efficiency savings in existing homes (Scenario D3) forecasts total additional water demand in the District of 24% by 2031 against a 2010 baseline. The study concludes that the long term AWS plan for water resources in the study area (including local demand management, and resource development in the wider area) will allow the provision of adequate potable water for the proposed growth, and the existing population, whilst allowing sufficient resilience against climatic change risks.

4.121 AWS has recently published its latest WRMP for the period 2015-2040. Table 4.5 summarises for each of Ely, Newmarket and West Suffolk Resource Zones the scale of residential growth assumed by the WRMP, the forecast year by which it is forecast that demand will exceed supply in the absence of future supply and demand management measures, the preferred supply and demand management measures proposed to bring supply and demand back into balance. It is notable that the WRMP deliberately makes its own assumptions on housing growth rather than using local authority policy figures. The forecasting also assumes that demand management (various leakage reduction, enhanced metering and water efficiency measures) will be implemented in each Resource Zone.

Table 4.5 Forecast supply-demand status for Water Resource Zones covering Forest Heath District (Anglian Water Services, 2015)

Resource Zone (RZ)	Assumed dwellings growth per annum in RZ 2015-2040	Year by which RZ enters deficit	Preferred schemes to maintain supply-demand balance	European sites with likely significant effects
Ely	500	2024/25	E2 - Newmarket RZ transfer via new 10 km pipeline	None
Newmarket	250	N/A – remains in surplus	NWM2 - West Suffolk RZ transfer	None
West Suffolk	500 (2015-2020) 600 (2020-2025) 700 (2025-2040)	2024/25	WS5 - River Lark flow augmentation; WS2b - East Suffolk transfer	None

4.122 The final column of Table 4.5 draws on the results of the HRA Screening (Mott MacDonald, 2013) of the scheme options for maintaining supply-demand balance in each relevant Resource Zone to confirm that likely significant effects were ruled out for all preferred schemes. None of the reasons for screening out likely significant effects appear to be dependent on a particular scale of

water demand/abstraction suggesting that the HRA conclusions for these schemes do not need to be revisited in light of changes in water demand associated with different levels of dwellings growth. However, it is possible that additional schemes might be required to maintain supply-demand balance at higher levels of dwellings growth than assumed by the WRMP. Note that demand management measures (leakage reduction, enhanced metering and water efficiency measures) are not required to undergo HRA due to their nature.

Approach to assessing water supply within the HRA of Forest Heath SIR

4.123 The Environment Agency's ongoing abstraction licensing regime will ensure that the scale of water abstraction from existing water resources will not result in likely significant effects on any European site. In relation to future schemes for maintaining the supply-demand balance of water, the HRA of the AWS WRMP 2015-2040 has demonstrated that none of the preferred schemes in any Resource Zones overlapping Forest Heath District will result in likely significant effects on a European site. It is not possible to directly compare the amounts of residential growth assumed by the WRMP to those now proposed by the SIR since the Resource Zones span multiple local authority areas and do not follow their boundaries.

4.124 It is therefore recommended that the Council seeks confirmation from AWS that the amount of residential growth proposed by the SIR is consistent with the planning assumptions of the WRMP 2015 such that no schemes additional to those preferred by the WRMP 2015-2040 are required to maintain supply-demand balance. Until such confirmation is obtained the HRA Screening of the SIR and Site Allocations Local Plan is not able to rule out likely significant effects on European sites. The potentially affected European sites would depend on the particular additional water resource schemes required and cannot be identified at this stage.

Air pollution from roads

4.125 Heathland habitats are vulnerable to atmospheric pollution, and in particular the addition of nitrogen (Barker, et al., 2004) (Bobbink, et al., 1998) (Britton & Fisher, 2007) (Power, et al., 1998) (Power, et al., 1995) (Terry, et al., 2004). Breckland heaths may be particularly sensitive (Gilbert, 2002).

Approach taken by HRA of the Forest Heath Core Strategy

4.126 Government guidance states that the potential for significant effects on designated nature conservation sites only exists for sites whose designated features are sensitive to air pollutants and which are located within 200 m of roads likely to experience significant increases in traffic (Department for Transport, 2007). Breckland SAC and Devil's Dyke SAC are the two European sites scoped into the HRA whose designated heathland plant species are vulnerable to air pollution from roads. The Appropriate Assessment of the Core Strategy noted that the A11 goes through Breckland SAC and numerous other roads are close to the SAC; the A1304 south-west of Newmarket runs adjacent to part of Devil's Dyke SAC. The Appropriate Assessment also identified that the component SSSIs of Breckland SAC listed in Table 4.6, as well as Devil's Dyke SSSI and SAC are located within 200 m of existing 'A' roads.

Table 4.6 SSSI components of SACs within 200 m of 'A' roads

SSSIs within Forest Heath and within 200 m of the A11	SSSIs within Forest Heath and within 200 m of other 'A' roads	SSSIs outside Forest Heath but within 200 m of the A11	SSSIs outside Forest Heath but within 200 m of other 'A' roads

SSSIs within Forest Heath and within 200 m of the A11	SSSIs within Forest Heath and within 200 m of other 'A' roads	SSSIs outside Forest Heath but within 200 m of the A11	SSSIs outside Forest Heath but within 200 m of other 'A' roads
Weather and Horn Heaths, Eriswell	Cavenham-Icklingham Heaths Deadman's Grave, Icklingham Foxhole Heath, Eriswell Lakenheath Warren RAF Lakenheath Wangford Warren and Carr Devil's Dyke (not in Breckland SAC).	Thetford Golf Course and Marsh Bridgham and Brettenham Heaths	Thetford Heath East Wretham Heath Barnhamcross Common Devil's Dyke (not in Breckland SAC)

4.127 The Appropriate Assessment of the Core Strategy stated that the scale of proposed development within Forest Heath was such that there would be increases in traffic volumes, including on existing roads that run close to Breckland SAC and Devil's Dyke SAC (see Table 4.6), although no traffic modelling evidence was presented in support of this. It further stated that the extent of traffic growth may require road improvements and new road projects, potentially including additional dualling of the A11 (this is now substantially complete and operational) and bypass schemes at Brandon and Mildenhall. The Appropriate Assessment was therefore unable to rule out adverse effects on the integrity of Breckland SAC or Devil's Dyke SAC in relation to air pollution.

4.128 The Appropriate Assessment therefore went on to consider the potential for mitigation of air pollution effects in the following ways:

- Habitat management such as mowing, grazing, turf cutting and burning to reduce nutrient build-up.
- Planting and management of trees alongside roads to absorb airborne pollutants.
- Promotion of more sustainable transport modes to reduce private car use and associated air pollution.

4.129 The Appropriate Assessment of the Core Strategy concluded that none of these approaches could be relied upon to prevent adverse effects on the integrity of heathland SACs within 200 m of new or improved roads and that amendments to the Core Strategy were likely to be required in terms of locations for new development, and possibly volumes of new development (in the north and west of the District). It also called for a specific Core Strategy commitment to prevent road infrastructure improvements or new roads within 200 m of Breckland SAC or Devil's Dyke SAC and the need for the Highways Agency/Department for Transport to consider potential air quality effects on Breckland SAC in relation to proposals for dualling of the A11.

4.130 Further to these findings, Policy CS2 Natural Environment of the adopted Core Strategy includes the stipulation that:

> *"New road infrastructure or road improvements will not be allowed within 200m of sites designated as SACs in order to protect the qualifying features of these sites"*

4.131 The constrained areas are identified in an accompanying figure (Figure 3 in the Core Strategy).

New evidence which could suggest a different approach to the HRA of Forest Heath SIR and Site Allocations Local Plan

4.132 Before carrying forward the approach taken in the HRA of the Forest Heath Core Strategy to HRA of the SIR and Site Allocations Local Plan it is necessary to consider whether any new evidence is available which could identify which roads are likely to see significant traffic

growth as a result of the growth proposed in the SIR and Site Allocations Local Plan. As stated under our review of evidence in relation the potential effect "Avoidance of roads by Stone Curlew", no modelling is currently planned of the likely changes in traffic on the local road network that may result from the scale and broad locations of growth set out in the SIR.

4.133 As also described under effect "Avoidance of roads by Stone Curlew", we have reviewed the Suffolk Local Transport Plan "LTP" (Suffolk County Council, 2011). This confirmed that traffic growth was expected in the District and sought the now-complete dualling of the A11 between Mildenhall ('Fiveways') and Thetford (runs through Breckland SAC/SPA) and work to tackle congestion at the A14 / A142 junction to the north east of Newmarket (it is assumed this will include enhancements to the road network). An aspiration for a relief road at Brandon (which would be close to or within Breckland SAC/SPA) was also described.

4.134 The LTP therefore supports the assumption of the HRA of the Core Strategy that the road network in the District is likely to experience traffic growth and new roads or road improvements as a result of growth proposed by the Local Plan. As described above under the topic "avoidance of roads by Stone Curlew" the information within the LTP and the HRA of the LTP is not sufficient to allow the HRA to screen out the possibility of significant traffic growth on any particular roads within the District or to assess what effects such growth might have on air pollution.

Approach to assessing air pollution from roads within the HRA of Forest Heath SIR

4.135 The approach of the HRA will depend on whether modelling of traffic changes that will result from the SIR plan becomes available later in the plan-making process.

4.136 If traffic modelling becomes available then the HRA Screening will assume, based on the criteria provided for this purpose in the Design Manual for Roads and Bridges (Department for Transport, 2007), that the potential for significant local air pollution effects exists if:

- daily traffic flows will change by 1,000 AADT or more; or
- Heavy Duty Vehicle (HDV) flows will change by 200 AADT or more; or
- daily average speed will change by 10 km/hr or more; or
- peak hour speed will change by 20 km/hr or more.

4.137 The HRA Screening will assume that where the potential exists for significant local air pollution within 200 m of Breckland SAC or Devil's Dyke SAC then likely significant effects cannot be ruled out. A finding of no effect will be reached for traffic changes more than 200 m from Breckland SAC or Devil's Dyke SAC.

4.138 If traffic modelling is not available, as is currently the case, then the HRA Screening will assume that the potential exists for significant local air pollution effects on Breckland SAC or Devil's Dyke SAC due to potential significant traffic increases on existing roads within 200 m of these European sites. A finding of no effect will be reached for existing roads more than 200 m from Breckland SAC or Devil's Dyke SAC. Based on Core Strategy Policy CS2, it is assumed that no new road infrastructure or road improvements to increase capacity (e.g. road widening) will be proposed within 200 m of Breckland SAC or Devil's Dyke SAC.

4.139 In line with the Appropriate Assessment of the Core Strategy, Appropriate Assessment is likely to conclude that where HRA Screening is unable to rule out likely significant effects, mitigation measures such as habitat management or roadside screening are unlikely to be capable of avoiding adverse effects from traffic-related air pollution on the integrity of a SAC. In practice, this would mean that more detailed investigation would be required before the Local Plan provides for development that would lead to significant traffic increases on roads within 200 m of Breckland SAC or Devil's Dyke SAC.

5 HRA Screening of options for total housing provision

The options

5.1 The SIR puts forward two options for the total amount of housing to be provided during the 20 year plan period 2011-2031, recognising that 1,700 of these homes were already built or committed to as at 31 March 2014:

Options for total housing provision: Core Strategy Policy CS7

Option 1: Forest Heath plans to provide 7,000 dwellings in the period 2011-2031 or 350 homes each year.

Option 2: Forest Heath plans to provide 7,700 dwellings in the period 2011-2031 or 385 homes each year.

5.2 Option 1 would provide the total homes requirement identified by the most recent update to the Strategic Housing Market Assessment (SHMA) for the Cambridge sub-region which includes Forest Heath (Cambridge Insight, 2013); Option 2 proposes a 10% increase on the SHMA housing need figure to address more of the affordable need.

HRA Screening

5.3 An assessment was carried out to identify the potential for each of the SIR housing provision options to have likely significant effects on any of the European sites scoped into the HRA.

5.4 These SIR options are for a strategic policy which makes no reference to the locations for development. Since the policy will be implemented through a strategic housing distribution policy (options for which are contained later in the SIR) and the Site Allocations Local Plan (being prepared concurrently with the SIR), the policy options' effects on European sites are, in general, more appropriately assessed via HRA of the related, more spatially specific options. Assessment of the housing distribution options is provided later in this Section; assessment of the Site Allocations options is provided in a separate HRA Screening Report for the Site Allocations Local Plan. In taking this approach, however, it is necessary to check that the total amount of development proposed is not so great that, no matter where it is located, it could not be delivered without a likely significant effect on a European site, as follows.

5.5 The total dwelling provision under Options 1 and 2 was compared to the total provision under Policy CS7 of the adopted Core Strategy. Policy CS7 provides for 6,400 dwellings during 2001-2021 of which 1,935 were already built during 2001-2009, leaving 4,465 to be built during the 12 years from 2009 to 2021 (equating to 372 dwellings per annum – 'dpa') and 3,700 dwellings during the ten years from 2021 to 2031 (370 dpa). Following the addition of various measures for avoidance and mitigation in the Core Strategy, the Appropriate Assessment stage of the HRA was able to conclude that it would not have any adverse effects on the integrity of any European site.

5.6 Since the protective policies within the Core Strategy remain in force and Option 1 provides for less housing during 2011-2031 than the Core Strategy, it is probable that significant effects from Option 1 will not arise from this option. Option 2 provides for approximately 13 more homes per annum (385-372) during 2011-2021 and 15 more homes per annum during 2021-2031 (385-370), a total of 280 more homes during the Plan period 2011-2031. This is a small relative and absolute increase on the overall housing provision made by the adopted Core Strategy. However, in light of the time that has elapsed since the Core Strategy was subject to HRA and following the precautionary principle, Table 5.1 considers for each of the two options whether likely significant

effects may occur no matter where the development is located. The approach is based on the evidence and assumptions set out in Section 4.

Table 5.1 HRA Screening of options for total housing provision

SIR policy option	Potential for likely significant effects prior to mitigation?	Mitigation available where likely significant effects identified	HRA screening conclusion after existing mitigation	Recommendations
Direct effects of built development				
Option 1	Unable to rule out potential for likely significant effects due to uncertainty until HRA of housing distribution options and site allocations are completed. Potentially affected sites are Breckland SAC/SPA, Devil's Dyke SAC, Rex Graham Reserve SAC. *Development within European site boundaries* Potential direct effects from provision of homes within the boundary of any European site is more appropriately assessed via screening of housing distribution options, as set out later in Section 5, and screening of sites allocation options, as set out in a separate report. Potentially affected sites are those overlapping the Plan area, i.e. Breckland SAC/SPA, Devil's Dyke SAC, and Rex Graham Reserve SAC. *Development within Breckland SPA constraint zone* Direct effects on the three Annex I bird species of Breckland SPA due to allocation within the avoidance zones (see Chapter 4) are more appropriately assessed via screening of housing distribution options, as set out later in Section 5, and screening of sites allocation options, as set out in a separate report.	Not applicable at this stage.	Unable to rule out potential for likely significant effects due to uncertainty until HRA of housing distribution options and site allocation options are completed. Potentially affected sites are Breckland SAC/SPA, Devil's Dyke SAC, Rex Graham Reserve SAC.	Carry out HRA of housing distribution options and site allocation options to confirm that Option can be delivered without likely significant effects.
Option 2	Unable to rule out potential for likely significant effects due to uncertainty until HRA of housing distribution options and site allocations are completed. Potentially affected sites are Breckland	As for Option 1.	Unable to rule out potential for likely significant effects due to uncertainty until HRA of housing distribution options and site allocations are completed. Potentially affected sites	As for Option 1.

SIR policy option	Potential for likely significant effects prior to mitigation?	Mitigation available where likely significant effects identified	HRA screening conclusion after existing mitigation	Recommendations
	SAC/SPA, Devil's Dyke SAC, Rex Graham Reserve SAC. As for Option 1.		are Breckland SAC/SPA, Devil's Dyke SAC, Rex Graham Reserve SAC.	
Disturbance to Annex I birds				
Option 1	Yes - potential for likely significant effects on Breckland SPA. The potential for recreational disturbance to Annex I birds of Breckland SPA exists from any housing development within 7.5 km of its boundary. Although this is most appropriately assessed via screening of housing distribution options, as set out later in Section 6, and screening of sites allocation options, as set out in a separate report, it is unlikely that any reasonable alternative distribution of 7,000 homes would be able to avoid this area entirely.	Policy DM12 states: *"All new development (excluding minor household applications) shown to contribute to recreational disturbance and visitor pressure within the Breckland SPA and SAC will be required to make appropriate contributions through S106 agreements towards management projects and/or monitoring of visitor pressure and urban effects on key biodiversity sites."* This policy appears to place the onus on the Council to demonstrate that development will result in recreational effects before requiring mitigation. In light of the evidence, a more precautionary approach is judged appropriate and it is also notable that judgements on the likelihood of disturbance would need to be informed by a visitor survey (Fearnley, et al., 2010) which is now quite old.	Unable to rule out likely significant effects on Breckland SPA.	It is recommended that further work is carried out as part of an Appropriate Assessment to agree with Natural England: - a zone within which recreational effects on Breckland SPA from residential development will be assumed to exist (e.g. 7.5 km from SPA boundary) and contributions to mitigation will be required unless the applicant can demonstrate otherwise through project level HRA; and - the key features of a mitigation and monitoring strategy (possibly in co-operation with neighbouring authorities) which the developer contributions required by Policy DM12 will help to fund.
Option 2	Yes - potential for likely significant effects on Breckland SPA. As for option 1 except that the higher total housing provision makes it less likely that development within 7.5 km of Breckland SPA could be avoided.	As for Option 1.	Unable to rule out likely significant effects on Breckland SPA.	As for Option 1.
Avoidance of roads by Stone Curlew				
Option 1	No potential for likely significant effects. Policy does not provide for new road infrastructure or road improvements to	Not required.	Likely significant effects ruled out.	None.

SIR policy option	Potential for likely significant effects prior to mitigation?	Mitigation available where likely significant effects identified	HRA screening conclusion after existing mitigation	Recommendations
	increase capacity.			
Option 2	No potential for likely significant effects. As for Option 1.	As for Option 1.	Likely significant effects ruled out.	As for Option 1.
Other urban effects				
Option 1	Unable to rule out potential for likely significant effects on Breckland SAC/SPA due to uncertainty until HRA of housing distribution options and site allocations are completed. Potential other urban effects from provision of homes within 1,500 m of Weeting Heath SSSI, Wangford Warren and Carr SSSI or Cavenham-Icklingham Heaths SSSI, (i.e. components of Breckland SAC/SPA which are likely to already be experiencing the greatest pressure due to the surrounding high density of housing) are more appropriately assessed via screening of housing distribution options, as set out later in Section 5, and screening of sites allocation options, as set out in a separate report.	Not applicable at this stage.	Unable to rule out potential for likely significant effects on Breckland SAC/SPA due to uncertainty until HRA of housing distribution options and site allocations are completed.	Carry out HRA of housing distribution options and site allocation options to confirm that Option can be delivered without likely significant effects.
Option 2	Unable to rule out potential for likely significant effects on Breckland SAC/SPA due to uncertainty until HRA of housing distribution options and site allocations are completed. As for Option 1.	Not applicable at this stage.	Unable to rule out potential for likely significant effects on Breckland SAC/SPA due to uncertainty until HRA of housing distribution options and site allocations are completed.	As for Option 1.
Flood risk and associated water contamination				
Option 1	Yes - potential for likely significant effects on: Breckland SAC/SPA; Devil's Dyke SAC; Rex Graham Reserve SAC; Fenland SAC and Chippenham Fen and Wicken Fen Ramsar sites; Ouse Washes SAC/SPA/Ramsar site. These effects relate to:	<u>Combined sewer overflows</u> Core Strategy Policy CS13 states that land will not be released for development unless there is sufficient capacity in all types of local infrastructure. Ongoing engagement between the	<u>Combined sewer overflows</u> Unable to rule out likely significant effects on: Breckland SAC/SPA; Devil's Dyke SAC; Rex Graham Reserve SAC; Fenland SAC and Chippenham Fen and Wicken Fen Ramsar sites; Ouse Washes SAC/SPA/Ramsar site.	<u>Combined sewer overflows</u> It is recommended that the update to the Water Cycle Study identifies settlements and site allocations subject to foul sewer capacity constraints and confirms, in discussion with AWS, that these can be overcome within the Plan period so as to accommodate the

SIR policy option	Potential for likely significant effects prior to mitigation?	Mitigation available where likely significant effects identified	HRA screening conclusion after existing mitigation	Recommendations
	i) Combined sewer overflows The potential exists for new housing development to contribute to the overloading of existing sewer systems during storm events and up to date evidence is not available to ascertain that these capacity issues can be overcome within the Plan period. Overflows may have an adverse effect where they drain to watercourses that discharge to or flow through European sites.	Council and AWS and the Environment Agency in relation to sewer capacity.		planned scale of growth.
	ii) Contaminated surface run-off New development may contribute to contaminated surface run-off which poses a risk where it drains to watercourses that discharge to or flow through European sites.	Contaminated surface run-off Requirements for SUDS in new developments contained in Core Strategy Policy CS4 and Development Management Policy DM6.	Contaminated surface run-off Likely significant effects ruled out.	Contaminated surface run-off None.
Option 2	Yes - potential for likely significant effects on: Breckland SAC/SPA; Devil's Dyke SAC; Rex Graham Reserve SAC; Fenland SAC and Chippenham Fen and Wicken Fen Ramsar sites; Ouse Washes SAC/SPA/Ramsar site. These effects relate to: i) Combined sewer overflows As for Option 1 except that the higher total housing provision increases the risk of combined sewer overflows.	Combined sewer overflows As for Option 1.	Combined sewer overflows Unable to rule out likely significant effects on: Breckland SAC/SPA; Devil's Dyke SAC; Rex Graham Reserve SAC; Fenland SAC and Chippenham Fen and Wicken Fen Ramsar sites; Ouse Washes SAC/SPA/Ramsar site.	Combined sewer overflows As for Option 1.
	ii) Contaminated surface run-off As for Option 1 except that the higher total housing provision increases the risk from contaminated surface run-off.	Contaminated surface run-off As for Option 1.	Contaminated surface run-off Likely significant effects ruled out.	Contaminated surface run-off As for Option 1.
Water quality and wastewater discharge				
Option 1	Unable to rule out potential for likely significant effects due to uncertainty until HRA of housing distribution options is completed. Potentially affected sites	Not applicable at this stage.	Unable to rule out potential for likely significant effects due to uncertainty until HRA of housing distribution options is completed. Potentially	Carry out HRA of housing distribution options to confirm that Option can be delivered without likely significant

SIR policy option	Potential for likely significant effects prior to mitigation?	Mitigation available where likely significant effects identified	HRA screening conclusion after existing mitigation	Recommendations
	are Breckland SAC (Weeting Heath component SSSI), Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, The Wash and North Norfolk Coast SAC, Fenland SAC, Chippenham Fen Ramsar site, Wicken Fen Ramsar site. Potential adverse effects on water quality due to increased wastewater discharges from new housing development. Potentially affected sites are those which are hydrologically connected to the District's WwTW discharge points and have designated features that are sensitive to discharges, i.e. Breckland SAC (Weeting Heath component SSSI), Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, The Wash and North Norfolk Coast SAC, Fenland SAC, Chippenham Fen Ramsar site, Wicken Fen Ramsar site. These potential effects are more appropriately assessed via screening of housing distribution options, as set out later in Section 5. This allows consideration of whether the SIR proposes growth above the scale envisaged by the Core Strategy within the catchments of each of the District's WwTWs		affected sites are Breckland SAC (Weeting Heath component SSSI), Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, The Wash and North Norfolk Coast SAC, Fenland SAC, Chippenham Fen Ramsar site, Wicken Fen Ramsar site.	effects.
Option 2	Unable to rule out potential for likely significant effects due to uncertainty until HRA of housing distribution options is completed. Potentially affected sites are Breckland SAC (Weeting Heath component SSSI), Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, The Wash and North Norfolk Coast SAC, Fenland SAC, Chippenham Fen Ramsar site, Wicken Fen Ramsar site. As for Option 1.	Not applicable at this stage.	Unable to rule out potential for likely significant effects due to uncertainty until HRA of housing distribution options is completed. Potentially affected sites are Breckland SAC (Weeting Heath component SSSI), Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, The Wash and North Norfolk Coast SAC, Fenland SAC, Chippenham Fen Ramsar site, Wicken Fen Ramsar site.	As for Option 1.

SIR policy option	Potential for likely significant effects prior to mitigation?	Mitigation available where likely significant effects identified	HRA screening conclusion after existing mitigation	Recommendations
Water supply				
Option 1	Yes – potential for likely significant effects. The AWS WRMP 2015-2040 has been subject to HRA Screening with a finding of no likely significant effects. However, although the scale of housing growth per annum proposed by this option during 2015-2040 is lower than that in the Core Strategy, it is not possible to directly compare the amounts of residential growth assumed by the WRMP to that now proposed by this option since the Resource Zones span multiple local authority areas and do not follow their boundaries. It is therefore possible that Option 1 would exceed the dwelling growth for Forest Heath District assumed by the WRMP and that additional water resources would need to be developed, with potential effects on European sites (the particular European sites affected would depend on the schemes devised).	The Environment Agency's ongoing abstraction licensing regime will ensure that the scale of water abstraction from existing water resources will not result in likely significant effects on any European site.	Unable to rule out likely significant effects. The European sites affected would depend on the particular schemes required to maintain supply-demand balance in water resources.	It is recommended the Council seeks confirmation from AWS that the amount of residential growth proposed by the SIR is consistent with the planning assumptions of the WRMP 2015 such that no additional prefer schemes are required to maintain supply-demand balance and the findings of the HRA of the WRMP can therefore be relied upon.
Option 2	Yes – potential for likely significant effects. As for Option 1 except that the higher total housing provision increases the risk that additional water resources may be required.	As for Option 1.	Unable to rule out likely significant effects. The European sites affected would depend on the particular schemes required to maintain supply-demand balance in water resources.	As for Option 1.
Air pollution from roads				
Option 1	Yes – potential for likely significant effects. Breckland SAC and Devil's Dyke SAC are designated for heathland plant species that are sensitive to air pollution and are located within 200 m of roads that may experience significant increases in traffic as a result of the housing development proposed by this	Core Strategy Policy CS2 states that: *"New road infrastructure or road improvements will not be allowed within 200m of sites designated as SACs in order to protect the qualifying features of these sites"*. Core Strategy Policy CS12 supports delivery of strategic sustainable transport proposals, specifically	Unable to rule out likely significant effects on Breckland SAC or Devil's Dyke SAC due to air pollution from increased volumes of traffic on existing roads within 200 m of these sites.	It is recommended that the Council carries out more detailed investigation to determine: - the scale of road traffic increases likely to occur on existing roads within 200 m of Breckland SAC and Devil's Dyke SAC as a result of the planned scale and distribution of residential

SIR policy option	Potential for likely significant effects prior to mitigation?	Mitigation available where likely significant effects identified	HRA screening conclusion after existing mitigation	Recommendations
	policy option.	improvements to National Cycle Network Route 51 and to rights of way in the District. Joint Development Management Policy DM22 requires residential development proposals to ensure appropriate levels of permeability and accessibility, favouring sustainable transport routes and considering the needs of pedestrians and cyclists before car users.		growth; and - whether the predicted scale of traffic growth would have adverse effects on the integrity of these European sites.
Option 2	Yes – potential for likely significant effects. As for Option 1 except that the higher total housing provision increases the likely scale of road traffic increases and associated air pollution risks.	As for Option 1.	Unable to rule out likely significant effects on Breckland SAC or Devil's Dyke SAC due to air pollution from increased volumes of traffic on existing roads within 200 m of these sites.	As for Option 1.

Potential for in-combination effects

5.7 As explained in Section 3, it is only necessary to consider the potential for effects in-combination with other plans or projects where an effect has been identified but the scale of effect from the Plan alone is not likely to be significant. For most of the types of potential effect from the total housing provision options, the HRA Screening was unable to rule out likely significant effect from the Option alone. For the remaining types of potential effect – avoidance of roads by stone curlew and contaminated surface run-off – no effect was identified from the total housing provision options. It is therefore not necessary to consider the potential for effects in-combination with other plans and projects. Additional reassurance can be taken from the fact that any effects identified by the HRAs of other plans (see Appendix 1) with which the Forest Heath SIR could potentially act in-combination have been adequately avoided or mitigated in the process of adopting the related plan.

6 HRA Screening of housing distribution options

The options

6.1 The SIR puts forward four options for the distribution of housing across the District in the period 2011-2031. Under all options, allocations would only be made to the top three levels of the settlement hierarchy – Market Towns, Key Service Centres and Primary Villages - which are most likely to provide sustainable locations for growth.

6.2 Table 6.1 summarises the scale of housing growth that would be provided at each settlement under each of the four distribution options. Housing growth is stated both in relative terms, ranging from 'low' to 'very high' (see key below table for definitions), and in absolute terms, as a range of the number of houses that would be provided. The existing housing stock figures are also included for reference under each settlement in the table.

Table 6.1 Summary of housing distribution options in the SIR in the period 2011-2031

	Option 1: Focus on Mildenhall, Newmarket and Lakenheath	**Option 2**: Focus on Lakenheath and Red Lodge, with a planned extension at Red Lodge and medium growth at Mildenhall and Newmarket	**Option 3**: Focus on Red Lodge, with a planned extension and focus on Lakenheath and Mildenhall with lower growth in Newmarket	**Option 4**: Focus on Mildenhall, Newmarket and Red Lodge with more growth in those primary villages with capacity
MARKET TOWNS				
Brandon (2014 housing stock 4,669)	Low growth 50 – 55	Low growth 50 – 55	Low growth 50 – 55	Low growth 50 – 55
Mildenhall (2014 housing stock 5,617)	High growth 1600 – 1770	Medium growth[10] 1145 – 1270	High growth 1600 – 1770	High growth 1600 – 1770
Newmarket (2014 housing stock 8,167)	High growth 1470 – 1630	Medium growth[11] 680 – 750	Low growth 300 – 330	High growth 1470 – 1630
KEY SERVICE CENTRES				
Lakenheath (2014 housing stock 2,756)	High growth 880 – 975	High growth 880 – 975	High growth 880 – 975	Medium growth 410 – 460
Red Lodge (2014 housing stock 2,760)	Medium growth 360 – 400	Very high growth 1970 – 2170	Very high growth 1970 – 2170	High growth 735 - 810
PRIMARY VILLAGES				
Beck Row (2014 housing	Low growth 110 – 120	Low growth 110 – 120	Low growth 110 – 120	Medium growth 320 – 350

[10] The Mildenhall medium growth does not fall within the % range of 10-15%, however the Council considers it appropriate to show it as medium in the table, to represent a lower growth range than the high growth range shown for options 1, 3 and 4.

[11] The Newmarket medium growth does not fall within the % range of 10-15%, however the Council considers it appropriate to show it as medium in the table, as it represents a medium option falling between the high and low ranges shown for options 1, 3 and 4.

	Option 1: Focus on Mildenhall, Newmarket and Lakenheath	**Option 2**: Focus on Lakenheath and Red Lodge, with a planned extension at Red Lodge and medium growth at Mildenhall and Newmarket	**Option 3**: Focus on Red Lodge, with a planned extension and focus on Lakenheath and Mildenhall with lower growth in Newmarket	**Option 4**: Focus on Mildenhall, Newmarket and Red Lodge with more growth in those primary villages with capacity
stock 2,786)				
West Row (2014 housing stock 776)	Low growth 65- 70	Low growth 65- 70	Low growth 65- 70	High growth 290 – 320
Exning (2014 housing stock 967)	Medium growth 135 – 150	Medium growth 135 – 150	Medium growth 135 – 150	Medium growth 135 – 150
Kentford (2014 housing stock 293)	High growth 130 – 140	High growth 130 – 140	High growth 130 – 140	High growth 130 – 140

KEY TO SCALE OF GROWTH CATEGORIES

Low growth	Between 1-10% increase in existing housing stock
Medium growth	Between 10-15% increase in existing housing stock
High growth	15% + increase in existing housing stock
Very high growth	50% increase in existing housing stock

Approach to HRA Screening of housing distribution options

6.3 The section assesses the potential for likely significant effects on European sites from housing development at each of the Market Towns, Key Service Centres and Primary Villages.

6.4 Certain types of potential effects from development on European sites are more appropriately assessed elsewhere, for example via the HRA Screening of options for total housing provision (see Section 5) or the HRA Screening of the Site Allocations Local Plan (contained in a separate report). The following types of potential effect have not, therefore, been assessed in relation to the housing distribution options of the SIR:

- Avoidance of roads by Stone Curlew - housing distribution options do not provide for new road infrastructure or road improvements to increase capacity. Whilst provision for new housing is likely to increase road traffic and demand for road infrastructure improvements, these indirect effects of housing provision are more appropriately assessed via HRA of the Local Transport Plan and of individual road schemes.
- Flood risk – the potential for housing development to adversely affect European sites due to increases in combined sewer overflows or contaminated surface run-off has been assessed via the HRA Screening of options for total housing provision (Section 5). Should the update to the Water Cycle Study provide up to date evidence on settlements and sites subject to foul sewer capacity constraints, this can be considered by the HRA Screening at a later stage in the Plan making process.
- Water supply - the potential effect of new housing development on water availability depends on the total amount of housing in the District, as assessed in Section 5, rather than its distribution and is therefore not considered any further in the HRA Screening of the housing distribution options.
- Air pollution from roads – HRA screening of the options for total housing provision has already determined that likely significant effects cannot be ruled out for either option and that more detailed investigation of changes in road traffic and related effects on air quality and sensitive

European sites is required. In advance of such investigation, it is not possible to distinguish between the potential effects of the four housing distribution options.

6.5 Certain other types of potential effects on European sites can be assessed with greater certainty based on site-specific allocations rather than consideration of distribution options at the scale of whole settlements, namely:

- Direct effects of built development.
- Disturbance to Annex I birds.
- Other urban effects.

6.6 Since the Site Allocations Local Plan is being prepared concurrently with the SIR, it is generally more appropriate to assess the Site Allocations Local Plan rather than the housing distribution options for these potential effects. They are therefore only considered in the HRA Screening of the housing distribution options to rule out the possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. The HRA Screening of the Site Allocations Local Plan should be consulted in relation to the potential effects on European sites of particular allocations.

6.7 The HRA Screening is based on the evidence and assumptions set out in Section 4. When applying the various buffer distances (such as that other urban effects can be ruled out when development is more than 1,500 m from relevant components of Breckland SAC/SPA), it is assumed that all development set out in the housing distribution options would occur within 2.0 km of the existing boundary of the named settlement; this is judged sufficient to allow for the largest likely urban extensions.

Potential for likely significant effects by settlement and type of effect

6.8 For each type of effect (other than those considered elsewhere), the following tables set out an assessment of the potential for housing distribution to each settlement to have a likely significant effect on a European site at each of the scales of growth provided by the four options.

6.9 For each type of potential effect, a table sets out:

- The settlement to which housing is provided.
- The potential for a likely significant effect as a result of housing at that settlement, prior to consideration of mitigation.
- Mitigation available where the potential for likely significant effects is identified. This may be, for example, from adopted Core Strategy policies other than CS7 (which is being reviewed by the SIR) or adopted policies in the Development Management Policies Local Plan.
- A conclusion as to whether likely significant effects ('LSE' in the table) on European sites can be ruled out in relation to the scale of housing provision to the settlement in question under each of the distribution options.
- Any recommendations on how likely significant effects which could not be ruled out might be avoided or mitigated as plan-making progresses.

Table 6.2 HRA Screening of housing distributions for potential direct effects of built development

			LSE ruled out for Option...				
Settlement	**Able to rule out potential for LSE prior to mitigation?**	**Mitigation available where potential LSE identified**	**1**	**2**	**3**	**4**	**Recommendations**
Brandon	No – not possible to rule out potential for likely significant effects on Breckland SPA. *Development within European site boundaries* Parts of the existing built up area of Brandon are directly adjacent to Breckland SPA, creating a possibility of habitat damage/loss from development within the boundary of Breckland SPA site if greenfield development were located on certain parts of the edge of the built up area. Such effects could, however, be avoided by development on infill sites or at other parts of the settlement boundary, particularly as only 50-55 homes would be provided under all distribution options. This potential effect is therefore more appropriately assessed via HRA Screening of site allocation options, as set out in a separate report. *Development within Breckland SPA constraint zone* All of Brandon and all but a very small area of the land on the boundary of the existing built up area falls within the Breckland SPA constraint zone for Stone Curlew. More than half of Brandon and all of its southern and eastern boundaries (including the small area not within the Stone Curlew constraint zone) fall within the Breckland SPA constraint zone for Woodlark and Nightjar. Likely significant effects on Breckland SPA cannot, therefore, be ruled out no matter where housing is allocated within/adjacent to the settlement and such effects cannot be ruled out for any of the distribution options.	Policy CS2 of the Core Strategy requires project level HRA for development proposals within the Breckland SPA avoidance zones and states that development likely to lead to an adverse effect on integrity will not be allowed. Whilst this policy should prevent adverse effects on integrity of the SPA when individual development proposals come forward, it is judged inappropriate to rely on this policy in coming to an HRA Screening judgement for the SIR.	N	N	N	N	Carry out Appropriate Assessment in partnership with Natural England and the RSPB to determine the effects of individual site options in the Site Allocations Local Plan and hence the deliverability of housing distributions to this settlement without adverse effects on integrity of Breckland SPA.
Mildenhall	No – not possible to rule out potential for likely significant effects on Breckland SPA. *Development within European site boundaries* Parts of the existing built up area of Mildenhall are directly adjacent to Breckland SPA, creating a possibility of habitat damage/loss from development within the boundary of Breckland SPA site if greenfield development were located on certain parts of the edge	As for Brandon (above).	N	Y	N	N	As for Brandon (above).

			LSE ruled out for Option...				
	of the built up area. However, data supplied by the Council indicate that the capacity of all Mildenhall site options which do not intersect the SPA is 2,649 dwellings, ruling out the possibility that a likely significant effect could not be avoided under any conceivable housing allocation. *Development within Breckland SPA constraint zone* The eastern half of Mildenhall and adjoining greenfield land fall within the Breckland SPA constraint zone for Stone Curlew and the constraint zone for Woodlark and Nightjar. Data supplied by the Council indicate that the capacity of all Mildenhall site options which do not intersect the SPA or its constraint zones is 1,644 dwellings therefore under Options 1, 3 and 4, which provide for growth of up to 1,770 dwellings, a likely significant effect cannot be ruled out for any conceivable housing allocation within or adjoining the settlement.						
Newmarket	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of Site Allocations Local Plan. No European sites overlay the settlement and the nearest Breckland SPA constraint zone is 4.9 km from the existing settlement boundary.	Not required.	Y	Y	Y	Y	None.
Lakenheath	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Whilst small sections of the land immediately to the east of Lakenheath's settlement boundary are part of the Breckland SAC or within Breckland SPA's constraint zones for Stone Curlew/Stone Curlew nesting attempts, it should be possible to avoid direct effects on European sites by development on infill sites or at other parts of the settlement boundary under all distribution options.	Not required.	Y	Y	Y	Y	None.
Red Lodge	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more	Not required.	Y	Y	Y	Y	None.

			LSE ruled out for Option...				
	appropriately assessed in the HRA of Site Allocations Local Plan. *Development within European site boundaries* Whilst parts of Breckland SPA are located approximately 1.3 km to the east of the Red Lodge settlement boundary it should be possible to avoid direct effects on European sites under all distribution options. *Development within Breckland SPA constraint zone* The south eastern corner of Red Lodge and much of the land to its east and south are within Breckland SPA's constraint zones for Stone Curlew/Stone Curlew nesting attempts. Data supplied by the Council indicate that the capacity of all Red Lodge site options which do not intersect the SPA or its constraint zones is 6,275 dwellings (site options RL/15 and RL/09 were included in this calculation as only a small part of the land within their boundaries is within Stone Curlew constraint zones), ruling out the possibility that a likely significant effect could not be avoided under any conceivable housing allocation.						
Beck Row	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of Site Allocations Local Plan. *Development within European site boundaries* Whilst parts of Breckland SPA are located approximately 1.2 km to the south east of the Beck Row settlement boundary it should be possible to avoid direct effects on European sites under all distribution options. *Development within Breckland SPA constraint zone* Whilst areas of land approximately 1 km to the east of Beck Row's settlement boundary are within Breckland SPA's constraint zones for Stone Curlew/Stone Curlew nesting attempts, Woodlark and Nightjar it should be possible to avoid direct effects on European sites by development on infill sites or at other parts of the settlement boundary under all distribution options.	Not required.	Y	Y	Y	Y	None.

			LSE ruled out for Option...				
West Row	Yes - ruled our possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of Site Allocations Local Plan. No European sites overlay the settlement and the nearest Breckland SPA constraint zone is 2.8 km from the existing settlement boundary.	Not required.	Y	Y	Y	Y	None.
Exning	Yes - ruled our possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of Site Allocations Local Plan. No European sites overlay the settlement and the nearest Breckland SPA constraint zone is 6.9 km from the existing settlement boundary.	Not required.	Y	Y	Y	Y	None.
Kentford	No – not possible to rule out potential for likely significant effects on Breckland SPA. *Development within European site boundaries* Whilst part of Breckland SPA is located approximately 1.0 km to the north east of the Kentford settlement boundary it should be possible to avoid direct effects on European sites under all distribution options. *Development within Breckland SPA constraint zone* Much of Kentford and its environs fall within the Breckland SPA Stone Curlew/ Stone Curlew nesting attempts constraint zones. Examining the housing site options put forward in the Site Allocations Local Plan it is apparent that K/01 is the only site option being considered outside of the constraint zones. Since its dwelling capacity (105) is less than the number of dwellings to be distributed under all options (130-140), it is not possible to rule out likely significant effects.	As for Brandon (above).	N	N	N	N	As for Brandon (above).

Table 6.3 HRA Screening of housing distributions for potential disturbance to Annex I birds

			LSE ruled out for Option...				
Settlement	**Able to rule out potential for LSE prior to mitigation?**	**Mitigation available where potential LSE identified**	**1**	**2**	**3**	**4**	**Recommendations**
Brandon	No – not possible to rule out potential for likely significant effects on Breckland SPA. The potential for recreational disturbance to Annex I birds of Breckland SPA exists from any housing development within 7.5 km of its boundary; Brandon is directly adjacent to the SPA.	Policy DM12 requires *"All new development (excluding minor household applications) shown to contribute to recreational disturbance and visitor pressure within the Breckland SPA and SAC will be required to make appropriate contributions through S106 agreements towards management projects and/or monitoring of visitor pressure and urban effects on key biodiversity sites."* Whilst this policy may prevent adverse effects on integrity of the SPA it is judged inappropriate to rely on this policy in coming to an HRA Screening judgement. This policy appears to place the onus on the Council to demonstrate that development will result in recreational effects before requiring mitigation. In light of the evidence, a more precautionary approach is judged appropriate and it is also notable that judgements on the likelihood of disturbance would need to be informed by a visitor survey (Fearnley, et al., 2010) which is now quite old.	N	N	N	N	It is recommended that further work is carried out as part of an Appropriate Assessment to agree with Natural: - a zone within which recreational effects on Breckland SPA from residential development will be assumed to exist (e.g. 7.5 km from SPA boundary) and contributions to mitigation will be required unless the applicant can demonstrate otherwise through project level HRA; and - the key features of a mitigation and monitoring strategy (possibly in co-operation with neighbouring authorities) which the developer contributions required by Policy DM12 will help to fund.
Mildenhall	No – not possible to rule out potential for likely significant effects on Breckland SPA. Reasons as for Brandon (above).	As for Brandon (above).	N	N	N	N	As for Brandon (above).
Newmarket	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of Site Allocations Local Plan. Most of Newmarket and the land immediately adjoining are located more than 7.5 km from Breckland SPA. It should be possible to achieve the scale	Not required.	Y	Y	Y	Y	None.

			LSE ruled out for Option...				
	of growth set out in any of the distribution options without developing in this zone.						
Lakenheath	No – not possible to rule out potential for likely significant effects on Breckland SPA. Reasons as for Brandon (above).	As for Brandon (above).	N	N	N	N	As for Brandon (above).
Red Lodge	No – not possible to rule out potential for likely significant effects on Breckland SPA. Reasons as for Brandon (above).	As for Brandon (above).	N	N	N	N	As for Brandon (above).
Beck Row	No – not possible to rule out potential for likely significant effects on Breckland SPA. Reasons as for Brandon (above).	As for Brandon (above).	N	N	N	N	As for Brandon (above).
West Row	No – not possible to rule out potential for likely significant effects on Breckland SPA. Reasons as for Brandon (above).	As for Brandon (above).	N	N	N	N	As for Brandon (above).
Exning	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of Site Allocations Local Plan. Exning and the land immediately adjoining it are located more than 7.5 km from Breckland SPA.	Not required.	Y	Y	Y	Y	None.
Kentford	No – not possible to rule out potential for likely significant effects on Breckland SPA. Reasons as for Brandon (above).	As for Brandon (above).	N	N	N	N	As for Brandon (above).

Table 6.4 HRA Screening of housing distributions for potential other urban effects

			LSE ruled out for Option…				
Settlement	**Able to rule out potential for LSE prior to mitigation?**	**Mitigation available where potential LSE identified**	**1**	**2**	**3**	**4**	**Recommendations**
Brandon	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of the Site Allocations Local Plan. Weeting Heath SSSI component of Breckland SAC/SPA is approximately 1.3 km to the north west of Brandon at its closest point; Wangford Warren and Carr SSSI component is approximately 1.2 km to the south west. The potential therefore exists for other urban effects on Breckland SAC/SPA but these could be avoided by development at other parts of Brandon, particularly as only 50-55 homes would be provided under all distribution options. This potential effect is therefore more appropriately assessed via HRA Screening of site allocation options, as set out in a separate report.	Not required	Y	Y	Y	Y	None.
Mildenhall	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of the Site Allocations Local Plan. Cavenham-Icklingham Heaths SSSI component of Breckland SAC/SPA is approximately 1.2 km to the south east of Mildenhall. Data supplied by the Council indicate that the capacity of all Mildenhall site options which are more than 1,500 m from Cavenham-Icklingham Heaths SSSI is approximately 3,785 homes. This means that it should be possible to avoid development within this zone under even the highest growth options (Options 1, 3 and 4 provide for up to 1,770 homes).	Not required	Y	Y	Y	Y	None.
Newmarket	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of the Site Allocations Local Plan. Weeting Heath SSSI component of Breckland SAC/SPA is located approximately 25 km from Newmarket at its closest point; Wangford Warren and Carr SSSI component is approximately 21 km away; and Cavenham-Icklingham Heaths SSSI component is approximately 11 km away.	Not required	Y	Y	Y	Y	None.
Lakenheath	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of the Site Allocations Local Plan. Weeting Heath SSSI component of Breckland SAC/SPA is located approximately 5.0 km from	Not required	Y	Y	Y	Y	None.

			LSE ruled out for Option...				
	Lakenheath at its closest point; Wangford Warren and Carr SSSI component is approximately 3.1 km away; and Cavenham-Icklingham Heaths SSSI component is approximately 7.1 km away.						
Red Lodge	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of the Site Allocations Local Plan. Weeting Heath SSSI component of Breckland SAC/SPA is located approximately 16 km from Red Lodge at its closest point; Wangford Warren and Carr SSSI component is approximately 13 km away; and Cavenham-Icklingham Heaths SSSI component is approximately 3.8 km away.	Not required	Y	Y	Y	Y	None.
Beck Row	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of the Site Allocations Local Plan. Weeting Heath SSSI component of Breckland SAC/SPA is located approximately 10 km from Beck Row at its closest point; Wangford Warren and Carr SSSI component is approximately 7.4 km away; and Cavenham-Icklingham Heaths SSSI component is approximately 4.5 km away.	Not required	Y	Y	Y	Y	None.
West Row	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of the Site Allocations Local Plan. Weeting Heath SSSI component of Breckland SAC/SPA is located approximately 13 km from West Row at its closest point; Wangford Warren and Carr SSSI component is approximately 11 km away; and Cavenham-Icklingham Heaths SSSI component is approximately 5.3 km away.	Not required	Y	Y	Y	Y	None.
Exning	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of the Site Allocations Local Plan. Weeting Heath SSSI component of Breckland SAC/SPA is located approximately 25 km from Exning at its closest point; Wangford Warren and Carr SSSI component is approximately 22 km away; and Cavenham-Icklingham Heaths SSSI component is approximately 13 km away.	Not required	Y	Y	Y	Y	None.
Kentford	Yes - ruled out possibility that a likely significant effect could not be avoided under any conceivable allocation of the housing distribution figure within or adjoining the settlement. Effects of particular allocations are more appropriately assessed in the HRA of the Site Allocations Local Plan. Weeting Heath SSSI component of Breckland SAC/SPA is located approximately 21 km from	Not required	Y	Y	Y	Y	None.

			LSE ruled out for Option...				
	Kentford at its closest point; Wangford Warren and Carr SSSI component is approximately 17 km away; and Cavenham-Icklingham Heaths SSSI component is approximately 6.2 km away.						

Table 6.5 HRA Screening of housing distributions for potential water quality and waste water discharge effects

			LSE ruled out for Option...				
Settlement	**Able to rule out potential for LSE prior to mitigation?**	**Mitigation available where potential LSE identified**	**1**	**2**	**3**	**4**	**Recommendations**
Brandon	Yes - likely significant effects ruled out. As set out in Section 4, AWS has confirmed that spare capacity at Brandon WwTW can accommodate 500-1,000 additional homes. This compares to distribution of 50-55 additional homes under all four SIR options.	Not required.	Y	Y	Y	Y	None.
Mildenhall, Beck Row and West Row	Yes - likely significant effects ruled out. As set out in Section 4, AWS has confirmed that spare capacity at Mildenhall WwTW can accommodate at least 2,500 additional homes in its catchment which covers Mildenhall, Beck Row and West Row. The highest total distribution to these three settlements is 2,440 homes under Option 4 therefore all options can be accommodated without likely significant effects.	Not required.	Y	Y	Y	Y	None.
Newmarket, Kentford and Exning	Yes - likely significant effects ruled out. As set out in Section 4, AWS has confirmed that spare capacity at Newmarket WwTW can accommodate at least 2,500 additional homes in its catchment which covers Newmarket, Kentford and Exning. The highest total distribution to these three settlements is 1,920 homes under Options 1 and 4 therefore all options can be accommodated without likely significant effects.	Not required.	Y	Y	Y	Y	None.
Lakenheath	Yes - likely significant effects ruled out. As set out in Section 4, AWS has confirmed that spare capacity at Lakenheath WwTW can accommodate at least 1,000 additional homes. The highest distribution to Lakenheath is 975 homes under Options 1, 2 and 3 therefore all options can	Not required.	Y	Y	Y	Y	None.

			LSE ruled out for Option…				
	be accommodated without likely significant effects.						
Red Lodge	No - potential exists for likely significant effects on Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, and The Wash and North Norfolk Coast SAC. As set out in Section 4, AWS has confirmed that spare capacity at Tuddenham WwTW can accommodate at least 1,000 additional homes in its catchment which covers Tuddenham, Red Lodge and Herringswell. No allocations are made to Tuddenham or Herringswell in the SIR but Options 2 and 3 both provide for up to 2,170 homes at Red Lodge. In the absence of upgrades, there is therefore the potential for likely significant effects on European sites which are hydrologically connected to the Tuddenham WwTW, have qualifying features that are vulnerable to nutrient enrichment and may already be suffering adverse water quality effects, namely Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, and The Wash and North Norfolk Coast SAC.	Policy CS13 Infrastructure and Developer Contributions. Within the list of infrastructure issues to be addressed, the policy includes: *"Providing for additional strategic waste water treatment capacity in accordance with Strategic Flood Risk Assessment and Water Cycle Study. This waste water infrastructure will be upgraded as required and operational in time to meet the demands of the development."* The Environment Agency's discharge consenting regime.	Y	N	N	Y	Confirm with AWS and the Environment Agency (e.g. via update to Water Cycle Study) that Tuddenham WwTW can be upgraded to accommodate 2,170 homes in advance of planned housing delivery timetable without deterioration to quality of receiving waters.

Potential for in-combination effects

6.10 As explained in Section 3, it is only necessary to consider the potential for effects in-combination with other plans or projects where an effect has been identified but the scale of effect from the Plan alone is not likely to be significant. As set out above, the HRA Screening was either unable to rule out likely significant effect from the Option alone or no effect was identified. It is therefore not necessary to consider the potential for effects in-combination with other plans and projects. Additional reassurance can be taken from the fact that any effects identified by the HRAs of other plans (see Appendix 1) with which the Forest Heath SIR could potentially act in-combination have been adequately avoided or mitigated in the process of adopting the related plan.

7 Conclusions and next steps

Conclusions

7.1 Since the SIR is only at the 'Issues and Options' stage of development it is not possible for the HRA Screening to reach a conclusion on whether likely significant effects on European sites can be ruled out for the Plan as a whole. Instead the HRA Screening has drawn a conclusion for each Plan option under consideration, as summarised below.

HRA Screening of options for total housing provision

7.2 The SIR Issues and Options Report puts forward two options for the total amount of housing to be provided in the District during 2011-2031 – 7,000 dwellings under Option 1 or 7,700 dwellings under Option 2. The **HRA Screening was unable to rule out likely significant effects from either of the housing provision options** in relation to the types of effect and European sites listed in Table 7.1; the HRA Screening results were the same for both options. Table 7.1 also summarises LUC's recommendations for further investigation through Appropriate Assessment at later stages of plan-making and for mitigation.

Table 7.1 Likely significant effects (LSE) not ruled out under either option for total housing provision

Type of LSE not ruled out	European sites potentially affected	Recommendations
Direct effects of built development	Breckland SAC/SPA; Devil's Dyke SAC; Rex Graham Reserve SAC.	Carry out HRA of housing distribution options and site allocation options to confirm that Options can be delivered without likely significant effects.
Disturbance to Annex 1 birds	Breckland SPA	It is recommended that further work is carried out as part of an Appropriate Assessment to agree with Natural England and the RSPB: - a zone within which recreational effects on Breckland SPA from residential development will be assumed to exist (e.g. 7.5 km from SPA boundary) and contributions to mitigation will be required unless the applicant can demonstrate otherwise through project level HRA; and - the key features of a mitigation and monitoring strategy (possibly in co-operation with neighbouring authorities) which the developer contributions required by Policy DM12 will help to fund.
Other urban effects	Breckland SAC/SPA	Carry out HRA of housing distribution options and site allocation options to confirm that Options can be delivered without likely significant effects.
Flood risk: Combined sewer overflows	Breckland SAC/SPA; Devil's Dyke SAC; Rex Graham Reserve SAC; Fenland SAC and Chippenham Fen and Wicken Fen Ramsar sites; Ouse Washes SAC/SPA/Ramsar site.	It is recommended that the update to the Water Cycle Study identifies settlements and site allocations subject to foul sewer capacity constraints and confirms, in discussion with AWS, that these can be overcome within the Plan period so as to accommodate the planned scale of

Type of LSE not ruled out	European sites potentially affected	Recommendations
		growth.
Water quality and wastewater discharge	Breckland SAC (Weeting Heath component SSSI); Ouse Washes SAC/SPA/Ramsar site; The Wash SPA/Ramsar site; The Wash and North Norfolk Coast SAC; Fenland SAC; Chippenham Fen Ramsar site; Wicken Fen Ramsar site.	Carry out HRA of housing distribution options to confirm that Options can be delivered without likely significant effects.
Water supply	The European sites affected would depend on the particular schemes required to maintain supply-demand balance in water resources.	It is recommended the Council seeks confirmation from AWS that the amount of residential growth proposed by the SIR is consistent with the planning assumptions of the WRMP 2015 such that no additional prefer schemes are required to maintain supply-demand balance and the findings of the HRA of the WRMP can be relied upon.
Air pollution from roads	Breckland SAC; Devil's Dyke SAC	It is recommended that the Council carries out more detailed investigation to determine: - the scale of road traffic increases likely to occur on existing roads within 200 m of Breckland SAC and Devil's Dyke SAC as a result of the planned scale and distribution of residential growth; and - whether the predicted scale of traffic growth would have adverse effects on the integrity of these European sites.

HRA screening of housing distribution options

7.3 The SIR Issues and Options Report puts forward four options for distributing housing to the District's Market Towns, Key Service Centres and Primary Villages. The **HRA Screening was unable to rule out likely significant effects on European sites from any of the four housing distribution options**. For each of the four distribution options, Table 7.2 summarises the types of effect which could not be ruled out, the settlements at which housing provisions under that option give rise to the potential effects, the European sites at which the effects may occur and LUC's recommendations for further investigation through Appropriate Assessment at later stages of plan-making and for mitigation.

Table 7.2 Likely significant effects (LSE) not ruled out under housing distribution options

Type of LSE not ruled out	Settlements at which housing provisions under this option give rise to LSE	European sites potentially affected	Recommendations
Option 1: Focus on Mildenhall, Newmarket and Lakenheath			
Direct effects of built development	Brandon, Mildenhall, Kentford	Breckland SPA	Carry out appropriate assessment in partnership with Natural England and the RSPB to determine the effects of individual site options in the Site Allocations Local Plan and hence the deliverability of housing distributions to these settlements without adverse effects on integrity of Breckland SPA.
Disturbance	Brandon, Mildenhall,	Breckland SPA	It is recommended that further work is carried

Type of LSE not ruled out	Settlements at which housing provisions under this option give rise to LSE	European sites potentially affected	Recommendations
to Annex I birds	Lakenheath, Red Lodge, Beck Row, West Row, Kentford,		out as part of an appropriate assessment to agree with Natural England and the RSPB: - a zone within which recreational effects on Breckland SPA from residential development will be assumed to exist (e.g. 7.5 km from SPA boundary) and contributions to mitigation will be required unless the applicant can demonstrate otherwise through project level HRA; and - the key features of a mitigation and monitoring strategy (possibly in co-operation with neighbouring authorities) which the developer contributions required by Policy DM12 will help to fund.
Option 2: Focus on Lakenheath and Red Lodge, with a planned extension at Red Lodge and medium growth at Mildenhall and Newmarket			
Direct effects of built development	Brandon, Kentford	Breckland SPA	As for Option 1.
Disturbance to Annex I birds	Brandon, Mildenhall, Lakenheath, Red Lodge, Beck Row, West Row, Kentford,	Breckland SPA	As for Option 1.
Water quality and waste water discharges	Red Lodge	Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, and The Wash and North Norfolk Coast SAC	Confirm with AWS and the Environment Agency (e.g. via update to Water Cycle Study) that Tuddenham WwTW can be upgraded to accommodate 2,170 homes in advance of planned housing delivery timetable without deterioration to quality of receiving waters.
Option 3: Focus on Red Lodge, with a planned extension and focus on Lakenheath and Mildenhall with lower growth in Newmarket			
Direct effects of built development	Brandon, Mildenhall, Kentford	Breckland SPA	As for Option 1.
Disturbance to Annex I birds	Brandon, Mildenhall, Lakenheath, Red Lodge, Beck Row, West Row, Kentford,	Breckland SPA	As for Option 1.
Water quality and waste water discharges	Red Lodge	Ouse Washes SAC/SPA/Ramsar site, The Wash SPA/Ramsar site, and The Wash and North Norfolk Coast SAC	As for Option 2.
Option 4: Focus on Mildenhall, Newmarket and Red Lodge with more growth in those primary villages with capacity			
Direct effects of built development	Brandon, Mildenhall, Kentford	Breckland SPA	As for Option 1.
Disturbance to Annex I birds	Brandon, Mildenhall, Lakenheath, Red Lodge, Beck Row, West Row, Kentford,	Breckland SPA	As for Option 1.

Next steps

7.4 In line with the requirements of the Habitats Regulations, representations are being sought from Natural England on the HRA Screening set out in this report. The Council will have regard to representations received in carrying out further HRA work at the next stage of Plan-making. Feedback is also being sought from the RSPB, Environment Agency and Suffolk Wildlife Trust as they are in a strong position to help identify relevant evidence to inform the HRA Screening. The Council has also chosen to publish the HRA Screening report alongside the Issues and Options consultation document to provide the general public with a reference point when commenting on the Plan.

7.5 The Issues and Options Local Plan document will be followed by a more detailed 'Preferred Options' type document which is currently expected to be published for a further round of Regulation 18 consultation in early 2016. This Local Plan document will be accompanied by an amended HRA Screening Report which will screen the preferred proposals within the Plan and conclude whether they are likely to have a significant effect on any European site, either alone or in combination with other plans and projects. The HRA Screening at this stage will take account of any new evidence which could not readily be incorporated at the Issues and Options stage.

7.6 LUC has not been appointed to carry out HRA Screening at the Publication/Regulation 19 stage of plan making or to carry out Appropriate Assessment. If likely significant effects still cannot be ruled out at that stage then it will be necessary to proceed to an Appropriate Assessment to determine whether the Local Plan proposals will have an adverse effect on the integrity of any European site and to recommend appropriate avoidance and mitigation measures.

Bibliography

Alexander, I. & Cresswell, B., 1990. Foraging by nightjars Caprimulgus europaeus away from their nesting areas. *Ibis,* Volume 132, pp. 568-574.

Anglian Water Services, 2008. *Water Resources Management Plan - Draft for Consultation,* s.l.: Anglian Water Services.

Anglian Water Services, 2015. *Water Resources Management Plan 2015,* Huntingdon: Anglian Water Services.

Angold, P., 1997. The impact of a road upon adjacent heatland vegetation: effects on plant species composition. *Journal of Applied Ecology,* Volume 34, pp. 409-417.

Armitage, P., Blackburn, J. & Symes, K., 1994. *The environmental quality of a small urban water course, the Bourne Stream (Dorset), assessed with macroinvertebrate density,* Wareham, Dorset: Institute of Freshwater Ecology.

Barker, C., Power, S., Bell, J. & Orme, C., 2004. Effects of habitat management on heathland response to atmospheric nitrogen deposition. *Biological Conservation,* Volume 120, pp. 41-52.

Bignal, K. et al., 2007. Ecological impacts of air pollution from road transport on local vegetation. *Applied Geochemistry,* Volume 22, pp. 1265-1271.

Bobbink, R., Hornung, M. & Roelofs, J., 1998. The effects of air-borne nitrogen pollutants on species diversity in natural and semi-natural European vegetation. *Journal of Ecology,* Volume 86, pp. 717-738.

Bonner, C. & Agnew, A., 1983. Soil phosporous as an indicator of canine faecal pollution in urban recreation areas. *Environmental Pollution (Series B),* Volume 6, pp. 145-156.

Breckland District Council, 2010. *HRA for Site Specific Policies and Proposals DPD,* s.l.: s.n.

Britton, A. & Fisher, J., 2007. Interactive effects of nitrogen deposition, fire and grazing on diversity and composition of low-apline prostrate Calluna vulgaris heathland. *Journal of Applied Ecology,* Volume 44, pp. 125-135.

Bullock, J. & Webb, N., 1994. Responses to severe fires in heathland mosaics in southern England. *Biological Conservation,* Volume 73, pp. 207-214.

Cambridge Insight, 2013. *Strategic Housing Market Assessment for the Cambridge housing sub-region,* s.l.: s.n.

Clarke, R. & Liley, D., 2013. *Further assessments of the relationship between buildings and stone curlew distribution,* Wareham, Dorset: Footprint Ecology for Breckland Council.

Clarke, R., Liley, D. & Sharp, J., 2008. *Assessment of visitor access effects and housing on nightjar numbers on the Thames Basin Heaths and Dorset Heaths SPAs,* s.l.: Footprint Ecology for Natural England.

David Tyldesley Associates, 2015. *Habitats Regulations Appraisal of Plans: Guidance for plan-making bodies in Scotland,* s.l.: Scottish Natural Heritage.

Day, T., 2003. *The effects of disturbance from roads on stone curlews in southern England,* Cambridge: Darwin College, University of Cambridge.

DCLG, 2006. *Planning for the Protection of European Sites: Appropriate Assessment,* London: DCLG Publications.

DEFRA, 2012. *The Habitats and Wild Birds Directives in England and its seas: Core guidance for developers, regulators & land/marinen managers (Consultation Document),* s.l.: s.n.

Department for Transport, 2007. *Design Manual for Roads and Bridges Volume II Environmental Assessment Section 3 Environmental Assessment Techniques HA207/07,* s.l.: s.n.

Dodd A.M., C. B. D. J. B. H. P. L. a. W. G., 2007. *The Appropriate Assessment of Spatial Plans in England. A guide to why, when and how to do it,* Sandy: The RSPB.

Dolman, P., Lake, I. & Bertoncelj, I., 2008. *Visitor flow rate and recreational flow modelling in Breckland,* Norwich: UEA.

Environment Agency, 2013. *Cam and Ely Ouse Abstraction Licensing Strategy,* Bristol: Environment Agency.

Erritzoe, J., 2002. *Bird traffic casualties and road quality for breeding birds: A summary of existing papers with a bibliography,* s.l.: s.n.

European Commission, 2001. *Assessment of plans and projects significantly affecting European Sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC,* Brussels: European Commission.

Fearnley, H., Liley, D. & Cruickshanks, K., 2010. *Visitor survey results from Breckland SPA,* Wareham, Dorset: Footprint Ecology.

Forest Heath District and St Edmundsbury Borough Councils, 2015. *Forest Heath and St Edmundsbury Local Plan Joint Development Management Polcies Document,* s.l.: s.n.

Forest Heath District Council, 2009. *Habitat Regulations Assessment: Forest Heath District Council Core Strategy Development Plan Document ,* s.l.: Forest Heath District Council.

Forest Heath District Council, 2011. *Supplementary Plannning Document for Open Space, Sport and Recreation Facilities,* s.l.: Forest Heath District Council.

Gilbert, O., 2002. *Lichen survey of selected Breckland SSSIs: English Nature Reserach Report,* Peterborough: English Nature.

Green, R., Tyler, G. & Bowdne, C., 2000. Habitat selection, ranging behaviour and diet of the stone curlew (Burhinus oedicnemus). *Journal of Zoology,* Volume 250, pp. 161-183.

Hyder Consulting, 2009. *Level 1 SFRA and Outline Water Cycle Study,* s.l.: Forest Heath District Council and St Edmundsbury Borough Council.

Hyder Consulting, 2011. *Forest Heath District Council Level 2 Strategic Flood Risk Assessment,* Aston: Hyder Consulting for Forest Heath District Council.

Hyder Consulting, 2011. *Forest Heath District Council Water Cycle Study Stage 2: Full Strategy,* Aston: Hyder Consulting for Forest Heath District Council.

Hyder Consulting, 2014. *Red Lodge Wastewater Treatment/Sewerage Capacity Study: Independent study report,* s.l.: Forest Heath District Council.

Kirby, J. & Tantrum, D., 1999. *Monitoring heathland fires in Dorset: Phase 1 Report to DETR,* Northampton: Terra Environmental Consultancy.

Langston, R., Drewitt, A. & Liley, D., 2007. Birdconservation and access: coexistence or compromise?. *British Wildlife,* Volume 19, pp. 1-9.

Langston, R. et al., 2007. What effects do walkers and dogs have on the distribution and productivity of breeding European Nightjar?. *Ibis,* Volume 149, pp. 27-36.

Langston, R. et al., 2007. Nightjar (Caprimulgus europaeus) and Woodlark (Lullula arborea)- recovering species in Britain?. *Ibis,* Issue 149, pp. 250-260.

Liley, D., 2004. *Human impacts on the Castle Bottom to Yateley Common and Hawley Commons SSSI, Hampshire,* s.l.: RSPB.

Liley, D. & Clarke, R., 2002. *Urban development adjacent to heathland sites in Dorset: the effect on the density and settlement patterns of Annex I bird species. English Nature Report.,* Peterborough: English Nature.

Liley, D. & Clarke, R., 2003. The impact of urban development and human disturbance on the numbers of nightjar (Caprimulgus europaeus) on heathlands in Dorset, England. *Biological Conservation,* Issue 114, pp. 219-230.

Liley, D., Clarke, R., Mallord, J. & Bullock, J., 2006. *The effect of urban development and human disturbance on the distribution and abundance of nightjars on the Thames Basin and Dorset Heaths,* s.l.: Natural England and Footprint Ecology.

Liley, D., Hoskin R, U.-D. J. & D, T., 2008. *Habitats Regulations Asessment: Breckland Council Submission Core Strategy and Development Control Policies Document,* Wareham, Dorset: Footprint Ecology for Breckland District Council.

Mader, H., Schell, C. & Kornacker, P., 1990. Linear barriers to arthropod movements in the landscape. *Biological Conservation,* Volume 54, pp. 209-222.

Mallord, J., 2005. *Predicting the consequences of human disturbance, urbanisation and fragmentation for a woodlark population,* Norwich: UEA.

Mallord, J., Dolman, P., Brown, A. & Sutherland, W., 2006. Linking recerational disturbance to population size in a ground nesting passerine. *Journal of Applied Ecology,* Volume 44, pp. 185-195.

Mallord, J., Dolman, P., Brown, A. & Sutherland, W., 2007. Quantifying density dependence in a bird population using human disturbance. *Oecologica,* Volume 153, pp. 49-56.

Marzluff, J. & Netherlin, E., 2006. Corvid responses to human settlements and campgrounds: causes, consequences and challenges for conservation. *Biological Conservation,* Volume 130, pp. 301-314.

Mott MacDonald, 2013. *Anglian Water 2015 Water Resource Management Plan Habitats Regulations Assessment: Task 1 & 2,* Cambridge: Mott MacDonald.

Murison, G., 2002. *The impact of human disturbance on the breeding success of nightjar on heathlands in South Dorset,* Peterborough: English Nature.

Natural England, 2007. *Draft Guidance: The Habitats Regulations Assessment of Regional Spatial Strategies and Sub-Regional Strategies,* Peterborough: Natural England.

ODPM, 2005. *Biodiversity and GeologialConservation - Statutory obligations and their impact within the planning system,* Norwich: TSO (The Stationery Office).

Power, S., Ashmore, M. & Cousins, D., 1998. Impacts and fate of experimentally enhanced nitrogen deposition on a British lowland heath. *Environmental Pollution,* Volume 102, pp. 27-34.

Power, S., Ashmore, M., Cousins, D. & Ainsworth, N., 1995. Longt term effects of enhanced nitrogen deposition on a lowland dry heath in southern Britain. *Water, Air and Soil Pollution,* Volume 85, pp. 1701-1706.

Reijnen, R., Fopper, R. & Veenbaas, G., 1997. Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation,* Volume 6, pp. 567-581.

Sharp, J., Clarke, R., Liley, D. & Green, R., 2008. *The effect of housing development and roads on the distribution of Stone Curlews in the Brecks,* Wareham, Dorset: Footprint Ecology.

Sharp, J., Lowen, J. & Liley, D., 2008. *Recreational pressure on the New Forest National Park, with particular reference to the New Forest SPA,* s.l.: Footprint Ecology/New Forest National Park Authority.

Sims, V., Evans, K., Newson, S. & Tratalos, J. &. J., 2008. Avian assemblage structure and domestic cat densities in urban environments. *Diversity and Distributions,* Volume 14, pp. 387-399.

Suffolk County Council, 2011. *Suffolk Local Transport Plan 2011-2031,* s.l.: Suffolk County Council.

Suffolk County Council, 2011. *The Conservation of Habitats anmd Species Regulations 2010 Regulation 61 assessment for Suffolk Local Transport Plan 3,* Ipswich: Suffolk County Council.

Taylor, E., 2002. *Predation risk in woodlark Lullula arborea habitat: the influence of recreational disturbance, predator abundance, nest site characteristics and temporal factors,* s.l.: School of Biological Sciences, UEA.

Taylor, E., Green, R. & Perrins, J., 2007. Stone Curlews and recreational disturbance: developing a management tool for access. *Ibis,* Issue 149, pp. 37-44.

Taylor, K. et al., 2005. *Dogs, access and nature conservation. Research Report.,* Peterborough: English Nature.

Terry, A. et al., 2004. Modellin the impacts of atmospheric nitrogen deposition on Calluna-dominated ecosystems in the UK. *Journal of Applied Ecology,* Volume 41, pp. 897-909.

UK Government, 2007. *The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007. (SI 2007/1843),* s.l.: HMSO.

UK Government, 2010. *Conservation of Habitats and Species Regulations 2010 (SI No. 2010/490),* s.l.: HMSO.

Webb, N., 1989. Studies on the invertebrate fauna of fragmented heathland in Dorset, UK, and the implications for conservation. *Biological Conservation,* Volume 47, pp. 153-165.

Webb, N., 1990. Changes in the heathlands of Dorset, England, between 1978 and 1987. *Biological Conservation,* Volume 51, pp. 273-286.

Webb, N. & Thomas, J., 1994. Conserving insect habitats in heathland biotopes: a question of scale. In: P. Edwards, R. May & N. Webb, eds. *Large-scale processes and conservation biology.* Oxford: Blackwell Scientific Publications, pp. 129-151.

Webb, N. & Vermaat, A., 1990. Changes in vegetational diversity on remnant heathland fragments. *Biological Conservation,* Volume 53, pp. 253-264.

Woodfield, E. & Langston, R., 2004. *A study of the effects on breeding nightjars of access on foot to heathland,* Peterborough: English Nature.

Woods, M., McDonald, R. & Harris, S., 2003. Predation of wildlife by domestic cats Felis catus in Great Britain. *Mammal Review,* Volume 33, pp. 174-188.

Woods, N., 2002. *Do Dorset heaths have a future? Sixth National Heathland Conference.* Sandy, Bedfordshire, RSPB.

Appendix 1
Review of other relevant plans and projects

County or district level plans providing for development

Breckland Core Strategy (adopted 2009)

Plan Owner/ Competent Authority: Breckland Council

Related HRA/AA: Habitat Regulation Assessment: Habitats Regulation Assessment: Breckland Council Submission Core Strategy and Development Control Policies Document (November 2008) and **Habitat Regulation Assessment Breckland Council Site Specific Policies and Proposals Document Preferred options (May 2010)**

Summary of Plan proposals:

Housing provision: The Core Strategy makes provision for at least 19,100 new houses within the period 2001-2026 (Policy CP 1).

Employment land provision: The Core Strategy (Policy CP 3) supports the delivery of at least 6,000 jobs in the District to 2021 as identified for Breckland in the Regional Spatial Strategy

Conclusions on potential effects of relevance to European sites within scope of HRA of Forest Heath Local Plan

Following on from the initial screening assessment the following potential adverse effects were identified and addressed within the appropriate assessment:

- Direct effects of built development – the HRA recommended that the Core Strategy was amended to ensure that allocations and policies do not promote housing within the 1500m Stone Curlew avoidance zone and housing within that zone will not normally be supported. In exceptional circumstances, such as where existing development completely masks the new proposal from Breckland SPA/supporting habitat, project level HRA must be able to demonstrate that adverse effects upon the Breckland SPA Stone Curlew interest feature will be prevented.
- Indirect disturbance to Annex 1 birds - Reduction in density of Breckland SPA Annex I bird species (Stone Curlew, Nightjar, Woodlark) near to new housing. The HRA recommended that amendments to the Core Strategy were made to include policy wording or supporting text to explain the council is committed to ensuring sustainable levels of recreation in and around the Breckland SPA, and work with partners including Natural England, RSPB and Forestry Commission to develop a strategy that sets out an access management and monitoring programme that provides measures to prevent increasing visitor pressure, and suitable mitigation (should monitoring indicate that the Annex I species are failing to meet conservation objectives due to recreational pressure).
- Increased levels of recreational activity resulting in increased disturbance to Breckland SPA Annex I bird species (Stone Curlew, Nightjar, Woodlark).
- Increased levels of people on and around the heaths, resulting in an increase in urban effects such as increased fire risk, fly-tipping, trampling etc. The HRA recommended amendments to the Core Strategy ensuring the council commits to developing a framework of developer contributions, secured by legal agreement, for any new development where the heaths at Thetford (Barnham Cross Common, Thetford Heath, Thetford Golf Club and Marsh), East Wretham or Brettenham are likely to be used as local greenspace by the new residents of employees. Contributions would be used of implementation of an urban heaths management plan (an individual management plan will be produced for Barnham Cross Common), with the primary purpose of achieving SPA/SAC conservation objectives.
- Increased levels of recreation to the Norfolk Coast (including the Wash), potentially resulting in disturbance to interest features to interest features and other recreational impacts. The HRA suggested supporting text of the Core Strategy should recognise that coastal competent authorities promoting visitor access will need to consider the necessary measures required to meet the requirement of the Habitats Regulations and protect the integrity of the coastal European sites, and the possibility that additional housing within the Breckland District may contribute to that visitor pressure, in-combination with new housing in other districts. The text should therefore commit to working in partnership with neighbouring authorities and other relevant partners to prevent adverse effects when monitoring indicates it could occur.
- Increased water abstraction requirements to meet the additional water supply needs. The HRA suggested that amendments to the Core Strategy should include the requirement for all new developments to install infiltration and attenuation measures to dispose of surface water in accordance with recommended SUDS and any inadequate waste water infrastructure serving new development should be upgraded as required and operational in time to meet the demands of development. Further action was also recommended in order to seek confirmation from the Environment Agency and/or AWS that existing capacity and available headroom in existing sewage systems is adequate to absorb additional discharges from new development, or that upgraded infrastructure is planned and fully committed to within the Core Strategy period.
- Water quality and waste water discharge – The HRA recommended amendments to the housing figures within the Core Strategy so that they are taken forward in three categories i.e. those

Breckland Core Strategy (adopted 2009)

immediately provided for in the plan, those that can only be taken forward with the committed works in place and operational in time to meet the demands of development, and those that cannot be taken forward prior to plan review and the revisit of the HRA. Further action to seek the necessary information from the Environment and/or AWS and the consultants commissioned to produce the Breckland Water Cycle Study to enable housing currently promoted to be taken forward under the three categories.

- Increased levels of traffic generated air pollution affecting sensitive features of SAC habitats. The HRA suggested that the Core Strategy was amended to commit to the prevention of road infrastructure improvements or new roads within 200 m of the SAC.
- Potential reduction in the density of Habitats Directive Annex I bird species associated with the SPA, due to avoidance of areas close to new roads. The amendments to the Core Strategy suggested in the HRA include the commitment to the prevention of road infrastructure improvements or new roads within 1,500 m of Breckland SPA/supporting habitat.

In conclusion, the findings of the appropriate assessment and consideration of potential mitigation measures, the direct effects of buildings and road development, the indirect disturbance to Annex 1 birds, the effects of urbanisation and recreational pressure on the north Norfolk Coast, can all be mitigated for with the application of the avoidance/mitigation measures proposed and no further assessment is required. Also, Breckland District Council confirmed road infrastructure requirements proposed in the Core Strategy for Thetford would be focussed on the A11 only as the 1500m buffer zone would prevent any options for road improvements south and east of the town. Due to the effects of air pollution, road improvements within 200m of the Breckland SAC will also be avoided. In addition, it was concluded that further clarification and housing categorisation is required to determine if the impact of water demand, water treatment and discharge requirements, and ability of sewer systems to withstand flooding would not result in adverse effects upon European sites. It was noted that Breckland District Council would obtain necessary information from the Environment Agency and/or AWS and the consultants commissioned to produce the Breckland Water Cycle Study in order to take forward proposed measures. Any potential adverse effects upon the integrity of European sites have either been avoided or mitigated for.

St Edmundsbury Core Strategy (adopted 2010)

Plan Owner/ Competent Authority: St Edmundsbury Council

Related HRA/AA: St Edmundsbury Core Strategy Habitats Regulations Assessment: Screening September 2010

Summary of Plan proposals:

Housing provision: The Core Strategy makes provision for at least 15,631 new homes within the plan period between 2008 and 2031 (Policy CS1).

Employment land provision: Policy CS9 of the Core Strategy provides for development to support at least 13,000 additional jobs in the borough by 2026.

Conclusions on potential effects of relevance to European sites within scope of HRA of Forest Heath Local Plan

The HRA concluded that four of the fifteen policies in the Core Strategy would lead to development in the long term; Policies CS1 - St Edmundsbury Spatial Strategy, CS9 - Employment and the Local Economy, CS11 - Bury St Edmunds Strategic Growth and CS12 - Haverhill Strategic Growth.

It identified that the Plan seeks to protect international sites through Policy CS2 (also recognised in Policy CS1). Policy CS2 puts in place a 1.5 km buffer zone around Breckland SPA for Stone Curlew and a 400 m buffer zone for Woodlark and Nightjar. It also puts in place a 1.5 km buffer zone around areas outside of the SPA which have supported five or more nesting attempts by Stone Curlew since 1995 and as such act as supporting Stone Curlew habitat. In these areas development may be only take place for the re-use of existing buildings and for development which will be completely masked from the SPA by existing development or provided it is demonstrated by an Appropriate Assessment that the development will not adversely affect the integrity of the SPA.

The HRA also made reference to the lower tier Development Plan Documents (DPDs) that will arise from Policies CS1, CS9, CS11 and CS12 including Bury St Edmunds Area Action Plan (AAP), Haverhill AAP and Site Allocations DPDs (including Rural Allocation Sites and the Gypsy and Travellers sites) which will include specific details about the locations of future growth, including the exact location of allocations sites and their proposed land uses. The Plan commits to an HRA being carried out at the development control stage/lower tier development plan stage for any development arising out of these policies. If it cannot be proven that there will no significant impacts on the international sites and/or it is not possible to mitigate/compensate for these impacts the development will not be included in the lower tier plans

St Edmundsbury Core Strategy (adopted 2010)

and/or be granted planning permission.

The assessment concluded that there will be no likely significant effects due to the proposals for development outlined in Policies CS1, CS9, CS11 and CS12 or from any of the other policies included in the Plan. It also concluded that there is no potential for in combination effects as no other current plans or projects that are likely to lead to significant effects on the Breckland SAC/SPA or the Waveney and Little Ouse Valley Fens SAC have been identified, or where impacts have been identified they have been adequately mitigated.

East Cambridgeshire Local Plan (adopted 2015)

Plan Owner/ Competent Authority: East Cambridgeshire District Council

Related HRA/AA: Habitats Directive Assessment Screening Document - updated (July 2013)

Summary of Plan proposals:

Housing provision: The Local Plan makes provision for an agreed target of 11,500 dwellings for East Cambridgeshire which represents an annual rate of 575 dwellings per year during the period 2011-2031.

Employment land provision: The Local Plan aims to maximise opportunities for jobs growth in the district, with the aim of achieving a minimum of 9,200 additional jobs in East Cambridgeshire. Part of this strategy will involve making provision for a deliverable supply of at least 179 ha of employment land for B1/B2/B8 uses, and providing for home working.

Conclusions on potential effects of relevance to European sites within scope of HRA of Forest Heath Local Plan

The following generic vulnerabilities categories were used to assess the likely effects of the Local Plan:

- Physical Habitat Loss – land take by developments
- Physical Damage – from on-site or off-site activities e.g. change in land management, natural erosion, water abstraction, recreational pressure
- Disturbance – e.g. noise from recreation, industry or transport
- Water Quantity – changes in water quantity due to abstraction
- Contamination / Pollution – water pollution, air pollution, water quality

It was determined that Devil's Dyke is vulnerable to disturbance and contamination/pollution; both Chippenham Fen and Wicken fen are vulnerable to physical habitat loss, physical damage and water quantity; and Ouse Washes and Breckland are both vulnerable to physical habitat loss, physical damage, disturbance and water quantity.

It was concluded that the Local Plan, alone or in combination with other plans and projects, is unlikely to have any significant effects on any of the European sites.

King's Lynn and West Norfolk Core Strategy (adopted 2011)

Plan Owner/ Competent Authority: Borough Council of King's Lynn and West Norfolk

Related HRA/AA: King's Lynn and West Norfolk Borough Council's Core Strategy Regulation 25: Local Development Framework Habitats Regulations (Appropriate Assessment) Report - updated (November 2010)

Summary of Plan proposals:

Housing provision: Policy CS01 of the Core Strategy states the plan will identify sufficient land for a minimum of 16,500 new dwellings across the Borough over the period 2001 to 2026: a minimum of 7,510 new houses through the regeneration of brownfield land and urban expansion in King's Lynn, at least 2,710 new homes with new allocations of at least 390 house in Downham Market, at least 580 new homes with new allocations of at least 220 houses in Hunstanton, considers the provision of at least 550 new houses to the east of the town in the area adjacent to Wisbech and makes provision for at least 2,880 new homes within or adjacent to selected Key Rural Service Centres (to be defined in the Site Specific Allocations DPD) in rural and coastal

King's Lynn and West Norfolk Core Strategy (adopted 2011)

areas.

Employment land provision: Policy CS10 of the Core Strategy aims to facilitate job growth in the local economy, delivering the RSS target of 5,000 additional jobs by 2021 through the provision of employment land as well as policies for tourism, leisure, retail and the rural economy.

Conclusions on potential effects of relevance to European sites within scope of HRA of Forest Heath Local Plan

- Breckland SPA

  Possible Mechanism(s):

  - Direct Impacts – Proximity And Disturbance.

    Affected Policies: CS01 Housing And Jobs, CS02 The Settlement Hierarchy, CS06 Development in Rural Areas and CS09 Housing Distribution

    The HRA suggested the policy is amended to policy take into account disturbance/displacement to Stone Curlews around Breckland SPA, in line with the approach taken by neighbouring local authorities.

    New built development will be restricted within 1500m of the Breckland SPA. Development will be restricted to the re-use of existing buildings or where existing development completely masks the new proposal from Breckland SPA. Beyond the SPA, a 1500m buffer will be applied to areas where the qualifying features are known to exist, or where nesting attempts have been made. In this area, development may be acceptable where suitable alternative habitat (outside the SPA) can be secured.

  - Indirect impacts - recreation (Woodlark and Nightjar).

    Affected policies: CS1 Housing And Jobs, CS2 Settlement Hierarchy, CS06 Development in Rural Areas, C09 Housing Distribution and C10 The Economy

    The HRA suggested the Core Strategy should be amended to stress a partnership approach to recreation management in the SPA.

    It also recommended the inclusion of policy wording or supporting text to explain that the council is committed to ensuring sustainable levels of recreation in and around the Breckland SPA, and work with partners including Natural England, RSPB and Forestry Commission to develop a strategy that sets out an access management and monitoring programme that provides measures to prevent increasing visitor pressure.

    Suitable mitigation to be installed should monitoring indicate that the Annex I species are failing to meet conservation objectives due to recreational pressure.

- North Norfolk Coast SPA/Ramsar;

  Possible Mechanism(s):

  - Recreational disturbance impacts to SPA species, especially Ringed Plover and Little Tern.

    Affected policies: CS01 Housing And Jobs, CS02 The Settlement Hierarchy, CS07 Development in Coastal Areas, CS09 Housing Distribution, CS13 Community & Culture.

    The HRA suggested core strategy document could be modified to stress a partnership approach to recreation management in the SPA. It recommended that supporting text should be added that recognises that coastal competent authorities promoting visitor access will need to consider the necessary measures required to meet the requirements of the Habitats Regulations and protect the integrity of the coastal European sites, and that it is possible that additional housing within the Borough may contribute to that visitor pressure, in combination with new housing in other districts. The text should therefore commit to working in partnership with neighbouring authorities and other relevant partners to prevent adverse effects when monitoring indicates it could occur.

The assessment concluded that the amendments to the Core Strategy satisfactorily address the issues raised, and as a result the above policies will not adversely affect the integrity of the European Sites.

Suffolk Minerals Core Strategy DPD (adopted 2008)

Plan Owner/ Competent Authority: Suffolk County Council	
Related HRA/AA: Suffolk Minerals Core Strategy Appropriate Assessment of Potential Impacts of Minerals Policies on Natura 2000 Sites (September 2007)	

Suffolk Minerals Core Strategy DPD (adopted 2008)

Summary of Plan proposals:

The key objectives identified within the minerals Core Strategy were:

- to ensure, so far as practicable, the prudent, efficient and sustainable use of minerals and recycling of suitable materials, thereby minimising the requirement for new primary extraction;
- to conserve mineral resources through appropriate domestic provision and timing of supply;
- to safeguard mineral resources as far as possible;
- to prevent or minimise production of mineral waste;
- to secure working practices which prevent or reduce as far as possible, impacts on the environment and human health arising from the extraction, processing, management or transportation of minerals;
- to protect internationally and nationally designated areas of landscape value and nature conservation importance from minerals development, other than in the exceptional circumstances detailed in paragraph 14 of this statement;
- to secure adequate and steady supplies of minerals needed by society and the economy within the limits set by the environment, assessed through sustainability appraisal, without irreversible damage;
- to maximise the benefits and minimise the impacts of minerals operations over their full life cycle;
- to promote the sustainable transport of minerals by rail, sea or inland waterways;
- to protect and seek to enhance the overall quality of the environment once extraction has ceased, through high standards of restoration, and to safeguard the long-term potential of land for a wide range of after-uses;
- to secure closer integration of minerals planning policy with national policy on sustainable construction and waste management and other applicable environmental protection legislation; and
- to encourage the use of high quality materials for the purposes for which they are most suitable.

Conclusions on potential effects of relevance to European sites within scope of HRA of Forest Heath Local Plan

The following potential sources of impact to the Natura 2000 sites that may arise from the construction or operation of these types of facility were identified within the assessment:

- Physical disturbance of sites;
- Flooding & water quality, including extraction below the water table;
- Noise from road traffic and operation of the plants;
- Air emissions from road traffic (including dust); and
- Human presence.

The assessment concluded that physical disturbance of Natura 2000 sites for the purposes of mineral extraction would not normally be acceptable. However, given that minerals development is only a temporary use of land, restoration to a very high standard, with net environmental and biodiversity gains, may mean that some development could be acceptable. Any increase in flooding caused by new mineral sites will be unlikely to be acceptable to the Environment Agency. Similarly, a decline in water quality is also likely to be unacceptable, so there should not be any adverse impacts on water-dependent SPAs and SACs in Suffolk. The assessment determined that appropriately mitigated, noise from road traffic, operation of the plants and minerals developments is unlikely to have a material adverse impact on any Natura 2000 sites. Also, disturbance to Natura 2000 sites through human presence on minerals sites is only likely to be a factor where the minerals sites are located in, or very close to, the Natura 2000 site. Policy 3: Cumulative environmental impacts and phasing of mineral workings, Policy DC2: Protection of regionally and locally recognised sites of ecological and geological interest and promotion of biodiversity and protection of priority habitats, Policy DC5: Public rights of way and Policy DC8: Progressive working and restoration would mitigate the adverse impacts of disturbance caused by humans.

In conclusion, the Minerals Core Strategy aims to have a positive impact on biodiversity in the long term through appropriate restoration schemes and beneficial after-uses. For example, the creation of new wetland habitat could go towards meeting the County's Priority Habitat Action Plan targets of at least 445 ha of new reed-bed by 2023 and the creation of new wet woodlands.

Suffolk Local Transport Plan 2011-2031	
Plan Owner/ Competent Authority: Suffolk County Council	
Related HRA/AA: Regulation 61 Assessment for Suffolk Local Transport Plan 3	

Summary of Plan proposals:

The plan includes a the delivery of a number of strategic transport improvements including:

- dualling of the A11 between Barton Mills and Thetford
- the Ipswich major scheme, 'Ipswich- Transport fit for the 21st Century'
- the Beccles rail loop allowing increased frequency of trains between Ipswich and Lowestoft
- the Beccles southern relief road
- the Lowestoft northern spine road to help remove through traffic from the town
- Ipswich rail chord to improve freight connections from Felixstowe
- Copdock A14/A12 junction improvements.

Conclusions on potential effects of relevance to European sites within scope of HRA of Forest Heath Local Plan

The matters of concern for each of the relevant European sites include:

- Breckland SPA – impacts on internationally important populations of Stone-curlew, Woodlark and Nightjar and disturbance of these Annex 1 birds
- Breckland SAC – impacts on habitats of internationally important populations of Stone-curlew, Woodlark and Nightjar and disturbance of these Annex 1 birds

The conclusion of the assessment of the draft LTP3 was that it would have a likely significant effect, alone or in combination with other plans and projects. The only scheme identified as having potential to lead to a significant effect (habitat loss, disturbance and pollution) on a European site was the Brandon relief road LTP3 scheme. In order to remove any likely significant effect on the conservation objectives of Breckland SPA, a project level HRA would be required for the Brandon Relief Road at the design stage. For Natural England to approve such a document, adequate mitigation would need to be sought and compensation agreed in order to reduce or negate any negative impacts. As a result of the HRA, revisions to the LTP3 were made to avoid likely significant effects on any European Sites before it was adopted by SCC. The re-assessment concluded that the direct effect of road improvements and the indirect effect of disturbance to Annex I bird could be mitigated for with the application of the avoidance/mitigation measures proposed (a detailed package of mitigation and monitoring measures to ensure the LTP schemes do not result in impacts on European sites were to be considered at the project level).

Major infrastructure projects[12]

No relevant projects identified.

[12] National Infrastructure Planning website http://infrastructure.planningportal.gov.uk/