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HABITATS REGULATIONS SCREENING ASSESSMENT RECORD

Title of Plan: North Northamptonshire Joint Core Strategy Development Plan Document (DPD)

Location of Plan: North Northamptonshire (Corby, Kettering, Wellingborough and East Northamptonshire local authority areas)

International Nature Conservation Sites: Upper Nene Valley Gravel Pits pSPA, the Nene Washes SPA, and Rutland Water SPA

Description of Plan: The North Northamptonshire Joint Core Strategy Review is intended to provide a strategic spatial planning framework that guides future land use planning and promotes sustainable development in the period to 2031.

Date Recorded: November 2010

This is a record of the Habitats Regulations Screening Assessment, required by Regulation 102 of the Conservation of Habitats and Species Regulations 2010, undertaken by Northamptonshire County Council, on behalf of North Northamptonshire Joint Planning Unit, in respect of the above Core Strategy Review in accordance with the Habitats Directive (Council Directive 92/43/EEC).

Screening was undertaken to investigate whether the proposals would be likely to have a significant effect (either alone or in combination with other plans or projects), having considered that the plan was not directly connected with, or necessary to, the management of the sites.

Natural England was consulted in August 2010 under Regulation 102(2); the conclusions of the screening assessment are in accordance with the advice and recommendations of Natural England.

Upper Nene Valley Gravel Pits pSPA

The sites conservation objectives have been taken into account including consideration of the citation for the site and information supplied by Natural England. The likely significant effects of the proposals on the international nature conservation interests for which the site was designated may be summarised as:

- Changes in water quality related to increased levels of sewerage outfall (increased phosphate loading) and diffuse pollution sources.
- Indirect disturbance and environmental nuisance (air quality, noise, lighting, visitor pressure) leading to a decrease in key species populations over time.

Nene Washes SPA

The sites conservation objectives have been taken into account including consideration of the citation for the site and information supplied by Natural England. The likely significant effects of the proposal on the international nature conservation interests for which the site was designated include changes in water quality related to increased levels of sewerage outfall (increased phosphate loading).

Conclusion of the screening report

The screening assessment has concluded that there is a likely significant effect on the designated sites and therefore an Appropriate Assessment (AA) of the preferred spatial strategy and associated policies is required.

Signed: Date: November 2010
Figure 1: Map of North Northamptonshire showing the Upper Nene Valley Gravel Pits pSPA and Nene Washes SPA (OS Licence 100019331)
1. HABITATS REGULATIONS ASSESSMENT AND THE PLANNING SYSTEM

1.1. A Habitats Regulations Assessment (HRA) is required under Regulation 102 of the Conservation of Habitats and Species Regulations 2010 and the European Directive 92/43/EEC on the ‘conservation of natural habitats and wild fauna and flora’ for land use plans that are likely to have a significant effect on a European site (Natura 20001).

1.2. Of particular importance to North Northamptonshire are the Upper Nene Valley Gravel Pits, located along the River Nene which are designated as a Site of Special Scientific Interest (SSSI), and have been put forward as a potential Special Protection Area (pSPA). In addition the eastern parts of the Nene Washes that are designated as a Special Protection Area (SPA), Special Area of Conservation (SAC) and Ramsar2 are more distant but considered because they are located east of Peterborough directly downstream from the plan area for North Northamptonshire, SAC and Ramsar. Rutland Water (SPA and Ramsar) is located to the north of the area but is not felt to be of relevance in terms of potential impacts in this instance and has therefore not been considered.

North Northamptonshire Local Development Framework

1.3. The North Northamptonshire Local Development Framework (LDF), and its components, form part of the Development Plan for North Northamptonshire (the area covered by Corby, Kettering, Wellingborough and East Northamptonshire local authorities). The Development Plan forms the basis for decisions about the use and development of land in the area. The North Northamptonshire LDF will consist of a portfolio of individual Local Development Documents (LDD) that are intended to provide a strategic spatial planning framework that guides future land-use planning and promotes sustainable development and sound planning.

1.4. The local authorities for the North Northamptonshire area, including the County Council, work through a Joint Planning Committee, supported by the North Northamptonshire Joint Planning Unit (NNJPU). The NNJPU developed the overall town planning strategy for North Northamptonshire, called the Core Spatial Strategy (the ‘plan’). The Core Spatial Strategy sets out the spatial vision, objectives and policies for managing development across North Northamptonshire. The individual Councils are responsible for preparing other more detailed plans for parts of their areas.

1.5. The LDD of relevance to this HRA Screening Report is the Core Spatial Strategy Development Plan Document (DPD). The Core Spatial Strategy was adopted in June 2008 and it is the review of this document that is the subject of this screening report. This Screening Report has been prepared alongside the development of the broad options for the review and is intended to inform the planning decision making process.

Habitats Regulations Assessment methodology


1.7. Other relevant guidance used during the assessment included:
- Habitats regulations guidance notes, English Nature,
- Planning Policy Statement 9 – Biodiversity and geological conservation (2005),
- Circular 06 / 05 – Biodiversity and geological conservation,
- The Appropriate Assessment of Spatial Plans in England: A guide to why, when and how to do it, Royal Society for the Protection of Birds (RSPB) (2007), and

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1 European sites, or Natura 2000 sites, include Special Areas of Conservation (SACs) designated for species and habitats and Special Protected Areas (SPAs) designated for birds. On land these are usually part of existing Sites of Special Scientific Interest (SSSIs).
2 The Nene Washes are also designated as a SSSI and Special Area for Conservation (SAC).
1.8. There are four main stages in producing a HRA of a plan:

- **Stage 1: Screening for likely significant effects.** The ‘screening’ stage will investigate the likely effects of the plan, either alone or in-combination with other projects or plans, upon the identified Natura 2000 sites. Assessment of the plan at this stage has been based on the broad spatial development options, which does not include specific policy wording. This stage will consider whether the land use plan is likely to have a significant effect on the European sites. There are three main steps in the screening assessment:
  
  i. Determining whether the plan is directly connected with, or necessary to, the management of the site,
  
  ii. Determining whether or not the plan is likely to have a significant effect (either alone or in-combination with other plans or projects),
  
  iii. Identifying and assessing the likely significant effects.

- **Stage 2: Appropriate Assessment and ascertaining the effect on site integrity.**

- **Stage 3: Assessment of alternative solutions.**

- **Stage 4: Assessment where adverse impacts remain (where there are reasons of overriding public interest).**

1.9. It is important to note that specific mitigation measures designed to avoid or reduce likely significant impacts of the plan on the European sites have not been identified at this stage. As such this screening assessment has been carried out in the absence of consideration of mitigation measures.


2. NATURA 2000 SITES

Upper Nene Valley Gravel Pits pSPA

2.1. The Upper Nene Valley Gravel Pits form a chain of both active and previously extracted sand and gravel pits. These extend for approximately 35 kilometres (km) along the alluvial deposits of the River Nene floodplain from Clifford Hill on the southern outskirts of Northampton, downstream to Thorpe Waterville near Thrapston. Collectively, the Gravel Pits occupy an area of 1,369.88 hectares (ha) within Northamptonshire (Figure 1).

Potential SPA designation

2.2. The formal Conservation Objectives for the Upper Nene Valley Gravel Pits pSPA under the Habitats Regulations are in accordance with paragraph 17 of Circular 06 / 2005, the reasons for which the European Site was classified or designated. The site qualifies under article 4.1 of the Directive (79 / 409 / EEC) as it is regularly used by 1% or more of Great Britain’s populations of Bittern Botaurus stellaris and Golden Plover Pluvialis apricaria in any season.

2.3. The site qualifies under article 4.2 of the Directive (79 / 409 / EEC) as it is regularly used by 1% or more of the biogeographic populations of Gadwall Anas strepera (a regularly occurring migratory species) in any season.

2.4. The site also qualifies under article 4.2 of the Directive (79 / 409 / EEC) as it is regularly used by over 20,000 waterbirds (as defined by the Ramsar Convention) in any season. In the non-breeding seasons the area regularly supports 23,821 individual waterbirds (five year peak mean 1999 / 2000 – 2003 / 2004), including Wigeon Anas penelope, Gadwall, Mallard Anas platyrhynchos, Shoveler Anas clypeata, Pochard Aythya ferina, Tufted Duck Aythya fuligula, Great Crested Grebe Podiceps cristatus, Cormorant Phalacrocorax carbo, Bittern, Golden Plover, Lapwing Vanellus vanellus and Coot Fulica atra.

2.5. Non-qualifying interests include the use of the pSPA by breeding Common Tern Sterna hirundo and Kingfisher Alcedo atthis (both species listed in Annex I to the EC Birds Directive) in numbers of less than European importance.

Potential Ramsar designation

2.6. In addition the sites are also identified as a potential Ramsar (pRamsar) Wetland of International Importance. The sites qualify under Criterion 5 and 6 as they regularly support 20,000 or more waterbirds, and regularly support 1% of the individuals in the populations of both Mute Swan Cygnus olor and Gadwall in any season.

SSSI designation

2.7. All SPA’s are also notified as SSSI’s, being sites that are of specific biological or geological features. The conservation objectives for the SSSI are accompanied by one or more habitat extent and quality definitions for the special interest features at this site. Habitat extent and quantity definitions for the interest features within the SSSI have yet to be developed. For those interest features that are relevant to the pSPA the definitions of favourable condition are likely to include:

- Maintain extent of habitats present at notification, and
- Maintain populations of key wintering species at, or above, five year average populations present at notification (Table 1).
## Table 1: Populations of key wintering species (five year average)

<table>
<thead>
<tr>
<th>SPA feature</th>
<th>Five year average population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bittern</td>
<td>2</td>
</tr>
<tr>
<td>Golden plover</td>
<td>5,790</td>
</tr>
<tr>
<td>Gadwall</td>
<td>773</td>
</tr>
<tr>
<td>Outstanding assemblage of wintering birds (&gt;20,000 birds)</td>
<td>23,821</td>
</tr>
</tbody>
</table>

The following species are present in nationally important numbers and therefore form a key part of the SPA wintering assemblage. Their populations should also be maintained at, or above, five year average populations present at notification:

- Coot: 2,323
- Cormorant: 285
- Great crested grebe: 288
- Mute swan: 629
- Pochard: 625
- Shoveler: 178
- Tufted duck: 1,187
- Wigeon: 5,001

**Conservation objectives**

2.8. The conservation objectives of the Upper Nene Valley Gravel Pits pSPA (being the above noted reasons for which the European Site was classified or designated) and the definitions of the favourable condition for features on the SSSI will be used for the purpose of informing the scope and nature of this assessment under the Habitats Regulations. The objectives are summarised below:

- Maintain populations of key wintering waterbird species at, or above, five year average populations present at notification (Table 1) (including the largest nesting colony of Grey Herons *Ardea cinerea* in Northamptonshire), and
- Maintain assemblages of over 20,000 waterbirds in any season.

2.9. A brief outline of species requirements for the Bittern, Golden Plover, and Gadwall are set out in Appendix 2.

**Environmental features**

2.10. The Upper Nene Valley Gravel Pits form an extensive series of shallow and deep open waters which occur in association with a wide range of marginal features, such as sparsely-vegetated islands, gravel bars and shorelines, and habitats including reedswamp, marsh, wet ditches, rush pasture, rough grassland and scattered scrub. This range of habitat and the varied topography of the lagoons provide valuable nesting, resting and feeding conditions to sustain nationally important numbers and assemblages of breeding and wintering birds especially ducks and waders. Species such as the Golden Plover and Lapwing also spend time feeding and roosting on surrounding agricultural land outside of the pSPA.

2.11. The extensive open waters of the Upper Nene Valley Gravel Pits collectively form one of the most important inland localities in England for waterbirds in the non-breeding season. The lagoons associated with the six pit complexes at Thrapsoton, Ringstead, Stanwick, Ditchford, Earls Barton and Clifford Hill are all particularly significant as waterfowl refuges together regularly supporting peak numbers of birds in excess of 20,000 individuals, comprising more than forty species. As well as the waterbird species listed below (which individually occur in nationally important numbers) this assemblage regularly includes large numbers (greater than 2,000 individuals) of Mallard and Lapwing. Eleven species of waterbird regularly winter here in nationally important numbers: Mute Swan, Wigeon, Shoveler, Tufted Duck, Pochard, Great Crested Grebe, Cormorant, Bittern, Coot and Golden Plover.
2.12. The Upper Nene Valley Gravel Pits are considered to be of exceptional significance for the variety and quality of breeding birds associated with their open water and marginal habitats. The pit complexes at Earls Barton, Stanwick and Ditchford are of particular importance for this assemblage, although many of the species occur throughout the SSSI. At least 21 species comprise a regular breeding assemblage which includes Mute Swan, Gadwall, Shoveler, Pochard, Tufted Duck, Little Grebe Tachybaptus ruficollis, Great Crested Grebe and wading birds such as Redshank Tringa totanus, which have suffered a steady population decline across the region. Exposed shoreline margins, banks and sparsely-vegetated gravel islands within the lagoons provide nesting sites for Little Ringed Plover Charadrius dubius, Ringed Plover hiatricula, Kingfisher, and colonies of Common Tern, including the largest two colonies in the county at Earls Barton and Stanwick. Breeding Reed Warbler Acrocephalus scirpaceus, Sedge Warbler Schoenobaenus and the rare Cetti’s Warbler Cettia cetti, along with water rail Rallus aquaticus, Cuckoo Cuculus canorus, Yellow Wagtail Motacilla flava, Grey Wagtail Limosa Hoaticula and Reed Bunting Emberiza schoenicius, are associated with damp grassland, scattered scrub and stands of marginal vegetation at the lagoon edges. This assemblage also includes the largest breeding colony of Grey Herons in the county at a former duck decoy at Titchmarsh within the Thrapston gravel pit complex. These tree-nesting birds utilise woodland around the disused decoy pond which consists of several different species of trees and shrubs including Silver Birch Betula pendula, Crack Willow Salix fragilis, Scots Pine Pinus sylvestris and Alder Alnus glutinosa.

2.13. Stands of wet floodplain woodland occur on past gravel workings and include those at Earls Barton which form the largest example of this now scarce woodland type in the county. Mature stands are largely dominated by White Willow Salix alba with Crack Willow fragilis and occasionally Ash Fraxinus excelsior, Osier viminalis and Grey Willow Cinere a dominate a dense and varied shrub layer amongst an abundance of fallen decaying timber, occurring with others such as Almond Willow Triandra, Hawthorn Crataegus monogyna, Buckthorn Rhamnus carthaticus and Blackthorn Prunus spinosa. The field layer of this woodland is generally species-poor but characteristic of these seasonally inundated stands, with frequent common Nettle Urtica dioica, Skullcap Scutellaria galericulata, Cleavers Galium aparine, Marsh Bedstraw Galium palustre, Rough Meadow-Grass Poa trivialis and fen species such as Lesser Pond Sedge Carex acutiformis and Reed Canary-grass Phalaris arundinacea. More open areas of carr are dominated by young stands of willow scrub and reedswamp which fringe a number of open ponds and pools.

Vulnerabilities

2.14. The site is very reliant on the management of water levels in the main water bodies, and maintaining optimal water depths throughout the year is essential for the continued viability of the SSSI and therefore the pSPA. Depending on the species water depths that are either too great, or too shallow, can have an impact on the conservation value. In the management of these areas it is also important to ensure wave action is limited as this can affect edge species, particularly through control of recreational use. It is also likely that this area is dependant on the maintenance of good water quality, as this may impact on retaining suitable habitats. Water abstraction, and diffuse & point-source emissions into the river may cause a potential effect.

Current condition

2.15. When the specific biological or geological features for which a SSSI was notified are being managed in a way which maintains the nature conservation values the site is said to be in ‘favourable condition’. The site is currently assessed as being in ‘favourable condition’.

Water quality and availability

2.16. The River Nene and its catchment are affected by a number of factors that impact on water quality. Principal discharges into the river include treated effluent from sewage works and industrial sources, as well as agricultural and urban run-off which may have a major influence on water quality due to the potential for nutrient enrichment, mobilisation of contaminants (organic and in-organic chemicals) into the water-body and sedimentation.

2.17. Water quality monitoring is regularly undertaken by the Environmental Agency at six sample sites located close to the pSPA.
2.18. The River Nene was identified as a Sensitive Eutrophic Area in May 1994, due to nutrient loading from sewage and agriculture run off. Monitoring results showed elevated levels of both nitrogen and phosphate (nitrogen - moderate to very high i.e. 30 mg NO3 / l or above; and phosphate - high to very high i.e. 0.2 to 1.0 mgP / l or above).

2.19. Monitoring undertaken between 2003 and 2008 has shown the water quality of the river to be compliant with the national River Quality Objectives (RQOs). Both chemical and biological water quality monitoring was undertaken. The results showed the water to be of good to very good chemical quality, indicating that the sample sites were of a quality reflecting natural or close to natural ecosystems. This is supported by the biological results which had an average of ‘good quality’, indicating biological health a little short of an unpolluted river. This is despite a pollution incident early in 2003, which left the biological water quality at Cogenhoe and surrounding areas in poor condition. Surveys at the end of 2003 found there had been an improvement with only a few invertebrate species that would have been expected still missing; the sites went on to meet the national RQOs by the end of 2005. Overall the River Nene was deemed compliant with river quality targets.

2.20. Abstraction of groundwater or surface water is undertaken for use in agriculture, industry, domestic water supplies and tourism. Abstraction from aquifers has resulted in falling groundwater levels at a regional level in recent years. Many wetlands have close associations with groundwater, excessive abstraction or sudden fluctuations in levels which can have adverse impacts on the health of wetland ecosystems. Increased density requires additional water resources which will further serve to increase pressure on the availability of water resources and habitat areas.

Nene Washes SPA, SAC, and Ramsar site

2.21. The Nene Washes SPA, SAC, and Ramsar forms an extensive area of seasonally flooding wet grassland ('washland') lying along the River Nene. The Nene Washes extend over 20 km from Fengate on the outskirts of Peterborough (south-east) to Guyhirn in the east and occupies an area of 1,509.77 ha within Cambridgeshire (Figure 1). This site is located over 10 km to the east of the North Northamptonshire boundary.

2.22. Development associated with the plan may potentially act in-combination with growth at Peterborough. Any potential impacts are likely to be indirect (e.g. impacts on water resource from increased abstraction, incidences of flooding, and phosphate loading from sewage outfall). However, the possibility of any potential impacts should be addressed.

SPA designation

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

- During the breeding season - Ruff *Philomachus pugnax* (one individual representing at least 9.1% of the breeding population in Great Britain as at 1993), and Spotted Crake *Porzana porzana* (5 individuals representing at least 10.0% of the breeding population in Great Britain).
- Over winter - Bewick’s Swan *Cygnus columbianus bewickii* (1,718 individuals representing at least 24.5% of the wintering population in Great Britain (5 year peak mean 1991 / 2 - 1995 / 6)), and Ruff *Philomachus pugnax* (91 individuals representing at least 13.0% of the wintering population in Great Britain (5 year peak mean 1991 / 2 - 1995 / 6)).

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

- During the breeding season - Black-tailed Godwit *Limosa limosa* (16 pairs representing <0.1% of the breeding Western Europe / Western Africa population as at 1992).
- Over winter - Pintail *Anas acuta* (1,435 individuals representing at least 2.4% of the wintering North-western Europe population (5 year peak mean 1991 / 2 - 1995 / 6)), and Shoveler *Anas clypeata*, 413 individuals representing at least 1.0% of the wintering North-western / Central Europe population.
2.25. The area qualifies under Article 4.2 of the Directive (79 / 409 / EEC) by regularly supporting at least 20,000 waterfowl. Over winter, the area regularly supports 25,437 individual waterfowl (5 year peak mean 1991 / 2 - 1995 / 6) including: Black-tailed Godwit Limosa limosa islandica, Lapwing, Pochard, Teal Anas crecca, Gadwall, Wigeon, Shoveler, Pintail, Ruff Philomachus pugnax, and Bewick’s Swan Cygnus columbianus bewickii.

SAC designation

2.26. The area designated is Moreton’s Leam, a large drainage channel running along the eastern flank of the Nene Washes. This area contains the highest recorded density of Spined Loach Cobitis taenia in the UK and is one of only four known outstanding locations for this species in the UK.

Ramsar designation

2.27. The site qualifies under Criterion 2a by supporting a number of rare species of plants and animals including fringed Water Lily Nymphoides peltata, Hair-Like Pond Weed Potamogeton trichoides and Marsh Dock Rumex palustris and by supporting an important assemblage of rare breeding birds (listed in section 2.24 above) associated with seasonally flooding wet grassland.

2.28. The site also qualifies under Criterion 3c by supporting, in winter, an internationally important wintering population of Bewick’s Swan.

Relationship between site designations

2.29. The SSSI area comprises both the SPA and the SAC. The SPA boundary excludes the Morton’s Leam, which is the SAC feature. The Ramsar site boundaries are coincident with the SSSI boundary i.e. including both the SPA and the SAC.

Environmental features

2.30. The Nene Washes are located in eastern England on one of the major tributary rivers of The Wash SPA. It is an extensive area of seasonally flooding wet grassland ('washland') lying along the River Nene. The cycle of winter storage of floodwaters from the river and traditional summer grazing by cattle have given rise to a mosaic of rough grassland and wet pasture, with a diverse ditch flora. Areas of arable cropping provide some winter feeding areas for wildfowl. In summer, it is of importance for breeding waders, as well as Spotted Crake Porzana porzana, whilst in winter the site holds large numbers of waders and wildfowl. During severe winter weather elsewhere the site attracts waterbirds from other areas due to its relatively mild climate (compared with continental Europe) and abundant food resources. Likewise, the site can act as a refuge for wildfowl displaced by deep flooding of the nearby Ouse Washes SPA. In winter, some wildfowl, especially Bewick’s Swan, feed in surrounding areas of agricultural land outside the SPA.

Vulnerabilities

2.31. The continued international importance of this site is dependant on the maintenance of a winter flooding regime and a high but controlled summer water table. This is controlled by a water level management regime, administered by the Nene Washes Management Strategy Group. The SAC features of the site are dependent of flood water from the Nene in winter. Issues of concern relative to water quality amongst other matters. During the summer flows in the River Nene are occasionally maintained through treated sewage effluent, with raised levels of phosphate in particular. Therefore all sewage outflow into the River Nene needs to be controlled for phosphate release.

2.32. In addition, wildfowling occurs on all sections of the Washes but is not considered to cause significant disturbance at current levels. Any proposals for increased wildfowling will be regulated through the Habitat Regulations.

Current condition

2.33. The site is currently assessed as being in ‘favourable condition’.
Rutland Water SPA and Ramsar site

2.34. Rutland Water SPA and Ramsar site lies just over 6 km from the northern boundary of the area covered by this screening report. It was felt that the designated site is far enough removed from the issues dealt with by the Core Strategy not to be affected by it. The two most likely impacts on the site were considered to be from increased disturbance from visitor pressure and impacts on water quality / quantity. Both were felt to be unlikely in this instance given its location in a different drainage catchment and the existence of water company water resource strategies to deal with the supply of water over the plan period.
3. THE JOINT CORE STRATEGY

3.1. North Northamptonshire has been identified within a key growth area. The growth agenda for North Northamptonshire indicates that the area should accommodate 52,100 new dwellings between 2001 and 2021, with 34,100 to be incorporated at the neighbouring growth towns of Corby, Kettering, and Wellingborough. The provision for the 2021 – 2031 period is yet to be agreed or apportioned and will be addressed through the plan review. The requirement for new jobs has also been identified in order to support the population growth; estimated at 47,400 new jobs over the period up to 2021.

The plan objectives

3.2. The plan objectives set out what the document aims to achieve in spatial planning terms and refines the context for development options. The plan’s core policies will set out how the objectives will be delivered.

3.3. The review of the plan is unlikely to result in the objectives being changed markedly from those in the adopted plan. It is expected that the objectives will be made clearer, more measurable, and address climate change at a more detailed level. No draft wording was available for the objectives at the time this report was written. The current adopted objectives are set out below.

Objective one - Green living

3.4. Ensure that development in North Northamptonshire becomes a benchmark for ‘green living’ and makes it easy for people to live in an environmentally friendly way through using the highest standards of design (including energy efficiency / renewable energy, sustainable construction methods and green technologies), promoting green industries and ensuring sustainable transport choice. This will maximise environmental performance and community safety and encourage healthy lifestyles.

Objective two - Environment

3.5. Enhance and manage the built and natural resources of North Northamptonshire in a sustainable and integrated manner and in the context of major growth and the challenges of climate change. To bring about a step change in biodiversity management and a net gain in Green Infrastructure; retaining and enhancing landscape and townscape character and distinctiveness, through the opportunities afforded by development and investment.

Objective three - Network of settlements

3.6. Create a sustainable urban-focused development framework based on maintaining distinctive and separate settlements and on optimising the use of the existing structure of a north-south urban core with a spine of rural service centres in the east. Ensure the scale and location of growth is shaped by the role and character of settlements in this network, supporting greater self-sufficiency for the area as a whole.

Objective four - Town centre focus

3.7. Ensure that services and facilities, including cultural provision, are located in town centres and other areas of focus in North Northamptonshire, and that opportunities to maximise and enhance the provision of leisure, retail and cultural facilities are taken, making these places more self-sufficient and real hearts for their communities.

Objective five - Connectivity and modal shift

3.8. Increase transport choice to enable modal shift and enhance North Northamptonshire’s national, regional, sub-regional and local connections through improvements to public transport and road corridors to meet the future role expected of them, and support the development of a strong network of settlements.
Objective six - Infrastructure and services

3.9. Secure provision of the infrastructure, services and facilities needed to sustain and enhance existing communities and support the development of North Northamptonshire, including establishing the priorities for future public and private investment and collaboration, to build confidence in North Northamptonshire for investors and others.

Objective seven - Economy

3.10. Build a more diverse, dynamic and self reliant economy, which is not overly dependent on in or out commuting to make it reach its potential, through providing the workplaces, jobs, skills and sites to bring this about.

Objective eight - Quality of life

3.11. Strengthen the quality of life throughout North Northamptonshire by supporting initiatives that build stable, safe, healthy and strong communities; respecting cultural diversity and distinctiveness; planning new development to help reduce crime, anti-social behaviour and the fear of crime; promoting well-being and health; ensuring that development is of local character; and supporting area based renewal.

Objective nine - Regeneration

3.12. Ensure the regeneration of Corby and the other areas of North Northamptonshire that need it, through maximising the use of brownfield land for new development, providing the necessary supporting infrastructure and inspiring community confidence in the need for positive change. To build on the distinctive features and assets of each settlement to support and facilitate this, including the promotion of art in the public realm.

Objective ten - Housing needs

3.13. Deliver the quantity and mix of housing to meet identified needs in North Northamptonshire, ensuring that a sufficient proportion is affordable and accessible to all. Maximise the use and regeneration of brownfield land in meeting these targets, and through using high quality design that makes best use of land without compromising the quality of the local environment.
Emerging spatial planning options

3.14. The emerging spatial planning options are set out below. These options were developed with stakeholders through a series of place shaping workshops held in March 2010. These options workshops were based on an assumption of continuing / additional growth beyond that already planned for 2021. The revocation of the Regional Spatial Strategy has now rendered some of the options devised open to further debate. It should be noted that given the early stages of the plan-making process, draft objectives and policy wording were not available at the time of writing this screening report. However, there is sufficient detail in order to assess potential impacts in terms of the broad directions of possible growth.
Option one – Core Strategy plus

3.15. Option one largely reflects the current strategy but places a greater role on Rushden and provides more detail for the rural areas and small towns. This implies a relatively even split of development between Corby, Kettering and Wellingborough / Rushden, with Kettering remaining as the potential sub regional retail centre and Corby and Wellingborough also having continued retail growth and redevelopment. The Sustainable Urban Extensions (SUEs) west of Corby and East of Wellingborough would be expanded and development could also be focused north of Kettering and south west and east of Rushden.

Figure 2b: Option one – Core Strategy plus
Option two – Twin poles: Where the forest meets the river

3.16. Option two plans for continued housing and employment growth in the northern functional area (Corby / Kettering) and refocused growth with an employment emphasis in the southern functional area (Wellingborough / Rushden) to decrease out commuting to Northampton. New ‘hubs’ created at Irchester Halt and north of Kettering (new Parkway stations with associated employment and higher order facilities) and improved inter-urban public transport systems between these and the main towns / small towns. Directions of growth would be similar to Option one with a 55% and 45% split of housing growth between north and south respectively.

Figure 2c: Option two – Twin poles: Where the forest meets the river
Option three - Northern Focus

3.17. Option three places more emphasis on the northern functional area and accepting that the southern area will become more dependent on Northampton. This would mean putting at least 60% of the housing growth in Corby / Kettering and focusing all higher order facilities and retail growth in the two towns. A rapid transit system would be necessary to link towns along the north-south corridor and pull some of the commuting / retail spend from the south into the north, instead of to Northampton. The red lines on the map are indicative lines of possible new transport links and enhancements. As they are only indicative, more detailed transport options will need to be assessed individually for their possible impact. At present they merely show strategic links rather than physical infrastructure. Wellingborough would extend its currently committed 2021 growth to 2031 and Rushden would take further growth. The south would effectively become more of a dormitory area for Northampton but with better links northwards.

Figure 2d: Option three – Northern focus

Key:
- Existing urban areas
- Sustainable urban extensions
- Directions for future growth
- Transport hub
- Strategic links
- River
- Regeneration areas
- Windfarm
- Road network
- Employment area
- Green infrastructure
- Rail network
Option four – External links

3.18. Option four focuses on supporting Northampton’s role and on growth in the north-south corridor covering Corby / Kettering / Wellingborough. This would be based around much improved transport links between the three towns and Northampton. This option is split into two sub-options: (a) linked by tracks which focuses on rail or LRT (Light Rapid Transport); and (b) linked by road which focuses on road-based public transport. This option would see directions of growth favouring the transport system alignment and effectively growing around new hubs along this corridor. Due to Northampton’s better performance in job delivery, and the support of its role as the county town, it is likely that the housing / jobs balance would be less favourable and commuting would increase.

Key:

- Existing urban areas
- Directions for future growth
- Green infrastructure
- Road network
- Sustainable urban extensions
- Strategic links
- River
- Rail network

Figure 2e: Option four – External links (rail)
Figure 2f: Option four – External links (road)
Constants in all options

3.19. All of the above options would involve the following factors:

- Depend on much improved connectivity and transport choice between towns in the Urban Core and with Northampton. (Additionally, the adopted Core Strategy supports improvements for the A45 (Wellingborough-Thrapston) and A605 (continuing from the A45 up towards Peterborough from Thrapston)).
- Have promotion and enhancement of green infrastructure as a constant underpinning feature, which has the potential to shape the area.
- Entail proper consideration of the role of the rural area, in both development and land management terms.
- Give a greater role to Rushden.
4. RELATIONSHIP BETWEEN THE PLAN AND NATURA 2000 SITES

Screening assessment

4.1. The relationship between the plan and both European (Natura 2000) sites and potential impacts from implementation of the plan options are outlined below in the screening assessment. The criterion for assessment includes:

- Identification of the individual elements of the plan (either alone or in combination with other plans or projects) likely to give rise to impacts on the European sites, and a description of the likely impact (direct, indirect or secondary). This should set out the:
  - Plan area, implementation period, and land-take (e.g. allocated sites),
  - Physical changes that are likely to result from implementation of the plan,
  - Distance from Natura 2000 site or key features of the site, and
  - Requirements of the plan such as resource requirements (e.g. water), and infrastructure & development requirements (e.g. transport), as well as outputs such as emissions and waste (disposal to land, water, and air).

- Potential impacts resulting from the plans objectives and spatial options.

- Likely changes to the European sites arising as a result of:
  - Reduction of habitat area,
  - Disturbance to key species,
  - Habitat or species fragmentation,
  - Reduction in species density,
  - Changes in key indicators of conservation value (e.g. water quality, etc), and
  - Climate change.

- Potential likely impacts on the European sites as a whole in terms of interference with the key relationships that define the structure and function of the site.

- Identification of indicators of significance as a result of likely effects in terms of loss, fragmentation, disruption, disturbance, and change to key elements of the site (e.g. water quality, etc).

- Identification of the individual plan elements, or combinations thereof, where the impacts are likely to be significant, or the scale / magnitude are not known.

Individual elements of the plan likely to impact on the European sites

Plan area and implementation period

4.2. The Joint Core Strategy covers the areas of North Northamptonshire (Corby, Kettering, Wellingborough and East Northamptonshire local authority areas). The plan period is from 2011 to 2031.

Land-take

4.3. The plan will not specifically allocate land, however it will identify broad areas to accommodate growth for the purpose of delivering development. Dependent on the direction taken the plan may in due course allocate specific strategic locations. Should this be the case then further screening of these options will be required. Over the plan period there will be a requirement for sufficient land to accommodate at least the provision of the residual 18,000 new dwellings identified in the adopted Core Strategy (but not yet committed), the residual 40,000 jobs and the associated infrastructure and transport provision. Clarification of the quantum of further development will however be required as a result of the revocation of the Regional Plan.

4.4. The areas identified through broad options are not accurately delineated and so an estimated land-take cannot be provided at this stage.

4.5. No development is proposed within the designated areas.
Physical changes likely to result from implementation of the plan

4.6. Physical changes resulting to implementation of the plan are associated with future development of the SUEs identified for North Northamptonshire. This will result in intensification and expansion of existing urban areas to accommodate growth for example, housing, commercial & industrial businesses (providing goods and services to communities), and supporting infrastructure. This development will be of a high quality and will include sustainable development and design features. In addition the plan seeks the enhancement of the green infrastructure network.

Distance from European sites or key features of the site

4.7. The emerging spatial options all include some form of growth at the following locations:
- Wellingborough (north and east) located directly to the north and west of the pSPA,
- Rushden (east and west) located directly to the south of the pSPA,
- Kettering located, at the closest point, 9 km to the west of the pSPA, and
- Corby located, at the closest point, 12.5 km to the west of the pSPA.

4.8. The Nene Washes SPA is located over 25 km east of the nearest SUE (east of Corby).

Resource requirements

4.9. The plan is intended to guide development within North Northamptonshire including residential, commercial, and industrial development as well as the development of public / community facilities. This will require significant natural resources to delivery growth and support communities including energy, water, aggregates & other primary construction materials, and land.

4.10. Policies within the plan will seek the prudent use of natural resources as well as the integration of sustainable design & technologies, and waste management in order to minimise consumption and waste.

Infrastructure & development requirements

4.11. All of the options will require significant infrastructure and development to support growth (e.g. transport (road & rail), electrical transmission lines & stations, renewable energy generation facilities (e.g. wind farms), gas & water mains, mineral extraction sites, and community health & education facilities (hospitals, schools, etc)) and ensure that potential environmental impacts are minimised (e.g. sewage & waste water treatment plant, waste management facilities).

Outputs

4.12. Potential emissions to air relating to development include dust, vehicle emissions from transport, greenhouse gas emissions from energy generation to supply development (residential, commercial, industrial, etc), and emissions from (light) industrial processes.

4.13. Policies within the plan will seek the integration of sustainable design & technologies in order to reduce greenhouse gas emissions from growth and the ongoing use of development related to the Core Strategy.

4.14. Releases to water should be restricted (for most forms of developments) to disposal or release to sewerage systems with (minimum) primary treatment prior to release to waterways. Policies within the plan include the requirements for the use of Sustainable Drainage Systems (SuDS).

Potential impacts resulting from the plans objectives

4.15. No potential impacts were identified from the adopted plans objectives on the sites. The objectives do not specifically allocate or direct development towards the pSPA. In undertaking the review of the plan, any amendment of objectives regarding development of urban areas / settlements should avoid specifically allocating land for development which may (due to location, nature, or scale) impact on the pSPA. Objectives regarding green living and the environment could be amended to reinforce conservation or protection of environmental resources.
Potential impacts resulting from the spatial options

**Option one – Core Strategy plus**

4.16. Growth in this option would be focussed on the broad areas: west of Corby, north of Kettering, east of Wellingborough, and to the south-east or south-west of Rushden. This is on top of the existing earmarked urban extensions at Priors Hall, Corby, Kettering East, Wellingborough East and Upper Redhill, Wellingborough.

4.17. The identification of areas to accommodate sustainable urban extensions associated with this spatial option is unlikely to result in direct land-take; however the extension may remove land from use for birds (e.g. feeding or roosting areas) or result in increased fragmentation of habitat areas. Other urban land-use impacts that may affect the pSPA include light pollution, increased ambient noise, and pollution (from surrounding land-uses). Development within flood zones may also increase flood risk, causing disruption to the water balance.

4.18. This scale of development, and the resulting increases in population, will require the provision of sufficient resources and infrastructure. Specific to the Core Strategy this means water to supply residential, commercial, and industrial development as well as increase in sewage & waste-water treatment capacity to ensure protection of water resources.

4.19. Ensuring an adequate water supply is likely to result in increased abstraction which, depending on the source (e.g. the River Nene), may impact on hydrology (water table).

4.20. The enhancement of green infrastructure, particularly along the Nene Valley, will serve to increase connectivity and habitat quality; however increased recreational and outdoor leisure opportunities (i.e. increased tourism and visitation) may cause disturbance. New blue and green routes to the north-south and east-west will provide increased access to the rivers and forest.

4.21. Transport options rely on improvement to the existing network of roads and the railway line that runs north south through the area. The line is already well established however the frequency of services may need to be increased. This could potentially require upgrades to the network particularly the branch connecting Corby. The Northampton branch of the rail network runs to the south of the Earls Barton section of the pSPA, whilst the Kettering branch intersects the Wellingborough / Irchester section of the pSPA. Increased frequency may result in increased disturbance however it is anticipated that the focus of improvements would be to the northern branch servicing Corby. Improvements at this location are unlikely to impact on the pSPA.

4.22. Road-based transport options include improvements to the A45, A605, and A6003, the former two of which run along the Nene Valley and are in close proximity (directly adjacent in some areas) to the pSPA sites. Improvements (road works) have the potential to cause disturbance, through noise, vibration, dust, and visual disturbance. Intensification of road-based transport related emissions and noise may impact on water quality and cause disturbance to the pSPA sites (specifically between Northampton and Irthlingborough). Increased accessibility to, and usage of, public transport may alleviate transport impacts associated with personal vehicular traffic along main routes that run along the Nene Valley (specifically between Northampton and Irthlingborough).

4.23. As this option largely focuses on the existing Core Strategy and seeks to strengthen the role of the current towns and urban corridor, it will not result in land use impacts on the Nene Washes SPA (located over 25 km from the main growth areas). However, there is potential for impacts resulting from increased demands on water supply, increased levels of sewerage outfall (increased phosphate loading), and flood risk relating to the River Nene.

**Option two – Twin poles: Where the forest meets the river**

4.24. Growth in this option focuses on Corby and Kettering, with refocused growth in the Wellingborough / Rushden sub-area, particularly for employment. Growth would be based predominantly on urban extensions of the major towns. At Wellingborough these would be unlikely to result in direct land-take, however may remove land from use for birds (e.g. feeding or roosting areas) or result in increased fragmentation of habitat. Northern extensions are unlikely to result in any direct land take. Other urban land-use impacts that may affect the pSPA include light pollution, increased ambient noise, and pollution (from surrounding land-uses). Development within flood zones may also increase flood risk, causing disruption to the water balance.
4.25. The scale of development, and the resulting increase in population, will require the provision of sufficient resources and infrastructure. Specific to the Core Strategy this means water to supply residential, commercial, and industrial development as well as increase in sewage & waste-water treatment capacity to ensure protection of water resources.

4.26. Ensuring an adequate water supply is likely to result in increased abstraction which, depending on the source (e.g. the River Nene), may impact on hydrology (water table).

4.27. The enhancement of green infrastructure, particularly along the River Nene and Ise Valleys, will serve to increase connectivity and habitat quality; however increased recreational and outdoor leisure opportunities (i.e. increased tourism and visitation) may cause disturbance impacts on the pSPA.

4.28. Job delivery would be focused on the Wellingborough / Rusden and Kettering / Corby sub-areas to decrease the need for out-commuting to Northampton. Strengthening the role of the urban corridor would require transport links to be improved.

4.29. In terms of transport new emphasis would be placed on better inter-urban public transport links between the towns. This would include the creation of new ‘hubs’ at Irchester Halt and north of Kettering. This could include new parkway stations with associated employment and other high order facilities.

4.30. At present improvement to the inter-urban transport network is conceptual with no precise details, however any new transport options which would directly run through or within the vicinity of the pSPA would be likely to have some form of impact. New routes that would intersect or that would be directly adjacent to the pSPA should be avoided.

4.31. This option seeks to strengthen the inward relationship between the current towns and urban corridors so is unlikely to result in land-use impacts on the Nene Washes SPA (located over 25 km from the main growth areas). However, there is potential for impacts resulting from increased demands on water supply, increased levels of sewerage outfall (increased phosphate loading), and flood risk.

Option three – Northern focus

4.32. This option places an emphasis on growth in the northern functional area accepting that the southern area will become more dependent on Northampton. This would include at least 60% of housing growth in Corby and Kettering. Growth would be focused along a corridor running north / south between the major urban areas.

4.33. Growth in the north would not have a direct land impact on the pSPA however further expansion of Wellingborough and Rushden in the south may remove surrounding land from use for birds (e.g. feeding or roosting areas) or result in increased fragmentation of habitat areas. Other urban land-use impacts that may affect the pSPA include light pollution, increased ambient noise, and pollution (from surrounding land-uses). Development within flood zones may also increase flood risk, causing disruption to the water balance.

4.34. This scale of development and the resulting increase in population will require the provision of sufficient resources and infrastructure. Specific to the Core Strategy this means water to supply residential, commercial, and industrial development as well as increases in sewage & waste-water treatment capacity to ensure protection of water resources.

4.35. Ensuring an adequate water supply is likely to result in increased abstraction which, depending on the source (e.g. the River Nene), may impact on hydrology (water table).

4.36. The enhancement of green infrastructure, particularly along the Ise Valley and within Rockingham Forest, will serve to increase connectivity and habitat quality and provide wider opportunities for recreational and outdoor leisure opportunities (i.e. increased tourism and visitation) which could provide an alternative to visiting sites in or near the SPA.

4.37. Transport requirements would rely on an improvement of the north / south linkages and also the potential for a new rapid transport system. At present this is conceptual with no precise details, however a new transport system should avoid routes or expansion which would directly impact on the pSPA.
4.38. As this option largely focuses on the northern area and seeks to strengthen the role of the current towns and the urban corridor between them it is unlikely to result in land use impacts on the Nene Washes SPA (located over 25 km from the main growth areas). However, there is potential for impacts resulting from increased demands on water supply, increased levels of sewerage outfall (increased phosphate loading), and flood risk.

Option four – External links

4.39. Growth along the urban north-south corridor (Corby-Kettering-Wellingborough-Northampton) in this option would be focussed on the broad areas of: south-east of Corby, north and east / south-east of Kettering, east of Wellingborough, as well as to the south-east and / or south-west of Rushden. This is in addition to the SUEs identified in the adopted Core Strategy. There is potential for growth and employment land use in Northampton in the south-east; with intensification within existing growth areas, urban extension to the south-east (Hardinstone, Wootton, Grange Park), and extension and / or intensification of existing employment areas of Billing and Brackmills.

4.40. The identification of areas to accommodate future growth associated with this spatial option is unlikely to result in direct land-take within designated areas, however may include further extension to the east of Wellingborough and around the south of Rushden. This may remove surrounding land from use for birds (e.g. feeding or roosting areas) or result in increased fragmentation of habitat areas. Other urban land-use impacts that may affect the pSPA include light pollution, increased ambient noise, and pollution (e.g. run-off from surrounding land-uses). Development within flood zones may also increase flood risk, causing disruption to the flooding regimes and water balance further downstream.

4.41. This scale of development, and the resulting increase in population, will require the provision of sufficient resources and infrastructure. Specific to the Core Strategy this means water to supply residential, commercial, and industrial development as well as an increase in sewage & waste-water treatment capacity to ensure protection of water resources.

4.42. Ensuring an adequate water supply is likely to result in increased abstraction which, depending on the source (e.g. the River Nene), may impact on hydrology (water table).

4.43. Job delivery would be supported primarily at and around Northampton, given its role as the main county town, which would see an increase in commuting; consequently increasing potential for transport impacts. Strengthening the role of the urban corridor will require transport links to be improved.

4.44. The enhancement of green infrastructure, particularly along the Nene Valley, will serve to increase connectivity and habitat quality; however increased recreational and outdoor leisure opportunities (i.e. increased tourism and visitation) may cause disturbance to key species.

4.45. In relation to rail-based or LRT based transport this would result in renewed emphasis on the existing rail connection between the three towns and along the urban corridor, extending south to Northampton. Connections to surrounding areas such as Peterborough, Leicester, and Oakham / Melton Mowbray are already established however the frequency of services may need to be increased; this could potentially require upgrades to the network particularly the branch connecting Corby. The Northampton branch of the rail network runs to the south of the Earls Barton section of the pSPA, whilst the Kettering branch intersects the Wellingborough / Irchester section of the pSPA. Increased frequency may result in increased disturbance however it is anticipated that the focus of improvements would be to the northern branch servicing Corby. Improvements at this location are unlikely impact on the pSPA.

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3 Northampton Borough Council (NBC) 2007 Longer Term Growth Options for Northampton
NBC 2009 Five-Year Housing Land Supply Assessment
4.46. In relation to road-based transport options this refers to the A45 and A605, both of which run along the Nene valley and are in close proximity (directly adjacent in some areas) to the pSPA sites. Improvements (road works) have the potential to cause disturbance, through noise, vibration, dust, and visual disturbance. Intensification of road-based transport related emissions and noise may impact on water quality (affecting habitat integrity) and cause disturbance to the pSPA sites (specifically between Northampton and Irthlingborough). This option also specifically identified improvements to bus routing along the A4500, which is located further way from the pSPA (within 1.5 to 2 km). Increased accessibility to, and usage of, public transport may alleviate transport impacts associated with passenger vehicular (commuting) traffic along main routes that run along the Nene valley (specifically between Northampton and Irthlingborough).

4.47. As this option largely focuses inwards and seeks to strengthen the role of the current towns and urban corridor it is unlikely to result in land-use impacts on the Nene Washes SPA (located over 25 km from the main growth areas). However, there is potential for impacts resulting from increased demands on water supply, increased levels of sewage outfall (increased phosphate loading), and flood risk.

Likely changes (potential effects) to the European sites resulting from the plan

*Reduction of habitat area*

4.48. There will be no physical reduction in the area of habitat resulting from implementation of the plans objectives.

4.49. Although the spatial options are quite broad at this stage, they do not propose development within designated areas and as such will not result in a reduction in habitat area.

4.50. No potential effects are likely to result from implementation of the plan objectives or spatial options regarding the Nene Washes SPA.

*Disturbance to key species*

Noise and vibration

4.51. An increase in ambient noise levels may disturb birds (e.g. provoking flight response and anxiety behaviour), reducing the roosting and feeding opportunities in the area. Disturbance to roosting and feeding areas from louder noise where levels are currently low can effectively cause a loss of available habitat as birds may respond by decreasing activities at the disturbed site and possible relocation to an alternative, less favoured area or one which is already close to or near capacity, increasing the number of birds dependant on a food source. Most noise sources are likely to be associated with construction and associated movements and new traffic.

Lighting

4.52. Light from development has the potential to illuminate habitat areas and affect the feeding habitats of waders. However, changes in feeding habits will not necessarily be an adverse effect. There is little research on the effects of lighting on the nocturnal use of wetlands by birds. It is possible that a moderate increase in light levels could benefit sight feeding waders. Strong lights can cause aberrant behaviour in flying birds causing them to disorientate, lose control of their flight and collide with the light source or its associated structures causing high levels of mortality.

Building density and proximity

4.53. Increased density of development and close proximity has the potential to obstruct flight paths and line of sight species, reducing the appeal of the habitat and increasing risk of fatalities through collision.

Visual disturbance

4.54. Visual contact with people can cause disturbance to birds such as increased anxiety and flight response. The distance for provoking a flight response due to perceived danger is variable between species, the type of threat and exposure to contact.

Potential effects - Disturbance to key species

4.55. No direct disturbance to key species is likely to result from implementation of the plans objectives.
4.56. Intensification of land-use (including recreational opportunities) surrounding or connecting to the pSPA may result in indirect disturbance.

4.57. No potential effects are likely to result from implementation of the plans objectives or spatial options regarding the Nene Washes SPA.

**Habitat or species fragmentation**

4.58. Implementation of the plans objectives will not result in habitat or species fragmentation.

4.59. Although the spatial options are quite broad at this stage, the identification of areas to accommodate development may result in habitat fragmentation, particularly where interspersed with or located adjacent to the pSPA sites (i.e. Wellingborough south & east, and Rushden / Higham Ferrers).

4.60. No potential effects are likely to result from implementation of the plans objectives or spatial options regarding the Nene Washes SPA.

**Reduction in species density**

4.61. No potential effects related to a reduction in species density is likely as a result of implementation of the plans objectives.

4.62. Although the spatial options are quite broad at this stage, the identification of areas to accommodate development may result in disturbance to species and habitat fragmentation which, over the long-term, may cause a reduction in species density.

4.63. No potential effects are likely to result from implementation of the plans objectives or spatial options regarding the Nene Washes SPA.

**Changes in key indicators of conservation value**

**Water quality**

4.64. Water quality is essential for maintaining suitable habitat areas, since poor quality water cannot support an aquatic ecosystem required to ensure adequate food supply. Diffuse pollution including discharges into the river from sewage treatment works, industrial sources, agricultural, and urban run-off all contribute towards the introduction of chemicals into the water bodies, increased eutrophication, algal blooms and sedimentation which can decrease the availability of food and ecosystem health.

4.65. The North Northants Water Cycle Study (September 2009) has indicated that incremental development is likely to lead to an increase in the volume of treated water that will be discharged from the existing waste water treatment works into the River Nene. It is assumed that the Waste Water Treatment Works (WWTW) will be required to discharge to their consented water quality standards as well as their consented water discharge volumes. Therefore, it is considered that there will not be a decrease in water quality compared with current water quality. Discharge consents are regulated by the EA to protect the water quality of receiving watercourses. Water discharge from waste water treatment will be required to meet the water quality requirements of the Water Framework Directive by 2015.

4.66. The increased demand on Raunds WWTW from the potential development areas will result in an increased volume of water being discharged into the River Nene. Broadholme WWTW does not currently discharge at its full consented volume. There is a risk that as Broadholme increases the volume it discharges into the River Nene, in response to increased development demands (as it still discharges to the same water quality) there may be an overall decrease in the quality of the water discharging into the River Nene. Upgrades to the Waste Water treatment network at Broadholme, Oundle and Thrapston will be needed to meet the demands of future development.

**Hydrology**

4.67. Many wetlands have close associations with groundwater which closely connects the hydrology of the aquifer and the health of the wetland ecosystem. This relationship can be disrupted by either changes to the aquifer (e.g. groundwater abstraction) or to the wetland (e.g. reduced natural inundation of wetlands overlying aquifers).
4.68. Alterations to hydrology, including maintenance of water tables and flooding regimes, have the potential to affect important habitat networks for local wildlife. Abstraction of groundwater or surface water is undertaken for use in agriculture, industry, domestic water supplies, or tourism. Total abstraction is increasing and the trend is expected to continue. In catchments of key wetland sites this could either lead directly to drying of the wetland or cause indirect damage through difficulties in water level control, drying of springs, reduced river flows and affect food supplies. Wildlife interests of wetland habitats are influenced by the physical and chemical characteristics of the water environment. Abnormal or sudden increases / decreases in water levels may present a threat to those species which use a site. This may affect habitat suitability, food availability, or increase the risk of nest predation or flooding.

4.69. Development within flood zones and implementation of flood alleviation / attenuation measures may cause an alteration to the water balance. It is recognised that although such development and measures may not have an impact at the source; there may be an impact on flooding regimes downstream.

4.70. The North Northants Water Cycle Study (September 2009) has indicated that during flood events, the River Nene will receive a short-term ‘first-peak’ of higher water levels from the increase in discharge of floodwater from the adjacent developments. This could prove beneficial to existing wet woodland, floodplain grazing marsh, marshes, reedbed, swamp and fen habitats by increasing water availability.

Potential effects – Key indicators of conservation value

4.71. No potential effects are expected to impact on the key indicators of conservation value as a result of implementation of the plans objectives.

4.72. Potential effects regarding key indicators of conservation value of the pSPA may occur due to the identification of broad areas of development, particularly where interspersed with or located adjacent to sections of the pSPA (i.e. Wellingborough south & east, and Rushden / Higham Ferrers). This includes changes in hydrology (abstraction & maintenance of water tables, and flooding regimes), changes in water quality (run-off and increased throughput at sewage treatment facilities), and indirect disturbance & environmental nuisance impacts (noise, fugitive dust & diffuse emissions from transport / industrial activities).

4.73. Potential effects regarding key indicators of conservation value may occur due to changes in water quality (run-off and increased throughput at sewage treatment facilities).

Climate change

4.74. Northamptonshire is located within one of the driest regions in England with climate change predicted to reduce precipitation in summer months still further. Climate change may potentially affect wetland habitats due to reduced water availability which may also reduce food availability.

4.75. No potential effects are likely in relation to climate change as a result of implementation of the plans objectives.

4.76. Potential effects relating to climate change as a result of development of SUEs include vehicle emissions, and energy consumption associated with residential, commercial, industrial development as well as development of supporting infrastructure and facilities.

Potential likely impacts on the European sites as a whole in terms of interference with the key relationships that define the structure and function of the site

Plans objectives

4.77. No potential effects on the pSPA site have been identified resulting from the plans objectives. Amendment of the objectives (and related policies) may require further assessment to ensure that none result. Particularly relating to objectives and policies that act to direct growth (including supporting development e.g. infrastructure and transport linkages) towards areas surrounding and / or connecting the pSPA sites.
Strategic spatial options

Upper Nene Valley Gravel Pits pSPA

4.78. Potential effects identified resulting from the strategic spatial options includes:

- Fragmentation of surrounding habitat areas outside of the designation.
- Indirect disturbance and environmental nuisance (air quality, noise, lighting, visitor pressure) leading to a decrease in key species populations over time.
- Changes in water quality related to increased levels of sewerage outfall (increased phosphate loading) and diffuse pollution sources.
- Changes in the water table (resulting from increased abstraction).
- Alteration of the flooding regime.
- Emissions from increased vehicle emissions which contribute to the release of greenhouse gases and may reduce air quality leading to affects on habitat / ecosystem structure and function.

Nene Washes SPA

4.79. Potential effects identified resulting from the strategic spatial options includes changes in water quality related to increased levels of sewage outfall (increased phosphate loading) and alteration of the flooding regime.

Identification of indicators of significance as a result of likely effects in terms of loss, fragmentation, disruption, disturbance, and changes to key elements of the site

4.80. The indicators of significance have been identified in light of the specific sensitivities / vulnerabilities and conservation objectives for the sites (refer Table 2).

4.81. Where a plan is identified as potentially having an effect, but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on that site. Some potential effects have not been identified in Table 2 as these are not considered to undermine the sites conservation values when considered in light of existing measures (set out through the plans objectives and policies - including development requirements) that are taken to form part of the package put forward.

Abstraction and maintenance of water tables

4.82. The Environment Agencies Nene Catchment Abstraction Management Strategy (CAMS) (March 2005) acknowledges both the Upper Nene Valley Gravel Pits and Nene Washes. The resource availability status is over licensed, in addition the CAMS acknowledge that significant housing development is proposed in Corby, Kettering and Wellingborough; consequently the demand for domestic consumption of water is predicted to increase in the future. The Environment Agency is working with Anglian Water to adequately plan for the future growth without compromising the strategy or the conservation values of either sites. The EA has also undertaken preliminary assessments (under the Habitats Directive). The strategy states that if further investigation of abstraction licences is required consultation with the license holders and assessment will be undertaken accordingly. As such the potential for increased abstraction related to the plans implementation will not have a likely significant effect on key indicators of conservation value for either of the sites (given the assessment requirements currently in place under the CAMS which are considered to form part of the package put forward).

4 European Court of Justice Case C-127/02 (the Waddenzee ruling)
6 Assumes that other assessments, such as CAMS, also have a ‘no significant effect’ or ‘no adverse effect’ on integrity. Where such effects occur, these will be resolved by the relevant plans or strategies and not the Core Strategy.
Flooding regimes

4.83. Planning Policy Statement 25 (PPS 25) Development and Flood Risk requires the assessment of allocations for land use plans and development proposals to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk. Where new development is, exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and where possible, reducing flood risk overall. As such the potential for alteration of flooding regimes related to the plans implementation will not have a likely significant effect on key indicators of conservation value for either of the sites (given the assessment requirements currently in place under PPS25 which are considered to form part of the package put forward).

Habitat fragmentation

4.84. The adopted Core Strategy Policies 5 (Green Infrastructure) and 13 (General Sustainable Development Principles), coupled with the Biodiversity SPD, which forms part of the Development Plan for the area, seek to ensure that measures are put in place to avoid and where necessary mitigate potential impacts on biodiversity. The plan encourages opportunities for enhancing biodiversity networks and increasing habitat connectivity. As such the plans implementation will not have a likely significant effect regarding habitat fragmentation (given the application of the plans objectives & policies and the Biodiversity SPD which is considered to form part of the package put forward).

Climate change

4.85. The plans objectives and policies seek the integration of sustainable design & technologies in order to reduce greenhouse gas emissions from growth and the ongoing use of development related to the Core Strategy. As such the plans implementation is unlikely to have a potential effect regarding climate change (given the application of the sustainability objectives and policies which are considered to form part of the package put forward).

Table 2(a): Identification of indicators of significance - Upper Nene Valley Gravel Pits pSPA

<table>
<thead>
<tr>
<th>Conservation objectives</th>
<th>Key environmental features supporting site integrity</th>
<th>Site specific vulnerabilities</th>
<th>Potential effects relevant to the site specific vulnerabilities</th>
<th>Indicators of significance of likely effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain populations of key wintering waterbird species at, or above, 5 year average populations present at notification (Table 1)</td>
<td>Mosaic of habitats and habitat structure</td>
<td>Water levels in the main water bodies</td>
<td>Disturbance to species (noise, lighting, public access, and increased building density)</td>
<td>Decrease in key species populations (as per Table 1)</td>
</tr>
<tr>
<td>Maintain assemblages of over 20,000 waterbirds in any season (particularly wintering waterbird species and waterbirds in the non-breeding season)</td>
<td>Provision of valuable nesting, resting, and feeding conditions</td>
<td>Water depths throughout the year</td>
<td>Contamination of water resources from increased levels of sewage outfall (phosphate loading) and diffuse pollution sources</td>
<td>Water quality indicators (RQOs and phosphate levels)</td>
</tr>
<tr>
<td></td>
<td>Species composition (including availability of prey species / other food sources)</td>
<td>Wave action</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Soil conditions</td>
<td>Water quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydrology (water quality and regime)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Connectivity through river valley</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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7 It should be noted that the purpose of the review is to address the provision of housing and jobs for the 2021 – 2031 period, and where required adjust current figures given abolition of the Regional Plan. As such it is unlikely that the intent of policies regarding green infrastructure, sustainable development, development requirements, etc will vary significantly from the adopted Core Strategy.
### Table 2(b): Identification of indicators of significance - Nene Washes SPA

<table>
<thead>
<tr>
<th>Conservation objectives</th>
<th>Key environmental features supporting site integrity</th>
<th>Site specific vulnerabilities</th>
<th>Potential effects relevant to the site specific vulnerabilities</th>
<th>Indicators of significance of likely effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain the designated features in favourable condition which is defined in part in relation to a balance of habitat extents</td>
<td>Washland habitats, drainage channels, and habitat structure</td>
<td>Flooding regime</td>
<td>Contamination of water resources from increased levels of sewage outfall (phosphate loading).</td>
<td>Water quality indicators (phosphate levels)</td>
</tr>
<tr>
<td>To maintain the designated species in favourable condition, which is defined in part in relation to their population attributes</td>
<td>Provision of valuable nesting, resting, and feeding conditions</td>
<td>Water levels</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Species composition (including availability of prey species / other food sources)</td>
<td>Water quality (particularly phosphate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Connectivity of habitat areas and drainage channels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Soil conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydrology (water quality and flooding regime)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Identification of the individual plan elements, or combinations thereof, where the impacts are likely to be significant, or the scale / magnitude are not known:

4.86. A likely significant effect is one that would be considered to undermine the conservation objectives of the site, and that cannot be excluded on the basis of objective information.

4.87. The plans objectives do not currently have a likely significant effect on the Upper Nene Valley Gravel Pits pSPA or the Nene Washes SPA. Amendment of the objectives will require further assessment to ensure that none result.

4.88. Likely significant effects identified in relation to the implementation of the strategic spatial options include changes in water quality and indirect disturbance & environmental nuisance for the Upper Nene Valley Gravel Pits pSPA, and changes in water quality specifically related to increased levels of sewage outfall (phosphate loading) for the Nene Washes SPA.

4.89. The individual plan elements where impacts are likely to be significant include the spatial strategy and its associated policies which:

a. direct development to specific areas surrounding or connecting to the pSPA, and

b. where sewage and waste water treatment from resultant development would ultimately be released to the River Nene.
Cumulative (in-combination) effects assessment

Identification of relevant plans and projects


4.91. A number of development proposals and projects have been identified within the North Northants and adjoining areas that may act in-combination with the NNJPU Core Strategy. These include urban extensions (Raunds, Oundle, Thrapston, Desborough, Rothwell, Wellingborough, East of Kettering), commercial and industrial development (Desborough), community leisure and health care facilities (Rushden, Irlhlingborough) renewable energy (wind farms at Chelveston Renewable Energy Park, Suborough, Bozeat), and mineral extraction (Oundle Peterborough).

Assessment of cumulative (in-combination) effects

Noise and vibration

4.92. Heavy vehicles, machinery and plant required for existing and further potential developments in the vicinity of the pSPA will increase levels of noise affecting the site and may have a disturbance effect on the birds using it. New transport infrastructure will have significant impacts if located directly adjacent to or directly through the site particularly through increased traffic and disturbance from construction. New industrial development close by could also increase noise levels.

Chemical emissions

4.93. Surface run off from new transport infrastructure and other developments may be a source of contamination to water in the river. Indirect activities occurring within the river catchment contribute towards diffuse pollution which may have a cumulative effect on the integrity of the sites. Other development in the area may increase levels of sedimentation of water ways and contribute to nutrient loading, particularly intensification of agriculture and development related to urban extensions. New and increased industrial development along the river may contribute towards chemical emissions to air, water and land. Where major roads or new transport options pass near to the river there is potential for exhaust emissions and other chemicals relating to transport entering the waterbody.

Disturbance

4.94. A number of species for which the pSPA has been designated are highly susceptible to disturbance. As such pressure from increased numbers of people using the site for recreation particularly residents from new housing development and urban extensions could have significant effects on the bird populations due to visual disturbance, trampling of habitat (particularly nesting sites), and disturbance & predation by dogs. In addition light pollution resulting from commercial and industrial development as well as road lighting may cause disturbance.

Determination of potential cumulative impacts

Upper Nene Valley Gravel Pits pSPA

4.95. Potential cumulative impacts identified for the Upper Nene Valley Gravel Pits pSPA include changes in water quality related to diffuse pollution sources, and indirect disturbance & environmental nuisance (air quality, noise, lighting, visitor pressure) leading to a decrease in species populations over time.

Nene Washes SPA

4.96. Potential cumulative impacts identified resulting from the strategic spatial options includes changes in water quality related to increased levels of sewage outfall (increased phosphate loading).
5. FUTURE ASSESSMENT REQUIREMENTS

Overall conclusion and future assessment requirements

5.1. The overall conclusions of the HRA Screening Report are that:
   • The **Plans objectives will not have** alone (or in-combination) likely significant effects on either the Upper Nene Valley Gravel Pits pSPA or the Nene Washes SPA. However, amendment of the objectives will require further assessment to ensure that no likely significant effects result.
   • The **broad spatial options will have** both alone and in-combination likely significant effects on both the Upper Nene Valley Gravel Pits pSPA and the Nene Washes SPA. An AA will be required for options and associated policies taken forward through the plan-making process.

5.2. Unmitigated the ongoing impacts of the broad spatial options would also have an in-combination effect with other development plans and proposals.

5.3. AA is required to determine the extent to which such measures would be effective given the sensitivity of the sites and the nature and proximity of the development required to deliver the plan.

Upper Nene Valley Gravel Pits pSPA

5.4. The range of habitat and the varied topography of the lagoons of the Upper Nene Valley Gravel Pits pSPA provide valuable nesting, resting and feeding conditions to sustain nationally important numbers and assemblages of breeding and wintering birds especially ducks and waders. The extensive open waters collectively form one of the most important inland localities in England for waterbirds in the non-breeding season. As such the Upper Nene Valley Gravel Pits are considered to be of exceptional significance for the variety and quality of breeding birds associated with their open water and marginal habitats.

5.5. The likely significant effects of the proposals on the international nature conservation interests for which the site was designated may be summarised as:
   • Changes in water quality related to increased levels of sewerage outfall (increased phosphate loading) and diffuse pollution sources.
   • Indirect disturbance and environmental nuisance (air quality, noise, lighting, visitor pressure) leading to a decrease in key species populations over time.

5.6. The likely significant effects are linked to the conservation objectives for the site in the following manner:
   • Indirect disturbance and environmental nuisance is linked to maintaining populations and assemblages of key water bird species as disturbance and environmental nuisance effects may disturb birds affecting behaviour (e.g. feeding, roosting, and breeding). The indicator of significance includes a decrease in key species populations (Table 1).
   • Water quality is linked to the conservation objective of maintaining populations and assemblages of key water bird species as water quality is essential for maintaining suitable habitat areas, since poor quality water cannot support an aquatic ecosystem required to ensure adequate food supply. The indicator of significance includes water quality indicators.
Nene Washes SPA

5.7. The Nene Washes SPA forms an extensive area of seasonally flooding wet grassland ('washland') lying along the River Nene; forming one of the countries few remaining areas of washland habitat. The habitat areas provide valuable nesting, resting and feeding conditions to sustain nationally important numbers and assemblages of breeding and wintering birds. It also holds important populations of the Spined Loach. As such the Nene Wash SPA is considered to be of exceptional significance for the variety and quality of breeding birds associated with their open water and marginal habitats.

5.8. The likely significant effects of the proposal on the international nature conservation interests for which the site was designated include changes in water quality related to increased levels of sewerage outfall (increased phosphate loading).

5.9. The likely significant effects are linked to the conservation objectives (maintain the designated features in favourable condition) for the site as water quality is essential for maintaining suitable habitat areas, since poor quality water cannot support an aquatic ecosystem required to ensure adequate food supply. The indicator of significance includes water quality indicators.

Appropriate Assessment methodology

5.10. The assessment methodology for the AA will be as per the ‘Assessment of Plans and projects Significantly Affecting Natura 2000 Sites. Methodological guidance on the provision of Article 6(3) and 6(4) of the Habitats Directive 92 / 43 / EEC’ (European Commission, November 2001). Other relevant guidance to be taken into consideration during the assessment includes:

- Habitats regulations guidance notes, English Nature,
- Planning Policy Statement 9 – Biodiversity and geological conservation (2005),
- Circular 06 / 05 – Biodiversity and geological conservation,
- The Appropriate Assessment of Spatial Plans in England: A guide to why, when and how to do it, RSPB (2007), and

5.11. The scope for the assessment should cover the likely significant effects of the plan identified through this Screening Report and assess the implication of these to ascertain whether there will be adverse effects on the integrity of the Upper Nene Valley Gravel Pits pSPA and the Nene Washes SPA.

5.12. Where necessary, it must be considered whether any adverse effect on integrity of a site could be avoided by changes to the plan. This may include modifying a policy or proposal whilst still achieving its aims and objectives. A record of the AA should be documented in a clear and concise manner. The iterative processes of plan preparation and SA should ensure that environmental effects of the revised NNJPU Core Spatial Strategy are fully taken into account and effects avoided, including any likely significant effects on European sites.
APPENDIX 1: CONSULTATION COMMENTS RECEIVED FROM NATURAL ENGLAND

Comments received through consultation with Natural England have been incorporated by the NNJPU into the final screening report; these largely related to clarification of the assessment methodology and use of terminology.

Overall, Natural England supports the overall conclusion of the screening report.
APPENDIX 2: KEY SPECIES REQUIREMENTS

A brief outline of species requirements for Bitterns, Golden Plover, Gadwall and Grey Herons has been provided below to inform the assessment of likely impacts on habitat areas and species.

Bitterns

Habitat requirements

Require extensive (i.e. 20 ha or more) undisturbed wet reedbeds or wetland complexes to provide cover from February to August, with good fish populations (preferably of rudd, eels and sticklebacks) for feeding. Wintering bitterns favour a much wider variety of sites and habitat (any size of wet reedbed or tall vegetation) than breeding birds and tend to occur at a greater range of smaller wetland sites with reedbeds or reed fringes in the winter months. These sites need good fish populations and some tall vegetation with standing water in which the birds can feed. Many bitterns come to the UK from colder northern European countries from October to March.

Breeding

Bitterns nest from April to June, but males may establish their territories as early as February.

Feeding

Bitterns are active during the day when they feed. Bitterns feed on fish, amphibians and insects which they get from within the reed bed or within the reeds edge, they rarely venture out into the open.

Conservation issues

Current significant issues include the lack of large wet reedbeds with adequate feeding conditions, problems with food availability, reedbed fragmentation and lack of connectivity on bittern distribution, seral succession and the inappropriate management of reedbed habitats, water abstraction / availability, predation, pollution, human recreation activities and problems relating to the small size of the remaining population. Recent surveys indicate that within the UK the Bittern is increasing in numbers and range due to large-scale habitat restoration and recreation.

Golden plover

Habitat requirements

Require an open landscape with a patchwork of moorland and grassland habitats. Wintering Golden plovers favour grass and arable fields inland, especially recently ploughed ones. Winter flocks start to appear and build up after the breeding season with largest numbers between November and February.

Breeding

Golden plovers occupy their breeding grounds from May to September, typical golden plover breeding habitat is flat, open moorland with a mosaic of short heath (heather, bilberry and crowberry), blanket bog (cotton grass) and wet flushes with adjacent short grassland and pasture. This provides for accessible nest sites, invertebrate food for adults and young on moorland (areas of short vegetation e.g. flushes and blanket bog) and adjacent large areas of short permanent pasture (essential feeding and gathering sites for adults, preferably next to moorland breeding sites).

Feeding

Adjacent pastures with abundant invertebrates particularly worms and beetles (such as earthworms and tipulid larvae) are important for feeding adults, chicks may be moved up to 2 km or more to feed in marshy areas rich in invertebrate food. Tipulid Larvae (Leatherjackets) and adults (Crane Flies) are particularly important prey, along with caterpillars, beetles and spiders.
Conservation issues

Potential disturbance from human recreation activities and the availability of suitable roosting areas is a key issue for wintering golden plovers. Substantial range contractions and declines in breeding numbers in Britain have been attributed to afforestation, agricultural intensification of permanent pastures and overgrazing by sheep.

Gadwall

Habitat requirements

Preferred habitat is gravel pits and slow-flowing rivers with vegetated islands. During winter and migration, the Gadwall can be found in a variety of aquatic habitats, including lakes, reservoirs, and ponds – however they prefer shallow water. Their breeding habitat consists of open grassy areas with low vegetation for cover, and access to water.

Breeding

Breeding gadwalls prefer the shallow edges of lakes and gravel pits where there is vegetation. Gadwall prefer breeding on islands, and also nest later in the season than most ducks.

Feeding

The Gadwall feeds mainly upon aquatic plant life and small aquatic invertebrates. Feeding in shallow water to reach submerged food sources, occasionally diving for food, and also forage for grains in farm fields.

Conservation issues

Current significant issues include habitat fragmentation, problems with food availability, water quality and availability, predation and human recreation activities.