



*Vale of White
Horse District
Council: Local
Plan Part 1
Submission
Document*

Habitats Regulations
Assessment

February 2015

URS Job: 47063535

Prepared for:
Vale of White Horse District
Council



**Vale
of White Horse**
District Council

REVISION SCHEDULE					
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1 INTRODUCTION

1.1 Scope of the project

URS Infrastructure & Environment UK Ltd was appointed by Vale of White Horse District Council (VoWH) to assist the Council in undertaking a Habitats Regulations Assessment (HRA) of the emerging Local Plan 2029 Part 1 (LPP1). The objective of the assessment was to identify any aspects of the Local Plan 2029 Part 1 (LPP1) that would have the potential to cause a likely significant effect on Natura 2000 or European sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites), either in isolation or in combination with other plans and projects, and to devise appropriate mitigation strategies where such effects were identified.

1.2 Legislation

The need for HRA is set out within Article 6 of the EC Habitats Directive 1992, and interpreted into British law by the Conservation of Habitats & Species Regulations 2010. The ultimate aim of the Habitats Directive is to “*maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest*” (Habitats Directive, Article 2(2)). This aim relates to habitats and species, not the European sites themselves, although the sites have a significant role in delivering favourable conservation status. European sites (also called Natura 2000 sites) can be defined as actual or proposed/candidate Special Areas of Conservation (SAC) or Special Protection Areas (SPA). It is also Government policy for sites designated under the Convention on Wetlands of International Importance (Ramsar sites) to be treated as having equivalent status to Natura 2000 sites.

The Habitats Directive applies the precautionary principle to protected areas. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the site(s) in question. This is in contrast to the SEA Directive which does not prescribe how plan or programme proponents should respond to the findings of an environmental assessment; merely that the assessment findings (as documented in the ‘environmental report’) should be ‘taken into account’ during preparation of the plan or programme. In the case of the Habitats Directive, plans and projects may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.

All the European sites mentioned in this document are shown in Figure 1. In order to ascertain whether or not site integrity will be affected, a HRA should be undertaken of the plan or project in question:

Box 1. The legislative basis for HRA**Habitats Directive 1992**

Article 6 (3) states that:

“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.”

Conservation of Habitats & Species Regulations 2010 (as amended)

The Regulations state that:

“A competent authority, before deciding to ... give any consent for a plan or project which is likely to have a significant effect on a European site ... shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives... The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site”.

1.3**Vale of White Horse District**

There is no pre-defined guidance that dictates the physical scope of an HRA of a Local Plan. Therefore, in considering the physical scope of the assessment we were guided primarily by the identified impact pathways rather than by arbitrary ‘zones’. Current guidance suggests that the following European sites be included in the scope of assessment:

- All sites within the VoWH District boundary; and
- Other sites shown to be linked to development within the District boundary through a known ‘pathway’ (discussed below).

Briefly defined, pathways are routes by which a change in activity within the Local Plan area can lead to an effect upon a European site. In terms of the second category of European site listed above, CLG guidance states that the HRA should be ‘*proportionate to the geographical scope of the [plan policy]*’ and that ‘*an HRA need not be done in any more detail, or using more resources, than is useful for its purpose*’ (CLG, 2006, p.6).

There are two European sites within the VoWH District – Cothill Fen SAC and Hackpen Hill SAC. European sites also lie in adjoining districts and the potential for longer range and indirect effects upon these sites has been considered (Table 1). Figure 1 shows the location of the European sites in relation to the VoWH District.

Table 1: European sites considered at the screening stage of the Habitats Regulations Assessment

Site	Minimum Distance from the Vale of White Horse District
Cothill Fen SAC	Within the district
Hackpen Hill SAC	Within the district

Oxford Meadows SAC	Adjacent to the north east corner of the district; connected by the A34 and A40
Little Wittenham SAC	2.5km east of the district

Other European sites were scoped out of the HRA during the screening stage of the previous iteration of the Core Strategy in 2008 as it was deemed that no actual pathway existed connecting them to development under the Core Strategy.

1.4

This report

Chapter 2 of this report explains the process by which the HRA has been carried out. Chapter 3 explores the relevant pathways of impact. Chapter 4 provides a screening exercise on each of the Preferred Approach policies. Chapters 5-8 consider the individual European sites – their designation, condition and potential effects of the Local Plan Part 1 and Additional Consultation document that could not be screened out following the initial short appraisal. The key findings are summarised in Chapter 9: Conclusions.

2 METHODOLOGY

2.1 Key Principles

This section sets out the basis of the methodology for the HRA. URS has adhered to several key principles in developing the methodology – see Table 2.

Table 2 - Key principles underpinning the proposed methodology

Principle	Rationale
Use existing information	We make the best use of existing information to inform the assessment. This will include information gathered as part of the SA of the emerging Plan and information held by Natural England, the Environment Agency and others.
Consult with Natural England, the Environment Agency and other stakeholders	We will ensure consultation with Natural England for the duration of the assessment. We will ensure that we utilise information held by them and others and take on board their comments on the assessment process and findings.
Ensure a proportionate assessment	We will ensure that the level of detail addressed in the assessment reflects the level of detail in the Plan (i.e. that the assessment is proportionate). With this in mind, the assessment will focus on information and impacts considered appropriate to the local level.
Keep the process as simple as possible	We will endeavour to keep the process as simple as possible while ensuring an objective and rigorous assessment in compliance with the Habitats Directive and emerging best practice.
Ensure a clear audit trail	We will ensure that the HRA process and findings are clearly documented in order to ensure a clearly discernible audit trail.

2.2 Process

The HRA is being carried out in the absence of formal Government guidance. Communities and Local Government released a consultation paper on Appropriate Assessment of Plans in 2006¹. As yet, no further formal guidance has emerged.

Figure 2 below outlines the stages of HRA according to current draft CLG guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the plan until no significant adverse effects remain.

¹ CLG (2006) Planning for the Protection of European Sites, Consultation Paper

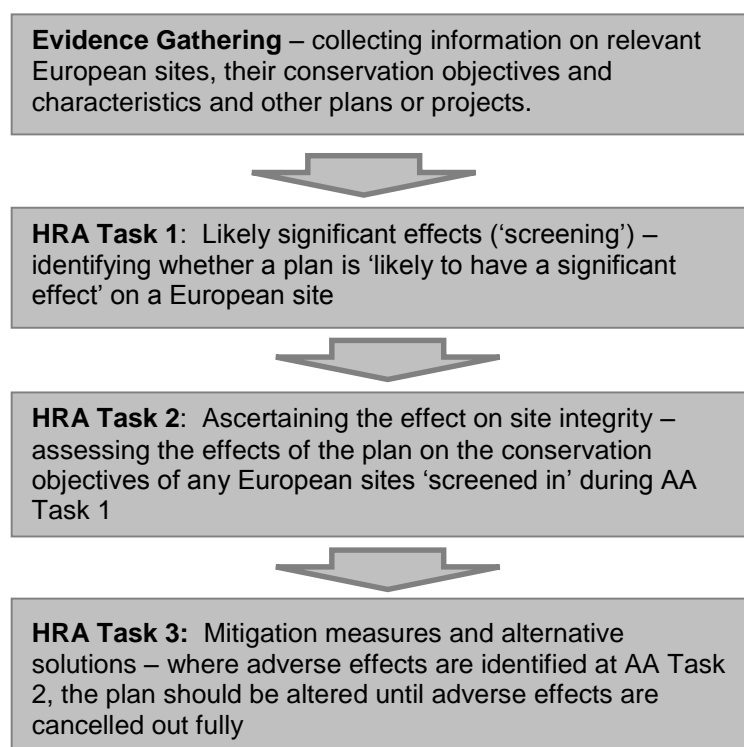


Figure 2 – Four-Stage Approach to Habitats Regulations Assessment (Source: CLG, 2006)

2.3 Likely Significant Effects (LSE)

The first stage of any Habitat Regulations Assessment (HRA Task 1) is a Likely Significant Effect (LSE) test - essentially a risk assessment to decide whether the full subsequent stage known as Appropriate Assessment is required. The essential question is:

"Is the Plan, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon European sites?"

The objective is to 'screen out' those plans and projects that can, without any detailed appraisal, be said to be unlikely to result in significant adverse effects upon European sites, usually because there is no mechanism for an adverse interaction with European sites.

The Likely Significant Effect test is the purpose of this HRA report.

2.4 Confirming other plans and projects that may act 'in combination'

It is clearly neither practical nor necessary to assess the 'in combination' effects of the Local Plan within the context of all other plans and projects within the South East. In practice therefore, in combination assessment is of greatest relevance when the plan would otherwise be screened out because its individual contribution is inconsequential. For the purposes of this assessment, we have determined that, due to the nature of the identified impacts, the key other plans and projects relate to the additional housing, transportation and commercial/industrial allocations proposed for other neighbouring authorities over the lifetime of the Local Plan.

Table 3. Housing levels that were to be delivered in authorities surrounding Vale of White Horse District.

Local Authority	Planning DPD and Timescale	Total housing over the Local Plan period	Oxfordshire Strategic Housing Market Assessment Recommendations (Net 2011-2031)
South Oxfordshire District	Core Strategy (2012 – 2027)	10,940	14,500-16,500
West Oxfordshire District	Draft Local Plan (2012 – 2029)	5,500	12,700-13,700
Oxford City	Core Strategy (2011-2026)	9,132	24,000-32,000
Cherwell	Submitted Local Plan (2006-2031)	16,750	21,800-23,800
Swindon Borough	Draft Local Plan (2011-2026)	22,000	Not relevant
Cotswold District	Draft Local Plan (2011-2031)	6,900	Not relevant
Wiltshire (Marlborough Area)	Submitted Core Strategy (2011-2026)	850	Not relevant
West Berkshire	Core Strategy (2006-2026)	10,500	Not relevant

VoWH is working with the other Oxfordshire authorities to assess how many homes are needed in the district up to 2031. The Oxfordshire Strategic Housing Market Assessment (SHMA) key findings (March 2014) has identified a housing need for up to 20,560 new homes in the Vale (2011-2031). The emerging Oxfordshire SHMA has also identified higher levels of housing need for the other Oxfordshire districts (South Oxfordshire, West Oxfordshire, Oxford City and Cherwell). At present these are recommendations and are not yet reflected in local planning policy. Additionally there are potential plans to create a new development known as Oxford Garden City, to the south-west of Abingdon, which could contribute a further 12,689 new dwellings.

There are other plans and projects that are relevant to the ‘in combination’ assessment, most notably Thames Water’s draft Water Resource Management Plan (2015-40) and the Environment Agency’s Kennet and Vale of White Horse Catchment Abstraction Licencing Strategy. These have been taken into account in this assessment.

Table 4 summarises documents that we have reviewed to inform our assessment:

Table 4. Documents reviewed in order to inform this assessment

Document			Relevant contents
Environment Agency (2012)	Kennet and Vale of White Horse Catchment Abstraction Licencing Strategy		<ul style="list-style-type: none"> Sets out the Environment Agency’s position regarding future abstraction within the Vale of White Horse Catchment
Environment Agency (various)	Stage 3 and 4 Appropriate Assessments: Review of Consents		<ul style="list-style-type: none"> Understanding of existing conditions at European sites

Document		Relevant contents
Environment Agency (2006a)	Water Resources in the South East report to latest South East Plan housing provision and distribution received from SEERA. May 2006, for commentary to SEERA	<ul style="list-style-type: none"> Water resources.
Thames Water (2013)	Draft Water Resource Management Plan 2015-2040	<ul style="list-style-type: none"> Sets out the proposed approach to providing water resources in the future
Thames Water (July 2012)	Final Water Resource Management Plan	<ul style="list-style-type: none"> Sets out the approach to providing water resources
Environment Agency (2006b)	Creating a Better Place: Planning for Water Quality and Growth in the South East. Version 10.4	<ul style="list-style-type: none"> Sewage treatment capacity.
Assessors Report by Peter Burley (2007)	Report to the Panel for the Draft South East Plan Examination in Public on the Thames Basin Heaths Special Protection Area and Natural England's Draft Delivery Plan. 19 February 2007.	<ul style="list-style-type: none"> Comments on Natural England's Draft Delivery Document.
Vale of White Horse (2011)	Housing Needs Assessment	<ul style="list-style-type: none"> Sets out the background to housing options contained within the Local Plan
Oxfordshire County Council (2011)	The Oxfordshire Local Transport Plan, 2011 – 2030.	<ul style="list-style-type: none"> Transport schemes.
Core Strategies and Local Plans for neighbouring local authorities	Spatial development policies for South Oxfordshire, Oxford, Cherwell, West Oxfordshire, Swindon, West Berkshire and Wiltshire.	<ul style="list-style-type: none"> Provides projected levels of housing for authorities surrounding Vale of White Horse District

In preparing this HRA we have utilised data held on the following sources in order to inform on the current ecological status of relevant European sites:

- The UK Air Pollution Information System (www.apis.ac.uk); and
- Nature on the Map and its links to SSSI citations and the JNCC website (www.natureonthemap.org.uk)

3 PATHWAYS OF IMPACT

3.1 Introduction

In carrying out an HRA it is important to determine the various ways in which land use plans can impact on European sites by following the pathways along which development can be connected with European sites, in some cases many kilometres distant. Briefly defined, pathways are routes by which a change in activity associated with a development can lead to an effect upon a European site.

3.2 Urbanisation

This impact is closely related to recreational pressure, in that they both result from increased populations within close proximity to sensitive sites. Urbanisation is considered separately as the detail of the impacts is distinct from the trampling, disturbance and dog-fouling that results specifically from recreational activity. The list of urbanisation impacts can be extensive, but core impacts can be singled out:

- Increased fly-tipping - Rubbish tipping is unsightly but the principle adverse ecological effect of tipping is the introduction of invasive alien species with garden waste. Garden waste results in the introduction of invasive aliens precisely because it is the 'troublesome and over-exuberant' garden plants that are typically thrown out². Alien species may also be introduced deliberately or may be bird-sown from local gardens.
- Cat predation - A survey performed in 1997 indicated that nine million British cats brought home 92 million prey items over a five-month period³. A large proportion of domestic cats are found in urban situations, and increasing urbanisation is likely to lead to increased cat predation.

The most detailed consideration of the link between relative proximity of development to European sites and damage to interest features has been carried out with regard to the Thames Basin Heaths SPA.

After extensive research, Natural England and its partners produced a 'Delivery Plan' which made recommendations for accommodating development while also protecting the interest features of the European site. This included the recommendation of implementing a series of zones within which varying constraints would be placed upon development. While the zones relating to recreational pressure expanded to 5km (as this was determined from visitor surveys to be the principal recreational catchment for this European site), that concerning other aspects of urbanisation (particularly predation of the chicks of ground-nesting birds by domestic cats, but also including recreational pressure, fly tipping, increased incidence of fires and general urbanisation) was determined at 400m from the SPA boundary. The delivery plan concluded that the adverse effects of any development located within 400m of the SPA boundary could not be mitigated, in part because this was the range within which cats could be expected to roam as a matter of routine and there was no realistic way of restricting their movements, and as such, no new housing should be located within this zone.

The VoWH Additional Consultation document does not outline any major strategic housing locations within 500m of any European sites and therefore impacts of urbanisation are not considered further within this HRA.

² Gilbert, O. & Bevan, D. 1997. The effect of urbanisation on ancient woodlands. British Wildlife 8: 213-218.

³ Woods, M. et al. 2003. Predation of wildlife by domestic cats *Felis catus* in Great Britain. Mammal Review 33, 2 174-188

3.3 Recreational pressure

Consultation for the HRA of the South East Plan revealed that potentially damaging levels of recreational pressure are already faced by many European sites. Recreational use of a site has the potential to:

- Cause disturbance to sensitive species, particularly ground-nesting birds such as woodlark and nightjar, and wintering wildfowl;
- Prevent appropriate management or exacerbate existing management difficulties;
- Cause damage through erosion; and
- Cause eutrophication as a result of dog fouling.

Different types of European sites (e.g. heathland, chalk grassland) are subject to different types of recreational pressures and have different vulnerabilities. Studies across a range of species have shown that the effects from recreation can be complex.

There have been several papers published that empirically demonstrate that damage to vegetation in woodlands and other habitats can be caused by vehicles, walkers, horses and cyclists:

- Wilson & Seney (1994)⁴ examined the degree of track erosion caused by hikers, motorcycles, horses and cyclists from 108 plots along tracks in the Gallatin National Forest, Montana. Although the results proved difficult to interpret, It was concluded that horses and hikers disturbed more sediment on wet tracks, and therefore caused more erosion, than motorcycles and bicycles.
- Cole et al (1995a, b)⁵ conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow & grassland communities (each tramped between 0 – 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling, and an inverse relationship with trampling intensity was discovered, although this relationship was weaker after one year than two weeks indicating some recovery of the vegetation. Differences in plant morphological characteristics were found to explain more variation in response between different vegetation types than soil and topographic factors. Low-growing, mat-forming grasses regained their cover best after two weeks and were considered most resistant to trampling, while tall forbs (non-woody vascular plants other than grasses, sedges, rushes and ferns) were considered least resistant. Cover of hemicryptophytes and geophytes (plants with buds below the soil surface) was heavily reduced after two weeks, but had recovered well after one year and as such these were considered most resilient to trampling. Chamaephytes (plants with buds above the soil surface) were least resilient to trampling. It was concluded that these would be the least tolerant of a regular cycle of disturbance.
- Cole (1995c)⁶ conducted a follow-up study (in 4 vegetation types) in which shoe type (trainers or walking boots) and trampler weight were varied. Although immediate damage was greater with walking boots, there was no significant difference after one year. Heavier

⁴ Wilson, J.P. & J.P. Seney. 1994. Erosional impact of hikers, horses, motorcycles and off road bicycles on mountain trails in Montana. Mountain Research and Development 14:77-88

⁵ Cole, D.N. 1995a. Experimental trampling of vegetation. I. Relationship between trampling intensity and vegetation response. Journal of Applied Ecology 32: 203-214

Cole, D.N. 1995b. Experimental trampling of vegetation. II. Predictors of resistance and resilience. Journal of Applied Ecology 32: 215-224

⁶ Cole, D.N. 1995c. Recreational trampling experiments: effects of trampler weight and shoe type. Research Note INT-RN-425. U.S. Forest Service, Intermountain Research Station, Utah.

trampers caused a greater reduction in vegetation height than lighter trampers, but there was no difference in effect on cover.

- Cole & Spildie (1998)⁷ experimentally compared the effects of off-track trampling by hiker and horse (at two intensities – 25 and 150 passes) in two woodland vegetation types (one with an erect forb understorey and one with a low shrub understorey). Horse traffic was found to cause the largest reduction in vegetation cover. The forb-dominated vegetation suffered greatest disturbance, but recovered rapidly. Higher trampling intensities caused more disturbance.

Dogs, rather than people, tend to be the cause of many management difficulties, notably by worrying grazing animals, and can cause eutrophication near paths. Nutrient-poor habitats such as heathland are particularly sensitive to the fertilising effect of inputs of phosphates, nitrogen and potassium from dog faeces⁸.

Underhill-Day (2005) summarises the results of visitor studies that have collected data on the use of semi-natural habitat by dogs. In surveys where 100 observations or more were reported, the mean percentage of visitors who were accompanied by dogs was 54.0%.

A survey undertaken during October 2011 by Oxford City Council to inform the Oxford Sites and Housing DPD identified that over 80% of visitors to the Oxford Meadows SAC live within 5km of the site. The majority of respondents (82%) indicated that they were residents of Oxford with only 4% being resident in other parts of Oxfordshire. Those settlements within Vale of White Horse from which visitors originated were Kennington, Botley, North Hinksey and Wytham. However, considerably less than 4% of visitors to the SAC derived from these settlements.

It should be emphasised that recreational use is not inevitably a problem. Many European sites are also National Nature Reserves (e.g. Cothill Fen) or nature reserves managed by wildlife trusts or nature conservation charities. At these sites, access is encouraged and resources are available to ensure that recreational use is managed appropriately.

Where increased recreational use is predicted to cause adverse impacts on a site, avoidance and mitigation should be considered. Avoidance of recreational impacts at European sites involves location of new development away from such sites; Local Development Frameworks (and other strategic plans) provide the mechanism for this. Where avoidance is not possible, mitigation will usually involve a mix of access management, habitat management and provision of alternative recreational space:

- *Access management* – restricting access to some or all of a European site - is not usually within the remit of the Council and restriction of access may contravene a range of Government policies on access to open space, and Government objectives for increasing exercise, improving health etc. However, active management of access is possible, for example as practised on nature reserves.
- *Habitat management* is not within the direct remit of the Council. However the Council can help to set a framework for improved habitat management by promoting cross-authority collaboration and S106 funding of habitat management. In the case of Vale of White Horse, opportunities for this are limited since, according to Natural England, the Cothill Fen and Hackpen Hill component SSSI units are in favourable or favourable recovering conditions.
- *Provision of alternative recreational space* can help to attract recreational users away from sensitive European sites, and reduce additional pressure on them. Some species for which European sites have been designated are particularly sensitive to dogs, and

⁷ Cole, D.N., Spildie, D.R. 1998. Hiker, horse and llama trampling effects on native vegetation in Montana, USA. *Journal of Environmental Management* 53: 61-71

⁸ Shaw, P.J.A., K. Lankey and S.A. Hollingham (1995) – Impacts of trampling and dog fouling on vegetation and soil conditions on Headley Heath. *The London Naturalist*, **74**, 77-82.

many dog walkers may be happy to be diverted to other, less sensitive, sites. However the location and type of alternative space must be attractive for users to be effective. The timely delivery of this suitable habitat in advance of occupation of dwellings is also required.

3.4 Atmospheric pollution

Current levels of understanding of air quality effects on semi-natural habitats are not adequate to allow a rigorous assessment of the likelihood of significant effects on the integrity of key European sites.

Table 5. Main sources and effects of air pollutants on habitats and species

Pollutant	Source	Effects on habitats and species
Acid deposition	SO ₂ , NO _x and ammonia all contribute to acid deposition. Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, it is likely that increased N emissions may cancel out any gains produced by reduced S levels.	Can affect habitats and species through both wet (acid rain) and dry deposition. Some sites will be more at risk than others depending on soil type, bed rock geology, weathering rate and buffering capacity.
Ammonia (NH ₃)	Ammonia is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but levels have increased considerably with expansion in numbers of agricultural livestock. Ammonia reacts with acid pollutants such as the products of SO ₂ and NO _x emissions to produce fine ammonium (NH ₄ ⁺)-containing aerosol which may be transferred much longer distances (can therefore be a significant trans-boundary issue.)	Adverse effects are as a result of nitrogen deposition leading to eutrophication. As emissions mostly occur at ground level in the rural environment and NH ₃ is rapidly deposited, some of the most acute problems of NH ₃ deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides NO _x	Nitrogen oxides are mostly produced in combustion processes. About one quarter of the UK's emissions are from power stations, one-half from motor vehicles, and the rest from other industrial and domestic combustion processes.	Deposition of nitrogen compounds (nitrates (NO ₃), nitrogen dioxide (NO ₂) and nitric acid (HNO ₃)) can lead to both soil and freshwater acidification. In addition, NO _x can cause eutrophication of soils and water. This alters the species composition of plant communities and can eliminate sensitive species.
Nitrogen (N) deposition	The pollutants that contribute to nitrogen deposition derive mainly from NO _x and NH ₃ emissions. These pollutants cause acidification (see also acid deposition) as well as eutrophication.	Species-rich plant communities with relatively high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication, due to its promotion of competitive and invasive species which can respond readily to elevated levels of N. N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.

Pollutant	Source	Effects on habitats and species
Ozone (O ₃)	A secondary pollutant generated by photochemical reactions from NO _x and volatile organic compounds (VOCs). These are mainly released by the combustion of fossil fuels. The increase in combustion of fossil fuels in the UK has led to a large increase in background ozone concentration, leading to an increased number of days when levels across the region are above 40ppb. Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone.	Concentrations of O ₃ above 40 ppb can be toxic to humans and wildlife, and can affect buildings. Increased ozone concentrations may lead to a reduction in growth of agricultural crops, decreased forest production and altered species composition in semi-natural plant communities.
Sulphur Dioxide SO ₂	Main sources of SO ₂ emissions are electricity generation, industry and domestic fuel combustion. May also arise from shipping and increased atmospheric concentrations in busy ports. Total SO ₂ emissions have decreased substantially in the UK since the 1980s.	Wet and dry deposition of SO ₂ acidifies soils and freshwater, and alters the species composition of plant and associated animal communities. The significance of impacts depends on levels of deposition and the buffering capacity of soils.

The main pollutants of concern for European sites are oxides of nitrogen (NO_x), ammonia (NH₃) and sulphur dioxide (SO₂). NO_x can have a directly toxic effect upon vegetation. In addition, greater NO_x or ammonia concentrations within the atmosphere will lead to greater rates of nitrogen deposition to soils. An increase in the deposition of nitrogen from the atmosphere to soils is generally regarded to lead to an increase in soil fertility, which can have a serious deleterious effect on the quality of semi-natural, nitrogen-limited terrestrial habitats.

Sulphur dioxide emissions are overwhelmingly influenced by the output of power stations and industrial processes that require the combustion of coal and oil. Ammonia emissions are dominated by agriculture, with some chemical processes also making notable contributions. As such, it is unlikely that material increases in SO₂ or NH₃ emissions will be associated with Local Development Frameworks. NO_x emissions, however, are dominated by the output of vehicle exhausts (more than half of all emissions). Within a 'typical' housing development, by far the largest contribution to NO_x (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison⁹. Emissions of NO_x could therefore be reasonably expected to increase as a result of greater vehicle use as an indirect effect of the LDF.

According to the World Health Organisation, the critical NO_x concentration (critical threshold) for the protection of vegetation is 30 µgm⁻³; the threshold for sulphur dioxide is 20 µgm⁻³. In addition, ecological studies have determined 'critical loads'¹⁰ of atmospheric nitrogen deposition (that is, NO_x combined with ammonia NH₃) for key habitats within European sites.

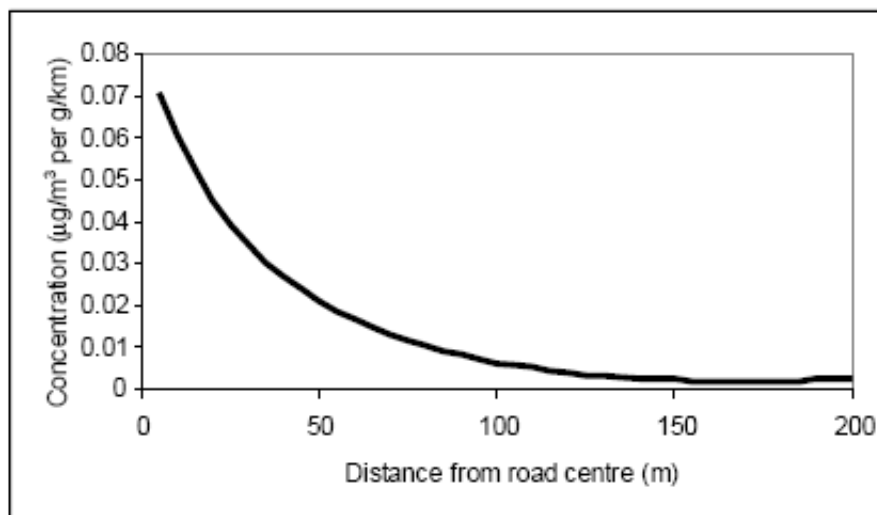
Local Air Pollution

⁹ Proportions calculated based upon data presented in Dore CJ et al. 2005. UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. <http://www.airquality.co.uk/archive/index.php>

¹⁰ The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur

According to the Department of Transport's Transport Analysis Guidance, "Beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant"¹¹.

Figure 3. Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT)



This is therefore the distance that has been used throughout this HRA in order to determine whether European sites are likely to be significantly affected by development under the Local Plan Part 1 and Additional Consultation document. Given that sites detailed in Table 6 lie within 200m of roads that may be regularly used by vehicle journeys arising from VoWH as a result of the increased population, it was concluded that air quality should be included within the scope of this assessment. The location of these roads in relation to the European sites is shown in Figure 1.

Table 6. Critical nitrogen loads, actual rates of nitrogen deposition and NOx concentrations¹² for the four European sites considered within this assessment (APIS data correct as of 04/08/14). Note that the data presented in this table are based on centroids for the European site; deposition rates and concentrations in different parts of each European site may vary

¹¹ www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf

¹² As NO₂

Site	Grid reference ¹³	Key habitats	Minimum ¹⁴ critical loads (Kg N/ha/yr)	Actual nitrogen deposition ¹⁵	Actual NOx concentration (µgm ⁻³)	Actual SO ₂ concentration (µgm ⁻³)
Cothill Fen SAC	SU463999	Fen, marsh and swamp	15	20.2	14.2	1.2
Hackpen Hill SAC	SU352847	Calcareous grassland	15	21.4	8.7	0.9
Little Wittenham SAC	SU572929	Wood pastures and parklands	10	40.6	12.1	1.3
Oxford Meadows SAC	SP484099	Neutral grassland	20	17.1	15.2	1.4

Diffuse air pollution

In addition to the contribution to local air quality issues, development can also contribute cumulatively to an overall deterioration in background air quality across an entire region. In July 2006, when this issue was raised by Runnymede Borough Council in the South East, Natural England advised that their Local Development Framework ‘can only be concerned with locally emitted and short range locally acting pollutants’ as this is the only scale which falls within a local authority remit. It is understood that this guidance was not intended to set a precedent, but it inevitably does so since (as far as we are aware) it is the only formal guidance that has been issued to a Local Authority from any Natural England office on this issue.

In the light of this and our own knowledge and experience, it is considered reasonable to conclude that diffuse pan-authority air quality impacts are the responsibility of higher tier strategies or national government, both since they relate to the overall quantum of development within a region (over which individual districts have little control), and since this issue is best addressed at the highest pan-authority level. Diffuse air quality issues will not therefore be considered further within this HRA.

3.5

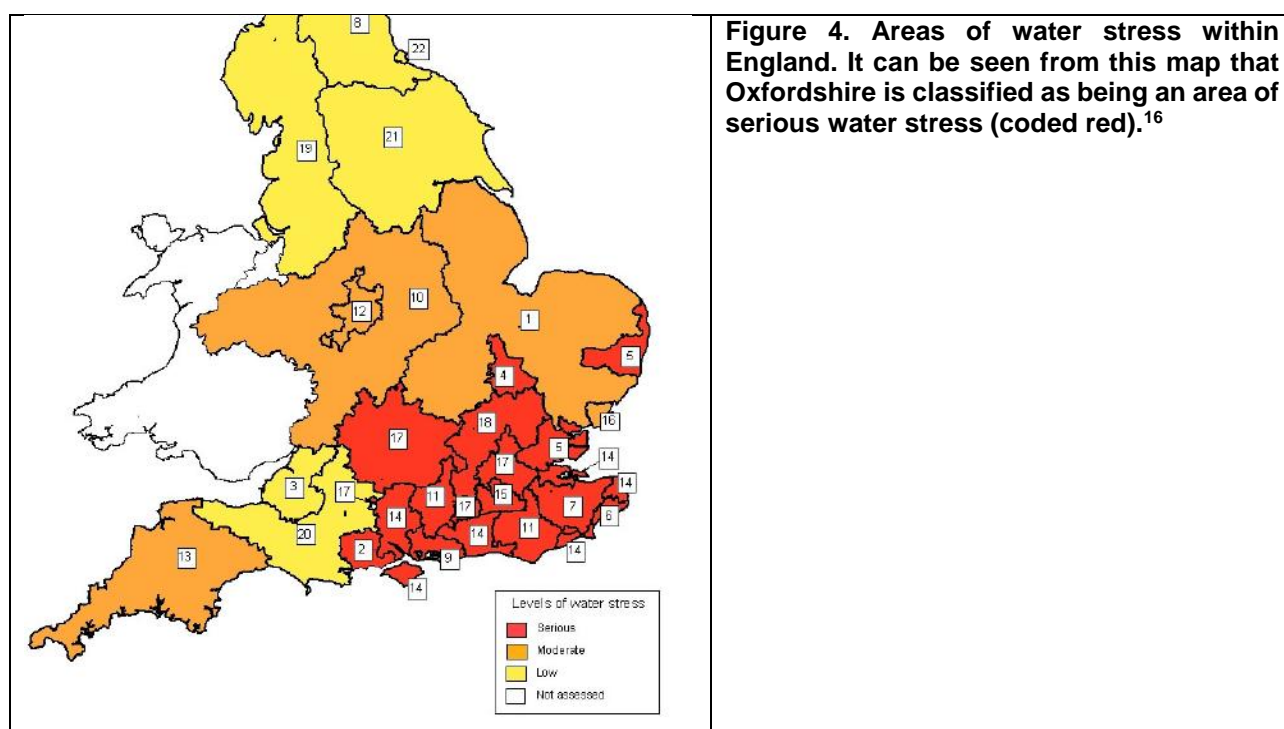
Water abstraction

The South East is generally an area of high water stress (see Figure 4).

¹³ For sites outside Vale of White Horse District, grid references relate to the closest points to the District.

¹⁴ APIS provides a critical load range – on a precautionary basis, this assessment uses the lowest figure in that range

¹⁵ To a resolution of 5 km



Development within Vale of White Horse District over the plan period will increase water demand.

The majority of the Vale of White Horse district is supplied via the Kennet and Vale of the White Horse catchment¹⁷, with a combination of surface and groundwater supply, with most from groundwater and for public water supply, the remainder for farming, domestic, recreation, industry and the environment. The southern boundary of the Vale of White Horse CAMS area is dominated by a Chalk and Upper Greensand outcrop. A groundwater divide follows the topography of the catchment, with groundwater in the scarp slope flowing into the Vale of White Horse catchment, and the remainder flowing into the Kennet catchment. This groundwater flow feeds the headwaters of the surface watercourses within the CAMS area. In the rest of the catchment, clays underlie the area so the rivers are typically flashy in nature (respond quickly to rainfall events).

The catchment areas underlying the VoWH are regarded as having water available for abstraction. All new consumptive surface water and groundwater licences (only those that are in direct hydraulic continuity with a nearby river) will be subject to a dual hands off flow (HOF) system (a local HOF and a Q50 HOF set at Kingston on the River Thames) to protect flows in the Lower Thames. Abstraction in the Vale draws upon water resources from the wider River Thames catchment, and the Lower Thames is classified as 'over-abstacted.' Any consumptive abstraction from the tributaries will reduce flows in the Thames, causing the Lower Thames to become further 'over abstracted.' Flows in the Lower Thames need to be maintained for the environment, navigation, recreation and to protect existing licences, including abstractions for public water supply. The Vale of White Horse CAMS rivers are all tributaries of the River Thames.

¹⁶ Figure adapted from Environment Agency. 2007. Identifying Areas of Water Stress. <http://publications.environment-agency.gov.uk/pdf/GEHO0107BLUT-e-e.pdf>

¹⁷ Environment Agency. 2012. The Kennet and Vale of White Horse Catchment Abstraction Licencing Strategy

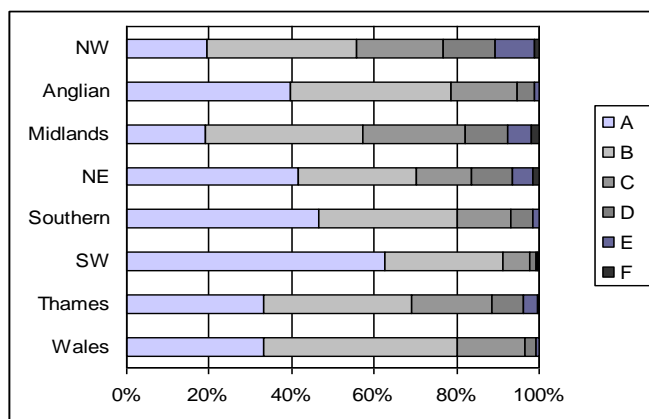
According to the draft Thames Water Resources Management Plan (2014), the Vale of White Horse is covered by Thames Water's Swindon, North and South Oxfordshire (SWOX) Water Resources Zone (WRZ). This WRZ is calculated to suffer an increasing deficit under peak demand, rising to -33 Ml/d by 2039/40. Whilst Thames Water Utilities Ltd intends to increase its metering programmes into the zone in order to conserve resources, it already has low levels of leakage.

3.6 Water quality

Increased amounts of housing or business development can lead to reduced water quality of rivers and estuarine environments. Sewage and industrial effluent discharges can contribute to increased nutrients on European sites leading to unfavourable conditions. In addition, diffuse pollution, partly from urban run-off has been identified during an Environment Agency Review of Consents process, as being a major factor in causing unfavourable condition of European sites.

Overall, water quality in England is improving, but there is still a considerable disparity between the various regions.

Figure 5. Biological water quality of rivers and canals, 2005 (Defra, 2005)¹⁸



The quality of the water that feeds European sites is an important determinant of the nature of their habitats and the species they support. Poor water quality can have a range of environmental impacts:

- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour.
- Eutrophication, the enrichment of plant nutrients in water, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In the marine environment, nitrogen is the limiting plant nutrient and so eutrophication is associated with discharges containing available nitrogen.

¹⁸ Department for Environment, Food and Rural Affairs (2005) Biological water quality of rivers and canals: 1990, 1995, 200 to 2005, England, Wales and Northern Ireland. Biological grading is based on the monitoring of invertebrates that live in, or on the bed of, rivers and canals. A and B = good; C and D = fair; E = poor; F = bad

Some pesticides, industrial chemicals, and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life.

The watercourses in the Vale of White Horse catchment have been monitored by the Environment Agency¹⁹ (and river quality data is consequently available): the area is assessed as mostly having moderate or good biological quality (with the exception of watercourses north and west of Faringdon) and good chemical quality.

A consequence of increased development within the Vale will be increased volume of waste water and sewage. For treatment works close to capacity, further development may increase the risk of effluent escape into aquatic environments. In many urban areas, sewage treatment and surface water drainage systems are combined, and therefore a predicted increase in flood and storm events could increase pollution risk.

Waste water within the district is dealt with by Thames Water Utilities Ltd. Research carried out by the Environment Agency in 2006 indicated that, based on housing projections at that time, of 11,560 new dwellings in VoWH, future sewage treatment capacity for the sewage treatment works within the Vale of White Horse could be rendered adequate to deal with projected growth to 2026 without upgrades being required²⁰ and would therefore not have an adverse effect upon receiving waters. However, the Abingdon sewage treatment works would need to reduce the levels of phosphorous in discharged water.

In addition to water quality from treated effluent discharge, surface water quality can also be affected through runoff on hard standing or tarmac which can affect European sites if it occurs within the catchment of that European site.

¹⁹ http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e

²⁰ Environment Agency. May 2006. Creating a Better Place: Planning for Water Quality and Growth in the South East

4 SCREENING OF LOCAL PLAN PART 1 POLICIES

4.1 Introduction

The following table (Table 7) highlights the proposed Local Plan policies including revisions. Where there is a conclusion of no likely significant effect on European sites, the final column is shaded green. Where this conclusion cannot be made, the shading is orange to indicate that more detailed screening is required. That more detailed screening is presented in later chapters.

Table 7. HRA Screening of Local Plan Policies

Policy reference	Policy	Preliminary HRA Screening outcome
Policy 1 – Presumption in Favour of Sustainable Development	<p>Planning applications that accord with this Local Plan 2031 (and where relevant, with any subsequent Development Plan Documents or Neighbourhood Plans) will be approved, unless material considerations indicate otherwise.</p> <p>Where there are no policies relevant to the application or relevant policies are out of date at the time of making the decision then the council will grant planning permission unless material considerations indicate otherwise, and unless:</p> <p>i. any adverse impacts of granting planning permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole, or</p> <p>iii. specific policies in the Framework indicate that development should be restricted.</p>	This policy reflects the position of the NPPF in the presumption in favour of sustainable development. However, there is an explicit caveat with respect to protection of European sites within the NPPF, and thus in itself this policy does not create any likely significant effects.

Policy reference	Policy	Preliminary HRA Screening outcome
Policy 2 - Cooperation on unmet Housing Need for Oxfordshire	<p>The council will continue to fulfil its statutory 'duty-to-cooperate' by working effectively with all the other Oxfordshire local authorities in accordance with the Oxfordshire Statement of Cooperation to seek to jointly meet, in full, the objectively assessed need for economic and housing growth across the Oxfordshire housing market area.</p> <p>The 2014 Oxfordshire Strategic Housing Market Assessment (SHMA) identifies a significant level of housing need in Oxfordshire. The council recognises that Oxford City may not be able to accommodate the whole of its new housing requirement for the 2011-2031 period within its administrative boundary.</p> <p>Whilst the extent to which Oxford City can meet its own needs is robustly tested and agreed, the council will first seek to meet its own housing needs in full, to help ensure that the needs of both the district and the housing market area as a whole are met as quickly as possible.</p> <p>In tandem, the council will continue to work jointly with all of the other Oxfordshire local authorities to address any un-met housing need. This will include assessing all reasonable spatial options, including the release of brown field land, the potential for new settlements and a full strategic review of the whole of the Oxford Green Belt. These issues are not for the council to consider in isolation. These options will need to be undertaken in accordance with national policy, national guidance, the Environmental Assessment of Plans and Programmes Regulations, and the Habitats Regulations Assessment to establish how and where any un-met need might best be</p>	<p>This policy does not create any LSE on European sites, since it is merely a statement of intent to co-operate with other local authorities, and any subsequent decisions on housing requirements would be considered within further planning documents. Therefore the need to undertake HRA would be more appropriately undertaken at that stage.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>accommodated within the Oxfordshire Housing Market Area.</p> <p>If following this joint work it is identified and agreed either through the Spatial Planning and Infrastructure Partnership or through an adjoining local plan examination that any unmet housing need is required to be accommodated within this district, the council will either:</p> <ul style="list-style-type: none"> • undertake a full or focused partial review of the Local Plan 2031, or • allocate appropriate housing sites through a subsequent development plan document in conformity with the spatial strategy set out in the Local Plan 2031. <p>The appropriate approach will depend on the scale of the unmet need to be accommodated.</p>	
Policy 3 – Settlement Hierarchy	<p>Market Towns</p> <p>Market Towns are defined as settlements that have the ability to support the most sustainable patterns of living within the Vale through their current levels of facilities, services and employment opportunities.</p> <p>Market Towns have the greatest long-term potential for development, to provide the jobs and homes to help sustain, and where appropriate, enhance their services and facilities to support viable and sustainable communities in a proportionate manner.</p> <p>Local Service Centres</p>	There are no LSE associated with this policy, since it defines settlements, rather than promoting new growth.

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>Local Service Centres are defined as larger villages or neighbourhoods to larger settlements with a level of facilities and services and local employment to provide the next best opportunities for sustainable development outside the Market Towns.</p> <p>Larger Villages</p> <p>Larger villages are defined as settlements with a more limited range of employment, services and facilities. Unallocated development will be limited to providing for local needs and to support employment, services and facilities within local communities.</p> <p>Smaller Villages (SEE LPP1 FOR FULL WORDING)</p>	
Policy 4 - Meeting Our Housing Needs	<p>The housing target for the Vale of White Horse District is for at least 20,560 homes to be delivered in the plan period between 2011 and 2031. 13,960 dwellings will be delivered through strategic allocations. 1,900 dwellings remain to be identified and will be allocated through the Local Plan 2031 Part 2 or Neighbourhood Development Plans or through the Development Management process. The contribution of all sources of housing supply are shown by the following table: (SEE LPP1 FOR FULL DETAILS)</p>	<p>The levels of housing development have potential to create LSE on European sites through each of the Pathways of Impact identified in Chapter 3 of this report.</p> <p>Development within Vale of White Horse may lead to increased visitor access to some European sites, increased road transport past sensitive European sites and increased demand for water resources and waste water treatment.</p> <p>Therefore the housing allocations require further consideration within the main body of this report before a decision can be made on whether LSE on European sites can be ruled out.</p>
Policy 5 – Housing Supply Ring-Fence	<p>The council will employ a ring-fence approach to housing delivery in the key development locations within the Science Vale area as shown by Figure 4.3 and set out on the Adopted Policies Map (Publication Version).</p>	<p>There is no LSE from this policy as it seeks to safeguard a particular zone to ensure that housing levels within that zone are appropriate, rather than to define a quantum of delivery beyond that already defined in Policy 4.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	For the purposes of the assessment of housing land supply the ring fence area will be treated as a separate sub-area with a housing requirement of 11,850 homes in the plan period (593 homes per annum) in support of the 15,850 jobs planned in this sub-area and as a contribution towards the district's housing need set out in Core Policy 4.	
Policy 6 – Meeting Business and Employment Needs	189 hectares of land is identified for future employment development on the following strategic sites and saved Vale Local Plan 2011 allocations. (SEE LPP1 FOR FULL DETAILS)	<p>Both Didcot and Harwell are in close proximity to the A34 that runs through Oxford Meadows SAC. These employment sites have potential to lead to increased commuter traffic past the SAC.</p> <p>Increased employment capacity will also lead to a need for water resources and waste water treatment capacity.</p> <p>Therefore this requires further consideration before a decision can be made on whether LSE on European sites can be ruled out.</p>
Policy 7 – Providing Supporting Infrastructure and Services	<p>All new development will be required to provide for the necessary on-site and, where appropriate, off-site infrastructure requirements arising from the proposal. Infrastructure requirements will be delivered directly by the developer and /or through an appropriate financial contribution prior to, or in conjunction with, new development. In ensuring the timely delivery of infrastructure requirements, development proposals must demonstrate that full regard has been paid to the Infrastructure Delivery Plan and all other relevant policies of this plan.</p> <p>If infrastructure requirements could render the development unviable, proposals for major development should be supported by an independent viability assessment on terms agreed by the relevant parties</p>	<p>The policy does commit to the timely provision of infrastructure in line with other new development.</p> <p>Partnership working with adjoining authorities is also proposed.</p> <p>Both of these measures would help to reduce the likelihood of other developments having LSE through pathways such as reduced air quality, water resources or water quality.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>including the Council and County Council, and funded by the developer. This will involve an open book approach. Where viability constraints are demonstrated by evidence, the Council will:</p> <ul style="list-style-type: none"> i. prioritise the developer contributions sought with regard to the IDP (i.e. first priority to Essential Infrastructure and second priority to Place Shaping Infrastructure), and/ or ii. use an appropriate mechanism to defer part of the developer contributions requirement to a later date, and/ or iii. as a last resort, refuse planning permission if the development would be unsustainable without inclusion of the unfunded infrastructure requirements. <p>The Council's Delivering Infrastructure Strategy will include both a CIL Charging Schedule and a Supplementary Planning Document for Section 106 and Section 278 legal agreements that will provide more detail about its approach to securing developer contributions.</p> <p>Upon adoption of the CIL Charging Schedule, CIL will be used to pool developer contributions towards a wide range of new and improved infrastructure necessary to deliver new development.</p> <p>Where not covered by the CIL Charging Schedule, infrastructure and services, including provision for their maintenance, should be delivered directly by the developer through the development management process and in accordance with The Reg 122 Tests.</p> <p>Planning conditions and planning obligations will be sought to mitigate the direct impact (s) of development,</p>	

Policy reference	Policy	Preliminary HRA Screening outcome
	secure its implementation, control phasing where necessary, and secure contributions to the delivery of the necessary infrastructure.	
Policy 8 - Spatial Strategy for Abingdon on Thames and Oxford Fringe Sub-Area	<ul style="list-style-type: none"> Our over-arching priority for this sub-area is to maintain the service and employment centre roles for Abingdon-on-Thames and Botley and ensuring growth is managed to minimise pressure on the highway network whilst protecting the Oxford Green Belt. 	<p>There is potential for increased road transport past the Oxford Meadows SAC as a result, and therefore further assessment of air quality effects on this site are required before a conclusion on LSE can be reached. New development may also lead to increased visitor pressure on the SAC.</p> <p>There is also potential for new development to have effects on Cothill Fen SAC (recreational pressure, water resources, water quality) and these require further consideration.</p>
Policy 9 – Harcourt Hill Campus	<p>The council will work proactively with Oxford Brookes University, Oxfordshire County Council, local residents and other appropriate stakeholders to help the university to develop a masterplan for the Harcourt Hill Campus site that meets the university's longer term business needs for predominately educational uses and in a manner that respects its Green Belt setting and urban-rural fringe context.</p> <p>Proposals for the upgrading or redevelopment of the Harcourt Hill Campus will be supported where brought forward through a site-wide masterplan that sets a clear vision for the future use of the site. The master plan should be prepared to a standard suitable for submission as an outline planning application, clearly identifying and addressing key site issues including but not limited to the following matters:</p> <p>i. the scale of development proposed and intended uses</p>	<p>Harcourt Hill is adjacent to the A34 and hence new development at this location could lead to increased volumes of traffic on the A34 past Oxford Meadows SAC. LSE on Oxford Meadows SAC through reduced air quality cannot be screened out without further analysis.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>ii. the integration of built form into the landscape including a comprehensive landscape, tree and planting strategy</p> <p>iii. sustainable site access including by public transport, and the effective management of car trips and car parking demand to a level that can safely be accommodated on the local road network, and</p> <p>iv. the safeguarding of long distance views of the site from Oxford, to ensure that new development does not detract from views of the existing spires by reason of its height or form.</p>	
Policy 10 – Abbey Shopping Centre and The Charter, Abingdon-on-Thames	<p>Within the Abbey Shopping Centre and the Charter Area (as defined on the Adopted Policies Map) proposals for retail led development will be supported. Applicants will need to demonstrate that proposals reflect the planning and urban design guidance set out in the adopted Supplementary Planning Document for the area to deliver high quality retail led development, which successfully compliments and integrates with the existing Phase 1 Abbey Shopping Centre.</p> <p>Proposals should ensure that the retail element (A1 use) of the Charter is maximised to ensure the vitality and viability of the town centre is maintained and enhanced over the plan period.</p> <p>Proposals should demonstrate how they will mitigate their transport impact, including improving facilities for pedestrians and cyclists.</p>	<p>Although in theory, new development in Abingdon could give rise to increased traffic on the A34 past Oxford Meadows SAC, the scale of new development is unlikely to be major, and the policy does include mitigation by stating that proposals should contribute toward mitigating transport impacts.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
Core Policy 11 – Botley Central Area	<p>Proposals for a comprehensive retail-led redevelopment and upgrading of Botley central area, as defined on the Adopted Policies Map, will be supported provided that:</p> <ul style="list-style-type: none"> i. taken as a whole, the proposals support the role and function of Botley as a local service centre, equivalent to a district centre in the Oxford City context, providing a well-integrated mix of shops and services to meet day-to-day shopping needs of the local area ii. effective use is made of development potential above ground level and on more peripheral parts of the site for a mix of uses that may include, but are not limited to, office, community, residential, hotel and leisure activities. iii. existing community facilities, including the community hall, library and Baptist church are replaced with facilities of an appropriate size and quality to meet current and likely future local needs iv. it can be demonstrated that proposals will not harm the character or appearance of the local area, particularly West Way, Arthray Way and Westminster Way v. proposals for the site are prepared through a comprehensive masterplanning process providing an integrated solution to site access, traffic management, air quality management, servicing and sufficient car parking whilst prioritising the pedestrian customer environment, and vi. proposals that seek to demolish Elms Parade should demonstrate that its successor is of at least equal 	<p>The policy does not imply that major levels of growth would be expected, but it does not provide significant mitigation in the form of measures to mitigate transport impacts.</p> <p>Botley lies adjacent to the A34, and therefore at this stage LSE on Oxford Meadows SAC through reduced air quality cannot be screened out without further analysis.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	architectural merit and particular attention should be given to provide at least the same level of active frontage.	
Policy 12 – Safeguarding of Land for Strategic Highway Improvements in the Abingdon on Thames and Oxford Fringe Sub Area	<p>Land is safeguarded to support the delivery of the following identified transport schemes:</p> <ul style="list-style-type: none"> • South Abingdon-on-Thames Bypass linking the A415 to the West and South East of the town including a new River Thames crossing • Diamond Interchange at the A34 Lodge Hill Junction <p>New development in these areas should be carefully designed having regard to matters such as building layout, noise insulation, landscaping and means of access.</p> <p>Any proposals for development that may reasonably be considered to impact the delivery of the identified schemes (as shown by maps in Appendix E and the Adopted Policies Map)* should demonstrate the proposal would not harm their delivery.</p> <p>Planning permission will not be granted for development that would prejudice the construction or effective operation of the transport schemes listed above.</p> <p>* the area shown on the Adopted Policies Map illustrates where policy CP12 will apply. It does not seek to show a precise alignment for the transport scheme, which will need to be informed by detailed design work, carried out in consultation with Oxfordshire County Council and other relevant parties.</p>	<p>There is no LSE on European sites arising from this policy, as no new development is promoted, the policy is concerned only with safeguarding. Each scheme would need to be evaluated on its own merits as applications were developed, but given the distance between these schemes and the European sites it is considered unlikely any potential effect would arise.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
Policy 13 – The Oxford Green Belt	<p>The Oxford Green Belt area in the Vale, as amended following local Green Belt Review will continue to be protected to maintain its openness and permanence.</p> <p>Development will be permitted in the following settlements, which are inset to the Green Belt (as shown on the Adopted Policies Map), where the proposed development is within the existing built area of the village and in accordance with Core Policies 3 and 4:</p> <p>Appleton, Botley, Cumnor, Farmoor, Kennington, Radley and Wootton</p>	<p>The policy propose new development within the green belt, which will include release of strategic sites for development.</p> <p>Any increase in levels of housing development has potential to create LSE on European sites through each of the Pathways of Impact identified in Chapter 3 of this report.</p> <p>Development within Vale of White Horse may lead to increased visitor access to some European sites, increased road transport past sensitive European sites and increased demand for water resources and waste water treatment.</p> <p>Therefore the release of green belt land that may be used for housing allocations requires further consideration within the main body of this report before a decision can be made on whether LSE on European sites can be ruled out.</p>
Policy 14 – Upper Thames Reservoir	<p>Land is safeguarded for a reservoir and ancillary works between the settlements of East Hanney, Drayton and Steventon, until the examination of Thames Water's Resources Management Plan 2019. Until or subject to that decision, development that might prejudice the implementation of the Upper Thames Reservoir will be refused. The safeguarded area for the proposed reservoir is shown on the Adopted Policies Map.</p> <p>The proposed reservoir, if included in an adopted Water Resources Management Plan, must be brought forward through a comprehensive masterplanning process agreed between the community, the local authority, the local highway authority and the statutory utility provider.</p> <p>Any proposal for a reservoir must:</p>	<p>This policy in itself seeks only to safeguard land, rather than promote development.</p> <p>Therefore there is no LSE on European sites.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>1. be demonstrably the best option to meet a clearly identified need, having regard to reasonable alternative options as set out within an adopted Water Resources Management Plan, and</p> <p>2. be in accordance with a comprehensive planning and development brief, including a master plan and design statement that:</p> <p>i. mitigates the impact of construction on local people, the environment and roads</p> <p>ii. minimises the effects on the landscape of an embankment reservoir through its design, general configuration and the use of hard and soft landscaping</p> <p>iii. maximises the creation of wildlife habitats and biodiversity</p> <p>iv. promotes the recreational uses of the reservoir consistent with the landscaping and biodiversity values of the proposal and having regard to the traffic impacts of such uses</p> <p>v. includes a new route for the diverted Hanney to Steventon road, to include provision for an off-road cycle path</p> <p>vi. makes provision for the new route of the Wilts and Berks Canal, and</p> <p>vii. includes measures to avoid and mitigate any other significant impacts identified through the environmental impact assessment of the proposal,</p>	

Policy reference	Policy	Preliminary HRA Screening outcome
	including on the local and wider highway networks and on surface water and fluvial flooding.	
Policy 15 – Spatial Strategy for South East Vale Sub-Area	<p>Our over-arching priority for this sub-area is to secure the aligned delivery of housing and employment growth together with the infrastructure required to achieve sustainable development.</p> <p>Development in the South East Vale Area should be in accordance with the Settlement Hierarchy set out in Core Policy 3:</p> <p>Market Town: Wantage</p> <p>Local Service Centre: Grove</p> <p>Larger Villages: Blewbury, East Hendred, Harwell, Harwell Campus*, Milton and Sutton Courtenay</p> <p>Smaller Villages: Appleford, Ardington, Chilton, Milton Heights, Rowstock, Upton and West Hendred</p> <p>*Harwell Campus has facilities and services equivalent to a larger village</p> <p><u>Housing Delivery</u></p> <p>At least 12,450 new homes will be delivered in the plan period between 2011 and 2031. 10,320 dwellings will be delivered through strategic allocations. 220 dwellings remain to be identified</p> <p>and will be allocated through the Local Plan 2031 Part 2 or Neighbourhood Development Plans</p>	<p>The policy identifies strategic housing sites within the Sub-Area, as well as provision of employment land.</p> <p>There is potential for increased road traffic past Oxford Meadows on the A34 as a result, leading to potentially reduced air quality.</p> <p>Further consideration is required before a decision can be made on whether LSE on European sites can be ruled out.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>or through the Development Management Process. The contribution of all sources of housing</p> <p>for this sub-area are shown by the following table:</p>	
Policy 16 – Didcot A Power Station	<p>The council supports the redevelopment of the Didcot A site to provide a high quality mixed-use development. Up to 29 hectares of the site will continue to be reserved for a range of employment uses, predominantly B1 particularly on active frontages, there is scope for other B2 and B8 uses elsewhere on the site. The provision of other uses on the remainder of the site such as residential, ancillary retail, (including bulky goods retailing), institutional or community use, will be considered favourably.</p> <p>These uses need to be carefully considered in the master planning process to ensure that the site encourages active frontages along key transport/ movement corridors connecting it with Didcot Town Centre, Milton Park and Valley Park for example via the new Science Bridge.</p> <p>The mix of these uses will need to reflect demand, suitability of the site and any transport implications to be identified by a detailed transport assessment. Any development will need to be appropriate to the site's location adjacent to Didcot B Power Station.</p> <p>The proposed route of the new Science Bridge and A4130 re-routing is safeguarded. Planning permission will not be granted for development that would prejudice the construction or effective operation of this highway infrastructure in accordance with Core Policy 17.</p>	<p>Redevelopment of the Didcot A site could result in increased road traffic accessing the site from the A34, which runs through Oxford Meadows SAC. Therefore reduced air quality could result. Further consideration is required before a decision can be made on whether LSE on European sites can be ruled out.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
Policy 17 – Delivery of Strategic Highway Improvements within the South-East Vale Sub Area	<p>In order to deliver the growth in the South East Vale Sub-Area and the wider Science Vale area, the Science Vale Area Strategy has identified highways infrastructure to mitigate the impact of the planned growth across Science Vale and secure the future economic viability of the area. The package will be further refined through development of the Local Transport Plan 4 being developed by Oxfordshire County Council, and the Science Vale Area Action Plan.</p> <p>All development within the South East Vale Sub-Area will be required to contribute in accordance with Core Policy 7: Providing Supporting Infrastructure and Services. Within the South East Vale Sub-Area this will include contributions towards the infrastructure identified within the Science Vale Area Strategy:</p> <ul style="list-style-type: none"> • access to the strategic road network, for example improvements to the A34 at the Milton and Chilton junctions • Backhill Lane tunnel (pedestrian and cycle link) and junction on the A4130 • a new link road at north east Wantage between the A338 and A417 (known as the Wantage Eastern Link Road) • relief to the road network at Rowstock and Harwell (including an improved junction configuration at Steventon Lights, upgrading Featherbed Lane and Hagbourne Hill) • Science Bridge and A4130 re-routing through the Didcot A site • A4130 dualling between Milton Interchange and Science Bridge 	<p>The Wantage Eastern Link Road will not affect any European sites. Transport issues relating to European sites essentially relate to traffic movement along the A34 and A40 past Oxford Meadows SAC and are linked to the volume of housing to be delivered. Traffic volumes on these roads arising from Vale of White Horse district will not be affected by changes to transport infrastructure within the Vale of White Horse itself, despite the fact that the SVUK Integrated Transport Package will involve improvements to the A34 at the Milton and Chilton junctions.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<ul style="list-style-type: none"> A new Harwell Link Road between the B4493 and A417 a new strategic road connection between the A415 east of Abingdon-on-Thames and the A4130 north of Didcot including a new crossing of the River Thames route improvements to the A417 between Wantage and Blewbury improvement of the strategic cycle network improvement to the bus network, particularly between the strategic housing and employment growth, including a priority bus system between Harwell Campus and Didcot a West Wantage Relief Road 	
Policy 18 – Safeguarding of Land for Transport Schemes in the South East Vale Sub Area	<p>Land is safeguarded to support the delivery of the identified transport schemes listed by Core Policies 17 and 19.</p> <p>Any proposals for development that may reasonably be considered to impact the delivery of the identified transport schemes (as indicated by the Adopted Policies Map)* should demonstrate the proposal would not harm their delivery.</p> <p>Planning permission will not be granted for development that would prejudice the construction or effective operation of the transport schemes listed.</p> <p>New development in these areas should be carefully designed having regard to matters such as building layout, noise insulation, landscaping and means of access. Where appropriate, further detail for these schemes will be set out in the Science Vale Area Action Plan.</p>	<p>Although major new transport schemes should be subject to HRA, this policy in itself seeks only to safeguard land, rather than promote development.</p> <p>Therefore there is no LSE on European sites.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	* the area shown on the Adopted Policies Map illustrates where policy Core Policy 17 will apply. It does not seek to show a precise alignment for the transport schemes, which will need to be informed by detailed design work, carried out in consultation with Oxfordshire County Council and other relevant parties.	
Core Policy 19: Re-opening of Grove Railway Station	<p>The council will continue to support the re-opening of the railway station at Grove, ideally within the lifetime of this plan, and will work with rail operators, Oxfordshire County Council and other partners to develop and implement a strategy to re-open the station and ensure opportunities to do so are maximised.</p> <p>Planning permission will not be granted for development that would prejudice the construction or effective operation of the re-opening of Grove Railway Station in accordance with Core Policy 18.</p>	No link to European sites is identified.
Policy 20 – Spatial Strategy for Western Vale Sub Area	<p>Our overarching priority for this sub-area is to protect the service centre role of Faringdon and deliver a balance of housing and employment to improve the self-sufficiency of the area and to protect the vitality and viability of our rural communities.</p> <p>Development in the Western Vale Sub Area should be in accordance with the Settlement Hierarchy set out in Core Policy 3:</p> <p>Market Town: Faringdon</p> <p>Larger Villages: East Challow, Shrivenham, Stanford-in-the-Vale, Uffington and Watchfield</p>	<p>Although the major foci of this development, Faringdon and Shrivenham, lie approximately 25km and 30km from Oxford Meadows SAC respectively, there are good transport links via the A420 and A34, and therefore potential for air quality effects through increased road traffic. Therefore, although the housing numbers are smaller than other sub-regions, LSE cannot be ruled out prior to further traffic modeling.</p> <p>Although both Cothill Fen SAC and Hackpen Hill SAC lie within the typical distance that visitors may travel for a day visit from this sub-region, the housing numbers involved, and lack of direct road access (particularly to the more popular Hackpen Hill), mean that in reality, LSE through recreational pressure is unlikely.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>Smaller Villages: Ashbury, Buckland, Childrey, Coleshill, Great Coxwell, Kingston Lisle, Little Coxwell, Littleworth, Longcot, Letcombe Regis and Shellingford</p> <p><u>Housing Delivery</u></p> <ul style="list-style-type: none"> At least 3,173 new homes will be delivered in the plan period between 2011 and 2031. 1,650 dwellings will be delivered through strategic allocations. 656 dwellings remain to be identified and will be allocated through the Local Plan 2031 Part 2 or Neighbourhood Development Plans or through the Development Management process. The contribution of all sources of housing supply within this sub-area are shown by the following table: 	
Core Policy 21: Safeguarding of Land for Strategic Highway Improvements within the Western Vale Sub-Area	<p>Land is safeguarded to support the delivery of the following identified transport schemes</p> <ul style="list-style-type: none"> junction enhancement on the A420 at Faringdon and Shrivenham <p>New development in these areas should be carefully designed with having regard to matters such as building layout, noise insulation, landscaping and means of access.</p> <p>Any proposals for development that may reasonably be considered to impact the delivery of the identified schemes (as shown by maps in Appendix E and the Adopted Policies Map)* should demonstrate the proposal would not harm their delivery.</p>	<p>There is no LSE on European sites arising from this policy, as no new development is promoted. The policy is concerned only with safeguarding. Each scheme would need to be evaluated on its own merits as applications were developed, but given the distance between these schemes and the European sites it is considered unlikely any potential effect would arise.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>Planning permission will not be granted for development that would prejudice the construction or effective operation of the transport schemes listed above.</p> <p>* the area shown on the Adopted Policies Map illustrates where policy CP20 will apply. It does not seek to show a precise alignment for the transport scheme, which will need to be informed by detailed design work, carried out in consultation with Oxfordshire County Council and other relevant parties.</p>	
Policy 22 – Housing Mix	<p>An appropriate mix of dwelling types and sizes to meet the needs of current and future households will be required on all new residential developments. This should be in accordance with the council's current Strategic Housing Market Assessment unless an alternative approach can be demonstrated to be more appropriate through the Housing Register or where proven to be necessary due to viability constraints*.</p> <p>*Viability should be set out in an independent viability assessment on terms agreed by the relevant parties including the council and funded by the developer. This will involve an open book approach.</p>	The nature of housing provision does not have HRA implications.
Core Policy 23 – Housing Density	<p>On all new housing developments a minimum density of 30 dwellings per hectare (net) will be required unless specific local circumstances indicate that this would have an adverse effect on the character of the area, highway safety or neighbouring amenities. Higher densities will be encouraged in locations where it will result in the optimum use of land, where there is good access to services and public transport routes, and where it would contribute to enhancing the character and legibility of a place.</p>	The nature of housing provision does not have HRA implications.

Policy reference	Policy	Preliminary HRA Screening outcome
Policy 24 – Affordable Housing	<p>The council will seek 35 % affordable housing on all sites capable of a net gain of three or more dwellings (sites of at least 0.1 hectare). There should be a 75:25 split for rented (either social or affordable) and intermediate housing respectively. In circumstances where it can be demonstrated that the level of affordable housing being sought would be unviable, alternative tenure mixes and levels of affordable housing provision, may be considered. Any difference in tenure mix or percentage of affordable housing to be delivered will need to be supported by a viability assessment*.</p> <p>Any affordable housing provided should:</p> <ul style="list-style-type: none"> i. be of a size and type which meets the requirements of those in housing need, and ii. be indistinguishable in appearance from the market housing on site and distributed evenly across the site <p>The council's preference is for on-site affordable housing provision (with the exception of part units). Only in exceptional circumstances will any other scenario be considered. In such cases the delivery hierarchy shown below will be considered:</p> <ul style="list-style-type: none"> iii. mix of on-and off-site delivery with the level of affordable housing to be achieved to be 'broadly equivalent' to that which would have been delivered on-site iv. full off-site delivery v. part off-site delivery and part commuted sum 	The nature of housing provision does not have HRA implications.

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>vi. commuted sum which shall be based on the open market value of units to be delivered on site in lieu of full-on or off-site delivery</p> <p>In cases where the 35 % calculation provides a part unit, a financial contribution will be sought, equivalent to that part unit.</p> <p>Off-site contributions and/or financial contributions for the provision of affordable housing in lieu of on-site provision will not be appropriate, unless it can be robustly justified that:</p> <p>vii. it is not physically possible or feasible to provide affordable housing on the applications site, or</p> <p>viii. there is evidence that a separate site would more satisfactorily meet local housing need and contribute to the creation of sustainable mixed communities.</p> <p>Planning permission will be refused for development proposals where it appears that a larger site has been sub-divided into smaller development parcels in order to avoid the requirements of the affordable housing policy.</p> <p>*Viability should be set out in an independent viability assessment on terms agreed by the relevant parties including the council and funded by the developer. This will involve an open book approach.</p>	
Core Policy 25 – Rural Exception Sites	Affordable housing schemes will be permitted on sites that would not otherwise be acceptable for housing development, providing the scheme would satisfy the following:	Development on such a small scale has reduced likelihood of leading to LSE on European sites, and there are no defined villages adjacent to either Cothill Fen SAC or Hackpen Hill SAC, and therefore there is no likelihood of significant effects on these sites.

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>i. It meets a clearly established local need identified through a robust housing needs assessment has been undertaken, in accordance with a methodology agreed with the district and parish council</p> <p>ii. it is designed to meet the established need of a village (or its neighbouring village) in terms of dwelling numbers, types, sizes and affordability</p> <p>iii. it includes secure arrangements to ensure that all the houses will be occupied by local people in need of affordable housing and that the benefits of the low cost provision will remain available to local people in the long term.</p> <p>iv. it is located within or on the edge of a village and would not harm the character or setting of settlements, particularly in Areas of Outstanding Natural Beauty. The design, layout and materials of new housing complements and enhances its surrounding natural and built environment.</p> <p>v. it meets a clearly established local need</p> <p>vi. it would not undermine the purposes or visual amenities of the Oxford Green Belt</p> <p>vii. it includes secure arrangements to ensure that all the houses will be occupied by local people in need of affordable housing and that the benefits of the low cost provision will remain available to local people in the long term.</p>	

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>viii. it will not adversely impact upon designated heritage assets or their setting (i.e. Listed Buildings, Conservation Areas, Parks and Gardens etc)</p> <p>ix. it is located in a sustainable location with good access to public transport, employment and local services/facilities, and</p> <p>x. is consistent with Core Policy 42: Flood Risk</p> <p>Where robust evidence establishes that viability issues would prevent the delivery of an exception site, the minimum level of market housing required to make the development viable will be favourably considered where it would ensure the provision of significant additional affordable housing to meet local needs.</p> <p>Any market housing included in a scheme (where considered necessary for reasons of viability) should be constructed to reflect the character of the affordable units and be sympathetic to the rural location.</p>	
Policy 26 – Accommodating the Current and Future Needs of the Ageing Population	<p>In order to meet the needs of current and future households in the context of an ageing population the following requirements will be sought subject to the viability of provision on each site:</p> <p>i. all new homes designed for older people shall be built to current Lifetime Homes standards as a minimum*</p> <p>ii. residential dwelling houses designed for older people (with or without Extra Care) should be provided in the strategic site allocations in the Local Plan 2031 Part 1 and other suitable locations</p>	This policy deals with the type rather than number and location of new dwellings or facilities and therefore would not lead to LSE

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>iii. where possible residential dwellings designed for older people should be located within close proximity to public transport routes, retail and other local facilities, including for health care.</p> <p>iv. where residential dwelling houses for older people (with or without Extra Care) are provided, wherever possible it should be on a mixed-tenure basis in accordance with the requirements of Core Policy 24: Affordable Housing.</p> <p>v. where standards that would apply to general housing have been relaxed in response to the special needs of the occupiers of the scheme, the occupancy will be limited to accord with the nature of the scheme.</p> <p>*or its replacements as set out by changes to national government policy</p>	
Policy 27 – Meeting the Housing Needs of Gypsies, Travellers and Travelling Showpeople	<p>The council will enable or provide for at least 19 pitches for gypsies and travellers during the plan period to 2031.</p> <p>The identified need will be met by a combination of the following:</p> <p>i. implementation of extant planning permissions</p> <p>ii. extending existing sites where possible to meet the needs of existing residents and their families, and</p> <p>iii. allocating specific deliverable sites through Local Plan 2031 Part 2 to meet any remaining identified need.</p>	<p>The provision outlined in this policy is small in scale, and there is a commitment to avoid harm to areas of high ecological value.</p> <p>Therefore it can be concluded that this policy may be screened out of the HRA.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>Proposals to meet the identified need will be permitted where it has been demonstrated that the following criteria have been met:</p> <p>iv. the site is not located within the Oxford Green Belt</p> <p>v. the development will not harm the Area of Outstanding Natural Beauty, areas of high landscape or ecological value or heritage assets and their setting</p> <p>vi. the development will not have an adverse impact on the character of the area, highway safety or the amenities of neighbouring properties</p> <p>vii. the site is located within a reasonable walking distance of key local services including a primary school, a local shop and a public transport service, and</p> <p>viii. the site can be provided with safe vehicular and pedestrian access, electricity, mains drinking water, sewage connections and waste disposal facilities.</p> <p>Existing sites will be safeguarded</p>	
Core Policy 28 – New Employment Development on Unallocated Sites	<p>Proposals for new employment development (use classes B1, B2 or B8) will be supported on unallocated sites in town centres and larger villages provided that:</p> <p>i. the proposals will not cause unacceptable harm to the amenity of nearby residents and occupiers</p> <p>ii. safe site access can be provided for pedestrians and cyclists and for all types of vehicles likely to visit the</p>	<p>As it stands, this policy would allow new employment development within the district at unallocated sites. Since the sites are unallocated it is clearly not possible to evaluate them in detail (except in as much as they will contribute to flows on the A34 and A40 past Oxford Meadows SAC). However, Core Policy 39 (Conservation and Improvement of Biodiversity) does state that the highest level of protection will be provided to European sites. Any specific proposals that posed a risk to any European sites would need to be subject to project level assessment.</p> <p>On this basis it is concluded that no likely significant effects will occur.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>sites and the proposals include measures to promote the use of sustainable modes of transport where possible</p> <p>iii. the scale nature and appearance of the employment development does not harm the character of the area and respects the local townscape and landscape character, and</p> <p>In the rural areas the preference is for the re-use, conversion or adaptation of suitable existing buildings for employment will also be supported subject to criteria (i)-(iii) where applicable. Other rural proposals will be supported provided that, in addition to criteria (i)-(iii) where applicable:</p> <p>iv. the proposal cannot reasonably be accommodated on employment land identified as vacant or developable</p> <p>v. it can be demonstrated that the proposal will benefit the local economy and will not undermine the delivery of the strategic employment allocations.</p>	
Policy 29 – Change of use of Existing Employment Land and Premises	<p>The strategic employment sites, as listed in the sub-area strategies, form part of the district's reserve for employment land to meet objectively assessed employment needs and will be safeguarded for employment uses. Alternative uses will be considered if they provide ancillary supporting services or meet a need identified through the Local Plan 2031 review process, or exceptionally where a reassessment of the district wide 2013 Employment Land Review demonstrates that these sites are no longer needed over the full plan period.</p>	<p>This policy is not promoting new development, and therefore there is no likely significant effect on European sites.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>Elsewhere in the district, applications for the change of use of land or premises that are currently, or were last, used for employment purposes will need to demonstrate that at least one of the following criteria is met:</p> <ul style="list-style-type: none"> i. there is no reasonable prospect of the land or premises being used for employment purposes ii. the land or premises is unsuitable for business use on grounds of amenity, environmental or highway safety issues iii. the land or premises has no long term or strategic requirement to remain in employment use, or iv. the proposed use will be ancillary to the use of the land or premises for employment purposes. 	
Policy 30 – Further and Higher Education	<p>The council will support the development and enhancement of further and higher education facilities to help support the local economy and to ensure the local labour force is equipped to take advantage of the opportunities likely to arise in the future. The most appropriate locations for further and higher education provision are:</p> <ul style="list-style-type: none"> i. by the extension or more intensive use of existing education or other suitable community facilities ii. within identified strategic employment locations, provided that the training offered is clearly relevant to meet the needs of businesses in that strategic employment location, and 	<p>The policy is unlikely to lead to adverse effects on European sites, since it promotes access by public transport and foot/cycle, and use of existing facilities.</p> <p>It is unlikely that significant numbers of students would access such facilities via road transport north of Oxford via the A34.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>iii. in the main settlements and other locations with good pedestrian and cycle access and well served by public transport connections between the proposed facility and its likely student catchment.</p>	
Core Policy 31 – Development to Support the Visitor Economy	<p>The council encourages new development to advance the visitor economy for leisure and business purposes. Proposals will be supported as follows:</p> <p>i. within the built-up areas of the market towns and local service centres - larger scale developments including conference facilities, museums, heritage centres, hotels, guest houses and associated facilities for visitor</p> <p>ii. within the built-up areas of the larger and smaller villages - smaller and proportionately scaled developments that are in keeping with the character of the settlement, including museums, heritage centres, hotels, guest houses, self-catering accommodation and associated facilities for visitors</p> <p>iii. at Milton Park and Harwell Campus - ancillary business hotel and conference facilities, and</p> <p>iv. at service areas on the main transport corridors - hotel accommodation.</p> <p>Outside the above locations, small-scale development to support the visitor economy, including farm diversification and equine development, will be supported provided that proposals are in keeping with the scale and character of the locality. Larger developments will only be supported in exceptional circumstances, for example to re-use a</p>	<p>If tourism-related development were to attract significantly more visitors, then there could be implications for increased traffic on the A34 past Oxford Meadows SAC. The site may also be subject to greater visitor pressure.</p> <p>Increased tourism at locations such as Wantage and Faringdon could potentially increase visitor pressure on Hackpen Hill SAC also.</p> <p>However, the Local Plan 2029 Part 1 does not actually propose any specific tourism development and Core Policy 39 (Conservation and Improvement of Biodiversity) does state that the highest level of protection will be provided to European sites. Any specific proposals that posed a risk to any European sites would need to be subject to project level assessment.</p> <p>On this basis it is concluded that no likely significant effects will occur.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	historic building, or to proportionally support or enhance enjoyment of a significant and established visitor attraction where this cannot reasonably be achieved from a town or village location.	
Core Policy 32 – Retail Development and Other Main Town Centre Uses	<p>The market towns and local service centres defined in the settlement hierarchy (Core Policy 3) are the preferred locations for larger scale development or redevelopment for retailing and other main town centre uses.</p> <p>For new retail proposals (Use Class A), first consideration should be given to areas designated as primary and secondary shopping frontages as defined by the Adopted Policies Map and the redevelopment sites at the Charter area of Abingdon-on-Thames and the Botley Central Area.</p> <p>For other town centre uses, first consideration should be given to opportunities within the designated town centre areas that are well linked to the retail core by foot, including identified redevelopment sites, before more peripheral locations are considered.</p> <p>Proposals for new retail development or changes of use to retail or other main town centre uses will be supported elsewhere as follows:</p> <p>i. for development primarily intended to serve the day-to-day needs of the local community, within the larger and smaller villages, and in the local shopping centres located within Abingdon-on-Thames, Faringdon, Grove and Wantage, as defined in the 2011 Local Plan</p>	<p>New attractive retail development in town centres such as Abingdon, could, in theory, attract greater traffic on the A34 past Oxford Meadows SAC through visitors travelling to such facilities.</p> <p>Further consideration is required before a decision can be made on whether LSE on European sites can be ruled out.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>ii. ancillary and proportionate food, drink and convenience retailing within and primarily servicing the users of designated employment areas, and</p> <p>iii. offices in employment locations where office use is identified elsewhere in this plan to be appropriate.</p> <p>Proposals for retail or other main town centre uses that are on the edge of or outside the town or local shopping centres, and are not supported by local plan policies, will only be supported if it is demonstrated that the proposal satisfies the sequential approach to site selection, and, where the proposal exceeds the local floorspace thresholds set out below, an impact assessment confirms that there are no likely significant adverse impacts on the vitality and viability of nearby centres. The impact assessment methodology and assumptions are to be agreed with the Council in advance.</p> <p>The local floorspace thresholds for impact assessment are as follows:</p> <p>iv. 1,000 square metres gross retail floorspace for development likely to have an impact on Abingdon-on-Thames or Wantage town centres, and</p> <p>v. 500 square metres gross retail floorspace elsewhere in the district.</p>	
Policy 33 – Promoting Sustainable Transport and Accessibility	<p>The council will work with Oxfordshire County Council and others to:</p> <p>i. actively seek to ensure that the impacts of new development on the strategic and local road network are minimised</p>	<p>This policy is positive in that it will help to reduce atmospheric pollutants through shifts away from car use to more sustainable forms of movement. There are also requirements for Travel Plans and an emphasis on encouraging home working, and reducing travel between businesses</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<ul style="list-style-type: none"> ii. ensure that developments are designed in a way to promote sustainable transport access both within new sites, and linking with surrounding facilities and employment iii. support measures identified in the Local Transport Plan for the district including within the relevant local area strategies iv. support improvements for accessing Oxford v. ensure that transport improvements are designed to minimise any effects on the amenities of the surrounding area, and vi. promote and support improvements to the transport network that increase safety, improve air quality and/or make our towns and villages more attractive. 	
Policy 34: A34 Strategy	The council will continue to work with the Highways Agency, Oxfordshire County Council and other partners to develop and implement a Route Based Strategy for the A34, which enables it to function as a major strategic route thereby reducing consequential congestion on the local road network.	The A34 strategy could have complex implications for traffic flows on the road and this would need to be taken into account in any further development of the strategy. It could result in increased flows on the A34, but if it also changes the average vehicle speed and reduces standing or queuing traffic it may actually improve air quality. At the moment this policy cannot be screened out.
Policy 35 - Promoting Public Transport, Cycling and Walking	<p>The council will work with Oxfordshire County Council and others to:</p> <ul style="list-style-type: none"> i. encourage the use of sustainable modes of transport and support measures that enable a modal shift to public transport, cycling and walking in the district 	These measures are all positive in that they seek to reduce the amount of travel by motorized vehicles and provide mechanisms for ensuring sustainable transport strategies accompany new developments.

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>ii. ensure new development is located close to, or along, existing strategic public transport corridors, where bus services can then be strengthened in response to increases in demand for travel</p> <p>iii. ensure that new development is designed to encourage walking as the preferred means of transport, not only within the development, but also to nearby facilities and transport hubs</p> <p>iv. ensure that new development encourages and enables cycling not only through the internal design of the site, but also through the provision of cycle friendly infrastructure to link the new residents with nearby services, employment areas, educational facilities and public transport hubs where interchange can be provided for longer distance travel</p> <p>v. seek to support the provision of new cycling routes where the proposals are consistent with the other policies of this plan, and</p> <p>vi. ensure proposals for major development* are supported by a Transport Assessment and Travel Plan, in accordance with Oxfordshire County Council guidance**</p> <p>vii. ensure adequate parking is delivered on new developments in accordance with Oxfordshire County Council's published standards***</p> <p>* as defined by Development Management Procedure Order 2010</p> <p>** Transport for new developments (Oxfordshire County Council)</p>	

Policy reference	Policy	Preliminary HRA Screening outcome
	*** Parking standards for new developments (Oxfordshire County Council)	
Policy 36 - Electronic communications	<p>The council will work with Oxfordshire County Council and others to promote faster, more reliable and more comprehensive coverage of electronic communications and allow businesses and residents to access services and information more effectively, thereby helping to reduce the need to travel.</p> <p>Proposals for all new development should ensure appropriate infrastructure is provided during development, sufficient to enable all properties to be connected to superfast broadband without any post development works.</p>	This policy has no HRA implications.
Policy 37 – Design and Local Distinctiveness	<p>All proposals for new development will be expected to be of high quality design that:</p> <ol style="list-style-type: none"> 1. responds positively to the site and its surroundings, cultural diversity and history and reinforces local identity or establishes a distinct identity whilst not preventing innovative responses to context 2. creates a distinctive sense of place through high quality townscape and landscaping that physically and visually integrates with its surroundings 3. provides a clear and permeable structure of streets, routes and spaces that is legible and easy to navigate through because of the use of street typology, views, landmarks, public art and focal points 	There is no LSE on European sites as a result of this policy.

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>4. is well connected to provide safe and convenient ease of movement by all users, ensuring that the needs of vehicular traffic does not dominate at the expense of other modes of transport including pedestrians and cyclists, or undermine the resulting quality of places</p> <p>5. incorporates and/or links to high quality green infrastructure and landscaping to enhance biodiversity and meet recreational needs including Public Rights of Way</p> <p>6. is built to last, functions well and is flexible to changing requirements of occupants and other circumstances</p> <p>7. addresses the needs of all in society by incorporating mixed uses and facilities as appropriate with good access to public transport and a wide range of house types and tenures</p> <p>8. is visually attractive and the scale, height, density, grain, massing, type, details and materials are appropriate for the site and surrounding area</p> <p>9. creates safe communities and reduces the likelihood and fear of crime</p> <p>10. secures a high quality public realm with well managed and maintained public areas that are overlooked to promote greater community safety, with clearly defined private spaces</p> <p>11. ensures a sufficient level of well-integrated car and bicycle parking and external storage, and</p>	

Policy reference	Policy	Preliminary HRA Screening outcome
	12. is sustainable and resilient to climate change by taking into account landform, layout, building orientation, massing and landscaping to minimise energy consumption and mitigate water run-off and flood risks.	
Policy 38 - Design strategies for strategic and major development sites	<p>Proposals for housing allocations and major development* sites must be accompanied by a site-wide design strategy that includes the following:</p> <ol style="list-style-type: none"> 1. a Masterplan which should: <ul style="list-style-type: none"> • identify the Vision for the development setting out a clear description of the type of place that could be created whilst building on the overall aims for the district, • demonstrate a coherent and robust framework for development that clearly sets out: land uses proposed including amount, scale and density, movement and access arrangements and green infrastructure provision • show how the design requirements of the scheme work within the Vision and demonstrate how the Vision will be achieved • integrate with the surrounding built, historic and natural environments, in particular maximising existing and potential movement connections and accessibility to encourage walking, cycling and use of public transport • provide community facilities and other amenities to meet the needs of all the community, including access to education and training facilities, health care, community leisure and recreation facilities as appropriate 	There is no LSE on European sites as a result of this policy.

Policy reference	Policy	Preliminary HRA Screening outcome
	<ul style="list-style-type: none"> define a hierarchy of routes and the integration of suitable infrastructure, including for example SUDS within the public realm contain a Green Infrastructure framework to ensure that public and private open space standards are met, relate well to each other and to existing areas and that the new spaces are safe, convenient and functional. contain an indicative layout which illustrates a legible urban structure based on strategic urban design principles and identifies key elements of townscape such as main frontages, edges, landmark buildings and key building groups and character areas <p>2. an accompanying Design and Access Statement, which should explain:</p> <ul style="list-style-type: none"> the steps taken to appraise the context of the proposed development, and how the design of the development takes that context into account to create or reinforce local distinctiveness to achieve a positive sense of place and identity the design principles and concepts that have been applied to the proposed development and how these principles will be used to inform subsequent phases or development parcels within the overall site the mechanism for delivering the Vision at more detailed stages, for example through design coding how sustainability and environmental matters will be addressed including the efficient use of resources both during construction and when the development is complete 	

Policy reference	Policy	Preliminary HRA Screening outcome
	<ul style="list-style-type: none"> the delivery phasing and implementation strategies to be in place to ensure the timely delivery of infrastructure and services to the development when they are needed by new residents, and that new developments are built out in a logical manner how the mix of housing types and tenures is integrated and supports a range of household sizes, ages and incomes to meet identified housing need. how consultation with the existing community has been incorporated <p>* As defined by Development Management Procedure Order 2010</p>	
Core Policy 39 – The Historic Environment	<p>The district council will work with landowners, developers, the community, English Heritage and other stakeholders to:</p> <p>a) ensure that new development conserves, and where possible enhances, heritage assets and their setting in accordance with national guidance;</p> <p>b) ensure that vacant historic buildings are appropriately re-used as soon as possible to prevent deterioration of condition;</p> <p>c) seek to reduce the number of buildings on the “Heritage at Risk” Register”;</p> <p>d) encourage better understanding of the significance of scheduled monuments on the “Heritage at Risk” Register and to aid in their protection</p>	There is no LSE on European sites as a result of this policy.

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>e) better understand the significance of Conservation Areas in the district through producing Conservation Area Character Appraisals and Management Plans</p> <p>f) identify criteria for assessing non designated heritage assets and maintaining a list of such assets as Locally Listed Buildings, and</p> <p>g) encourage Heritage Partnership Agreements, particularly for Listed Buildings on any 'at risk' register.</p>	
Core Policy 40 – Sustainable Design and Construction	<p>All new development, including building conversions, refurbishments and extensions, should seek to incorporate climate change adaptation and design measures to combat the effects of changing weather patterns. Wherever practicable, measures to provide resilience against higher temperatures and intense rainfall should be used and their application to the development outlined in the Design and Access Statement. This could include measures such as</p> <p>i. planting, shading and advanced glazing systems to reduce solar heat gain during the summer</p> <p>ii. using materials to prevent penetration of heat, including use of cool building materials and green roofs and walls and using flood resilient materials</p> <p>iii. increasing natural ventilation and removing heat by using fresh air</p> <p>iv. orientating windows of habitable rooms within 30 degrees of south and utilising southern slopes</p>	This policy does not lead to any likely significant effects on European sites.

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>v. locating windows at heights that maximise heating from lower sun angles during the winter, and</p> <p>vi. incorporating flood resilient measures such as raising floor levels, electrical fittings and rain-proofing and overhangs to prevent infiltration of heavy rain around doors and windows.</p> <p>The council will expect the policy requirements to be met unless it can be demonstrated that it would not be viable* or appropriate to do so or where historic assets would be affected. A sensitive approach will need to be taken to safeguard the special character of the heritage assets e.g. in a conservation area.</p> <p>*Viability should be set out in an independent viability assessment on terms agreed by the relevant parties including the Council and funded by the developer. This will involve an open book approach.</p>	
Policy 41 – Renewable Energy	<p>The council encourages schemes for renewable and low carbon energy generation. Planning applications for renewable and low carbon energy generation will be supported provided that they do not cause a significantly adverse effect to:</p> <p>i. landscape, both designated AONB and locally valued</p> <p>ii. biodiversity, including protected habitats and species and Conservation Target Areas</p> <p>iii. the historic environment, both designated and non designated assets, including by development within their settings</p>	<p>The policy states that any renewable energy schemes should be assessed for impacts on protected habitats and species.</p> <p>Therefore there is no likelihood that schemes would have an adverse effect on European sites.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	iv. the visual amenity and openness of the Green Belt v. local residential amenity, and vi. the safe movement of traffic and pedestrians.	
Core Policy 42 – Flood Risk	<p>The risk and impact of flooding will be minimised through:</p> <ul style="list-style-type: none"> directing new development to areas with the lowest probability of flooding ensuring that all new development addresses the effective management of all sources of flood risk ensuring that development does not increase the risk of flooding elsewhere, and ensuring wider environmental benefits of development in relation to flood risk. <p>The suitability of development proposed in flood zones will be strictly assessed using the Sequential Test, and, where necessary, the Exceptions Test. A sequential approach should be used at site level.</p> <p>A site specific flood risk assessment will be required for all developments of 1 hectare and greater in Flood Zone 1 and for all proposals for new development, including minor development and change of use in Flood Zone 2 and 3 and in Critical Drainage Areas, and also where proposed development or a change of use to a more vulnerable class that may be subject to other forms of flooding. Appropriate mitigation and management measures will be required to be implemented.</p>	<p>This policy does not contain measures that would lead to any LSE on European sites.</p> <p>It also contains measures that would help to ensure good water quality within the district through sustainable drainage systems and techniques.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
	All development proposals must be assessed against the Vale of White Horse and South Oxfordshire Strategic Flood Risk Assessment and the Oxfordshire Local Flood Risk Management Strategy to address locally significant flooding. Appropriate mitigation and management measures must be implemented.	
Core Policy 43 – Natural Resources	<p>All development proposals will be required to make provision for the effective use of natural resources where applicable, including</p> <ul style="list-style-type: none"> i. minimising waste and making adequate provision for the recycling of waste on site ii. using recycled and energy efficient materials iii. maximising passive solar heating, lighting, natural ventilation, energy and water efficiency and reuse of materials iv. making efficient use of water, for example through rainwater harvesting and grey water v. causing no deterioration in, and where possible, achieving improvements in water quality vi. having regard to air quality and any Air Quality Management Areas vii. ensuring that the land is of a suitable quality for development and that remediation of contaminated land is undertaken where necessary viii. avoiding the development of the best and most versatile agricultural land, unless it is demonstrated to be 	This policy is positive, in that it promotes water efficiency, and commits to there being no deterioration in water or air quality.

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>the most sustainable choice from reasonable alternatives, by first using areas of poorer quality land in preference to that of a higher quality, and</p> <p>ix. re-using previously developed land provided it is not of high environmental value.</p>	
Core Policy 44 - Landscape	<p>The key features that contribute to the nature and quality of the Vale of Horse District's landscape will be protected from harmful development and where possible enhanced, in particular:</p> <p>i. features such as trees, hedgerows, woodland, field boundaries, watercourses and water bodies</p> <p>ii. important landscape setting of settlements</p> <p>iii. topographical features</p> <p>iv. areas or features of cultural and historic value</p> <p>v. important views and visually sensitive skylines, and</p> <p>vi. tranquillity and the need to protect against intrusion from light pollution, noise, and motion.</p> <p>Where development is acceptable in principle, measures will be sought to integrate it into the landscape character and/or the townscape of the area. Proposals will need to demonstrate how they have responded to the above aspects of landscape character and will be expected to:</p> <p>a. incorporate appropriate landscape proposals that reflect the character of the area through appropriate design and management;</p>	There is no LSE on European sites as a result of this policy.

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>b. preserve and promote local distinctiveness and diversity and, where practical, enhance damaged landscape areas.</p> <p>High priority will be given to conservation and enhancement of the natural beauty of the North Wessex Downs AONB and planning decisions will have regard to its setting. Proposals that support the economy and social well being of communities located in the AONB, including affordable housing schemes, will be encouraged provided they do not conflict with the aims of conservation and enhancement.</p>	
Core Policy 45 – Green Infrastructure	<p>A net gain in Green Infrastructure, including biodiversity, will be sought either through on site provision or off-site contributions and the targeted use of other funding sources. A net loss of Green Infrastructure, including biodiversity, through development proposals will be resisted.</p> <p>Proposals for new development must provide adequate Green Infrastructure in line with Green Infrastructure Strategy. All major applications must be accompanied by a statement demonstrating that they have taken into account the relationship of the proposed development to existing green infrastructure and how this will be retained and enhanced. Proposals will be required to contribute to the delivery of new Green Infrastructure and/or the improvement of existing assets including Conservation Target Areas in accordance with the standards in the Green Infrastructure Strategy and the Habitats Regulations Assessment.</p>	<p>There is no LSE on European sites as a result of this policy.</p> <p>Provision of adequate Accessible Natural Greenspace should help to reduce the potential for recreational pressure on sensitive European sites.</p>

Policy reference	Policy	Preliminary HRA Screening outcome
Core Policy 46 – Conservation Improvement and Biodiversity of	<p>Development that will conserve, restore and enhance biodiversity in the district will be permitted. Opportunities for biodiversity gain, including the connection of sites, large-scale habitat restoration, enhancement and habitat re-creation will be actively sought, with a primary focus on delivery in the Conservation Target Areas. A net loss of biodiversity will be avoided.</p> <p>The highest level of protection will be given to sites and species of international nature conservation importance (Special Areas of Conservation and European Protected Species). Development that is likely to result in a significant effect, either alone or in combination, on such sites and species will need to satisfy the requirements of the Habitat Regulations*.</p> <p>Development likely to result in the loss, deterioration or harm to habitats or species of importance to biodiversity or of importance for geological conservation interests, either directly or indirectly, will not be permitted unless:</p> <p>a) the need for, and benefits of, the development in the proposed location outweighs the adverse effect on the relevant biodiversity interest;</p> <p>b) it can be demonstrated that it could not reasonably be located on an alternative site that would result in less or no harm to the biodiversity interests; and</p> <p>c) measures can be provided (and secured through planning conditions or legal agreements), that would avoid, mitigate against or, as a last resort, compensate for the adverse effects likely to result from development.</p>	<p>This policy contains measures that should help to avoid any LSE on European sites. It commits to developments that would cause significant harm to biodiversity interests NOT being permitted unless avoidance, adequate mitigation or, as a last result, compensation could be provided.</p> <p>Specifically, it commits to the following:</p> <p><i>“The highest level of protection will be given to sites and species of international nature conservation importance (Special Areas of Conservation and European Protected Species). Development that is likely to result in a significant effect, either alone or in combination, on such sites and species will need to satisfy the requirements of the Habitat Regulations.”</i></p>

Policy reference	Policy	Preliminary HRA Screening outcome
	<p>The habitats and species of importance to biodiversity and sites of geological interest considered in relation to points a) to c) comprise:</p> <ul style="list-style-type: none"> • Sites of Scientific Interest (SSSI) • Local Wildlife Sites • Local Nature Reserves • Priority Habitats and species listed in the national and local Biodiversity Action Plan • Ancient Woodland and veteran trees • Legally Protected Species • Locally Important Geological Sites <p>The level of protection and mitigation should be proportionate to the status of the habitat or species and its importance individually and as part of a wider network.</p> <p>It is recognised that habitats/areas not considered above (i.e. Nationally or Locally designated and not priority habitats) can still have a significant biodiversity value within their local context, particularly where they are situated within a Conservation Target Area and/or they have good potential to be restored to priority habitat status or form/have good potential to form links between priority habitats or act as corridors for priority species. These habitats will be given due weight in the consideration of planning applications. If significant harm to these sites cannot be avoided (through locating on an alternative site with less harmful impacts) it will be expected that mitigation will be provided to avoid a net loss in biodiversity or, as a last resort, compensation will be required to offset the impacts and achieve a net gain in biodiversity.</p>	

The following policies cannot be screened out without further consideration following screening of the Local Plan Submission document:

- Policy 4 – Meeting our Housing Needs
- Policy 6 – Meeting Business and Employment Needs
- Policy 8 – Spatial Strategy for Abingdon on Thames and Oxford Fringe Sub-Area
- Policy 11 – Botley Central Area
- Policy 13 – Oxford Green Belt
- Policy 9 – Harcourt Hill Campus
- Policy 15 – Spatial Strategy for South East Vale Sub Area
- Policy 16 – Didcot A Power Station
- Policy 20 – Spatial Strategy For Western Vale Sub Area
- Policy 32 – Retailing and Other Main Town Centre Uses
- Policy 34 – A34 Strategy

The major issues for further investigation as a result of policies and preferred strategic housing sites are:

- Air Quality Effects on Oxford Meadows SAC (Policy 4, Policy 6, Policy 8, Policy 9, Policy 11, Policy 13, Policy 15, Policy 16, Policy 20, Policy 32, Policy 34)
- Recreational Pressure on Oxford Meadows SAC (Policy 4, Policy 8, Policy 13, Policy 15)
- Recreational Pressure at Cothill Fen SAC (Policy 4, Policy 8, Policy 13, Policy 15)
- Water Resources at Cothill Fen SAC (Policy 4, Policy 6, Policy 8, Policy 13, Policy 15)
- Water Quality on Oxford Meadows SAC (Policy 4, Policy 6, Policy 8, Policy 15)
- Water Quality at Cothill Fen SAC (Policy 4, Policy 6, Policy 8, Policy 15)
- Water Quality at Little Wittenham SAC (Policy 4, Policy 6, Policy 8, Policy 15)
- Air Quality Effects at Hackpen Hill SAC (Policy 4)

The following table (Table 8) highlights the preferred strategic housing development sites included in the Local Plan Part 1 Submission document.

Table 8. HRA Screening of Preferred Sites for Strategic Housing

Site Number and Location	Housing number
1 – North West Abingdon	200
2 – North Abingdon	800
3 – Land South of Kennington	270
4 – North West Radley	240
5 – East Sutton Courtenay	220
6 – Kingston Bagpuize East and Southmoor	280
7 – Milton Heights	400
8 – Valley Park	At least 2550
9 – North West Valley Park	800
10 – West of Harwell	200
11 – East of Harwell Campus	850
12 – North of Harwell Campus	550
13 –South of East Hanney	200
14 – Crab Hill Wantage/Grove	1500
15 – Monks Farm, North Grove	750
16 – Land South of Park Road, Faringdon	350
17 – West Stanford in the Vale	200
18 – South Faringdon (Parish of Great Coxwell)	200
19 – SW Faringdon	200
20 – North Shrivenham	500
21 – East of Coxwell Road, Faringdon	200
22 – Grove Airfield	2,500

All strategic sites are screened in for further assessment in Chapters 5-8 as increased housing development has potential to lead to effects on European sites, in particular, reduced air quality on Oxford Meadows SAC. This requires assessment of new housing across the district. The location of preferred strategic housing sites in relation to European sites is shown in Figure 1.

5 COTHILL FEN SAC

5.1 Introduction

Cothill Fen supports outstanding examples of nationally rare calcareous fen and moss-rich mire communities together with associated wetland habitats. It is one of a number of nationally important sites where the vegetation of the area over the past ten millennia can be interpreted from peat samples. Cothill Fen exhibits succession from open water to fen, scrub and carr, together with an adjacent area of ancient woodland. Plant distribution varies in conjunction with differences in water table, canopy cover, peat depth, soils and historical factors such as peat cutting and attempts at drainage. Over 330 vascular plants have been recorded, including species which are uncommon in southern England, together with many uncommon invertebrates. The site is located approximately 2km to the west of Shippon on the edge of Abingdon.

5.2 Features of European interest²¹

The site is designated as a SAC for its:

- Calcium-rich, spring-water-fed fens; and
- Alder woodland on floodplains

5.3 Conservation objectives

The Conservation Objectives for the European interests on the SSSI are, subject to natural changes:

- to maintain*, in favourable condition, the habitats of European importance.

* maintenance implies restoration if the feature is not currently in favourable condition

During the most recent Condition Assessment process (May 2009), 65% of the site was in favourable condition, with the remainder recovering from unfavourable status. This latter specifically related to the Parsonage Moor component which was previously unfavourable due to lack of management and low water levels.

From examination of the UK Air Pollution System (www.apis.ac.uk) it can be seen (Table 6) that the SAC is currently suffering from poor air quality. Cothill Fen SAC currently exceeds the minimum critical load for nitrogen deposition. However, since it lies over 200m from the nearest major road, local air quality impacts associated with the development-related transport do not require consideration in this HRA.

5.4 Key environmental conditions

The key environmental conditions that support the features of European interest are:

- High water table;
- Good water quality;
- Appropriate grazing regime; and
- Calcareous, base-rich water supply.

²¹ Features of European Interest are the features for which a European site is selected. They include habitats listed on Annex 1 of the Habitats Directive, species listed on Annex II of the EC Habitats Directive and populations of bird species for which a site is designated under the EC Birds Directive.

5.5 Potential effects of the plan

Three potential effects of the Local Plan Part 1 Additional Consultation document upon the SAC have been identified:

Recreational Pressure

An increase in housing numbers from 13,294 to up to 20,560 to be delivered over the lifetime of the Local Plan (to 2031), means that policy amendments and site allocations require appraisal for the possibility of adverse effects on Cothill Fen SAC through recreational pressure.

Fenland sites are less likely to attract significant visitor numbers than other types of habitat because the terrain is generally more difficult for visitors to negotiate. Moreover, using the broad 4-5km figure as identifying the probable core recreational catchment, the SAC lies sufficiently far from the major housing areas of Didcot, Wantage and Grove and Harwell Science and Innovation Campus that they are unlikely to lead to a significant increase in recreational visits.

Part of Cothill Fen is also a National Nature Reserve so access is already managed. Natural England and the Oxford Conservation Volunteers undertake footpath management/improvement specifically to ensure that people are discouraged from travelling 'off-track', while the marshy nature of the fen naturally assists in deterring off-track activity. The site is fairly remote (8 km south west of Oxford between the A338 and A34; 2 km south west of the B4017 and 0.5 km west of the village of Cothill) and for most of the district is therefore realistically accessible only by car except from within relatively short distances (e.g. within 1km). However, for most preferred sites the vehicular route to the SAC is very convoluted and car parking at the SAC is very limited which inherently limits the number of visitors coming by this mode of transport at any time (according to the Natural England website, the nearest car park is 0.5km away). As such, visitor pressure from development sites beyond an easy walking or cycling distance is unlikely to arise.

No preferred housing sites are situated within an easy walking or cycling distance of Cothill Fen SAC.

In addition to the National Nature Reserve, parts of the SAC are also Berkshire, Buckinghamshire & Oxfordshire Wildlife Trust reserves (Parsonage Moor and Lashford Lane) and these already have access management and dog control rules. Due to the fairly isolated nature of the SAC, and very limited parking, visitor numbers are not likely to be high and the vast majority of those who do visit the site keep to existing paths due to the marshy nature of the fen vegetation (for which the SAC is designated) and keep their dogs off the site or under control as required by the access management rules of the various constituent nature reserves. Moreover, under-grazing and a lack of trampling appear to have historically been more of a problem at this site than excessive trampling.

In consultation on the Local Plan Part 1, Natural England requested in their consultation response of 17/06/10 on the previous versions of the Core Strategy that they would like to see that adequate green infrastructure is provided with all of the new development sites in line with Accessible Natural Greenspace Standards (ANGSt) to ensure that this is readily accessible for residents close to their homes.

Policy 35 – Green Infrastructure does state that “*proposals for new development must provide adequate Green Infrastructure in line with Accessible Natural Greenspace Standards (ANGSt). Applications must be accompanied by a statement demonstrating that they have taken into account the relationship of the proposed development to existing Green Infrastructure and how this will be retained and enhanced...*”

The council has produced a Green Infrastructure Audit which includes an assessment against relevant ANGst standards. The audit identifies a deficit which will be addressed through the forthcoming county-wide GI Strategy, or other green infrastructure delivery mechanism, in the event that a county-wide GI strategy is not taken forward. The supporting text to Policy 45 does indicate that the Council is working with partners (including statutory agencies) in order to produce a Green Infrastructure Strategy.

Other plans and projects

Although there will be population increases in neighbouring districts (currently committed or projected as 16,750 new dwellings in Cherwell, 9,132 in Oxford, 10,940 in South Oxfordshire, over 5,500 in West Oxfordshire, 22,000 in Swindon, 6900 in the Cotswold District, 10,500 in West Berkshire, and 850 in the Marlborough Area of Wiltshire) these all lie well outside the probable core recreational catchment of the SAC²².

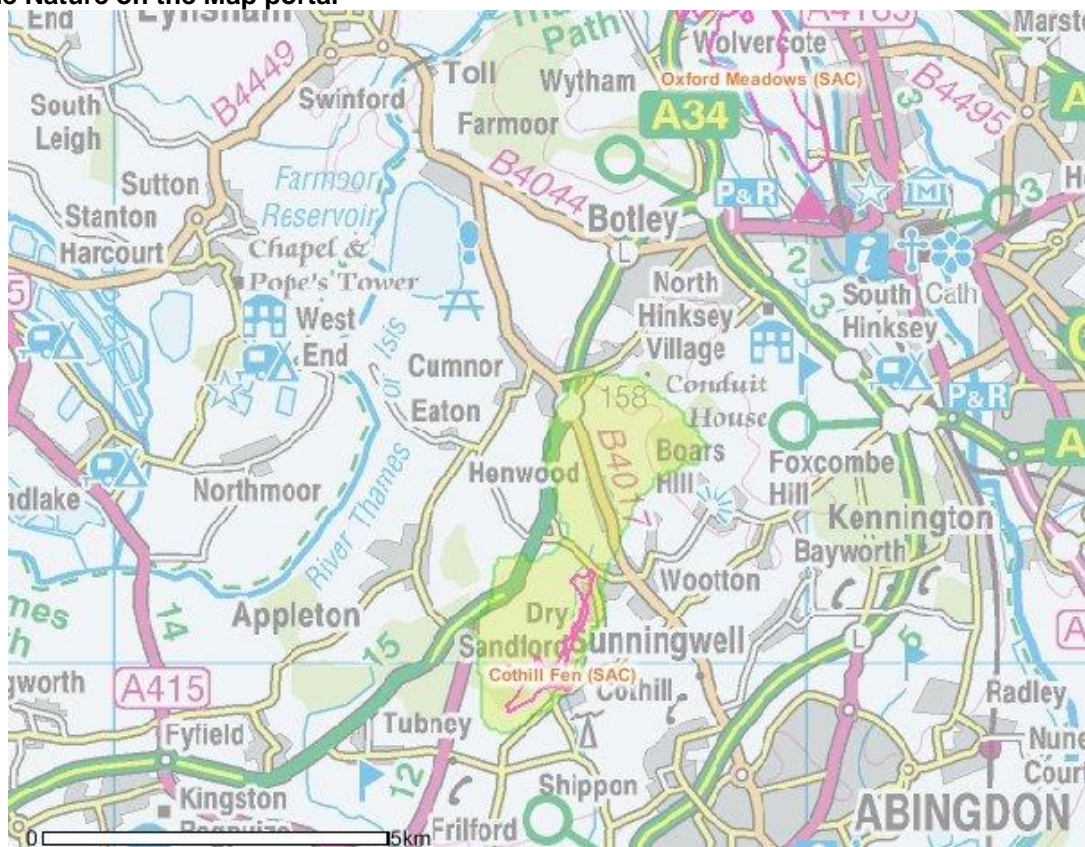
Water Resources

This site is particularly dependent on an adequate supply of high quality fresh water which is generally supplied from groundwater springs. The calcareous water from the springs ultimately drains through the SAC and into the Sandford Brook which is a southerly-flowing tributary of the River Ock. The HRA of the draft South East Plan indicated that water resource (drawdown) issues could arise from the Local Plan 2029 Part 1 and the Environment Agency's Kennet and Vale of White Horse Catchment Abstraction Licencing Strategy indicates that the SAC is in hydraulic continuity with the catchment, which covers much of the district. Therefore, the Vale of White Horse Additional Consultation approaches that affect water levels close to this site could have an impact.

Cothill Fen SAC is one of the few European sites for which a digital hydrological catchment is available via the Nature on the Map portal (see Figure 6 below).

²² Figures subject to change based on emerging Local Plans/ Core Strategies, and emerging Oxfordshire SHMA.

Figure 6— Approximate hydrological catchment for Cothill Fen SAC as displayed within the Nature on the Map portal



Development proposed within the Additional Consultation document is likely to result in increased water use, in the context of providing 14,060 strategic home developments between 2011 and 2031 in the district and provision of employment sites and additional housing on non-strategic sites.

Unlike most of the indirect impacts on European sites that can derive from development (e.g. from recreational pressure or vehicle exhaust emissions) and which are generally not covered by any independent assessment or consenting regime, water supply is covered by a detailed abstraction licensing and Review of Consents process controlled by the Environment Agency. One of the principal functions of this regime is to ensure that the abstraction of water at volumes, rates or times of year that would result in adverse effects on internationally designated sites do not take place.

Avoiding adverse effects on European sites as a result of increased scales of abstraction to supply new housing must therefore be principally the responsibility of the water companies through their Water Resource Management Plans, water supply operations and abstraction licence applications and the Environment Agency through their licensing regime and Review of Consents process.

Thames Water Utilities Ltd commented on the Issues & Options HRA screening report that they currently do not have any groundwater sources in the catchment of Cothill Fen SAC and have no current plans to develop any. As such, it is unlikely that housing to be delivered in Vale of White Horse under the Additional Consultation document will have an adverse effect on water flows into Cothill Fen SAC provided that no housing is actually situated within the catchment

shown on Figure 6. The preferred strategic housing locations screened in Table 8 do not lie within this catchment. If housing is to be allocated within that catchment area it will be necessary to undertake an investigation to confirm that adverse effects can be avoided. Moreover, there are a number of policies within the Local Plan Part 1 that help to ensure that water resource efficiency within the Vale of White Horse is maximised:

- Policy 7 – Providing Supporting Infrastructure and Services, states that “*all new development must be served and supported by appropriate on and off-site infrastructure and services in a timely manner.*” The policy also commits to partnership working with adjoining authorities and stakeholders such as the Environment Agency to ensure appropriate and timely infrastructure provision.
- Policy 43 – Natural Resources, commits to new development proposals “*making efficient use of water.*”
- Policy 46 – Conservation and Improvement of Biodiversity, seeks to protect European sites through stating that “*The highest level of protection will be given to sites and species of international nature conservation importance (Special Areas of Conservation and European Protected Species). Development that is likely to result in a significant effect, either alone or in combination, on such sites and species will need to satisfy the requirements of the Habitats Regulations.*”

Other plans and projects

No specific ‘in combination’ assessment is required with regard to this particular impact pathway since Thames Water’s Water Resource Management Planning is undertaken on a sub-regional strategic basis and therefore already takes account of development planned for authorities surrounding the Vale of White Horse. None of these authorities obtain water from the catchment of Cothill Fen SAC.

Water Quality

The HRA of the Local Plan part 1 prior to Additional Consultation was able to conclude no likely significant effect on Cothill Fen SAC through reduced water quality.

A corollary of the potential effects of reduced water resources through increased development is a reduction in water quality through increased wastewater and sewage generation. Cothill Fen SAC is sensitive to water quality (being identified as a site at risk of diffuse agricultural nutrient pollution as a result of nutrients leaching into the water from surrounding farmland). However, there are no Sewage Treatment Works that discharge upstream of the SAC and as such adverse effects from the development to be delivered through the Additional Consultation document are unlikely. In a previous consultation response of 17/06/10 Natural England asked that investigations into the potential adverse effect of surface water run-off from unallocated development with hydrological connections to SAC’s was also included in policy. However, this would only be relevant if development was to be included within the catchment of the SAC as indicated in Figure 6 and the Additional Consultation document does not include any plans to allocate development in this catchment.

As stated above for water resources, policy 5 commits to provision of adequate and timely infrastructure, including for waste water treatment, in partnership with stakeholders and adjoining local authorities, whilst policy 36 commits to a general protection of nature conservation, including European, sites. Moreover:

- Policy 42 – Flood Risk - includes a commitment to incorporate sustainable drainage systems or techniques to limit surface run-off from development.

- Policy 43 commits to new development proposals “*causing no deterioration and, where possible, achieving improvements in water quality.*”

Other plans and projects

There are no other proposals identified which would lead to development within the surface water catchment of this SAC and therefore an ‘in combination’ effect.

5.6**Conclusion**

Issues of recreational pressure, water resources and water quality have all been considered in relation to impacts of the Additional Consultation document on the Cothill Fen SAC. It is possible to conclude that likely significant effects on the SAC as a result of development within the Vale of White Horse District under the Additional Consultation document will not occur.

6 HACKPEN HILL SAC

6.1 Introduction

This unimproved chalk grassland site lies on the Middle Chalk and has all aspects and a wide range of slope-gradients represented. It has well-drained, silty soils of the Wantage 1 Series, with the thinner soils of the upper slopes containing a high proportion of large chalk nodules.

Hackpen Hill has slopes with a wide variety of aspect and gradient. Most of the grassland is dominated by red fescue *Festuca rubra*, but this is replaced by upright brome *Bromus erectus* on some middle and lower slopes. The herb flora includes horseshoe vetch *Hippocrepis comosa*, common rockrose *Helianthemum nummularium*, dwarf thistle *Cirsium acaule*, autumn gentian *Gentianella amarella*, fragrant orchid *Gymnadenia conopsea* and frog orchid *Coeloglossum viride*. An enclosed, ungrazed strip on Hackpen Down contains hawthorns and elder scrub, interspersed with upright brome grassland and herbs including sainfoin *Onobrychis viciifolia* and basil thyme *Acinos arvensis*.

Hackpen Hill SAC lies around 4km to the south-west of Wantage, within the Vale of White Horse district.

6.2 Features of European Interest

The site is designated as a SAC for its:

- Dry grasslands and scrublands on chalk or limestone
- Early gentian

6.3 Condition Assessment

The Conservation Objectives for the European interests on the SSSI are, subject to natural changes:

- to maintain*, in favourable condition, the habitats of European importance.

* maintenance implies restoration if the feature is not currently in favourable condition

During the most recent Condition Assessment process (May 2008), the site was in favourable condition.

From examination of the UK Air Pollution System (www.apis.ac.uk) it can be seen (Table 6) that the SAC is currently suffering from poor air quality. Hackpen Hill SAC currently exceeds the minimum critical load for nitrogen deposition.

6.4 Key Environmental Conditions

This site is a well-drained hill and therefore water resource and water quality issues are not relevant as key environmental conditions. The key environmental conditions that support the features of European interest are:

- Appropriate management: grazing.
- Minimal air pollution.
- Absence of direct fertilisation.

6.5 Potential Effects of the Plan

Two potential effects of the LDF Additional Consultation document upon the SAC have been identified:

- Recreational pressure
- Air quality

Recreational Pressure

The HRA of the Local Plan part 1 prior to Additional Consultation was able to conclude no likely significant effect on Hackpen Hill SAC through recreational pressure.

The site is managed by cattle grazing. The site contains features that would be susceptible to increased recreational impact through direct fertilisation (dog fouling) and possibly via trampling. However, excessive rabbit grazing is currently more of a risk than trampling. Small-scale scattered erosion (as might arise from limited off-track movement) is not a negative impact since it creates niches for colonisation by early gentian, horseshoe vetch etc.

In the absence of specific data regarding the recreational catchment of Hackpen Hill SAC or the recreational behaviour of local residents regarding this type of site, we have taken as a proxy the figure of 4-5km which has been identified as the core recreational catchment for a wide range of other European sites.

Using this distance, Wantage is the only large settlement that lies within relatively close proximity to the SAC. However, although the settlement lies just within 5km of the SAC as the crow flies (as do the strategic developments at Monks Farm (map number 15), and the 2,500 new dwellings allocated at Grove Airfield), it is a considerably longer distance by road (up to 10km for the Monks Farm site). The proposed development site at Crab Hill (number 14) is also accessed via a similarly circuitous route, and although a large development (up to 1500 new dwellings), lies further distant at 6.5km. Moreover, the closest area where people can park to access the site is on the Ridgeway at Sparsholt Firs, but this is over 600m from the SAC and requires traversing the ridgeway and a muddy footpath. This again naturally limits the accessibility of the site. There is only informal off road parking here which would accommodate approximately 30 cars. Hackpen Hill SAC is a site that is visited for its own intrinsic features by people (including holidaymakers) undertaking substantial walks along across country, rather than being used as a convenient piece of local greenspace for dogwalking etc. by large numbers of residents from nearby towns. In practice therefore, it is very likely that the majority of regular local resident visitors derive from the small settlements very close to the SAC. In addition, the number of available parking spaces inherently limits the number of vehicle-based visitors who can use the site; given the distances involved, visitors deriving from Wantage are bound to arrive at site by car. Given this, the delivery of 4,750 new dwellings at Wantage and Grove (even coupled with existing commitments) would be likely to have a limited effect on actual regular visitor activity within the SAC.

At the moment required access management is limited to on-going footpath maintenance and signage and this may well prove sufficient to manage future visitor numbers. However, the local authority should be prepared to contribute to any enhanced access management that might be identified by Natural England in future as stemming from increased local population.

Other plans and projects

Although there will be population increases in neighbouring districts (currently committed or projected as 22,840 new dwellings in Cherwell, 9,132 in Oxford, 10,940 in South Oxfordshire, up to 13,200 in West Oxfordshire, 22,000 in Swindon, 6900 in the Cotswold District and 850 in the Marlborough Area of Wiltshire) these all lie well outside the probable core recreational catchment of the SAC²³. West Berkshire, where 10,500 new dwellings are allocated under their Core Strategy, does lie within 5km of the SAC, however, no major settlements occur within this distance.

Air Pollution

The HRA of the Local Plan part 1 prior to Additional Consultation was able to conclude no likely significant effect on Hackpen Hill SAC through reduced air quality.

The site is sensitive to air pollution, and modelling results suggest that the SAC is currently experiencing deposition rates exceeding the 'critical load' of this habitat for nitrogen deposition.

The closest road to the SAC is the B4001, but this lies 300m from the site at its closest, which is outside the distance from which vehicle exhaust emissions may be contributing to local nitrogen deposition. Coupled with the minor nature of this road and the fact that the SAC is physically situated above the road which will further limit the dispersal of pollution, it is highly unlikely that any increases in traffic flows resulting from development proposed in the Additional Consultation document would have a significant effect upon the qualifying interest of the SAC as a consequence of air pollution.

No avoidance or mitigation measures are therefore required with regards to air quality impacts of the Local Plan Part 1 Submission document on Hackpen Hill SAC. No 'in combination' assessment is required since local air quality from road traffic has been ruled out as an impact pathway.

6.6

Conclusion

Issues of recreational pressure and air quality have been considered in relation to impacts of the Additional Consultation document on the Hackpen Hill SAC. It is possible to conclude that likely significant effects will not arise from air quality issues on the Hackpen Hill SAC as a result of development within the Vale of White Horse District under the Additional Consultation document policy amendments. There is however a small risk of increased recreational pressure on Hackpen Hill SAC which may trigger the need for enhanced access management to the site. The local authority should be prepared to contribute to any enhanced access management that might be identified by Natural England in future as stemming from increased local population. The Council has advised that this issue can be addressed through the Infrastructure Delivery Plan (IDP) and the Community Infrastructure Levy (CIL).

²³ Figures subject to change based on emerging Local Plans/ Core Strategies, and emerging Oxfordshire SHMA.

7 LITTLE WITTENHAM SAC

7.1 Introduction

This site supports one of the largest known breeding populations of great crested newt *Triturus cristatus* in the UK. The site also supports an outstanding breeding assemblage of amphibians, which include smooth newt, common frogs and common toads, and of dragonflies and damselflies.

The calcareous flushes in the woodland have extensive deposits of tufa and support a specialized invertebrate fauna which includes a number of rare species. These include the soldier flies *Oxycera analis* and *O. pardalina*.

The woodland ponds and streams support a wide diversity of dragonflies and damselflies. A total of 16 species are known to breed on the site including the brown hawkler *Aeshna grandis*, migrant hawkler *A. mixta*, emperor dragonfly *Anax imperator* and ruddy darter *Sympetrum sanguineum*.

Additional aquatic habitat is provided by a backwater of the River Thames which provides suitable conditions for the white-legged damselfly *Platycnemis pennipes*, club-tailed dragonfly *Gomphus vulgatissimus* and red-eyed damselfly *Erythromma najas*. The associated riverine woodland supports the Loddon lily *Leucojum aestivum*.

The nationally scarce plant greater dodder *Cuscuta europaea* is regularly seen growing parasitically on nettle *Urtica dioica* alongside the River Thames.

The site is approximately 6km south-east of Abingdon, less than 4km from Didcot, and less than 3km from the district boundary.

7.2 Features of European Interest

The site is designated as a SAC for its:

- Great crested newt populations.

7.3 Condition Assessment

The Conservation Objectives for the European interests on the SSSI are, subject to natural changes:

- to maintain*, in favourable condition, the species of European importance.

* maintenance implies restoration if the feature is not currently in favourable condition

During the most recent Condition Assessment process (October 2010), the entire site was in favourable condition.

From examination of the UK Air Pollution System (www.apis.ac.uk) it can be seen (Table 6) that the SAC is currently suffering from poor air quality. Little Wittenham SAC currently exceeds the minimum critical load for nitrogen deposition.

7.4 Key Environmental Conditions

The key conditions that support the features of European interest are:

- Suitable foraging and refuge habitat within 500m of the pond.

- Relatively unpolluted water of roughly neutral pH.
- Some ponds deep enough to retain water throughout February to August at least one year in every three.
- In a wider context, great crested newts require good connectivity of landscape features (ponds, hedges etc) as they often live as metapopulations in a number of ponds.

7.5 Potential Effects of the Plan

Recreational pressure has been discounted as an impact pathway for two reasons: firstly, the site is relatively isolated being over 3km from the nearest sizeable settlements (Didcot and Wallingford) and secondly great crested newts have a low susceptibility to recreational activity (other than fishing which cannot be considered a probable corollary of new housing in Vale of White Horse) as they do not have highly specific habitat requirements. Water resource impacts have been discounted because there is not abstraction for the Public Water Supply in Vale of White Horse from the Little Wittenham pools. Air quality has been discounted because no significant roads lie within 200m of the SAC.

Water Quality

A reduction in water quality can occur through increased wastewater and sewage generation. Little Wittenham SAC is sensitive to water quality, as it relies on unpolluted water. As it lies adjacent to the River Thames, any pollution events upstream could affect the integrity of the site if flooding is possible. The upstream Thames forms the eastern boundary of the Vale of White Horse, and flows past Abingdon and Oxford.

A small proportion of the site along its northern edge was designated as flood zone risk 2 or 3²⁴ during the Strategic Flood Risk Assessment carried out as part of the LDF evidence base studies.

Waste water treatment facilities and sewage treatment works will need to be able to cope with increased capacity as a result of new development. In terms of the protection of the SAC it is important to avoid pollution of the River Thames. The Environment Agency (2006), based on proposed housing allocations at the time, did not highlight requirements for any new infrastructure to meet forecast demands for increases in housing development²⁵ of 11,560 new dwellings under the South East Plan within the Vale of White Horse District, although phosphorous levels in discharge from the Abingdon STW needed to be reduced.²⁶

Although VoWH now intends to deliver up to 20,560 new dwellings in the period 2011-31, given the small area of the site designated as being at risk of flooding, and the relatively invulnerable nature of the designated features of the site, it is considered unlikely that the development outlined within the Local Plan Part 1 Submission document will result in an adverse effect on Little Wittenham SAC. The capacity of the existing STWs will be verified as part of a Water Cycle Study that will examine the impact of growth on STW capacities.

In their consultation response of 17/06/10 Natural England asked how surface water from the allocation of dwellings at Valley Park, Didcot will be treated and whether there was a hydrological connection e.g. drainage ditches/streams between the Didcot development and the River Thames upstream of the SAC. The proposed strategic allocation in the Vale of White Horse District at Valley Park, Didcot is on the western side of the town (the opposite side to Little

²⁴ Flood risk zone 2 refers to the risk of flooding being at least once every thousand years. Flood risk zone 3 refers to the risk of flooding being at least once every hundred years.

²⁵ Environment Agency (2006) Creating a better place: Planning for water quality and growth in the south east.

²⁶ Environment Agency. What's in your backyard? River Quality and Urban Waste Water Treatment Map. http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=riverquality

Wittenham) and is 6km from the SAC at its closest. The details of surface water treatment have not been devised as yet but they will be required to adhere to Environment Agency policy and national pollution prevention legislation which would prohibit the discharge of surface water into existing watercourses if there was a water quality risk or if the discharge would result in a net increase in flows above existing Greenfield runoff rates. Given this and the distance between the Valley Park strategic housing area and Little Wittenham SAC there is considered to be a negligible risk of an impact through surface water runoff.

- Policy 7 commits to provision of adequate and timely infrastructure, including for waste water treatment, in partnership with stakeholders and adjoining local authorities, whilst Policy 36 commits to a general protection of nature conservation, including European, sites. Moreover:
- Policy 42 – Flood Risk - includes a commitment to incorporate sustainable drainage systems or techniques to limit surface run-off from development.
- Policy 43 commits to new development proposals “*causing no deterioration and, where possible, achieving improvements in water quality.*”

Other plans and projects

Although strategic development proposed under South Oxfordshire’s Core Strategy (10,940 new dwellings) could also potentially lead to reduced quality of surface water flows into the River Thames past Little Wittenham SAC, as indicated above, the VoWH Local Plan would not contribute any likely significant effects through reduced water quality, and so there is no in combination effect to assess. Additionally development in South Oxfordshire will be subject to the same Environment Agency policy that would prohibit surface water pollution of downstream receiving water courses. Therefore there are no other proposals identified which would lead to development within the surface water catchment of this SAC and therefore an ‘in combination’ effect.

7.6

Conclusion

The issue of water quality has been considered in relation to the impacts of the Additional Consultation policy amendments on the Little Wittenham SAC. It is possible to conclude that likely significant effects on the Little Wittenham SAC as a result of development within the Vale of White Horse District under the Additional Consultation documents will not occur.

8 OXFORD MEADOWS SAC

8.1 Introduction

Port Meadow is a classic site for studying the effects of grazing on plant communities. The site consists of a series of neutral grasslands situated in the Thames floodplain. Despite the generally low species-diversity of Port Meadow compared with adjoining hay fields a total of 178 flowering plants have been recorded. These include the Red Data Book species creeping marshwort *Apium repens*, for which Port Meadow is now one of only two sites in Britain.

Wolvercote Meadows, bordering the River Thames consists of unimproved and semi-improved neutral grassland that continues to be managed traditionally for hay and pasture and support a rich flora. Pixey and Yarnton Meads are unimproved floodplain meadows on alluvium over calcareous gravel on the first terrace bordering the River Thames and are internationally renowned. They are amongst the best remaining examples of neutral grassland in lowland England. Cassington Meadows are a cluster of neutral hay meadows and fen, which are surviving remnants of semi-natural vegetation in an area now characterised by intensive arable farming and gravel extraction. Oxford Meadows SAC is adjacent to the north-eastern boundary of Vale of White Horse district.

8.2 Features of European Interest

The site is designated as a SAC for its:

- Lowland hay meadows
- Creeping marshwort

8.3 Condition Assessment

The Conservation Objectives for the European interests on the SSSI are, subject to natural changes:

- to maintain*, in favourable condition, the habitats and species, of European importance.

* maintenance implies restoration if the feature is not currently in favourable condition

During the most recent Condition Assessment process (June 2009), 99% of the site was in favourable condition, with the remainder recovering.

From examination of the UK Air Pollution System (www.apis.ac.uk) it can be seen (Table 6) that the SAC is not currently suffering from poor air quality.

8.4 Key Environmental Conditions

The key conditions that support the features of European interest are:

- Maintenance of traditional hay cut.
- Maintenance of light aftermath grazing.
- Minimal air pollution.
- Absence of direct fertilisation.
- Balanced hydrological regime –alteration to adjacent rivers may alter flooding regime and reduce botanical diversity.

- Absence of excessive nutrient enrichment of floodwaters

8.5 Potential Effects of the Plan

Three potential effects of the Additional Consultation document upon the SAC have been identified.

Recreational Pressure

The site contains features that would be susceptible to increased recreational impact through direct fertilisation (dog fouling) and possibly via trampling. According to the HRA of the Cherwell Core Strategy ‘*Oxford Meadows SAC is a popular place for walking, particularly for residents of and visitors to Oxford*’²⁷. A visitor survey undertaken during October 2011 by Oxford City Council to inform the Oxford Sites and Housing DPD identified that over 80% of visitors to the SAC live within 5km of the site. The majority of respondents (82%) indicated that they were residents of Oxford with only 4% being resident in other parts of Oxfordshire. Those settlements within Vale of White Horse from which visitors originated were Kennington, Botley, North Hinksey and Wytham. However, considerably less than 4% of visitors to the SAC derived from these settlements. It is clear from this survey that visitor pressure on the SAC stems almost entirely from Oxford, with other settlements making a negligible contribution.

Moreover, the distance between even the closest major strategic housing location to be delivered under the Vale of White Horse Local Plan Part 1 and the Oxford Meadows SAC is in excess of 5km. Cherwell District and West Oxfordshire District have strategic sites that are closer (3,000 dwellings at Bicester and 1,000 dwellings at Witney respectively). As such, it is considered that visitors from the housing locations outlined in the Additional Consultation document are unlikely to significantly contribute to recreational pressure at the site.

It is therefore considered that no avoidance or mitigation measures are required under the Additional Consultation document policy amendments with regards to recreational impacts on Oxford Meadows. However, as an additional safeguard within the Local Plan Part 1, Natural England requested in their consultation response of 17/06/10 that they would like to see that adequate green infrastructure is provided with all of the new development sites in line with Accessible Natural Greenspace Standards (ANGSt) to ensure that this is readily accessible for residents close to their homes.

Policy 45 – Green Infrastructure does state that “proposals for new development must provide adequate Green Infrastructure in line with Accessible Natural Greenspace Standards (ANGSt). Applications must be accompanied by a statement demonstrating that they have taken into account the relationship of the proposed development to existing Green Infrastructure and how this will be retained and enhanced...”

The council has produced a Green Infrastructure Audit which includes an assessment against relevant ANGst standards. The audit identifies a deficit which will be addressed through the forthcoming county-wide GI Strategy, or other green infrastructure delivery mechanism, in the event that a county-wide GI strategy is not taken forward. The supporting text to Policy 35 does indicate that the Council is working with partners (including statutory agencies) in order to produce a Green Infrastructure Strategy.

No specific ‘in combination assessment’ is required since the visitor survey on which this analysis is based took account of all sources of visitor origin for the SAC and the preceding analysis does consider impacts from Vale of White Horse within the context of those from Oxford City.

²⁷ [http://www.cherwell.gov.uk/media/pdf/o/5/Habitats_Regulations_Assessment_\(Stage_1\)_of_Options_for_Growth_-_Consultation_on_Directions_of_Growth.pdf](http://www.cherwell.gov.uk/media/pdf/o/5/Habitats_Regulations_Assessment_(Stage_1)_of_Options_for_Growth_-_Consultation_on_Directions_of_Growth.pdf)

Air Quality

The total number of households in Vale of White Horse will have increased by at least 41% by 2031 under the Additional Consultation document (from 49,400 according to the 2011 census, to 69,960 when the additional 20,560 dwellings to be delivered under the lifetime of the LPP1, as set out in the Submission document, are considered). The increase in development proposed within the Submission document is likely to result in increased car use on roads that pass within 200m of the SAC (namely the A34 and A40), notably as a consequence of housing and business development. It is reasonable to assume that the increased population (both residential and business) will lead to increased vehicle movements. When coupled with the 84,572 new homes identified for the local authorities surrounding the Vale of White Horse (which may in fact increase, given SHMA recommendations), there is an even greater likelihood of an increase in traffic movements along the A34 and A40 which run adjacent to the Oxford Meadows SAC.

Department for Transport Guidance as expressed in the Design Manual for Roads and Bridges (DMRB)²⁸ states that the first process in determining air quality impacts from road schemes is to determine whether the road in question is an 'affected road' which is defined as, among other criteria, if it will experience an increase in flows of more than 1,000 Annual Average Daily Traffic (AADT) as a result of the planned development.

Air quality effects as a result of new development on Oxford Meadows SAC is an issue that is now being considered as a wider, strategic, cross-boundary issue in an initiative being led by the Oxfordshire Planning Policy Group.

That exercise is not likely to report for a while and therefore as an interim step the flows on the A34 and A40 that would arise specifically from the housing development planned for Vale of White Horse have been calculated for this report. In undertaking these calculations, the figure of 15,860 dwellings has been used to calculate the change in flows due to the Local Plan (i.e. all those dwellings that are not already committed; the 'Do Something' scenario) while the remaining 4,700 dwellings required to meet the Local Plan target of 20,560 are considered part of the 'Do Minimum' scenario (i.e. the future base case even without the Local Plan) because that level of housing is already committed via planning permissions.

Location	Direction	Change
A34 (south of A40)	NB	4,108
	SB	2,655
A40 (east of A34)	EB	11,639
	WB	3,982
A40 (west of A34)	EB	1,991
	WB	2,054

It can be seen that the change in flows on the A34 and A40 due to the Local Plan would exceed 1,000 AADT. In various air quality assessments undertaken for this Local Plan before it was determined to assess the issue strategically across all Oxfordshire local authorities an extreme figure of 26,949 dwellings in Vale of White Horse was used to calculate an extreme worst case air quality situation. Even in this circumstance the change in nitrogen deposition within 200m of the roadside was less than 1% of the critical load due to Local Plan-related traffic and therefore effectively inconsequential. This conclusion concurs with that of the recent (October 2014) Habitat Regulations Assessment undertaken for Cherwell district. The change in NOx concentrations within 50m of the roadside did exceed 1% of the critical level, although only to a

²⁸ Design Manual for Roads and Bridges, Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 1: Air Quality

small degree (less than 5% and less than $2 \mu\text{gm}^{-3}$). Moreover, the SAC boundary does not lie immediately adjacent to the road itself but is separated from the road by the highway boundary/verge which is 20m wide on the north side of the A34 and 12m wide on the south side. Therefore the greatest increase in NO_x concentrations will fall within the highway boundary rather than the SAC.

Housing numbers across Oxfordshire County are likely to be subject to some revision in the near future due to the outcome of the various SHMA processes, the fact that some authorities (such as West Oxfordshire) are still preparing their Local Plans and the fact that at least some of the housing need identified in the Oxford City SHMA may need to be accommodated in surrounding districts. In light of this air quality effects as a result of new development on Oxford Meadows SAC is an issue that is now being considered as a wider, strategic, cross-boundary issue in an initiative being led by the Oxfordshire Planning Policy Group.

As a precaution in the absence of the outcomes of the detailed strategic study it is considered appropriate at this stage to identify measures that would address an air quality issue if one was identified 'in combination' with other projects and plans (particularly the aforementioned Local Plans of surrounding authorities). To do this, the approach to addressing air quality in the Thames Basin Heaths area, as set out in the Local Authority Core Strategies/Local Plans and their HRAs (and which was agreed with Natural England) have been drawn upon.

In consultation on the Thames Basin Heaths Core Strategies/Local Plans Natural England referred to the West London Air Quality Best Practice Guide for Air Quality and Transport, as a source of appropriate mitigation measures that could be included in Core Strategies:

That report identifies four broad types of mitigation measure:

- Behavioural measures and modal shift - reducing the amount of traffic overall;
- Traffic management - modifying traffic behaviour to control where emissions are generated;
- Emissions reduction at source - reducing the emissions level per vehicle; and
- Roadside barriers - reducing the impact on the public of emissions.

Measures introduced into the Local Plan Part 1 cover the first two of these categories (emissions reductions per vehicle and roadside barriers being outside the remit of local planning policy). The Local Plan Part 1 already contains a range of transport measures designed to reduce congestion (which causes reductions in air quality) and increase use of more sustainable forms of transport such as buses and bicycles:

- Policy 7 commits to partnership working with adjoining authorities and relevant stakeholders, in order to ensure sufficient and timely provision of infrastructure to support development. Such measures may include infrastructure to improve traffic flows and traffic management.
- Policy 46 commits to a general protection of nature conservation, including European sites.
- In particular, Policy 33 – Promoting Sustainable Transport and Accessibility aims to:
 - support a modal shift toward public transport, cycling and walking
 - improve air quality through improvements to the transport network
 - require transport assessments and travel plans for relevant developments
 - promote electronic communications.

- Policy 35 - Promoting Public Transport, Cycling and Walking reinforces the approaches outlined in Policy 33.
- At a project-specific level, Policy 43 commits to new development proposals “*causing no deterioration and, where possible, achieving improvements in air quality.*”

For those sustainable transport measures which are available at the strategic planning level, it is not possible to predict in advance the precise quantum of improvement that can be delivered by a given mitigation measure due to both the novel nature of the mitigation tools available and the limitations of the science. Vegetative changes that theory identifies as being likely to result from changes (either negative or positive) in atmospheric nitrogen deposition can fail to appear in practice since they are relatively subtle and can be totally offset by management regime. Moreover, it is rarely possible to separate the effects of atmospheric nitrogen deposition and other causes, or to separate the effects of atmospheric nitrogen deposition arising from vehicle exhausts from those arising from other sources (e.g. agriculture). For example, a policy to ‘require developers to produce travel plans indicating that they have maximised opportunities for sustainable transport’ may prove effective in practice, but cannot be predictively linked to a specific scale of improvement of air quality.

It is therefore important that where air quality problems are identified there is also a mechanism established to monitor the effectiveness of the measures adopted (using the critical load/level as a monitoring target against which the success or failure of mitigation measures can be evaluated) and amend them as required. If a qualitative effect attributable to air quality was confirmed, then this would trigger the introduction of further mitigation measures proven to be effective in such situations. These could include management initiatives to improve the vegetative quality of other parts of the SAC further from the roadside or to counter any additional growth of vegetation close to the roadside, roadside barriers, reallocation of road space (high occupancy vehicle lanes), re-routing of heavy goods and older vehicles, traffic management and calming measures, or measures to change vehicle speeds on the A34 and/or A40 which would also affect emissions. Exactly which measures would be most appropriate would need to be determined at the time (if required at all) and therefore the Local Plan should not commit to specific initiatives at this stage.

This is in line with the precautionary principle as set out in EC Guidance²⁹ on its use:

‘If a preliminary scientific evaluation shows that there are reasonable grounds for concern that a particular activity might lead to damaging effects on the environment, or on human, animal or plant health, which would be inconsistent with the protection normally afforded to these within the European Community, the Precautionary Principle is triggered.

Decision-makers then have to determine what action to take. They should take account of the potential consequences of taking no action, the uncertainties inherent in the scientific evaluation, and they should consult interested parties on the possible ways of managing the risk. Measures should be proportionate to the level of risk, and to the desired level of protection. They should be provisional in nature pending the availability of more reliable scientific data.

Action is then undertaken to obtain further information enabling a more objective assessment of the risk. The measures taken to manage the risk should be maintained so long as the scientific information remains inconclusive and the risk unacceptable’.

²⁹ European Commission (2000): Communication from the Commission on the use of the Precautionary Principle.

Recommendation

In order to ensure that the Council's robust measures to improve air quality across the district are shown to be effective in terms of protection of the SAC, the Council should adopt a partnership approach to monitoring of air quality on the SAC.

Collaborative working to investigate air quality strategically has already commenced under the auspices of the Oxfordshire Planning Policy Group. The Council should supplement this via a plan commitment (Policy 34 would be the obvious place since this already addresses partnership working on the A34) to working with other local authorities, land managers, and strategic highway authorities to develop a framework by which air quality measures can be linked to monitoring of the air quality in the Oxford Meadows SAC before and for a number of years after introduction of the measures, such that further measures can be devised if the air quality does not improve. In making these assessments the critical load for the relevant habitat should be used as the target for assessment.

While not mitigation in itself, monitoring is an essential factor when dealing with an issue such as air quality which has a high degree of uncertainty, since it will enable the effectiveness of air quality improvement measures to be evaluated and amended over the Core Strategy period.

Other Plans and Projects

There will be population increases in neighbouring districts (currently committed or projected to be up to 22,840 new dwellings in Cherwell, 9,132 in Oxford, 10,940 in South Oxfordshire, up to 13,200 in West Oxfordshire, 22,000 in Swindon, 6900 in the Cotswold District, 10,500 in West Berkshire, and 850 in the Marlborough Area of Wiltshire)³⁰. Development of new housing in adjacent local authorities is likely to lead to increased road transport on the A34 and A40 that pass through, or within 200m of, Oxford Meadows SAC. The contribution of proposed development in Vale of White Horse district to any increase in deposition in combination with other development will be assessed and reported as part of a strategic study into effects of new development on air quality at Oxford Meadows SAC.

Water Quality

The Council currently intends to deliver up to 20,560 new homes across the district by 2031. The Swinford Sewage Treatment Works currently discharges to the River Thames upstream of the Oxford Meadows SAC. Depending upon the headroom and treatment processes (e.g. phosphorus stripping) available at this STW it is possible that new housing located within the Vale of White Horse may indirectly contribute to phosphorus loadings in the River Thames upstream of the Oxford Meadows SAC and may therefore indirectly contribute to a deterioration in the water quality of the SAC since the SAC relies on floodwaters that are free from risk of nutrient enrichment. According to the Environment Agency, the SAC has a 1 in 100 year risk of flooding. However, the Thames upstream of the SAC is assessed by the Environment Agency as having in places, 'poor' biological status³¹.

Waste water treatment facilities and sewage treatment works will need to be able to cope with increased capacity as a result of new development. In terms of the protection of the SAC it is important to avoid pollution of the River Thames. The Environment Agency (2006), based on proposed housing allocations at the time, did not highlight requirements for any new infrastructure to meet forecast demands for increases in housing development of 11,560 new dwellings under the South East Plan within the Vale of White Horse District, although phosphorous levels in discharge from the Abingdon STW needed to be reduced.

³⁰ Figures subject to change based on emerging Local Plans/ Core Strategies, and emerging Oxfordshire SHMA.

³¹ Environment Agency (2008) http://maps.environment-agency.gov.uk/wiyby/wiybyController?latest=true&topic=riverquality&ep=query&lang=_e&x=445829.2916666667&y=209798.6666666666&scale=4&layerGroups=2&queryWindowWidth=25&queryWindowHeight=25

VoWH now intends to deliver up to 20,560 new dwellings in the period 2011-31, and the capacity of the existing STWs will be verified as part of a Water Cycle Study that will examine the impact of growth on STW capacities.

In their consultation response of 17/06/10 Natural England commented that a balanced hydrological regime is a key condition for this SAC. Therefore Natural England required a measure within Local Plan Part 1 policy that would ensure the protection of water quality in existing watercourses (particularly the River Thames). The following policies should ensure that this is achieved with the Submission document developments also taken into account:

- Policy 5 – Providing Supporting Infrastructure and Services, states that “*all new development will be required to provide, in a timely manner, the on-site and, where appropriate, off-site infrastructure requirements necessary for the development to be sustainably accommodated.*” The policy also commits to partnership working with adjoining authorities and stakeholders such as the Environment Agency to ensure appropriate and timely infrastructure provision.
- Policy 32 – Flood Risk - includes a commitment to incorporate sustainable drainage systems or techniques to limit surface run-off from development.
- Policy 33 commits to new development proposals “*causing no deterioration and, where possible, achieving improvements in water quality.*”

Other plans and projects

Development proposed within spatial strategies of neighbouring local authorities (West Oxfordshire, Cherwell and Oxford) may also include allocations that would require waste water treatment at Swinford STW. Therefore, the forthcoming Water Cycle Study would take this possibility into account when assessing capacity issues. The Water Cycle study will also identify any necessary solutions to ensuring protection of the water quality of the River Thames.

8.6

Conclusion

Issues of recreational pressure and water quality have all been considered in relation to impacts of the Submission document policies on the Oxford Meadows SAC. It is possible to conclude that likely significant effects on the Oxford Meadows SAC as a result of development under the Vale of White Horse Submission document policies will not occur as a result of pathways of impact from recreational pressure, either alone, or in combination with other plans and projects. Effects of water quality on Oxford Meadows SAC are considered unlikely to occur, given the policy commitments in the Local Plan Part 1 to provision of adequate infrastructure to accompany new development. The need for increased infrastructure capacity will be informed by a Water Cycle Study.

It is considered likely that housing across Oxfordshire will result in an increase in nitrogen deposition and NOx concentration within a small part of the Oxford Meadows SAC as it lies adjacent to the A34 and A40. Although Vale of the White Horse contribution to nitrogen deposition will be trivial, there will be a small contribution to changes in NOx concentrations, although one that is not significant. The Oxfordshire authorities are undertaking more detailed studies to investigate air quality within the SAC adjacent to the A34 and A40, which will in turn inform specific mitigation interventions. As a precaution, until that study is completed, it has been assumed in this analysis that an air quality effect may exist and appropriate plan-level measures to address the issue (as accepted for other local authorities) have been identified and are reflected in the Local Plan Part 1 which would enable a conclusion of no adverse effect to be reached (as has been the case in the Thames Basin Heaths area) and enable the Local Plan Part 1 to be adopted. One further recommendation related to monitoring has been included in this report for incorporation into the Plan.

CONCLUSION

Issues of recreational pressure, air quality and water quality have all been considered in relation to impacts of the Submission document policies. It is possible to conclude that likely significant effects will not occur on European sites as a result of development under the Vale of White Horse Submission document policies as a result of pathways of impact from recreational pressure either alone, or in combination with other plans and projects.

It is considered likely that housing across Oxfordshire will result in an increase in nitrogen deposition and NOx concentration within a small part of the Oxford Meadows SAC as it lies adjacent to the A34 and A40. Although Vale of the White Horse contribution to nitrogen deposition will be trivial, there will be a small contribution to changes in NOx concentrations, although one that is not significant. The Oxfordshire authorities are undertaking more detailed studies to investigate air quality within the SAC adjacent to the A34 and A40, which will in turn inform specific mitigation interventions. As a precaution, until that study is completed, it has been assumed in this analysis that an air quality effect may exist and appropriate plan-level measures to address the issue (as accepted for other local authorities) have been identified and are reflected in the Local Plan Part 1 which would enable a conclusion of no adverse effect to be reached (as has been the case in the Thames Basin Heaths area) and enable the Local Plan Part 1 to be adopted. One further recommendation related to monitoring has been included in this report for incorporation into the Plan.

Effects of water quality on Oxford Meadows SAC are considered unlikely to occur, given the policy commitments in the Local Plan Part 1 to provision of adequate infrastructure to accompany new development. The need for increased infrastructure capacity will be informed by a Water Cycle Study. . The Water Cycle study will also identify any necessary solutions to ensuring protection of the water quality of the River Thames It is concluded that, given the incorporation of policies to address air quality, and following the incorporation of the small number of outstanding recommendations the Submission document policies will not lead to likely significant effects on European sites either alone, or in combination with other plans and projects.

It is concluded that no strategic housing sites would lead to likely significant effects, either alone or in combination.