URBAN EDGE ENVIRONMENTAL CONSULTING

NATURAL PROGRESSION

Habitats Regulations Assessment for the South Oxfordshire and Vale of White Horse Joint Local Plan

Preliminary Screening Report

December 2023

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Client:	South Oxfordshire & Vale of White Horse District Councils	
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Abbreviations

AADT	Annual Average Daily Traffic
APIS	Air Pollution Information System
ha	hectare
HRA	Habitat Regulations Assessment
IAQM	Institute of Air Quality Management
kg	kilogram
µg	Micrograms
m3	metres cubed
N	Nitrogen
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides
NPPF	National Planning Policy Framework
P	Phosphorous
SA	Sustainability Appraisal
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
yr	Year

0 Executive Summary

0.1 Introduction

0.1.1 South Oxfordshire and Vale of White Horse District Councils are preparing a Joint Local Plan which will set the planning strategy for the Districts and address emerging housing and employment needs through to 2041. As an integral part of this process, the Council has undertaken a Habitats Regulations Assessment. A related Sustainability Appraisal has also been prepared and is reported separately.

0.1.2 Habitats Regulations Assessment (HRA) is a requirement of the Conservation of Habitats and Species Regulations 2017 (as amended; commonly referred to as 'the Habitats Regulations'), and must be applied to any plan or project not directly connected with or necessary to the management of a European site, if it is likely to have a significant effect on a European site either alone or in combination with other plans or projects. An effect is "likely" in this context if the risk cannot be excluded on the basis of objective information (see chapter 2).

0.1.3 The HRA incorporates evidence on likely impact pathways and considers the potential for likely significant effects in view of European site conservation objectives. No reliance is placed on mitigation during the screening assessment. Chapter 2 presents information about the overall methodology used for the HRA.

0.2 Scope of the Assessment

0.2.1 Acknowledging that the Local Plan is not directly connected with or necessary to management of the sites for nature conservation, the HRA considers the following European sites for likely significant or adverse effects on integrity:

- Aston Rowant SAC
- Chiltern Beechwoods SAC
- Cothill Fen SAC
- Hackpen Hill SAC
- Hartslock Wood SAC
- Kennet & Lambourn Floodplain SAC
- Little Wittenham SAC
- Oxford Meadows SAC
- River Lambourn SAC

0.2.2 Chapter 3 presents information about the sites, including their qualifying features and conservation objectives.

0.3 Impact Pathways

0.3.1 The following impact pathways are considered for likely significantly effects on the European sites:

- Atmospheric pollution;
- Recreational disturbance;
- Water quality and quantity; and
- Site specific impacts.

0.3.2 Chapter 5 describes the available evidence about these impact pathways in relation to the European sites.

0.4 Summary of Findings

0.4.1 In summary, the assessment of the Joint Local Plan finds that:

- No likely significant effects were identified in relation to Chilterns Beechwoods SAC, Hackpen Hill SAC, Hartslock Wood SAC, River Lambourn SAC, Kennet & Lambourn Floodplain SAC and Little Wittenham SAC either alone or in combination with other plans and projects.
- Likely significant effects were identified in relation to Aston Rowant SAC for air pollution in combination with other plans and projects;
- Likely significant effects were identified in relation to Oxford Meadows SAC for air pollution and water quality and quantity in combination with other plans and projects; and
- Likely significant effects were identified in relation to the Cothill Fen SAC associated with recreational disturbance and air pollution alone and in combination with other plans and projects.

0.5 Conclusions

0.5.1 In conclusion, in the absence of mitigation the Preferred Options Joint Local Plan is likely to result in a range of significant effects on the European sites of interest. The plan will be taken forward for Appropriate Assessment at the next plan stage to examine the nature of these effects in further detail.

1 Introduction

1.1 Purpose of the Report

1.1.1 This report has been prepared for South Oxfordshire and Vale of White Horse District Councils (the Councils) as part of the Habitats Regulations Assessment (HRA) for the Joint Local Plan. The report accompanies the consultation on the Preferred Options Local Plan and forms part of the evidence base upon which it is based. A related Sustainability Appraisal has also been prepared and is reported separately.

1.2 The South Oxfordshire & Vale of White Horse Joint Local Plan

1.2.1 The current development plan for South Oxfordshire is comprised of the following documents:

- South Oxfordshire Local Plan 2035;
- "Made" (adopted) Neighbourhood Development Plans prepared by local communities; and
- Oxfordshire County Council Minerals and Waste Local Plan.

1.2.2 The current development plan for Vale of White Horse is comprised of the following documents:

- Vale of White Horse Local Plan 2031 – Part 1: Strategic Sites and Policies;
- Vale of White Horse Local Plan 2031 – Part 2: Detailed Policies and Additional Sites;
- "Made" (adopted) Neighbourhood Development Plans prepared by local communities; and
- Oxfordshire County Council Minerals and Waste Local Plan.

1.2.3 The new Joint Local Plan will set the planning strategy for the districts and address emerging housing and employment needs through to 2041. It will replace the current adopted plan documents for both districts excluding the "Made" Neighbourhood Plans and the Oxfordshire County Council Minerals and Waste Local Plan. When adopted the Local Plan will provide a strategy for the distribution, scale and form of development and supporting infrastructure, a set of proposals to deliver the strategy, policies against which to assess planning applications, and proposals for monitoring the success of the plan.

1.2.4 Using the standard method, with an increase to allow for existing agreed unmet need from Oxford City, the housing need over a twenty-year plan period (2021 to 2041) is 17,050 homes for South Oxfordshire and 14,390 homes for Vale of White Horse. This housing need is exceeded by the housing supply in both Districts as set out in policy HOU2 of the Joint Local Plan.

1.2.5 The employment land requirement for the plan period has been calculated at 23.5 hectares for South Oxfordshire and 115.2 hectares for Vale of White Horse. This requirement is exceeded by the employment land supply in both Districts as set out in policy JT1 of the Joint Local Plan.

1.3 Habitats Regulations Assessment

1.3.1 HRA must be applied to any plan or project likely to have a significant effect on a 'European site' either alone or in combination with other plans or projects. HRA is a requirement of the Conservation of Habitats and Species Regulations 2017 (as amended; henceforth 'the Habitats Regulations'), the UK' transposition of European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ('the Habitats Directive'). Since the UK left the EU the Habitats Directive no longer applies directly to the assessment of plans and projects in the UK. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 amend parts of the 2017 Regulations so that they continue to operate effectively[1].

1.3.2 European sites[2] provide ecological infrastructure for the protection of rare, endangered or vulnerable natural habitats and species of exceptional importance. European sites consist of Special Areas of Conservation (SAC) and Special Protection Areas (SPA) and together form part of new national site network in the UK to replace the EU Natura 2000 network. Additionally, the National Planning Policy Framework (NPPF; DLUHC, 2023) and Circular 06/05 (ODPM, 2005) require that Ramsar sites (UNESCO, 1971) are treated as if they are fully designated sites for the purposes of considering development proposals that may affect them.

1.3.3 The HRA Report responds to recent case law from the Court of Justice of the European Union (CJEU) and Natural England's position in relation to nutrient neutral development[3].

1.4 Scope and Structure of this Document

1.4.1 The document is structured around the following sections:

- Chapter Two: HRA methodology;
- Chapter Three: European sites, qualifying features, conservation objectives, condition status, population trends and threats to site integrity;
- Chapter Four: Information about Joint Local Plan at the Preferred Options stage, including incorporated mitigation measures;
- Chapter Five: Identifying impact pathways and preliminary screening for likely significant effects; and
- Chapter Six: Summary and conclusions.

[1] Defra (2021): *Changes to the Habitats Regulations Assessment 2017.* Accessed online [08/08/2023] at: https://www.gov.uk/government/publications/changes-to-the-habitats-regulations-2017/changes-to-the-habitats-regulations-2017

[2] Although the term is not used in the Habitats Directive, a statutory definition of 'European site' is given in regulation 8 of the Habitats Regulations 2017. This document therefore refers collectively to SAC/SPA as European sites

[3] Natural England (2022): *NE785 Revised Edition Natural England Water Quality and Nutrient Neutrality Advice* (16 March 2022)

2 Methodology

2.1 Good Practice Guidance

2.1.1 Broad guidance on HRA has been published by MHCLG (2019b) and DEFRA (2021) with more detailed guidance issued by the European Commission (2021). *The Habitats Regulations Assessment Handbook* (Tyldesley & Chapman, 2013) was developed to provide a definitive source of detailed practical guidance consistent with case law, examples of recent good practice and government guidance. The requirement for HRA stems from Articles 6(3) and 6(4) of the Habitats Directive, which are represented by four stages within the HRA process as listed in Table 1.1.

2.1.2 The Screening Assessment and Appropriate Assessment for the Joint Local Plan are being undertaken with reference to the *HRA Handbook* and other guidance documents[4].

Table 1.1: Stages of HRA in Guidance from Tyldesley & Chapman (2013)

HRA Handbook stage
Stage 1: Screening for Likely Significant Effects
Stage 2: Appropriate Assessment & Integrity Test
Stage 3: Alternative Solutions
Stage 4: Imperative Reasons of Overriding Public Interest and Compensatory Measures

2.1.3 In *The Habitats Regulations Assessment Handbook* (Tyldesley & Chapman, 2013) section F.1.1.2 (Introduction and overview to 'Plan' assessment) it is recognised that the assessment of a plan may not be as precise and detailed as that of a project at application stage. Plans, and in particular strategic plans such as a Local Plan, also vary in their degree of specificity ranging from very general statements and policy aspirations which may cover a wide geographic area to more prescriptive proposals that are scale and location specific.

2.1.4 An HRA must determine whether or not a plan or project will adversely affect the integrity of the European site(s) concerned, in view of the site's conservation objectives. Where adverse effects are anticipated changes must be made to the plan or project. The process is characterised by the precautionary principle, defined as (European Commission, 2000):

> *"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.*

[4] Reference has also been made to relevant case law, including the summary of applicable principles in paragraph 8 of R (Mynydd y Gwynt Ltd) v Secretary of State for Business, Energy and Industrial Strategy [2018] EWCA Civ 231, [2018] P.T.S.R. 1274.

> *"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."*

2.1.5 The precautionary approach applies at both screening and appropriate assessment stages and means that:

- At screening stage, if a risk of a significant effect on a European site cannot be ruled out on the basis of objective information, the effect is "likely" and an appropriate assessment must be carried out. The words "likely" and "unlikely" are used in this HRA applying that approach (unless otherwise indicated).
- Following an appropriate assessment, if a competent authority cannot rule out all reasonable scientific doubt of an adverse effect on a site's integrity, the plan or project can only be authorised if the statutory derogation tests are satisfied.

2.1.6 Whilst the UK is no longer part of the EU, the UK Government's ongoing commitment to the precautionary principle is enacted in section 16(2) of the EU (Withdrawal) Act 2018 and further embodied within the Environment Act 2021. The precautionary principle therefore continues to be applicable to the HRA process.

2.2 Screening for Likely Significant Effects

2.2.1 Screening is the process which identifies whether a plan or project is likely to result in significant effects to European sites, either alone or in combination with other plans or projects. A significant effect is any effect that would undermine the conservation objectives for a European site. There must be a causal connection or link between the plan or project and the qualifying features of the site which could result in significant effects, but this may be direct or indirect (Tyldesley & Chapman, 2013).

2.2.2 *The Handbook* defines a list of 'screening categories' to provide a rigorous and transparent approach to determining which aspects of the plan could potentially result in significant (adverse) effects. These are listed in Table 1.2, where green indicates that the proposal can be screened-out, orange denotes proposals which may have a significant effect in combination and require further analysis, and red specifies proposals likely to have a significant effect. The colour-coded categories provide the means of recording the results of the assessment in such a way that important issues are identified whilst proposals that have no effect are screened out.

Table 1.2: Screening Categories (Source: Tyldesley & Chapman, 2013)

Cat.	Description
A	General statement of policy / aspiration
B	Policy listing general criteria for testing the acceptability / sustainability of proposals
C	Proposal referred to but not proposed by the plan
D	Environmental protection / site safeguarding policy
E	Policy/proposal steers change in such a way as to protect European sites from adverse effects
F	Policy that cannot lead to development or other change
G	Policy/proposal that could not have any conceivable effect on a European site
H	Policy/proposal the (actual or theoretical) effects of which cannot undermine the conservation objectives (either alone or in combination with other aspects of this or any other plan/project)
I	Policy/proposal with a likely significant effect on a European site alone
J	Policy/proposal with an effect on a site but not likely to be significant alone; check for likely significant effects in combination
K	Policy/proposal not likely to have a significant effect either alone or in combination (after the in combination test)
L	Policy/proposal likely to have a significant effect in combination (after the in combination test)
M	Bespoke area, site or case specific policies or proposals intended to avoid or reduce harmful effects on a European site

2.2.3 All policies and potential site allocations being proposed for inclusion in the Joint Local Plan have been subject to preliminary screening for likely significant effects on European sites. Chapter 3 defines which European sites are considered during the assessment, together with their qualifying features and conservation objectives. The ways in which each European site might be significantly affected by the Local Plan (impact pathways) are described in Chapter 5. Chapter 6, supported by Appendix I, summarises the outputs of the preliminary screening assessment, identifying which proposed site allocations and policies are likely to significantly affect a European site and via which impact pathway.

2.2.4 The screening assessment concludes that the majority of proposed policies are unlikely to significantly affect a European site, however, those which propose certain sites for development may do and these form the focus of the assessment.

2.3 Appropriate Assessment

2.3.1 The purpose of the Appropriate Assessment stage is to further analyse likely significant effects identified during the screening stage, as well as those effects which were uncertain or not well understood and taken forward for assessment in accordance with the precautionary principle. An Appropriate Assessment evaluating the implications of the plan, either alone or in combination with other plans or projects, in light of the conservation objectives of affected European sites will accompany the Regulation 19 stage of plan preparation.

2.3.2 The Appropriate Assessment stage will include a test of whether the plan proposals will result in adverse effects on site integrity which can be defined as (ODPM, 2005):

> *"The integrity of a site is the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified."*

2.3.3 In the 2018 *Holohan* judgment[5], the CJEU ruled that an Appropriate Assessment must consider the interest features of European sites even where those features may be found outside the strict boundaries of those sites and must also consider other habitat types or species, which are present on the site, for which that site has not been listed but which are necessary to the conservation of the habitat types and species listed for the protected area. The former matter is captured in this HRA through consideration of qualifying species which are mobile (section 5.5) while the latter is captured where, for example, habitats within a European site that are not themselves designated are nonetheless considered when assessing impacts because of their functional role in enabling the site to meet its conservation objectives.

2.4 Counteracting Measures

2.4.1 This section draws on Principle C.5 of the *HRA Handbook* (Tyldesley & Chapman, 2013) to identify different types of counteracting measure and describes how they should be considered within the HRA. There is a well-established policy and ethical approach to assessment which recognises a hierarchy of counteracting measures, which prefers avoidance of adverse effects in the first instance, then cancellation, then reduction, and finally compensatory measures where these can be adequately justified. This approach is embedded in guidance (e.g. CIEEM, 2018; MHCLG, 2021b), professional standards (BS42020:2013) and the National Planning Policy Framework (para. 186; DLUHC, 2023).

2.4.2 A distinction must be drawn between measures intended to avoid, cancel or reduce adverse effects on European sites (collectively referred to as mitigation measures) and those which are intended to compensate for adverse effects (compensatory measures); the latter must only be considered following application of the Imperative Reasons of Overriding Public Interest test:

- Mitigation: Avoidance measures: intended to stop or prevent effects from occurring, or to eliminate the risk of them occurring. Successful avoidance measures mean there will be no adverse effect, and hence no requirement to assess effects in combination.
- Mitigation: Cancellation measures: intended to completely neutralise adverse effects. In this context a proposal will have a potential effect, but its potentially negative outcomes have been cancelled without residual effect, and there is no requirement to assess effects in combination.
- Mitigation: Reduction measures: intended to diminish an effect either by reducing the scale of the effect, or its likelihood of occurring, or both. Such measures can reduce the severity/likelihood of an effect to the point where it can no longer be regarded as a likely

[5] Case C 461/17 Court of Justice of the European Union (2018): Holohan v. An Bord Pleanála.

significant effect, but may result in a risk of residual effects. Residual effects need to be considered for their potential to lead to cumulative or in combination effects.

- Compensatory measures: intended to offset the harm to the integrity of a European site that would occur as a result of a plan or project. They are considered only after having established that the harm to the site itself cannot be further reduced by mitigation or alternative solutions, and are the measures required to ensure that the overall coherence of the national site network is protected.

2.4.3 In the *People Over Wind* judgment[6], the CJEU ruled that measures intended to avoid or reduce the harmful effects of a plan or project on a European site (i.e. mitigation measures) cannot be taken into account by a competent authority when considering, at the HRA screening stage, whether the plan or project is likely to have a significant effect on a European site. July 2019 updates to Planning Practice Guidance on HRA note that features that are integral to the design or physical characteristics of the project / plan that is being assessed (as opposed to factors that have been introduced to avoid or reduce harm) may be considered at the screening stage. However, this will need to be determined on a case by case basis.

2.4.4 Thus where mitigation measures are incorporated into the plan or project, are effective, reliable, timely, guaranteed and of sufficient duration, they should be taken into account at the integrity test stage (Stage 2). A competent authority can impose additional mitigation measures over and above incorporated mitigation, if necessary, so as to ensure that a plan or project would not adversely affect the integrity of a European site, either alone or in combination with other plans and projects. Additional mitigation measures should also be considered at the integrity test stage.

2.5 In-Combination Effects

2.5.1 Other plans and projects being prepared or implemented in the area may have the potential to cause negative effects on European sites. These effects may act in combination with the effects of the Local Plan, possibly leading to an insignificant effect becoming significant. It is therefore important to consider which other plans and projects could generate similar effects as development within South and Vale, at the same European sites, and which may act in-combination.

2.5.2 Appendix E of the HRA Scoping Report prepared by the Council[7] provides a comprehensive list of plans and projects for possible consideration for in-combination effects Those considered to have the greatest potential for in-combination effects include:

- Oxford Local Plan 2040 (emerging)
- Oxford Local Plan 2016 - 2036 (adopted June 2020)
- West Oxfordshire Local Plan 2041 (emerging)
- West Oxfordshire Local Plan 2011 – 2031 (adopted September 2018)

[6] Case C 323/17 Court of Justice of the European Union (2018): People Over Wind, Peter Sweetman v Coillte Teoranta.

[7] South Oxfordshire and Vale of White Horse District Councils (2022): *Habitats Regulations Assessment Scoping Report, May 2022*

- Cherwell Local Plan Review 2040 (emerging)
- Cherwell Local Plan 2011-2031 Part 1 Partial Review – Oxford's Unmet Housing Need (adopted September 2020)
- Cherwell Local Plan 2011-2031 Part 1 (adopted July 2015)
- Cherwell Local Plan (adopted November 1996) - saved policies
- Cotswold Local Plan 2011 – 2031 Partial Update (emerging)
- Cotswold Local Plan 2011 – 2031 (adopted August 2018)
- Swindon Local Plan 2041 (emerging)
- Swindon Local Plan 2026 (adopted March 2015)
- Swindon and Wiltshire Joint Spatial Framework (emerging)
- Wiltshire Local Plan Review (emerging)
- Wiltshire Core Strategy (adopted January 2015)
- Reading Local Plan partial update (emerging)
- Reading Borough Local Plan (adopted November 2019)
- West Berkshire Local Plan Review to 2037 (emerging)
- West Berkshire Housing Site Allocations (adopted May 2017)
- West Berkshire Core Strategy 2006-2026 (adopted July 2012)
- West Berkshire District Local Plan 1991-2006 - saved policies
- Wokingham Local Plan 2013-2036 (emerging)
- Wokingham Managing Development Delivery Local Plan (adopted February 2014)
- Wokingham Core Strategy 2026 (adopted January 2010)
- Buckinghamshire Local Plan (emerging)
- Aylesbury Vale Local Plan 2013-2033 (adopted September 2021)
- Wycombe Local Plan 2033 (adopted August 2019)
- Wycombe Delivery and Site Allocations Plan (adopted 2013)
- Oxfordshire Minerals and Waste Local Plan Part 2: Site Allocations (emerging)
- Oxfordshire Minerals and Waste Local Plan Part 1: Core Strategy (Adopted September 2017)
- Oxfordshire Minerals and Waste Local Plan (Adopted July 1996) – saved policies
- Oxfordshire Local Transport Plan 4: Connecting Oxfordshire (Adopted September 2015, updated 2016)
- Oxfordshire Local Transport and Connectivity Plan (emerging)
- Oxfordshire Housing Infrastructure Fund (HIF1) scheme (status pending)

3 European Sites

3.1 Scope of the Assessment

3.1.1 European sites considered within the scope of this assessment include all those falling partially within or close to South Oxfordshire and Vale of the White Horse. Additionally, there may be activities occurring as a result of development within the Districts, which could take place outside of the District boundaries, possibly affecting European sites further afield. Two types of protected site are considered:

- **Special Areas of Conservation (SAC):** SACs are strictly protected sites originally designated under the EC Habitats Directive (92/43/EEC). Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds which are conserved by SPA and Ramsar – see below). Following the UK's exit from the EU, the EC no longer has a role in designating SACs in the UK. The Habitats Regulations 2019 establish a single stage designation process, where the appropriate authority is the decision maker. The selection and designation of SACs is based on the criteria set out in Annex III of the Habitats Directive so far as it applies to the UK.
- **Special Protection Areas (SPA):** The EC Wild Birds Directive (2009/147/EC) provides for the protection, management and control of all species of naturally occurring wild birds in the European territory of Member States. In particular it requires Member States to identify areas to be given special protection for the rare or vulnerable species listed in Annex I (Article 4.1) and for regularly occurring migratory species (Article 4.2) and for the protection of wetlands, especially wetlands of international importance. These areas are known as Special Protection Areas. Following the UK's exit from the EU the EC no longer has a role in designating SPAs in the UK and they are instead designated under the Habitats Regulations 2019.

3.1.2 Acknowledging that the Local Plan is not directly connected with or necessary to management of the sites for nature conservation, the HRA considers all European sites within 10km of the Districts' boundaries for likely significant or adverse effects on integrity to ensure a precautionary approach. Those sites falling within 10km include; see Figure 3.1:

- Aston Rowant SAC
- Chiltern Beechwoods SAC
- Cothill Fen SAC
- Hackpen Hill SAC
- Hartslock Wood SAC
- Kennet & Lambourn Floodplain SAC
- Little Wittenham SAC
- Oxford Meadows SAC
- River Lambourn SAC

3.1.3 These sites have been designated to conserve a wide variety of habitats of European importance, along with species populations of high conservation significance. Table 3.1 sets out the qualifying features for SAC designations.

3.1.4 The HRA Scoping Report produced by the Councils in May 2022 considered European sites within 20km of the District boundaries. This approach was adopted to maintain consistency with the Oxfordshire Plan[8]. In doing so, five additional sites were considered, including:

- Burnham Beeches SAC;
- Kennet Valley Alderwoods SAC;
- North Meadow & Clattinger Farm SAC;
- Windsor Forest & Great Park SAC; and
- Thames Basin Heaths SPA.

3.1.5 As set out in the 2022 Scoping Report, Windsor Forest & Great Park SAC, Burnham Beeches SAC and the Thames Basin Heath are sensitive to air pollution. However, given they are greater than 10km from the District boundaries and over 20km from the closest site allocation they are considered too distant to be considered for likely significant air pollution effects.

3.1.6 North Meadow & Clattinger Farm SAC, Burnham Beeches SAC and the Thames Basin Heath SPA are sensitive to recreational disturbance. However, site allocations and the entire Districts fall outside of: the 5km and 7km Zones of Influence around the Thames Basin Heaths SPA[9]; the 5.6km Zone of Influence around the Burnham Beeches SAC[10]; and the 4.2km and 9.4km Zones of Influence around the North Meadow & Clattinger Farm SAC[11]. Therefore likely significant recreational disturbance effects can be ruled out.

3.1.7 Inappropriate water levels, water pollution and hydrological changes are also noted as sensitivities of some or all of these sites which Local Plan development could impact. However, the European sites are considered too distant from the Districts for potential likely significant effect relating to these impact pathways.

[8] In August 2022 the Oxfordshire Plan 2050 was abandoned as the five Local Planning authorities in Oxfordshire were unable to reach agreement on the approach to planning for future housing needs within the framework of the Oxfordshire Plan.

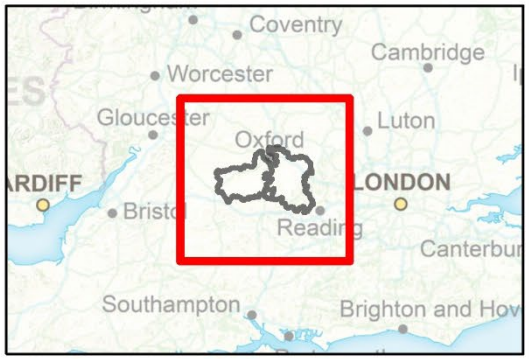
[9] Thames Basin Heaths SPA Supplementary Planning Document

[10] Burnham Beeches SAC Strategic Access Management and Monitoring Strategy Supplementary Planning Document

[11] North Meadow & Clattinger Farm SAC Interim Recreational Mitigation Strategy

South Oxfordshire and Vale of White Horse Joint Local Plan

- Special Areas of Conservation
- Special Protection Areas
- District Boundaries
- District Boundaries 10 km buffer
- District Boundaries 20 km buffer



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Kilometers

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Scale: 1:520,000 **Created by:** TK
Date: Nov 2023 **Reviewed by:** GC
Drawing number:
UE0597_HRA_European_Sites

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Oxford Meadows
Cothill Fen
Chilterns Beechwoods
Aston Rowant
Little Wittenham
North Meadow & Clattinger Farm
Burnham Beeches
Hackpen Hill
River Lambourn
Hartslock Wood
Windsor Forest & Great Park
Kennet & Lambourn Floodplain
Thames Basin Heaths
Kennet Valley Alderwoods

240000 230000 220000 210000 200000 190000 180000 170000 160000 150000

400000 410000 420000 430000 440000 450000 460000 470000 480000 490000

Figure 3.1: European Sites in and around South Oxfordshire and Vale of White Horse

Table 3.1: SAC Qualifying Features

Site Name	Description	Qualifying Features
Aston Rowant	Aston Rowant is classified as SAC because it supports one of the largest remaining populations of juniper in lowland Britain. It is selected as an example of juniper formations on the chalk in the south east of England. At this site juniper is present as part of a mixed scrub community but also occurs as isolated bushes in chalk grassland. In common with most lowland populations of juniper, successful reproduction and survival of new generations of bushes is extremely rare and conservation is currently dependent upon significant levels of management intervention. The low level of reproductive success is the main threat to the feature at this site. Aston Rowant also supports *Asperulo-Fagetum* beech forests although this is not a primary reason for classification as SAC.	***Qualifying Habitats*** *Juniperus communis* formations on heaths or calcareous grasslands; Juniper on heaths or calcareous grasslands. *Asperulo-Fagetum* beech forests; Beech forests on neutral to rich soils
Chilterns Beechwoods	The Chilterns Beechwoods SAC comprises nine separate sites scattered across the Chilterns. There are three features of interest: semi-natural grasslands and scrubland on chalk; *Asperulo-Fagetum* beech woodland (for which this is considered to be one of the best areas in the UK and lies in the centre of the habitat's UK range); and Stag beetle *Lucanus cervus*, for which the area is considered to support a significant presence. The rare coralroot *Cardamine bulbifera* is found in these woods.	***Qualifying Habitats*** *Asperulo-Fagetum* beech forests ('Beech forests on neutral to rich soils') Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*). ('Dry grasslands and scrublands on chalk or limestone'). ***Qualifying Species*** Stag beetle, *Lucanus cervus*
Cothill Fen	Cothill Fen is an exceptionally important site with an outstanding range of nationally rare habitats which support a large number of rare invertebrates and plants.	***Qualifying Habitats*** Alkaline fens

Site Name	Description	Qualifying Features
	The habitats consist of calcareous fen, calcareous grassland, woodland and scrub of varying degrees of wetness. The habitat supports over 330 species of vascular plant and over 120 nationally scarce or rare invertebrates, including the nationally rare Southern Damselfly (*Coenagrion mercuriale*).	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion* albae) * Priority feature ('alder woodland on floodplains')
Hackpen Hill	Hackpen Hill SAC is an extensive area of unimproved chalk grassland in the North Wessex Downs, and is considered to be one of the most important areas in the UK for the rare early gentian. The site has a variety of aspect and gradients, with the grassland dominated by red fescue and upright brome. The herb flora includes a significant population of early gentian, as well as autumn gentian, fragrant orchid, frog orchid, horseshoe vetch, common rock-rose and dwarf thistle.	***Qualifying Habitats*** Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) ***Qualifying Species*** Early gentian *Gentianella anglica*
Hartslock Wood	This site hosts the priority habitat type "orchid rich sites". The steep slopes of this site on the chalk of the Chilterns comprise a mosaic of chalk grassland, chalk scrub and broadleaved woodland. The chalk grassland mostly consists of a mosaic of shorter-turf NVC type CG2 *Festuca ovina–Avenula pratensis* grassland and taller CG3 *Bromus erectus* grassland. The site supports one of only three UK populations of monkey orchid *Orchis simia*, a nationally rare Red Data Book species. The bulk of this site lies on a steep slope above the River Thames. Recent storms and landslips have resulted in a diverse age-structure for the yew population. Open patches show a rich flora including local species such as southern wood-rush *Luzula forsteri*, wood barley *Hordelymus europaeus* and narrow-lipped helleborine *Epipactis leptochila*.	***Qualifying Habitats*** Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) ('important orchid sites'*) *Taxus baccata* woods of the British Isles ('yew-dominated woodland'*)

Site Name	Description	Qualifying Features
Kennet & Lambourn Floodplain	The cluster of sites in the Kennet and Lambourn valleys supports an extensive population of Desmoulin's whorl snail *Vertigo moulinsiana* in association with chalk stream habitat. The habitat occupied at this site differs from the sites in East Anglia in that it is predominantly reed sweet-grass *Glyceria maxima* swamp or tall sedges at the river margins, in ditches and in depressions in wet meadows.	***Qualifying Species*** *Vertigo moulinsiana*; Desmoulin`s whorl snail
Little Wittenham	One of the best-studied great crested newt *Triturus cristatus* sites in the UK, Little Wittenham comprises two main ponds set in a predominantly woodland context (broadleaved and conifer woodland is present). There are also areas of grassland, with sheep grazing and arable bordering the woodland to the south and west. The River Thames is just to the north of the site, and a hill fort to the south. Large numbers of great crested newts have been recorded in the two main ponds, and research has revealed that they range several hundred metres into the woodland blocks.	***Qualifying Species*** Great crested newt *Triturus cristatus*
Oxford Meadows	Oxford Meadows is one of two SACs that represent lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) in the Thames Valley. It includes vegetation communities that are perhaps unique in the world in reflecting the influence of long-term grazing and hay-cutting on lowland hay meadows. The site has benefited from the survival of traditional management, which has been undertaken for several centuries, and so exhibits good conservation of structure and function. The site is selected because Port Meadow is the larger of only two known sites in the UK for creeping marshwort *Apium repens*.	***Qualifying Habitats*** Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) ***Qualifying Species*** *Apium repens*, creeping marshwort
River Lambourn	The River Lambourn is an example of a classic chalk stream with a seasonally dry winterbourne section. It is relatively unmodified and	***Qualifying Habitats***

Site Name	Description	Qualifying Features
	has near-natural flow characteristics. The river supports a characteristic range of aquatic plant communities of the *Ranunculion fluitantis* and *Callitricho-Batrachion* types. As well as being classified as SAC for its river type, the Lambourn is also of importance in supporting self-sustaining populations of bullhead *Cottus gobio*. An additional qualifying feature present is brook lamprey *Lampetra planeri*. The Kennet and Lambourn Floodplain SAC consists of a cluster of sites in the Kennet and Lambourn river valleys. These areas represent locations where the terrestrial snail *Vertigo moulinsiana* is particularly abundant.	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho Batrachion* vegetation; Rivers with floating vegetation often dominated by water-crowfoot ***Qualifying Species*** *Lampetra planeri*; Brook lamprey *Cottus gobio*; Bullhead

3.2 Conservation Objectives

3.2.1 The Habitats Regulations require the appropriate authority to maintain or where appropriate restore habitats and species populations of European importance to favourable conservation status. European site conservation objectives are referred to in the Habitats Regulations and Article 6(3) of the Habitats Directive. They are for use when there is a need to undertake an Appropriate Assessment under the relevant parts of the respective legislation. The conservation objectives are set for each feature (habitat or species) of an SAC/SPA. Where the objectives are met, the site can be said to demonstrate a high degree of integrity and the site itself makes a full contribution to achieving the aims of the Habitats and Birds Directives.

3.2.2 The conservation objectives defined by Natural England for the SACs included within the scope of this HRA are given in Table 3.2. Natural England has recently published or updated its *Supplementary advice on conserving and restoring site features* for each site[12] with the exception of River Lambourn SAC and the Kennet and Lambourn Floodplain SAC.

Table 3.2: Conservation Objectives for SAC

Conservation objectives for SAC
Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: ▪ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ▪ The structure and function (including typical species) of qualifying natural habitats; ▪ The structure and function of the habitats of qualifying species; ▪ The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; ▪ The population of qualifying species; and ▪ The distribution of qualifying species within the site.

[12] Natural England (2019): *European Site Conservation Objectives: Supplementary advice on conserving and restoring site features: Aston Rowant Special Area of Conservation.* 16 January 2019.
Natural England (2019): *European Site Conservation Objectives: Supplementary advice on conserving and restoring site features: Chiltern Beechwoods Special Area of Conservation.* 30 November 2019.
Natural England (2016): *European Site Conservation Objectives: Supplementary advice on conserving and restoring site features: Cothill Fen Special Area of Conservation.* 23 March 2016.
Natural England (2019): *European Site Conservation Objectives: Supplementary advice on conserving and restoring site features: Hackpen Hill Special Area of Conservation.* 16 January 2019.
Natural England (2016): *European Site Conservation Objectives: Supplementary advice on conserving and restoring site features: Hartslock Wood Special Area of Conservation.* 16 November 2016.
Natural England (2019): *European Site Conservation Objectives: Supplementary advice on conserving and restoring site features: Little Wittenham Special Area of Conservation.* 16 January 2019.
Natural England (2019): European Site Conservation Objectives: Supplementary advice on conserving and restoring site features: Oxford Meadows Special Area of Conservation. 16 January 2019.

3.3 Condition Status

3.3.1 The conservation status of European sites is not routinely reported by Natural England, but it carries out condition monitoring of Sites of Special Scientific Interest (SSSI) at regular intervals. Although not exactly matching the boundaries of European sites, and being notified for different purposes, the condition status of a SSSI helps to give an impression of the overall ecological status of the SAC/SPA with which it coincides. The latest condition assessments (August 2022) of SSSIs forming part of the European sites within the scope of this assessment are illustrated on Figure 3.2 and Figure 3.3.

South Oxfordshire and Vale of White Horse Joint Local Plan

SSSI Unit Condition
- Favourable
- Unfavourable - Recovering
- Unfavourable - No Change
- Unfavourable - Declining
- Special Areas of Conservation
- District Boundaries

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Kilometers

N

Scale: 1:250,000 **Created by:** TK
Date: Nov 2023 **Reviewed by:** GC
Drawing number:
UE0597_HRA_European_Sites_SSSI_Unit_Conditions

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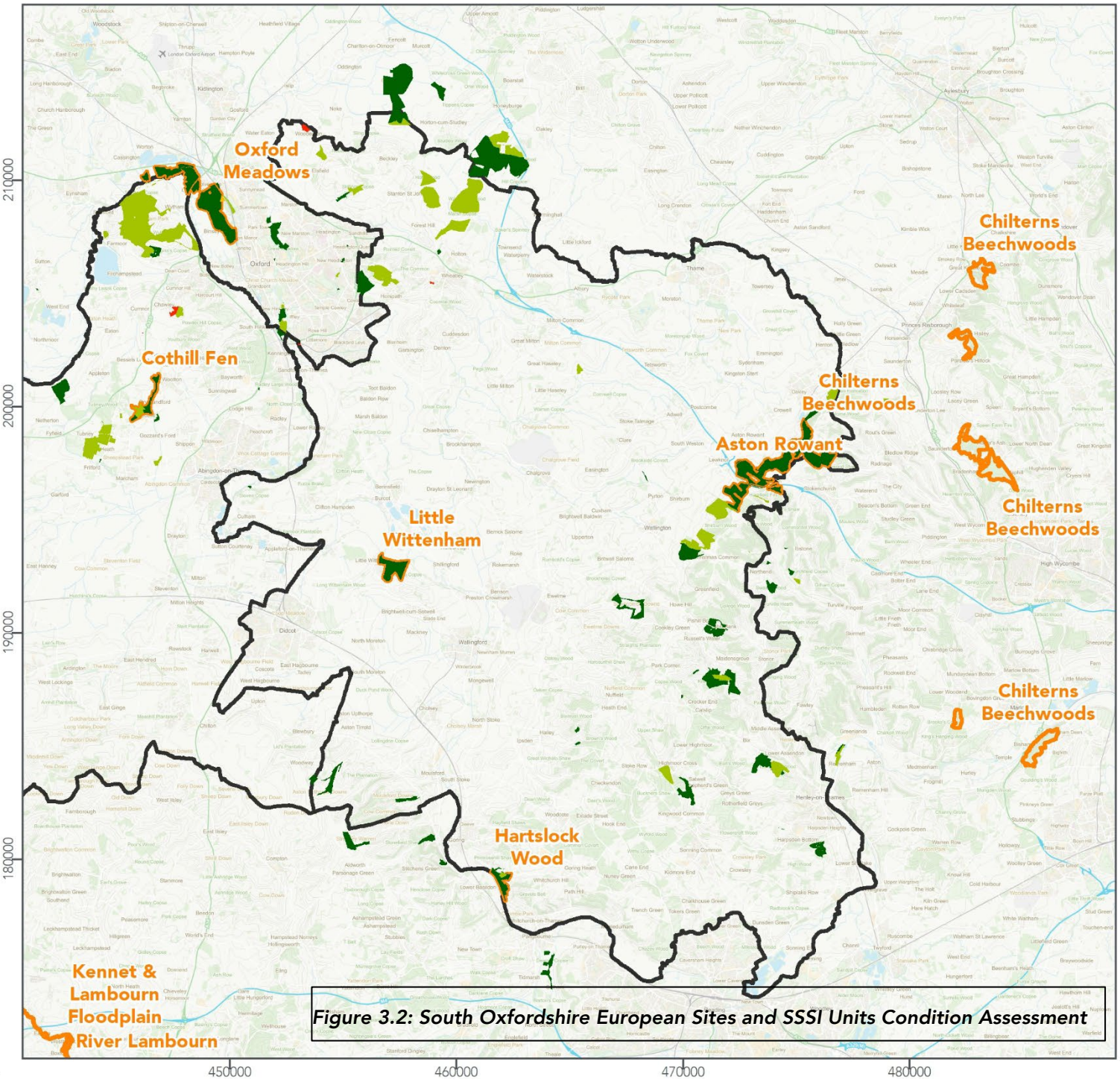

Figure 3.2: South Oxfordshire European Sites and SSSI Units Condition Assessment

South Oxfordshire and Vale of White Horse Joint Local Plan

SSSI Unit Condition
- Favourable
- Unfavourable - Recovering
- Unfavourable - No Change
- Unfavourable - Declining
- Special Areas of Conservation
- District Boundaries

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Kilometers

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Scale: 1:200,000 **Created by:** TK
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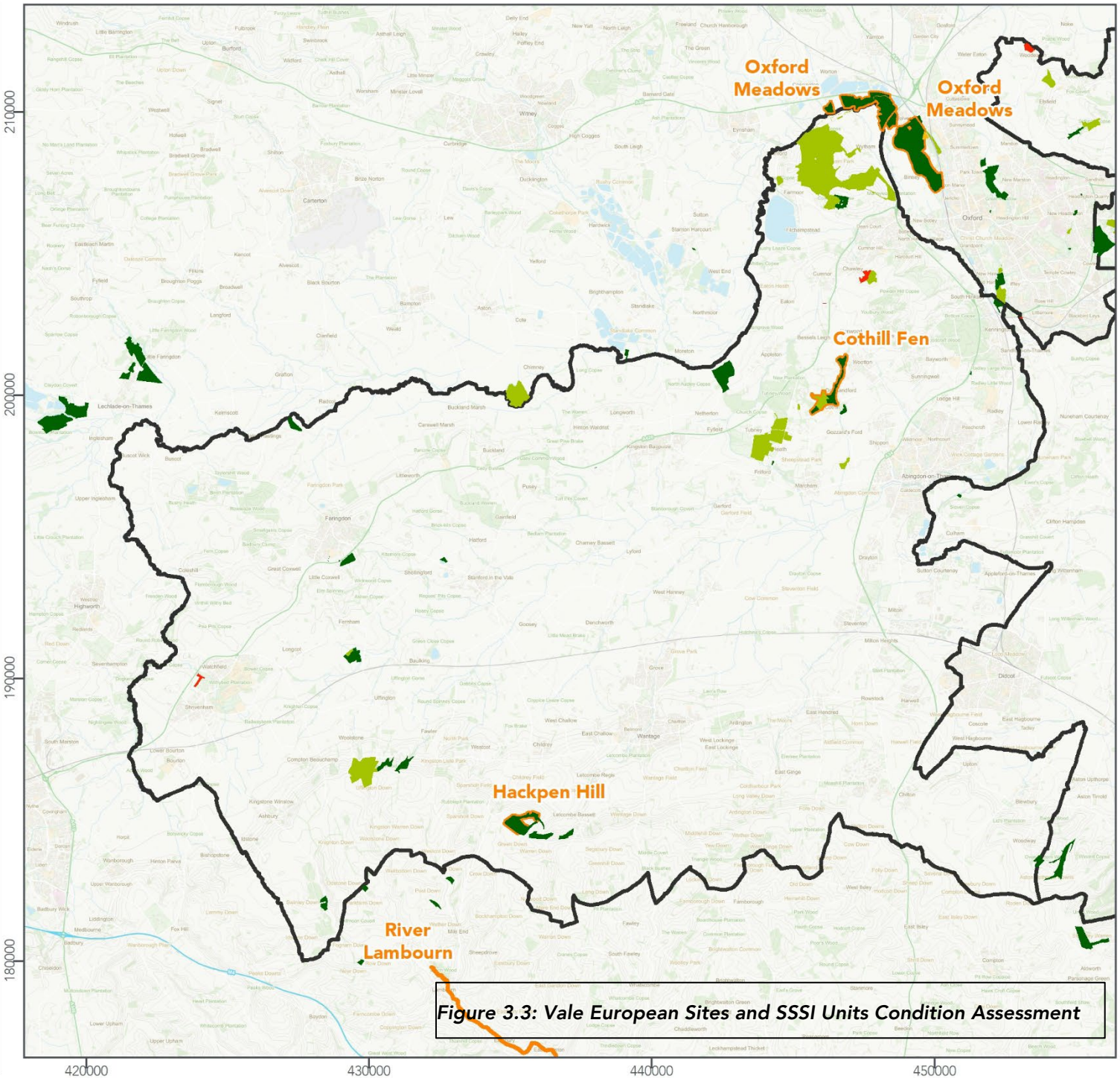

Figure 3.3: Vale European Sites and SSSI Units Condition Assessment

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4 The Local Plan

4.1 Introduction

4.1.1 The new Joint Local Plan will set the planning strategy for the Districts and address emerging housing and employment needs through to 2041. When adopted the Joint Local Plan will provide a strategy for the distribution, scale and form of development and supporting infrastructure, a set of proposals to deliver the strategy, policies against which to assess planning applications, and proposals for monitoring the success of the plan.

4.2 Key Policy Proposals

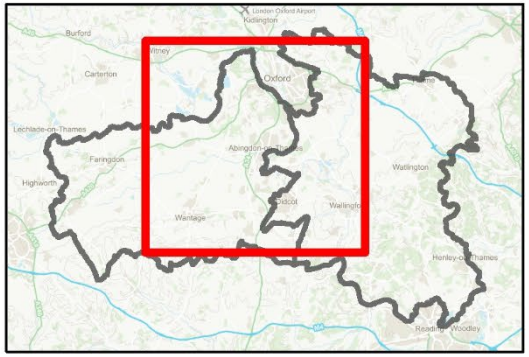
4.2.1 The spatial development strategy proposed by the Joint Local Plan includes:

- 21,616 new homes in South Oxfordshire and 19,992 in the Vale of White Horse; and
- 32 hectares of employment floorspace for South Oxfordshire and 188.6 hectares for Vale of White Horse.

4.2.2 Residential and employment site allocations put forward in the Preferred Options consultation document are shown on Figure 4.1, many of these are existing allocated sites.

South Oxfordshire and Vale of White Horse Joint Local Plan

- Residential Site Allocations
- Employment Site
- Special Areas of Conservation
- District Boundaries



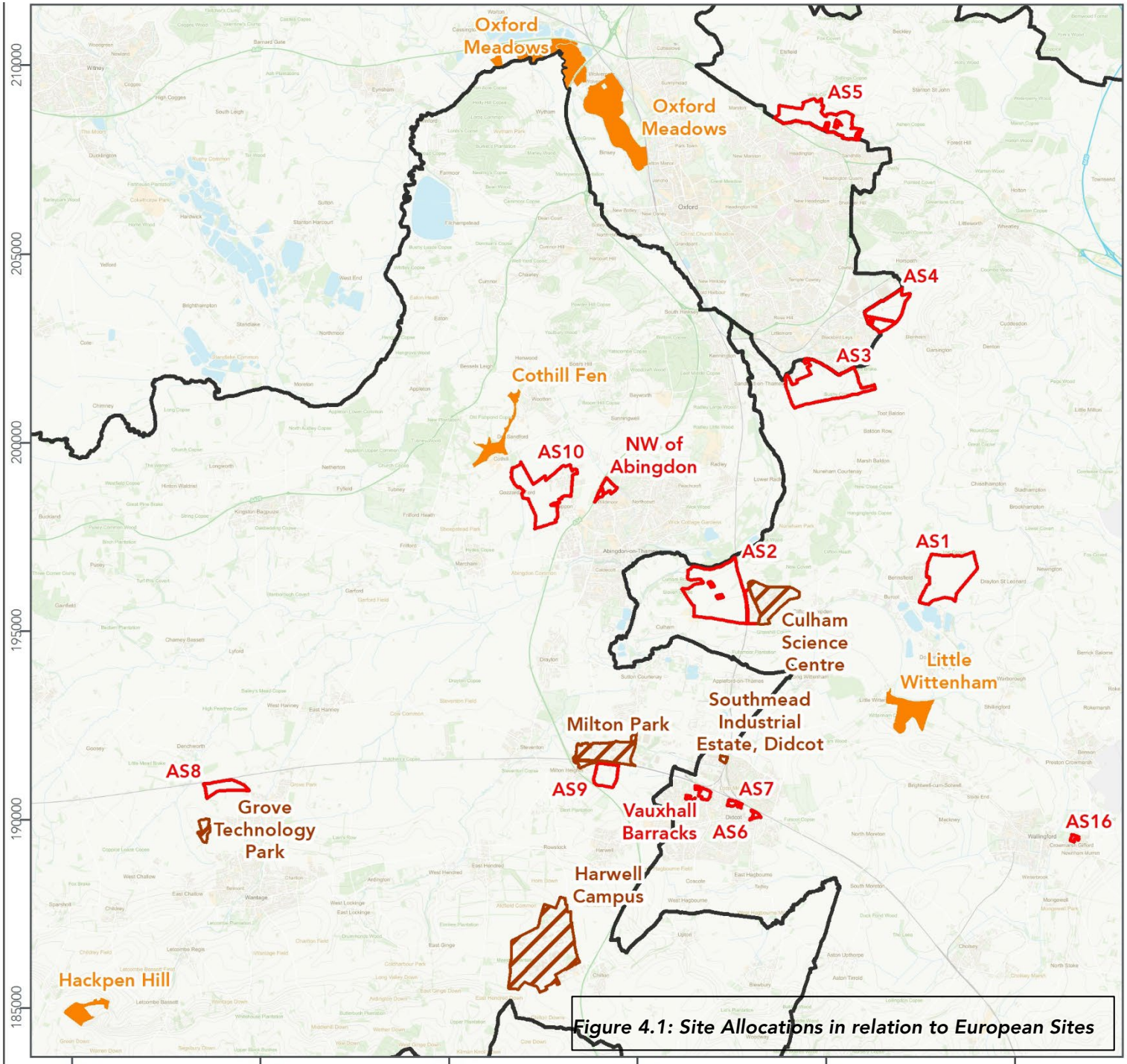


Figure 4.1: Site Allocations in relation to European Sites

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Kilometers

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Drawing number:
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5 Identifying Impact Pathways

5.1 Introduction

5.1.1 This chapter discusses the available evidence relating to the pathways of impact to European sites. Table 5.1 sets out those pathways which are considered to result in likely significant effects for each of the European sites, not taking account of mitigation. Those pathways will be taken forward for Appropriate Assessment at the next plan stage to determine whether the Plan will have an adverse effect on the integrity of any European sites taking account of mitigation measures. The full results of the screening assessment, including the screening of the proposed policies of the Preferred Options Plan, are provided in Appendix I.

Table 5.1: Likely Significant Effects to European Sites

	Aston Rowant SAC	Chiltern Beechwoods SAC	Cothill Fen SAC	Hackpen Hill SAC	Hartslock Wood SAC	Kennet & Lambourn Floodplain SAC	Little Wittenham SAC	Oxford Meadows SAC	River Lambourn SAC
Atmospheric pollution	✔		✔					✔	
Recreational disturbance			✔						
Water quality and quantity								✔	
Site specific impacts									

5.2 Atmospheric Pollution

Impact mechanisms

5.2.1 Atmospheric pollution is a widespread issue, with background air quality heavily influenced by large point-source emitters including transboundary sources. Local pollutant sources can also affect designated sites, particularly in relation to protected habitats within SACs, and especially from road traffic emissions. The Joint Local Plan cannot feasibly influence causes of background pollution such as large point sources but, through the scale of development proposed, road network and sustainable transport measures will affect the way in which locally emitted pollutants reach each site.

5.2.2 The following descriptions draw on information presented through the Air Pollution Information Systems (APIS)[13] and the Institute of Air Quality Management (IAQM) guidance (IAQM, 2020). The main pollutants affecting vegetation are:

- nitrogen oxides (NO_X) produced through combustion processes, with approximately half of UK emissions from road traffic (APIS, no date1); and
- ammonia (NH_3), the main source of which is agriculture (e.g. manures and fertilisers).

5.2.3 These gases can result in direct effects to vegetation through exposure, and indirect effects through deposition to soil and freshwater (dry deposition) or with precipitation (wet deposition).

5.2.4 Direct exposure of vegetation to NOx and NH_3 has phytotoxic effects, especially in areas close to sources, such as roadside verges; lichens and bryophytes (which include mosses, landworts and hornworts) are particularly vulnerable to these sorts of toxic effects, which can result in changes to plant growth, in the plant's ability to assimilate CO_2, and in biochemical effects.

5.2.5 Indirect effects through deposition include:

- Acid deposition: acid deposition is most likely to affect vegetation indirectly through changes to soil properties. NOx and ammonium (from NH_3) react with rain/cloudwater to form nitric (or sulphuric) acid. Increases in soil acidity can increase the mobility of certain toxic metals which can result in root damage, stunted growth and reduced microbial activity. These effects can lead to changes in species composition.
- Eutrophication by nitrogen deposition: dry deposition of NOx is greatest within large conurbations and close to major roads. Whilst nitrogen is essential for plant growth, excessive amounts can become toxic, as instead of acting as a nutrient, nitrogen becomes a pollutant. Many semi-natural plants (including bryophytes) do not have the capacity to assimilate nitrogen when excess nitrogen is available and can therefore be outcompeted by plants that can (such as many grass species), through shading to inability to compete for other limiting resources. Overall this can lead to long term compositional changes in vegetation and reduced diversity. For example a marked decline in heather and an increased dominance of grasses have been observed throughout the Netherlands and also in the East Anglian Brecklands (see for example Bobbink and Heil (1993) (APIS, no date2).

5.2.6 Approximately half of UK NOx emissions are associated with road traffic (APIS, no date1). Nitrogen emissions from traffic generated by residential and commercial developments will therefore be the focus of this part of the assessment. The scope can be further refined by concentrating on designated sites within 200m of a road with increased traffic which feature habitats that are vulnerable to nitrogen deposition / acidification (Natural England (2018); IAQM (2020)). Guidance from Natural England (2018) advises that if there are qualifying features of a European site within 200m of a road, and proposed development results in changes in annual average daily traffic flow (AADT) which exceed Design Manual for Roads and Bridges (DMRB)

[13] Online at: http://www.apis.ac.uk/ [Accessed 30/08/2023]

screening criteria[14] (1,000 vehicles or 200 heavy duty vehicles) or contributes more than 1% of the long-term critical load or level for the qualifying feature, then appropriate assessment is required.

5.2.7 Figure 5.1 and Figure 5.2 show those European sites scoped into the assessment which fall within 200m of a road. For each of those points where a scoped-in European site falls within 200m of a road, Table 5.2 explains whether the point is screened in or out for Appropriate Assessment and the justification for this.

Table 5.2: Screening of European sites within 200m of a Road

Point no.	European site	Screening conclusion
1 & 2	Oxford Meadows	Within 200m of A34 (point 1) and the A40 (point 2). Air pollution not listed as a threat in the SIP, however SACO notes that qualifying habitats (lowland hay meadows and creeping marshwort) are sensitive to changes in air quality. Potential for likely significant effects. Screen in.
3 & 4	Cothill Fen	Within 200m of Honeybottom Lane (point 3) and Besselsleigh Road (point 4) and air quality listed as a threat in the SIP. Potential for likely significant effects. Screen in.
5	Aston Rowant	Within 200m of M40 and air quality listed as a threat in the SIP. Potential for likely significant effects. Screen in.
6 & 7	Kennet & Lambourn Floodplain	Within 200m of B4192 (point 6) and within 200m of A4 (point 7). Air quality not listed as a threat in the SIP . Points are greater than 10km from the District boundaries and greater than 20km from the closest site allocation. No potential for likely significant effects. Screen out.
8 & 9	River Lambourn	Directly intersects A338 (point 8) and M4 (point 9). Air quality not listed as a threat in the SIP. Points are greater than 6km from the District boundaries and greater than 15km from the closest site allocation. No potential for likely significant effects. Screen out.
10, 11 & 12	Chiltern Beechwoods	Within 200m of A4010 (point 10), within 200m of A41 (point 11) and within 200m of A404 (point 12). Air quality is listed as a threat in the SIP but closest point 8 is greater than 6km from District boundaries and further than 25km from closest site allocation. No potential for likely significant effects. Screen out.
13	River Lambourn	Directly intersects B4001. Air quality not listed as a threat in the SIP). Point is greater than 4km from the District boundaries and greater than 12km from the

[14] The 2017 Wealden judgment has clarified that, if the DMRB screening criteria are used, they should be used to screen in-combination impacts as well as the project/plan alone.

Point no.	European site	Screening conclusion
		closest site allocation. No potential for likely significant effects. Screen out.

Critical loads and levels

5.2.8 Critical loads and levels are a tool for assessing the risk of air pollution impacts to ecosystems. Critical loads are defined as the "*a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge*" [15]. Critical levels are defined as "*concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge*[16]. Critical loads concern the quantity of pollutants deposited from the air to the ground (for example nitrogen deposition and acid deposition), whilst critical levels concern the gaseous concentration of a pollutant in the air (for example nitrogen oxides). Critical loads are assigned to habitat classes of the European Nature Information System (EUNIS) to enable consistency of habitat terminology and understanding across Europe. Critical loads are given as ranges (e.g. 10-20 kgN/ha/yr) (APIS, 2021). Critical levels are not habitat specific but have been set to cover broad vegetation types (e.g. forest arable, semi-natural), often with critical values set for sensitive lichens and bryophytes (APIS, 2021). Critical levels for the different pollutants have been derived from experiments and observation that show varied effects on vegetation (APIS, 2021).

5.2.9 Table 5.3 sets out the qualifying features for each designated site screened in above together with the applicable critical loads for deposition and critical level for airborne pollutants. Table 5.4 shows the modelled concentrations of these pollutants based on APIS data from 2020. Minimum critical loads for Nitrogen (N) deposition and the critical level for ammonia are already exceeded at the point where the Aston Rowant SAC is closest to the M40 (point 5 on Figure 5.1) for all three qualifying habitats. At points 1 and 2 on Figure 5.1, where the Oxford Meadows SAC is closest to the A34 and A40 respectively, the minimum critical load for N deposition is already being exceeded for both qualifying habitats. For Cothill Fen SAC, at the points where the SAC is closest to Honeybottom Lane and Besselsleigh Road (points 3 and 4 on Figure 5.2) minimum critical loads for N deposition and the critical level for ammonia are already exceeded.

[15] APIS (2022): https://www.apis.ac.uk/critical-loads-and-critical-levels-guide-data-provided-apis#_Toc279788050

[16] *Ibid*

South Oxfordshire and Vale of White Horse Joint Local Plan

- European Site / Road Intersect (within 200m)
- Special Areas of Conservation
- Strategic Road Network 200m Buffer
- B Roads 200m Buffer
- District Boundaries
- District Boundaries 10km Buffer

Scale: 1:250,000 **Created by:** TK

Date: Nov 2023 **Reviewed by:** GC

Drawing number:

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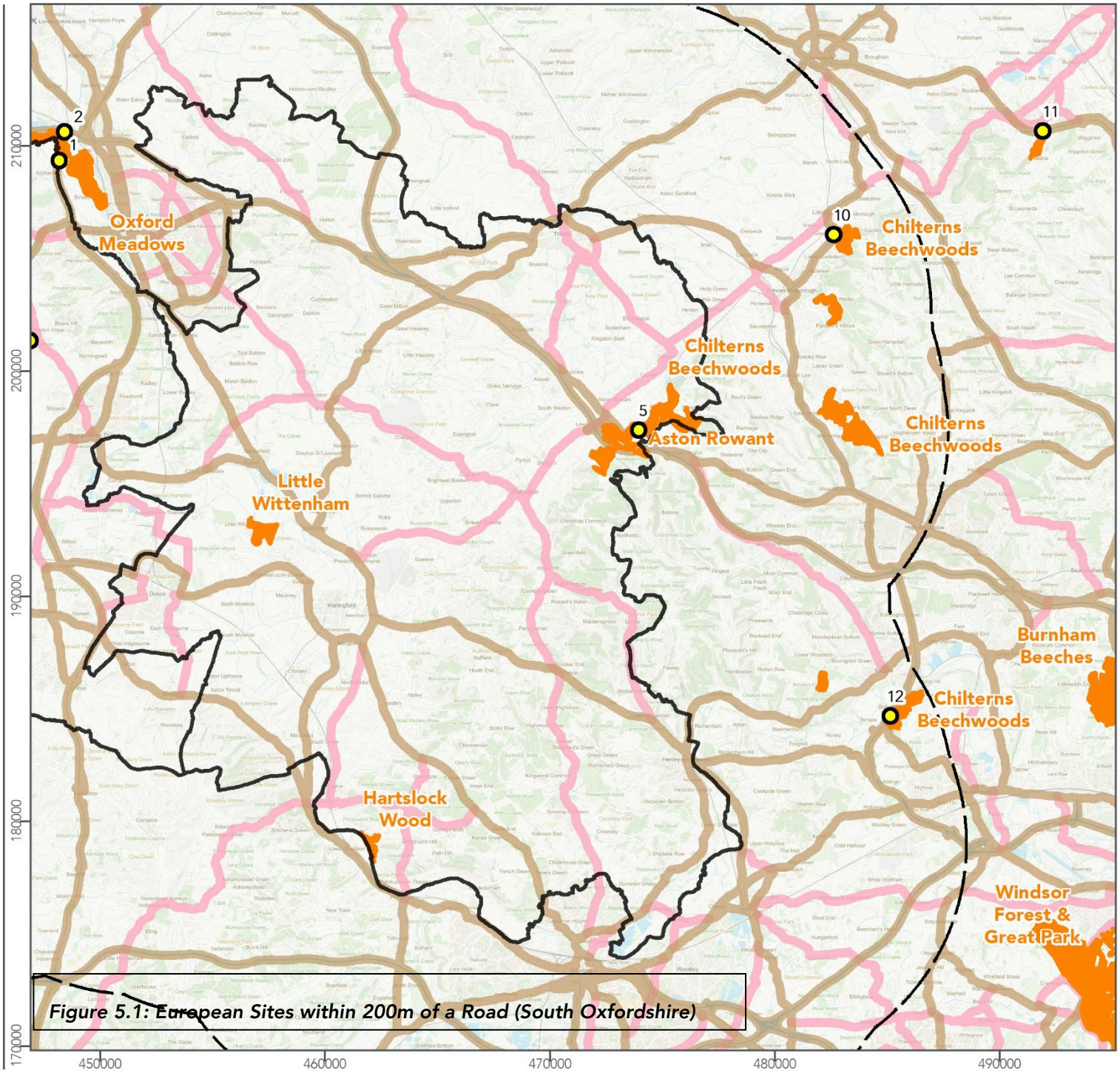

Figure 5.1: European Sites within 200m of a Road (South Oxfordshire)

South Oxfordshire and Vale of White Horse Joint Local Plan

- European Site / Road Intersect (within 200m)
- Special Areas of Conservation
- Strategic Road Network 200m Buffer
- B Roads 200m Buffer
- District Boundaries
- District Boundaries 10km Buffer

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Kilometers

N

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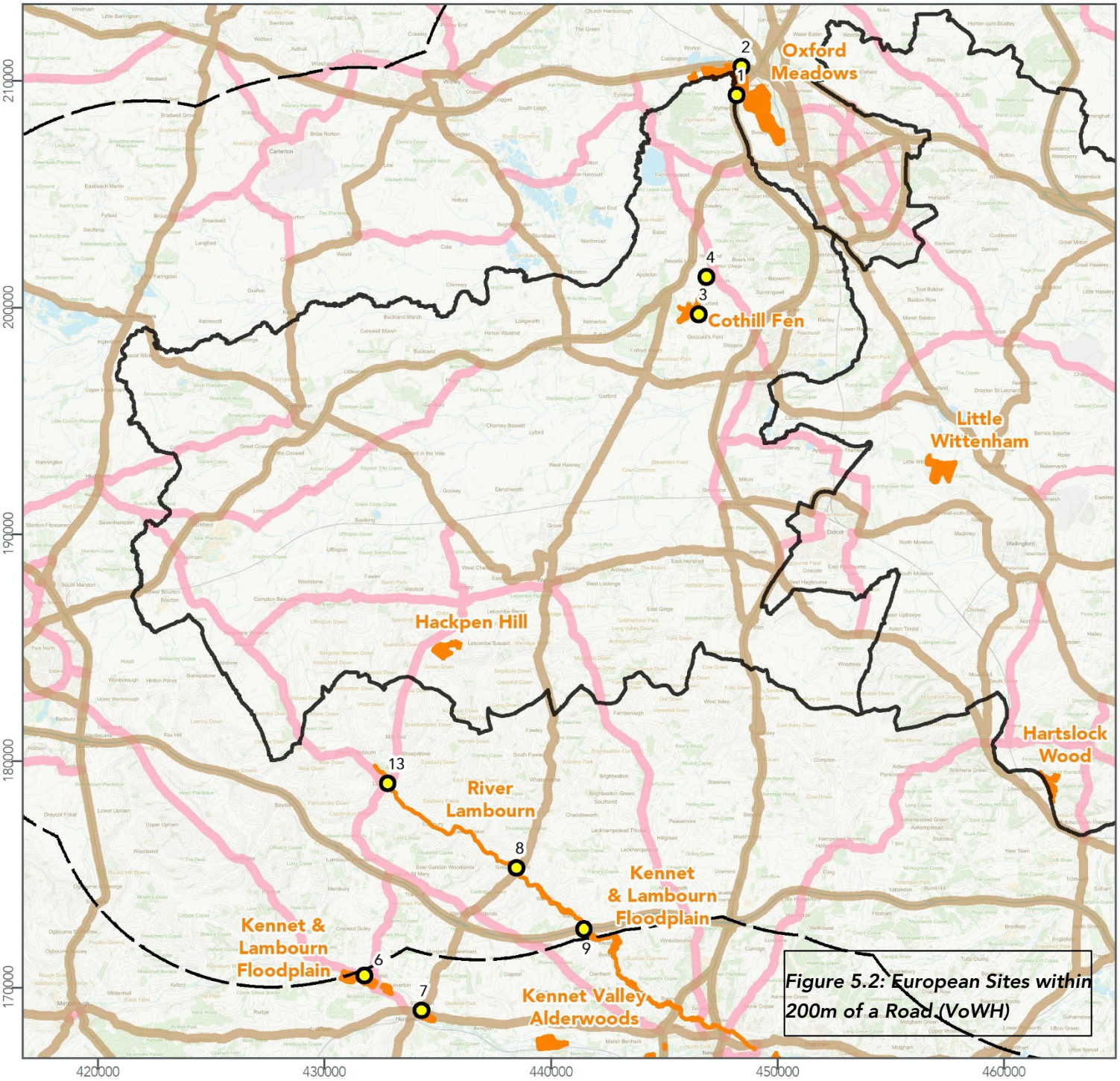

Figure 5.2: European Sites within 200m of a Road (VoWH)

Table 5.3: European Site Critical Loads and Levels

Qualifying Habitat	Feature sensitive to N	Nitrogen Critical Load Class	Minimum Critical Load for N (kg/N/ha/yr)	Maximum Critical Load for N (kg/N/ha/yr)	Ammonia Critical Level (µgm3)	NOx Critical Level (µgm3)
Aston Rowant SAC						
Juniperus communis formations on heaths or calcareous grasslands (H5130)	Yes	Dry heaths	5	15	1 or 3	30
Juniperus communis formations on heaths or calcareous grasslands (H5130)	Yes	Calcareous grassland	10	20	1 or 3	30
Asperulo-Fagetum beech forests (H9130)	Yes	Fagus forest on non-acid and acid soils	10	15	1 or 3	30
Oxford Meadows SAC						
Lowland hay meadows (H6510)	Yes	Low and medium altitude hay meadows	10	20	3	30
Apium repens (S1614)	Yes	Low and medium altitude hay meadows	10	20	3	30
Cothill Fens SAC						
Alkaline fens (H7230)	Yes	Rich fens	15	25	1	30
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (H91E0)	No	Designated feature/feature habitat not	n/a	n/a	1	30

Qualifying Habitat	Feature sensitive to N	Nitrogen Critical Load Class	Minimum Critical Load for N (kg/N/ha/yr)	Maximum Critical Load for N (kg/N/ha/yr)	Ammonia Critical Level (µgm3)	NOx Critical Level (µgm3)
		sensitive to eutrophication				
Semi-natural dry grasslands and scrubland facies on calcareous substrates (H6210)	Yes	Semi-dry Perennial calcareous grassland (basic meadow steppe)	10	20	1	30

Table 5.4: Modelled Pollutant Levels where European Sites fall within 200m of Road Network

Modelled levels 2020	Total N (grid average) (kg/N/ha/yr)	Total N (forest) (kg/N/ha/yr)	Total N (short veg) (kg/N/ha/yr)	Ammonia concentration (µgm3)	NOx µgm3
Aston Rowant SAC					
472910.761, 196609.472 – point closest to M40 (Point 5)	11.06	25.86	15.1	1.35	13.2
Oxford Meadows SAC					
448570.199, 209982.421 – point closest to A34 on south side (Point 1)	9.48	26.34	15.07	1.53	17.41
448401.336, 210611.192 – point closest to A40 on south side (Point 2)	8.98	26.17	14.94	1.55	16.96
Cothill Fen SAC					
446549.832, 199677.039 – point where SAC is closest to Honeybottom Lane (Point 3)	8.39	26.41	25.88	1.66	10.42
446865.417, 201395.052 – point where SAC is closest to Besselsleigh Road (Point 4)	9.21	26.66	15.12	1.68	10.94

Effects Associated with the South Oxfordshire and Vale of White Horse Joint Local Plan

5.2.10 There is potential for likely significant effects to the Oxford Meadows SAC, Aston Rowant SAC and Cothill Fen SAC associated with air pollution. These three sites will therefore be taken forward for appropriate assessment. Traffic modelling will be undertaken at the next plan stage to inform this assessment taking account of traffic generated by neighbouring District Local Plans in order to address the potential for in-combination effects.

5.3 Recreational Disturbance

Impact mechanisms

5.3.1 Population growth associated with residential development brings with it the prospect of additional visitor pressure on European sites. This can have adverse effects to the integrity of European sites via a number of different impact pathways (Lake *et al.*, 2020), including for example:

- Species disturbance (modifying behaviour, increasing predation, reducing feeding and breeding success);
- Habitat trampling / wear (soil compaction, erosion, direct damage to habitats, expansion of path networks, churning up sediment in water bodies);
- Fire (resulting in direct mortality, habitat removal, long term changes to vegetation structure);
- Contamination (including litter; nutrient enrichment through dog fouling; pollution from dogs entering water courses; spread of alien species and pathogens; greywater from campervans, etc);
- Harvesting (e.g. collection of wood, fungi);
- Grazing issues (impacts on grazing animals, e.g. from feeding, worrying by dogs, open gates, road traffic accidents); and
- Visitor expectation including pressure for facilities and public perceptions of management resulting in difficulties achieving necessary habitat and species protection.

Evidence of current or future impacts

Chiltern Beechwoods and Little Wittenham

5.3.2 The Natural England Site Improvement Plans (SIPs) for Chiltern Beechwoods SAC and Little Wittenham SAC identify public access / disturbance as threats to these sites. In the case of Chiltern Beechwoods the qualifying feature affected is the stag beetle. Removal of dead wood by the public could impact on saproxylic invertebrate fauna, including the stag beetle. Storm-damaged dead wood may also be removed in the interests of health and safety, and tidiness (Natural England, 2014a; Natural England, 2015).

5.3.3 In March 2022 Natural England wrote to a number of authorities (excluding South Oxfordshire & Vale of White Horse)[17,18] advising of emerging evidence of significant recreational pressure on the Chiltern Beechwoods SAC, but more specifically the Ashridge Commons and Woods Site of Special Scientific Interest (SSSI) component. Their advice was issued to all Local Planning Authorities (LPAs) within a 12.6km Zone of Influence (ZOI) around the SSSI which contribute more than 2% of visits to the SAC informed by a March 2022 Footprint Ecology Study (Panter *et al.*, 2022). Given that the entire South Oxfordshire and Vale of White Horse Districts fall outside the ZOI, it is considered that likely significant recreational disturbance effects to the Chiltern Beechwoods SAC as a result of the Joint Local Plan can be screened out.

5.3.4 In the case of Little Wittenham the qualifying feature affected is the great crested newt (Natural England, 2014a). The Earth Trust restricts access to the most sensitive areas of the SAC by maintaining a signed network of paths and a pond viewing area, within the woodland. In 2016 the Earth Trust submitted a planning application to improve facilities and access for visitors at the site. One of the aims of the application was to alter the points where visitors access the site and the distribution of visitors, to reduce pressure on the more sensitive sites, including the SAC. Natural England's response to the planning application stated:

> *"Little Wittenham Special Area of Conservation is designated for having the best studied population of Great Crested Newts in the UK. The proposals could increase visitor pressure on the SAC; however Great Crested Newts are not particularly sensitive to visitor pressure, and the Earth Trust manage visitors to limit access to the SAC."*

5.3.5 The ecology study accompanying the planning application also concluded:

> *"There is potential for increased recreational pressure at Little Wittenham SAC due to the proposed development. However, the Earth Trust carefully manages public access to limit access to the Little Wittenham Special Area of Conservation and directs visitors instead to the Wittenham Clumps and other land within its ownership. Great crested newts are not particularly sensitive to recreational pressure. Natural England considered that 100% of the site was in favourable condition in 2010. It is therefore considered that the proposed development will not have a significant effect on the Special Area of Conservation and that an appropriate assessment is not necessary."*

5.3.6 The latest Natural England condition assessment of the great crested newt features still recorded 'favourable' status. Given the low sensitivity of the great crested newt population to recreational disturbance and the visitor management measures in place likely significant effects alone and in combination to the Little Wittenham SAC are screened out.

Cothill Fens and Aston Rowant

5.3.7 The SIPs for Cothill Fens SAC and Aston Rowant SAC do not list recreational disturbance as a pressure / threat to the sites. However, Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT) provided comments to the Regulation 18 consultation on the adopted South

[17] Buckinghamshire Council (Aylesbury Vale and Chiltern Districts), Central Bedfordshire Council, Dacorum Borough Council, St Albans City and District Council, Hertfordshire County Council – Ecology Team

[18] Natural England Letter to Local Authorities regarding Chiltern Beechwoods Mitigation Strategy Need

Oxfordshire Local Plan HRA suggesting that potential recreation impacts at these sites should be screened in for further assessment. Subsequent discussions with Natural England's SSSI officers for Cothill Fen and Aston Rowant, cited in the adopted South Oxfordshire adopted plan HRA (LUC, 2019) provided justification for screening out these sites for recreational disturbance impacts in that report. The following justifications are quoted from the LUC report:

- *"Cothill Fen SAC: The site is not generally promoted for public access and is unlikely to attract visitors from a long distance. Development very close to the site could generate visitors (e.g. dog walkers from within c.1km away), but as the site is very wet, visitors naturally follow the boardwalk paths. The site is mainly considered to be sensitive to changes in groundwater or hydrology, not recreation; and*
- *"Aston Rowant SAC: The site's qualifying features are considered to be fairly resilient to recreation pressure, with changes to habitat management more likely to be an issue. Access to the site can be effectively managed as there are two relatively small car parks and only two main footpaths; there are no plans to increase parking capacity or change the access management policy."*

5.3.8 On the basis of these justifications and given that the closest site allocation in the Joint Local Plan is over 12 km from Aston Rowant SAC it is considered that recreational disturbance effects can be screened out for this European site. However, in relation to Cothill Fen SAC, given that the Dalton Barracks site allocation is within 400m of the Fen it is considered that recreational disturbance impacts will be screened in for further consideration in discussion with BBOWT and Natural England.

5.4 Water Quality and Quantity

Impact mechanisms

5.4.1 Water quality is integral to the functioning of many habitats. Water quality may be affected by a number of factors including nutrients, contaminants and dissolved oxygen availability. The two key nutrients of interest in the water environment are phosphates and nitrates:

- Phosphate can be organic (critical in DNA/RNA and energy production) and inorganic (in minerals). Phosphate contributes to the eutrophication of receiving waters, and it is acknowledged that phosphate is more generally the problem nutrient for freshwaters. Hence additional inputs of phosphate are a principal concern in relation to the River Lambourn SAC where excess phosphate may result in overgrowth by epiphytic filamentous algae that compete directly with vascular plants for light and nutrients, possibly leading to loss of nutrient-sensitive species, and reduced species composition, extent and condition of riverine plant communities.
- Ammonia is a form of nitrogen which aquatic plants can absorb into proteins, amino acids and other molecules. Nitrate is the stable end product of complete nitrification (which involves the conversion of ammonia into nitrite and ultimately nitrate). Both nitrate and phosphate can contribute to the eutrophication of receiving waters, but in saline coastal waters it is acknowledged that nitrate is more generally the problem nutrient, phosphate having a lesser role.

5.4.2 New development can alter the quality of the water environment through direct contamination to those locations which are hydrologically connected to a development site but also through changes in the demand for wastewater treatment.

5.4.3 Water quantity also plays a critical role in the health and biodiversity of river catchments, including water levels (depth and volumetric flow) and velocity in the river, and water table levels in the floodplain. These properties in turn influence rates of siltation and erosion, dissolved oxygen, and pollutant and nutrient concentrations. Low flow rates affect food availability for riparian fauna, may limit migration and dispersal, and can alter the structure, composition and condition of vegetation communities. New homes require the development of new infrastructure, including the provision of fresh water supply. Increases in water demand can impact upon those locations where water is abstracted.

Effects Associated with the South Oxfordshire and Vale of White Horse Joint Local Plan

5.4.4 Cothill Fen SAC owes its existence to unusual hydrological conditions arising from changes in the underlying geology (Natural England, 2016b). The site has calcium-rich springwater fed fens which are sensitive to water pollution and hydrological changes (Natural England, 2014b). The extent of the hydrological catchment for Cothill Fen SAC was set out in the Vale of White Horse adopted Local Plan HRA (AECOM, 2017), taken from the 2014 Natural England Nature on the Map portal which no longer exists[19]. The approximate catchment is shown in Figure 5.3.

5.4.5 The site allocation closest to the hydrological catchment is Dalton Barracks. Studies undertaken to inform planning for development on Dalton Barracks have demonstrated that it is very unlikely that surface or shallow sub-surface flows from the development footprint would occur into the catchment of the SAC and nearby SSSIs within the same catchment. Similarly, it is very unlikely that groundwater from the development site would interact with the designated areas (Cartas Jonas, 2017). It is noted that the development footprint of the Dalton Barracks allocation now extends further west than the boundary which was considered within the Cartas Jonas report, however the extended area is masterplanned purely for green infrastructure as shown in Figure 5.3. Therefore it is considered that likely significant effects to the Cothill Fen SAC can be screened out.

[19] Cited in the Vale of White Horse LPP2 HRA, AECOM, February 2018, paragraph 5.5.3: *"This was sourced in 2014 from Natural England's Nature on the Map portal, which no longer exists. Consultation with Natural England has determined that this catchment area is considered to remain valid.*
Piotr Behnke (31/08/17) – "I've now been able to catch up with my colleague who is responsible for the SSSI at Cothill Fen SAC and have been informed of a report from 2016 entitled "Eco-hydrological assessment of the risks to the long-term integrity of Cothill Fen SAC, Oxon". This includes a diagram which shows an extent for the hydrological catchment however this appears to effectively be based upon the 1978 work carried out by Peter Morris and we aren't aware of any more up to date catchment work at this time (unless the SFRA is currently doing this). Unfortunately we don't have a GIS file for this catchment.
I've attached a link which should download the report in question from our records management system - Eco-hydrological assessment of the risks to the long-term integrity of Cothill Fen SAC, Oxon. The hydrological catchment diagram in question can be found on page 22 of the report.
Having looked at both of the catchments the original one which was used as part of the LPP1 covers a slightly larger area (mainly to the north and east) so in being precautionary we would prefer that this were used with regard to assessing the potential impacts of LPP2 allocations."

Figure 5.3: Approximate Cothill Fen SAC Hydrological Catchment

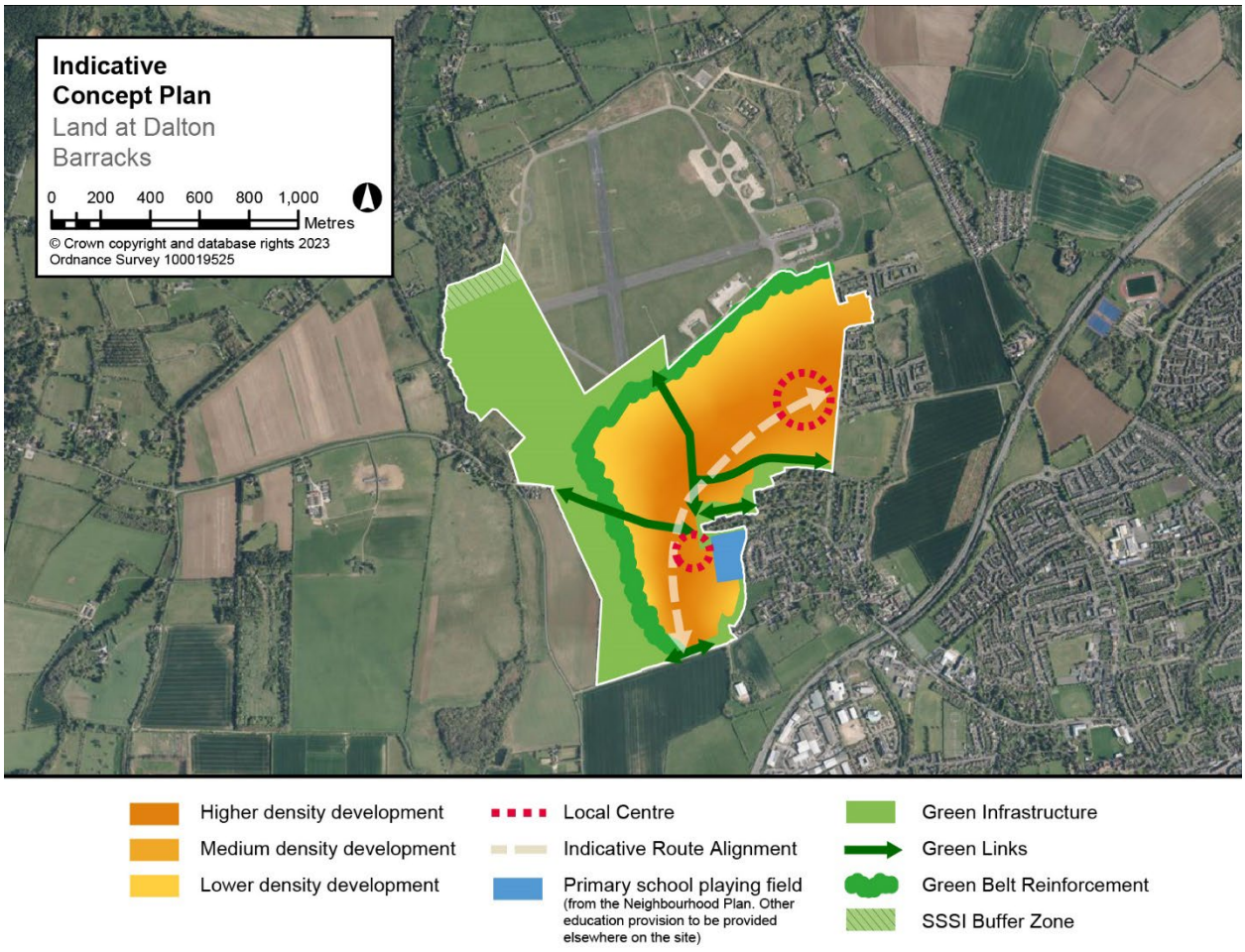

Figure 5.4: Land at Dalton Barracks Indicative Concept Plan (taken from Chapter 8 of the Preferred Options Plan)

5.4.6 The Oxford Meadows SAC SIP (Natural England, 2014c) notes that the site is sensitive to hydrological changes. The site runs alongside the River Thames. A survey undertaken in August 2014 indicated that the population of creeping marshwort in Port Meadow has significantly declined in size. It is considered that this change may be associated directly or indirectly with hydrological changes possibly deeper, more prolonged and frequent flood episodes.

5.4.7 The Councils have commissioned an updated Water Cycle Study as part of the process of delivering the Joint Local Plan. Given that this study is not yet available, likely significant effects in relation to Oxford Meadows SAC are screened in on a precautionary basis for further consideration at the next plan stage.

5.4.8 The joint SIP for the River Lambourn and Kennet Lambourn Floodplain SACs (Natural England, 2014d) notes that the sites are sensitive to hydrological changes and water quality. The River Lambourn is also affected by Natural England's 2022 advice on nutrient impacts on habitats sites. Poor water quality due to nutrient enrichment from elevated phosphorus is one of the primary reasons for this, and many other European sites, being in unfavourable condition. In light of the ongoing uncertainty in relation to the ability of new housing development to go ahead without having a further detrimental effect upon the water environment, Natural England's current advice is that all new development resulting in any net increase in dwellings or overnight accommodation uses should achieve nutrient neutrality.

5.4.9 Whilst the River Lambourn nutrient catchment shown in Figure 5.5 does extend into the Vale of the White Horse, no site allocations fall within the catchment. There are also no sites with extant outline planning permissions within the catchment. The Councils also consider it unlikely that any windfall development will come forward within the Lambourn catchment on account of its landscape sensitivities associated with the AONB. Therefore, likely significant effects to the River Lambourn SAC are screened out. If the Councils become aware of any potential windfall development within the catchment prior to the Joint Local Plan's adoption, an allowance will be made and a nutrient budget will be produced to accompany the HRA to quantify the phosphorus surplus associated with this provisional windfall development.

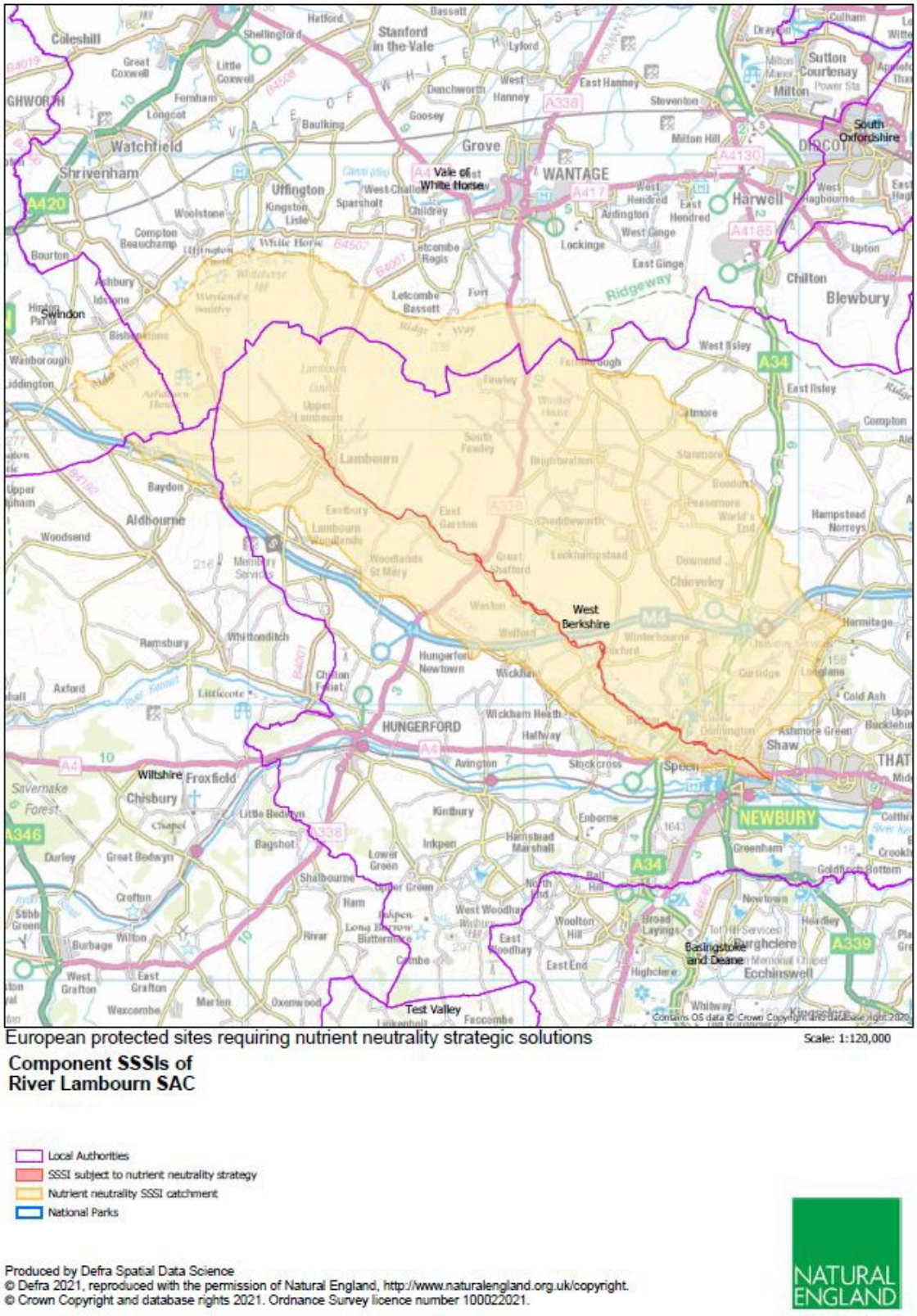

Figure 5.5: River Lambourn Nutrient Neutrality Catchment

5.5 Site Specific Impacts

5.5.1 Site-specific impacts are those which emanate from the development of a given site and operate at a local scale on nearby European sites, potentially resulting in the actual or functional loss of habitats which have a role in supporting the integrity of the European sites.

Habitat loss during construction

5.5.2 This pathway is defined as impacts from development which, due to its location and size (i.e. footprint), changes the extent or distribution of a qualifying habitat or the habitats of qualifying species within a European site, thereby reducing the population or restricting the distribution of qualifying species. None of the proposed site allocations fall within a European site.

5.5.3 This impact pathway also includes development which would result in the loss of habitats which support the ecological functions of a European site, for example by serving as a breeding or foraging site for qualifying species which are mobile. The following European sites have mobile qualifying species:

- Chilterns Beechwoods SAC: stag beetle;
- Little Wittenham SAC: great crested newt;
- Kennet and Lambourn Floodplain SAC: Desmoulins's whorl snail; and
- River Lambourn SAC: brook lamprey and bullhead.

5.5.4 Research cited in the South Oxfordshire adopted plan HRA (LUC, 2019) notes that the male stag beetle may travel up to 2km to sites with reproductive females during the breeding season. The closest site allocation to the Chiltern Beechwoods SAC is over 7km away and therefore it is not considered that there is a possible pathway through which local plan development could result in the loss of habitat supporting the stag beetle.

5.5.5 Research undertaken by Natural England (Cresswell & Whitworth, 2004) suggests great crested newt will rarely move further than 200-250m from a breeding pond, with much reduced distances recorded where adjacent habitats are of good quality. Jehle (2000) also determined a terrestrial zone of 63m, within which 95% of summer great crested newt refuges were located. The closest site allocation is over 2km from the Little Wittenham SAC and therefore there is no pathway for the loss of habitat supporting great crested newt.

5.5.6 There is no hydrological connectivity between the Lambourn / Kennet catchment and the closest site allocation north west of Grove and therefore there is also no pathway for the loss of habitat supporting brook lamprey and bullhead.

Construction and operational disturbance

5.5.7 Construction and operational disturbance are defined as development activities which could change the distribution of qualifying species within a European site or important supporting area, displacing the species from otherwise suitable habitats, and thereby reducing individual survival rates and risking a population reduction. It is predominantly bird species which are affected by these impact pathways, however some underwater noise can create an acoustic barrier to fish

migration. Noise may be generated, for example, by piling activities. Bat species may also be affected by artificial light associated with construction or operational lighting.

5.5.8 Given that those sites scoped into the assessment with qualifying species (section 5.5.3) do not include bird or bat species, and the fact that there is no hydrological connectivity between the Lambourn / Kennet catchment and the closest site allocation north west of Grove for any underwater noise pathway, likely significant effects in relation to construction and operational disturbance are screened out.

5.6 Screening Conclusions

5.6.1 In conclusion, in the absence of mitigation the South Oxfordshire and Vale of White Horse Joint Local Plan is likely to result in a range of significant effects on the European sites of interest. The plan will be taken forward to the Appropriate Assessment stage to examine the nature of these effects in further detail. Those impact pathways taken forward for Appropriate Assessment are summarised in Table 5.1.

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6 Summary and Consultation Arrangements

6.1 Summary

6.1.1 This document sets out a screening assessment under the Habitats Regulations Assessment for the South Oxfordshire and Vale of White Horse Joint Local Plan. The report accompanies the consultation on the Preferred Options Plan and forms part of the evidence base upon which it is based.

6.2 Scope of the Assessment

6.2.1 Acknowledging that the Joint Local Plan is not directly connected with or necessary to the management of the sites for nature conservation, the HRA considers the following European sites for likely significant or adverse effects on integrity:

- Aston Rowant SAC
- Chiltern Beechwoods SAC
- Cothill Fen SAC
- Hackpen Hill SAC
- Hartslock Wood SAC
- Kennet & Lambourn Floodplain SAC
- Little Wittenham SAC
- Oxford Meadows SAC
- River Lambourn SAC

6.3 Summary and Conclusions

6.3.1 The screening assessment concludes that there is potential for likely significant effects to Aston Rowant SAC, Cothill Fen SAC, Oxford Meadows SAC associated with the Joint Local Plan in combination with other plans.

6.3.2 Likely significant air pollution effects cannot be ruled out for Oxford Meadows SAC, Cothill Fen SAC and Aston Rowant SAC as there are roads which fall within 200m of these sites. This impact pathway is therefore taken forward for Appropriate Assessment at the next plan stage. This will be informed by traffic modelling which is currently being considered in discussion with Oxfordshire County Council.

6.3.3 The Cothill Fen SAC falls within 400m of the Dalton Barracks and therefore recreational disturbance effects cannot be ruled out and are taken forward for Appropriate Assessment at the next plan stage.

6.3.4 Likely significant effects to Oxford Meadows SAC on account of hydrological changes cannot be ruled out at this stage as the evidence base, namely a Water Cycle Study, is still emerging.. Therefore, this impact pathway is taken forward for Appropriate Assessment at the next plan stage.

6.3.5 No likely significant effects have been identified associated with recreational disturbance and site specific impacts and therefore these impact pathways are screened out from further assessment in the Appropriate Assessment.

6.4 Consultation Arrangements

6.4.1 The HRA Report is being made available for consultation as part of the Joint Local Plan Preferred Options consultation running for six weeks from 10 January to 21 February 2024.

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Appendix I: Site Allocations and Policies Screening Matrix

Accessibility

Appendix I presents a tabulated screening assessment of the policies within the Preferred Options consultation document. Each policy is screened against all those European sites scoped into the assessment (as described in section 3 of the main report). Each policy is assigned a screening category with an associated letter – these are set out in an assessment key at the bottom of the table.

A digital, fully accessible version of the appendix in excel format is provided alongside this HRA report for use by readers using special assistive technology.

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South Oxfordshire & Vale of White Horse Joint Local Plan
Preferred Options Plan Site Allocations and Policies HRA Screening

	Policy ID	Chapter 4: Reducing Carbon Emissions	Likely Significant Effects	Aston Rowant SAC	Chiltern Beechwoods SAC	Cothill Fens SAC	Hackpen Hill SAC	Hartslock Wood SAC	Kennet & Lambourn Floodplain SAC	Little Wittenham SAC	Oxford Meadows SAC	River Lambourn SAC
	CE1	Net Zero Carbon Buildings		D	D	D	D	D	D	D	D	D
	CE2	Sustainable Design and Construction		D	D	D	D	D	D	D	D	D
	CE3	Reducing Embodied Carbon		D	D	D	D	D	D	D	D	D
	CE4	Sustainable Retrofitting		D	D	D	D	D	D	D	D	D
	CE5	Renewable Energy		D	D	D	D	D	D	D	D	D
	CE6	Flood Risk and Drainage		D	D	D	D	D	D	D	D	D
	CE7	Water Efficiency		D	D	D	D	D	D	D	D	D
	CE8	Water Quality and Wastewater Infrastructure		D	D	D	D	D	D	D	D	D
	CE9	Air Quality		D	D	D	D	D	D	D	D	D
	CE10	Pollution Sources and Receptors		D	D	D	D	D	D	D	D	D
	CE11	Light Pollution and Dark Skies		D	D	D	D	D	D	D	D	D
	CE12	Soils and Contaminated Land		D	D	D	D	D	D	D	D	D
	CE13	Minerals Safeguarded Areas		D	D	D	D	D	D	D	D	D
		Chapter 5: Spatial Strategy & Settlements	**Likely Significant Effects**									
	SP1	Spatial Strategy		A	A	A	A	A	A	A	A	A
	SP2	Settlement Hierarchy		A	A	A	A	A	A	A	A	A
	SP3	The Strategy for Didcot Garden Town		A	A	A	A	A	A	A	A	A
	SP4 to SP9	Strategies for Abingdon, Faringdon, Henley on Thames, Thame, Wallingford and Wantage		A	A	A	A	A	A	A	A	A
		Chapter 6: Housing	**Likely Significant Effects**									
	HOU1	Housing Requirement		A	A	A	A	A	A	A	A	A
	HOU2	Sources of Housing Supply		A	A	A	A	A	A	A	A	A
	HOU3	Affordable Housing		B	B	B	B	B	B	B	B	B
	HOU4	Housing Mix and Size		B	B	B	B	B	B	B	B	B
	HOU5	Housing for Older People		A	A	A	A	A	A	A	A	A
	HOU6	Self-Build and Custom-Build Housing		A	A	A	A	A	A	A	A	A
	HOU7	Affordable Self and Custom-Build Housing		B	B	B	B	B	B	B	B	B
	HOU8	Replacement Dwellings in the Countryside		B	B	B	B	B	B	B	B	B
	HOU9	Sub-division of Houses		B	B	B	B	B	B	B	B	B
	HOU10	Meeting the Needs of Gypsies, Travellers and Travelling Showpeople		A	A	A	A	A	A	A	A	A
	HOU11	Proposals for / affecting Gypsies, Travellers and Travelling Showpeople's Sites		B	B	B	B	B	B	B	B	B
	HOU12	Rural and First Homes Exception Sites		B	B	B	B	B	B	B	B	B
	HOU13	Community-Led Housing Development		B	B	B	B	B	B	B	B	B

South Oxfordshire & Vale of White Horse Joint Local Plan Preferred Options Plan Site Allocations and Policies HRA Screening			Aston Rowant SAC	Chiltern Beechwoods SAC	Cothill Fens SAC	Hackpen Hill SAC	Hartslock Wood SAC	Kennet & Lambourn Floodplain SAC	Little Wittenham SAC	Oxford Meadows SAC	River Lambourn SAC
HOU14	Build to Rent Proposals		B	B	B	B	B	B	B	B	B
HOU15	Houses in Multiple Occupation		B	B	B	B	B	B	B	B	B
HOU16	Residential Extensions and Annexes		B	B	B	B	B	B	B	B	B
HOU17	Rural Workers' Dwellings		B	B	B	B	B	B	B	B	B
	Chapter 7: Jobs and Tourism	**Likely Significant Effects**									
JT1	Meeting Employment Needs	Atmospheric Pollution	J	A	A	A	A	A	A	J	A
JT2	Protecting our Employment Sites		A	A	A	A	A	A	A	A	A
JT3	Affordable Workspace		A	A	A	A	A	A	A	A	A
JT4	Community Employment Plans		A	A	A	A	A	A	A	A	A
JT5	Supporting the Rural Economy		B	B	B	B	B	B	B	B	B
JT6	Supporting Sustainable Tourism and the Visitor Economy		A	A	A	A	A	A	A	A	A
JT7	Overnight Visitor Accommodation		A	A	A	A	A	A	A	A	A
	Chapter 8: Site Allocations and Garden Villages	**Likely Significant Effects**									
LS1	Proposals for Large Scale Major Development		B	B	B	B	B	B	B	B	B
AS1	Land at Berinsfield Garden Village	Atmospheric Pollution, Water Quality and Quanity	J	E	E	E	E	E	E	J	E
AS2	Land adjacent to Culham Science Centre	Atmospheric Pollution, Water Quality and Quanity	J	E	E	E	E	E	E	J	E
AS3	Land South of Grenoble Road, Edge of Oxford	Atmospheric Pollution, Water Quality and Quanity	J	E	E	E	E	E	E	J	E
AS4	Land at Northfield, Edge of Oxford	Atmospheric Pollution, Water Quality and Quanity	J	E	E	E	E	E	E	J	E
AS5	Land at Bayswater Brook, Edge of Oxford	Atmospheric Pollution, Water Quality and Quanity	J	E	E	E	E	E	E	J	E
AS6	Rich's Sidings and Broadway, Didcot (previously Orchard Centre Phase 2)	Atmospheric Pollution, Water Quality and Quanity	J	E	E	E	E	E	E	J	E
AS7	Didcot Gateway, Didcot	Atmospheric Pollution, Water Quality and Quanity	J	E	E	E	E	E	E	J	E
AS8	North West of Grove, Grove	Atmospheric Pollution, Water Quality and Quanity	J	E	E	E	E	E	E	J	E
AS9	North West of Valley Park, Didcot	Atmospheric Pollution, Water Quality and Quanity	J	E	E	E	E	E	E	J	E
AS10	Land at Dalton Barracks Garden Village, Shippon	Atmospheric Pollution, Recreational Disturbance, Water Quality and Quantity	J	E	J	E	E	E	E	J	E
HOU2w	NW of Abingdon on Thames	Atmospheric Pollution, Water Quality and Quanity	J	E	E	E	E	E	E	J	E
HOU2e	Vauxhall Barracks	Atmospheric Pollution, Water Quality and Quanity	J	E	E	E	E	E	E	J	E
AS11	Culham Science Centre (Strategic Employment Allocation)	Atmospheric Pollution	J	E	E	E	E	E	E	J	E
AS12	Harwell Campus (Strategic Employment Allocation)	Atmospheric Pollution	J	E	E	E	E	E	E	J	E
AS13	Berinsfield Garden Village		B	B	B	B	B	B	B	B	B
AS14	Dalton Barracks Garden Village		B	B	B	B	B	B	B	B	B
AS15	Harcourt Hill Campus		A	A	A	A	A	A	A	A	A
AS16	Land at Crowmarsh Gifford, Benson Lane	Atmospheric Pollution, Water Quality and Quanity	J	E	E	E	E	E	E	J	E

South Oxfordshire & Vale of White Horse Joint Local Plan Preferred Options Plan Site Allocations and Policies HRA Screening				Aston Rowant SAC	Chiltern Beechwoods SAC	Cothill Fens SAC	Hackpen Hill SAC	Hartslock Wood SAC	Kennet & Lambourn Floodplain SAC	Little Wittenham SAC	Oxford Meadows SAC	River Lambourn SAC
	Chapter 9: Town Centres and Retail		**Likely Significant Effects**									
TCR1	Centre Hierarchy			A	A	A	A	A	A	A	A	A
TCR2	Strategy for Town and Local Service Centres			A	A	A	A	A	A	A	A	A
TCR3	Retail Floor Space			A	A	A	A	A	A	A	A	A
TCR4	Retail and Service Provision in Villages and Local Centres			A	A	A	A	A	A	A	A	A
	Chapter 10: Well-designed Places for our Communities		**Likely Significant Effects**									
DE1	High Quality Design			A	A	A	A	A	A	A	A	A
DE2	Local Character and Identity			D	D	D	D	D	D	D	D	D
DE3	Delivering Well-Designed New Development			B	B	B	B	B	B	B	B	B
DE4	Optimising Densities			B	B	B	B	B	B	B	B	B
DE5	Neighbouring Amenity			B	B	B	B	B	B	B	B	B
DE6	Outdoor Amenity Space			B	B	B	B	B	B	B	B	B
DE7	Waste Collection and Recycling			B	B	B	B	B	B	B	B	B
	Chapter 11: Healthy Places		**Likely Significant Effects**									
HP1	Healthy Places Shaping			B	B	B	B	B	B	B	B	B
HP2	Community Services and Facilities			A	A	A	A	A	A	A	A	A
HP3	Health Care Provision			A	A	A	A	A	A	A	A	A
HP4	Education Provision			A	A	A	A	A	A	A	A	A
HP5	Existing Open Space, Sport and Recreation Facilities			A	A	A	A	A	A	A	A	A
HP6	New Facilities for Sport, Physical Activity and Recreation			B	B	B	B	B	B	B	B	B
HP7	Green Infrastructure on New Developments			D	D	D	D	D	D	D	D	D
HP8	Open Space in New Developments			A	A	A	A	A	A	A	A	A
HP9	Provision for Children's Play and Spaces for Young People			B	B	B	B	B	B	B	B	B
HP10	Allotments and Community Food Growing			A	A	A	A	A	A	A	A	A
HP11	Watercourses			D	D	D	D	D	D	D	D	D
	Chapter 12: Nature Recovery, Heritage and Landscape		**Likely Significant Effects**									
NH1	Nature Recovery			B	B	B	B	B	B	B	B	B
NH2	Biodiversity Designations			D	D	D	D	D	D	D	D	D
NH3	Trees and Hedgerows in the Landscape			D	D	D	D	D	D	D	D	D
NH4	Chilterns and North Wessex Downs Areas of Outstanding Beauty			D	D	D	D	D	D	D	D	D
NH5	Landscape			D	D	D	D	D	D	D	D	D
NH6	Valued Landscapes			D	D	D	D	D	D	D	D	D
NH7	Tranquillity and Tranquil Areas			D	D	D	D	D	D	D	D	D
NH8	The Historic Environment			A	A	A	A	A	A	A	A	A
NH9	Listed Buildings			B	B	B	B	B	B	B	B	B
NH10	Conservation Areas			D	D	D	D	D	D	D	D	D
NH11	Archaeology and Scheduled Monuments			B	B	B	B	B	B	B	B	B
NH12	Historic Battlefields, Registered Parks and Gardens and Historic Landscapes			D	D	D	D	D	D	D	D	D

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	NH13	Heritage Assets and Climate Change		A	A	A	A	A	A	A	A	A
		Chapter 13: Infrastructure, Transport, Connectivity and Communications	**Likely Significant Effects**									
	IN1	Infrastructure Provision		A	A	A	A	A	A	A	A	A
	IN2	Sustainable Transport and Accessibility		B	B	B	B	B	B	B	B	B
	IN3	Transport Infrastructure and Safeguarding		A	A	A	A	A	A	A	A	A
	IN4	Wilts and Berks Canal Safeguarding		D	D	D	D	D	D	D	D	D
	IN5	Parking Standards		B	B	B	B	B	B	B	B	B
	IN6	Deliveries and Freight		B	B	B	B	B	B	B	B	B
	IN7	South East Strategic Reservoir Option (SESRO) Safeguarding		K	K	K	K	K	K	K	K	K
	IN8	Digital Connectivity		B	B	B	B	B	B	B	B	B
		Assessment Key										
	A	General statement of policy / aspiration										
	B	Policy listing general criteria for testing the acceptability / sustainability of proposals										
	C	Proposal referred to but not proposed by the plan										
	D	Environmental protection / site safeguarding policy										
	E	Policy/proposal steers change in such a way as to protect European sites from adverse effects										
	F	Policy that cannot lead to development or other change										
	G	Policy/proposal that could not have any conceivable effect on a European site										
	H	Policy/proposal the (actual/theoretical) effects of which cannot undermine the conservation objectives (either alone or in combination with other aspects of this or any other plan/project)										
	I	Policy/proposal with a likely significant effect on a European site alone										
	J	Policy/proposal with an effect on a site but not likely to be significant alone; check for likely significant effects in combination										
	K	Policy/proposal not likely to have a significant effect either alone or in combination (after the in combination test)										
	L	Policy/proposal likely to have a significant effect in combination (after the in combination test)										
	M	Bespoke area, site or case specific policies or proposals intended to avoid or reduce harmful effects on a European site										

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