Dacorum Local Plan (2024-2040) Revised Strategy for Growth

Habitats Regulations Assessment

September 2023

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LANDSCAPE, ECOLOGY, PLANNING & URBAN SUSTAINABILITY

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Acronyms & Abbreviations

AADT	Annual Average Daily Traffic
ALS	Abstraction License Strategies
AONB	Area of Outstanding Natural Beauty
APIS	Air Pollution Information System
CAMS	Catchment Abstraction Management Strategy
CIC	Community Interest Company
CIEEM	Chartered Institute of Ecology and Environmental Management
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DPD	Development Plan Document
DTA	David Tyldesley and Associates
EA	Environment Agency
HDV	Heavy Duty Vehicle
HRA	Habitats Regulations Assessment
IAQM	Institute of Air Quality Management
IRZ	Impact Risk Zone
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
LPA	Local Planning Authority
LSE	Likely Significant Effect
NPPF	National Planning Policy Framework
ONS	Office of National Statistics
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SAMMS	Strategic Access Management and Monitoring Strategy
SANG	Suitable Alternative Natural Greenspace
SIP	Site Improvement Plan
SPA	Special Protection Area
SPD	Supplementary Planning Document
SSSI	Site of Special Scientific Interest
STW	Sewage Treatment Work
WFD	Water Framework Directive
WRMP	Water Resource Management Plan
WRZ	Water Resource Zone
ZOI	Zone of Influence

1 Introduction

1.1 Local Plan Review Overview

1.1.1 Dacorum Borough Council (referred to hereafter as the Council) is currently preparing a new Local Plan which will provide a planning strategy for the Borough up to 2040. The Borough of Dacorum is located within Hertfordshire in the South East of England and to the north of London, see **Figure 1.1**. It includes the settlements of Hemel Hempstead, Berkhamsted, Tring, Bovingdon, Kings Langley and Markyate.

1.1.2 The new Local Plan will incorporate strategic policies, development management policies and site allocations into a single document, replacing those in the Core Strategy (adopted September 2013)[1], the Site Allocations DPD (adopted July 2017)[2] and the 'saved' parts of the Dacorum Borough Local Plan 1991-2011 (adopted May 2004)[3].

1.1.3 In November 2017 the Council published the Issues and Options consultation seeking comments on key issues and challenges facing the Borough and how these could be addressed. The Emerging Strategy for Growth (2020 - 2038) was published for consultation between November 2020 and February 2021. This provided an opportunity for the local community, other stakeholders and developers to provide feedback on the emerging approach to development. It set out the Council's preferred approach to accommodating growth across Dacorum alongside proposed sites and draft policies.

1.1.4 The Council is now undertaking a focused Regulation 18 consultation looking at changes made to the Emerging Strategy for Growth. This is known as the Revised Strategy for Growth consultation. These changes included the following:

- Reducing the levels of housing growth, considering unique constraints and pressures on infrastructure;
- Ensuring growth is more proportionate for market towns;
- Maximising urban capacity in sustainable locations; and
- Exploring further opportunities for regenerating Hemel Hempstead's employment and retail areas.

[1] Dacorum Borough Council. Core Strategy 2006 – 2031. Adopted 25th September 2013.

[2] Dacorum Borough Council. Site Allocation 2006 – 2031. Adopted 12th July 2017.

[3] Dacorum Borough Council. Local Plan 1991 - 2011. Adopted 21st April 2004.

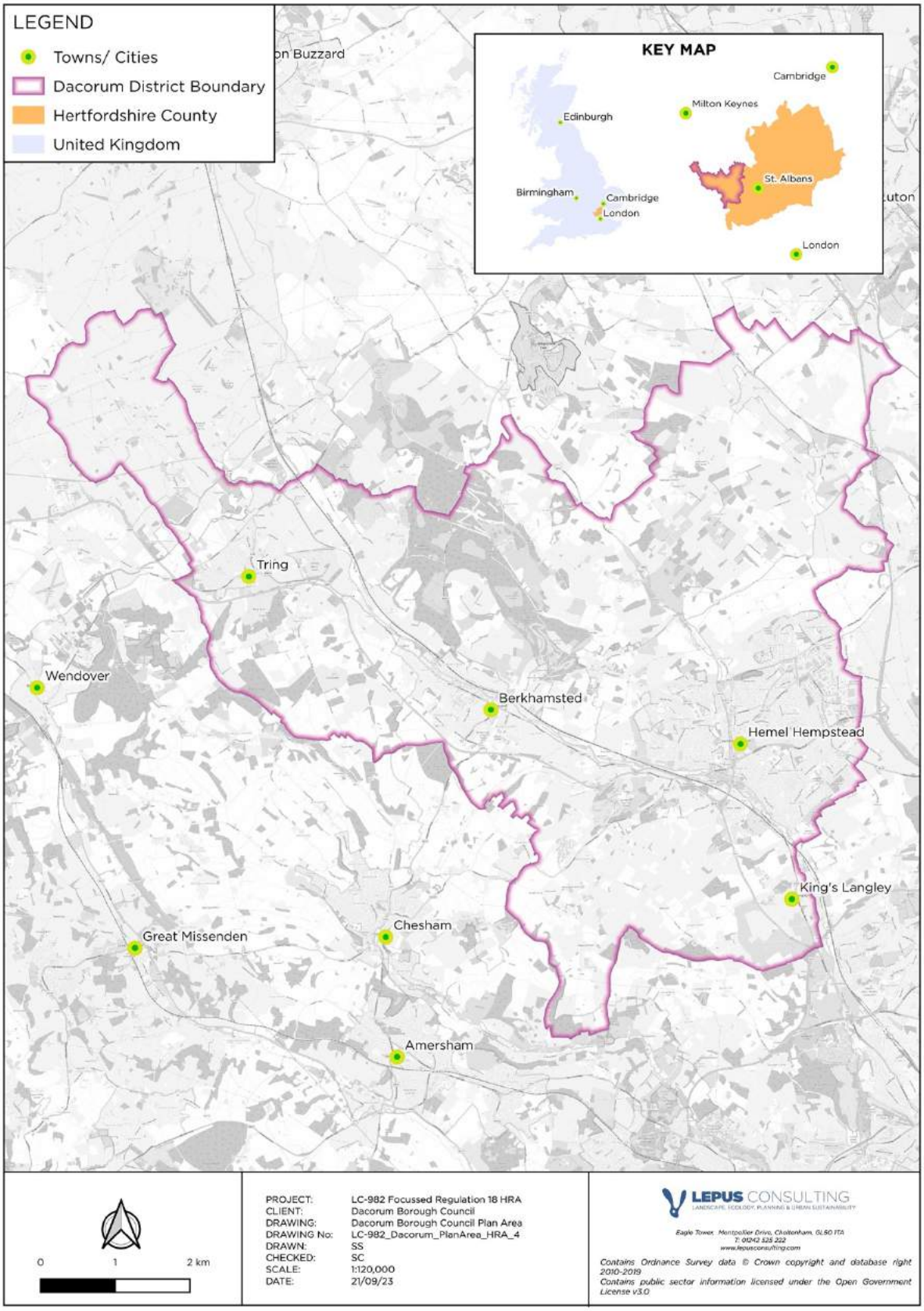


Figure 1.1 - Dacorum Local Plan Area

1.2 Habitats Regulations Assessment

1.2.1 The application of Habitats Regulations Assessment (HRA) to land-use plans is a requirement of the Conservation of Habitats and Species Regulations 2017 (as amended) [4]. HRA applies to plans and projects, including all Local Development Documents in England and Wales.

1.2.2 Where a plan is likely to have a significant effect on a Habitats Site (either alone or in-combination) and is not directly connected with or necessary to the management of the Habitats site, Regulation 105 of the Habitats Regulations notes that the plan-making authority for that plan must, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site's conservation objectives. These tests are referred to collectively as a Habitats Regulations Assessment (HRA).

1.2.3 The Habitats Regulations[5] provide a definition of a European site at Regulation 8. These sites include Special Areas of Conservation (SAC), Sites of Community Importance, Special Protection Areas (SPA) and sites proposed to the European Commission in accordance with Article 4(1) of the Habitats Directive. In addition, policy in England and Wales notes that the following sites should also be given the same level of protection as a European site[6]. European sites together with sites set out in national policy (listed below) are referred to in England and Wales as a Habitats site[7].

- A potential SPA (pSPA)
- A possible / proposed SAC (pSAC)
- Listed and proposed Ramsar Sites (wetland of international importance)
- In England, sites identified or required as compensation measures for adverse effects on statutory Habitats sites, pSPA, pSAC and listed or proposed Ramsar sites.

1.2.4 The Council's current local development plan is made up of the Core Strategy and Site Allocations Development Plan Document (DPD), both of which were supported by HRAs completed in 2008 and 2011.

[4] The Conservation of Habitats and Species Regulations 2017 SI No. 2017/1012, TSO (The Stationery Office), London. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents [Date Accessed: 08/09/23] as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573 [Date Accessed: 08/09/23]

[5] Conservation of Habitats and Species Regulations 2017 SI No. 2017/1012, TSO (The Stationery Office), London. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents [Date Accessed 07/09/23] as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573 [Date Accessed: 07/09/23]

[6] Ministry of Housing, Communities & Local Government (2023). National Planning Policy Framework. Para 181. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1182995/NPPF_Sept_23.pdf [Date Accessed: 07/09/23]

[7] Habitats site: Any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites. Ministry of Housing, Communities & Local Government (2021). National Planning Policy Framework. Para 181. Available in Annex 2 (Glossary) at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1182995/NPPF_Sept_23.pdf [Date Accessed: 07/09/23]

1.2.5 In order to inform the development of the Local Plan, a topic paper was prepared by the Council for the Chiltern Beechwoods SAC to accompany the Emerging Strategy for Growth[8] and an HRA screening assessment was also undertaken[9]. The HRA screening assessment set out the methodology to be followed throughout the HRA process, scoped Habitats sites for consideration through application of a 'source-pathway-receptor' model and screened components of the Emerging Strategy for Growth for Likely Significant Effects (LSEs).

1.2.6 Natural England was consulted on this HRA screening assessment report and noted their agreement with its conclusions that the proposals within the Emerging Strategy for Growth Draft Plan were likely to result in impacts to the Chilterns Beechwoods SAC, South West London Waterbodies SPA and South West London Waterbodies Ramsar, alone or in-combination with other plans and projects[10].

1.3 Purpose of this report

1.3.1 HRA is an iterative process, designed to run alongside and inform the plan making process to ensure adverse impacts on Habitats sites are avoided in the first instance through strategic planning of options or, where this is not possible, effective mitigation is designed to ensure no adverse impact on site integrity.

1.3.2 The purpose of this HRA report is to continue to inform the development of the Local Plan at the Regulation 18 stage of the plan-making process, building on the Emerging Strategy for Growth HRA screening assessment. It provides a re-screening of sites which comprise the Revised Strategy for Growth consultation exercise and, where LSEs are identified (alone or in-combination) provides an Appropriate Assessment where evidence allows. It also sets out further stages of HRA work that will be required at future stages of the plan's development.

1.3.3 This HRA report has been prepared in accordance with the Habitats Regulations and has been informed by the following guidance:

- Planning Practice Guidance: Appropriate Assessment[11]; and
- The Habitat Regulations Assessment Handbook - David Tyldesley and Associates (referred to hereafter as the DTA Handbook), 2013 (in particular Part F: 'Practical Guidance for the Assessment of Plans under the Regulations').

[8] Topic Paper for the Chiltern Beechwoods SAC. Dacorum Local Plan (2020 – 2038). Emerging Strategy for Growth. November 2020.

[9] Lepus. 2021. Habitats Regulations Assessment: Draft Dacorum Local Plan: Emerging Strategy for Growth 2020 - 2038

[10] Natural England. Habitats Regulations Assessment of the Draft Dacorum Borough Council Local Plan: Emerging Strategy for Growth 2020-2038. 30 June 2021 [Letter].

[11] Ministry of Housing, Communities and Local Government (July 2019) Planning Practice Guidance Note, Appropriate Assessment, Guidance on the use of Habitats Regulations Assessment

2 Methodology

2.1 Overview

2.1.1 HRA is a rigorous precautionary process centred around the conservation objectives of a Habitat site's qualifying interests. It is intended to ensure that Habitats sites are protected from impacts that could adversely affect their integrity. The HRA methodology being followed for Dacorum's Local Plan review is set out in the Emerging Strategy for Growth HRA screening assessment. A step-by-step guide to this methodology, as outlined in the DTA Handbook, is illustrated in **Figure 2.1**[12]**.** This HRA report provides outputs from Stage 1 and, where evidence allows, Stage 2 of the HRA process.

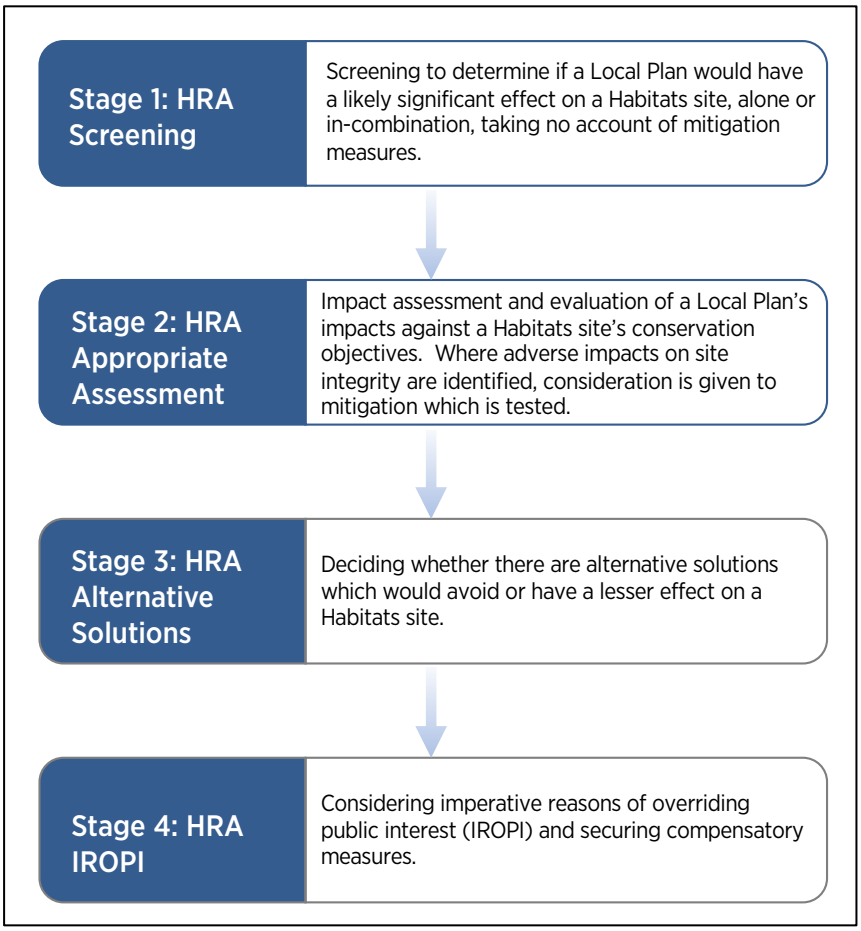


Figure 2.1: Stages in the Habitats Regulations Assessment process13

[12] Lepus. 2021. Habitats Regulations Assessment: Draft Dacorum Local Plan: Emerging Strategy for Growth 2020 - 2038

[13] Tyldesley, D., and Chapman, C. (2013) The Habitats Regulations Assessment Handbook (October) (2018) edition UK: DTA Publications Limited. Available at: www.dtapublications.co.uk [Date accessed: 07/09/23]

2.2 Stage 1: Screening for likely significant effects

2.2.1 The first stage in the HRA process comprises the screening stage. The purpose of the screening process is to firstly determine whether a plan is either (1) exempt (because it is directly connected with or necessary to the management of a Habitats site), (2) whether it can be excluded (because it is not a plan), or (3) eliminated (because there would be no conceivable effects), from the HRA process. If none of these conditions apply, it is next necessary to identify whether there are any aspects of the plan which may lead to likely significant effects at a Habitats site, either alone or in combination with other plans or projects.

2.2.2 Where elements of the Local Plan will not result in a LSE on a Habitats site (alone or in-combination) these are screened out and are not considered in further detail in the process. Where LSEs are identified, the HRA process moves to an Appropriate Assessment of LSEs (Stage 2).

2.2.3 The Emerging Strategy for Growth HRA screening assessment identified the following LSEs upon Habitats sites.

- **Chilterns Beechwoods SAC** – focusing on components of the SAC which are coincident with Ashridge Commons and Woods SSSI and Tring Woodlands SSSI - air quality (in-combination), water (in-combination), habitat loss and fragmentation (in-combination) and public access and disturbance LSEs (in-combination)
- **South West London Waterbodies SPA** – hydrology LSEs (in-combination)
- **South West London Waterbodies Ramsar** – hydrology LSEs (in-combination)

2.2.4 The screening exercise has been updated in this report to address changes to proposed sites and housing numbers which form the Revised Strategy for Growth consultation exercise. The screening process has used evaluation codes to summarise whether or not each site is likely to firstly have LSEs alone, and if not then in-combination and inform the formal screening decision (**Table 2.1**). The screening assessment is undertaken at **Chapter 4** of this report.

Table 2.1: Pre-screening assessment and reasoning categories from Part F of the DTA Handbook

Pre-screening assessment and reasoning categories from Chapter F of The Habitats Regulations Assessment Handbook (DTA Publications, 2013):	Screen in/ Screen Out
A. General statements of policy / general aspirations	Screen Out
B. Policies listing general criteria for testing the acceptability / sustainability of proposals.	Screen Out
C. Proposal referred to but not proposed by the plan.	Screen Out
D. General plan-wide environmental protection / designated site safeguarding / threshold policies.	Screen Out
E. Policies or proposals that steer change in such a way as to protect European sites from adverse effects. Screen Out	Screen Out
F. Policies or proposals that cannot lead to development or other change. Screen Out.	Screen Out

G.	Policies or proposals that could not have any conceivable or adverse effect on a site. Screen Out.	Screen Out
H.	Policies or proposals the (actual or theoretical) effects of which cannot undermine the conservation objectives (either alone or in combination with other aspects of this or other plans or projects). Screen Out.	Screen Out
I.	Policies or proposals with a likely significant effect on a site alone. Screen In.	Screen In
J.	Policies or proposals unlikely to have a significant effect alone. Screen Out.	Screen Out
K.	Policies or proposals unlikely to have a significant effect either alone or in combination.	Screen Out
L.	Policies or proposals which might be likely to have a significant effect in combination.	Screen In
M.	M. Bespoke area, site or case-specific policies or proposals intended to avoid or reduce harmful effects on a European site.	Screen In

2.2.5 Where components of the plan have no LSE alone, the screening assessment considers potential in-combination LSEs. Plans and projects which are considered to be of most relevance to the in-combination assessment of the Local Plan include those that have similar impact pathways. These include those plans and projects that have the potential to increase development in the HRA study area. In addition, other plans and projects with the potential to increase traffic across the study area which may act in-combination with the Local Plan, such as transport, waste and mineral plans and projects, have also been taken into consideration. Plans which allocate water resources or are likely to influence water quality in the study area have been considered. Finally, neighbouring authority local plans which may increase development related public access and disturbance pressures at Habitats sites have also been considered. The in-combination assessment is compliant with the Wealden Judgement[14].

2.2.6 The European Court Judgement on the interpretation of the Habitats Directive in the case of People Over Wind and Sweetman vs Coillte Teoranta (Case C-323/17[15]) determined that mitigation measures are only permitted to be considered as part of an Appropriate Assessment. The HRA screening process has therefore taken no account of incorporated mitigation or avoidance measures that are intended to avoid or reduce harmful effects on a Habitats site when assessing the LSE of the Local Plan on Habitats sites. These are measures, which if removed (i.e. should they no longer be required for the benefit of a Habitats site), would still allow the lawful and practical implementation of a plan.

[14] Wealden District Council & Lewes District Council before Mr Justice Jay. Available at: http://www.bailii.org/ew/cases/EWHC/Admin/2017/351.html [Date Accessed: 08/09/23]

[15] InfoCuria (2018) Case C-323/17. Available at: http://curia.europa.eu/juris/document/document.jsf?docid=200970&doclang=EN [Date Accessed: 08/09/23]

2.3 Stage 2: Appropriate Assessment and Integrity Test

2.3.1 Stage 2 of the HRA process comprises the Appropriate Assessment and integrity test. The purpose of the Appropriate Assessment (as defined by the DTA Handbook) is to "undertake an objective, scientific assessment of the implications for the European site qualifying features potentially affected by the plan in light of their consideration objectives and other information for assessment"[16].

2.3.2 The Appropriate Assessment is undertaken in view of individual Habitats site's conservation objectives. As part of this process decision makers should take account of the potential consequences of no action, the uncertainties inherent in scientific evaluation and should consult interested parties on the possible ways of managing the risk, for instance, through the adoption of mitigation measures. Mitigation measures should aim to avoid, minimise or reduce significant effects on Habitats sites. Mitigation measures may take the form of policies within the Local Plan or mitigation proposed through other plans or regulatory mechanisms. All mitigation measures must be deliverable and able to mitigate adverse effects for which they are targeted.

2.3.3 The Appropriate Assessment aims to present information in respect of all aspects of the Local Plan and ways in which it could, either alone or in-combination with other plans and projects, impact a Habitats site.

2.3.4 The plan-making body (as the Competent Authority) must then ascertain, based on the findings of the Appropriate Assessment, whether the Local Plan will adversely affect the integrity of a Habitats site either alone or in-combination with other plans and projects. This is referred to as the Integrity Test.

2.3.5 An Appropriate Assessment has been undertaken within this report where evidence allows. This report also sets out work that is required to inform further Appropriate Assessment as the plan develops in order to allow the Integrity Test to be made.

2.4 Dealing with uncertainty

2.4.1 Uncertainty is an inherent characteristic of HRA and decisions can be made only on currently available and relevant information. This concept is reinforced in the 7th September 2004 'Waddenzee' ruling[17]:

2.4.2 "However, the necessary certainty cannot be construed as meaning absolute certainty since that is almost impossible to attain. Instead, it is clear from the second sentence of Article 6(3) of the habitats directive that the competent authorities must take a decision having assessed all the relevant information which is set out in particular in the appropriate assessment. The conclusion of this assessment is, of necessity, subjective in nature. Therefore, the competent authorities can, from their point of view, be certain that there will be no adverse effects even though, from an objective point of view, there is no absolute certainty."

[16] Tyldesley, D. (2013) The Habitats Regulations Assessment Handbook. DTA Publications.

[17] EC Case C-127/02 Reference for a Preliminary Ruling 'Waddenzee' 7th September 2004 Advocate General's Opinion (para 107)

2.5 The Precautionary Principle

2.5.1 The HRA process is characterised by the precautionary principle. This is described by the European Commission as being as follows and is embedded in the Integrity Test.

2.5.2 "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 protection normally afforded to these within the European Community, the Precautionary Principle is triggered."

3 Scoping of Threats and Pressures at Habitats Sites

3.1 Introduction

3.1.1 An important initial stage in the screening process is gathering information on Habitats sites which may be affected by the Local Plan. This is informally known as scoping and provides an understating of potential impact pathways from the Local Plan and connections to Habitats sites and their vulnerabilities. This information is then used to inform the screening assessment (**Chapter 4**). This chapter therefore scopes Habitats sites and their associated threats and pressures in the context of the Local Plan.

3.2 Scoping impact pathways

3.2.1 The Emerging Strategy for Growth HRA provided an evaluation of impact pathways by applying a 'source-pathway-effect' model to determine which Habitats sites would form the focus of the HRA. This recognised that different impact pathways (for instance air quality, water and recreational pressure) may have a different geographical coverage. It drew on data held by the JNCC and Natural England on Natura 2000 Data Forms, Ramsar Information Sheets, Site Improvement Plans (SIPs) and Natural England's Supplementary advice notices which are summarised in **Appendix A**.

3.2.2 The Emerging Strategy for Growth HRA identified the following potential impact pathways within the scope of influence of the Local Plan. This includes consideration of potential impacts upon both designated sites and areas of functionally linked habitat outside the designation boundary.

- **Air quality**: Land use planning has the potential to increase atmospheric emissions of pollutants to the air. These can result in adverse effects at Habitats sites such as eutrophication (nitrogen), acidification (nitrogen and sulphur) and direct toxicity (ozone, ammonia and nitrogen oxides)[18];
- **Water impacts:** Water resources and water levels - Urban development can change run off rates from urbanised areas to Habitats sites or watercourses which run through them. An increase in housing provision can also influence supply and demand for water within the region which may impact water levels. Water quality - Surface water run-off from urban areas has the potential to reduce the quality of water entering a catchment. Water quality may also be reduced through point source effluent discharges from new development at Sewage Treatment Works (STW) and other controlled discharge sources; and
- **Public access and disturbance effects**: Increased development has the potential to increase recreational pressure upon Habitats sites which are accessible to the public. Urban development also has the potential to result in disturbing activities (such as noise, lighting and visual disturbance). Disturbance effects may impact upon Habitats

[18] APIS (2016) Ecosystem Services and air pollution impacts. Available at: http://www.apis.ac.uk/ecosystem-services-and-air-pollution-impacts [Date Accessed: 08/09/23]

sites themselves and also their qualifying features when outside a designated site boundary.

3.2.3 Scoping work undertaken as part of the Emerging Strategy for Growth HRA has been updated in this report to reflect any changes in best practice, guidance and Habitat site vulnerabilities.

3.3 Air Quality

3.3.1 Natural England has developed a standard methodology for the assessment of traffic related air quality impacts under the Habitats Regulations which is relevant to the HRA of land use plans[19]. This guidance sets a methodology and thresholds for screening of likely significant (air quality) effects at the HRA screening stage (Stage 1 of the HRA process).

3.3.2 At this preliminary stage in the plan-making process, traffic modelling data was not available to allow the application of screening thresholds. However, Natural England's guidance (in the form of a series of questions below) has been applied to determine potential air quality impact pathways to Habitats sites:

- Does the Local Plan give rise to emissions which are likely to reach a Habitats site?
- Are the qualifying features of sites within 200m of a road sensitive to air pollution?
- Could the sensitive qualifying features of the site be exposed to emissions?
- Application of screening thresholds (alone and then if necessary in-combination).

Does the Local Plan give rise to emissions which are likely to reach a Habitats site - application of a 10km radius?

3.3.3 Air quality impacts have been shown to typically affect Habitats sites within 10km of a plan boundary[20]. Campman and Kite (2021) note that '*this zone is based on professional judgment recognising that the effects of growth from development beyond 10km will have been accounted for in the Nitrogen Futures modelling work business as usual scenario*'[21].

3.3.4 The Local Plan will trigger housing and employment development and as such has the potential to increase traffic related emissions. The only Habitat site located within 10km of the Local Plan boundary is the Chilterns Beechwoods SAC. Three components of this SAC area located within this area and include those underpinned by Tring Woodlands SSSI, Ashridge Commons and Woods SSSI and Ellesborough and Kimble Warrens SSSI.

[19] Natural England (2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001). Available at: http://publications.naturalengland.org.uk/publication/4720542048845824 [Date Accessed: 07/09/23]

[20] Chapman, C and Kite, B. December 2021. Main Report. Guidance on Decision-making Thresholds for Air Pollution. JNCC Report No. 696. Available at: https://hub.jncc.gov.uk/assets/6cce4f2e-e481-4ec2-b369-2b4026c88447 [Date Accessed: 08/09/23]

[21] JNCC. Nitrogen Future. https://jncc.gov.uk/our-work/nitrogen-futures/ [Date Accessed: 07/09/23]

Are the qualifying features of sites within 200m of a road sensitive to air pollution?

3.3.5 It is widely accepted that air quality impacts are greatest within 200m of a road source, decreasing with distance[22,23,24]. Baseline mapping data has been used to determine the proximity of Habitats sites, and their qualifying features, to roads (within 200m) which may result in an exceedance of Natural England's screening thresholds (A and B roads) within a 10km buffer from the Local Plan administrative area[25]. A and B road links located within 200m of the Chiltern Beechwoods SAC components within the 10km study area are summarised below.

- Ashridge Commons and Woods SSSI. SAC designation boundary is adjacent to the B4506
- Tring Woodlands SSSI – A41 Nearest boundary of the SAC to the A41 is 93m
- Ellesborough and Kimble Warrens SSSI. SAC designation boundary is adjacent to the A4010

3.3.6 The Chilterns Beechwoods SAC is designated for:

- Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*); Dry grasslands and scrublands on chalk or limestone
- *Asperulo-Fagetum* beech forests; Beech forests on neutral to rich soils
- *Lucanus cervus*; Stag beetle

3.3.7 Based on a review of aerial mapping data and priority habitat information it is concluded that qualifying features of the SAC are located within 200m of an A or B roads.

3.3.8 The UK Air Pollution Information System (APIS) provides information on all Habitats sites and the sensitivity of their qualifying features (habitats and / or species) to air pollution. It also provides information on current baseline air quality levels at each site. This data has been interrogated, alongside a desk-based review of site-based data (**Appendix A**), to determine whether there may be impact pathways from the Local Plan to any sensitive Habitats site through a change in atmospheric emissions. This information suggests that the SAC is sensitive to changes in air quality, in particular from atmospheric nitrogen deposition (all qualifying features).

[22] The Highways Agency, Transport Scotland, Welsh Assembly Government, The Department for Regional Development Northern Ireland (2007) Design Manual for Roads and Bridges, Volume 11, Section 3, Part 1: Air Quality.

[23] Natural England (2016) The ecological effects of air pollution from road transport: an updated review. Natural England Commissioned Report NECR 199.

[24] Bignal, K., Ashmore, M. & Power, S. (2004) The ecological effects of diffuse air pollution from road transport. English Nature Research Report No. 580, Peterborough.

[25] As per Nitrogen Futures Modelling Work – see Paragraph 5.4.8.

Could the sensitive qualifying features of the site be exposed to emissions?

3.3.9 As noted above, the Local Plan will trigger housing and employment development and as such has the potential to increase traffic related emissions within 10km of the Plan area and therefore along road links within 200m of the Chilterns Beechwoods SAC.

3.3.10 As part of the Emerging Strategy for Growth HRA, traffic data for base year traffic flows (2014) in and around Dacorum was extracted from the County Transport COMET model for strategic road links within 200m of the Chilterns Beechwood SAC. This data does not forecast plan growth but provides an indication of the most common origin and destinations for vehicles on these routes. It suggests that key destination / origin areas are Aylesbury, Hemel Hempstead, the M25 at Junction 20 and Watford. The A41 and B4506 link these locations within and across the Plan area.

3.3.11 The Office for National Statistics (ONS) commuting data, set out in the Emerging Strategy for Growth HRA, provides an indication as to the key commuting areas to and from Dacorum via car and van[26]. It is noted that these figures do not include journeys to work that both start and end in Dacorum, however it provides an indication of travel patterns across the wider infrastructure network and how this relates to the location of Habitats sites.

3.3.12 The A4010 is located approximately 9.4km to the south west of the Plan area where it runs adjacent to the SAC. The A4010 does not connect key destinations identified in the COMET modelling work or shown as key commuting designations in the ONS data. It is therefore concluded that the Ellesborough and Kimble Warrens SSSI component of the Chilterns Beechwoods SAC is unlikely to be exposed to emissions arising from planned development growth associated with the Local Plan.

3.3.13 The A41 (at Tring Woodlands SSSI) and B4506 (at Ashridge Commons and Woods SSSI) are both located within the key ONS commuting area and areas identified as key destinations in the COMET modelling. As such they will be scoped in for further consideration in the HRA process in terms of likely significant air quality effects.

[26] Office for National Statistics (2011) Location of usual residence and place of work by method of travel to work (2011 census data). Available at: https://www.nomisweb.co.uk/census/2011/wu03uk/chart and https://www.nomisweb.co.uk/census/2011/wu03uk [Date Accessed: 13/09/23]

Application of screening thresholds (alone and then if necessary in-combination)

3.3.14 Natural England's advice on the assessment of air quality impacts under the Habitats Regulations states that consideration should be given to the risk of road traffic emissions associated with a Local Plan[27]. This advice states that an assessment of the risks from road traffic emissions can be expressed in terms of the average annual daily traffic flow (AADT as a proxy for emissions). The use of the AADT screening threshold is advocated by Highways England in their Design Manual for Roads and Bridges (DMRB). This screening threshold is intended to be used as a guide to determine whether a more detailed assessment of the impact of emissions from road traffic is required. This non-statutory or guideline threshold is based on a predicted change of daily traffic flows of 1,000 AADT or more (or heavy-duty vehicle flows on motorways (HDV) change by 200 AADT or more).

3.3.15 The AADT thresholds do not themselves imply any intrinsic environmental effects and are used solely as a trigger for further investigation. Widely accepted environmental benchmarks for imperceptible impacts are set at 1% of the critical load or level, which is considered to be roughly equivalent to DMRB thresholds for changes in traffic flow of 1,000 AADT and for HDV of 200 AADT. This has been confirmed by modelling using the DMRB Screening Tool that used average traffic flow and speed figures from the Department for Transport (DfT) data to calculate whether the NO_x outputs could result in a change of >1% of critical load / level on different road types. A change of >1,000 AADT on a road was found to equate to a change in traffic flow which might increase emissions by 1% of the Critical Load or Level and might consequentially result in an environmental effect nearby (e.g. within 10 metres of roadside).

3.3.16 The AADT thresholds and 1% of critical load/level are considered by Natural England to be suitably precautionary as any emissions below this level are widely considered to be imperceptible and, in the case of AADT, undetectable through the DMRB model. There can, therefore, be a high degree of confidence in its application to screen for risks of an effect.

3.3.17 Traffic modelling data was not available at the time of writing and as such Natural England's screening thresholds have not been applied as part of this updated screening exercise. Work has been undertaken alongside development of the Local Plan and in support of the HRA in relation air quality impacts at the Tring Woodlands SSSI component of the Chilterns Beechwoods SAC from traffic flows on the A41[28]. In terms of the application of screening thresholds, this work concluded that 'for the purpose of this advice it is assumed that traffic flows along the A41 will increase by more than 1000AADT as a consequence of predicted growth, and that the contribution to air pollution within the SAC boundary from future traffic flows along the A41 could potentially exceed 1% (either alone or in combination with other plans and projects)'.

[27] Natural England (2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001). Available at: http://publications.naturalengland.org.uk/publication/4720542048845824 [Date Accessed: 12/09/23]

[28] DTA Ecology. 2023. The relative risk to the Chilterns Beechwoods SAC from traffic flows on the A41.

3.3.18 A similar assumption could be made for traffic flows along the B4506 which runs within 200m of the Ashridge Commons and Woods SSSI component of the Chilterns Beechwoods SAC. However, traffic modelling is required for this road link to fully apply Natural England's screening thresholds at this location.

3.3.19 To ensure a precautionary approach at this stage of the HRA process, air quality LSEs at the Chilterns Beechwoods SAC (Tring Woodlands SSSI and Ashridge Commons and Woods SSSI components of the SAC) are scoped in for further consideration in the HRA process. This is in line with the conclusions of the Emerging Strategy for Growth HRA.

3.4 Water Impacts

3.4.1 The majority of the Local Plan area is located within the Thames River Basin District and the River Colne management catchment with a small area to the north west located within the Thames and Chilterns South management catchment. A very small area to the north of the Plan area is located within the Anglian River Basin District and the Ouse Upper and Bedford management catchment (see **Figure 3.1**).

3.4.2 The River Gade, the River Bulbourne and The River Ver drain the majority of the Plan area and are tributaries of the River Colne. The River Colne is a tributary of the River Thames, joining it at Staines Upon Thames (south of the South West London Waterbodies SPA and Ramsar). The River Gade flows in a southerly direction from the Plan area, joining the River Colne to the west of Rickmansworth. The River Bulbourne flows in a southerly direction from the Plan area joining the River Gade to the immediate south of Hemel Hempsted. The River Ver joins the River Colne to the north east of Watford. The Grand Union Canal interlinks with the Rivers Colne, Gade and Bulbourne throughout the Plan area (see **Figure 3.1**).

3.4.3 The watercourses draining the north western section of the Plan area, to the north of Tring, form the upper tributaries of the River Thame. The River Thame flows in a westerly direction from the Plan area joining the River Thames to the west of Shillingford in Oxfordshire (see **Figure 3.1**).

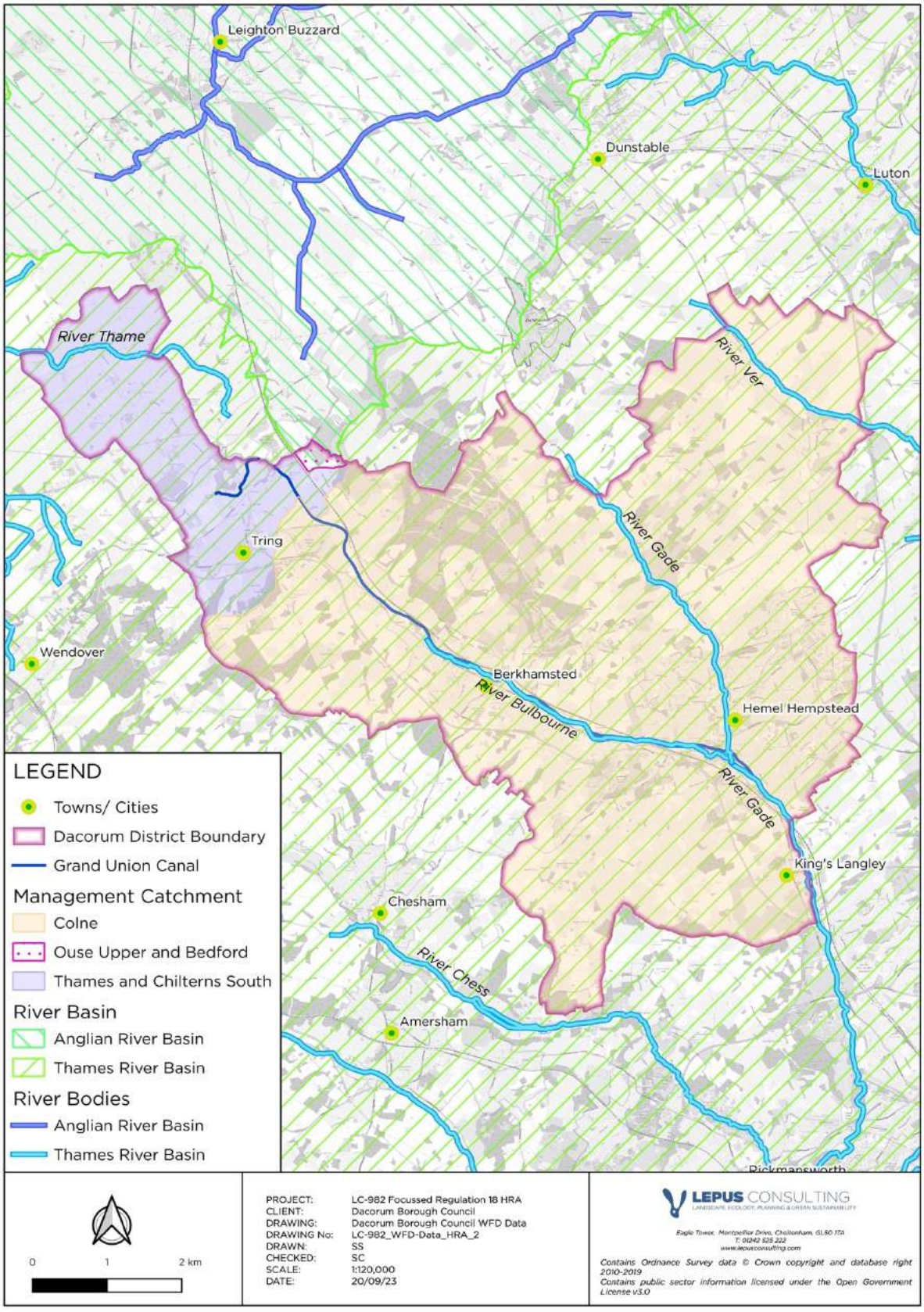


Figure 3.1: Water features within the Plan area

3.4.4 As set out in the Emerging Strategy for Growth HRA, urban development coming forward through the Local Plan has the ability to affect water dependant Habitats sites through a number of impacts as listed below. These impacts have the potential to change the water balance (levels) and quality of water entering Habitats sites.

- Change in surface permeability and run off rates
- Increased water demand to supply new homes and businesses
- Reduce quality of surface run off water
- Increased effluent discharge for treatment

3.4.5 The Chilterns Beechwoods SAC (components underpinned by Tring Woodlands SSSI and Ashridge Commons and Woods SSSI) is located within the Plan area. Hydrological pressures are not identified within the Chilterns Beechwoods SAC SIP as a threat. However, in the SAC's Supplementary Advice, Natural England note that maintenance of hydrological regimes is important at the SAC to maintain the beech woodland qualifying feature. Natural England note that changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. Where the feature is directly located over free- draining chalk soils hydrology is less likely to be an issue of concern but where the woodland is developed over clay-rich soils surface water flow may be impeded and vulnerable to effects such as groundwater pollution and drainage. As beech trees have shallow root systems, they can be particularly susceptible to damage as a result of changes in water levels[29]. Given the location of these SSSI components within the Plan area and their hydrological sensitivities they have the potential to be affected by those impacts listed above and are scoped in for further consideration in the HRA process.

3.4.6 Habitats sites outside the Plan area can also be affected by changes in water supply and quality where they are hydrologically linked to development within the Local Plan. These potential impact pathways are explored in the Emerging Strategy for Growth HRA in more detail. This identified hydrological links between the Plan area and the South West London Waterbodies SPA and Ramsar site due to its location downstream and within the Colne Abstraction Licensing Strategy (ALS) area. As such the Local Plan is also considered likely to have a potentially significant water quality and quantity effects upon these designations and as such, they are scoped into this assessment for further consideration in the HRA process.

3.5 Public access and disturbance impacts

Recreational Pressure

3.5.1 The Emerging Strategy for Growth HRA sets out potential recreational impact pathways which may be exacerbated by residential growth in the Plan area. These can include erosion and compaction, troubling of grazing stock, causing changes in behaviour to animals such as birds at nesting and feeding sites, spreading invasive species, dog fouling and tree climbing.

[29] https://publications.naturalengland.org.uk/publication/4808896162037760

3.5.2 A common approach taken across the UK to address recreational impacts at Habitats sites is to establish a Zone of Influence (ZOI) based on detailed visitor survey data. The ZOI is the area within which there are likely to be significant effects arising from recreational activities undertaken by additional residents due to growth. This is often calculated by taking the distance at which 75% of interviewees surveyed have travelled to reach a particular site (based on a review of visitor survey data).

3.5.3 The broad principle of buffer zones is one component of the HRA screening process for recreational pressures. This process also takes into consideration other factors such as recreational management at sites, proximity to settlements and existing recreational resources.

3.5.4 Where available, recreational ZOI distances have been applied to determine potential recreation impact pathways between the Local Plan and sensitive Habitats sites. The recreational draw of a Habitats site depends on a number of factors. These include the extent and range of facilities provided at a Habitats site (in particular parking), accessibility both within the Habitats site and links to the wider area, incorporation of a Habitats site as part of a wider designation such as National Park and the promotion of a site.

3.5.5 The Chiltern Beechwoods SAC lies within and adjacent to the Plan area. Public access and disturbance threats at the SAC are noted in Natural England's SIP to be related to increased visitor pressures and disturbance of stag beetle. Natural England's Supplementary Advice notes that, given its location within the Chilterns AONB, the Chilterns Beechwoods SAC has become a popular recreational destination for walking and cycling.

3.5.6 These sensitivities were identified in the Emerging Strategy for Growth HRA for two components of the SAC which are located within an 8km radius of the Plan area which was identified as the distance from which visitors are drawn to the AONB; Ashridge Commons and Woods SSSI and Tring Woodlands SSSI. To address these issues, and as part of the evidence base to support the HRA, visitor surveys and recreational impact assessments were undertaken at these two Chilterns Beechwoods components[30].

3.5.7 This work considered the implications of recreational impacts and mitigation requirements to address these. Using visitor survey data, this work identified a ZOI for both components of the SAC to reflect the 75th percentile (for those visiting from their home). The ZOI for Ashridge Commons and Woods SSSI is 12.6km which covers the whole of Dacorum Borough Council, and some land within the administrative area of Buckinghamshire Council, Central Bedfordshire Council and St. Albans City and District Council. For Tring Woodlands SSSI the ZOI is 1.7km. These ZOI have been published by Dacorum Council as illustrated in **Appendix D**[31]. New housing development within either ZOI will result in a likely significant recreational impact upon the Chilterns Beechwoods SAC and will therefore be subject to further assessment in the HRA process through an Appropriate Assessment.

[30] Panter, C., Liley, D., Lake, S., Saunders, P., and Caals, Z. 2022. Visitor survey, recreational impact assessment and mitigation requirements for the Chilterns Beechwoods SAC and the Dacorum Local Plan, Report by Footprint Ecology for Dacorum Borough Council.

[31] https://www.dacorum.gov.uk/docs/default-source/strategic-planning/zone-of-influences.pdf?sfvrsn=e982079e_4

3.5.8 As noted in the Emerging Strategy for Growth HRA, Burnham Beeches SAC is located approximately 13km to the south east of the Plan area. The Burnham Beeches Special Area of Conservation Management and Monitoring Strategy Supplementary Planning Document (SPD) was adopted in November 2020[32]. It identifies a 5.6km ZOI for recreational impacts. Given the distance of Burnham Beeches SAC from the Plan area, outside the 5.6km ZOI, public access and disturbance impacts at this Habitats site are not considered likely and will not be considered further in the HRA process.

3.5.9 In line with the conclusions of the Emerging Strategy for Growth HRA, the Chilterns Beechwoods SAC is scoped in for further consideration in the HRA process in terms of recreational effects.

Urbanisation effects

3.5.10 Urbanisation effects typically occur when development is located close to a Habitats site boundary. These may include impacts such as noise disturbance, lighting effects, cat predation, fly-tipping, wildfire, littering and vandalism. Strategic mitigation schemes elsewhere in the UK have set a presumption against development (i.e. no net increase in residential dwellings) on the basis of site-specific evidence to safeguard against these impacts. The visitor surveys and recreational impact assessment work undertaken in support of the HRA indicated that for the Chilterns Beechwoods SAC this area ought to cover 500m[33]. Only the Chilterns Beechwoods SAC is located within 500m of the Plan area and is therefore scoped in for further consideration in the HRA process in terms of urbanisation effects. This is in line with the conclusions of the Emerging Strategy for Growth HRA.

3.6 Habitats Sites and Threats and Pressures

3.6.1 **Figures 3.2** illustrates the location of Habitats sites which will be scoped into the HRA process for further consideration in the screening assessment (**Chapter 4**). Impact pathways which have the potential to affect these Habitats sites are summarised in **Table 3.1**. These will form the basis of the HRA screening assessment – Phase 1 of the HRA process.

[32] Chiltern District Council. 2020. Burnham Beeches Special Area of Conservation Management and Monitoring Strategy SPD. https://www.chiltern.gov.uk/burnhambeeches

[33] Panter, C., Liley, D., Lake, S., Saunders, P., and Caals, Z. 2022. Visitor survey, recreational impact assessment and mitigation requirements for the Chilterns Beechwoods SAC and the Dacorum Local Plan, Report by Footprint Ecology for Dacorum Borough Council.

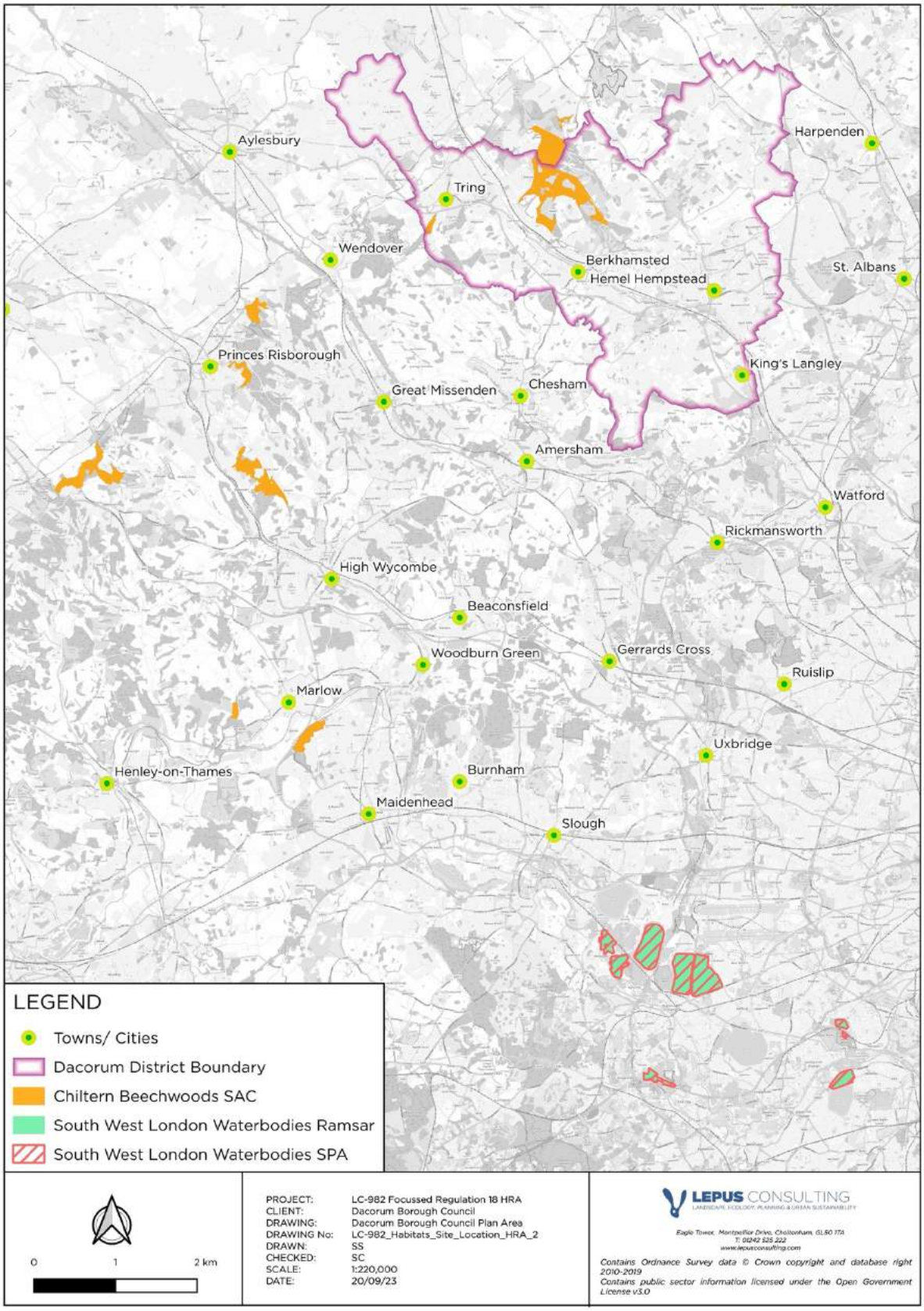


Figure 3.2: Habitats sites for consideration in the HRA process

Table 3.1: Potential impact pathways between the Local Plan and Habitats site.

Potential Impact Pathways	Air quality	Water quality and quantity changes	Public access and disturbance effects
Habitats sites	Chilterns Beechwoods SAC	• Chilterns Beechwoods SAC • South West London Waterbodies SPA • South West London Waterbodies Ramsar	Chilterns Beechwoods SAC

4 Screening: Revised Strategy for Growth

4.1 Introduction

4.1.1 This section of the HRA comprises the screening stage: Stage 1 of the HRA process (see **Figure 3.1**). The screening exercise draws on information regarding threats and pressures at Habitats site scoped into the HRA process in **Chapter 3** of this report. This chapter screens each component of the Local Plan (in this instance all proposed allocations) for LSEs and identifies the requirement for Appropriate Assessment.

4.2 Screening

4.2.1 The Local Plan is not directly connected with or necessary to the management of any Habitats site and as such it is not exempted from the HRA process. In addition, it cannot be excluded or eliminated from the process on the basis of no conceivable effect. It is therefore necessary to determine whether the Local Plan will have a likely significant effect on any Habitats site, either alone or in-combination with other aspects of the plan or other plans and projects. In order to identify LSEs upon Habitats sites, each component of the Revised Strategy for Growth consultation has been appraised against the HRA pre-screening criteria (see **Appendix C**), taking into consideration case law and best practice. The assessment of LSEs takes no account of mitigation to ensure compliance with the People Over Wind ruling[34].

4.2.2 The Revised Strategy for Growth consultation seeks comments on sites only. Policies do not comprise part of this consultation exercise. This screening exercise builds on and updates screening undertaken as part of the Emerging Strategy for Growth HRA. It will also be revisited at Regulation 19 to capture any changes in policy wording or allocations made as the plan continues to be developed.

4.3 Changes to the Emerging Strategy for Growth

4.3.1 **Figure C.1** in **Appendix C** illustrates the location of allocations which form the Revised Strategy for Growth consultation exercise. Allocations are split into settlement areas including Hemel Hempstead, Berkhamsted, Tring, Kings Langley, Bovingdon, Markyate and the countryside outside the main towns and villages. The key changes from the Emerging Strategy for growth are summarised in **Appendix C** alongside screening for LSEs.

4.3.2 All site allocations which comprise the Revised Strategy for Growth consultation exercise have been screened into the process as they were shown to have LSEs either alone or in-combination.

4.3.3 LSEs were identified at Habitat sites detailed in **Table 3.2** with respect to the following potential LSEs:

[34] InfoCuria (2018) Case C-323/17. Available at: http://curia.europa.eu/juris/document/document.jsf?docid=200970&doclang=EN [Date Accessed: 08/09/23]

- Chilterns Beechwoods SAC: Air quality (in-combination), Public Access and Disturbance (alone), Water (in-combination)
- Chilterns Beechwoods SAC, South West London Waterbodies SPA and South West London Waterbodies Ramsar: Water (in-combination)

4.4 Screening conclusion

4.4.1 As required under Regulation 105 of the Habitats Regulations, an assessment has been undertaken of LSEs of the Draft Local Plan upon Habitats sites. The pre-screening checks (**Appendix C**) indicates that sites proposed through the Revised Strategy for Growth consultation have the potential to have LSEs at the Chilterns Beechwoods SAC, South West London Waterbodies SPA and South West London Waterbodies Ramsar. LSEs are possible both alone (public access and disturbance), and for all allocations, in- combination (air quality and water). The screening assessment takes no account of mitigation measures that the sites may incorporate to mitigate adverse impacts upon Habitats sites. It is therefore concluded that the allocations which form the Revised Strategy for Growth consultation will be screened into the HRA process. The next stage of the HRA process will be Stage 2 - Appropriate Assessment.

4.4.2 It is too early at this stage of the plan making process to undertake a full Appropriate Assessment as key pieces of evidence are in preparation, and these will inform the details within the Local Plan. It is also noted that the current consultation does not include details on Local Plan policies. Policies provide a key mechanism for securing mitigation measures which may be required to conclude that there are no adverse impacts on site integrity at Habitats sites. Without Local Plan policy wording the Appropriate Assessment is not able to fully take into consideration the implications of mitigation.

4.4.3 The following sections of this report however identify issues which will be considered in the Appropriate Assessment. Evidence collated to date has been set out and gaps in the evidence base have been highlighted. The full Appropriate Assessment will be completed alongside preparation of the Regulation 19 version of the Local Plan when all HRA evidence and Local Plan details are available.

5 Preliminary Appropriate Assessment: Chilterns Beechwoods SAC

5.1 Introduction

5.1.1 The HRA screening process in **Chapter 4** concluded that a number of site allocations which form the Revised Strategy for Growth have the potential to result in LSEs at the Chilterns Beechwoods SAC as a result of the following impact pathways:

- Air pollution
- Water
- Public access and disturbance effects

5.1.2 This section of the report provides a preliminary Appropriate Assessment of these issues where evidence allows. It also highlights additional work that will be required to complete the Appropriate Assessment at Regulation 19.

5.2 Chilterns Beechwoods SAC background information

5.2.1 The Chilterns Beechwoods SAC comprises a number of components of woodland which represent a range of semi natural woodlands dominated by beech (*Fagus sylvatica*) (see **Table 5.1**). These sites are scattered throughout the Chilterns Area of Outstanding Natural Beauty (AONB), with the exception of Bisham Woods SSSI. Due to the different locations of each component of the SAC, the underlying geology, topology and site conditions varies at each.

Table 5.1: SSSI components which are coincident with the Chilterns Beechwoods SAC

SSSI sites which are coincident with and together constitute the Chilterns Beechwoods SAC	Distance from Plan area
Ashridge Commons and Woods SSSI	Within Plan area. The northern section of the SSSI is also located within Buckinghamshire.
Aston Rowant Woods SSSI	Approximately 18.7km to the south west
Bisham Woods SSSI	Approximately 19.3km to the south west
Bradenham Woods, Park Wood & The Coppice SSSI	Approximately 13.4km to the south west
Ellesborough and Kimble Warrens SSSI	Approximately 8.3km to the south west
Hollowhill and Pullingshill Wood SSSI	Approximately 22.1km to the south west
Naphill Common SSSI	Approximately 13.5km to the south west
Tring Woodlands SSSI	Within Plan area
Windsor Hill SSSI	Approximately 10.5km to the south west

5.2.2 The screening assessment concluded that sites which comprise the Revised Strategy for Growth consultation have the potential to have LSEs upon two components of the SAC which lie within the Plan area. These are underpinned by Ashridge Commons and Woods SSSI and Tring Woodlands SSSI. These components form the focus of this preliminary Appropriate Assessment.

5.2.3 The SAC is designated for the following features (**Appendix A**):

- Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*); Dry grasslands and scrublands on chalk or limestone
- *Asperulo-Fagetum* beech forests; Beech forests on neutral to rich soils
- *Lucanus cervus*; Stag beetle

5.2.4 Ashridge Commons and Woods SSSI and Tring Woodlands SSSI form part of the SAC designation due to the presence of lowland beech and yew woodland[35,36]. The dry grasslands and scrublands on chalk or limestone qualifying habitat of the SAC is associated with thin, well-drained, lime-rich soils associated with chalk and limestone. Within the SAC these are restricted in distribution with extensive areas found at the Windsor Hill SSSI and Ellesborough and Kimble Warrens SSSI components of the SAC[37]. As part of the work undertaken in support of the HRA process, habitat mapping was undertaken which indicates that the dry grasslands and scrublands on chalk or limestone qualifying habitat is not present within the SAC at these SSSI component[38].

5.2.5 The stag beetle is saproxylic and therefore reliant on dead and decaying wood for the larval stages of its lifecycle. Deadwood habitat is found within the SAC in the form of fallen branches and tree stumps. Records indicate the beetle has been recorded at the Bisham Woods SSSI and Hollowhill and Pullingshill Woods SSSI components of the SAC[39]. This represents the northern range of the beetle. Should stag beetle be present at Tring Woodlands SSSI and/or Ashridge Commons and Woods SSSI it will be associated with the woodland habitat.

[35] Natural England. SSSI Citation – Tring Woodlands. WCS/423 17 WBA. Available at: https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001430.pdf [Date Accessed: 15/09/23]

[36] Natural England. SSSI Citation – Ashridge Commons and Woods. Available at: https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000452.pdf [Date Accessed: 15/09/23]

[37] Natural England (2019) Chiltern Beechwoods SAC Conservation Objectives Supplementary Advice. http://publications.naturalengland.org.uk/file/5422856020426752 [Date Accessed: 15/09/23].

[38] Panter, C., Liley, D., Lake, S., Saunders, P., and Caals, Z. 2022. Visitor survey, recreational impact assessment and mitigation requirements for the Chilterns Beechwoods SAC and the Dacorum Local Plan, Report by Footprint Ecology for Dacorum Borough Council.

[39] Natural England (2019) Chiltern Beechwoods SAC Conservation Objectives Supplementary Advice. http://publications.naturalengland.org.uk/file/5422856020426752 [Date Accessed: 15/09/23].

5.2.6 The Conservation Objectives for the SAC are set out in **Appendix A**. Natural England's Site Improvement Plan (SIP)[40] notes that the SAC is vulnerable to a number of threats and pressures (see **Appendix A**). Those of relevance to the Local Plan include public access and disturbance (the stag beetle) and air pollution, in particular from atmospheric nitrogen deposition (all qualifying features). Natural England's Supplementary Advice notes that hydrology is also a threat at the SAC. The Supplementary Advice also notes that artificial illumination is a concern for the beech woodland as it can disrupt natural cycles (urbanisation effects)[41].

5.3 Preliminary Air Quality Appropriate Assessment

Baseline Information

5.3.1 The main mechanisms through which air pollution can have an adverse effect are through eutrophication (nitrogen), acidification (nitrogen and sulphur) and direct toxicity (ozone, ammonia and nitrogen oxides)[42]. Deposition of air pollutants can alter the soil and plant composition and species which depend upon these.

5.3.2 Excess atmospheric nitrogen deposition within an ecosystem or habitat can disrupt the delicate balance of ecological processes interacting with one another. As the availability of nitrogen increases in the local environment, some plants that are characteristic of that ecosystem may become competitively excluded in favour of more nitrophilic plants. It also impacts the ammonium and nitrate balance of the ecosystem, which disrupts the growth, structure and resilience of some plant species.

5.3.3 Excess nitrogen deposition often leads to the acidification of soils and a reduction in the soils' buffering capacity (the ability of soil to resist pH changes). It can also render the ecosystem more susceptible to adverse effects of secondary stresses, such as frost or drought, and disturbance events, such as foraging by herbivores.

[40] Natural England (2015) Chiltern Beechwoods SAC Site Improvement Plan. http://publications.naturalengland.org.uk/file/5908864568393728 [Date Accessed: 15/09/23].

[41] Natural England (2019) Chiltern Beechwoods SAC Conservation Objectives Supplementary Advice. http://publications.naturalengland.org.uk/file/5422856020426752 [Date Accessed: 15/09/23].

[42] APIS (2016) Ecosystem Services and air pollution impacts. Available at: http://www.apis.ac.uk/ecosystem-services-and-air-pollution-impacts. [Date Accessed: 15/09/23]

5.3.4 In an attempt to manage the negative consequences of atmospheric nitrogen deposition and acidification, 'critical loads' and 'critical levels' have been established for ecosystems across Europe. Each Habitats site is host to a variety of habitats and species, the features of which are often designated a critical load for nitrogen deposition. The critical loads of pollutants are defined as 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"[43]. 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"[44].

5.3.5 Supplementary advice for the SAC notes that in terms of air quality at the *Asperulo-Fagetum* beech forests qualifying feature, the target is to 'restore as necessary the concentrations and depositions of air pollutants at within the site-relevant Critical Load of Level values for this feature so the site on the Air Pollution Information System (APIS)'[45]. The 'restore' objective refers to nitrogen deposition[46].

5.3.6 As noted in **Section 3.3**, Natural England has developed a standard methodology for the assessment of traffic related air quality impacts under the Habitats Regulations which is relevant to the HRA of land use plans[47]. In addition, the Institute of Air Quality Management (IAQM)[48] and the Chartered Institute of Ecology and Environmental Management (CIEEM)[49] have also prepared advice on the assessment of air quality impacts at designated sites. This guidance provides methodologies for Appropriate Assessment and ecological interpretation of air quality impacts at designated sites.

5.3.7 Air quality likely significant effects from the Local Plan were screened in at two components of the Chilterns Beechwoods SAC where strategic road links run within 200m of qualifying habitat (**Chapter 4**). These components include Tring Woodlands SSSI (A41) and Ashridge Commons and Woods SSSI (B4506).

[43] Coordination Centre for Effects (CCE). Critical load and level definitions. Available at: https://www.umweltbundesamt.de/en/Coordination_Centre_for_Effects [Date Accessed: 08/09/23]

[44] Coordination Centre for Effects (CCE). Critical load and level definitions. Available at: https://www.umweltbundesamt.de/en/Coordination_Centre_for_Effects [Date Accessed: 08/09/23]

[45] https://www.apis.ac.uk/

[46] Natural England (2019) Chiltern Beechwoods SAC Conservation Objectives Supplementary Advice. http://publications.naturalengland.org.uk/file/5422856020426752 [Date Accessed: 15/09/23].

[47] Natural England (2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001). Available at: http://publications.naturalengland.org.uk/publication/4720542048845824 [Date Accessed: 07/09/23]

[48] Holman et al (2020). A guide to the assessment of air quality impacts on designated nature conservation sites – version 1.1, Institute of Air Quality Management, London.

[49] CIEEM (2021) Advice on Ecological Assessment of Air Quality Impacts. Chartered Institute of Ecology and Environmental Management. Winchester, UK.

Tring Woodlands SSSI

5.3.8 As identified in the screening assessment and the Emerging Strategy for Growth HRA, the A41 runs to the north of the Tring Woodlands SSSI component of the Chilterns Beechwoods SAC and lies within 200m (See **Figure 5.1**).

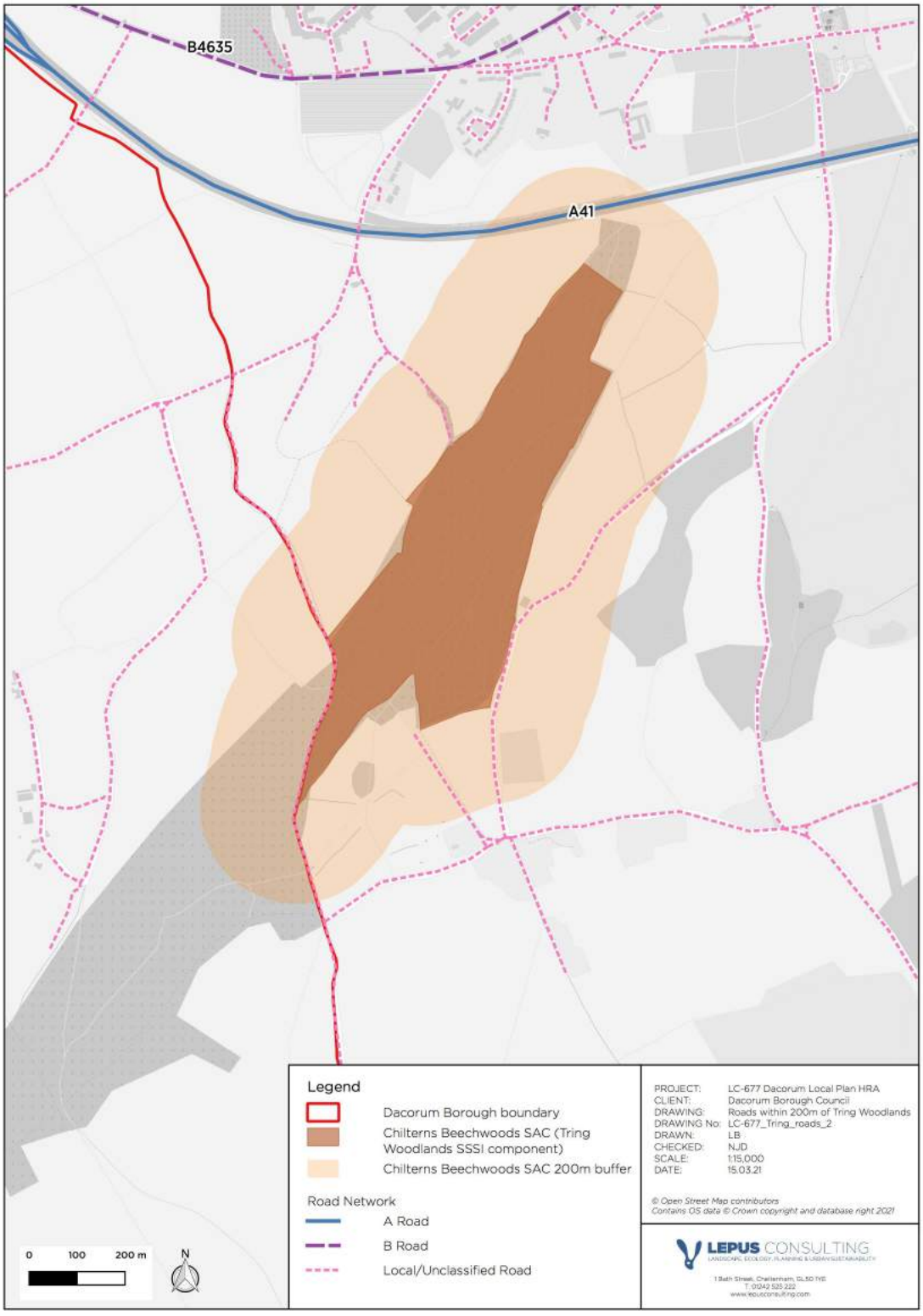


Figure 5.1: Road links within 200m of the Chilterns Beechwoods SAC: Tring Woodlands SSSI

5.3.9 **Table 5.2** provides an update on critical levels, loads and current levels deposition at the Chilterns Beechwoods SAC (Tring Woodland SSSI component) which were presented in the Emerging Strategy for Growth HRA. All data has been taken from the Air Pollution Information System (APIS) [50]. This focuses on the qualifying features present at this component of the SAC.

Table 5.2: Air quality critical loads and levels at Tring Woodlands SSSI

Qualifying features	NOx (ug/m^3)	Current levels of NOx (ug/m^3)[51]	Ammonia (NH^3) $ug/m3$[52]	Current levels of Ammonia ug/m3	Nitrogen Deposition (kg N/ha/yr)	Current Nitrogen Deposition (kg N/ha/yr)
Asperulo-Fagetum beech forests (H9130) *Lucanus cervus* - Stag beetle (S1083)	30	11.03	3	1.3	10-15	27.1
Lucanus cervus - Stag beetle (S1083)	30	11.03	3	1.3	10-15	27.1

5.3.10 Nitrogen deposition currently exceeds the 10-15kg/ha/yr critical load for beech and deciduous woodland at an average of 27.7kg/ha/yr. A review of local source attribution data for the SAC indicates that livestock sources represent the dominant source of nitrogen deposition, with road transport accounting for only 9.4% of all contributions. There is no exceedance of the ammonia or nitrogen oxide critical levels at the SSSI.

[50] Air Pollution Information Systems. Site relevant critical loads, available at: http://www.apis.ac.uk/srcl/select-a-feature?site=UK9012171&SiteType=SPA&submit=Next [Date Accessed: 15/09/23]

[51] Site average concentrations used from APIS.

[52] As set out in the DTA Ecology Report (DTA Ecology. 2023. The relative risk to the Chilterns Beechwoods SAC from traffic flows on the A41), given the absence of reference to lichen or bryophyte communities within the SSSI citation for Tring Woodlands, and NE supplementary advice which excludes it from the list of component parts of the SAC hosting old growth beech habitat, the most appropriate critical level for ammonia to apply within Tring Woodlands was considered to be $3ug/m^3$ which is set for the protection of higher plants. Natural England confirmed their support of this level on 8th June 2023.

5.3.11 Work has been undertaken in support of the HRA process to define the relative air quality risk from increased traffic flows on the A41 as a result of the Local Plan (alone and in-combination) at the Tring Woodlands SSSI component of the Chilterns Beechwoods SAC (**Appendix E**)[53]. This body of work provides information to inform the Appropriate Assessment at this component of the SAC in relation to air quality. It applies Natural England's guidance relevant to the assessment of traffic emissions from roads[54] and draws the following conclusions.

- 'Sensitive features of the site would be exposed to road-based emissions.
- When applying the integrity test to a site with a conservation objective to restore air quality the central question is whether traffic flows on the A41 will undermine the achievement of a restore objective for the Chilterns Beechwoods SAC in respect of nitrogen deposition.
- Risks to the SAC from traffic on the A41 are constrained to 200m from the road and the closest boundary of the SAC is 93m from the road edge. Only 0.93 ha of the SAC (0.07% of total area of SAC and 0.16% of qualifying beech woodland habitat) lies within 200m of the A41.
- The critical levels for both NOx and ammonia are currently neither exceeded nor approaching exceedance. There is no risk to site integrity from emissions of NOx and ammonia from traffic on the A41. The critical load for nitrogen deposition does show an exceedance and the focus of further assessment effort is the ecological significance of additional contributions from flows on the A41, in view of the conservation objectives.
- On a worst-case scenario, the maximum in-combination contribution from road-based emissions on the A41 from all countywide predicted growth is 0.07 kg/ha/yr at the nearest boundary of the SAC to the road and contributions decrease with further distance from the road. This is equivalent to 0.7% of the lower critical load for the site of 10kg/ha/yr. This value is below the in-combination significance threshold applied by Natural England irrespective of the spatial scale of the effect.
- When considering the achievement of a restore conservation objective nitrogen deposition source attribution data for local contributions at Chilterns Beechwoods SAC shows that 9.4% of nitrogen deposition comes from road transport, compared to 41.9% from agricultural sources. Any measures to deliver a restore objective can reasonably be expected to be targeted to agricultural sources. This is especially the case as traffic emissions are on an improving trend across the UK in any event. A Defra report states that NOx emissions are predicted to decrease by 65% by 2030 relative to levels in 2017.
- The site makes an important contribution to the achievement of a favourable conservation status for the habitats and species for which it has been designated, but it does not have a notable or disproportionate influence from a national context.

[53] DTA Ecology. 2023. The relative risk to the Chilterns Beechwoods SAC from traffic flows on the A41.

[54] Natural England (2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001). Available at: http://publications.naturalengland.org.uk/publication/4720542048845824 [Date Accessed: 07/09/23]

- Nationally led targets and initiatives are in place to reduce vehicular emissions. It is reasonable to anticipate that these will result in an improving trend in pollutant levels from road emissions, with associated benefits to the SAC and the ability to achieve its conservation objectives'[55].

5.3.12 Based on the above factors the study concludes there is no credible evidence of a real risk to the integrity of the SAC as a consequence of countywide local growth on the A41 specifically.

5.3.13 The study also considers in-combination effects on air quality in relation to other plans and projects in a proportionate manner. It concludes that that given 'the relative contribution from traffic flows along the A41, the distance between the SAC and the road, and the limited spatial extent of the SAC within 200m is such that there is no credible evidence that doing so would represent any risk to the integrity of the SAC'.

5.3.14 The analysis provides robust evidence to inform this Appropriate Assessment. On the basis of this evidence, it is concluded that traffic flows associated with local growth on the A41 will have 'no appreciable effect' on the Chilterns Beechwoods SAC and that they can 'properly be ignored'. A change in air quality from the Local Plan will therefore have no impact on the integrity of the Chilterns Beechwoods SAC (at Tring Woodlands SSSI) either alone or in-combination. Natural England has confirmed their agreement with the findings of this supporting evidence.

Ashridge Commons and Woods SSSI

5.3.15 As identified in the screening assessment and the Emerging Strategy for Growth HRA, the B4506 runs through the centre of the Ashridge Commons and Woods SSSI component of the Chilterns Beechwoods SAC (See **Figure 5.2**). All allocations which form the Revised Strategy for Growth Consultation have the potential to have a likely significant air quality effect, cumulatively and in-combination with other plans and projects, upon this component of the Chilterns Beechwoods SAC.

[55] DTA Ecology. 2023. The relative risk to the Chilterns Beechwoods SAC from traffic flows on the A41.

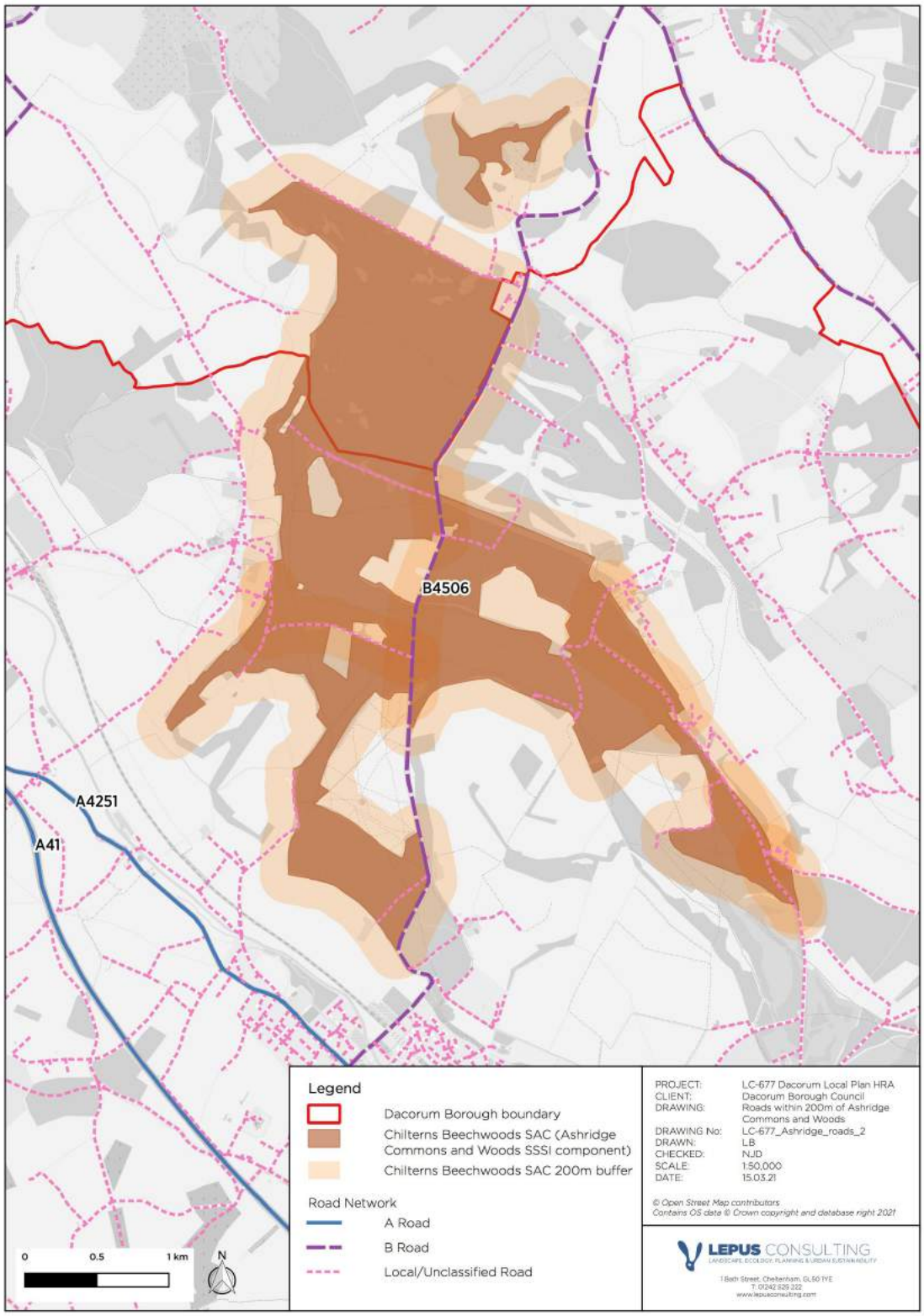


Figure 5.2: Road links within 200m of the Chilterns Beechwoods SAC: Ashridge Commons and Woods SSSI Component

5.3.16 **Table 5.3** provides an update of critical levels, loads and current levels of deposition at the Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) as presented in the Emerging Strategy for Growth HRA. All data has been taken from the APIS [56] and focuses of the qualifying features present at this component of the SAC.

Table 5.3: Air quality critical loads and levels at Ashridge Commons and Woods SSSI

Qualifying features	NOx (ug/m^3)	Current levels of NOx (ug/m^3)[57]	Ammonia (NH^3) ug/m^3 [58]	Current levels of Ammonia ug/m3	Nitrogen Deposition (kg N/ha/yr)	Current Nitrogen Deposition (kg N/ha/yr)
Asperulo-Fagetum beech forests (H9130)	30	10.8	3	1.3	10-15	27.7
Lucanus cervus - Stag beetle (S1083)	30	10.8	3	1.3	10-15	27.7

5.3.17 Nitrogen deposition currently exceeds the 10-15kg/ha/yr critical load for beech and deciduous woodland at an average of 27.7kg/ha/yr. A review of source attribution data for the SSSI components indicates that nitrogen deposition from Europe import sources and livestock sources represent the dominant source of nitrogen deposition, with road transport at Ashridge Commons and Woods SSSI accounting for 9.99% of all contributions. There is no current exceedance of the ammonia or nitrogen oxide critical levels.

5.3.18 As noted, the restore objective (rather than maintain objective) reflects the current background exceedances of the nitrogen deposition critical load.

5.3.19 In order to better define this impact, traffic modelling data is required to identify whether screening thresholds (discussed in **Chapter 3**) along the B4506 will be exceeded for the Local Plan either alone or in-combination.

5.3.20 Where exceedances are identified these will be considered in an Appropriate Assessment taking into consideration the outputs of potential air quality modelling in relation to habitat types and habitat responses, baseline data and future trends. Where adverse impacts on site integrity are identified, effective mitigation will need to be incorporated. This information will be available as the Plan develops and presented in the Regulation 19 HRA.

[56] Air Pollution Information Systems. Site relevant critical loads, available at: http://www.apis.ac.uk/srcl/select-a-feature?site=UK9012171&SiteType=SPA&submit=Next [Date Accessed: 15/09/23]

[57] Site average concentrations used from APIS.

[58] In line with the DTA Ecology Report (DTA Ecology. 2023. The relative risk to the Chilterns Beechwoods SAC from traffic flows on the A41), the SSSI citation for Ashridge Commons and Woods SSSI has been reviewed. Given the absence of reference to lichen or bryophyte communities within the SSSI citation, and NE supplementary advice which excludes it from the list of component parts of the SAC hosting old growth beech habitat, the most appropriate critical level for ammonia to apply within Ashridge Commons and Woods SSSI was considered to be $3ug/m^3$ which is set for the protection of higher plants.

5.4 Preliminary Water Appropriate Assessment

Water Quality

5.4.1 Urbanisation has the potential to reduce the quality of water entering a catchment through processes such as sedimentation, accidental spillage of chemicals and materials and operational surface water runoff. Water quality may also be reduced through effluent discharges at Sewage Treatment Works (STWs). This change in water quality can increase nutrient inputs into a catchment which can lead to algal blooms, reduce dissolved oxygen and increased turbidity. This can affect the overall condition of the receiving waterbody and may have adverse effects at hydrologically sensitive and connected Habitats sites and their qualifying features.

5.4.2 Together the Government, the Environment Agency (EA) and the water companies are responsible for preparing plans and strategies and implementing a regulatory framework to ensure there is enough water for the future needs of both people and the environment and managing the treatment of wastewater. This is undertaken through a catchment-based approach and provides protection for Habitats sties and ensures compliance with the Water Framework Directive (WFD) [59].

5.4.3 The WFD provides an indication of the health of the water environment and whether a water body is at good status or potential. It sets out areas which require special protection. These include areas designated for "the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection including relevant Natura 2000 sites[60] designated under Directive 92/43/EEC (the Habitats Directive) and Directive 79/409/EEC (the Birds Directive)"[61].

5.4.4 As set out in **Chapter 3** and shown on **Figure 3.1**, the majority of the Local Plan area is located within the Thames River Basin District and the River Colne management catchment with a small area to the north west located within the Thames and Chilterns South management catchment. A very small area to the north of the Plan area is located within the Anglian River Basin District and the Ouse Upper and Bedford management catchment. River Basin Management Plans (RBMP) describe the threats to the water environment and how these can be managed. The Thames[62] and Anglian RBMPs[63] which apply to the Plan area are discussed in detail in the Emerging Strategy for Growth HRA. The outputs of the HRAs prepared to support the RBMPs suggest that at the strategic level there will be no LSEs upon any Habitats site but recognise that, as water and land resources are closely linked, the RBMPs must also inform decisions on land-use planning.

[59] https://www.gov.uk/government/publications/managing-water-abstraction/managing-water-abstraction

[60] Known as the National Sites Network in the UK since leaving the EU.

[61] Official Journal of the European Communities (2000) Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. Available at: https://eur-lex.europa.eu/resource.html?uri=cellar:5c835afb-2ec6-4577-bdf8-756d3d694eeb.0004.02/DOC_1&format=PDF [Date Accessed: 13/09/23]

[62] Environment Agency. 2020. Thames River Basin Management Plan. Available at: https://www.gov.uk/guidance/thames-river-basin-district-river-basin-management-plan-updated-2022 [Date Accessed: 15/09/23]

[63] Environment Agency. 2020. Anglian River Basin Management Plan. Available at: https://www.gov.uk/guidance/anglian-river-basin-district-river-basin-management-plan-updated-2022 [Date Accessed: 15/09/23]

5.4.5 The River Gade runs approximately 2.7km to the east of Ashridge Commons and Woods SSSI with the Grand Union Canal located approximately 470m to its south west. Tring Woods SSSI is located approximately 2.9km from the Grand Union Canal which runs to its north east. A review of the Environment Agency's Flood Zone 2 and 3 mapping data shows that the SAC is not coincident with a flood zone at either location. These components of the SAC are not hydrologically connected to surface water features and will therefore not be affected by changes in discharges from STW associated with Local Plan growth.

5.4.6 An additional water quality impact pathway is direct surface water run-off from development sites. A review of all allocations which form the Revised Strategy for Growth consultation indicate that none are likely to be located within close proximity to either component of the SAC. As such it is considered unlikely that there will be any surface water quality impacts upon the integrity of the Chilterns Beechwoods SAC. The location of allocations and full policy details in relation to the water environment will be revisited at Regulation 19 to inform the Appropriate Assessment.

Water quantity and levels

5.4.7 Urban development can reduce catchment permeability and the presence of drainage networks may be expected to remove runoff from urbanised catchments. This may result in changes in run off rates from urbanised areas to Habitats sites or watercourses which connect to them and therefore water levels. Water mains leakage and sewer infiltration may also affect water levels. In addition, supply to meet water demand associated with new development (residential and commercial / industrial) also has the potential to affect water balances at hydrologically sensitive Habitats sites which are connected with the Plan area.

5.4.8 Natural England's Supplementary Advice notes that hydrology is a threat at the SAC. This is particularly relevant to the beech woodland where there is a need to 'maintain' natural hydrological processes to provide the conditions necessary to sustain this feature. Natural England's Supplementary Advice states that 'changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. Where the feature is directly over free draining chalk soils hydrology is less likely to be an issue of concern but where the woodland is developed over clay-rich soils surface water flow may be impeded and vulnerable to effects such as groundwater pollution and drainage. Beech trees are shallow-rooted and can be particularly susceptible to damage as a result of changes in water level, both increases and decreases.'

5.4.9 The SSSI site citations indicate that Tring Woodlands SSSI lies at the eastern end of the Chilterns on the steep north-west facing Middle Chalk escarpment, and extends onto the plateau capped by clay-with-flints. Ashridge Commons and Woods SSSI is situated towards the northern end of the Chilterns escarpment on wet, acidic Clay-with-Flints plateau soils and more base rich flinty chalks of the scarp slopes[64]. Due to their location on the Chilterns escarpment, both sites are likely to have a deep unsaturated zone which is located a long way from the groundwater table.

[64] Natural England. 1972. Ashridge Commons and Woods SSSI Citation. Available at: https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000452.pdf [Date Accessed: 15/09/23].

5.4.10 It is a statutory requirement that every five years water companies produce and publish a Water Resources Management Plan (WRMP). The WRMP demonstrates long term plans to accommodate the impacts of population growth, drought, environmental obligations and climate change uncertainty in order to balance supply and demand. Water companies divide their supply into Water Resource Zones (WRZs). The majority of the Plan area is located within the Affinity Water Central area and its Misbourne and Colne WRZs. Tring is supplied from the Thames Water Slough, Wycombe and Aylesbury WRZ. The Plan area is underlain by a chalk aquifer (a major store of the UK's groundwater resources). The Plan area is supplied via a number of groundwater abstractions from the underlying chalk aquifer and the import of treated water from Anglian Water Services' (AWS) Ruthamford WRZ and a STW on the River Thames[65]. Both the Thames Water and Affinity Water WRMPs are currently at the draft stage having been sent to Defra for approval. Until these documents have been approved it is not possible to rely on the conclusion of their supporting HRA work.

5.4.11 Anglian Water and Thames Water have both prepared a Drought Plan which sets out how they will manage water resources during drought to protect water supplies and ensure they are minimising the environmental impacts of their activities[66,67]. These were supported by an HRA which included an Appropriate Assessment for actions which required drought permit applications. These took into consideration mitigation required to ensure that any effects of drought permit options upon Habitats sites are reduced, mitigated or avoided to ensure no adverse impacts.

5.4.12 The EA prepares an Abstraction Licensing Strategy (ALS) through its Catchment Abstraction Management Strategy (CAMS) process for each sub-catchment within a river basin. The CAMS process aims to assess the amount of water available for further abstraction licensing, taking into account the environment needs and implement the RBMPs and water abstraction plan[68] into licencing policy. The CAMS process is published in a series of ALSs for each river basin. The Plan area predominantly lies within the Colne[69] ALS area, with a small area to the north within the Thames ALS area and specifically the Cherwell, Tames and Ray area[70]. The Chilterns Beechwoods SAC is not identified in either ALS as being hydrologically sensitive to water abstraction and is therefore unlikely to be affected through this impact pathway. This is likely to reflect its location on the Chilterns escarpment.

5.4.13 At Regulation 19 the distance of all allocations from watercourses and the SAC will be revisited. In addition, the Regulation 19 Appropriate Assessment will apply protective water quality policy wording from the Local Plan and draw on the wider protective framework for the water environment.

[65] Hyder. 2010. Dacorum Borough Council, St Albans City and District Council, Three Rivers District Council, Watford Borough Council, Welwyn Hatfield Borough Council. Water Cycle Study. Scoping Study. Final Report.

[66] Anglian Water. April 2022. Drought Plan 2022 Final Version.

[67] Thames Water. 2022. Drought Plan.

[68] DEFRA. July 2021. Policy Paper: Water Abstraction Plan. Available at: https://www.gov.uk/government/publications/water-abstraction-plan-2017/water-abstraction-plan [Date Accessed: 13/09/23]

[69] Environment Agency. 2019. Colne Abstraction Licensing Strategy.

[70] Environment Agency. 2019. Thames Abstraction Licensing Strategy.

5.5 Preliminary Public Access and Disturbance Effects Appropriate Assessment

Introduction

5.5.1 Increased recreational pressure at Habitats sites can result in damage to habitats and changes in behaviour to animals such as birds at nesting and feeding sites. This can be caused by erosion and compaction, troubling of grazing stock, spreading of invasive species, dog fouling, and tree climbing among other recreational impacts. Typically, disturbance of habitat and species is the unintentional consequence of people's presence which can impact distribution of habitat types and breeding success and survival. Increased development has the potential to increase recreational pressures upon Habitats sites which are accessible to the public.

5.5.2 Urbanisation effects typically occur when development is located close to a Habitats site boundary. These may include impacts such as noise disturbance, lighting effects, cat predation, fly-tipping, wildfire, littering and vandalism.

5.5.3 This preliminary Appropriate Assessment considers public access and disturbance impacts upon two components of the SAC as identified in the screening assessment: Ashridge Commons and Woods SSSI and Tring Woodlands SSSI.

Chilterns Beechwoods SAC: Ashridge Commons and Woods SSSI

5.5.4 Ashridge Commons and Woods SSSI is located predominately within the administrative boundary of Dacorum Borough Council (70% of the designated area) with the remainder located in Buckinghamshire Council's administrative area. The area of the Chilterns Beechwoods SAC, which is coincident with Ashridge Commons and Woods SSSI, broadly corresponds with areas of the Ashridge Estate, for which the National Trust is the main landowner.

5.5.5 A number of areas of woodland within the SSSI comprise ancient woodland. The SSSI citation for Ashridge Commons and Woods indicates that the site comprises a mixture of ancient semi-natural and secondary woodland, plantation, scrub, and a more open component dominated by bracken, and grassland[71]. The woodland ground flora is noted to be associated with the underlying soils, with sparse flora in areas on the acidic plateau soils and more diverse communities on the more base rich soils. It also notes the diverse range of woodland bird species that are supported on site by the varied woodland stand types, areas of scrub (dominated by bracken and scattered trees) and small areas of unimproved grassland.

[71] Natural England. Ashridge Commons and Woods SSSI Citation. Available at: https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000452.pdf [Date Accessed: 06/04/23]

5.5.6 Ashridge is almost entirely publicly accessible, with a number of routes for walking, cycling, horse-riding and running promoted by the National Trust across the site. There is a visitor centre, toilets, a shop and a café on site located at the end of Monument Drive, and mobility vehicles are available for advance booking. Dogs are permitted on site if they follow the National Trust Canine Code[72]. Free parking is provided along Monument Drive. The site can also be accessed from another 23 car parks which offer free parking in the local area, by foot, bike or horse from neighbouring residential areas and via the rights of way network which links to the site. There are three major trails that cross the site, the Chiltern Way, the Hertfordshire Way and the Icknield Way. In addition, the estate is freely accessible to the public with a substantial portion being designated as 'registered common land' or 'other access land' under the Countryside and Rights of Way Act 2000.

5.5.7 As noted in **Section 3.5**, work has been undertaken at the Ashridge Commons and Woods SSSI and Tring Woodlands SSSI components of the SAC to further define recreational impacts[73]. This research included visitor surveys, ecological surveys and car parking surveys.

5.5.8 This work identified recreational impacts on the qualifying features of the Ashridge Commons and Woods SSSI component of the SAC, including evidence of severe damage occurring over many areas. These impacts included trampling and vegetation wear, soil compaction and erosion, nutrient enrichment (e.g. dog fouling), litter, invasive species, risk of fire (e.g. from BBQs), harvesting and impacts associated with the management of the site more generally.

5.5.9 The visitor surveys highlighted that the Ashridge Estate is an attractive 'honey-pot site' and draws visitors from a particularly wide area, primarily by car. Using postcode data, a recreational ZOI[74] was established which extends for a distance of 12.6km from the Ashridge Estate (illustrated in **Appendix D**). This ZOI applies to all development which proposes a net increase in residential dwellings set out in the Revised Strategy for Growth consultation exercise. Taking into consideration the precautionary principle (see **Section 2.5**), future housing growth within this ZOI has the potential to result in increased recreational pressure on this component of the SAC and its qualifying features.

5.5.10 The evidence also indicated that within 500m of the SAC there is a high density of postcodes and users. Recreational use is proportionately much higher from homes immediately adjacent to (and often within walking distance of) a designated site, alongside other risks such as fire, littering and fly-tipping. The evidence indicates that it is typically more difficult to provide alternative recreational spaces meaning users are difficult to deflect. No allocations set out in the Revised Strategy for Growth consultation are located within 500m of the SAC.

[72] National Trust Canine Code. https://www.nationaltrust.org.uk/visit/essex-bedfordshire-hertfordshire/ashridge-estate/visiting-ashridge-with-your-dog#rt-the-canine-code

[73] Panter, C., Liley, D., Lake, S., Saunders, P., and Caals, Z. 2022. Visitor survey, recreational impact assessment and mitigation requirements for the Chilterns Beechwoods SAC and the Dacorum Local Plan, Report by Footprint Ecology for Dacorum Borough Council.

[74] The recreational ZOI is the area across which 75% of people will travel to use a site for recreational purposes.

5.5.11 To ensure no adverse impacts on site integrity at this component of the SAC, effected LPAs[75] have signed up to a Statement of Common Ground which sets out matters of agreement in relation to HRA, including the current position to a strategic approach to mitigation to ensure no adverse recreational impacts on site integrity at this component of the SAC[76].

5.5.12 This approach is set out in the 'Chilterns Beechwoods SAC Mitigation Strategy for Ashridge Commons and Woods Site of Special Scientific Interest' which was approved by Dacorum Borough Council Cabinet on 15th November 2022. The Strategy includes both strategic guidance (common to all affected LPAs) and detailed local guidance for Dacorum Borough Council. Mitigation applies to all proposals which seek to deliver a net increase in residential dwellings within the 12.6km ZOI and applies in perpetuity[77]. The Mitigation Strategy comprises the following components:

- Presumption against development within a 500m 'Exclusion Zone' to ensure no increase in the number of dwellings adjacent to the SAC at this location.
- Strategic Access Management and Monitoring Strategy (SAMMS) involving access management and engagement work wholly within the boundary of the SAC and reflecting the scale of growth forecast within the 12.6km ZOI.
- Suitable Alternative Natural Greenspace (SANG) involving the provision of alternative recreation opportunities away from the SAC.

5.5.13 All development within the ZOI which proposes a net increase in residential dwellings has the potential to have adverse recreational impacts on the integrity of the SAC at Ashridge Commons and Woods SSSI. Development and application types to which mitigation applies are detailed in the Mitigation Strategy. The three mitigation strands in tandem are designed to ensure adverse recreational and urbanisation impacts are mitigated at this component of the SAC.

5.5.14 SAMMS measures are aimed at addressing recreational impacts at a designated site to make the site more resilient to recreational pressures. SAMMS projects are set out and costed within the Mitigation Strategy and comprise measures to directly manage, avoid, mitigate and monitor impacts within the SAC boundary. These measures include financial contributions towards additional rangers, education, interpretation, physical work on sensitive sites, an access strategy and the administration and monitoring of these on behalf of the competent authorities. The total SAMM financial contribution for development within Dacorum Borough Council's administrative area is £913.88 per dwelling.

5.5.15 SANG is the term given to greenspaces that are created or enhanced with the specific purpose of absorbing new recreational pressure that would otherwise occur at the SAC. As set out in the Mitigation Strategy all qualifying development must either provide bespoke SANG or provide a financial contribution towards strategic SANG projects.

[75] Dacorum Borough Council, Buckinghamshire Council, Central Bedfordshire Council and St Albans City and District Council.

[76] Dacorum Borough Council, Buckinghamshire Council, Central Bedfordshire Council and St Albans City and District Council. November 2022. Chilterns Beechwoods Special Area of Conservation At Ashridge Commons and Woods Site of Special Scientific Interest and the Habitats Regulations Assessment.

[77] Defined in the Mitigation Strategy as 80 years.

5.5.16 The provision and capacity of SANG for all development coming forward through the Local Plan will be assessed against requirements set out in the Mitigation Strategy at Regulation 19 once final site allocation locations and numbers are known. It is likely that mitigation will comprise a mixture of both bespoke and strategic mitigation.

5.5.17 The requirement to implement mitigation, i.e. the Exclusion Zone, SAMMS and SANG measures, will be secured through protective policy wording which will be prepared at Regulation 19 and assessed in the HRA process at this time. The Mitigation Strategy sets out requirements and detailed guidance for each of the mitigation components to ensure they are effective and will be delivered in perpetuity.

Tring Woodlands SSSI

5.5.18 Tring Woodlands SSSI is located within the administrative boundary of Dacorum Borough Council. It is owned by Hertfordshire County Council and leased to Dacorum Borough Council who manage the site.

5.5.19 The market town of Tring is located to the north of this component of the SAC, approximately 300m beyond the A41. The woodland is located on an escarpment to the south of the town and is linked to Tring via Hastoe Hill road and a PRoW off the A41 underbridge.

5.5.20 The SSSI citation for Tring Woodlands indicates that the site comprises ancient semi-natural beech woodland[78]. It notes that areas of standard ash *Fraxinus excelsior* and pedunculate oak (*Quercus robur)* are associated with the beech woodland. With Holly (*Ilex aquifolium)* and yew (*Taxus baccata)* in its sparse shrub layer on upper slopes, with more variety including dogwood (*Cornus sanguinea*), field maple (*Acer campestre)*, wayfaring tree (*Viburnum lantana)* and coppiced hazel (*Corylus avellana)* on the lower slopes. It also notes the presence of a small area of mixed larch plantation (*Larix decidua)* and a woodland bird community.

5.5.21 The woodland can be accessed along public footpaths, bridleways, byways open to all traffic and a restricted byway. The woodland comprises Stubbing's Wood and Groves Wood. There is no open access across the woodland. With the exception of the byway which runs in a north / south direction between West Leith Farm and Hastoe in a sunken lane, the footpaths which cross the site are not well made. The topography of the site is undulating in nature. There are no facilities provided at the site or formal car parks serving the site. There is limited and infrequent informal road verge parking: under the A41 road bridge and to the south of the site off Gadmore Lane.

[78] Natural England. Tring Woodlands SSSI Citation. Available at: https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000452.pdf

5.5.22 As part of Dacorum Borough Council's Emerging Local Plan evidence base to support the HRA, visitor surveys were also undertaken at the Tring Woodlands SSSI component of the SAC[79]. This work showed that the site was not unduly impacted by recreation but that some isolated incidences of dog fouling and littering were recorded, there were signs of path erosion and widening (by bikes and horses) and occasional desire lines leading to erosion in steeper areas. A review of postcode data indicated that Tring Woodlands SSSI experiences somewhat fewer visitors and has a more local draw when compared to Ashridge Commons and Woods SSSI. Its ZOI is therefore much smaller with a radius of 1.7km. As indicated in **Appendix C**, there are no Regulation 18 allocations for residential dwellings located within this ZOI area. Allocation Tr01 for 250 new dwellings is located immediately adjacent to the ZOI buffer, with the wildlife section of this allocation located within the ZOI itself and designated for wildlife improvements and green belt retention.

5.5.23 In their advice to Local Planning authorities on 14th March 2022, Natural England noted that, whilst Tring Woodlands SSSI was given consideration in the recreational work undertaken in support of Dacorum's Local Plan[80], they will not be requiring any specific work as part of a strategic mitigation solution. Natural England accept that large housing developments within 1.7km of the SSSI, may need to provide bespoke mitigation, outside the scope of a strategic solution[81]. No Regulation 18 allocations are located within 500m of Tring Woodland SSSI (**Appendix D**).

5.5.24 At Regulation 19 protective policy in relation to an Exclusion Zone within 500m of Tring Woodlands SSSI and Natural England's advice above will be incorporated into the Local Plan. This policy wording will inform the Appropriate Assessment of recreational impacts at Tring Woodland SSSI, alongside a review of final site locations, in the accompanying Regulation 19 HRA.

5.6 Conclusions

Air quality

5.6.1 On the basis of air quality work undertaken (**Appendix E**), it is concluded that traffic flows associated with local growth on the A41 will have 'no appreciable effect' on the Chilterns Beechwoods SAC and that they can 'properly be ignored'. Further traffic data is required for the B4506 to determine whether air quality impacts have the potential to have a LSE on the Chilterns Beechwoods SAC at the Ashridge Commons and Woods SSSI component. This will be given further consideration in the Appropriate Assessment at Regulation 19. At this stage in the HRA process adverse air quality impacts at the Chilterns Beechwoods SAC cannot be ruled out.

[79] Panter, C., Liley, D., Lake, S., Saunders, P., and Caals, Z. 2022. Visitor survey, recreational impact assessment and mitigation requirements for the Chilterns Beechwoods SAC and the Dacorum Local Plan, Report by Footprint Ecology for Dacorum Borough Council.

[80] Natural England. Tring Woodlands SSSI Citation. Available at: https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000452.pdf

[81] Natural England letter affected LPAs. 14 March 2022. Developments to the emerging evidence relating to the recreational impacts upon Chilterns Beechwoods Special Area of Conservation (SAC) and the need for a Mitigation Strategy.

Water

5.6.2 Due to their location on the Chilterns escarpment, both SSSI components of the Chilterns Beechwoods SAC which lie within the Plan area are likely to have a deep unsaturated zone which is located a long way from the groundwater table and as such water quantity impacts are unlikely to be affected by growth associated with the Local Plan. In addition, the high-level water protective framework will ensure supply is maintained at water dependent Habitats site, such as Drought Plans and the CAMS process. The Local Plan is unlikely to have water quality impacts at the SAC in terms of increased effluent discharge from STWs due to the absence of hydrological connectivity. Allocations set out in the Revised Strategy for Growth consultation will not have surface water impacts upon the SAC due their distance from each SSSI component. This impact pathway will however be revisited at Regulation 19 once site selection has been confirmed. This will be informed by Local Plan policy which seeks to protect water quality and will be available at Regulation 19.

Recreation

5.6.3 Extensive work has been undertaken to inform the HRA of public access and disturbance effects at both components of the SAC. All residential allocations set out in the Revised Strategy for Growth consultation are located within the ZOI of Ashridge Commons and Woods SSSI and adverse impacts on site integrity alone are therefore likely. Dacorum Borough Council has developed a detailed Mitigation Strategy to address these adverse impacts. These measures will be secured through a protective policy in the Local Plan. All residential allocations which form the Regulation 19 version of the plan will be assessed against mitigation requirements to ensure delivery of mitigation can be achieved. Protective policy wording will also be applied at this stage of the assessment.

6 Preliminary Appropriate Assessment – South West London Waterbodies

6.1 Introduction

6.1.1 The HRA screening process set out in **Chapter 4** concluded that a number of site allocations which comprise the Revised Strategy for Growth have the potential to result in LSEs at the South West London Waterbodies SPA and South West London Waterbodies Ramsar due to their hydrological connectivity with the plan area. This section of the report provides a more detailed preliminary Appropriate Assessment of these issues where evidence allows, and highlights additional work that will be required to complete the Appropriate Assessment at Regulation 19.

6.2 South West London Waterbodies SPA background information

6.2.1 The South West London Waterbodies SPA comprises a series of embanked water supply reservoirs and former gravel pits which support a range of man-made and semi-natural still, open-water habitats. These vary in character depending on their use and management. The complex is situated to the west of London on the broad floodplain of the River Thames and is located within the Environment Agency's Flood Zone 2 mapping area.

6.2.2 The SPA is designated for the internationally important non-breeding numbers of Gadwall (*Anas Strepera)* and Shoveler *(Anas clypeata)* that the waterbodies support (**Appendix A**). The SPA was screened in due to its location downstream of the Plan area and location within Colne ALS area as set out in **Section 3.4**. Natural England's Supplementary Advice[82] indicates that South West London Waterbodies SPA is vulnerable to hydrology impacts.

6.3 South West London Waterbodies Ramsar background information

6.3.1 As with the South West London Waterbodies SPA, the South West London Waterbodies Ramsar site is designated for the internationally important non-breeding numbers of Gadwall and Shoveler.

6.4 Preliminary Water Appropriate Assessment

6.4.1 Water quality and quantity have been identified as a threat to the Gadwall and Shoveler qualifying features of the South West London Waterbodies SPA. Whilst no threats or pressures are listed on the Ramsar information sheet, given it is designated for the same features and taking a precautionary approach, it has been assumed that changes in water quality and quantity is also likely to be a threat at the Ramsar site.

6.4.2 Of particular concern is chemical or physical pollutants which could negatively impact the natural flora and fauna of the waterbodies and are likely to be damaging to the value of the sites as habitat for Gadwall and Shoveler. Poor water quality and reduced water levels may significantly reduce habitat quality and food availability for the qualifying features.

[82] Natural England. 2018. Supplementary Advice on Conserving and Restoring Site Features. South West London Waterbodies SPA. http://publications.naturalengland.org.uk/file/5893345162821632 [Date Accessed: 11/01/21].

6.4.3 Gadwall and Shoveler use the South West London Waterbodies during the non-breeding season over the winter. Gadwall primarily feed on vegetation, including macrophytes and filamentous algae associated with shallow naturally eutrophic waterbodies and to a lesser degree invertebrates. Shoveler feed by filtering invertebrates and zooplankton from surface and shallow water, at macrophyte beds, and therebefore favour shallow margins. Nutrient balance is important to maintain the species composition of macrophyte beds and the invertebrates and zooplankton which are associated with these, and therefore food availability[83].

6.4.4 The SIP for South West London Waterbodies SPA notes that water quality is determined by "a range of factors including the quality of groundwater supply, water quality in feeder streams, the quantity of aquatic plants present, the amount of mixing taking place in the water column and the amount of disturbance of accumulated sediment taking place, as well as inputs from surrounding vegetation (particularly trees) and nutrients in rainfall"[84]. Water supply and management of water levels are also important considerations as fluctuations in levels can inhibit availability of food resources.

6.4.5 Natural England's Supplementary Advice for the SPA notes that target is to 'ensure water quality and quantity is maintained to a standard which provides the necessary conditions to support Gadwall / Shoveler during the non-breeding season'. This 'maintain' target provides a useful indication that overall, water is currently of a quality which is allowing the site to achieve favourable conservation status for the qualifying features. SSSI condition data indicates that where units are in an unfavourable status this is as a result of invasive weeds / inappropriate weed management, rather than for water quality, with the exception of the Staines Moor SSSI component of the SPA and Ramsar.

6.4.6 As noted in **Section 3.4**, the Plan area lies within the Thames river basin and predominantly within the River Colne management catchment. The River Gade, the River Bulbourne and the River Ver which drain the majority of the Plan area form tributaries of the River Colne. The River Colne flows in a southerly direction from the Plan area in between a number of components of the South West London Waterbodies SPA (those coincident with Wraysbury Reservoir SSSI, Staines Moor SSSI, Wraysbury and Hythe End Gravel Pits SSSI and Wraysbury No. 1 Gravel Pit SSSI – described below). At its closest point the River Colne flows within 200m of the SPA and Ramsar before joining the River Thames. The waterbody complex is fed by water derived from the River Thames, either directly via groundwater flowing through alluvial sands and gravels or via pumped supply[85].

6.4.7 Wraysbury Reservoir SSSI is an artificially embanked reservoir constructed around 1970. Consultation with Natural England and a review of aerial photography indicates that this reservoir is managed by Thames Water.

[83] Natural England. 2018. Supplementary Advice on Conserving and Restoring Site Features. South West London Waterbodies SPA. http://publications.naturalengland.org.uk/file/5893345162821632 [Date Accessed: 11/01/21].

[84] Natural England. 2014. Site Improvement Plan. South West London Waterbodies SPA. http://publications.naturalengland.org.uk/file/5135484288237568 [Date Accessed: 18/09/23].

[85] Natural England. 2018. Supplementary Advice on Conserving and Restoring Site Features. South West London Waterbodies SPA. http://publications.naturalengland.org.uk/file/5893345162821632 [Date Accessed: 11/01/21].

6.4.8 Staines Moor SSSI is part of the Colne Valley Regional Park, a 27,000 acre park managed by the Community Interest Company (CIC). The objectives of the CIC include safeguarding, conserving and enhancing the local landscape, countryside and biodiversity of the Park. This SSSI comprises three waterbodies; the two reservoirs which comprise Staines Moor Reservoir, and a third which comprises St George VI Reservoir, each of which is managed by Thames Water.

6.4.9 Wraysbury and Hythe End Gravel Pits SSSI comprise a mosaic of open water, islands, grassland, scrub and woodland within an area of former gravel extraction. It comprises a number of lakes under various ownerships. Consultation with Natural England indicates that Wraysbury No.2 Gravel Pit SSSI is under the same ownership as Wraysbury No 1. Gravel Pit SSSI (RK Leisure). Natural England noted that the southern lake, known as Silverwings, is owned and managed by Affinity Water. It offers facilities for a private sailing club (Silverwings Sailing Club).

6.4.10 Wraysbury No.1 Gravel Pit SSSI is a lowland lake that was excavated in the 1950s and is now almost fully mature, with most of the lake margins dominated by trees and scrub. Consultation with Natural England indicates that this lake is privately owned by RK Leisure for fishing.

6.4.11 No allocation set out in the Revised Strategy for Growth consultation is likely to affect the South West London Waterbodies SPA or Ramsar site as a result of surface water run-off due to the distance between the allocations and the designations. However, an increase in waste water effluent discharge from STWs due to new development has the potential to affect downstream water quality. Thames Water collect wastewater from the Plan area through a network of foul and surface water sewers and convey this wastewater to a number of STWs. Growth set out in the Local Plan is likely to result in the requirement for infrastructure upgrades to meet wastewater treatment capacity. Thames Water's response to the Issues and Options consultation in 2017 and response to the Emerging Strategy for Growth consultation indicated that to accommodate growth, upgrades would be required at Berkhamsted STW, Maple Lodge STW and / or Blackbirds STW and this would be captured in their future Asset Management Plans[86,87]. As noted in the Emerging Strategy for Growth HRA, dialogue will be required with Thames Water as the plan develops to ensure the STWs can be accommodate additional development. Requirements around provision of adequate water infrastructure will also need to be captured in the Local Plan policy wording. This will be further assessed at Regulation 19 once the plan is more developed and policy wording is available.

[86] Thames Water. 2017. Maple Lodge STW and Blackbirds STW Position Statement.

[87] Dacorum Borough Council. 2020. Draft Dacorum Infrastructure Delivery Plan. Available at: https://www.dacorum.gov.uk/docs/default-source/strategic-planning/dacorum-draft-infrastructure-delivery-plan---november-2020.pdf?sfvrsn=a2cf0c9e_10 [Date Accessed: 28/09/23]

6.4.12 As noted in **Section 5.4**, the EA prepares an ALS through its CAMS process for each sub-catchment within a river basin. The Plan area predominantly lies within the Colne[88] ALS which identifies the South West London Waterbodies SPA and South West London Waterbodies Ramsar as water dependent Habitats sites. Changes to abstraction and discharge regimes as a result of new development would not be permitted unless the applicant can demonstrate compliance with the Habitats Regulations. The EA must consider if a plan, project or permission will have a likely significant effect on these Habitats sites. The ALS outlines the site-specific flow standards developed for each Habitats site, including the South West London Waterbodies SPA and Ramsar. This water planning framework aims to ensure water abstraction has no adverse impact on any of these sites. The Regulation 19 Appropriate Assessment will apply Local Plan policy wording and take into consideration the protective nature of the water policy framework.

6.5 Conclusions

6.5.1 The South West London Waterbodies SPA and South West London Waterbodies Ramsar designations are hydrologically connected to the Plan area via surface water features. Any increase in SWT effluent discharge from the Plan area may have an adverse impact on water quality at these downstream designations. A change in water quality may affect the extent and composition of habitats present within the designations which would impact upon food availability for Gadwall and Shoveler. Dialogue will be maintained with the water supplier, Thames Water, during development of the plan to ensure adequate infrastructure is provided to accommodate growth and this will be incorporated in Local Plan policy wording.

6.5.2 Given the location of the SPA and Ramsar designation within the Colne ALS area there is potential for impacts upon water levels at these designations. The protective nature of the high-level water framework, such as the WRMP, Drought Plans and the CAMS process, will ensure supply is maintained at water dependent Habitats site. This will be taken into consideration alongside Local Plan policies in relation to water supply in the Regulation 19 HRA.

[88] Environment Agency. 2019. Colne Abstraction Licensing Strategy.

7 Next Steps

7.1 Conclusions

7.1.1 This HRA report provides an assessment of the Revised Strategy for Growth which includes changes to site allocations and numbers. It also presents an update on work undertaken in support of the HRA process. It screens in LSEs at the following Habitats sites which reflects the outputs of the Emerging Strategy for Growth HRA:

- Chilterns Beechwoods SAC (air quality (in-combination), water (in-combination) and public access and disturbance (alone))
- South West London Waterbodies SPA (water - in-combination)
- South West London Waterbodies Ramsar (water - in-combination)

7.1.2 Where evidence allows, a preliminary Appropriate Assessment of the above issues has also been undertaken. This concluded that traffic flows associated with local growth on the A41 will have 'no appreciable effect' on the Chilterns Beechwoods SAC and that they can 'properly be ignored'. No conclusions have been drawn for air quality impacts at the B4506, water or public access and disturbance impacts at the Chilterns Beechwoods SAC, the South West London Waterbodies SPA or the South West London Waterbodies Ramsar.

7.2 Next Steps

7.2.1 Screening will be revisited at Regulation 19 when the Local Plan is further developed to take into consideration any changes in allocation locations and numbers. It will also include a screening of updated policies which do not form part of this current consultation.

7.2.2 The following information will be collated as the Local Plan develops, to inform the Appropriate Assessment at Regulation 19.

- The Regulation 19 version of the Local Plan will include an assessment of traffic modeling undertaken on the B4506. This will allow a screening of likely significant air quality effects at the Ashridge Commons and Woods SSSI component of the Chilterns Beechwoods SAC against Natural England's screening thresholds and inform any further work required to allow an Appropriate Assessment of this impact pathway.
- The Regulation 19 version of the HRA will include a review of recreational mitigation which will be delivered for each site which allocates new residential dwellings within the Chilterns Beechwoods ZOI. It will also take into consideration Local Plan protective policy wording to secure public access and disturbance mitigation.
- The Regulation 19 HRA will be informed by ongoing dialogue with Thames Water in relation to SWT capacity. It will also take into consideration the water protection framework and Local Plan policy wording. The proximity of allocations to the Chilterns Beechwoods SAC will also be revisited in terms of surface water impact pathways.

7.2.3 At Regulation 19 a full Appropriate Assessment will be presented in support of the Publication Local Plan which will allow the Council, as the Competent Authroity, to make the Integrity Test. The Council will take into consideration representations from Natural England under the provisions of the Habitats Regulations at Regulation 105(2).

Appendix A: Habitats Site Conservation Objectives, Threats and Pressures

Chilterns Beechwoods SAC[1]

Conservation objectives:

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 populations of qualifying species, and
- The distribution of qualifying species within the site.

Qualifying Features:

H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*); Dry grasslands and scrublands on chalk or limestone

H9130. *Asperulo-Fagetum* beech forests; Beech forests on neutral to rich soils

S1083. *Lucanus cervus*; Stag beetle

Threats and Pressures at Habitat site which may be affected by the Local Plan[2,3]

- Air pollution – impact of nitrogen deposition and acidification; and
- Public access and disturbance.

[1] Natural England (2018) Chiltern Beechwoods SAC Conservation Objectives. Available at: http://publications.naturalengland.org.uk/file/4961243408629760 [Date Accessed: 12/09/23]

[2] Other threats / pressures identified in the SIP are not considered likely to be influenced by the Local Plan.

[3] Natural England (2015) Chilterns Beechwoods SAC SIP. Available at: https://publications.naturalengland.org.uk/publication/6228755680854016 [Date Accessed: 12/09/23]

South West London Waterbodies SPA[4]

Conservation objectives:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- The extent and distribution of the habitats of the qualifying features;
- The structure and function of the habitats of the qualifying features;
- The supporting processes on which the habitats of the qualifying features rely;
- The population of each of the qualifying features; and
- The distribution of the qualifying features within the site.

Qualifying features:

A051 *Anas strepera*; Gadwall (Non-breeding)

A056 *Anas clypeata*; Northern shoveler (Non-breeding)

Threats and Pressures at Habitat site which may be affected by the Local Plan[5,6]

- Public access/disturbance; and
- Inappropriate weed control.

[4] Natural England (2019) South West London Waterbodies SPA Conservation Objectives. Available at: http://publications.naturalengland.org.uk/file/5411059804667904 [Date Accessed: 12/09/23]

[5] Other threats / pressures identified in the SIP are not considered likely to be influenced by the Local Plan.

[6] Natural England (2014) South West England Waterbodies SIP. Available at: https://publications.naturalengland.org.uk/publication/6662064386867200 [Date Accessed: 12/09/23]

South West London Waterbodies Ramsar[7]

Ramsar sites do not have the Conservation Objectives in the same way as SPAs and SACs. Information regarding the designation of Ramsar sites is contained in INCC Ramsar Information Sheets. Ramsar Criteria are the criteria for identifying Wetlands of International Importance. The relevant criteria and ways in which this site meets the criteria are presented in the table below.

Ramsar Criterion	Justification for the application of each criterion
6	Ramsar criterion 6 – species/populations occurring at levels of international importance. Qualifying species/populations (as identified at designation): Species with peak counts in spring/autumn: Northern shoveler, *Anus clypeata*, Northwest and Central Europe - 397 individuals, representing an average of 2.6% of the GB population (5 year peak mean 1998/9-2002/3) Species with peak counts in winter: Gadwall, *Anas strepera strepera*, Northwest Europe - 487 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9- 2002/3) **Threats and Pressures at Habitat site which may be affected by Local Plan** None identified in Ramsar Information Sheet.

[7] JNCC. 2008. Information Sheet on Ramsar Wetlands. South West London Waterbodies https://jncc.gov.uk/jncc-assets/RIS/UK11065.pdf [Date Accessed: 12/09/23].

Appendix B: Habitats sites and corresponding SSSI condition status

Habitats Site	SSSI Name	No. of SSSI Units	Conservation Status of SSSI Units[1]	Reason for unfavourable status where applicable.
Chilterns Beechwoods SAC[2]	Ashridge Commons and Woods SSSI	7	7 Favourable 0 Unfavourable - recovering	n/a
Chilterns Beechwoods SAC	Tring Woodlands SSSI	1	1 Unfavourable - recovering	Below FC targets for temporary open space, regeneration targets and canopy composition.
South West London Waterbodies SPA and Ramsar	Knight & Bessborough Reservoirs SSSI	1	1 Favourable	n/a
South West London Waterbodies SPA and Ramsar	Kempton Park Reservoirs SSSI	2	2 Unfavourable - recovering	Infestation of the invasive plant Crassula hemsii (New Zealand Pygmyweed) is thought to be having adverse affects on feeding conditions for Gadwall.
South West London Waterbodies SPA and Ramsar	Staines Moor SSSI	6	- 4 Favourable - 1 Unfavourable – recovering - 1 Unfavourable – declining	- n/a - Investigation into the source of the inflow is still required to check water quality. - Agriculture – inappropriate cutting/mowing and undergrazing. - Lack of corrective works – inappropriate weed control.
South West London Waterbodies SPA and Ramsar	Thorpe Park No.1 Gravel Pit SSSI	1	1 Favourable	n/a
South West London Waterbodies SPA and Ramsar	Wraysbury and Hythe End Gravel Pits SSSI	6	6 Favourable	n/a

[1] Natural England. IRX https://designatedsites.naturalengland.org.uk/. Site condition data is provided for the SSSIs which legally underpin the European designation [Date Accessed: 13/09/23].

[2] Only includes SSSI components of the Chilterns Beechwoods SAC which are considered in the HRA process.

Habitats Site	SSSI Name	No. of SSSI Units	Conservation Status of SSSI Units[1]	Reason for unfavourable status where applicable.
South West London Waterbodies SPA and Ramsar	Wraysbury No.1 Gravel Pit SSSI	1	1 Favourable	n/a
South West London Waterbodies SPA and Ramsar	Wraysbury reservoir SSSI	1	1 Favourable	n/a

Appendix C: Screening of Regulation 18 Focused Consultation Allocations for LSEs

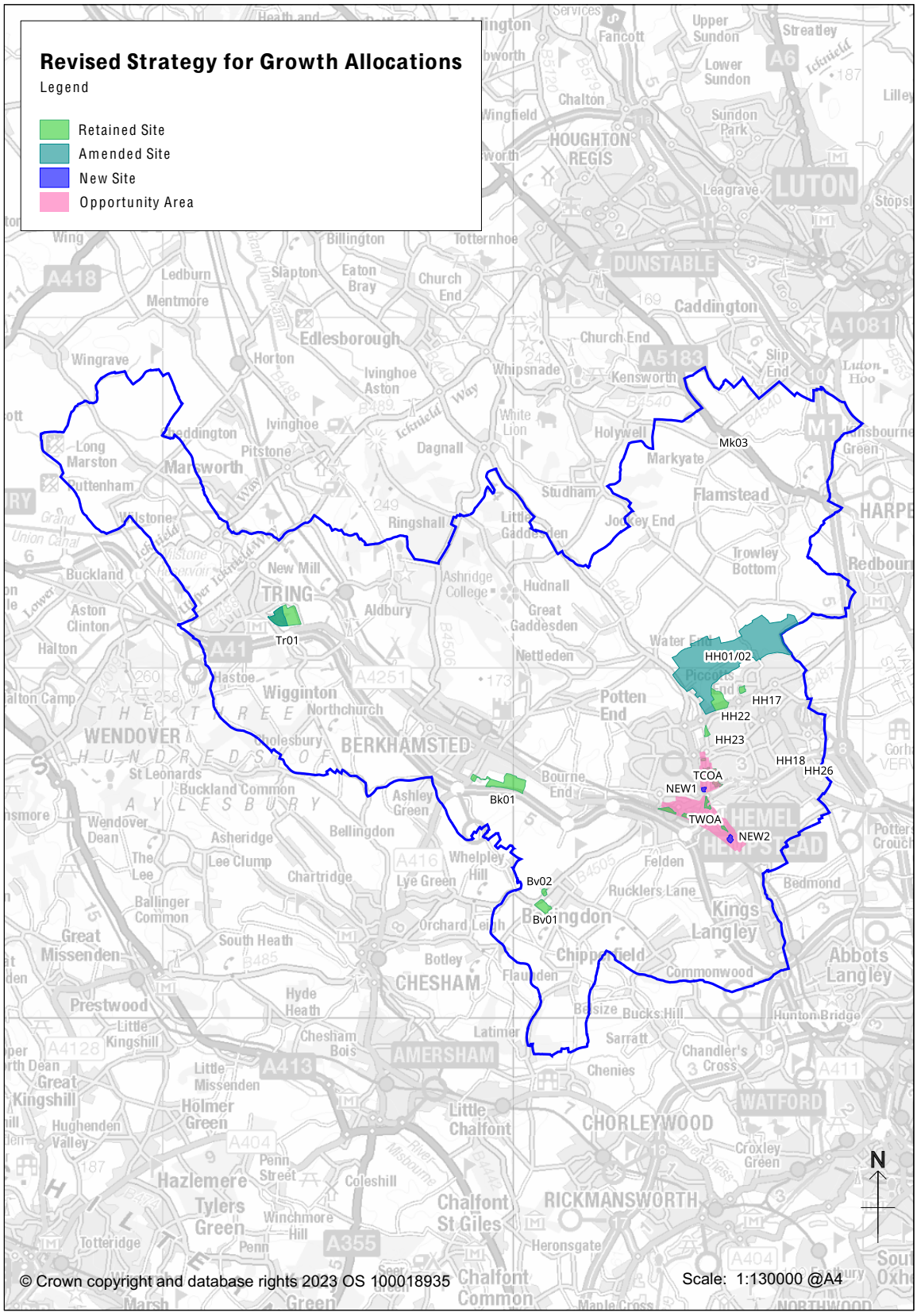


Figure C.1 – Map of proposed site allocations (Source: Dacorum Borough Council)

Table Notes:

Site allocations set out in Table C.1 comprise the Regulation 18 Focused Consultation exercise.

Air Quality LSEs: Individual allocations are unlikely to have an alone likely significant air quality effect upon a Habitats site. Each allocation has therefore been considered cumulatively and in-combination with other plans and projects.

All site allocations set out in the Regulation 18 Focused Consultation exercise have the potential to act cumulatively and in-combination with other plans and projects to increase traffic flows on the local and wider road network. Whilst traffic modelling is not available at this stage of the plan making process, an increase in traffic related emissions associated with all allocations has the potential to change air quality at the Chilterns Beechwoods SAC (see **Section 4** of main report). All allocations are therefore screened into the HRA process under Category L on a precautionary basis.

Water Quality and Quantity LSEs: Individual allocations are unlikely to have an alone likely significant water quality effect upon a Habitats site or effect water levels. Each allocation has therefore been considered cumulatively and in-combination with other plans and projects.

All site allocations set out in the Regulation 18 Focused Consultation exercise have the potential to act in combination with one another to increase the quantity of water required for treatment at Sewage Treatment Works (STWs) and the extraction of water to meet supply. This may result in the deterioration of downstream water quality and a change in water levels. Taking a precautionary approach, hydrology impacts from the combined effect of all Local Plan allocations together, acting in-combination with other plans and projects, have the potential to result in LSEs at the South West London Waterbodies SPA and Ramsar and Chilterns Beechwoods SAC in-combination and as such are screened in under Category L (see **Section 4** of main report).

Table C.1 provides more detail for screening urbanisation and recreational LSEs for each allocation on a settlement-by-settlement basis. It also summarises screening conclusions taking no account of mitigation measures to ensure compliance with case law.

Table C.1: Pre-screening summary of settlement allocations[1]

Hemel Hempstead

Changes proposed since the Emerging Strategy for Growth consultation include planning for 11,742 homes up to 2040. Changes include:

- An additional 500 homes identified in the town centre (up from 1,250 to 1,750 homes);
- A further 450 homes identified in the Two Waters and Apsley area (up from 1, 550 to 2,000 homes).
- Removal of draft allocations where planning permission has subsequently been granted.
- The Council will be advancing part of HH02 and combining this with HH01 to form a single allocation of 2,500 homes.

Sites which have been removed or received planning permission are not screened within this assessment as they will no longer form part of the Local Plan. This screening exercise focuses on those sites which will be retained and have been updated.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
HH01/02	North Hemel HGC	Approx. 2,500 dwellings in plan period (3,000 post plan period)	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and

[1] All settlement numbers include an allowance for windfall development. Given locations of windfall is unknown as this stage, it has been assumed that windfall has the potential to be located within the Chilterns Beechwoods SAC Exclusion Zone and / or recreational ZOI and would therefore be screened into the HRA process. LSEs would be in relation to public access and disturbance (alone), air quality (in-combination) and water quality / quantity (in-combination).

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
						South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.
HH03	Hospital Site	Replaced by Town Centre Opportunity Area Broad Location	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	See Town Centre Broad Opportunity Area screening conclusions	See Town Centre Broad Opportunity Area screening conclusions
HH04	Paradise / Wood Lane End	Replaced by Town Centre Opportunity Area Broad Location	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	See Town Centre Broad Opportunity Area screening conclusions	See Town Centre Broad Opportunity Area screening conclusions

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
HH05	Market Square	Replaced by Town Centre Opportunity Area Broad Location	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	See Town Centre Broad Opportunity Area screening conclusions	See Town Centre Broad Opportunity Area screening conclusions
HH06	Civic Centre Site	Replaced by Town Centre Opportunity Area Broad Location	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	See Town Centre Broad Opportunity Area screening conclusions	See Town Centre Broad Opportunity Area screening conclusions
HH07	NCP Car Park Hillfield Road	Replaced by Town Centre Opportunity Area Broad Location	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	See Town Centre Broad Opportunity Area screening conclusions	See Town Centre Broad Opportunity Area screening conclusions
HH08	Station Gateway	Replaced by Two Waters Opportunity Area Broad Location	No	Within Chilterns Beechwoods SAC (Ashridge	See Two Waters Opportunity Area Broad Location	See Two Waters Opportunity Area Broad Location screening conclusions

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
				Commons and Woods SSSI) ZOI.	screening conclusions	
HH09	National Grid	Replaced by Two Waters Opportunity Area Broad Location	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	See Two Waters Opportunity Area Broad Location screening conclusions	See Two Waters Opportunity Area Broad Location screening conclusions
HH10	Symbio Place Whiteleaf Road	Replaced by Two Waters Opportunity Area Broad Location	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	See Two Waters Opportunity Area Broad Location screening conclusions	See Two Waters Opportunity Area Broad Location screening conclusions
HH11	Two Waters North	Replaced by Two Waters Opportunity Area Broad Location	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	See Two Waters Opportunity Area Broad Location screening conclusions	See Two Waters Opportunity Area Broad Location screening conclusions

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
HH13	Frogmore Road	Replaced by Two Waters Opportunity Area Broad Location	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	See Two Waters Opportunity Area Broad Location screening conclusions	See Two Waters Opportunity Area Broad Location screening conclusions
HH17	Cupid Green Depot	Approx. 360 dwellings	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.
HH18	Kier Park, Maylands Ave	Approx. 234 dwellings and an	No	Within Chilterns Beechwoods SAC (Ashridge	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
		area of commercial floorspace		Commons and Woods SSSI) ZOI.		In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.
HH22	Marchmont Farm	Approx. 382 dwellings	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
HH23	Old Town	Approx. 90 dwellings	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.
HH26	Land South of Green Lane	Approx. 80 dwellings	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
						No likely significant urbanisation effects.
TCOA	Town Centre Opportunity Area Broad Location	Approx. 1,750 dwellings	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.
TWOA	Two Waters Opportunity Area Broad Location	Approx. 2,000 dwellings	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
						Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.
No site ref.	Riverside	Included within Town Centre Opportunity Area Broad Location dwelling total	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.
No site ref.	Apsley Mills Retail Park	Included within Two Waters Opportunity Area Broad Location dwelling total	No	Within Chilterns Beechwoods SAC (Ashridge	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
				Commons and Woods SSSI) ZOI.		South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.

Berkhamsted

Changes proposed since the Emerging Strategy for Growth consultation include planning for 1,264 homes up to 2040. Changes include:

- A reduction in the draft Green Belt allocations from 1750 to 850 homes.
- Removal of draft allocations where planning permission has subsequently been granted.

Sites which have been removed or received planning permission are not screened within this assessment as they will no longer form part of the Local Plan. This screening exercise focuses on those sites which will be retained and have been updated.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
Bk01	South of Berkhamsted	Approx. 850 dwellings	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.

Tring

Changes proposed since the Emerging Strategy for Growth consultation include planning for 522 homes up to 2040. Changes include:

- A reduction in draft Green Belt allocations from 2,200 to 250 homes.
- A reduction of the housing capacity at Dunsley Farm (Tr01) from 400 to 250 homes.
- The removal of the draft allocation for 50 homes on Icknield Way (Tr04).
- Removal of Miswell Lane (Tr05) draft allocation as planning permission has subsequently been granted for a care home.

Sites which have been removed or received planning permission are not screened within this assessment as they will no longer form part of the Local Plan. This screening exercise focuses on those sites which will be retained and have been updated.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
Tr01	Dunsley Farm	Approx. 250 dwellings, 5 ha of employment land and a new primary school. Allocation includes a developable area and retained area to allow green belt improvements.	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI. Area for wildlife improvements to be retained within greenbelt is located within	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
				Chilterns Beechwoods SAC (Tring Woodlands SSSI) ZOI.		

Kings Langley

Changes proposed since the Emerging Strategy for Growth consultation include planning for 68 homes up to 2040. Changes include:

- The removal of the draft Green Belt allocation at Rectory Farm (KL02) for 145 homes.
- The removal of the draft allocation at Coniston Road (KL01) as this now benefits from planning permission.

All allocations in this area have either been removed or have received planning permission are not screened within this assessment as they will no longer form part of the Local Plan.

Bovingdon

Revisions still allow for change in the village. This area contains two retained sites – detailed below.

Changes proposed since the Emerging Strategy for Growth consultation include planning for 230 homes up to 2040.

Sites which have been removed or received planning permission are not screened within this assessment as they will no longer form part of the Local Plan. This screening exercise focuses on those sites which will be retained and have been updated.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
Bv01	Grange Farm	Approx. 150 dwellings	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.
Bv02	Chesham Road /	Approx. 40 dwellings	No	Within Chilterns Beechwoods SAC (Ashridge	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
	Molyneaux Avenue			Commons and Woods SSSI) ZOI.		In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.

Markyate

Changes proposed since the Emerging Strategy for Growth consultation include planning for 53 homes up to 2040. Changes include:

- The removal of the draft Green Belt allocation at South of London Road (Mk01) for 150 homes.
- The removal of the draft allocation Corner of Hicks Road/High Street (Mk02).

Sites which have been removed or received planning permission are not screened within this assessment as they will no longer form part of the Local Plan. This screening exercise focuses on those sites which will be retained and have been updated.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
Mk03	Watling Street (r/o Hicks Road and High Street)	Approx. 20 dwellings	No	Within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI) ZOI.	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation effects on Chilterns Beechwoods SAC. Category I. No likely significant urbanisation effects.

Countryside outside main towns and villages

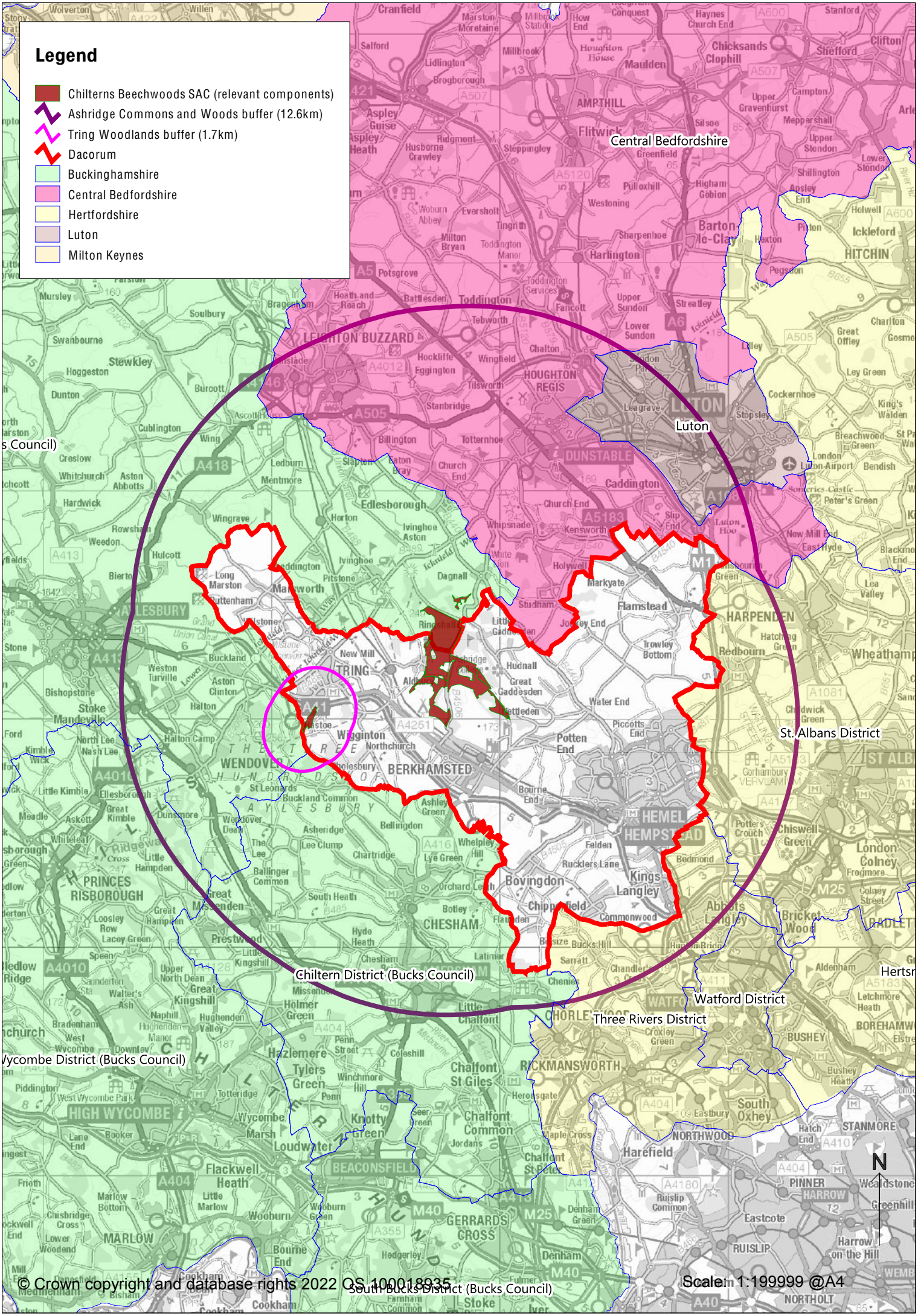
Changes proposed since the Emerging Strategy for Growth consultation include planning for 466 homes up to 2040.

This is likely to come forward through windfall development.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
Windfall development	Unknown	Approx. 305 dwellings	Unknown	Potential to be located within Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI and Tring Woodlands SSSI) ZOI. Windfall locations are unknown so potential for locations within Exclusion Zone and therefore urbanisation LSEs	Screen in.	In-combination likely significant air quality effects on Chilterns Beechwoods SAC. Category L. In-combination likely significant water quality and quantity effects on Chilterns Beechwoods SAC and South West London Waterbodies SPA and Ramsar. Category L. Alone likely significant recreation and urbanisation effects on Chilterns Beechwoods SAC. Category I.

Site Ref.	Site Name	Allocation description (Employment/ Residential/Mixed)	Site within 500m of a Habitats site?	Site within recreation ZOI	Screening conclusion	Details
				possible at the Chilterns Beechwoods SAC (Ashridge Commons and Woods SSSI and Tring Woodlands SSSI) ZOI.		

Appendix D: Dacorum Borough Council – Chilterns Beechwoods SAC ZOI and Exclusion Zone



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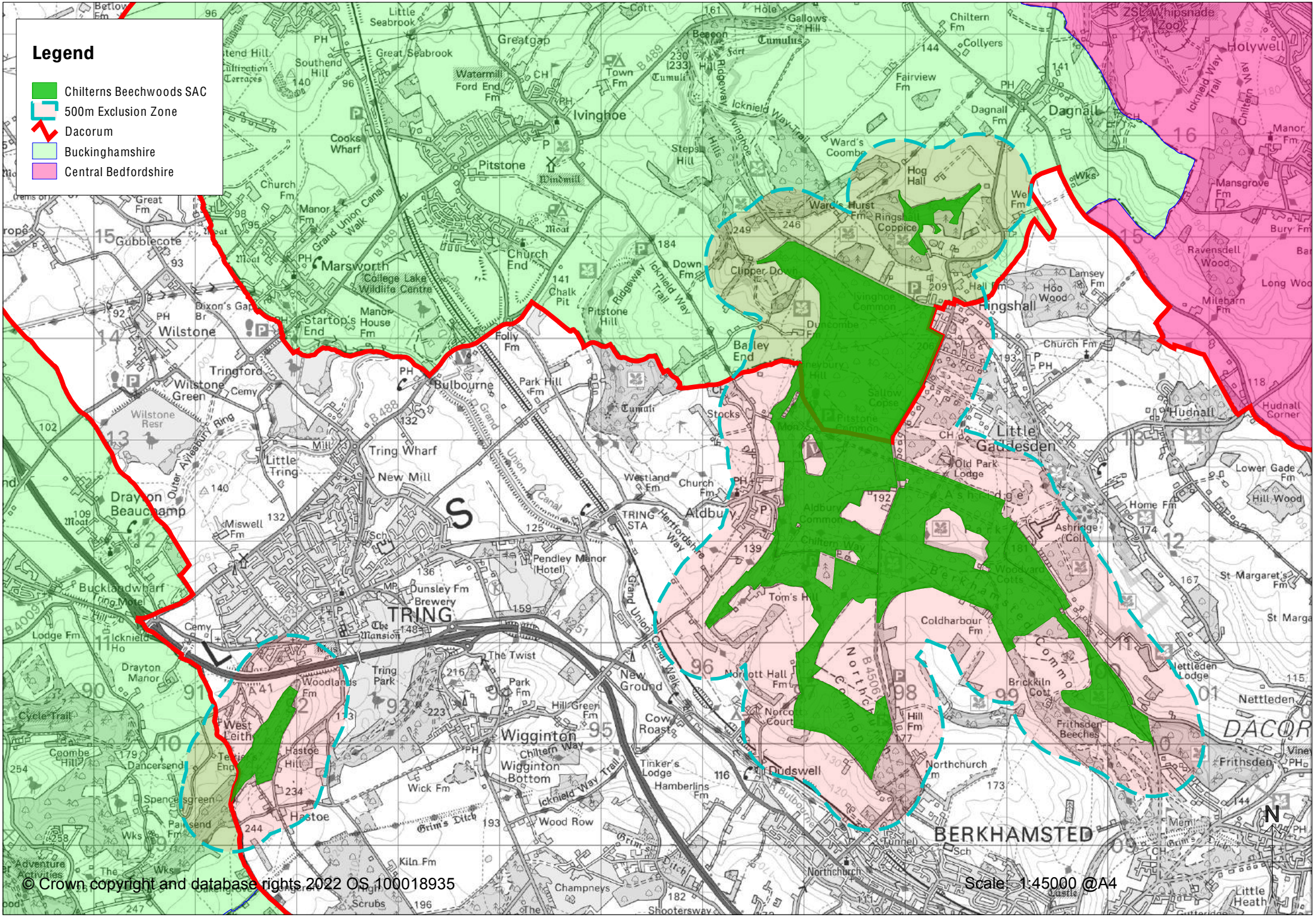

Appendix E: DTA Ecology: The relative risk to the Chilterns Beechwoods SAC from traffic flows on the A41

ADVICE TO DACORUM BOROUGH COUNCIL

The relative risk to the Chilterns Beechwoods SAC from traffic flows on the A41

STATUS – FINAL DRAFT

BY
DTA ECOLOGY

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Executive Summary

Key Recommendation

It is the considered advice for DTA Ecology that there is no credible evidence that future increases in traffic flows along the A41 growth will ever represent a real risk to the integrity of the Chilterns Beechwoods SAC. This risk can properly be ignored for the purpose of future assessment effort under the Habitat Regulations.

Summary of key points:

Tring Woodlands SSSI is described as 'lowland beech and yew woodland' and it is included within the SAC on account of the Beech Forests on neutral to rich soils Annex 1 habitat. **No SAC grassland habitat is present within Tring Woodland and the stag beetle, if present, will be dependent upon the designated Beech woodland habitat. When applying the requirements of the Habitats Regulations to Tring Woodlands, it is only necessary to consider potential effects against the *Asperulo-Fagetum* beech forests qualifying feature**.

The supplementary advice for the SAC therefore indicates that 'maintain' targets apply for all attributes for the Asperulo-Fagetum beech forests qualifying feature with the exception of air quality. A restore objective applies in respect of effects associated with nitrogen deposition. The exceedance of the critical load at the Tring Woodlands SSSI provides justification that a **restore objective applies in respect of air quality with regards nitrogen deposition** (as stated in the explanatory notes to the supplementary advice). **A maintain objective for air quality applies in respect of NO_x and ammonia.**

Having applied the Natural England guidance relevant to the assessment of traffic emissions from roads, the following conclusions can be drawn:

- Sensitive features of the site would be exposed to road-based emissions.
- when applying the integrity test to a site with a conservation objective to restore air quality the central question is whether traffic flows on the A41 will undermine the achievement of a restore objective for the Chilterns Beechwoods SAC in respect of nitrogen deposition.
- Risks to the SAC from traffic on the A41 are constrained to 200m from the road and the closest boundary of the SAC is 93m from the road edge. Only 0.93 ha of the SAC (0.07% of total area of SAC and 0.16% of qualifying beech woodland habitat) lies within 200m of the A41.
- The critical levels for both NOx and ammonia are currently neither exceeded nor approaching exceedance. There is no risk to site integrity from emissions of NOx and ammonia from traffic on the A41. The critical load for nitrogen deposition does show an exceedance and the focus of further assessment effort is the ecological significance of additional contributions from flows on the A41, in view of the conservation objectives.
- On a worst-case scenario, the maximum in-combination contribution from road-based emissions on the A41 from all countywide predicted growth is 0.07 kg/ha/yr at the nearest boundary of the SAC to the road and contributions decrease with further distance from the road. This is equivalent to 0.7% of the lower critical load for the site of 10kg/ha/yr. This value

is below the in-combination significance threshold applied by Natural England irrespective of the spatial scale of the effect.

- When considering the achievement of a restore conservation objective nitrogen deposition source attribution data for local contributions at Chilterns Beechwoods SAC shows that 9.4% of nitrogen deposition comes from road transport, compared to 41.9% from agricultural sources. Any measures to deliver a restore objective can reasonably be expected to be targeted to agricultural sources. This is especially the case as traffic emissions are on an improving trend across the UK in any event. A Defra report states that NOx emissions are predicted to decrease by 65% by 2030 relative to levels in 2017.
- The site makes an important contribution to the achievement of a favourable conservation status for the habitats and species for which it has been designated, but it does not have a notable or disproportionate influence from a national context.
- Nationally led targets and initiatives are in place to reduce vehicular emissions. It is reasonable to anticipate that these will result in an improving trend in pollutant levels from road emissions, with associated benefits to the SAC and the ability to achieve its conservation objectives.

Having applied the Natural England guidance it is the opinion of DTA Ecology that there is no credible evidence of a real risk to the integrity of the SAC as a consequence of countywide local growth. When considering credible evidence of a real risk from traffic flows on the A41 generally, it is necessary to recognise that the A41 is a strategic trunk road and flows are also influenced by wider growth across the UK generally.

When considering the effects from traffic on a strategic trunk road or motorway there are considerable challenges in terms of practical feasibility in attempts to capture the effect of wider UK growth as part of an in-combination assessment for local development proposals. This is an issue which is pertinent to the interpretation of the requirements of the Habitats Regulations when considering the assessment of a particular plan or project and the scope of an assessment in-combination with other plans and projects under such a scenario.

Two factors are considered to be relevant. Firstly, the scope of the in-combination assessment and the extent to which wider growth can reasonably be taken into account. Secondly, the extent to which it is necessary to take account of a hypothetical risk, if there is no credible evidence that it will ever represent a real risk to site integrity.

An assessment in combination with other plans and projects needs to be handled in a proportionate and flexible manner. Some important principles can be drawn for these authoritative sources as follows.

- In-combination provisions must be interpreted and applied in a proportionate manner (EC parliamentary question).
- An in-combination assessment must be practically feasible (EC parliamentary question).
- there must be a degree of flexibility in an in-combination assessment (Walton).
- a competent authority is entitled to exercise judgment over which other plans and projects to take into account (Walton).

It therefore follows that when considering their duties under the Habitats Regulations the Council is entitled to exercise their judgment over which other plans and projects to take into account. In

doing so they must be satisfied that an in-combination assessment is practically feasible and, as a consequence, there must be a degree of flexibility in an in-combination assessment.

The question which therefore needs to be addressed is the extent to which effects from traffic on the A41 will make a meaningful contribution to effects from other plans and projects, such that excluding emissions arising from the A41 from the in-combination assessment effort undertaken in respect of other proposals might realistically influence the outcome of such decisions. It is the advice of DTA Ecology that the relative contribution from traffic flows along the A41, the distance between the SAC and the road, and the limited spatial extent of the SAC within 200m is such that there is no credible evidence that doing so would represent any risk to the integrity of the SAC.

Furthermore, attempts to include the effects of traffic from strategic trunk roads influenced by wider growth across the UK is not practically feasible as part of an assessment in-combination with other plans and projects. There is no 'plan' or 'project' which might be identified as responsible for wider traffic growth across the UK generally and it is not feasible to attempt to include all development plans across the UK in-combination.

When interpreting the requirements under the Habitats Regulations it is necessary to avoid legislative overkill and excessive approaches. In the case of ***Boggis***[1], the UK Courts have ruled that '*it is not that significant effects are probable, a risk is sufficient… but there must be credible evidence that there was a real rather than a hypothetical risk'*. This is further endorsed by the opinion of the Advocate General of the European Court.

The analysis undertaken in this report provides a robust evidence based upon which it can be argued that the traffic flows associated with local growth on the A41 will have '*no appreciable effect'* on the Chilterns Beechwoods SAC and that they can '*properly be ignored'*.

[1] Boggis and Easton Bavents Conservation v Natural England and Waveney DC Court of Appeal 20th October 2009.

1 Brief and Introduction

1.1 Context

1.1.1 This advice is submitted by DTA Ecology Ltd to Dacorum Borough Council in respect of the Council's obligations under the Habitats Regulations and associated risks to the Chilterns Beechwoods SAC as a consequence of air quality emissions from traffic flows on the A41. The brief for the advice to be provided was to 'draft a paper setting out an evidence base for the relative risk to the SAC from traffic flows on the A41'.

1.1.2 The advice focuses on the correct interpretation and application of the Habitats Regulations and associated requirements where a Habitats Regulations Assessment (HRA) is to be undertaken in respect of proposed plans and projects.

1.1.3 To avoid any misunderstanding, this advice is specific to risks to the Chilterns Beechwoods SAC associated with traffic flows on the A41 **only** and should not be applied more broadly or to traffic flows along other roads.

1.2 Background to HRA

1.2.1 It is first helpful to clearly summarise what the specific tests provided for within a HRA mean, in practice. The HRA process can helpfully be summarised in four stages as set out in Figure F1.1 of the Habitats Regulations Assessment Handbook[2] which is reproduced as figure 1.2.1 overleaf.

1.2.2 Case law has established that when screening for a likely significant effect, either alone or in-combination with other plans and projects (Stage 1), an effect is '*likely*' if it *'cannot be excluded on the basis of objective information'*[3] and is only 'significant' in this context where it *'undermines the conservation objectives'*[4]. Hence when applying the screening step it is necessary to address the question as to whether it is possible that the conservation objectives might be undermined.

1.2.3 The Courts have clarified that, in this regard, whilst a risk is sufficient to trigger the need for an appropriate assessment, there must be credible evidence that the risk is real rather than hypothetical[5]. The identification of credible evidence for risk to the achievement of the conservation objectives triggers the requirement for 'Stage 2' appropriate assessment.

1.2.4 The question being asked can therefore helpfully be summarised as follows. **Based on existing evidence, is there any credible evidence of a real risk to the Chilterns Beechwoods SAC that the conservation objectives might be undermined as a consequence of traffic flows along the A41?**

1.2.5 'Appropriate assessment' (AA) is not a technical term. A ruling in the UK Supreme Court has clarified that 'it indicates no more than that the assessment must be appropriate to the task in hand that task being to satisfy the responsible authority that the project will not adversely affect the integrity of the site concerned'[6].

[2] Refer www.dtapublications.co.uk
[3] Case C-127/02 Wadenzee Ruling
[4] Case C-127/02 Wadenzee Ruling
[5] Boggis v Natural England & Waveney District Council [2009] EWCA Civ 1061
[6] Refer SC

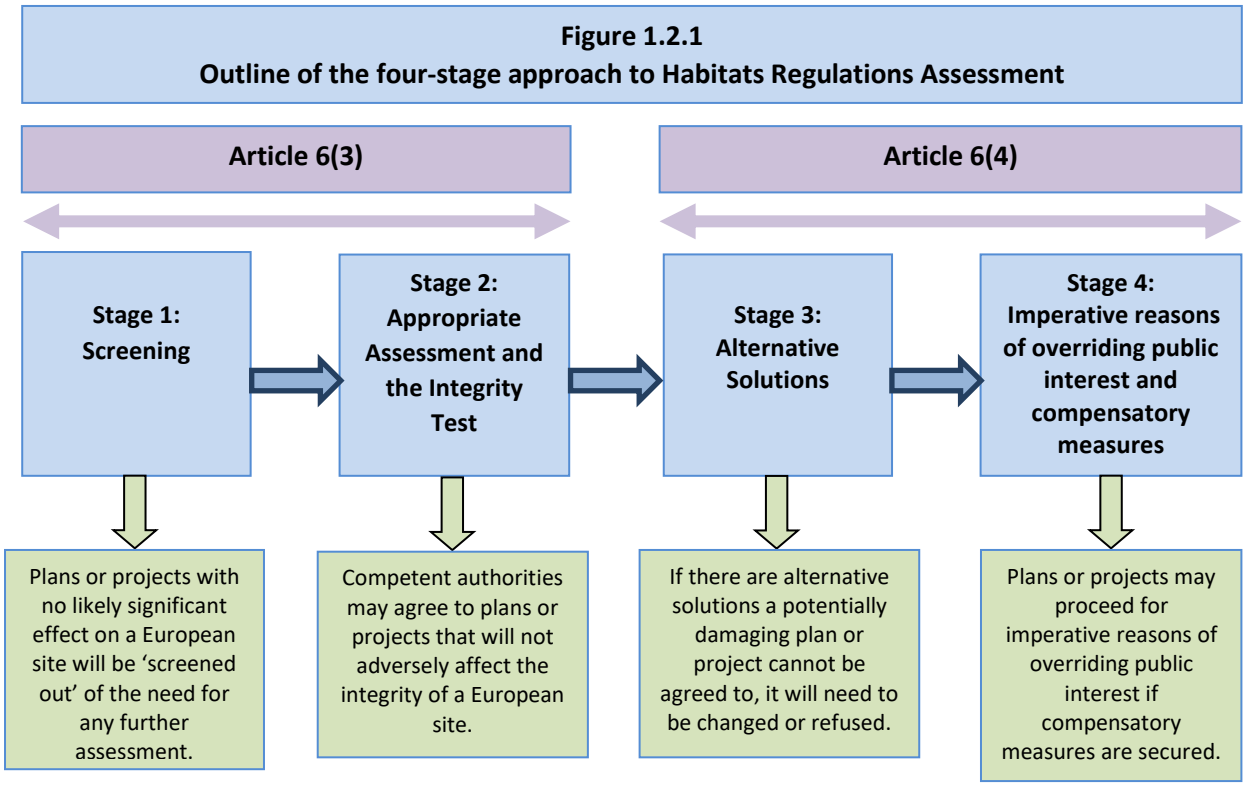

Figure 1.2.1 – Overview of HRA process (reproduced from the Habitats Regulations Assessment Handbook).

1.2.6 In practical terms, an AA must be made in view of the conservation objectives and should address the question of what ecological consequences may arise if the plan or project proceeds. The integrity test applies subsequently, with reference to the findings of an AA. In light of the conclusions of the assessment, and subject to the derogation provisions, the competent authority can agree to a plan or project only after having ascertained that it will not adversely affect the integrity of any European site. Case law has established that when applying the integrity test, and considering what it means to ascertain no adverse effect to site integrity, '*that is the case where no reasonable scientific doubt remains as to the absence of such an effect*'[7] .

1.2.7 The integrity test therefore enshrines the precautionary principle into law, but the Courts have warned against an excessive or overly precautionary approach. The Scottish Courts[8] have clarified that, when applying the Habitats Regulations…

> *'There never can be an absolute guarantee about what will happen in the future, and the most that can be expected of a competent authority [and others involved] is to Identify potential risks, so far as they may be reasonably foreseeable, in light of such information as can reasonably be obtained, and put in place a legally enforceable framework with a view to preventing these risks from materialising'.*

[7] Case C-127/02 Wadenzee Ruling
[8] WWF and RSPB Cairngorm Mountain case 27 October 1998.

1.2.8 When applying the integrity test, the concept of site integrity refers to the coherence of a site's ecological structure and function across its whole area. Not all 'effects' represent an adverse effect to site *integrity*. The need to exclude reasonable scientific doubt as to the absence of adverse effects to site integrity is not to be interpreted as excluding all doubt concerning any effect whatsoever.

1.2.9 EC guidance on the concept of site integrity[9] states:

> *'It is clear from the context and from the purpose of the Directive that the 'integrity of a site' relates to the site's conservation objectives.*
>
> *…In other words if none of the habitat types or species for which the site has been designated is significantly affected then the site's integrity cannot be considered to be adversely affected. However, if just one of them is significantly affected, taking into account the site's conservation objectives, then the site integrity is necessarily adversely affected.*
>
> *…A site can be described as having a high degree of integrity where the inherent potential for meeting site conservation objectives is realised, the capacity for self-repair and self-renewal under dynamic conditions is maintained, and a minimum of external management support is required.'*

1.2.10 When engaging with the application of the integrity test, the conservation objectives, and whether they might be undermined, is of central concern. Recalling that the Courts have clarified that an effect is only 'significant' in an HRA context if it *'undermines the conservation objectives'*, the EC guidance above (which refers to habitats or species being 'significantly affected') can helpfully be summarised as follows: *if none of conservation objectives for the habitat types or species for which the site has been designated is undermined then the site's integrity cannot be considered to be adversely affected. However, if just one of the conservation objectives is undermined, then the site integrity is necessarily adversely affected'*.

1.3 Relevant sources of information and guidance

1.3.1 The following sources of information and guidance have been relevant to the advice provided:

- Managing Natura 2000 the provisions of Article 6 of the Habitats Directive, EC, 2018.
- Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations, June 2018
- Vale of Aylesbury Local Plan 2013-2023 HRA, June 2019

[9] Managing Natura 2000 the provisions of Article 6 of the Habitats Directive, EC, 2018.

2 Chilterns Beechwoods SAC and Tring Woodlands component SSSI

2.1 Conservation Objectives

2.1.1 The conservation objectives for the Chilterns Beechwoods SAC[10] are provided in Box 2.1.1 below.

Box 2.1.1: Conservation Objectives for Chilterns Beechwoods SAC

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

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 populations of qualifying species, and,
- The distribution of qualifying species within the site.

This document should be read in conjunction with the accompanying Supplementary Advice document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

- Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*); Dry grasslands and scrublands on chalk or limestone
- *Asperulo-Fagetum* beech forests; Beech forests on neutral to rich soils
- *Lucanus cervus*; Stag beetle

2.1.2 Conservation objectives are described in terms of 'maintaining or restoring'. Where a site is considered to be making a sufficient contribution to achieving favourable conservation status a 'maintain' objective applies. The 'restore' objective is reserved for situations where the site is not currently considering to be achieving its conservation objectives and active restoration is required to address this.

2.1.3 With relevance to this advice, a 'restore' conservation objective target can be an indication of existing pressure or damage. To avoid any misunderstanding, the 'maintain' or 'restore' targets are not to be used in a slavish or inflexible way. They are helpful indicators which can inform the interpretation of evidence, but it needs to be recognised that they are set at a site level and need to be interpreted accordingly. They are not intended to be prescriptive or

[10] Refer conservation objectives for Chilterns Beechwoods SAC available here

to be applied without further consideration. Site specific evidence should always be given equal weight where conservation objectives are being interpreted and applied in a localised manner. Having said that, they do provide an indication of relative risks and pressures and it is appropriate to refer to these when making decisions which need to be taken concerning the extent to which site integrity is already at risk.

2.1.4 Whilst the SAC is designated for three different qualifying features, this advice relates to the Tring Woodlands component SSSI of the Chilterns Beechwoods SAC only. Tring Woodlands SSSI is described as 'lowland beech and yew woodland' and it is included within the SAC on account of the Beech Forests on neutral to rich soils Annex 1 habitat. **No SAC grassland habitat is present within Tring Woodland and the stag beetle, if present, will be dependent upon the designated Beech woodland habitat. When applying the requirements of the Habitats Regulations to Tring Woodlands, it is only necessary to consider potential effects against the *Asperulo-Fagetum* beech forests qualifying feature**.

2.2 Supplementary Advice

2.2.1 In practice, whether a 'maintain' or 'restore' objective applies in any given scenario will depend upon which attribute of site integrity is being considered and it is necessary to refer to the supplementary advice for further information. The conservation objectives are clear and explicit that they must be read in conjunction with the Supplementary Advice[11], which includes this explanatory text by way of introduction to its role and purpose.

> *'This Supplementary Advice to the Conservation Objectives presents attributes which are ecological characteristics of the designated species and habitats within a site. The listed attributes are considered to be those that best describe the site's ecological integrity and which, if safeguarded, will enable achievement of the Conservation Objectives. Each attribute has a target which is either quantified or qualitative depending on the available evidence. The target identifies as far as possible the desired state to be achieved for the attribute.'*

2.2.2 The supplementary advice for a site indicates whether a 'maintain' or 'restore' objective applies against specified attributes which underpin the conservation objectives. Having reviewed the supplementary advice for the SAC there are a series of attributes and targets listed against each of the qualifying features and it is those relevant to the beech woodland habitat which are pertinent to this advice. In the case of the Chilterns Beechwoods SAC there is only one restore objective which is identified against the beech woodland habitat; the targets in respect of air pollution which reads as follows:

> *'Restore as necessary the concentrations and deposition of air pollutants at within the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).'*

2.2.3 It is necessary to acknowledge that the restore objective applies at a site level and reflects the current exceedance of relevant critical loads or levels across the SAC as a whole. The supplementary advice explains that the restore objective is relevant to nitrogen deposition as follows:

[11] Refer Supplementary advice for Chilterns Beechwoods SAC available here

'For this feature, the critical loads for nitrogen are currently being exceeded (October 2018)'

2.2.4 The supplementary advice for the SAC therefore indicates that 'maintain' targets apply for all attributes for the *Asperulo-Fagetum* beech forests qualifying feature with the exception of air quality. A restore objective applies in respect of effects associated with nitrogen deposition.

2.3 Tring Woodlands SSSI Condition Assessment

2.3.1 The current condition assessment for the Tring Woodlands (dated March 2022) is that the SSSI is considered to be in an unfavourable recovering condition. The full unit report reads as follows (emphasis added by underline):

> *A quiet, significant and semi-ancient beech hanger woodland, on urban fringe of Tring. Rich noted ground flora indicators exist, including Dogs Mercury/Bluebell/Wood Spurge/Sweet Woodruff/Lords and Ladies/Honeysuckle, and Wood Anemone. The wood has suffered past and more recent storm damage, and a low intervention woodland management scheme may be beneficial in allowing beech regeneration, to secure more resilience to future storm occurrences and the climate changes affecting beech.*
>
> *Noted during the assessment were:*
>
> - *Areas of past and very recent storm damage, some showing little regeneration in the 10-15 years since.*
> - *Natural regeneration of seedlings is apparent, though limited in some areas. Considering the significant open areas following storm blow, some management may be appropriate.*
> - *Ash dieback was present but within acceptable/expected thresholds.*
> - *There are no significant signs of vandalism, littering, dumping or heavy public use damaging the structure of the site.*
> - *Areas of pole-stage beech that could benefit from targeted thinning to allow selected trees more space to grow.*

2.3.2 The SSSI condition assessment makes no explicit reference to air pollution impacts or associated concerns.

2.4 Information available on Air Pollution Information System

2.4.1 Baseline air quality data is available from the Air Pollution Information System (APIS). Information relevant to the designated Beech woodland habitat is summarised below:

	NO_x	**N deposition**	**Ammonia (NH_3)**
Relevant critical load/level	30 ug/m^3	10-15 kg/ha/yr	1 or 3 ug/m^3
Baseline data	11.6ug/m^3	27.1 kg/ha/yr	1.3 ug/m^3
Exceedance?	No	Yes	?

2.4.2 The exceedance of the critical load at the Tring Woodlands SSSI provides justification that a **restore objective applies in respect of air quality with regards nitrogen deposition** (as stated in the explanatory notes to the supplementary advice). **A maintain objective for air quality applies in respect of NO_x.** Ammonia is less clear as APIS explains that the appropriate critical level could be either 1 or 3 ug/m^3.

2.4.3 The reference to two different critical levels reflects the fact that there are two critical levels given for ammonia. The first is set for the protection of higher plants (3ug/m^3) and the second is set for the protection of lichens and bryophytes. APIS provides critical levels against general habitat types and the critical load is set at 1 or 3 in recognition that some (but not all) beech woodland habitats will host sensitive lichen species which are considered to be a notable presence and an integral part of the habitat community. Across the SAC as a whole it is therefore likely that some component SSSIs may include habitat with notable lichen or bryophyte communities, and it would be appropriate to apply the 1ug/m^3. It should not however be assumed that notable lichen or bryophyte communities are present within all beech woodland within the SAC; if this were the case a critical level of 1ug/m^3 would be listed for the feature rather than APIS stating 1 or 3. It therefore follows that where there is evidence of notable lichen or bryophyte communities a critical level of 1ug/m^3 should be applied. In the absence of such evidence a critical level of 3 should apply.

2.4.4 With reference to the Tring Woodland component SSSI the citation for the SSSI reads as follows:

> *This site is one of the best examples in Hertfordshire of ancient semi-natural beech Fagus sylvatica woodland, a habitat which is in decline nationally. The woods lie at the eastern end of the Chilterns on the steep north-west facing Middle Chalk escarpment, and extend onto the plateau capped by clay with-flints. There is a rich flora present, indicating that the woodland has been long established. Associated with beech high forest are areas of standard ash Fraxinus excelsior and pedunculate oak Quercus robur. Holly Ilex aquifolium and yew Taxus baccata comprise the sparse shrub layer on upper slopes, though lower down there is more variety with dogwood Cornus sanguinea, field maple Acer campestre, wayfaring tree Viburnum lantana and coppiced hazel Corylus avellana. A small mixed plantation of larch Larix decidua and species native to the site is situated on the plateau, and retains elements of the established plant community.*
>
> *The diverse flora is dominated by woodruff Galium odoratum, wood anemone Anemone nemorosa, dog's mercury Mercurialis perennis and brambles Rubus fruticosus with frequent sanicle Sanicula europaea and wood spurge Euphorbia amygdaloides. Notable amongst twenty species of grass present are wood melick Melica uniflora and two local species, wood barley Hordelymus europaeus and lesser hairy brome Bromus benekenii. In the central part of the wood floral diversity is enhanced by the presence of more restricted species such as yellow birds nest Monotropa hypopitys, common wintergreen Pyrola minor and narrow-lipped helleborine Epipactis leptochila at one of its few county localities. Two other typical beech wood orchids present are fly orchid Ophyrs insectifera and white helleborine Cephalanthera damasonium.*

A good range of woodland bird species have been recorded including breeding tawny owl Strix aluco and great spotted woodpecker Dendrocopus major.

2.4.5 There is no reference to lichen or bryophyte communities within the SSSI citation. It is also relevant to review the supplementary advice for the SAC which refers to lichens and bryophytes against two beech woodland attributes as set out in figure 2.4.1 below:

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	**Dead and decaying wood**	Maintain the continuity and abundance of standing or fallen dead and decaying wood at typically between 30 - 50 m³ per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare, and >10 standing dead trees per hectare	Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. Dead and actively decaying wood, either as part of a standing tree or as a fallen tree on the woodland floor, is an important component of woodland ecosystems, and supports a range of specialist invertebrates, fungi, lichens and bryophytes, and associated hole-nesting birds and roosting bats, all of which may be very typical of the feature. Many component parts of the Chilterns Beechwoods SAC have relatively low levels of dead and decaying wood, as beech trees have a tendency to collapse rather than remain standing as in the case of ash and oak. Nevertheless, the representation and retention of dead and decaying wood can be promoted through careful management planning, such as by reducing vulnerability to strong winds.	
Structure and function (including its typical species)	**Old growth**	Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 5% of the feature at any one time) and the assemblages of veteran and ancient trees (typically around 1 tree per hectare).	Woodland structure includes variations in age, tree form, layering, the distribution and abundance of open space and dead wood. It plays a critical role in woodland ecosystem functioning. In beech woodland, old or over-mature elements of the woodland are important features, often supporting assemblages of rare fungi, saproxylic (wood-decay) invertebrates and bryophytes. It is important to recognise that the various components of the Chilterns Beechwoods SAC include a range of variation of age structure. Areas of old-growth woodland, veteran trees and ancient coppice are present at Naphill Common, Ashridge Woods, Aston Rowant Woods and Ellesborough and Kimble Warrens. It is desirable that these elements are maintained, which may require measures such as careful management planning, active management intervention and protection from potentially damaging influences.	

Figure 2.4.1 – Extract from supplementary advice for Beech Forest feature which includes reference to lichen or bryophyte communities

2.4.6 The explanatory notes acknowledge that levels of dead and decaying wood are generally low through the component parts of the SAC as a consequence of beech trees having a tendency to collapse rather than remain standing (as it the case for ash and oak trees). Furthermore, areas of old growth woodland, veteran trees and ancient coppice (known to support lichen and bryophyte communities) are identified as being present at Naphill Common, Ashridge Woods, Aston Rowant Woods and Ellesborough and Kimble Warrens. Tring Woodlands is absent from the list given.

2.4.7 The lack of any reference to lichen or bryophyte communities within the SSSI citation for Tring Woodlands, and the supplementary advice excluding it from the list of component parts of the SAC hosting old growth beech habitat provides an evidence base from which to assert that **the most appropriate critical level for ammonia to apply within Tring Woodlands is 3ug/m^3 set for the protection of higher plants. On that basis the critical level for ammonia is not currently exceeded and a 'maintain' objective applies with regards air quality in respect of ammonia**.

2.4.8 Natural England were consulted on the proposed justification for the application of the 3ug/m^3 on 8th June and responded to confirm that they fully support the conclusion[12].

[12] Email correspondence with Marc Turner dated 8th June 2023

3 Applying Natural England guidance to traffic effects from A41

3.1 The approach to the provision of advice

3.1.1 This advice concerns the relative risk to Tring Woodlands component SSSI of the Chilterns Beechwoods SAC from traffic flows on the A41. The advice is intended to inform the HRA of the Local Plan and also assessment efforts more widely. It is not a formal assessment of the growth provided for within the local plan itself or any specific project. The question which has been posed is a generic one concerning risk and the approach taken to this advice is informed by the UK Courts decision in the case of ***Boggis***[13]. This case concerned a theoretical risk to a site and the extent to which the Habitats Regulations required further detailed assessment. Paragraph 37 established what is now a widely accepted legal principle when handling perceived risk under the Habitats Regulations; it reads as follows:

> *'a claimant who alleges that there was a risk which should have been considered by the authorising authority so that it could decide whether that risk could be "excluded on the basis of objective information", must produce credible evidence that there was a real, rather than a hypothetical, risk which should have been considered'.*

3.1.2 In considering the relative risk to the SAC from traffic flows along the A41 this advice seeks to engage with whether there is credible evidence that the risk to the SAC from traffic flows along the A41 is real, rather than hypothetical. In doing so this advice has applied the guidance provided by Natural England to competent authorities on the assessment of road traffic emissions under the Habitats Regulations[14].

3.1.3 It is relevant to note that the NE guidance suggests the use of a 1% (or 1000AADT) threshold when assessing air quality impacts. A predicted environmental change of less than 1% of the relevant critical load or level is applied as a threshold below which effects can be regarded as imperceptible. This is set out at para 4.25 of the NE guidance as follows:

> *As a result, the AADT thresholds and 1% of critical load/level are considered by Natural England's air quality specialists (and by industry, regulators and other statutory nature conservation bodies) to be suitably precautionary, as any emissions below this level are widely considered to be imperceptible and, in the case of AADT, undetectable through the DMRB model. There can therefore be a high degree of confidence in its application to screen for risks of an effect (para 4.25)*

3.1.4 Steps 4a-4c of the NE guidance are relevant to the screening for likely significant effects stage and the guidance is clear that the 1% threshold is to be applied both to predicted effects 'alone' and also to predicted effects 'in combination with other plans and projects'. **For the purpose of this advice it is assumed that traffic flows along the A41 will increase by more than 1000AADT as a consequence of predicted growth, and that the contribution to air pollution within the SAC boundary from future traffic flows along the A41 could potentially exceed 1% (either alone or in combination with other plans and projects).** This advice is concerned with the local circumstances and the specific environmental conditions which apply and the extent to which traffic flows along the A41 might ever represent a risk

[13] Boggis v Natural England and Waveney District Council [2009] EWCA Civ 1061

[14] NEA001 Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations, June 2018.

to the integrity of the SAC. It does this by applying the Natural England guidance relevant to a more detailed assessment, which is triggered by an exceedance of more than 1% of a critical load or level.

3.1.5 When undertaking a more detailed 'appropriate assessment' it is of particular importance to note that an exceedance of 1% of the critical load or level (either alone or in-combination) triggers a requirement for an appropriate assessment. **NE guidance is clear at paragraph 5.13 that the 1% threshold should not be applied as an adverse effect threshold (emphasis added)**.

> *Natural England has advised that a threshold equivalent to 1% of the critical load/level can be applied as a guideline to initially check which road traffic plans and projects might require appropriate assessment. At appropriate assessment stage, Natural England recommends that this same 1% threshold is not used as a means of determining whether there is an adverse effect on site integrity from a road traffic project. Other factors are relevant which may mean that a plan or project that exceeds the 1% screening threshold can still demonstrate no adverse effect on site integrity through an appropriate assessment.*

3.1.6 The purpose of an appropriate assessment is to assess the ecological implications for the integrity of the site concerned of a predicted exceedance of 1% of a critical load in view of the conservation objectives and local circumstances. As emphasised in the NE guidance, other factors beyond the exceedance of the 1% threshold need to be considered in reaching a decision as to whether there is a threat to the integrity of a site, or not. The relevant factors to consider within a more detailed assessment are set out in section 5 of the Natural England guidance and are listed below.

- Consider whether the sensitive features of the site would be exposed to emissions.
- Consider the European site's conservation objectives.
- Consider the spatial scale and duration of the predicted impact and the ecological functioning of the affected area.
- Consider background pollution (review critical loads/levels; check for exceedance; consider trends).
- Consider designated site in national context.
- Consider best available evidence on small incremental impacts from nitrogen deposition.
- Consider site survey information.
- Consider national, regional or local initiatives or measures which can be relied upon to reduce background levels at the site.
- Consider measures to avoid or reduce the harmful effects of the plan or project on site integrity.
- Consider any likely in-combination effects with other live plans and projects from other sources.

3.1.7 The remaining parts of section 3 takes each of these factors in turn in view of the local circumstances and the specific environmental conditions which apply in respect of the effects of traffic on the A41 upon the Chilterns Beechwoods SAC.

3.2 Consider whether the sensitive features of the site would be exposed to emissions.

3.2.1 Natural England guidance is clear that ecological effects from road traffic emissions extend up to 200m from the road edge. GIS mapping tools show that the nearest boundary of the Chilterns Beechwoods SAC is located approximately 93m from the A41 and there is qualifying woodland habitat present within 200m of the road edge. **It is therefore the case that sensitive features of the site would be exposed to road-based emissions.**

3.3 Consider the European site's conservation objectives.

3.3.1 The conservation objectives in respect of air quality for the SAC is 'to restore as necessary the concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System'. As explained in section 2, the restore objective only applies in respect of nitrogen deposition (where the upper end of the critical load range is already exceeded). A maintain objective applies in respect of NO_x and ammonia (which are both currently below the relevant critical levels).

3.3.2 There is **no credible evidence of a real risk from NO_x and ammonia emissions associated with traffic flows on the A41.** The SAC is located 93m from the road and NOx and ammonia levels within the SAC are currently at 39% and 43% of the relevant critical levels. There is no credible evidence of a real risk that traffic increases on the A41 will ever reach a scale which might threaten the achievement of the conservation objective to 'maintain' the site below the relevant critical levels for either of these pollutants.

3.3.3 The conservation objectives which is most relevant to this advice is the objective to restore the site to below the critical load for nitrogen deposition. The critical load for nitrogen is exceeded across Tring Woodlands, and more widely across the SAC as a whole. It is therefore necessary to consider the extent to which traffic growth along the A41 might undermine the achievement of this conservation objective.

3.3.4 In considering this, it is necessary to understand what it means to undermine the achievement of a given target. At first glance it could be argued that any additional contribution to air pollution would undermine this objective, but that assertion represents an overly simplistic interpretation, based on hypothetical risk. Hypothetically speaking any increase in emissions will undermine an objective to improve air quality, but that logic only bears scrutiny in light of a correct understanding of a) how the 'maintain' or 'restore' objective is set and b) *what* is necessary to achieve a restore objective at the site in question.

Understanding the conservation objectives and how a 'maintain' or 'restore' objective is set.

3.3.5 The APIS website provides baseline data at a 1km grid square resolution. This is a significant improvement over earlier versions of APIS (which provided an average deposition value for

the whole site) and the 1km grid square average represents best available information and allows greater confidence to be attributed to baseline levels when making an assessment of predicted effects at a given location. It also enables a more refined application of underpinning conservation objective targets. A given air quality target may be met in one part of a site and exceeded in another. Where this is the case, it would logically follow that a 'maintain' objective would apply to parts of a site where the baseline pollutant levels are already below the critical load/level and a 'restore' objective would apply to parts of the site subject to exceeding baseline pollutant levels.

3.3.6 It is important to recognise that the 1km grid square average should not be interpreted to imply that air quality is uniform across a given grid square. In reality, local sources will exert localised effects within a grid square; a grid square average below the critical load or level does not therefore indicate that the critical load or level is not exceeded anywhere within the grid square concerned, simply that, on average, across the grid square, critical load/level is not exceeded. Localised exceedances of a critical load or level in a given location does not therefore imply that a restore objective must apply for the site as a whole - or even in the location concerned. The ecological implications of a localised exceedance should be taken into account in considering whether a restore objective is justified, or not. The setting of a 'maintain' or 'restore' objective will be influenced by a range of factors including the spatial scale of localised exceedance, the distribution of the qualifying habitat (and the proportion of overall habitat affected).

3.3.7 It therefore follows that the achievement of a restore objective does not imply that the critical load or level must be met everywhere within a site. This is consistent with approaches to water quality where the Environment Agency recognise 'mixing zones' or 'dilution zones' immediately downstream if a permitted discharge when evaluating compliance with water quality targets.

What is necessary to achieve a 'restore' objective at the site in question?

3.3.8 When considering what it means to undermine a 'restore' objective the conservation objectives target and explanatory notes against air quality for the Chilterns Beechwoods SAC reads as follows:

> ***'Restore, as necessary, the concentrations and deposition of air pollutants below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).***
>
> *This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it.*
>
> *Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH3), oxides of nitrogen (NOx) and sulphur dioxide (SO2), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis. Ground level ozone is regionally*

important as a toxic air pollutant but flux based critical levels for the protection of semi-natural habitats are still under development.

It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales.

The supporting habitat of this feature is considered sensitive to changes in air quality and is currently exceeding the critical load for nitrogen (October 2018)'

3.3.9 The supporting notes are clear that achieving a restore target may be subject to wider considerations, including the availability and effectiveness of abatement technology and measures to tackle diffuse sources of pollution.

3.3.10 A consequence of this relates to the application of the integrity test following an appropriate assessment. As referred to in paragraph 1.2.9 above, and with reference case law and EC guidance, an effect is only 'significant' in terms of the Habitats Regulations where it might 'undermine the conservation objectives'. If none of the conservation objectives are undermined the integrity of the site cannot be adversely affected.

3.3.11 As such, when applying the integrity test to a site with a conservation objective to restore air quality, the question is not whether traffic flows on the A41 will add any additional pollutant loading but, instead, whether they might undermine the achievement of a restore objective for the Chilterns Beechwoods SAC in respect of nitrogen deposition. The source attribution data from APIS is relevant to this question, as this indicates where the current pollutant loading is coming from which, in turn, indicates where measures to deliver a restore objective will need to be targeted.

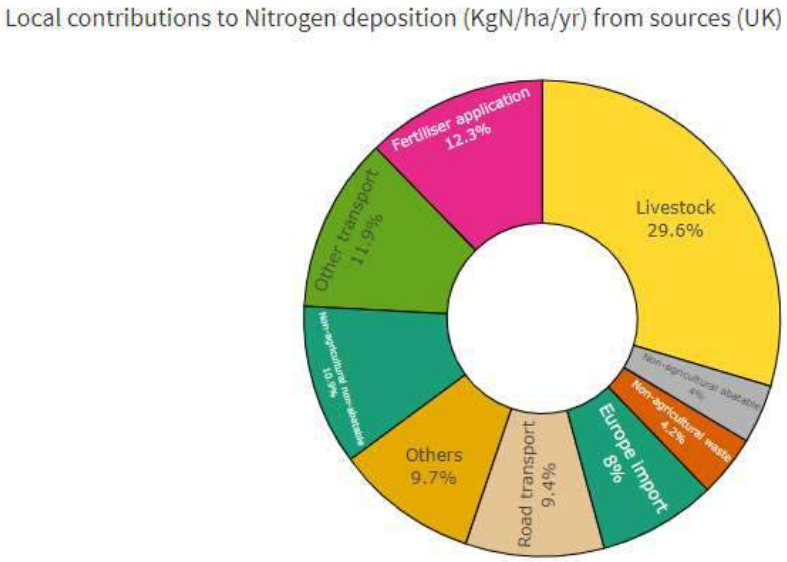

Figure 3.3.1: Source attribution data for local contributions to nitrogen deposition at Chilterns Beechwoods SAC extracted from [Air Pollution Information System] website.

3.3.12 The nitrogen deposition source attribution data for local contributions at Chilterns Beechwoods SAC shows that 9.4% of nitrogen deposition comes from road transport, compared to 41.9% from agricultural sources. It therefore follows that measures to deliver a restore objective can reasonably be expected to be targeted to agricultural sources. This is

especially the case as traffic emissions are on an improving trend across the UK in any event. A Defra report states that NO_x emissions are predicted to decrease by 65% by 2030 relative to levels in 2017[15].

3.3.13 By way of a summary, the maintain or restore objective for air quality is set for a site on the basis of the average baseline values across a given grid square. Localised exceedances within a grid square do not therefore require the application of a restore objective as a point of principle. When applying the integrity test to a site with a conservation objective to restore air quality the central question is whether traffic flows on the A41 could ever undermine the achievement of a restore objective for the Chilterns Beechwoods SAC in respect of nitrogen deposition.

3.3.14 With reference to source attribution data, achieving a restore objective will require the delivery of targeted measures to reduce emissions from agricultural sources; any such action would be entirely independent upon traffic flows on the A41. In other words, if future action was taken to reduce emissions from other sources such that the APIS baseline data indicated no exceedance of critical loads or levels within the grid squares concerned, whether the potential effects from road traffic emissions on the A41 would ever be sufficient to prevent a change in the conservation objective target to a 'maintain' objective. In considering this hypothetical risk it is relevant to note that road traffic emissions are predicted to improve over time as a result of changes in the vehicle fleet and a shift towards cleaner technologies.

3.3.15 **When considering the risk to the conservation objectives for the site from traffic flows on the A41, it is considered that there is no credible evidence of a real risk that associated emissions will undermine the achievement of a restore objective for the SAC.**

3.4 Consider the spatial scale and duration of the predicted impact and the ecological functioning of the affected area.

3.4.1 Ecological impacts associated with traffic emissions extend up to 200m from the road edge. Beyond 200m traffic emissions contribute to long-range pollution effects and localised ecological impacts are no longer relevant. Qualifying beech woodland habitat is present in the part of the SAC within 200m of the road. The closest boundary of the SAC is 93m from the road edge and 0.93 ha of the SAC (0.077% of total area of SAC and 0.16% of qualifying beech woodland habitat) is within 200m of the A41.

3.4.2 The magnitude of the predicted effect is also relevant to understanding the potential risk to the integrity of the Chilterns Beechwood SAC. Detailed modelling work undertaken to inform the HRA of the Aylesbury Vale Local Plan is relevant to a sensible consideration of the risk from traffic flows on the A41 generally. The detailed traffic modelling identified a predicted in combination change in AADT traffic flows of 3300 vehicles. This was a countywide in combination figure which took account of predicted growth in Vale of Aylesbury in combination with:

- Chilterns and South Bucks Emerging Local Plan16 and Core Strategy for Chilterns District (published January/March 2016, not yet adopted);
- New Wycombe District Local Plan (Submitted March 2018, not yet adopted);

[15] Defra Air Quality Expert Group Exhaust emissions from road transport

- South Oxfordshire District Emerging Local Plan 2011 - 2033 - Full Council met in May 2018 to review the Local Plan and decided to follow Cabinets recommendations to reassess all available housing sites;
- Dacorum Borough Core Strategy (adopted 2013); and
- Central Bedfordshire District Council Local Plan 2015-2035 (published for consultation June 2017).

3.4.3 It therefore follows that this modelling work is also relevant to an assessment of the Dacorum local plan in combination with the Vale of Aylesbury Local Plan and the other plans included in the list.

3.4.4 The Air Quality modelling work is presented in Appendix 5 of the HRA and the predicted road contribution in terms of nitrogen deposition is presented in table 7. **The highest predicted in-combination contribution (i.e. at the site boundary) is 0.07 kg/ha/yr which is equivalent to 0.7% of the lower critical load for the site of 10kg/ha/yr. Contributions decrease with further distance from the road so the magnitude of the impact is below the in-combination threshold applied by Natural England of 1% of the critical load irrespective of the spatial scale of the effect.**

3.4.5 The modelling work presented as part of the HRA for Aylesbury Vale Local Plan identified a predicted in combination change in AADT traffic flows of 3300 vehicles. Subsequent modelling work undertaken by Dacorum Council show an increase in traffic flows on the A41 westbound (+1,800 vehicles) and a decrease eastbound (-950 vehicles). The emissions from these vehicle movements would be less than those modelled in respect of the Aylesbury Vale Local Plan, which therefore represents a worst-case scenario.

3.4.6 The scope of this advice applies to the inherent risk to the SAC from traffic flows along the A41 generally. The combined effect of all predicted local growth (an additional 3300 vehicles) is below the in-combination threshold at the nearest site boundary, and this provides a robust evidence base from which to consider the credible evidence of a real risk to the SAC from traffic flows on the A41 generally. In other words, having excluded a risk to the SAC from the predicted effects of combined growth within the county, is there a risk associated with growth more widely (i.e. wider UK growth from outside the county)? This is considered in section 4 of this advice.

3.5 Consider background pollution and trends

3.5.1 As summarised in section 2.4, baseline air quality data is available from the Air Pollution Information System (APIS). Information relevant to the designated Beech woodland habitat is summarised below:

	NO_x	**N deposition**	**NH_3**
Relevant critical load/level	30 ug/m^3	10-15 kg/ha/yr	3 ug/m^3
Baseline data	11.6ug/m^3	27.1 kg/ha/yr	1.3 ug/m^3
Exceedance?	No	Yes	No

3.5.2 The critical levels for both NO_x and ammonia are currently neither exceeded nor approaching exceedance. There is no risk to site integrity from emissions of NO_x and

ammonia from traffic on the A41. The sensitivity analysis referred to in section 2.4 excludes credible evidence of a real risk even if traffic flows were to increase at a future point.

3.5.3 The critical load for nitrogen deposition does show an exceedance and the focus of further assessment effort is the ecological significance of the additional contribution from flows on the A41, in view of the conservation objectives.

3.5.4 Turning to trends it is relevant to note that there is a national improving trend in emissions from traffic which is anticipated because of the shift to cleaner technologies and, eventually, to electric vehicles (e.g. non-combustion engine). It is reasonable to assume that emissions from traffic along the A41 will, over the medium to longer term improve compared to the current and historic situation.

3.5.5 Helpful clarification has been provided in the 2019 Examination in Public of the Wealden Local Plan[16] (since withdrawn). In spite of evidence that local measurements did not reflect nationally forecast improvements, the Planning Inspectorate nevertheless concluded that predicted forecasts based on nationally agreed emissions factors (which account for measures which are already in place, or which can reasonably be relied upon to be in place) provide an adequate basis upon which to assess the anticipated effects of future development. The Planning Inspectorate had regard to advice from Natural England in coming to this position.

3.5.6 It is recognised that improvements in vehicle emission abatement technology may give rise to a short-term rise in ammonia emissions (due to ammonia being a by-product of catalytic converters) but the critical level for ammonia (3ug/m^3) is not exceeded within the site and this short-term increase before the wider shift to electric vehicles brings associated reductions in pollutants is therefore of minimal concern.

3.6 Consider designated site in national context.

3.6.1 Chilterns Beechwoods is comprised of 9 component SSSIs. The SAC citation describes the site in the following manner:

> *The Chilterns Beechwoods represent a very extensive tract of ancient semi-natural beech Fagus sylvatica forests in the centre of the habitat's UK range. The woodland is an important part of a mosaic with species-rich chalk grassland and scrub. A distinctive feature in the woodland flora is the occurrence of the rare coralroot Cardamine bulbifera. Standing and fallen dead timber provide habitat for dead-wood (saproxylic) invertebrates, including stag beetle Lucanus cervus.*

3.6.2 Chilterns Beechwoods is one of 11 SACs across the UK designated for *Asperulo-Fagetum* beech Forests; one of 59 SACs across the UK designated for Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco Brometalia*); and one of 5 SACs designated for stag beetle.

3.6.3 The Tring Woodlands component SSSI hosts the qualifying habitat *Asperulo-Fagetum* beech Forests. The SAC standard data form indicates that the habitat extends to 570 ha in total within the SAC of which 0.93ha lies within 200m of the A41.

[16] https://www.wealden.gov.uk/transparency-spending-and-performance/data-protection/freedom-of-information/local-plan-freedom-of-information/

3.6.4 Whilst the site makes an important contribution to the achievement of a favourable conservation status for the habitats and species for which it has been designated it does not have a notable or disproportionate influence from a national context.

3.6.5 Natural England have agreed that the Tring Woodlands component SSSI is not noted for lichen and bryophyte communities and no rare nationally noteworthy species sensitive to air quality are present within the area of the SAC within 200m of the road.

3.7 Consider best available evidence on small incremental impacts.

3.7.1 NE guidance refers to the Natural England commissioned report 210[17]. This report considers the effects of small increments of atmospheric nitrogen deposition on semi natural habitats of conservation importance. The report considered 5 UK priority habitats (sand dune, bog, lowland heath, upland heath and acid grassland) and is less relevant to beech forest habitats within Tring Woodlands.

3.7.2 The concept of small incremental changes is not relevant to the provision of advice in respect of the inherent risk to a site from traffic emissions generally, and this element is not considered further.

3.8 Consider site survey information.

3.8.1 DTA Ecology is unaware of any relevant site survey information which is relevant to the drafting of this advice.

3.9 Consider national, regional or local initiatives or measures.

3.9.1 Various nationally led targets and initiatives are in place to reduce vehicular emissions. It is reasonable to anticipate that these will result in an improving trend in pollutant levels from road emissions, with associated benefits to the SAC and the ability to achieve its conservation objectives. There are no local initiatives to reduce air pollution levels within the SAC generally.

3.10 Consider measures to avoid or reduce the harmful effects of the plan or project on site integrity.

3.10.1 This is not relevant to the advice provided which is generic in nature and relevant to the question as to credible evidence of a real risk to the integrity of the SAC as a consequence of traffic flows along the A41.

[17] Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance (NECR210).

3.11 Consider any likely in-combination effects

3.11.1 The modelling results which were taken into account in section 3.4 were based on a countywide in combination assessment which took account of predicted growth in combination with:

- Chilterns and South Bucks Emerging Local Plan16 and Core Strategy for Chilterns District (published January/March 2016, not yet adopted);
- Vale of Aylesbury Local Plan (2013 – 2033)
- New Wycombe District Local Plan (Submitted March 2018, not yet adopted);
- South Oxfordshire District Emerging Local Plan 2011 - 2033 - Full Council met in May 2018 to review the Local Plan and decided to follow Cabinets recommendations to reassess all available housing sites;
- Dacorum Borough Core Strategy (adopted 2013); and
- Central Bedfordshire District Council Local Plan 2015-2035 (published for consultation June 2017).

3.11.2 It is recognised that the A41 is a strategic trunk road and that traffic flows will be influenced by wider growth across the UK. This is considered further in section 4.

3.12 Overall conclusions taking account of NE guidance

3.12.1 Having applied the NE guidance, the following conclusions can be drawn:

- Sensitive features of the site would be exposed to road-based emissions.
- when applying the integrity test to a site with a conservation objective to restore air quality the central question is whether traffic flows on the A41 will undermine the achievement of a restore objective for the Chilterns Beechwoods SAC in respect of nitrogen deposition.
- Risks to the SAC from traffic on the A41 are constrained to 200m from the road and the closest boundary of the SAC is 93m from the road edge. Only 0.93 ha of the SAC (0.07% of total area of SAC and 0.16% of qualifying beech woodland habitat) lies within 200m of the A41.
- The critical levels for both NO_x and ammonia are currently neither exceeded nor approaching exceedance. There is no risk to site integrity from emissions of NO_x and ammonia from traffic on the A41. The critical load for nitrogen deposition does show an exceedance and the focus of further assessment effort is the ecological significance of additional contributions from flows on the A41, in view of the conservation objectives.
- On a worst-case scenario, the maximum in-combination contribution from road-based emissions on the A41 from all countywide predicted growth is 0.07 kg/ha/yr at the nearest boundary of the SAC to the road and contributions decrease with further distance from the road. This is equivalent to 0.7% of the lower critical load for the site of 10kg/ha/yr. This value is below the in-combination significance threshold applied by Natural England irrespective of the spatial scale of the effect.

- When considering the achievement of a restore conservation objective nitrogen deposition source attribution data for local contributions at Chilterns Beechwoods SAC shows that 9.4% of nitrogen deposition comes from road transport, compared to 41.9% from agricultural sources. Any measures to deliver a restore objective can reasonably be expected to be targeted to agricultural sources. This is especially the case as traffic emissions are on an improving trend across the UK in any event. A Defra report states that NO_x emissions are predicted to decrease by 65% by 2030 relative to levels in 2017[18].
- The site makes an important contribution to the achievement of a favourable conservation status for the habitats and species for which it has been designated, but it does not have a notable or disproportionate influence from a national context.
- Nationally led targets and initiatives are in place to reduce vehicular emissions. It is reasonable to anticipate that these will result in an improving trend in pollutant levels from road emissions, with associated benefits to the SAC and the ability to achieve its conservation objectives.

3.12.2 When considering the achievement of the conservation objectives for the site in respect of traffic flows on the A41, there is no credible evidence of a real risk that associated emissions will undermine the achievement of a restore objective for the SAC due to the small spatial scale of the SAC within 200m of the road, the overall contribution of traffic to current exceedance, predicted future improvements in traffic emissions and high proportionate requirement for restoration action to be targeted to agriculture. In view of the conclusions which are summarised above, there is no credible evidence of a real risk to the integrity of the SAC from traffic flows along the A41.

3.12.3 To look at it from another perspective, should future measures be taken such that the baseline values on APIS show that the critical load for the SAC is no longer exceeded, there is no credible evidence that localised effects from traffic emissions within the 0.93 ha area of the SAC within 200m of the A41 would ever be such as to require a 'restore' objective to be applied to the SAC.

3.12.4 This analysis undertaken in section 3 refers to modelling results from predicted flows associated with the combined effects of countywide predicted growth referred to in 3.11 above. Even if future flows increased such that a contribution of more than 1% at the boundary of the site might arise, the strength of the underpinning evidence is such that the lack of credible evidence for a real risk (the distance to the SAC from the road and the spatial scale of the site within 200m) applies independent of predicted traffic flows. This is considered further in section 4 below.

[18] Defra Air Quality Expert Group Exhaust emissions from road transport

4 Is there any credible evidence that traffic flows on the A41 will ever represent a risk to the integrity of the Chilterns Beechwoods SAC?

4.1 Introduction

4.1.1 The analysis in section 3 robustly demonstrates that there is no credible evidence of a real risk to the integrity of the SAC as a consequence of countywide local growth. When considering credible evidence of a real risk from traffic flows on the A41 generally, it is necessary to recognise that the A41 is a strategic trunk road and flows are also influenced by wider growth across the UK generally. Traffic flows on the A41 are therefore influenced both by local development and wider development across the UK generally such that the magnitude of change in traffic flows may exceed those associated with local development proposals. This can cause challenges when attempting to assess the implications of local development 'in-combination with other plans and projects' and also when seeking to draw wider conclusions relating to the generic nature of the risk posed.

4.1.2 Where considering the effects from traffic on a strategic trunk road or motorway there are considerable challenges in terms of practical feasibility in attempts to capture the effect of wider UK growth as part of an in-combination assessment for local development proposals. This is an issue which is pertinent to the interpretation of the requirements of the Habitats Regulations when considering the assessment of a particular plan or project and the scope of an assessment in-combination with other plans and projects under such a scenario.

4.1.3 Two factors are considered to be relevant. Firstly, the scope of the in-combination assessment and the extent to which wider growth can reasonably be taken into account. Secondly, the extent to which it is necessary to take account of a hypothetical risk, if there is no credible evidence that it will ever represent a real risk to site integrity.

4.2 The scope of the in-combination assessment and the extent to which wider growth can reasonably be taken into account.

4.2.1 It is necessary to acknowledge that an assessment in combination with other plans and projects needs to be handled in a proportionate and flexible manner. This is clear from the response to an EC Parliamentary question and related authoritative UK Court decisions.

4.2.2 In the first instance a question was put to the EC parliament to query the scope of the in-combination question. EC guidance had stated that the in-combination provision should be restricted to other plans and project which have 'actually been proposed' and the question asked whether the Commission had a clear position on what they meant by this phrase. In responding to the question the Commission provided some important clarification as summarised below:

> *'In any event, any application of what is meant by 'actually proposed' needs to take account of particular circumstances of specific cases as well as the practical feasibility of making an assessment of combined effects. The combination provision must be applied in a manner that is proportionate to the timing, planning stage and the legality of the proposed plans and projects'.*

4.2.3 In 2011 a decision of the UK Courts relied upon the reasoning set out in the response to the parliamentary question to agree to an approach to in-combination which had been taken by the local planning authority in respect of the decision to approve the Aberdeen Western Peripheral Ring Road[19]. In this case objectors had argued that the decision was flawed as it failed to include two proposals which they felt should have been included. In this case the nature of the project was such that a large number of potential plans and projects were in chronological and geographic proximity. The Council, and consultants acting on their behalf, had therefore drawn up criteria to identify *relevant* plans and projects to be included in the in-combination assessment. The court considered the approach taken and ruled as follows:

> *'the respondents were entitled to exercise judgement as to the projects with whose effect the AWPR proposal had to be considered in-combination…* (para 74)
>
> *…'As regards the in-combination point, I again accept the submission on behalf of the respondents. In particular, I agree that there must be a degree of flexibility in assessing the projects with which a particular proposal should be regarded as having an in-combination effect. I can detect no unreasonableness in the approach taken by the respondents and their consultants in the present case.'*(para 75)

4.2.4 Some important principles can be drawn for these authoritative sources as follows.

- In-combination provisions must be interpreted and applied in a proportionate manner (EC parliamentary question).
- An in-combination assessment must be practically feasible (EC parliamentary question).
- there must be a degree of flexibility in an in-combination assessment (Walton).
- a competent authority is entitled to exercise judgment over which other plans and projects to take into account (Walton).

4.2.5 In considering the risk to site integrity if potential effects from traffic flows along the A41 are excluded from further assessment, it is necessary to recognise that impacts associated with traffic flows on the local road network will be addressed as part of the HRA work for specific local development proposals. Such effects will be included within the HRA work both at the plan and projects level HRA.

4.2.6 In undertaking such an assessment the Council is entitled to exercise their judgment over which other plans and projects to take into account. In doing so they must be satisfied that an in-combination assessment is practically feasible and, as a consequence, there must be a degree of flexibility in an in-combination assessment.

4.2.7 When considering the extent to which traffic flows along the A41 represent a risk to the integrity of the Chilterns Beechwoods SAC, the question which therefore needs to be addressed is the extent to which effects from traffic on the A41 will make a meaningful contribution to effects from other plans and projects, such that excluding emissions arising from the A41 from the in-combination assessment effort undertaken in respect of other proposals might realistically influence the outcome of such decisions. It is the advice of DTA Ecology that the relative contribution from traffic flows along the A41, the distance between the SAC and the road, and the limited spatial extent of the SAC within 200m is such that

[19] *Walton* (Scottish Courts) [2011]CSOH 131

there is no credible evidence that doing so would represent any risk to the integrity of the SAC.

4.2.8 It is the advice of DTA Ecology that attempts to include the effects of traffic from strategic trunk roads influenced by wider growth across the UK is not practically feasible as part of an assessment in-combination with other plans and projects. There is no 'plan' or 'project' which might be identified as responsible for wider traffic growth across the UK generally and it is not feasible to attempt to include all development plans across the UK in-combination.

4.3 The extent to which it is necessary to take account of a hypothetical risk, if there is no credible evidence that it will ever represent a real risk to site integrity?

4.3.1 When interpreting the requirements under the Habitats Regulations it is necessary to avoid legislative overkill and excessive approaches. In the case of ***Boggis***[20], the UK Courts have ruled that '*it is not that significant effects are probable, a risk is sufficient… but there must be credible evidence that there was a real rather than a hypothetical risk*'. This is further endorsed by the opinion of the Advocate General of the European Court in the case of ***Sweetman***[21] as follows:

> *'The requirement that the effect in question be 'significant' exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on the site are thereby excluded…*
>
> *…If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill.'*

4.3.2 In other words, whilst applying a precautionary approach, there still needs to be credible evidence that there is a real rather than a hypothetical risk. The HRA tests are concerned with appreciable effects and competent authorities need to be mindful of legislative overkill.

4.3.3 This line of thinking is also endorsed in the Wealden decision which states at paragraph 95:

> *'… if it is known that specific impacts are very low indeed, or are likely to be such, these can properly be ignored (e.g. if each AADT were known to be 20, it would require 50 of these to attain the threshold: depending on the precise facts, a reasonable planning judgment could be made that 50 plans or projects is inherently unlikely).'*

4.3.4 The analysis undertaken in section 3 provides a robust evidence based upon which it can be argued that the traffic flows associated with local growth on the A41 will have '*no appreciable effect*' on the Chilterns Beechwoods SAC and that they can '*properly be ignored*'.

4.3.5 Nationally led targets and initiatives are in place to reduce vehicular emissions over time. It is reasonable to anticipate that these will result in an improving trend in pollutant levels from road emissions, with associated benefits to the SAC and the ability to achieve its conservation objectives. The distance from the SAC and the limited spatial extent of the SAC

[20] Boggis and Easton Bavents Conservation v Natural England and Waveney DC Court of Appeal 20th October 2009.

[21] Case C-258/11 Sweetman v An Bord Pleanála Reference for a preliminary ruling (refer AG Opinion)

within 200m of the road removes credible evidence of any real risk to the SAC from traffic flows on the A41 generally.

4.4 DTA recommendation

4.4.1 It is the considered advice for DTA Ecology that there is no credible evidence that future increases in traffic flows along the A41 growth will ever represent a real risk to the integrity of the Chilterns Beechwoods SAC. This risk can properly be ignored for the purpose of future assessment effort under the Habitat Regulations.

Habitats Regulations Assessments

Sustainability Appraisals

Strategic Environmental Assessments

Landscape Character Assessments

Landscape and Visual Impact Assessments

Green Belt Reviews

Expert Witness

Ecological Impact Assessments

Habitat and Ecology Surveys

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