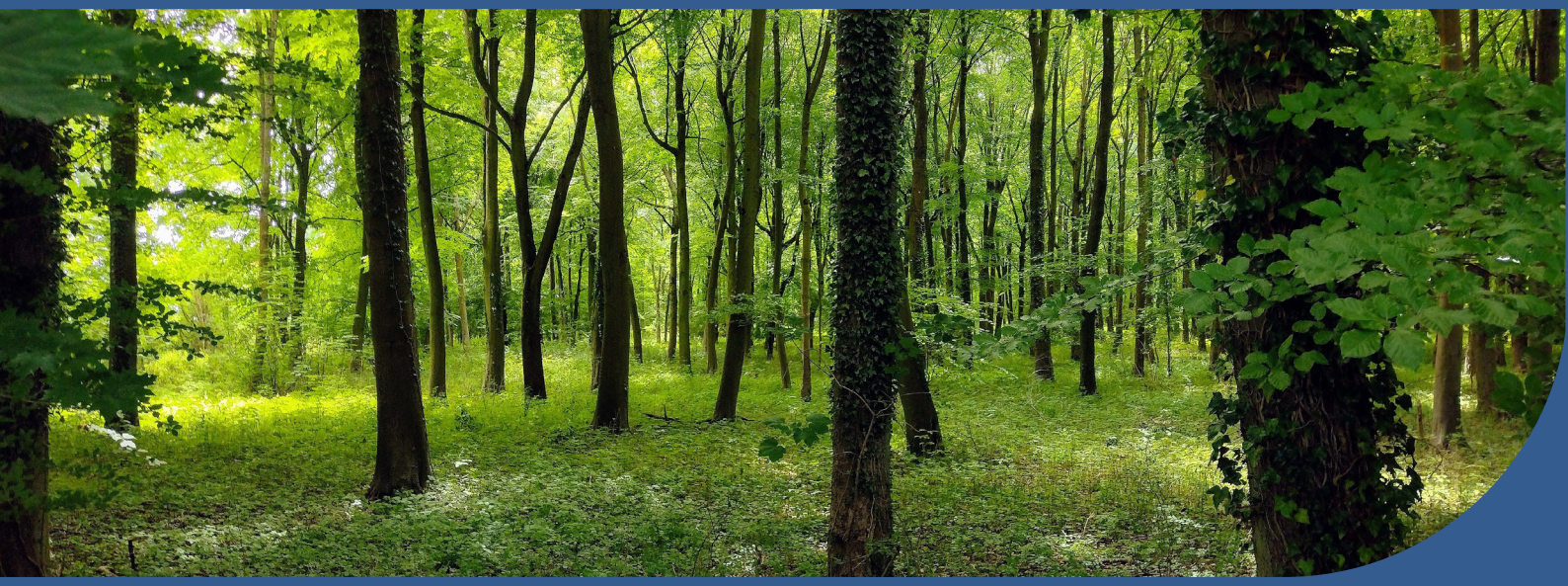
Habitats Regulations Assessment of the Cheltenham, Gloucester and Tewkesbury Strategic and Local Plan

Issues and Options Consultation (Spatial Options and Key Policy Areas)

December 2023



LEPUS CONSULTING
LANDSCAPE, ECOLOGY, PLANNING & URBAN SUSTAINABILITY

Cheltenham, Gloucester and Tewkesbury Strategic and Local Plan

Issues and Options Consultation (Spatial Options and Key Policy Areas)

Habitats Regulations Assessment

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Front Cover: Cotswold Beechwoods SAC Source: Shutterstock

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Acronyms & Abbreviations

AA	Appropriate Assessment
AADT	Annual Average Daily Traffic
ALS	Abstraction License Strategy
APIS	Air Pollution Information System
CIEEM	Chartered Institute of Ecology and Environmental Management
CJEU	Court of Justice of the European Union
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DTA	David Tyldesley and Associates
GIS	Geographic Information System
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
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SIP	Site Improvement Plan
SLP	Strategic and Local Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Urban Drainage
WFD	Water Framework Directive
WRMP	Water Resource Management Plan
WRZ	Water Resource Zone
WwTW	Wastewater Treatment Works

1 Introduction

1.1 Strategic and Local Plan overview

1.1.1 Cheltenham, Gloucester and Tewkesbury Councils have been working together to provide a strategy for strategic growth across the three administrative areas since 2008. This resulted in the adoption of the Joint Core Strategy (JCS) in 2017 which provided a strategy for how these three areas would develop[1]. The area covered by these administrative areas is illustrated in **Figure 1.1**.

1.1.2 A new plan is now required to address growth requirements over the new plan period, changes in national planning policy and standard methods, climate change and nature recovery legislation. The Councils are therefore working together to prepare the Cheltenham, Gloucester and Tewkesbury Strategic and Local Plan (SLP). The SLP will set out a clear vision, strategy and policies for how the area will grow, taking a strategic cross boundary approach across all three district areas. It will also set out requirements for the delivery of new homes, jobs and infrastructure to meet the needs of the community and local economy and will provide a strategic framework for Neighbourhood Plans. Once adopted, the SLP will form part of the statutory development plan for each council, replacing the adopted JCS.

1.1.3 The Councils are now undertaking a consultation on growth, development and strategic policy options to address the following matters[2]:

- What should the Vision be for the SLP? (i.e., what will the area be like as a place to live by the end of the plan period?)
- What Strategic Objectives are necessary to deliver the Vision?
- What are the strategic, cross-boundary issues and opportunities where a shared policy approach is necessary or desirable?
- What are the local issues and opportunities that each council should address in its own section?
- How much development is needed and are there any priority locations for growth?
- Are there areas where growth should not take place or where it would be unsustainable?
- How could development be delivered in a way that meets the Vision?
- How should the plan respond to climate change and ecological emergencies?
- How should the plan ensure that Cheltenham, Gloucester and Tewkesbury thrive for residents, businesses and visitors?

[1] JCS authorities (2017) Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011 – 2031. Available at: https://www.jointcorestrategy.org/ [Date Accessed: 26/10/23].

[2] Cheltenham, Gloucester and Tewkesbury Strategic Local Plan. Issues and Options Consultation. October 2023.

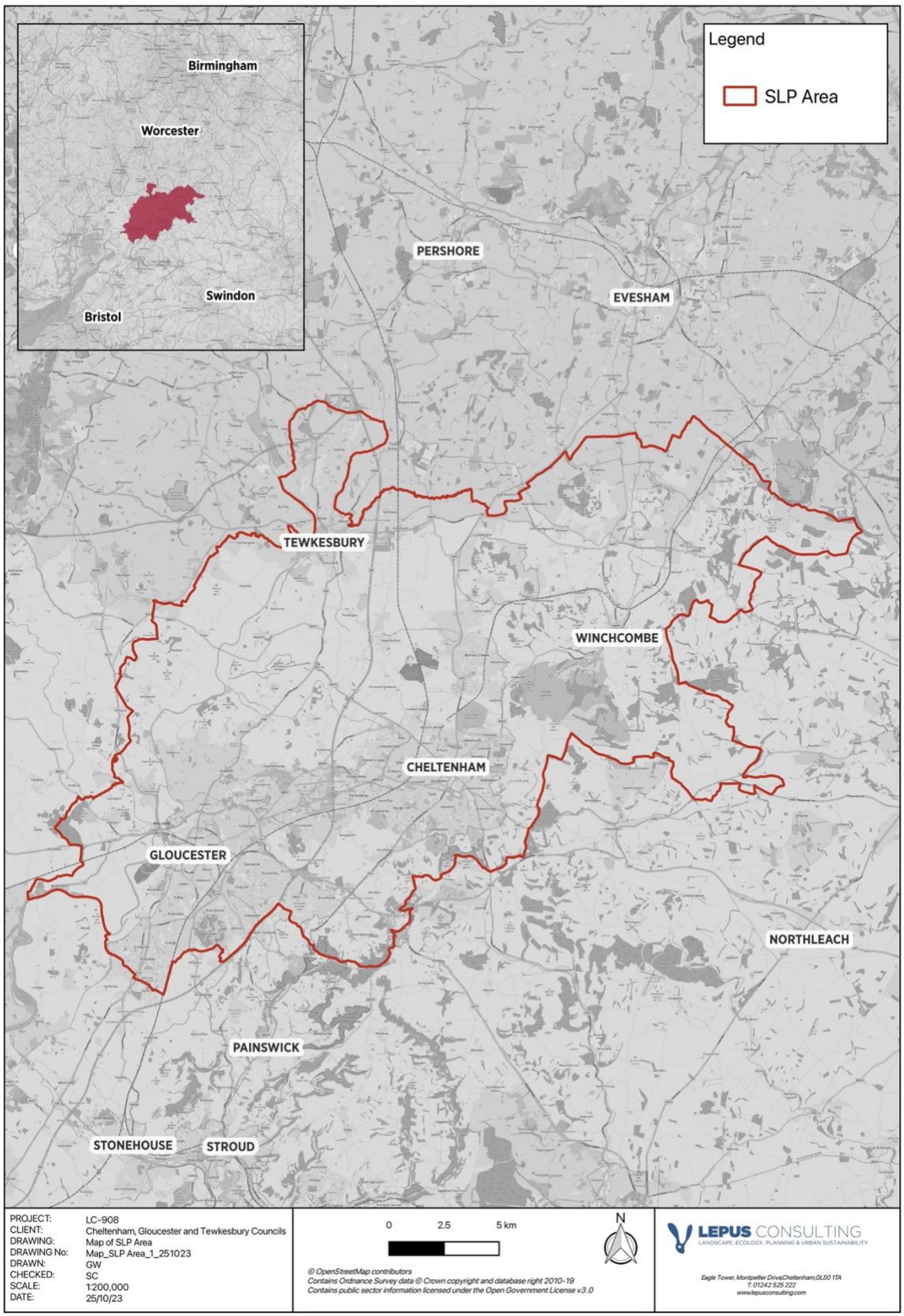

Figure 1.1: Local Plan area

1.2 Habitats Regulations Assessment

1.2.1 The application of HRA to land-use plans is a requirement of the Conservation of Habitats and Species Regulations 2017 (as amended)[3]. 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 (AA) of the implications for the site in view of that site's conservation objectives. These tests are referred to collectively as a HRA.

1.2.3 The Habitats Regulations[4] 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[5]. European sites together with sites set out in national policy (listed below) are referred to in England and Wales as a habitats site[6].

- 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

[3] 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: 25/10/23].

[4] 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: 25/10/23].

[5] 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: 25/10/23].

[6] 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: 25/10/23].

1.2.4 No HRA work has been undertaken to date in support of the SLP review. However, during the preparation of the Adopted JCS, HRA was undertaken on behalf of the Councils. **Table 1.1** provides a summary of relevant HRA work.

Table 1.1: HRA work undertaken in support of the Adopted JCS

HRA Report	Summary of Findings
HRA Screening of Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 'Developing the Preferred Option Consultation Document' Author: LUC December 2011	The document screened a number of development options for the JCS area including four spatial options ('development scenarios'), the vision, ten strategic objectives and seven draft strategic development management policies. The report screened European sites within a 15km radius of the plan area and those with identified functional connectivity to the plan area. The report concluded that, in the absence of detailed understanding of the sensitivities and management arrangements, Likely Significant Effects (LSEs) on the integrity of European sites could not be ruled out for some development scenarios, in particular: • Cotswold Beechwoods SAC – impacts from development, air quality and recreational disturbance • Dixton Wood SAC – impacts from development, vandalism • River Usk SAC – water quantity • River Wye SAC – water quantity and quality • Rodborough Common SAC – air quality • Severn Estuary SAC/SPA/Ramsar – effects on supporting habitat, water quantity and quality, recreational disturbance • Walmore Common SPA/Ramsar • Wye Valley and Forest of Dean Bat Sites SAC – impacts on bat foraging areas and flight lines • Wye Valley Woodlands SAC – air quality This report was consulted on alongside the Preferred Option Consultation Document in December 2011.
Gloucester, Cheltenham and Tewkesbury Draft Joint Core Strategy HRA Report Author: Enfusion October 2013	The report built upon the 2011 HRA Screening, including the received comments from statutory consultees, and produced further Screening and Appropriate Assessment to take account of changes to the JCS including: new housing and employment targets; an urban focused spatial development strategy; amended vision and strategic objectives; and new/amended policies complete with firm urban extension and strategic allocation sites to accommodate major development. The report identified the potential for adverse impacts on the Cotswold Beechwoods SAC in regard to short-range atmospheric pollution arising from the JCS alone, and potential in-combination impacts in terms of recreational disturbance and water quality/quantity, as well as potential in-combination impacts in terms of water quality/quantity on six other European sites (Lyppard Grange Ponds SAC, River Usk SAC, River Wye SAC, Severn Estuary SAC/SPA/Ramsar, Walmore Common SPA/Ramsar and Wye Valley Woodlands SAC). This report was consulted on alongside the Draft JCS during October and December 2013.
Gloucester, Cheltenham and Tewkesbury Pre-Submission Draft Joint Core Strategy HRA Report Author: Enfusion May 2014	The assessment and findings of the Draft JCS HRA Report were revised and updated to capture the subsequent changes to the JCS including: new lower housing and employment targets; amended policies including more robust mitigation; and changes to proposed urban extensions. The updated screening exercise again identified uncertainty with regard to the seven European sites as described in the Draft JCS HRA above.

HRA Report	Summary of Findings
	However, through consideration of the further mitigation measures proposed in the Pre-Submission Draft version of the JCS, and the recommendation to complete a Water Cycle Study, it was concluded that overall there would be no adverse impacts on European sites as a result of the JCS alone or in-combination.
Gloucester, Cheltenham and Tewkesbury Submission Joint Core Strategy HRA Addendum: Potential Recreational Impacts on the Cotswold Beechwoods SAC Author: JCS Authorities May 2015	Representations received from Natural England at the Pre-Submission stage highlighted concerns regarding the evidence available on the impacts and potential mitigation of recreational impacts on the Cotswold Beechwoods SAC that may arise as a result of the JCS. Concerns were raised due to significant issues at the SAC with increasing visitor pressure and use by mountain bikers. The addendum concluded that there is a need for further detailed discussion between the JCS Authorities and Natural England regarding the management of the SAC. Overall, the JCS policies provide a suitable framework to deliver Green Infrastructure and open space enhancements to provide mitigation. These discussions culminated in a Statement of Cooperation between the JCS authorities and Natural England regarding policy, mitigation and management measures required at the SAC.
Gloucester, Cheltenham and Tewkesbury JCS Proposed Main Modifications: Sustainability (Integrated) Appraisal Addendum Report Author: Enfusion October 2016	The HRA was updated to take account of the proposed changes to the number and location of strategic development sites in the JCS and reported in the SA Addendum Report (paragraphs 3.41-44). Two new strategic allocations (A10 Winnycroft and A11 West Cheltenham) were subject to HRA Screening in an Addendum Report. Potential LSEs due to recreational disturbance and air quality at Cotswold Beechwoods SAC were identified at Site A10. However, the HRA update concluded that these potential impacts would be mitigated by recommendations and policies in the JCS. Overall, it was determined that the Proposed Modifications for the JCS would not have adverse effects, alone or in-combination, on the integrity of the identified European sites.
Gloucester, Cheltenham and Tewkesbury JCS Examination. Updated Transport and Air Quality Studies Note on HRA. Author: Enfusion July 2017	This note considers the implications of the Wealden Case for the JCS HRA. It concluded the findings of the strategic level HRA of the GCT JCS reported in 2013-4, 2015 and 2016 remained valid – the Submitted and Proposed Modifications to the JCS will not have any adverse effects, either alone or in-combination, on the integrity of the identified European sites. It notes commitments were made to extend air quality monitoring in the most appropriate areas and undertake further air quality assessments that would help to predict more specific critical loadings of the key nitrogen pollutant. The findings from this further work would help to scope the requirements for any project level HRAs and the details of assessment studies needed. The findings of the high-level transport and air quality assessment work undertaken provided updated evidence since the Wealden Judgment. The JCS Authorities committed to continue to monitor air quality, undertake further studies as necessary, and continue to liaise closely with the relevant regulator, Natural England, to ensure implications for the Cotswolds Beechwoods SAC and HRA are addressed through the development management process. This would include the monitoring of any future developments in guidance from NE and Highways England arising from the Wealden Judgment recommendations.

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 which is designed to ensure no adverse impact on site integrity.

1.3.2 The purpose of this HRA is to inform the development of the SLP at the Regulation 18 stage of the plan making process. It provides screening of the draft vision and strategic objectives and growth, development and strategic policy options which comprise the current consultation. It also sets out further stages of HRA work that will be required at future stages of the SLP 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[7]
- 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').

[7] 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. A step-by-step guide to the methodology followed for the HRA, as outlined in the DTA Handbook, is illustrated in **Figure 2.1**. This HRA report provides outputs from Stage 1 of the HRA process.

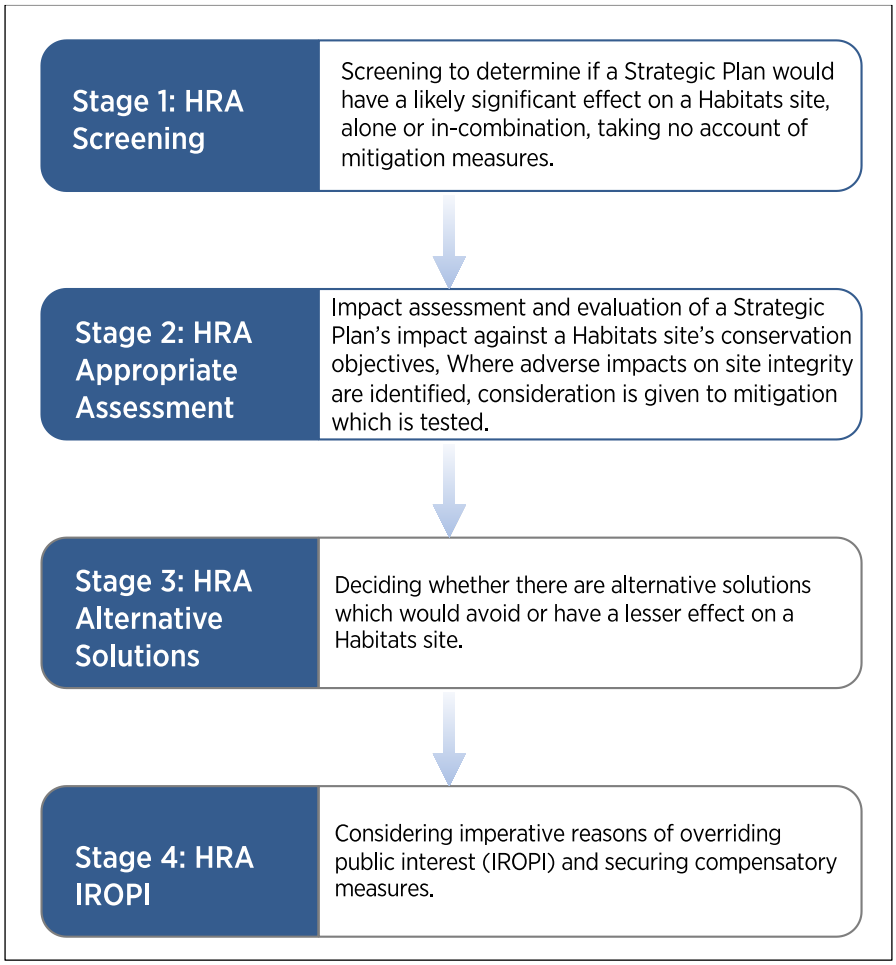

Figure 2.1: Stages in the Habitats Regulations Assessment process[8]

[8] 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: 25/10/23].

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 LSE's at a habitats site, either alone or in-combination with other plans or projects.

2.2.2 Where elements of the SLP 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 Evaluation codes have been used to summarise whether or not each component of the SLP is likely to have LSEs alone or in-combination. These codes are subsequently used to inform the formal screening decision (**Column 2, Table 2.1**).

Table 2.1: Screening evaluation and reasoning categories from Part F of the DTA Handbook

Screening Evaluation 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
F. Policies or proposals that cannot lead to development or other change.	Screen Out
G. Policies or proposals that could not have any conceivable or adverse effect on a site.	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
I. Policies or proposals with a Likely Significant Effect on a site alone.	Screen In
J. Policies or proposals unlikely to have a significant effect alone.	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. Bespoke area, site or case-specific policies or proposals intended to avoid or reduce harmful effects on a European site.	Screen In

2.2.4 Where components of the SLP have no LSE alone, the screening assessment next considers potential in-combination LSEs. Plans and projects which are considered to be of most relevance to the in-combination assessment of the SLP 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 SLP, 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[9].

2.2.5 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[10]) 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 SLP 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.

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"[11].

2.3.2 An 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 they 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 SLP 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.

[9] 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].

[10] 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].

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

2.3.3 An Appropriate Assessment aims to present information in respect of all aspects of the SLP 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 SLP 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 Whilst this report does not provide an Appropriate Assessment, it sets out work that is required to inform the Appropriate Assessment as the SLP develops over the plan making process 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[12]:

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."

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."

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

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 SLP. This is informally known as scoping and provides an understanding of potential impact pathways from the SLP 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 SLP.

3.2 Identification of an HRA study area

3.2.1 Each habitats site has its own intrinsic qualities, besides the habitats or species for which it has been designated, that enables the site to support the ecosystems that it does. An important aspect of this is that the ecological integrity of each site can be vulnerable to change from natural and human induced activities in the surrounding environment (known as pressures and threats). For example, sites can be affected by land use plans in a number of different ways, including the direct land take of new development, the type of use the land will be put to (for example, an extractive or noise-emitting use), the pollution / threat a development generates (air pollution or increased recreational pressure), and the resources used (during construction and operation for instance).

3.2.2 An intrinsic quality of any habitats site is its functionality at the landscape ecology scale. This refers to how the site interacts with its immediate surroundings, as well as the wider area. This is particularly the case where there is potential for developments resulting from the Plan to generate water or air-borne pollutants, use water resources or otherwise affect water levels. Adverse effects may also occur via impacts to mobile species occurring outside a designated site, but which are qualifying features of the site. For example, there may be effects on protected birds that use land outside the designated site for foraging, feeding, roosting or other activities.

3.2.3 There is no guidance that defines the study area for inclusion in HRA. Planning Practice Guidance for Appropriate Assessment (see **paragraph 1.3.3**) indicates that:

3.2.4 "The scope and content of an appropriate assessment will depend on the nature, location, duration and scale of the proposed plan or project and the interest features of the relevant site. 'Appropriate' is not a technical term. It indicates that an assessment needs to be proportionate and sufficient to support the task of the competent authority in determining whether the plan or project will adversely affect the integrity of the site".

3.3 Scoping impact pathways

3.3.1 Threats and pressures to which habitats sites are vulnerable have been identified through reference to data held by the JNCC and Natural England on Natura 2000 Data Forms, Ramsar Information Sheets and Site Improvement Plans (SIPs). This information provides current and predicted issues at each habitats site and is summarised in **Appendix A**.

3.3.2 Supplementary advice notices prepared by Natural England provide more recent information on threats and pressures upon habitats sites than SIPs and have therefore also been reviewed. A number of threats and pressures are unlikely to be exacerbated by the SLP and these have therefore been discounted from this assessment.

3.3.3 Based on a review of the adopted JCS HRA work, neighbouring LPA HRAs and local knowledge, the following potential impact pathways are considered to be within the scope of influence of the SLP. This includes consideration of potential impacts upon both designated sites and areas of supporting habitat outside their designation boundary.

- **Air pollution:** 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)[13]
- **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. Changes in water quantity also has the potential to affect supporting habitat (land outside a designated site boundary)
- **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 Wastewater Treatment Works (WwTWs) and other controlled discharge sources. Changes in water quality also has the potential to affect supporting habitat (land outside a designated site boundary)
- **Recreational pressure:** Increased development has the potential to increase recreational pressure upon habitats sites which are accessible to the public.
- **Urbanisation:** Urban development has the potential to result in disturbing activities (such as noise, lighting and visual disturbance). Disturbance effects may impact upon habitats sites themselves and also their qualifying features when outside a designated site boundary.
- **Habitat loss / fragmentation:** New development has the potential to result in the loss of supporting habitat outside a designated site boundary. Supporting habitat, also referred to as functionally linked habitat, may be located some distance from a habitats site. The fragmentation of habitats due to development may also cause the loss of connecting corridors which could hinder the movement of qualifying species.

[13] APIS (2016) Ecosystem Services and air pollution impacts. Available at: http://www.apis.ac.uk/ecosystem-services-and-air-pollution-impacts [Date Accessed: 26/10/23].

3.4 Air quality

3.4.1 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[14]. 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).

3.4.2 At this 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 / thresholds below) has been applied to determine potential air quality impact pathways to habitats sites:

- Does the 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 plan give rise to emissions which are likely to reach a Habitats site i.e application of a 10km radius?

3.4.3 The SLP will trigger housing and employment development and increase traffic related emissions. Air quality impacts have been shown to typically affect habitats sites within 10km of a plan boundary[15]. 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*'[16]. The following Habitat sites are located within 10km of the SLP boundary.

- Bredon Hill SAC
- Dixton Wood SAC
- Cotswold Beechwoods SAC
- Rodborough Common SAC
- Wye Valley & Forest of Dean Bat Sites SAC
- Walmore Common SPA and Ramsar
- Severn Estuary SAC, SPA and Ramsar

[14] 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].

[15] Chapman, C and Kite, B. 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: 21/09/23].

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

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

3.4.4 It is widely accepted that air quality impacts are greatest within 200m of a road source, decreasing with distance[17,18,19]. 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 SLP administrative area[20]. 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. 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 SLP to any habitats site through a change in atmospheric emissions (**Table 3.1**).

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

3.4.5 As noted above, the SLP will trigger housing and employment development and has the potential to increase traffic related emissions within 10km of the Plan area and therefore along road links within 200m of habitats sites listed in **Table 3.1**.

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

3.4.6 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 plan[21]. 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).

[17] 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.

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

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

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

[21] 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: 25/10/23].

3.4.7 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).

3.4.8 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.

3.4.9 Traffic modelling data was not available at the time of writing and therefore Natural England's screening thresholds have not been applied as part of this screening exercise.

3.4.10 To ensure a precautionary approach at this stage of the HRA process, air quality LSEs at habitats sites set out in **Table 3.1** are scoped in for further consideration in the HRA process.

Table 3.1: Atmospheric pollution impact pathways to habitats sites within 10km of the SLP boundary

Habitats Site Within 10km Radius of SLP Area	Is the Habitats Site Sensitive to Air Quality Impacts (As Indicated in SIP / NE Supplementary Conservation Advice – Appendix A)?	Is There a Strategic Road Link (A and B Roads) Located Within 200m of the Habitats site?	Will the Habitats Site be Scoped in for Further Assessment in the HRA Process?
Bredon Hill SAC	Yes	No	No
Cotswold Beechwoods SAC	Yes	Yes (A46 and B4070)	Yes
Dixton Woods SAC	Yes	No	No
Rodborough Common SAC	Yes	Yes (A46)	Yes
Severn Estuary SAC, SPA and Ramsar	Yes	No road links within 200m of the areas of the SPA and Ramsar which are within 10km of the SLP area.	No
Walmore Common SPA and Ramsar	No	n/a	No
Wye Valley and Forest of Dean Bat Sites SAC	Yes	A4136 (at the component of the SAC underpinned by the Westbury Brook Limestone Mine SSSI)	Yes

3.5 Water quality and water quantity

3.5.1 The majority of the plan area lies within the Severn River Basin District, and within the Severn Vale and the Avon Warwickshire surface water management catchment areas. As such, the plan area is dominated by the River Severn and its tributaries. The River Severn enters the plan area to the north of Tewkesbury flowing in a southerly direction towards the Severn Estuary to the west of Gloucester. The Severn Estuary is designated as a SAC, SPA and Ramsar for a number of qualifying features (**Appendix A**). Some of the key tributaries of the River Severn within the SLP area include the River Avon, River Chelt, River Leadon and Horsbere Brook. The River Avon enters the plan area in the north, before flowing south past Tewkesbury where it joins the River Severn. A key tributary of the River Avon is the River Isbourne, which flows in a northerly direction from Winchcombe before joining the River Avon. The Gloucester and Sharpness Canal runs close to the River Severn between Gloucester and Sharpness.

3.5.2 A small proportion of the south eastern area of Tewkesbury district lies within the Thames River Basin District, and within the Gloucestershire and the Vale and Cotswold surface water management catchments. These areas are drained by the River Colne and the River Windrush which are tributaries of the River Thames.

3.5.3 Urban development coming forward through the SLP 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 from Waste Water Treatment Works (WwTWs)

3.5.4 Decisions relating to water abstraction for supply and disposal of water are controlled through a number of licencing mechanisms and a high-level water planning framework which is subject to HRA. This ensures the protection of the water environment and compliance with the Water Framework Directive (WFD).

3.5.5 There are two habitats sites located within the Plan area; Dixton Woods SAC and the Cotswold Beechwoods SAC. The qualifying feature of Dixton Wood SAC is the Violet Click Beetle (*Limoniscus violaceus*) - **Appendix A**. This beetle is associated with the decaying wood habitats of Dixton Wood SAC which are very rich. Hawthorn (*Crataegus monogyna)* hedges and flowering bramble (*Rubus fruticosus* agg.) within the SAC both provide important nectar sources for the deadwood fauna[22]. Natural England's supplementary advice indicates that Dixton Wood SAC requires an appropriate hydrological regime to be maintained on site in order to sustain the deadwood habitat, including moist decaying timber, upon which the violet click beetle relies. The qualifying features of the Cotswold Beechwoods SAC are the dry grasslands and scrublands on chalk or limestone and the beech forests on neutral to rich soils (**Appendix A**). Natural England's supplementary advice indicates the Cotswold Beechwoods SAC requires natural hydrological processes to be maintained. Any development in the area surrounding these SACs proposed in the SLP has the potential to change the quality of surface water run off with potential LSEs.

3.5.6 Habitat sites outside the SLP area can also be affected by changes in water quality where they are hydrologically linked to development in the SLP. The Severn Estuary SAC, SPA and Ramsar site designations are located downstream of the SLP area. These sites are sensitive to changes in water quality. The River Avon and the River Severn flow through the SLP area, meeting at Tewkesbury, before flowing through to join the Severn Estuary. Any change in water quality due to development upstream has the potential to impact the conservation status of these downstream designations.

3.5.7 Hydrological impacts can also include a change in water levels at hydrologically sensitive sites. A review of desk-based information indicates that there are hydrological links between the Plan area and the Cotswold Beechwoods SAC and Severn Estuary SAC due their location within the Severn Value, Warwickshire Avon and Cotswold Abstraction Licence Strategy (ALS) areas. As such, the SLP is considered likely to have a potentially significant water quantity effect upon these designations and as such, they are scoped into this assessment for further consideration in the HRA process.

3.5.8 Land use planning has the potential to result in impacts upon qualifying features (for instance mobile species of fish or birds) when located outside a designation boundary, known as functionally linked habitat. The term 'functional linkage' is defined by Natural England as "the role or 'function' that land or sea beyond the boundary of a habitats site might fulfil in terms of ecologically supporting the populations for which the site was designated or classified. Such land is therefore 'linked' to the habitats site in question because it provides an important role in maintaining or restoring the population of qualifying species at favourable conservation status"[23].

[22] Natural England (2019). European site Conservation Objectives. Supplementary advice on conserving and restoring site features. Available at: http://publications.naturalengland.org.uk/file/5630793703751680 [Date Accessed: 26/10/23]

[23] Natural England. 2016. Commissioned Report. NECR207. Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects - a review of authoritative decisions.

3.5.9 The tests set out under Article 105 of the Habitats Regulations need to be applied in respect of plans which may significantly affect functionally linked habitat that plays an important role in contributing to the favourable conservation status of the relevant species for which a habitats site is designated. The CJEU ruling in the Holohan case confirmed that habitat and / or species which are located outside of a designated site, if they are necessary to the conservation of the habitat types and species listed for the protected area, must be considered in an Appropriate Assessment.

3.5.10 A detailed desk study has been undertaken as part of the HRA screening process to identify pathways and connections to areas of functionally linked land and watercourses which may be affected by the SLP. This has drawn on Natural England designated site and SSSI IRZ data, International Union for Conservation of Nature (IUCN) data, magic, priority habitat inventory data and aerial photography.

3.5.11 As noted, the SLP area predominantly falls within hydrological catchments associated with the Severn Estuary. The qualifying features of the Severn Estuary SAC include, among other features, a number of species of migratory fish including twaite shad (*Alosa fallax*), river lamprey (*Lampetra fluviatilis*) and sea lamprey (*Petromyzon marinus*). Criterion 4 of the Severn Estuary Ramsar designation notes that the site is important for the run of migratory fish between sea and river via estuary, including the SAC species (listed earlier) and additionally species of salmon (*Salmo salar*), sea trout (*S. trutta*) and allis shad (*Alosa alosa*). Consultation with the Environment Agency (EA) indicates that recent surveys have identified fish spawning sites along the whole length of the River Severn (where access is possible) and within the River Teme, with fish recorded from Maisemore Weir in Gloucester all the way up to Lincombe Wier near Stourport and in the River Teme from its mouth with the Severn to upstream of Knightwick and as far as Tenbury[24].

[24] Unlocking the Severn. https://www.unlockingthesevern.co.uk/endangered-fish-return-to-habitat-unlocked-after-180-years/ [Date Accessed: 26/10/23].

3.5.12 The 'Unlocking the Severn' project[25], which is run in partnership between the Canal and Rivers Trust, the Severn Rivers Trust, the Environment Agency (EA) and Natural England, aims to create fish passes at six barriers on the Severn and its River Teme tributary to allow Twaite Shad to migrate upstream. With the opening of the Diglis fish pass in March 2021 fish are now able to move upstream through Worcester to Stourport on Severn. A consultation response from Natural England indicates that currently, the tidal weir at Tewkesbury is believed to present an obstacle to most of the migratory fish species apart from the European eel, which has been recorded in the Warwickshire Avon. Natural England note that in the last few decades eel numbers have declined internationally by as much as 95% and have been listed by the International Union for Conservation of Nature (IUCN) on their Red List as critically endangered species[26]. Barriers to their journey upstream and degradation of habitat and pollution are some of the contributing factors for the decline. Whilst there are still barriers to upstream movement, any development within the upper catchment (and SLP area) must ensure potential future use of these sites are not compromised.

3.5.13 Any potential deterioration in water quality or habitat outside the Severn Estuary SAC and Ramsar designations as a result of the SLP may have implications for the migration of fish to upstream spawning habitat if it results in a barrier to movement. The impact of the SLP upon functionally linked watercourses and habitat through a deterioration in water quality, flows and loss and / or deterioration of riparian and in-stream habitat may therefore have adverse effects on the achievement of the conservation objectives which aim to maintain and restore the condition of these features for relevant qualifying species. Natural England consider that Good Ecological Status under the WFD is an appropriate standard for functionally linked watercourses[27].

[25] Rivers and Canals Trust. Unlocking the Seven Project Available at: https://canalrivertrust.org.uk/enjoy-the-waterways/canal-and-river-network/river-severn-navigation/unlocking-the-severn?gclid=EAIaIQobChMIsevp7MLd8QIVysLtCh3-VwefEAAYASAAEgLC4vD_BwE [Date Accessed: 26/10/23].

[26] IUCN Red List of Threatened Species. Available at: https://www.iucnredlist.org/species/60344/152845178 [Date Accessed: 26/10/23].

[27] Defra. 2014. Water Framework Directive implementation in England and Wales: new and updated standards to protect the water environment (publishing.service.gov.uk). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/307788/river-basin-planning-standards.pdf [Date Accessed: 26/10/23]

3.5.14 The River Clun SAC is located approximately 59.7km to the northwest of the SLP area. The SAC comprises the lower reaches of the River Clun, which extend upstream from its confluence with the River Teme to Broadward Bridge near Marlow. The River Clun is a tributary of the River Teme, which in turn flows into the River Severn, which runs through the SLP area. The section of the river encompassed by the SAC supports an important population of the freshwater pearl mussel (*Margaritifera margaritifera)*, which is one of the few remaining populations in the lowlands of the UK. The freshwater pearl mussel, which, along with its habitat, is protected by law under the Wildlife and Countryside Act 1981, favours cool and well-oxygenated soft water that is fast-flowing and free of pollution or turbidity. This species is known for being extremely long-lived, with individuals known to survive beyond 100 years. The UK is now the remaining European stronghold for this species, which has faced population declines as a result of human disturbance from pearl-fishing, pollution, acidification, nutrient enrichment, siltation, river engineering, and declining salmonid stocks[28]. In its larval stage, the freshwater pearl mussel relies on an "abundant supply of native juvenile salmonids" to act as hosts[29]. These migratory fish species, such as Atlantic salmon and brown trout, require extensive riverine habitats during the course of their migration and breeding cycles. As such, these salmonid species, and consequently the mussels they support, are likely to be vulnerable to deterioration of water quality in rivers within the wider Severn catchment. The migratory species of fish, upon which the freshwater pearl mussel relies, pass through the River Severn and its catchment. Therefore, adverse impacts on water quality and quantity as a result of SLP growth could potentially have an adverse impact on its conservation status.

3.5.15 The River Wye SAC encompasses sections of the River Lugg and Lower River Wye. The River Wye itself is one of the longest near natural rivers in the UK, with its source in the mountains of Wales (Powys), flowing through Hay-on-Wye, Hereford and Ross-on-Wye and eventually meeting the Severn Estuary at Chepstow. The River Wye SAC is sensitive to changes in water levels and quality. The SLP area is not located within the surface water catchment management area of the River Wye and therefore, it is unlikely that there will be hydrological links. However, given the qualifying features of the SAC include species of migratory fish which require maintenance of good water quality at the downstream Severn Estuary SAC, SPA and Ramsar this site is scoped into the HRA process for further consideration.

[28] Natural England (2018) River Clun SAC Conservation Objectives Supplementary Advice. Available at: http://publications.naturalengland.org.uk/file/6079231448842240 [Date Accessed: 26/10/23]

[29] Natural England (2018) River Clun SAC Conservation Objectives Supplementary Advice. Available at: http://publications.naturalengland.org.uk/file/6079231448842240 [Date Accessed: 26/10/23]

3.5.16 The River Usk is designated for the vegetation it supports and its populations of sea lamprey, brook lamprey (*Lampetra planeri*) and river lamprey (*Lampetra fluviatilis*). The site supports a range of Annex II fish species, which includes twaite shad (*Alosa falla*), salmon (*Salmo salar*) and bullhead (*Cottus gobi*). The River Usk is an important site for otters (*Lutra lutra*) in Wales. The Core Management Plan[30] for the River Usk indicates it is vulnerable to a range of hydrological impacts which could be affected by development. As part of consultation undertaken for the adopted JCS HRA, the Countryside Commission for Wales (now National Resource Wales) requested the River Usk SAC be included as part of the HRA, due to its hydrological connectivity with the River Wye, via the South East Wales Conjunctive Use Scheme. The SLP area is not located within the surface water catchment management area of the River Wye and therefore, it is unlikely that there will be hydrological links. However, given the qualifying features of the SAC include species of migratory fish which require maintenance of good water quality at the downstream Severn Estuary SAC, SPA and Ramsar this site is scoped into the HRA process for further consideration.

3.5.17 Taking into consideration potential changes in water levels (through abstraction for water supply), water quality (through surface water run-off and discharges from WwTWs) and impacts upon functionally linked watercourses, habitats sites were screened for potential hydrological impact pathways. Table 3.2 indicates which habitats sites will be scoped into the screening assessment for further consideration in the HRA process in terms of hydrological impact pathways.

[30] National Resource Wales (2008) Core Management Plan. River Usk SAC. Available at: https://consult.environment-agency.gov.uk/psc/ta5-1ud-nnb-generation-company-hpc-limited-2/supporting_documents/EA6%20%20River%20Usk%20SAC%20Core%20Managmnet%20Plan%20CCW%20March%202008.pd [Date Accessed: 26/10/23]

Table 3.2: Review of hydrological impact pathways to habitats sites within the influence of the SLP

Habitats Site With Hydrological Links to the SLP Area	Sensitive to Hydrological Impacts (water Quality and Water Quantity)	Potential Water Quality LSEs	Potential Water Quantity LSEs	Will the Habitats Site be Scoped In for Further Assessment in the HRA Process
Dixton Woods SAC	Yes	As set out in Natural England's Supplementary Advice this site is sensitive to changes in hydrological regime including water quality. Given the location of Dixton Woods SAC within the SLP area it has the potential to be impacted by a change in water quality depending on the location / proximity of development coming forward through the SLP.	Dixton Wood SAC is not identified as a hydrologically sensitive SAC within the Avon Warwickshire ALS and therefore it is not likely to be affected by changes in water supply due to increased water demand due to new development proposed in the SLP.	No
Cotswold Beechwoods SAC	Yes	As set out in Natural England's Supplementary Advice this SAC is sensitive to changes in hydrological regime including water quality. Given the location of the SAC within the SLP area it has the potential to be impacted by a change in water quality depending on the location / proximity of development coming forward through the SLP.	This SAC is located within the Severn Vale ALS area and therefore there is the potential for water quantity (abstraction) impacts from new development proposed in the SLP.	Yes
Severn Estuary SAC, SPA and Ramsar	Yes	The SLP area is located within the Severn River Basin District. Watercourses draining the Plan area will ultimately drain to the Severn Estuary and it is therefore hydrologically connected to these downstream designations. In addition, these downstream designations support species of migratory fish which have the potential to move into the upper catchment for spawning and are sensitive to changes in water quality which may be caused by development coming forward through the SLP.	These designations are located within the Severn Vale ALS area and therefore there is the potential for water quantity (abstraction) impacts from new development proposed in the SLP.	Yes

Habitats Site With Hydrological Links to the SLP Area	Sensitive to Hydrological Impacts (water Quality and Water Quantity)	Potential Water Quality LSEs	Potential Water Quantity LSEs	Will the Habitats Site be Scoped In for Further Assessment in the HRA Process
River Clun SAC	Yes	The SLP area is located within the Severn River Basin District. Watercourses draining the Plan area will ultimately drain to the Severn Estuary. Migratory species of fish pass through the Severn Estuary to upstream spawning sites. The qualifying species of the River Clun SAC are reliant on these juvenile fish species for part of their life cycle. Any change in water quality which may be caused by the SLP has the potential to have knock on impacts upon the qualifying features of this SAC.	Development set out in the SLP is unlikely to affect water levels at the River Clun SAC as it is not located within the River Wye ALS area.	Yes
River Usk	Yes	The SLP area is located within the Severn River Basin District. Watercourses draining the Plan area will ultimately drain to the Severn Estuary and it is therefore hydrologically connected to these downstream designations. Mobile qualifying species of the River Usk SAC migrate through the Severn Estuary to spawn and any changes in water quality which may be caused by the SLP could have an adverse effect on these species.	Development set out in the SLP is unlikely to affect water levels at the River Usk as it is not located within the River Wye ALS area.	Yes

Habitats Site With Hydrological Links to the SLP Area	Sensitive to Hydrological Impacts (water Quality and Water Quantity)	Potential Water Quality LSEs	Potential Water Quantity LSEs	Will the Habitats Site be Scoped In for Further Assessment in the HRA Process
River Wye SAC	Yes	The SLP area is located within the Severn River Basin District. Watercourses draining the Plan area will ultimately drain to the Severn Estuary and it is therefore hydrologically connected to these downstream designations. Mobile qualifying species of the River Wye SAC migrate through the Severn Estuary to spawn and any changes in water quality which may be caused by the SLP could have an adverse impact on these species.	Development set out in the SLP is unlikely to affect water levels at the River Wye as it is not located within the River Wye ALS area.	Yes

3.6 Recreational pressure

3.6.1 Increased recreational pressure at habitats sites can result in damage to habitats through 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, tree climbing etc.

3.6.2 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).

3.6.3 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.

3.6.4 Where available, established strategic approaches to recreational impacts at habitats sites, and corresponding ZOIs, have been reviewed as part of this scoping assessment. The recreational draw of a habitats site depends on a number of factors. These include:

- the extent and range of facilities provided (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 a national park; and
- the extent to which a site has been promoted as a destination for day trippers and locals, alike.

3.6.5 Public access and disturbance are identified as a threat / pressure at the Cotswold Beechwoods SAC within both the SIP and Natural England's supplementary advice. LPAs within the vicinity of the Cotswold Beechwoods[31] have worked together to develop a strategy that sets out a strategic approach to mitigate recreation impacts, associated with new housing growth, on the Cotswold Beechwoods SAC[32]. The strategy applies to new residential development within a ZOI of 15.4km of the SAC (see Figure 3.1). The SLP area lies within this ZOI and therefore recreational impacts upon the SAC from growth set out in the SLP are likely and will be considered in the HRA process further.

[31] These authorities include: Tewkesbury, Cotswold, Stroud, Cheltenham and Gloucester City Councils (and the Highway Authority).

[32] Liley, D. & Panter, C. (2022). Cotswold Beechwoods SAC Recreation Mitigation Strategy. Report by Footprint Ecology.

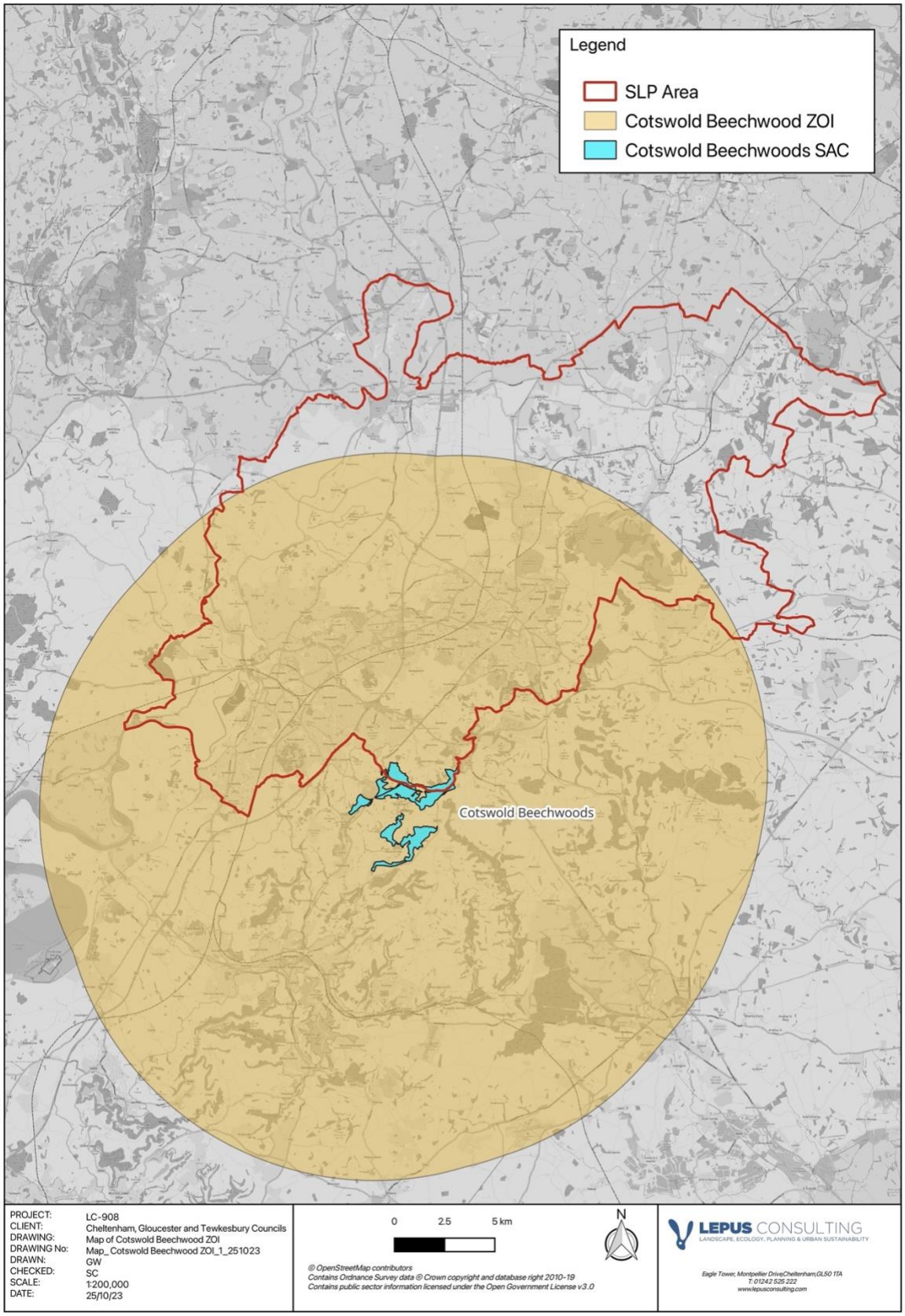

Figure 3.1: Cotswold Beechwoods SAC recreational ZOI

3.6.6 A number of the qualifying features for the Severn Estuary SAC, SPA and Ramsar designations are known to be vulnerable to disturbance from human activities, including the intertidal mudflats and sandflats, and the species they support. Stroud District Council has prepared a strategic mitigation strategy for the Severn Estuary in consultation with Natural England, Wildfowl and Wetlands Trust Severn Estuary Partnership, ASERA and Severn Estuary Stakeholders[33]. This was developed on the basis of visitor survey data collated by EPR in 2015/16[34] and sets out a strategy to mitigate disturbance impacts associated with growth. The EPR visitor survey work established a catchment area of 7.7km from the Severn Estuary, within which developments involving a net increase in housing may be required to contribute to the funding of impact avoidance and mitigation measures. At their closest point, the Severn Estuary designations are located approximately 8.1km from the SLP boundary.

3.6.7 Affected Local Planning Authorities (LPAs) are now working collaboratively to update the Severn Estuary Mitigation Strategy and recreational ZOI. This update will be informed by recent visitor surveys which were undertaken in 2022[35]. Visitor survey findings indicate that the Estuary draws visitors from a 12.6km ZOI (based on the 75th percentile of visitors). It is noted that this ZOI covers parts of Gloucester and Tewkesbury as shown in **Figure 3.2**. The updated Mitigation Strategy will be taken into consideration in the HRA process once published. The Severn Estuary SAC, SPA and Ramsar site will therefore be scoped into the HRA process in terms of recreational impacts to ensure a precautionary approach is adopted at this stage.

[33] Stroud District Council (2017) Strategy for Avoidance of Likely Significant Adverse Effects on the Severn Estuary SAC, SPA and Ramsar Site. Available at: https://www.stroud.gov.uk/media/557874/item-8-appendix-a.pdf [Date Accessed: 26/10/23].

[34] EPR (2016) Severn Estuary (Stroud District) Visitor Survey Report. Available at: http://www.epr.uk.com/assets/severnestuaryreport.pdf. [Date Accessed: 26/10/23].

[35] Caals, Z. & Liley, D. (2022). Severn Estuary Visitor Survey 2022. Report by Footprint Ecology.

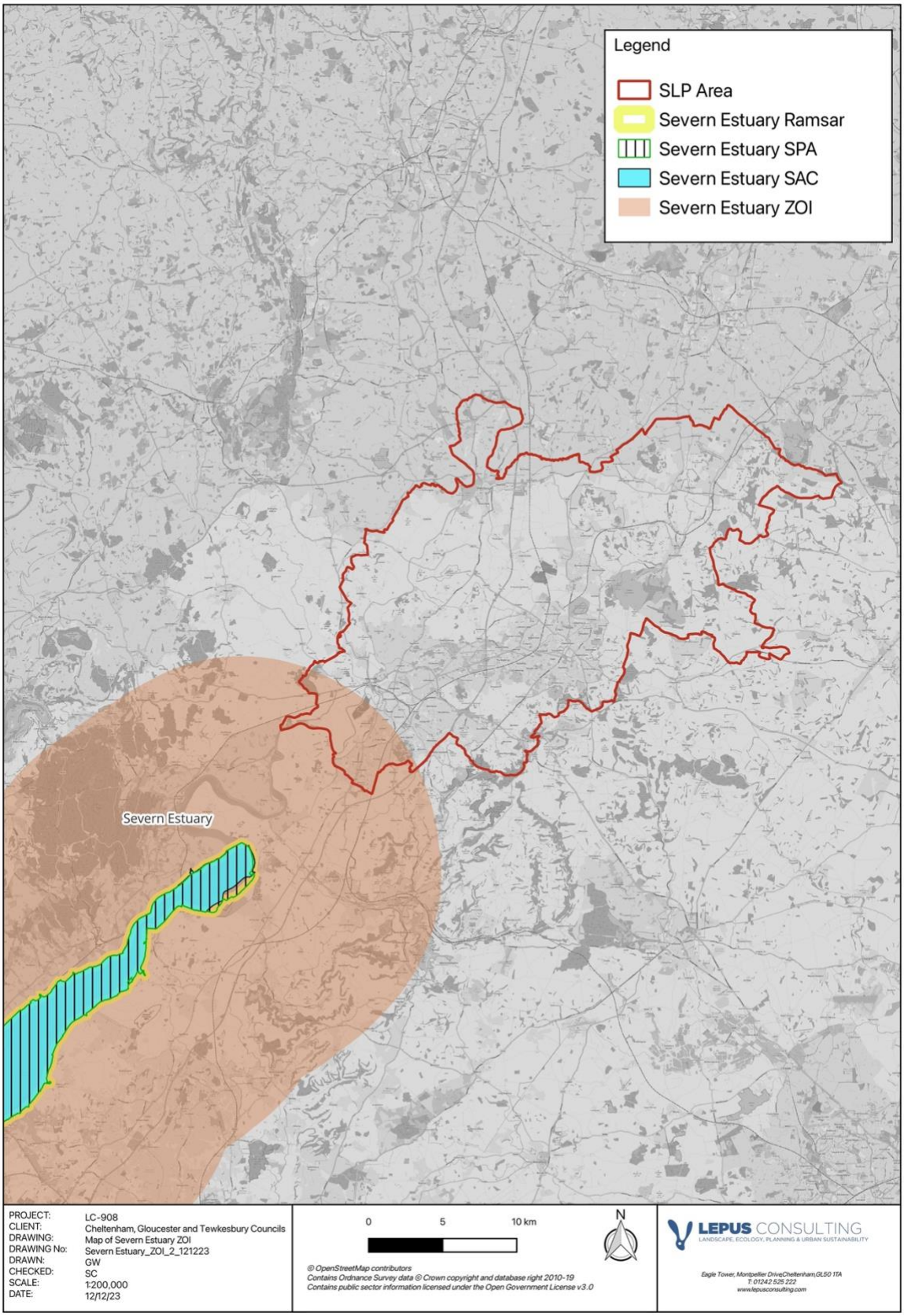

Figure 3.2: Severn Estuary designations provisional recreational ZOI (based on visitor origins from Severn Estuary survey locations only)

3.6.8 Public access and disturbance are identified as a threat / pressure at Rodborough Common SAC within the SIP and Natural England's supplementary advice, with recreational pressure noted to be affecting soils through compaction and erosion. Its elevated position and open access status, located on the Cotswold plateau above the scarp slope of the hills provides a particular draw for visitors.

3.6.9 In order to safeguard Rodborough Common SAC from the impact of future growth, Stroud District Council, Natural England, the National Trust, the Commons Graziers and Stroud Valleys Project have developed an Interim Impact Avoidance Strategy for housing within an identified catchment of Rodborough Common. This strategy was reviewed and updated as part of the Stroud Local Plan Review[36]. It identifies a 3.9km catchment from Rodborough Common (see **Figure 3.3**). At its closest point the SLP is not located within this ZOI. As such, recreational impacts from the Plan on the Rodborough Common SAC are considered unlikely and will therefore not be considered further in the HRA process.

[36] Footprint Ecology. 2022. Rodborough Common SAC Mitigation Strategy.

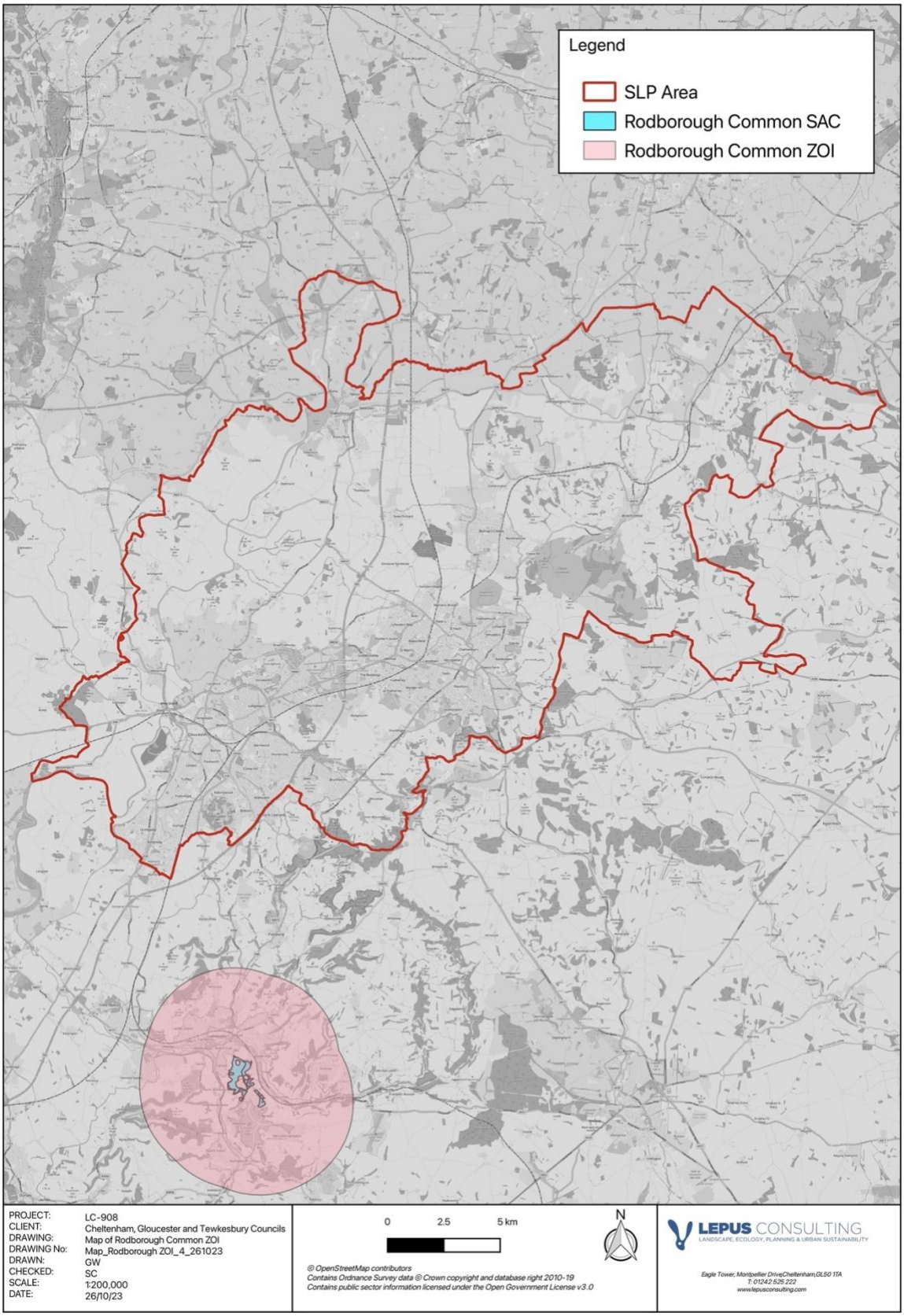

Figure 3.3: Rodborough Common SAC recreational ZOI

3.6.10 A review of recreational impact assessments undertaken for other habitats sites across the UK indicates visitors typically live within 4.2 km (overall median value) of nature conservation sites and that the majority (75%) live within 12.6 km[37]. However, this review recognises that some visitors are prepared to travel longer distances to visit particular sites for instance coastal and wetland sites. As such, a precautionary distance of 15km from the SLP area has been applied to scope habitats sites which do not have an established recreation mitigation strategy in place and which may be vulnerable to this impact pathway (see **Table 3.3**).

Table 3.3: Review of recreational impact pathways to Habitats sites within the influence of the SLP

Habitats Sites Within 15km of the SLP Area	Sensitive to Recreational Impacts	Potential Recreation LSEs	Will the Habitats Site be Scoped in for Further Assessment in the HRA Process
Dixton Woods SAC	No	Dixton Wood SAC comprises a steep east facing woodland surrounded by permanent grassland, situated in the foothills of the Cotswold Scarp. Public access and disturbance are not identified as a threat/pressure at Dixton Woods SAC within the SIP or Natural England's supplementary advice. Given the remote nature of this site, steep topography and limited access public access and disturbance effects are considered unlikely.	No
Cotswold Beechwoods SAC	Yes	The habitats associated at the Cotswold Beechwoods SAC are identified as being vulnerable to habitat loss and fragmentation. The SLP is located within the ZOI established in the recreation mitigation strategy for the SAC. Therefore, it is likely that growth set out in the SLP will result in recreational effects at the SAC.	Yes
Bredon Hill SAC	No	Public access and disturbance are not identified as a threat/pressure at Bredon Hill SAC within the SIP or Natural England's supplementary advice. However, given the location of this SAC within 1.5km of the SLP area, it is considered that recreational effects may have implications for the violet click beetle. The veteran trees at Bredon Hill SAC provide ideal conditions which support the violet click beetle. Public access has the potential to disturb and damage these veteran trees and therefore compromise the habitat upon which the violet click beetle relies.	Yes
Severn Estuary SAC, SPA and Ramsar	Yes	It is noted that affected LPAs are currently updating the Severn Estuary Mitigation Strategy based on 2022 visitor survey data. The Severn Estuary SAC, SPA and Ramsar will therefore be scoped into the HRA process.	Yes
Rodborough Common SAC	Yes	The SLP is not located within the established recreational ZOI for the SAC and therefore it is unlikely that development within the SLP area will have a recreational effect on this designation directly.	No

[37] Weitowitz, D, C. Panter, C. Hoskin, R. and Liley, D. October 2019. The effect of urban development on visitor numbers to nearby protected nature conservation sites. Journal of Urban Ecology, Volume 5, Issue 1. Available at: https://academic.oup.com/jue/article/5/1/juz019/5602629 [Date Accessed: 26/10/23].

Habitats Sites Within 15km of the SLP Area	Sensitive to Recreational Impacts	Potential Recreation LSEs	Will the Habitats Site be Scoped in for Further Assessment in the HRA Process
Walmore Common SPA and Walmore Common Ramsar	Yes	The Bewick's swan at Walmore Common SPA and Walmore Common Ramsar are known to be vulnerable to disturbance from human activities, including barriers to their successful movement between feeding and roosting areas, such as light, sound, vibration, and presence of people and animals[38]. At its closest point, these designations are located approximately 1.5km from the SLP boundary. Given this distance it can be reasonably concluded that impacts associated with recreational effects as a result of the SLP may have an impact.	No
Wye Valley and Forest of Dean Bat Sites SAC	Yes	The SIP for the Wye Valley and Forest of Dean Bat Sites SAC notes that public access and disturbance impacts relates predominantly to disturbance of hibernation roosts by cavers. As such, it is unlikely that growth set out in the SLP would have a direct likely significant effect on this SAC.	No

3.7 Urbanisation effects

3.7.1 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 of between 400m[39] and 500m[40]. These distances recognise the distance that cat predation is likely to take place and also the increased frequency of visits made by people living in close proximity to a designated site. Only Dixton Woods SAC and the Cotswold Beechwoods SAC are located within 500m of the SLP area.

3.7.2 Given their location within the SLP area, urbanisation impacts may be exacerbated should additional development be progressed within the immediate vicinity of each SAC. Consequently, they will be scoped in for further consideration in the HRA screening process in terms of urbanisation effects.

[38] Natural England (2018) Walmore Common SPA Conservation Objectives Supplementary Advice. Available at: http://publications.naturalengland.org.uk/file/6301378498789376 [Date Accessed: 26/10/23]

[39] Thames Basin Heaths Strategic Joint Partnership. Thames Basin Heaths SPA Delivery Framework. Available at: https://www.guildford.gov.uk/media/21979/Thames-Basin-Heaths-SPA-delivery-framework/pdf/thames-basin-heaths-spa-delivery-framework.pdf?m=636114482807070000 [Date Accessed: 26/10/23].

[40] 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.

3.8 Habitat loss and fragmentation

3.8.1 There are two habitats sites located within the SLP area. Habitats and species within the designated boundary of Dixton Woods SAC and the Cotswold Beechwoods SAC are unlikely to be lost as a result of direct development proposed in the SLP. However, there is potential for the SLP to result in the loss of supporting habitat, also referred to as functionally linked habitat (see definition in **paragraph 3.5.8**), which may be located some distance from these habitats sites and also those outside the SLP area.

3.8.2 Dixton Woods SAC is one of only three sites in the UK, alongside Windsor Forest and Great Park SAC and Bredon Hill SAC, known to support the violet click beetle. Potential habitat linkages between these sites, in particular between Bredon Hill SAC and Dixton Wood SAC which are approximately 7.5km apart, need to be identified in order to help maintain and restore this species. Development set out in the SLP has the potential to impact these habitat connections and will therefore be considered in more detail in the HRA process.

3.8.3 The Wye Valley and Forest of Dean Bat Sites SAC comprises 13 individual component sites each individually designated as a SSSI and comprising a mixture of bat maternity roosts and hibernation sites in old buildings and mines / caves. The closest component is located approximately 6km to the west of the SLP area within the Forest of Dean at Mitcheldean. The wooded habitat and farmland of the Wye Valley and the Forest of Dean provides good foraging habitat for bats. This habitat supports a large number of bat summer roosts and hibernation sites outside the designated SAC boundary. The bats are vulnerable to the loss or disturbance of both summer and winter roost sites and the removal of linear habitat corridors such as hedgerows and woodlands. The SIP notes "*During the summer, Schofield (2008) found that lesser horseshoe bats (Rhinolophus hipposideros) tend to forage within 2- 3km of their roost, though they can sometimes travel 4km and further from their roosts to suitable foraging grounds*." In relation to greater horseshoe bats (*Rhinolophus ferrumequinum*) the SIP notes "*Greater horseshoe bats from the Dean Hall maternity roost have been shown to forage up to 9km from the roost using a number of night roosts during the feeding period (Billington 2008 & 2009), although a number of studies have shown the maximum foraging range for most bats is 4km (Duvergé & Jones 1994)".* Given the proximity of several components of this SAC to the SLP area (closest component being 9.2km to its west), impacts from development upon supporting habitat will be considered further in the HRA process.

3.8.4 The Severn Estuary SPA and Severn Estuary Ramsar include saltmarshes and the adjacent extensive areas of intertidal mud, sand and rocky shores. These habitats provide essential food and resting places for the wide range of wintering and migratory waterfowl and are therefore identified as key "supporting habitats" for the conservation of these species[41] (see **Appendix A** for details on qualifying bird species and waterfowl assemblage for the SPA and Ramsar site).

[41] Natural England, CCW and WAG (2009) The Severn Estuary European Marine Site. Natural England & the Countryside Council for Wales' advice given under Regulation 33(2)(a) of the Conservation (Natural Habitats, &c.) Regulations 1994, as amended. Available at: http://publications.naturalengland.org.uk/publication/3184206 [Date Accessed: 26/10/23].

3.8.5 Maintaining suitable migratory routes for birds which use the Severn Estuary SPA and Severn Estuary Ramsar site is essential to the maintenance of bird populations at a favourable conservation status[42]. Essential habitat may provide an important role as migratory routes and summer breeding habitat for the qualifying features of the SPA and Ramsar site, and without which, favourable conservation status would be compromised. In addition, the role of habitats outside the designations, such as freshwater coastal grazing marsh, improved grassland and open standing waters, may provide key areas for feeding and roosting for migratory bird species particularly at high tide. It is noted that the role and importance of functionally linked bird habitat may change over time, particular in response to the impacts of climate change such as harsher winters and increased flooding.

3.8.6 Natural England commissioned several studies to identify sites of importance to the bird populations within, and outside of, the Severn Estuary SPA and underpinning Severn Estuary SSSI designation. The fifth phase of this study provided a desk-based review of best available data on birds using wetlands sites from the last 10 years with the aim of understanding better the role of functionally linked land, outside the designated boundary of the SPA within Gloucestershire and Worcestershire along the River Severn and River Avon valleys[43]. This body of work identified bird sites with proven linkage and a high likelihood to provide linkage in Gloucestershire and within the SLP area. Development within the SLP has the potential to impact these sites and therefore the impact upon these habitats and their functional linkage to the estuary will be considered further in the HRA process. Impacts will also be informed by the emerging updated Severn Estuary Recreational Mitigation Strategy currently being prepared by affected LPAs which will also take into consideration areas of functionally linked bird habitat.

[42] Department for Communities and Local Government. 2006. The habitats and species of the Severn Estuary. A basic introduction for developers and decision makers. Available at: https://asera.org.uk/wp-content/uploads/sites/3/2015/06/Habitats-and-Species.pdf [Date Accessed: 26/10/23].

[43] Palmer, E. & Smart, M. (2022). Identification of wintering and passage roosts on functionally linked land of the Severn Estuary - Gloucestershire and Worcestershire (Phase 5). Natural England Commissioned Reports. NECR401. Available at: https://publications.naturalengland.org.uk/publication/5694125407207424 [Date Accessed: 26/10/23].

3.9 Habitats sites and threats and pressures

3.9.1 **Figure 3.4** illustrates the location of habitats sites which will be scoped into the HRA process for further consideration in the screening assessment (**Section 4**). Impact pathways which have the potential to affect these habitats sites are summarised in **Table 3.4**. These will form the basis of the following HRA screening assessment.

Table 3.4: Potential impact pathways from the SLP at each habitats site.

Potential Impact Pathways	Air Pollution	Water Quality and Quantity Changes	Recreational and Urbanisation Effects	Habitat Loss / Fragmentation
Habitats Sites	Cotswold Beechwoods SAC Rodborough Common SAC Wye Valley and Forest of Dean Bat Sites SAC	Dixton Woods SAC Cotswold Beechwoods SAC Severn Estuary SAC, SPA and Ramsar River Clun SAC River Usk SAC River Wye SAC	Cotswold Beechwoods SAC Bredon Hill SAC Dixton Woods SAC	Bredon Hill SAC Dixton Woods SAC Severn Estuary SAC, SPA and Ramsar Wye Valley and Forest of Dean Bat Sites SAC

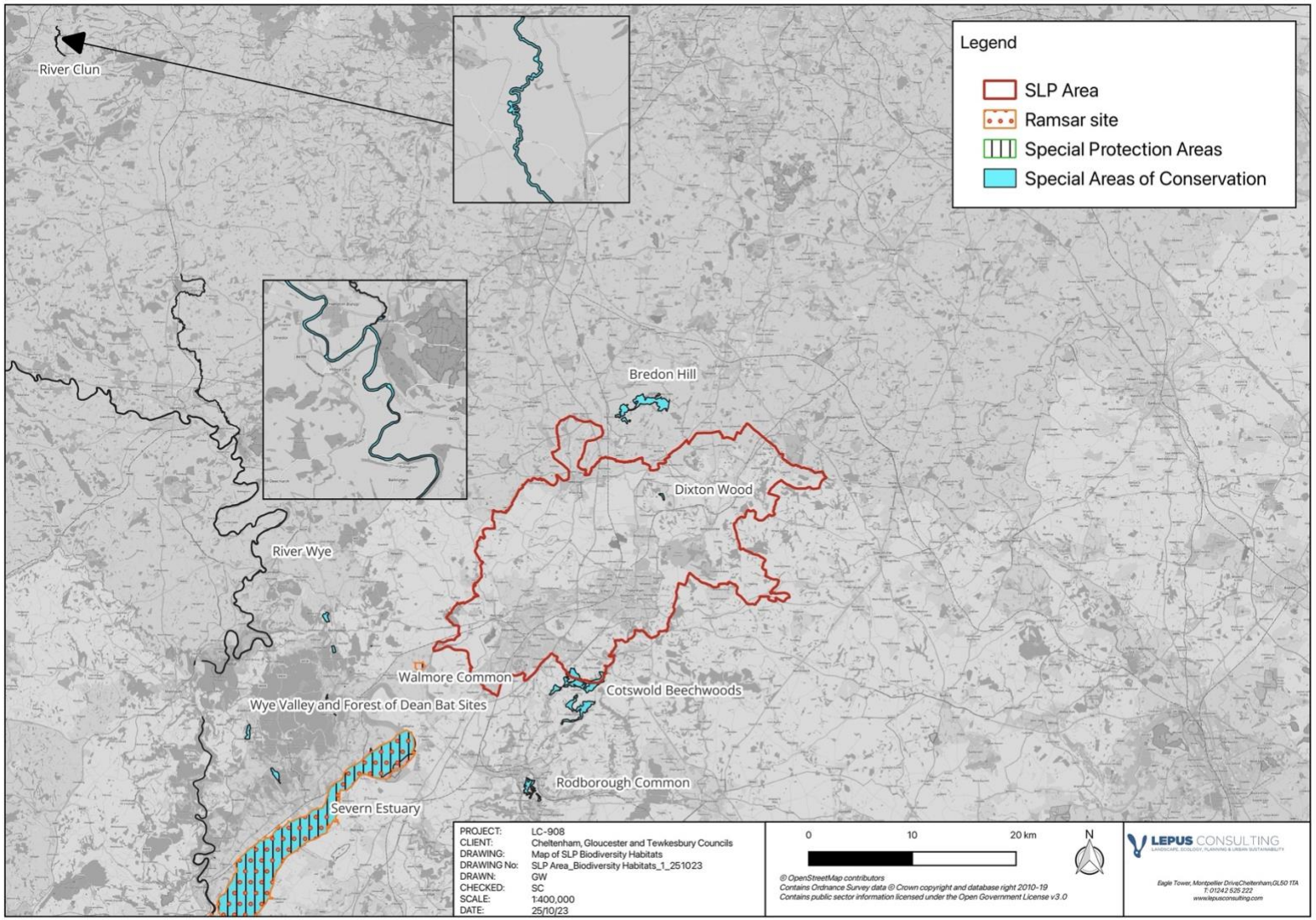

Figure 3.4: Habitats sites for consideration in the HRA process

4 Screening of the Issues and Options Consultation SLP

4.1 Introduction

4.1.1 Following the identification of habitats sites for inclusion in the HRA and potential pathways of impact from the SLP (**Chapter 3**), the next stage in the HRA process will be screening.

4.2 Preliminary screening and recommendations

4.2.1 The SLP is not directly connected with or necessary to the management of any habitats site. Neither can it be excluded or eliminated from the HRA process. Therefore, it is necessary to identify whether there are any aspects of the Plan which may lead to LSEs at a habitats site, either alone or in combination with other plans or projects.

4.2.2 LSEs are discussed in **Chapter 3** and comprise an effect which may undermine the conservation objectives for the qualifying features of a habitats site, either alone or in-combination. Identification of LSEs will trigger the requirement for an Appropriate Assessment – Stage 2 of the HRA process. Appropriate Assessment allows effects to be assessed in more detail and mitigation measures applied.

4.2.3 Screening for LSEs is normally undertaken at the preferred options stage when policies and allocations are known, and again at Regulation 19 to ensure any changes are captured. Screening at preferred options will comprise a detailed analysis of all components of the SLP against Screening criteria set out in **Table 2.1**.

4.2.4 The Issues and Options consultation (October 2023) assessed at this stage in the plan making process does not contain any policies or details on strategic allocations. Instead, it identifies specific issues upon which consultation is sought including a number of potential growth options for sustainable development.

4.2.5 **Appendix B** provides an analysis of the vision, strategic objectives and development and growth options addressed in the Issues and Options consultation document, to highlight key issues for consideration in future stages of the HRA. A summary of preliminary HRA recommendations is set out below in **Box 1**.

Box 1: Preliminary HRA Recommendations

- Policy should take into consideration requirements set out in the Cotswold Beechwoods Mitigation Strategy.
- The SLP should provide adequate recreational provision (in the form of informal and formal recreational space) to accommodate the proposed levels of growth. This will have benefits for habitats sites, or areas of functionally linked land, which are sensitive to recreational impacts. It is recommended that areas of open and green space be retained where possible.
- Policy relating to the protection of biodiversity and geodiversity should consider the protection of functionally linked watercourses and habitat within the SLP area.
- Strong policy wording around air, noise and light pollution should be incorporated into the SLP. This should focus on habitats and species as well as human receptors.
- The SLP should look at measures targeting a reduction of water use such as the promotion of tighter water efficiency standards.
- Water quality and water supply will be a key consideration in the HRA, in particular in relation to water dependent habitats sites and functionally linked watercourses. It is recommended that the SLP incorporates strong policy wording around the protection of water quality to achieve Good Ecological Status.
- It is recommended that reference be made to the national Green Infrastructure standards[44] and the revised Accessible Natural Greenspace Standards (ANGSt) requirements[45] within the SLP infrastructure provision.
- It is recommended that any GI provision complements the Gloucestershire Local Nature Recovery Strategy.
- Selection of options which encourage sustainable and active transport choices will have a positive impact upon air quality with knock on benefits for habitats sites and areas of functionally linked land and should be prioritised.
- The Councils may wish to consider frameworks which set out how ecology can be incorporated into design such as the Wildlife Trusts (Gloucestershire Wildlife Trust) building with nature standard which is an accreditation scheme designed to enable developers to go beyond minimum standards[46].
- Incorporation of renewable development allocations should consider best practice provided by Natural England the Royal Society for the Protection of Birds (RSPB) in site selection and design.

[44] Natural England. GI Framework Web Portal. https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Home.aspx

[45] The revised ANGSt are a component of the green infrastructure standards and include additional targets for greenspace provision.

[46] Building with Nature. Available at: https://www.buildingwithnature.org.uk/about [Date Accessed: 26/10/23]

5 Next steps

5.1 Conclusions

5.1.1 The purpose of this HRA Report is to ensure the HRA forms an integral element of the plan making process and that best practice is followed.

5.1.2 Recommendations are set out in **Box 1**. These should inform the selection of strategic allocations and policies in the SLP.

5.1.3 The preliminary scoping and screening assessment has concluded that the following habitats sites and associated areas of functionally linked land / watercourses will form the focus of the HRA:

- Cotswold Beechwoods SAC
- Dixton Woods SAC
- Bredon Hill SAC
- Rodborough Commons SAC
- Wye Valley and Forest of Dean Bat Sites SAC
- Severn Estuary SAC
- Severn Estuary SPA
- Severn Estuary Ramsar
- River Clun SAC
- River Usk SAC
- River Wye SAC

5.1.4 The following pathways of impact will be explored in more detail in subsequent stages of the HRA, drawing on other elements of the evidence base:

- Change in air quality
- Change in water quality and water quantity
- Recreational pressure and urbanization effects
- Habitat loss / fragmentation

5.2 Next steps

5.2.1 The next stage of the HRA process will comprise a formal screening assessment of all allocations and policies at Preferred Options. All components of the Issues and Options Consultation will be assessed against the HRA screening criteria (see **Table 2.1**). Screening will take into consideration case law and best practice and outcomes will ensure the HRA influences the plan making process and site selections in an iterative manner.

5.2.2 The output of screening will identify LSE of the SLP on habitats sites scoped into the HRA at this stage and identify whether Appropriate Assessment will be required. It will also set out additional recommendations (see **Box 1**) intended to help ensure that the SLP does not affect the integrity of any habitats site and detail methods for Appropriate Assessment and where evidence allows include a preliminary Appropriate Assessment.

5.2.3 The HRA will continue to inform the plan making process with both a re-screening and Appropriate Assessment being reported upon at Regulation 19.

5.2.4 As set out in the Habitats Regulations the Council must 'have regard' to Natural England's representations under the provisions of Regulations 105(2).

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Appendix A: Habitats Site Conservation Objectives, Qualifying Features, Threats and Pressures

Appendix A: Habitats Site Conservation Objectives, Qualifying Features, Threats and Pressures

Cotswold Beechwoods SAC[1]

Qualifying Features:

- H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*); Dry grasslands and scrublands on chalk or limestone; and
- H9130. *Asperulo-Fagetum* beech forests; Beech forests on neutral to rich soils.

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;
- The structure and function (including typical species) of qualifying natural habitats; and
- The supporting processes on which qualifying natural habitats rely.

Threats and Pressures at Habitats site which may be affected[2]

- Public access / disturbance
- Air Pollution: impact of atmospheric nitrogen deposition
- Hydrological changes
- Illumination

[1] Natural England (2018) Cotswold Beechwoods SAC Conservation Objectives. Available at: http://publications.naturalengland.org.uk/file/6196928853573632 [Date Accessed: 26/10/23].

[2] Natural England (2015) Cotswold Beechwoods SAC Conservation Objectives. Available at: https://publications.naturalengland.org.uk/publication/6276086220455936 [Date Accessed: 26/10/23].

Dixton Wood SAC[3]

Qualifying Features:

S1079. *Limoniscus violaceus*; Violet Click Beetle.

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 the habitats of qualifying species;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which the habitats of qualifying species rely;
- The populations of qualifying species; and
- The distribution of qualifying species within the site.

Threats and Pressures at Habitats site which may be affected[4]

- Hydrological changes
- Changes in air quality

Bredon Hill SAC[5]

Qualifying Features:

S1079. *Limoniscus violaceus*; Violet Click beetle.

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 the habitats of qualifying species;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which the habitats of qualifying species rely;
- The populations of qualifying species; and
- The distribution of qualifying species within the site.

Threats and Pressures at Habitats site which may be affected[6]

- Air Pollution: impact of atmospheric nitrogen deposition

[3] Natural England (2018) Dixton Wood SAC Conservation Objectives. Available at: http://publications.naturalengland.org.uk/file/6243505357979648 [Date Accessed: 26/10/23].

[4] Natural England(2015) Dixton Wood SAC SIP. Available at: https://publications.naturalengland.org.uk/publication/5468132676206592 [Date Accessed: 26/10/23].

[5] Natural England (2018) Bredon Hill SAC Conservation Objectives. Available at: http://publications.naturalengland.org.uk/file/6278893137035264 [Date Accessed: 26/10/23].

[6] Natural England (2015) Bredon Hill SAC SIP. Available at: https://publications.naturalengland.org.uk/publication/6073334638837760 [Date Accessed: 26/10/23].

Rodborough Common SAC[7]

Qualifying features:

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

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;
- The structure and function (including typical species) of qualifying natural habitats; and
- The supporting processes on which qualifying natural habitats rely.

Threats and Pressures at Habitats site which may be affected[8]

- Public access/ disturbance
- Air Pollution: risk of atmospheric nitrogen deposition

Wye Valley and Forest of Dean Bat Sites SAC[9]

Qualifying Features:

- S1303. *Rhinolophus hipposideros*; Lesser Horseshoe bat; and
- S1304. *Rhinolophus ferrumequinum*; Greater Horseshoe bat.

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 the habitats of qualifying species;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which the habitats of qualifying species rely;
- The populations of qualifying species; and
- The distribution of qualifying species within the site.

Threats and Pressures at Habitats site which may be affected[10]

- Public access / disturbance
- Habitat connectivity

[7] Natural England (2018) Rodborough Common SAC Conservation Objectives. Available at: http://publications.naturalengland.org.uk/file/5518108223864832 [Date Accessed: 26/10/23].

[8] Natural England (2015) Rodborough Common SAC SIP. Available at: https://publications.naturalengland.org.uk/publication/5525408413908992 [Date Accessed: 26/10/23].

[9] Natural England (2018) Wye Valley and Forest of Dean Bat Sites SAC Conservation Objectives. Available at: http://publications.naturalengland.org.uk/file/5128727537385472 [Date Accessed: 26/10/23].

[10] Natural England (2018) Wye Valley and Forest of Dean Bat Sites SAC SIP. Available at: https://publications.naturalengland.org.uk/publication/6102625057505280 [Date Accessed: 26/10/23].

River Clun SAC[11]

Qualifying Features:

- S1029. Margaritifera margaritifera; Freshwater pearl mussel

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 the habitats of qualifying species
- The structure and function of the habitats of qualifying species
- The supporting processes on which the habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

Threats and Pressures at Habitats site which may be affected[12]

- Siltation
- Water Pollution

River Usk/Afon Wysg SAC[13]

Qualifying features:

- H3260. Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation;
- S1095. *Petromyzon marinus*; Sea Lamprey;
- S1096. *Lampetra planeri*; Brook Lamprey;
- S1099. *Lampetra fluviatilis*; River Lamprey;
- S1102. *Alosa alosa*; Allis Shad;
- S1103. *Alosa fallax*; Twaite Shad;
- S1106. *Salmo salar*; Atlantic Salmon;
- S1163. *Cottus gobio*; Bullhead; and
- S1355. *Lutra lutra*; European Otter.

Conservation objectives:

Summary of conservation objectives for the watercourse:

- The capacity of the habitats in the SAC to support each feature at near-natural population levels should be maintained as far as possible, or restored where necessary;
- The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature;
- Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state;

[11] Natural England (2018) River Clun SAC Conservation Objectives. Available at: https://publications.naturalengland.org.uk/publication/6453431740923904 [Date Accessed: 26/10/23]

[12] Natural England (2014) River Clun SAC SIP. Available at: https://publications.naturalengland.org.uk/publication/6216527934128128 [Date Accessed: 26/10/23].

[13] Natural Resources Wales (2008) Core Management Plan Including Conservation Objectives for River Usk Special Area of Conservation. Available at: https://naturalresources.wales/media/673384/River_Usk%20SAC%20core%20plan.pdf [Date Accessed: 26/10/23].

- All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible;
- Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed;
- Physical modifications having an adverse effect on the integrity of the SAC will be avoided.
- River habitat SSSI features should be in favourable condition;
- Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage;
- Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified;
- Flows during the normal migration periods of each migratory fish species feature will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered;
- Flow objectives for assessment points in the Usk Catchment Abstraction Management Strategy will be agreed between EA and NRW as necessary;
- Levels of nutrients, in particular phosphate, will be agreed between EA and NRW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain nutrients below these levels;
- Levels of water quality parameters that are known to affect the distribution and abundance of SAC features will be agreed between EA and NRW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain pollution below these levels;
- Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects; and
- Levels of suspended solids will be agreed between EA and NRW for each Water Framework Directive water body in the Usk SAC.

Conservation objectives for sea lamprey, river lamprey, brook lamprey, allis shad, twaite shad, Atlantic salmon and bullhead:

- The conservation objective for the watercourse must be met;
- The population of the feature in the SAC is stable or increasing over the long term;
- The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future; and
- There is a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis.

Conservation objective for European otter:

- The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC, as determined by natural levels of prey abundance and associated territorial behaviour;
- The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed; and
- The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers.

Conservation objective for watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation:

- The conservation objective for the water course must be met

- The natural range of the plant communities represented within this feature should be stable or increasing in the SAC. Suitable habitat for the feature need not be present throughout the SAC but where present must be secured for the foreseeable future, except where natural processes cause it to decline in extent;
- The area covered by the feature within its natural range in the SAC should be stable or increasing; and
- The conservation status of the feature's typical species should be favourable.

Threats and Pressures at Habitats site which may be affected[14]

- Air pollution
- Hydrological changes
- Impact of development
- Public access / disturbance
- Water abstraction
- Water pollution
- Recreational activities

River Wye/Afon Gwy SAC[15]

Qualifying features:

- H3260. Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation; Rivers with floating vegetation often dominated by water-crowfoot;
- H7140. Transition mires and quaking bogs; Very wet mires often identified by an unstable 'quaking' surface;
- S1092. *Austropotamobius pallipes*; White-Clawed (or Atlantic stream) Crayfish;
- S1095. *Petromyzon marinus*; Sea Lamprey;
- S1096. *Lampetra planeri*; Brook Lamprey;
- S1099. *Lampetra fluviatilis*; River Lamprey;
- S1102. *Alosa alosa*; Allis Shad;
- S1103. *Alosa fallax*; Twaite Shad;
- S1106. *Salmo salar*; Atlantic Salmon;
- S1163. *Cottus gobio*; Bullhead; and
- S1355. *Lutra lutra*; Otter.

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;

[14] Natural Resource Wales (2015). Natura 2000 Standard Data Form. River Usk SAC. Available at: https://jncc.gov.uk/jncc-assets/SAC-N2K/UK0013007.pdf [Date Accessed: 26/10/23]. Note: Standard Data Form does not identify which qualifying features are vulnerable to individual threats.

[15] Natural England (2018) River Wye SAC Conservation Objectives. Available at: http://publications.naturalengland.org.uk/file/5099305425960960 [Date Accessed: 26/10/23].

- The supporting processes on which qualifying natural habitats and habitats of qualifying species rely;
- The populations of qualifying species; and
- The distribution of qualifying species within the site.

Threats and Pressures at Habitats site which may be affected[16]

- Water Pollution
- Hydrological changes
- Water abstraction
- Public access / disturbance
- Air Pollution: impact of atmospheric nitrogen deposition

Severn Estuary SPA[17]

Qualifying features:

- A037. *Cygnus columbianus bewickii*; Bewick's Swan (Non-breeding);
- A048. *Tadorna tadorna*; Common Shelduck (Non-breeding);
- A051. *Anas strepera*; Gadwall (Non-breeding);
- A149. *Calidris alpina alpina*; Dunlin (Non-breeding);
- A162. *Tringa totanus*; Common Redshank (Non-breeding); and
- A394. *Anser albifrons albifrons*; Greater white-fronted Goose (Non-breeding) Waterbird assemblage.

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.

Threats and Pressures at Habitats site which may be affected[18]

- Public access / disturbance;
- Impacts from development;
- Coastal squeeze;
- Water pollution; and
- Air pollution.

[16] Natural England (2014) River Wye SAC Conservation Objectives. Available at: https://publications.naturalengland.org.uk/publication/5178575871279104 [Date Accessed: 26/10/23]

[17] Natural England (2019) Severn Estuary SPA Conservation Objectives. Available at: http://publications.naturalengland.org.uk/file/6288530213175296 [Date Accessed: 26/10/23].

[18] Natural England (2015) Severn Estuary SPA SIP. Available at: https://publications.naturalengland.org.uk/publication/4590676519944192[Date Accessed: 26/10/23].

Severn Estuary SAC[19]

Qualifying features:

- H1110. Sandbanks which are slightly covered by sea water all the time; Subtidal sandbanks;
- H1130. Estuaries;
- H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats;
- H1170. Reefs;
- H1330. Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*); Atlantic salt meadows;
- S1095. *Petromyzon marinus*; Sea Lamprey;
- S1099. *Lampetra fluviatilis*; River Lamprey; and
- S1103. *Alosa fallax*; Twaite Shad.

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.

Threats and Pressures at Habitats site which may be affected[20]

- Public access / disturbance;
- Impacts from development;
- Coastal squeeze;
- Water pollution; and
- Air pollution.

[19] Natural England (2019) Severn Estuary SAC Conservation Objectives. Available at: http://publications.naturalengland.org.uk/file/6377265718099968 [Date Accessed: 26/10/23].

[20] Natural England (2015) Severn Estuary SAC SIP. Available at: https://publications.naturalengland.org.uk/publication/4590676519944192[Date Accessed: 26/10/23].

Severn Estuary Ramsar[21]

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 JNCC 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
1	Due to immense tidal range (second-largest in world), this affects both the physical environment and biological communities.
3	Due to unusual estuarine communities, reduced diversity and high productivity.
4	This site is important for the run of migratory fish between sea and river via estuary. Species include: • Salmon *Salmo salar*; • Sea trout *S. trutta*; • Sea lamprey *Petromyzon marinus*; • River lamprey *Lampetra fluviatilis*; • Allis shad *Alosa alosa*; • Twaite shad *A. fallax*, and • Eel *Anguilla anguilla*. It is also of particular importance for migratory birds during spring and autumn.
5	Assemblages of international importance: Species with peak counts in winter: 70919 waterfowl (5-year peak mean 1998/99-2002/2003)
6	Species/populations occurring at levels of international importance. Qualifying species/populations (as identified at designation): Species with peak counts in winter: • Tundra Swan, *Cygnus columbianus bewickii*, NW Europe - 229 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9-2002/3) • Greater white-fronted Goose, *Anser albifrons albifrons*, NW Europe - 2076 individuals, representing an average of 35.8% of the GB population (5 year peak mean for 1996/7-2000/01) • Common Shelduck, *Tadorna tadorna*, NW Europe - 3223 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3) • Gadwall, *Anas strepera strepera*, NW Europe - 241 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9-2002/3) • Dunlin, *Calidris alpina alpina*, W Siberia/W Europe - 25082 individuals, representing an average of 1.8% of the population (5 year peak mean 1998/9-2002/3)

[21] JNCC (2008) Ramsar Information Sheet: UK11081 Severn Estuary. Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11081.pdf [Date Accessed: 26/10/23].

	• Common Redshank, *Tringa totanus totanus* - 2616 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3) Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species regularly supported during the breeding season: • Lesser Black-Backed Gull, *Larus fuscus graellsii*, W Europe/Mediterranean/W Africa - 4167 apparently occupied nests, representing an average of 2.8% of the breeding population (Seabird 2000 Census) Species with peak counts in spring/autumn: • Ringed Plover, *Charadrius hiaticula*, Europe/Northwest Africa - 740 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3) Species with peak counts in winter: • Eurasian Teal, *Anas crecca*, NW Europe - 4456 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9-2002/3) Northern Pintail, *Anas acuta*, NW Europe - 756 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9- 2002/3)
8	The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon *Salmo salar*, Sea Trout *S. trutta*, Sea Lamprey *Petromyzon marinus*, River Lamprey *Lampetra fluviatilis*, Allis Shad *Alosa alosa*, Twaite Shad *A. fallax*, and Eel *Anguilla anguilla* use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. The site is important as a feeding and nursery ground for many fish species particularly Allis Shad *Alosa alosa* and Twaite Shad *A. fallax* which feed on Mysid Shrimps in the salt wedge.

Threats and Pressures at Habitats site which may be affected:
Recreational / tourism disturbance.

On the most recent Natura 2000 standard data form[22], the waterfowl assemblage population size was stated as 84,317 whilst the latest Wetland Birds in the UK report[23] cites the figure of 86,836. The most recent form does not include a list of species which make up the waterfowl assemblage for the Severn Estuary SPA. However, the 2001 SPA Review[24] lists 12 additional species (see Table below), which are referred to in the HRA report as "SPA Waterfowl Assemblage Species" [25].

[22] http://jncc.defra.gov.uk/pdf/SPA/UK9015022.pdf

[23] Frost, T.M., Calbrade, N.A., Birtles, G.A., Mellan, H.J., Hall, C., Robinson, A.E., Wotton, S.R., Balmer, D.E. & Austin, G.E. (2020) *Waterbirds in the UK 2018/19: The Wetland Bird Survey.* BTO, RSPB and JNCC, in association with WWT. British Trust for Ornithology, Thetford.

[24] Stroud, D.A., Chambers, D., Cook, S., Buxton, N., Fraser, B., Clement, P., Lewis, P., McLean, I., Baker, H. & Whitehead, S. (eds). (2001) *The UK SPA network: its scope and content*. JNCC. Peterborough.

[25] Link Ecology. 2020. Identification of Land with Proven or Possible Functional Linkages with the Severn Estuary SSSI/SPA Phase 5 (Gloucestershire and Worcestershire).

SPA Waterfowl Assemblage Species [26] presented in the table below.

English Name	Scientific name
Curlew	*Numenius arquata*
Grey Plover	*Pluvialis squatarola*
Lapwing	*Vanellus vanellus*
Mallard	*Anas platyrhynchos*
Pintail	*Anas acuta*
Pochard	*Aythya ferina*
Shoveler	*Anas clypeata*
Spotted Redshank	*Tringa erythropus*
Teal	*Anas crecca*
Tufted Duck	*Aythya fuligula*
Whimbrel	*Numenius phaeopus*
Wigeon	*Anas penelope*

Walmore Common SPA[27]

Qualifying features:

A037. *Cygnus columbianus bewickii*; Bewick's swan (Non-breeding).

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.

Threats and Pressures at Habitats site which may be affected[28]

- Hydrological changes
- Public access/ disturbance

[26] Stroud, D.A., Chambers, D., Cook, S., Buxton, N., Fraser, B., Clement, P., Lewis, P., McLean, I., Baker, H. & Whitehead, S. (eds). (2001) *The UK SPA network: its scope and content*. JNCC. Peterborough.

[27] Natural England (2019) Walmore Common SPA Conservation Objectives. Available at: http://publications.naturalengland.org.uk/file/5326993688363008 [Date Accessed: 26/10/23].

[28] Natural England (2014) Walmore Common SPA SIP. Available at: https://publications.naturalengland.org.uk/publication/5449438789107712 [Date Accessed: 26/10/23].

Walmore Common Ramsar[29]

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 JNCC 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	Species/populations occurring at levels of international importance. Species with peak counts in winter: • Tundra swan, Cygnus columbianus bewickii, NW Europe • 43 individuals, representing an average of 0.5% of the GB population (5 year peak mean 1998/9-2002/3)

[29] JNCC (2008) Ramsar Information Sheet: UK11076 Walmore Common. Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11076.pdf [Date Accessed: 26/10/23].

Appendix B: Preliminary screening review of Issues and Options consultation

Vision and strategic objectives

Report Section[1]	Summary of Plan Element	Key HRA Related Issues for Consideration in HRA and Plan Making Process
Draft Vision	The vision is to meet the SLPs large scale development needs by 2041.	The vision provides a positive framework for nature conservation noting the requirement for green growth and will be drawn upon to inform the HRA process.
Strategic Objectives	These strategic objectives provide a greater level of detail as to how the overall vision will be delivered. They address climate change, requirements to build a strong urban and rural economy, delivery homes, design of places, promote sustainable transport and active travel, conserve and protect the environment and promote healthy and resilient communities.	The objectives provide a positive framework for nature conservation and will be drawn upon to inform the HRA process.

Planning for climate change

Report Section	Summary of Plan Element / Question	Key HRA Related Issues for Consideration in HRA and Plan Making Process
Climate Change	This question looks at the ways in which the SLP can address the impacts of climate change.	Measures to address climate change are likely to have an overall positive impact on the natural environment. Impacts associated with renewable energy projects are addressed below.
New Buildings	This question concerns the construction and operation of new buildings and their retention and reuse.	Incorporation of amenity / garden spaces will have positive impacts for biodiversity. It is unlikely that policies in relation to these topics will have a significant adverse effect on any habitats site.
Biodiversity Net Gain (BNG)	This question looks at requirements around BNG.	The protection of land for BNG has the potential to connect biodiversity networks and improve the biodiversity resource in the SLP area.
Land for environmental purposes	This question aims to identify land which could be used for environmental purposes, such as wildlife / biodiversity net gain, recreation, flood risk mitigation, cooling and shading, carbon storage and food production.	Land used for environmental purposes has the potential to connect biodiversity networks and improve the biodiversity resource in the SLP area. Land used for recreation is often provided as part of an overall package of mitigation to ensure no adverse recreational impacts on any habitats site. The output of these questions will feed into mitigation that may be considered in the Appropriate Assessment stage of the HRA process. It will not be taken into consideration in screening of the SLP to ensure compliance with case law. Infrastructure provision, such as recreational space, areas of tree planting and carbon sinks, have the potential to connect biodiversity networks and improve the biodiversity resource in the SLP area. Such infrastructure will have a positive impact for habitats sites and mobile qualifying species. It may be helpful to reference the national Green Infrastructure (GI) standards[2] and the revised Accessible Natural Greenspace Standards (ANGSt) requirements[3] within the SLP infrastructures provision.

[1] Cheltenham, Gloucester and Tewkesbury. October 2023. Strategic and Local Plan. Growth, development options and strategic policy consultation.

[2] Natural England. GI Framework Web Portal. https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Home.aspx

[3] The revised ANGSt are a component of the green infrastructure standards and include additional targets for greenspace provision.

Report Section	Summary of Plan Element / Question	Key HRA Related Issues for Consideration in HRA and Plan Making Process
		It is also recommended that any GI complement Local Nature Recovery Networks – in this instance the Gloucestershire Local Nature Recovery Strategy.
Facilities and Services	This question asks what services and facilities should be located within close proximity to new development.	The location of new development close to key facilities and services allows a reduction in travel and encourages active travel choices. This will have a beneficial impact on the quality of air within the SLP area and at sensitive habitats sties.
Renewable Energy	This question looks whether site should be allocated for renewable energy.	Renewable energy projects, e.g. wind and solar farms, can have adverse effects upon habitats sites and in particular mobile qualifying features such as bats and birds. This topic would need to be considered in detail at the Appropriate Assessment stage of the HRA. Sensitive habitats sites and areas of functionally linked land which supports mobile qualifying species should be avoided. Should renewable energy / storage sites be considered in the SLP it is recommended that the Councils consult relevant guidance provided by the Royal Society for the Protection of Birds (RSPB)[4] and Natural England (NE)[5,6,7.]

Planning for community and business

Report Section	Summary of Plan Element / Question	Key HRA Related Issues for Consideration in HRA and Plan Making Process
New Homes	This section looks at the method for calculating the number of new homes and the types of new home which will be provided.	All growth in the SLP has the potential to have a likely significant effect upon habitats sites (sites and pathways of impact are set out in the main HRA report) and areas of functionally linked land. The magnitude of impact will be dependent on the scale of growth.
Traveller Communities	This section looks at how traveller community requirements should be incorporated into the area and design of these sites.	All growth in the SLP has the potential to have a likely significant effect upon habitats sites (sites and pathways of impact are set out in the main HRA report) and areas of functionally linked land. The magnitude of impact will be dependent on the scale of growth.
Jobs and the Economy	This section of the consultation looks at how employment need can be accommodated, and the focus of employment uses.	All growth in the SLP has the potential to have a likely significant effect upon habitats sites (sites and pathways of impact are set out in the main HRA report) and areas of functionally linked land. The magnitude of impact will be dependent on the scale of growth.
Retail and Town Centres	This section of the consultation looks at how and where retail development need can be accommodated in the SLP area.	All growth in the SLP has the potential to have a Likely Significant Effect upon habitats sites (sites and pathways of impact are set out in the main HRA

[4] RSPB (2017) Solar Power Briefing Note. Available at: https://www.rspb.org.uk/globalassets/downloads/documents/positions/climate-change/solar-power-briefing---may-2017-update-revised.pdf [Date Accessed: 27/10/23]

[5] Natural England (2017) Evidence review of the impact of solar farms on birds, bats and general ecology (NEER 012). Available at: http://publications.naturalengland.org.uk/publication/6384664523046912 [Date Accessed: 27/10/23]

[6] Natural England Making Space for Renewable Energy: Assessing on-shore wind energy development (NE254). Available at: https://publications.naturalengland.org.uk/file/97013 [Date Accessed: 27/10/23]

[7] Natural England (2012) Bats and on-shore turbines (TIN051). Available at: https://publications.naturalengland.org.uk/publication/35010 [Date Accessed: 27/10/23]

Report Section	Summary of Plan Element / Question	Key HRA Related Issues for Consideration in HRA and Plan Making Process
		report) and areas of functionally linked land. The magnitude of impact will be dependent on the scale of growth.
Infrastructure	This element of the consultation looks at which forms of infrastructure should be prioritised / safeguarded.	Infrastructure provision includes aspects such as Green Infrastructure which connects biodiversity networks and improves the biodiversity resource in the Plan area. It also promotes sustainable forms of transport, with air quality benefits. Such infrastructure will have a positive impact for Habitats and functionally linked land. It may be helpful to reference the national Green Infrastructure standards[8] and the revised Accessible Natural Greenspace Standards (ANGSt) requirements[9] within the SWLP infrastructures provision. It is also recommended that any GI complement Local Nature Recovery Networks.

Planning for sustainable development

Report Section	Summary of Plan Element / Question	Key HRA Related Issues for Consideration in HRA and Plan Making Process
Urban Concentration Scenario	This option seeks to deliver as much development as possible on urban sites in Gloucester and Cheltenham.	All growth in the SLP has the potential to have a Likely Significant Effect upon habitats sites (sites and pathways of impact are set out in the main HRA report) and areas of functionally linked land. The magnitude of impact will be dependent on the scale of growth. Concentration of development on existing urban sites will retain maximum green space with positive impacts on biodiversity. The location of development within urban areas will make use of existing sustainable transport infrastructure. This would have a positive impact upon air quality with knock-on positive impacts upon habitats sites (and areas of functionally linked land) which may be sensitive to air pollution.
Urban Extension Scenario	This option seeks to deliver development as urban extensions to the key urban areas and may include the use of Green Belt.	All growth in the SLP has the potential to have a Likely Significant Effect upon habitats sites (sites and pathways of impact are set out in the main HRA report) and areas of functionally linked land. The magnitude of impact will be dependent on the scale of growth. This option will result in the loss of green space which may have adverse impacts on biodiversity. Open green space provides alternative areas of recreational space (as an alternative to designated sites – such as habitats sites). Where Green Belt is lost it is important to ensure that sufficient recreational resource is provided for the forecast level of growth over the Plan period. Development outside the existing urban area would increase the requirement for transport to facilities and services with knock on air quality impacts upon sensitive habitats sites.

[8] Natural England. GI Framework Web Portal. https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Home.aspx

[9] The revised ANGSt is a component of the Green Infrastructure standards and include additional targets for greenspace provision.

Report Section	Summary of Plan Element / Question	Key HRA Related Issues for Consideration in HRA and Plan Making Process
Urban Extensions, Avoiding the Green Belt Scenario	This option seeks to deliver development as urban extensions to the main settlements in the area but avoiding the Green Belt.	All growth in the SLP has the potential to have a Likely Significant Effect upon habitats sites (sites and pathways of impact are set out in the main HRA report) and areas of functionally linked land. The magnitude of impact will be dependent on the scale of growth. This option will result in the loss of green space (not designated as Green Belt) which may have adverse impacts on biodiversity. Open green space (not designated as Green Belt) provides alternative areas of recreational space (as an alternative to designated sites – such as habitats sites). Where Green Belt is lost it is important to ensure that sufficient recreational resource is provided for the forecast level of growth over the Plan period. Development outside the existing urban area would increase the requirement for transport to facilities and services with knock on air quality impacts upon sensitive habitats sites.
New Strategic Settlements Scenario	This option seeks to deliver one or more comprehensive master-planned new settlements or garden towns (min of 4000 new homes with supporting infrastructure).	All growth in the SLP has the potential to have a Likely Significant Effect upon habitats sites (sites and pathways of impact are set out in the main HRA report) and areas of functionally linked land. The magnitude of impact will be dependent on the scale of growth. This option will result in the loss of green space which may have adverse impacts on biodiversity. Open green space provides alternative areas of recreational space (as an alternative to designated sites – such as habitats sites). Where Green Belt is lost it is important to ensure that sufficient recreational resource is provided for the forecast level of growth over the Plan period. Development outside the existing urban area would increase the requirement for transport to facilities and services with knock on air quality impacts upon sensitive habitats sites.
Rural Dispersal Scenario	This option seeks to distribute growth widely across the rural area by encouraging development at a large number of existing settlements and potentially other rural locations.	All growth in the SLP has the potential to have a Likely Significant Effect upon habitats sites (sites and pathways of impact are set out in the main HRA report) and areas of functionally linked land. The magnitude of impact will be dependent on the scale of growth. This option will result in the loss of green space which may have adverse impacts on biodiversity. Open green space provides alternative areas of recreational space (as an alternative to designated sites – such as habitats sites). Where Green Belt is lost it is important to ensure that sufficient recreational resource is provided for the forecast level of growth over the Plan period. Development outside the existing urban area would increase the requirement for transport to facilities and services with knock on air quality impacts upon sensitive habitats sites.
Sustainable Transport Scenario	This option seeks to deliver development in locations along existing and potential high frequency public transport, walking and cycling routes.	All growth in the SLP has the potential to have a Likely Significant Effect upon habitats sites (sites and pathways of impact are set out in the main HRA report) and areas of functionally linked land. The magnitude of impact will be dependent on the scale of growth.

Report Section	Summary of Plan Element / Question	Key HRA Related Issues for Consideration in HRA and Plan Making Process
		This option will result in the loss of green space which may have adverse impacts on biodiversity. Open green space provides alternative areas of recreational space (as an alternative to designated sites – such as habitats sites). Where Green Belt is lost it is important to ensure that sufficient recreational resource is provided for the forecast level of growth over the Plan period. This option would promote the use of sustainable modes of transport. This would have a positive impact upon air quality with knock-on positive impacts upon habitats sites (and areas of functionally linked land) which may be sensitive to air pollution.

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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