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Habitats Regulations Assessment of the Stroud Local Plan at Draft Plan Consultation Stage

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Summary

This report is the Habitats Regulations Assessment (HRA) of the Stroud District Local Plan at Draft Plan stage (Regulation 18 stage). A plan level HRA considers the implications of a plan or project for European wildlife sites, in terms of any possible harm to the habitats and species that form an interest feature of the European sites in close proximity to the proposed plan. This HRA considers potential implications for:

Special Protection Areas (SPAs), classified for their bird interest of European importance, Special Areas of Conservation (SACs), designated for their habitats and non-bird species of European importance, and Ramsar sites, listed under the requirements of the Ramsar Convention as wetlands of international importance (considered within HRA as European sites as a matter of Government Policy). HRA does not consider other national designations that may overlap or run contiguously with the European sites.

This HRA report is part of an iterative process for the preparation of the Local Plan, forming part of the emerging Local Plan evidence base. At each formal stage of the plan-making process the HRA is updated and used to inform the next plan making stage. It will continue to be developed as the Stroud Local Plan is refined, using a range of background evidence, understanding of the status and condition of relevant European sites, and takes into account the mitigation strategies currently in place for the Severn Estuary and Rodborough Common European sites.

The draft plan site allocations are checked through for potential impact pathways for European sites. These need to be identified in order to inform the screening for likely significant effects, which is to establish whether there is any possibility of the implementation of the plan causing significant effects. Appropriate assessment then tests any identified potential effects in more detail, to establish whether the plan can proceed in the absence of adverse effects on the site integrity of European sites. Where the potential for significant effects is identified, or there are uncertainties, a more detailed appropriate assessment is made.

This report recommends a number of potential impact themes and particular policies that require further consideration, and these are assessed further within the appropriate assessment chapters of this report, which will be further refined before Regulation 19 stage of plan making. This report has regard for relevant case law, including a European Court of Justice Judgment that highlights the need for appropriate use of avoidance and mitigation measures at the correct stage of HRA. This case has prompted proposed changes to the NPPF to reflect this requirement.

The appropriate assessment has been prepared to consider the following: recreation pressure, urbanisation effects in close proximity (fire risk, lighting, noise etc), air quality from increased road traffic, water quality and resources.

The appropriate assessment also checks in more detail the potential risks arising from the development site allocations and reviews the existing mitigation approaches in place. These considerations at appropriate assessment are to ensure that the HRA provides a robust assessment of all potential impacts and identifies clear mitigation needs. The appropriate assessment highlights areas for further assessment work and will be updated again before the Regulation 19 stage of plan making. This particularly includes further work in relation to the assessment of impacts and potential mitigation measures for the proposed new settlement at Sharpness.

Contents

Contents.....	5
Acknowledgements	7
1. Introduction and Background Information.....	8
Context	8
Habitats Regulations Assessment process	10
The emerging Stroud District Local Plan.....	12
<i>Calculating housing need for the Local Plan</i>	<i>14</i>
<i>Establishing a development strategy for the Stroud District</i>	<i>15</i>
Relevant HRA work and other evidence and assessment.....	15
<i>Rodborough Common.....</i>	<i>16</i>
<i>Severn Estuary.....</i>	<i>17</i>
<i>Cotswold Beechwoods.....</i>	<i>17</i>
<i>Sustainability Appraisal for the emerging Local Plan.....</i>	<i>18</i>
<i>Water and flooding evidence documents.....</i>	<i>19</i>
<i>Transport Modelling and air quality.....</i>	<i>20</i>
2. European Sites	22
Relationship with wider biodiversity assets.....	24
3. Consideration of Site Allocations.....	27
4. Screening for Likely Significant Effects.....	31
What constitutes a likely significant effect?	31
5. Screening Conclusions and Impact Pathways	55
6. Recreation impact concerns	58
Actions and recommendations for Regulation 19 stage	59
7. Air quality impact concerns	60
Key points for consideration of air quality	61
Actions and recommendations for Regulation 19 stage	63

8. Water issues	64
Actions and recommendations for Regulation 19 stage	64
9. Urban effects.....	65
Actions and recommendations for Regulation 19 stage	66
10. Site allocations for new settlements/ settlement extensions	67
Land at Sharpness.....	68
<i>Key issues for development at Sharpness</i>	<i>68</i>
Actions and recommendations for Regulation 19 stage	70
11. Biodiversity Issues and Opportunities	72
12. Conclusions and Recommendations	73
13. References	75
14. Appendix 1 - The Habitats Regulations Assessment Process.....	78
15. Appendix 2 –Conservation Objectives.....	83
Rodborough Common supplementary advice	84
Cotswold Beechwoods supplementary advice	85
Severn Estuary marine site conservation advice	86
16. Appendix 3 – The Nature Conservation Interest of the European Sites.....	87
17. Appendix 4 - Consultation Questions	90

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Cover image of Rodborough Common kindly provided by Deborah Roberts (Copyright), Stroud Valleys Project.

1. Introduction and Background Information

Context

- 1.1 This report is the Habitats Regulations Assessment (HRA) of the Stroud District Local Plan at the Draft Plan stage. This HRA report has been prepared by Footprint Ecology, on behalf of Stroud District Council. It has been written with the benefit of ongoing discussions with planning officers within the District Council, and forms part of the evidence base for the new Local Plan at 'Regulation 18' consultation stage, and will be the subject of public consultation, in accordance with the Town and Country Planning (Local Planning) (England) Regulations 2012.
- 1.2 This section provides the background context for this HRA. This report is a HRA of the emerging Stroud District Local Plan 2019, and is a report that will be further updated as the preparation of the Local Plan progresses. A HRA considers the implications of a plan or project for European wildlife sites, in terms of any possible harm to the habitats and species that form an interest feature of the European sites in close proximity to the proposed plan or project, which could occur as a result of the plan or project being put in place. In this instance, the HRA is undertaken at plan level. HRA will also be required for development projects coming forward in the future in accordance with the Local Plan. An explanation of the HRA assessment process is summarised in this section below, and also described in greater detail in Appendix 1.
- 1.3 The HRA is part of the Local Plan evidence base, and its recommendations will support Stroud District Council throughout the plan making process. The HRA work includes evidence gathering and screening of the plan at draft plan stage, which is the second consultation at Regulation 18 stage of plan making following an earlier consultation on an emerging strategy towards the end of 2018.
- 1.4 The HRA report at the emerging strategy consultation included an initial screening of strategy options, and this current iteration of the HRA at draft plan stage now updates that screening of the plan content, and proceeds to undertaking more detailed appropriate assessment. This will again be repeated and further refined for the pre-submission (Regulation 19 stage of plan making) plan consultation in 2020. Throughout the iterative process of HRA, recommendations for strengthening the plan and removing risks to European sites are made, and any new evidence gaps flagged. The HRA should inform the refinement of the Local Plan over its various stages, in preparation for its Examination in Public by the Planning Inspectorate, when the plan presented for Examination should be accompanied by a HRA that demonstrates that adverse

effects on European sites have been prevented through appropriate measures to avoid or mitigate any potential impacts identified.

- 1.5 The Stroud District is a predominantly rural District, located on the south-western edge of the Cotswolds Area of Outstanding Natural Beauty, and the eastern shore of the Severn Estuary. The rural District has an industrial past associated with the wool trade and associated mills. The District has thriving market towns, and a rich historic and natural environment. To the immediate north the District borders Gloucester city, a larger scale urban area that contrasts with much of the Stroud District. The northern edge of the District is therefore a potential focus for growth associated with the neighbouring city and surrounding areas, recognising that there is a close relationship between housing on this boundary and the provision of jobs and services to serve these houses.
- 1.6 European wildlife sites are an important feature of the District's natural heritage, with the three main sites being the Severn Estuary, Rodborough Common and the Cotswold Beechwoods. The latter site extends into both the neighbouring Cotswold District and Tewkesbury Borough administrative areas. Further information on the European site designations is provided below and within the Appendices to this report.
- 1.7 Neighbouring local planning authorities of Tewkesbury, Cheltenham and Gloucester have produced a Joint Core Strategy (JCS), which has recently been adopted, but is to be the subject of early review due to outstanding unmet housing needs within the plan period. The three authorities are therefore continuing to work collaboratively on a new JCS. Close working with both the Stroud District and other Gloucestershire local planning authorities is required to ensure sustainable provision of sites for growth for the area within the emerging local plans, whether joint or singular. Each emerging Local Plan is taking account of up to date evidence, current local circumstances and needs, and current planning legislation and national policy, guidance and good practice.
- 1.8 The neighbouring Cotswold District Local Plan was adopted in August 2018. The HRA supporting the preparation of the local plan highlighted the potential risk from recreation pressure on the Cotswold Beechwoods SAC, and supporting text for Policy INF7 (Green Infrastructure) within the adopted plan states that the District Council is committed to working with key stakeholders to develop appropriate mitigation measures, which could require developer contributions.
- 1.9 A summary of the key aspects of the emerging Stroud District Local Plan in terms of growth objectives over the plan period is provided in the section below. The current Stroud Local Plan, which was adopted in November 2015, is also reviewed in terms of its supporting HRA work, particularly in relation to the

measures recommended to protect the European sites from the impacts of growth proposed within the current Stroud Local Plan.

- 1.10 When embarking on new HRA work, it is important to take stock and consider how well the measures recommended or put in place to protect European site interest in previous plan iterations have progressed, and what evidence there is available to support the continuation of such measures, or to indicate that they may need modification. This HRA therefore looks at the measures that were recommended by the previous final HRA for the Stroud Local Plan, and how those have progressed since plan adoption. Any changes in circumstances, evidence, statutory advice or local understanding of the issues needs to be considered. A summary of previous HRA work and mitigation approaches is also provided in this section below.

Habitats Regulations Assessment process

- 1.11 A 'Habitats Regulations Assessment,' normally abbreviated to HRA, is the step by step process of ensuring that a plan or project being undertaken by, or permitted by, a public body, will not adversely affect the ecological integrity of a European wildlife site. Where it is deemed that adverse effects cannot be ruled out, a plan or project must not proceed, unless exception tests are met. This is because European legislation, which is transposed into domestic legislation and policy, affords European sites the highest levels of protection in the hierarchy of sites designated to protect important features of the natural environment.
- 1.12 The relevant European legislation is the Habitats Directive 1992¹ and the Wild Birds Directive 2009², which are transposed into domestic legislation through the Conservation of Habitats and Species Regulations 2017 as amended. These Regulations are normally referred to as the 'Habitats Regulations.'
- 1.13 The legislation sets out a clear step by step approach for decision makers considering any plan or project. In England, those duties are also supplemented by national planning policy through the National Planning Policy Framework (NPPF)³. This national planning policy also refers to Ramsar sites, which are listed in accordance with the international Ramsar Convention. The NPPF requires decision makers to apply the same protection and process to Ramsar sites as that set out in legislation for European sites. Formally proposed sites, i.e. sites proposed for European designation and going through the designation process, and those providing formal compensation for losses to European sites, are also

¹ Council Directive 92/43/EEC

² Council Directive 2009/147/EC

³ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

given the same protection. This report refers to all the above sites as 'European sites' for assessment purposes, as the legislation is applied to all such sites, either directly or as a result of policy.

- 1.14 It should be noted that the European Directives operate on the basis that sites are in place to serve as an ecologically functioning network, and ultimately it is the preservation of that network as a whole that is the overall aim of the European Directives. The network is often referred to as the Natura 2000 Network or 'N2K.'
- 1.15 The duties set out within the Habitats Regulations apply to any public body or individual holding public office with a statutory remit and function, referred to as 'competent authorities.' The requirements are applicable in situations where the competent authority is undertaking or implementing a plan or project, or authorising others to do so. A more detailed guide to the step by step process of HRA is provided in this report at Appendix 1.
- 1.16 In assessing the implications of any plan or project, in this case a local plan, for European sites in close proximity, it is essential to fully understand the sites in question, their interest features, current condition, sensitivities and any other on-going matters that are influencing each of the sites. Every European site has a set of 'interest features,' which are the ecological features for which the site is designated or classified, and the features for which Member States should ensure the site is maintained or, where necessary restored. Each European site has a set of 'conservation objectives' that set out the objectives for the site interest, i.e. what the site should be achieving in terms of restoring or maintaining the special ecological interest of European importance. These objectives are set by Natural England and published for each European site in high level generic form and then progressed with the preparation of supplementary advice that relates to the interpretation of these at each individual European site.
- 1.17 Preparation of supplementary advice has now been drafted and published for all European sites. It is available for Cotswold Beechwoods and Rodborough Common SACs. The Severn Estuary has additional Marine Conservation Advice to support its generic conservation objectives because it is a marine European site.
- 1.18 The site conservation objectives are relevant to any HRA, because they identify what should be achieved for the site, and a HRA may therefore consider whether any plan or project may compromise the achievement of those objectives. A summary of relevant European sites is provided within this Section 2 below. Further information on European site interest and links to the conservation

objectives can be found at Appendix 2 of this report. The European sites of relevance to this HRA are discussed below and Appendix 3.

The emerging Stroud District Local Plan

- 1.19 A Local Plan is produced by a local planning authority to set the quantum and direction of sustainable development for the forthcoming plan period. The National Planning Policy Framework (NPPF) 2019 states that sustainable development is the achievement of social, economic and environmental aspirations, and these three dimensions of sustainable development are mutually dependant.
- 1.20 The existing Stroud Local Plan, adopted in 2015, provides for the sustainable development of the Stroud District up to 2031. The review of the Stroud Local Plan has commenced with publication of an Issues and Options document in 2017, which set out the key issues and potential growth strategies and site options for the District. The key issues described within the Issues and Options document are the economy, delivery of affordable housing, the environment, the health and wellbeing of the Stroud population, and Local Plan delivery. The environment chapter highlights the need to avoid, reduce and mitigate for the indirect impacts arising from new development.
- 1.21 The plan then progressed to an early Regulation 18 consultation on an emerging hybrid strategy and allocation options, before the current further consultation at Regulation 18 stage where options have been refined to present a draft plan with proposed policies and potential allocations. The plan will then be further revised and/or reviewed to prepare a submission version at Regulation 19 stage of plan making anticipated in 2020.
- 1.22 For the natural environment, the current NPPF advises that sustainable development should include protecting, enhancing and improving biodiversity, and moving from a net loss of biodiversity to achieving net gains. The recently published Defra 25 year plan⁴ sets out an ambitious programme for improving the natural environment, including the achievement of environmental net gains through development, of which biodiversity is an important part.
- 1.23 The Defra strategy follows on from the review of England's wildlife sites and ecological network, set out in the report to Defra in 2010 entitled 'Making Space for Nature',⁵ which was prepared by a group of national experts chaired by

⁴ <https://www.gov.uk/government/publications/25-year-environment-plan>

⁵ <https://www.gov.uk/government/news/making-space-for-nature-a-review-of-englands-wildlife-sites-published-today>

Professor Sir John Lawton. Within this report, it is identified that in order to make our ecological networks and wildlife sites capable of future resilience, there is a need for more wildlife sites, and that existing networks need to be bigger, better and more connected. The future health of designated sites is very much dependant on the future health of wider biodiversity and the ecological networks that sustain them. In planning for the long-term sustainability of designated sites, it is therefore necessary to protect and enhance wider biodiversity through the planning system as well as the designated sites. This HRA recognises this need as an integral part of maintaining designated wildlife sites into the long term, supported ecologically by a healthy and integrated wider biodiversity resource, underpinned by ecosystem services such as clean air and water, and a diversity of pollinators and soil biota.

- 1.24 Alongside the growth needs for the Stroud District, the emerging District Local Plan also has a significant focus on the natural environment. This in turn adds value to the local economy, local communities and visiting tourists. Protective policies for the natural environment are an important part of a Local Plan, and these are discussed further in the screening and appropriate assessment sections of this HRA report, with recommendations for strengthening policy wording and supporting text.
- 1.25 The Issues and Options document set out a Local Plan period commencing in 2016. With the preparation of the Emerging Strategy, the plan period was subsequently modified to enable an up to date Local Plan, which has regard for the development that has come forward since the adoption of the current Local Plan in 2015. The Stroud Local Plan will now cover new growth from 2020 to 2040, and it is anticipated that the new Local Plan will be adopted in Winter 2021/2022. Once finalised, the plan will include spatial policies, development management policies and necessary site allocations to deliver the required growth, having regard for all planning permissions given that already contribute towards requirements.
- 1.26 The earlier Regulation 18 consultation on the Emerging Strategy set out a range of options for delivering growth within the eight 'Parish Clusters' as already defined in the current Local Plan. Each of the eight clusters generally has a market town and rural hinterland. The clusters each have a vision and guiding principles for development within the adopted plan, and the newly emerging plan has reviewed those visions and supporting evidence to take account of how the growth proposals within these clusters needs to be updated.
- 1.27 The Draft Local Plan is now more refined and continues to progress the theme of eight Parish Clusters, with a 'mini vision' for each of the eight cluster areas. Potential site allocations are provided for within each of the clusters. Site allocations are options at this Regulation 18 stage and will be further scrutinised

and refined for the Regulation 19 consultation. To date, the site allocations have been informed by Sustainability Appraisal work, to identify the most sustainable options for realising the required growth for the district. The Sustainability Appraisal is discussed further below.

- 1.28 The Draft Local Plan identifies the environment as a key issue for the Stroud District, including climate adaptation and reducing emissions, growing the low carbon economy and protecting and enhancing biodiversity, landscapes and green infrastructure. Developing strategies to avoid and mitigate for impacts is highlighted as an integral part of the Local Plan. This links to other identified priorities such as health and wellbeing.

Calculating housing need for the Local Plan

- 1.29 The required housing for the Stroud District is in accordance with the Government's recommended methodologies for assessing housing need. Using housing monitoring data the current requirements are calculated as 638 new dwellings per year for the District, which equates to 12,800 over the whole plan period.
- 1.30 The national calculation is based on the average household increase required over ten years, adjusted to take account of the relative cost of housing in each area. The housing figures within the Emerging Strategy are based on the 2014 household projections and the latest local affordability ratio (wages to house prices). This calculation gives a total of 651 new dwellings per annum. However, this is an increase from the currently adopted Stroud Local Plan requirement for 456 new dwellings per annum and is an increase of more than 40%. With this difference between the adopted and new figures, the final figure can be reduced and capped at an increase of 40%, which brings the proposed figure for the Emerging Strategy to 638 new dwellings per annum, and 12,800 in total over the plan period of 20 years.
- 1.31 With planning permissions given since the adoption of the existing Stroud Local Plan, the review of the plan and adoption of a new Local Plan from 2020 onwards will provide for a remaining housing growth requirement. The Draft Plan advises that this equates to at least 8,700 new dwellings.
- 1.32 Employment requirements up to 2040 amount to 50ha of additional employment land. With an existing supply that has planning permissions in place, a minimum residual requirement of 14.4ha of employment land allocations is built into the Draft Plan proposals.
- 1.33 The Local Plan evidence base includes a new Open Space, Green Infrastructure, Sport and Recreation Study, which amongst a range of recommendations highlights the opportunities for green infrastructure corridors, and where there

are gaps in this network that need to be filled, which could be met by positive planning interventions. This in turn is a positive recommendation that can link into securing long term resilience for designated wildlife sites, and planning for green infrastructure expansion should have regard for ecological networks that connect wildlife sites and can provide additional buffering and supporting functions.

Establishing a development strategy for the Stroud District

- 1.34 The growth strategy proposed within the Draft Plan is for a 'hybrid' of the original growth options proposed at that time. At the Issues and Options consultation there were four options for an overall growth strategy, which were for: a concentration of growth at main towns; dispersed growth to larger villages; widely dispersed growth across most villages; or a growth point to accommodate settlement expansion or a new settlement.
- 1.35 The Draft Plan has regard for previous consultation responses and takes forward a preferred option of a hybrid of the four options. It concentrates growth at the main towns, whilst allowing for notable allocations at larger and some smaller villages. Additionally, options for housing growth at new settlements are also included. Sharpness and Wisloe are identified as potential garden village allocations, with land south of Hardwicke being an additional site that is included as an option to contribute to housing needs. Furthermore, a large housing site at Whaddon is safeguarded to meet housing needs for neighbouring Gloucester City.
- 1.36 If one or more of these large-scale housing sites is taken forward, it will be developed as a new centre with all the required local facilities and services to develop a functioning community with all necessary infrastructure and a design that facilitates the development of a new community. Integral to this is the design of non-developed areas such as green infrastructure and the maximisation of opportunities for natural environment restoration, enhancement and where necessary the protection of nearby biodiversity assets.
- 1.37 This HRA assesses all parts of the emerging plan at Draft Plan stage, particularly the site allocations presented to meet housing need, whilst recognising that the final list of proposed sites will be presented at the next consultation stage in Summer 2020.

Relevant HRA work and other evidence and assessment

- 1.38 The adopted Stroud Local Plan is supported by HRA work that provided the foundations for the current mitigation strategies in place for both Rodborough Common and the Severn Estuary. The HRA found that both sites were at risk

from increasing recreation pressure, leading to disturbance of European site interest features, particularly in the case of the Severn Estuary, and harm to the sensitive habitats at the Common.

- 1.39 The following strategy documents are of relevance to this HRA as they provide the current mitigation measures for these two European sites. This emerging HRA is being prepared alongside new visitor survey work for both Rodborough Common and Cotswold Beechwoods SACs, which will inform the appropriate assessment section of this HRA in due course. Additionally, there are further evidence gathering commissions that will inform consideration of the Severn Estuary strategy below, and again will be included in the appropriate assessment sections in due course, before the Regulation 19 consultation.

Rodborough Common

- 1.40 For the long term protection of Rodborough Common SAC from the impacts of new residential growth, a partnership of the Council with the National Trust, Natural England and the Stroud Valleys Project is implementing a range of mitigation projects funded by developer contributions collected from within a 3km zone of influence to manage recreational access at the site. The zone has been identified using visitor survey data collected in 2013 by Strategic Marketing (using a survey prepared by URS and agreed by Natural England), utilising 159 separate interviews with visitors. The visitor survey work found that 73% of visits were made by visitors living within 3km of the Common, indicating a relatively localised draw to the site. A good proportion of the visitors surveyed were also regular visitors, visiting at least once per week. This indicates that the Common is predominantly used for local greenspace needs rather than being primarily a visitor destination, although it is promoted to some extent as such by the National Trust.
- 1.41 Measures include educational projects, working with local landowners and consideration of both grazing management on site and enhancement of other recreation areas off site.
- 1.42 The strategic approach to protecting Rodborough Common has arisen from advice from Natural England and consideration of potential risks in the HRA prepared in 2014 to support the currently adopted Stroud Local Plan. This highlighted difficulties in implementing the required grazing regime for the Common, including vehicle collisions with the grazing herd and dogs worrying the cattle, along with habitat damage as a result of trampling and erosion. The currently adopted Stroud Local Plan includes a commitment to the delivery of measures to protect the Common, funded by developer contributions obtained from within a 3km zone around the SAC.

- 1.43 Visitor survey work undertaken in 2019 at Rodborough Common will now inform the appropriate assessment sections of this HRA. At the next iteration of the HRA, this will include a high-level review of the measures in place for Rodborough Common SAC, to ensure that they remain fit for purpose in light of the survey work and the new growth and site allocations being proposed within the Stroud Local Plan.

Severn Estuary

- 1.44 The current strategic mitigation strategy for the Severn Estuary SPA/Ramsar site has been prepared on the basis of visitor survey information conducted in 2015/16 by EPR, which recommended mitigation measures to ensure that increasing pressure arising from additional recreational use by new housing is adequately managed. The visitor survey work has been used to identify a 7.7km zone of influence and measures within the strategy include education projects, parking review, and codes of conduct. Implementation is to be overseen by a panel and the strategy recommends an annual review. It is recognised that the strategy has recently been developed and it is recommended within the strategy document that the strategy is re-assessed as part of the Local Plan review.
- 1.45 In particular, recent advice from Natural England in relation to opportunities for updating the evidence base for the SPA has led to stakeholder discussions organised by Natural England and Stroud District Council. Natural England is now progressing with the collation of information to enable a better understanding of the functionally linked land for the SPA, including identification of key high tide roosts. This work is likely to report in the summer next year, in 2020. The appropriate assessment section of this HRA at Draft Plan stage will need to be revised and expanded once this information is available, particularly given its importance for some proposed site allocations in close proximity to the Severn Estuary.
- 1.46 As discussed in the appropriate assessment, it is also identified that the work of the Environment Agency in relation to shoreline management and flood defence will be factored into the appropriate assessment. Securing the long-term ecological viability of the Severn Estuary into the future, as climate change brings altered coastal and estuarine dynamics, will need to be considered before any final decisions are made in relation to development allocations in close proximity to the Estuary.

Cotswold Beechwoods

- 1.47 The HRA for the currently adopted Stroud Local Plan considered the potential impacts of increased growth on the SAC and concluded that whilst there was the potential for increased recreation pressure, this was not considered to be

significant, on the basis of currently available information. The HRA acknowledges that the site does not have the benefit of visitor survey data but concludes that from considering housing figures for proposed growth, the contribution towards increased recreation pressure on the site that would be likely to come from the Stroud District is minimal compared with other surrounding areas. At the time of preparation in 2014, the HRA concluded no adverse effects on the SAC in terms of recreation pressure.

- 1.48 Since that time, Natural England has highlighted the potential risk to the site from new growth, having regard for the combined quantum of growth coming forward in Local Plans in the vicinity of the SAC. There was also anecdotal evidence of these pressures from a variety of sources. The SIP for Cotswold Beechwoods, as noted in Appendix 3, flags recreation pressure as a key threat.
- 1.49 Alongside the progression of this HRA, visitor survey work has been undertaken at the site, commissioned by a partnership of the local planning authorities in the vicinity of the SAC. This work will inform any mitigation need for the SAC in light of new growth, and this will be discussed in more detail within the appropriate assessment of this HRA at the next plan making stage, once the neighbouring authorities have had time to consider the visitor survey findings. Stroud District has already identified the potential need for a strategic approach to mitigating for recreation pressure on the Cotswold Beechwoods SAC, which is noted as part of the plan section on meeting community and greenspaces needs within the plan period.

Sustainability Appraisal for the emerging Local Plan

- 1.50 A Sustainability Appraisal (SA) is undertaken by local planning authorities on local planning documents to assess whether the economic, environmental and social needs of the local area are being met. This appraisal, like the HRA, is an iterative process and runs alongside the preparation of a local plan, appraising the options being taken forward and whether alternatives might have a greater positive or lesser negative effect on economic, environmental and social objectives. SA also incorporates the requirements of the European Strategic Environmental Assessment Directive.
- 1.51 There are some elements of cross over between HRA and the SA. The SA considers environmental sustainability in terms of natural resources such as air and water, and how they may be affected by the plan. These are similarly important supporting aspects of European site ecological integrity. The SA, being prepared by Land Use Consultants, includes biodiversity related objectives and indicators. It provides for the following key questions within the SA Framework that has been developed to test the sustainability credentials of the emerging plan:

- Does the Plan avoid adverse effects on designated and undesignated biodiversity and geodiversity assets within and outside the District, including the net loss and fragmentation of green infrastructure and damage to ecological networks?
- Does the Plan outline opportunities for improvements to the conservation, connection and enhancement of ecological assets, particularly 'at risk' assets?
- Does the Plan provide and manage opportunities for people to come into contact with resilient wildlife places whilst encouraging respect for and raising awareness of the sensitivity of such locations?

1.52 The appropriate assessment work within this HRA will be used to help inform the SA iterations as the plan progresses further. It should be noted that the HRA includes a number of recommendations for further work to inform the next stage of plan making. Any mitigation measures developed within the next iteration of the appropriate assessment that may then form part of the plan and its allocations may need to be considered within the next iteration of the SA, so that it has regard for the implications of mitigation measures in terms of meeting sustainability requirements.

1.53 Of particular relevance are the SA findings on the hybrid strategy for delivery of growth and the resultant consideration of the large-scale proposals for allocations to deliver new settlements. Mitigation measures to be developed may have implications for the sustainability credentials of these, and it is proposed that the HRA and SA consultants work through these prior to the preparation of the Regulation 19 consultation version of the Stroud Local Plan.

Water and flooding evidence documents

1.54 To inform the appropriate assessment stage of the HRA, there will need to be consideration given to the available documents and strategies relating to water resources, water quality and flood management.

1.55 The Stroud District is not considered to be at risk in terms of provision of water supply, and there is no assessment proposed to underpin the emerging Local Plan in this regard. Water abstraction issues for the Severn Estuary were flagged by the previous HRA work, but not concluded to be significant.

1.56 As noted within the appropriate assessment Section of this report, it is recommended that further work is undertaken to evaluate the future implications of climate change and coastal change along the Severn Estuary, and how development allocations may assist or impede realignment in terms of allowing for designated site interest features to move.

- 1.57 This will involve consideration of the Strategic Flood Risk Assessment (SFRA), that is currently in preparation as part of the evidence base to inform the new Stroud Local Plan. A draft SFRA Report forms part of this Local Plan Review evidence base and is available to comment upon. JBA consulting have been commissioned by Stroud District Council to undertake the assessment, and during the appropriate assessment stage of HRA the progressing SFRA will be checked and any risks to European sites assessed accordingly. It will also involve consideration of the Severn Estuary Shoreline Management Plan Review.
- 1.58 As a precautionary measure, the potential for water supply and water quality to be an impact pathway will be explored through discussion with Natural England and the Environment Agency. If necessary, contact will also be made with the relevant water utility companies. These are Severn Trent (covering Stroud and north) and Wessex water (covering to the south of Sharpness). Any proposed water infrastructure upgrades over the new plan period will be checked.

Transport Modelling and air quality

- 1.59 As part of the evidence base for the Stroud Local Plan, transport modelling is currently being undertaken to consider the potential impacts of traffic changes in terms of highway capacity and operation on the highway network that may arise as a result of growth options. Discussions are being held between the District Council, South Gloucestershire Council, Gloucestershire County Council and Highways England to help formulate the Sustainable Transport Strategy approach. The latest version of the Strategy forms part of the current evidence base. Outputs of this modelling, anticipated early in 2020, are taken from a Saturn Base Model, with some additional localised modelling at junctions with potential capacity or operational issues. This will be an update to the transport modelling used for the currently adopted Stroud Local Plan.
- 1.60 Once prepared, the transport modelling will be considered to check for any potential impacts in terms of air quality changes in proximity to European sites, using current good practice advocated by Natural England. This will update the previous air quality considerations within the HRA for the currently adopted Stroud Local Plan. The HRA concluded that air quality was not a concern for the Severn Estuary because the interest features and associated habitats for this coastal site are not considered to be sensitive. This conclusion will be re-checked as part of the assessment of the potential new settlement at Sharpness.
- 1.61 Rodborough Common was identified within the previous HRA report for the adopted Stroud Local Plan as being sensitive to air quality changes, but considered that the positive qualitative measures within the Local Plan in relation to maintaining and improving air quality alongside new growth were such that adverse effects could be ruled out. Rodborough Common SAC is

currently within critical limits for relevant pollutants with the exception of ammonia. It is anticipated that this is predominantly related to non-development sources, but this will be checked with Natural England.

- 1.62 For Cotswold Beechwoods the HRA for the adopted Stroud Local Plan concluded that whilst the habitats are sensitive to air quality changes, predicted traffic increases would not lead to any significant concerns for the Cotswold Beechwoods SAC. These conclusions used the available traffic modelling data at the time of preparation of the current Stroud Local Plan. These previous conclusions will be revisited with the new traffic information as part of the appropriate assessment at the next iteration once traffic modelling work is finalised. The Stroud Local Plan at Draft Plan stage has strong policies on carbon reduction and sets challenging targets for carbon neutrality across the District and within the large-scale new settlement proposals.
- 1.63 In terms of significant individual development projects, a County Waste Incinerator has recently completed construction in June 2019, located at Haresfield/M5, which was the subject of project level HRA including assessment of air quality impacts. The incinerator contributes to the overall targets for the District in terms of carbon reduction, as opposed to alternative means of dealing with waste.

2. European Sites

- 2.1 In undertaking a HRA it is necessary to gather information on the European sites that could be potentially affected by the plan or project. A 20km buffer from the edge of the District was used to initially identify sites that may be potentially affected. This buffer is used by Footprint Ecology for local plan HRAs as it is deemed precautionary enough to capture most potential impact pathways (i.e. the means by which a European site may be affected) between plan implementation within a local planning authority's administrative area. The list of European sites within 20km was then evaluated in terms of relevant threats, vulnerabilities and current issues.
- 2.2 European sites within 20km are shown in Map 1 and European sites are listed in Table 1. Full details of the interest features and current pressures/threats for each site are summarised in Appendix 3.
- 2.3 Risks need to be identified in order to inform the screening for likely significant effects. European sites are at risk if there are possible means by which any aspect of a plan can, when being taken forward for implementation, pose a potential threat to the wildlife interest of the sites. This is often referred to as the 'impact pathway' as it is an identifiable means by which the plan or project could potentially affect the European site.

Table 1: European Sites within a 20km radius

SAC	SPA	Ramsar
Screened in:		
Severn Estuary	Severn Estuary	Severn Estuary
Cotswold Beechwoods		
Rodborough Common		
Screened out:		
North Meadow and Clattinger Farm	Walmore Common	
River Wye		
Wye Valley and Forest of Dean Bat sites		
Wye Valley Woodlands		

- 2.4 In assessing the implications of any plan or project for European sites, it is essential to fully understand the ecology and sensitivity of the sites, in order to identify how they may be affected. This section and the accompanying detailed site information within Appendices 2 and 3 identifies those sites that could potentially be affected by the policies and proposals within the emerging Stroud District Local Plan. Every European site has a set of 'interest features' which are the ecological features for which the site is designated or classified, and the

features for which Member States should ensure the site is maintained or, where necessary, restored.

- 2.5 Each European site also has a set of ‘conservation objectives’ for the site interest, i.e. what the site should be achieving in terms of restoring or maintaining the special ecological interest of European importance. Also relevant to the HRA is the consideration of how a plan or project may affect the achievement of conservation objectives for each European site. The site conservation objectives are relevant to any HRA, because they identify what should be achieved for the site, and HRA may therefore consider whether any plan or project may compromise the achievement of those objectives. The background to conservation objectives and key considerations are explained in Appendix 2. Appendix 3 sets out the site interest features for each European site.
- 2.6 The Habitats Directive requires competent authorities to ‘maintain and restore’ European sites. Where sites are meeting their conservation objectives, the requirement is to maintain this position and not allow deterioration. Where a site requires restoration, competent authorities should work to bring site interest features back to a status that enables conservation objectives to be met.
- 2.7 In addition to conservation objectives, Natural England produces Site Improvement Plans (SIPS) for each European site in England as part of a wider programme of work under the ‘Improvement Programme for England’s Natura 2000 sites.’ Each plan includes a set of actions for alleviating issues that are impeding the delivery of conservation objectives, with lead delivery bodies identified and indicative timescales. The SIPs can provide an additional useful reference for HRA work, identifying where there are site sensitivities. These are reviewed as part of the appropriate assessment, and links are provided in Appendix 3, with key threats highlighted. Those that are connected to development are primarily recreation, air quality, water and for Rodborough Common, management issues in relation to grazing.
- 2.8 The sites identified in Table 1 as being screened out of the HRA are considered not relevant primarily due to distance preventing any plausible impact pathways. The River Wye has a strategic approach to mitigation from new growth bringing increased nutrient enrichment, but this is only applicable within its catchment, for which the Stroud District is outside. Walmore Common is closer to the District boundary and is a regularly flooded damp grassland site that supports overwintering Bewick’s Swan *Cygnus columbianus bewickii*. The HRA work for the currently adopted Stroud Local Plan screened Walmore Common out from any likely significant effects due to its location on the opposite side of the River Severn and 5km from any significant settlement in the Stroud District. Since the adoption of the current Local Plan there isn’t any information or advice

to alter the conclusion that this SPA can be screened out from further consideration.

2.9 In initially screening the European sites within 20km of the Stroud District, it is concluded that the sites for which the Local Plan poses potential risks are Cotswold Beechwoods SAC, Rodborough Common SAC and the Severn Estuary SPA/SAC/Ramsar site. Table 2 below provides a summary of the initially identified impact pathways that may be relevant. At the screening stage, the identification of impact pathways is on a precautionary basis. These are possible means by which the content of the Stroud Local plan may affect European site interest features. The later HRA stage of appropriate assessment considers these potential impact pathways in further detail, at which point they may be ruled out from causing adverse effects. Table 2 is therefore a precautionary identification of potential impact pathways, which were flagged at Emerging Strategy stage and retained for the screening of the Draft Plan.

Table 2: Summary of potential impact pathways - i.e. potential mechanisms whereby the different European sites could be impacted (? = possible)

Site	Recreation	Air quality	Water quality	Water abstraction	Urban effects
Severn Estuary SPA/Ramsar site	✓	?	✓	✓	✓
Severn Estuary SAC	✓	?	✓		
Cotswold Beechwoods SAC	✓	✓	✓	✓	✓
Rodborough Common SAC	✓	✓	✓	✓	✓

Relationship with wider biodiversity assets

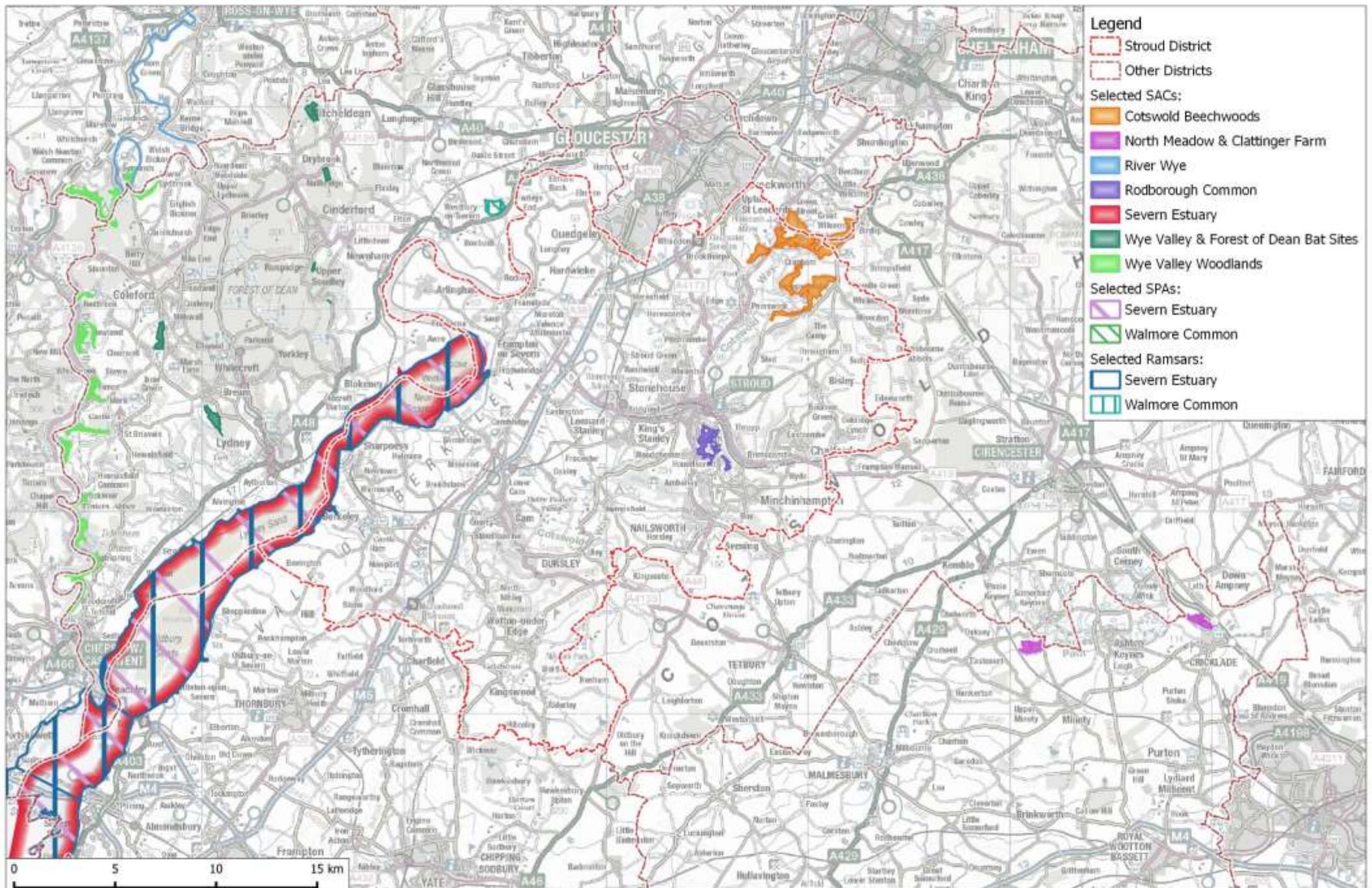
2.10 In accordance with the NPPF, a Local Plan that takes forward sustainable development should include protecting, enhancing and improving biodiversity, and moving from a net loss of biodiversity to achieving net gains. The recently published Defra 25-year plan⁶ sets out an ambitious programme for improving the natural environment, including the achievement of environmental net gains through development, of which biodiversity is an important part.

⁶ <https://www.gov.uk/government/publications/25-year-environment-plan>

- 2.11 The Defra strategy follows on from the review of England’s wildlife sites and ecological network, set out in the report to Defra in 2010 entitled ‘Making Space for Nature,’⁷ which was prepared by a group of national experts chaired by Professor Sir John Lawton. Within this report, it is identified that in order to make our ecological networks and wildlife sites capable of future resilience, there is a need for more wildlife sites, and that existing networks need to be bigger, better and more connected.
- 2.12 The future health of designated sites is very much dependant on the future health of wider biodiversity and the ecological networks that sustain them. In planning for the long-term sustainability of designated sites, it is therefore necessary to protect and enhance wider biodiversity through the planning system as well as the designated sites. This HRA recognises this need within the appropriate assessment section in relation to biodiversity protection, maintenance, enhancement and gains through planning. Biodiversity related policy areas are checked, and recommendations made to ensure that a holistic approach to biodiversity is taken, which in turn underpins designated site protection into the long term.
- 2.13 The attention given to wider biodiversity is now pertinent with the proposed Environment Bill. This includes a mandatory requirement for development to provide a net gain for biodiversity. The Bill reached its second reading before the dissolution of Parliament for the General Election. It is anticipated that a future Government will take up the Environment Bill again, but this will be revisited in the next HRA iteration once a new Government is in place.

⁷ <https://www.gov.uk/government/news/making-space-for-nature-a-review-of-englands-wildlife-sites-published-today>

Map 1: SPA, SAC and Ramsar sites in the area.

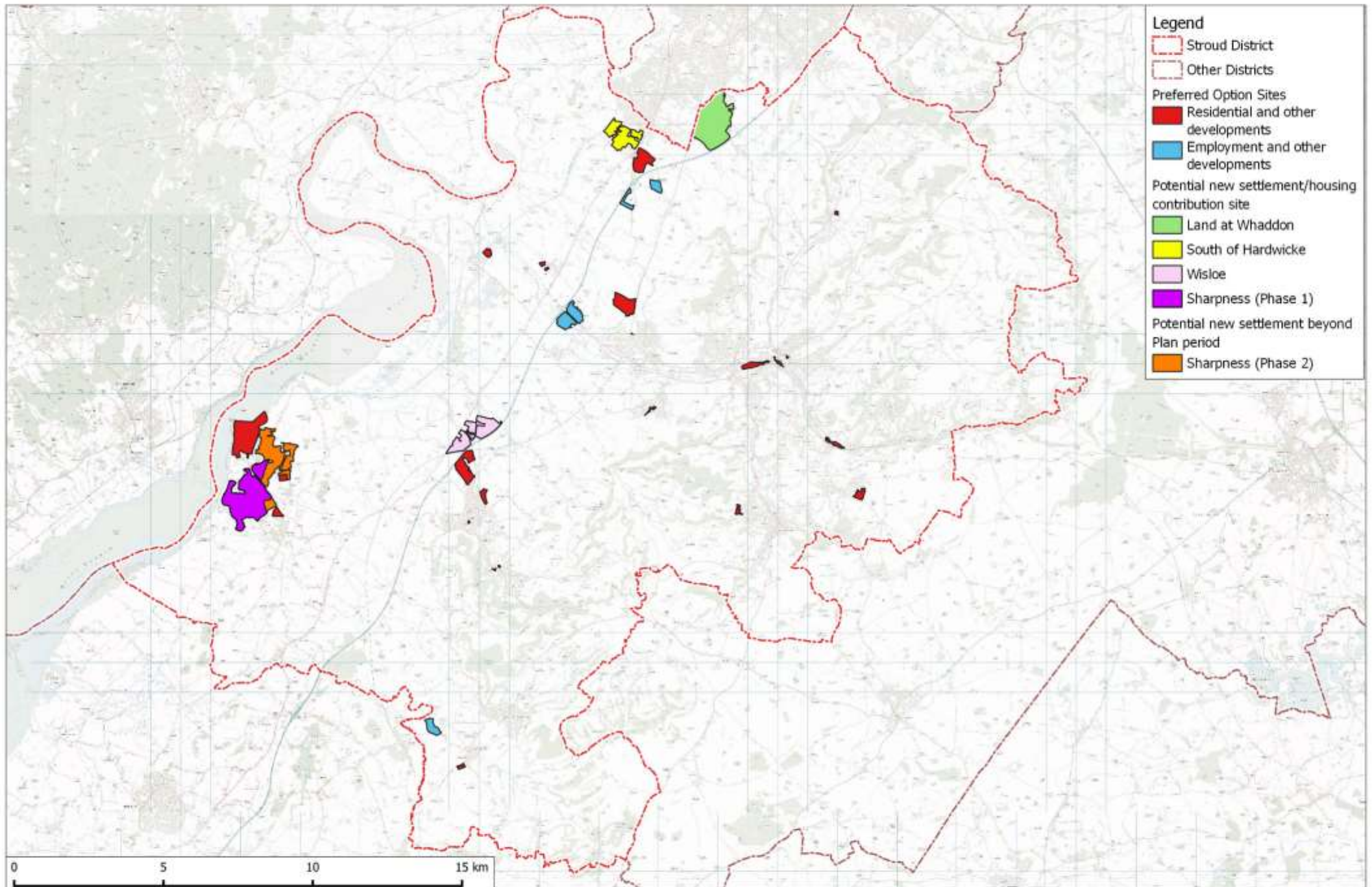


3. Consideration of Site Allocations

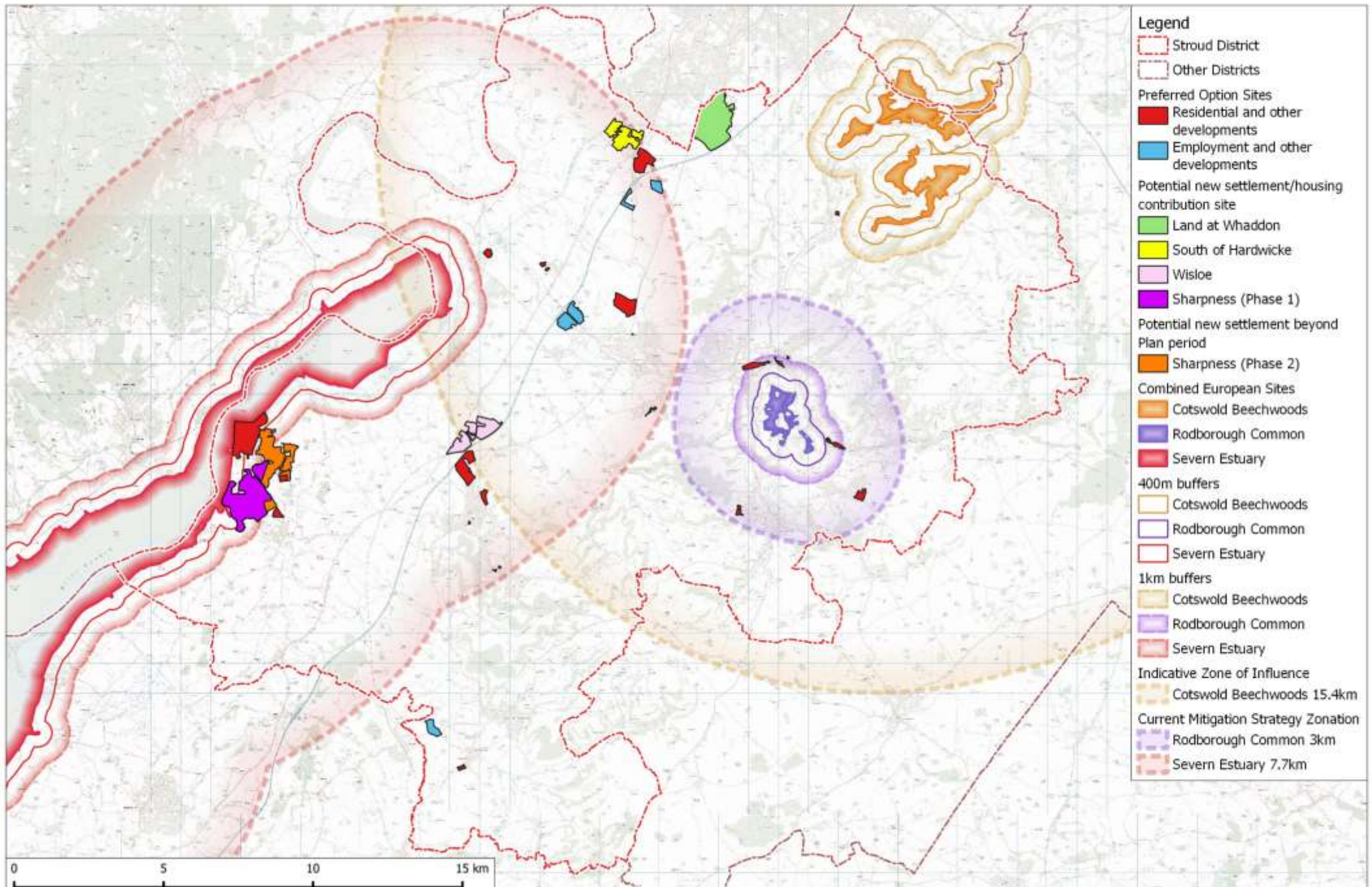
- 3.1 All aspects of the emerging plan that influence sustainable development for the Stroud District are checked through this assessment for risks to European sites.
- 3.2 All policies are checked as part of HRA, but of particular relevance is the quantum and location of proposed growth. At the Emerging Strategy stage, the policies were not yet refined and appeared within the Emerging Strategy as headline topics with options to inform the public consultation. The Draft Plan now shows proposed site allocations within the eight Parish Clusters and the potential new settlement options. GIS data showing proposed development allocations were provided to Footprint Ecology by Stroud District Council. These data showed locations for housing and employment growth, which assist with the check for relevant potential pathways by looking at the growth that will come forward in close proximity to the European sites.
- 3.3 Map 2 shows the allocations as currently proposed in the Draft Plan. These sites are the development sites currently identified as presenting the most sustainable options to meet the required growth for the Stroud District up to 2040, reviewing the current local plan to provide a new Local Plan for Stroud that runs from 2020 to 2040. The site allocations are proposed in keeping with the hybrid strategy for growth, as discussed earlier in this HRA report.
- 3.4 Map 3 presents zones around the European sites that assist with the identification of potential impacts for further consideration. Any development sites in very close proximity of 400m have the potential for urbanisation and air quality impacts. Within close proximity of 1km there may be a risk relating to water, and closer consideration of watercourses leading into European sites may be required. This then enables an initial consideration of the potential impact pathways that may be of relevance, and serves to inform the initial screening of the plan for likely significant effects. These impact pathways are then considered in greater detail within the appropriate assessment. Table 2 in the previous section provides an initial summary of all potentially relevant impact pathways.
- 3.5 Map 3 also identifies the current interim mitigation strategy zones for both the Severn Estuary and Rodborough Common. A nominal 15.4km zone has also been illustrated around the Cotswold Beechwoods. This is an indicative line to give an idea of a potential zone of influence around the Cotswold Beechwoods SAC, having regard for emerging findings within the 2019 visitor survey for this site. The 15.4km zone does not therefore necessarily reflect a future mitigation zone. The need for a strategic approach to mitigating for recreation needs to be agreed, and advice from Natural England sought.

- 3.6 The mitigation strategies for both the Severn Estuary and Rodborough Common are currently based on previous visitor survey data, as explained in Section 1 of this report, with new visitor surveys undertaken for Rodborough Common SAC in late Spring 2019. As described in section 1, the next iteration of this HRA report will be informed by the new survey work and any agreement in relation to what may be required for the Cotswold Beechwoods SAC.
- 3.7 It should be noted that the consideration of site allocations and Maps 2 and 3 within this HRA report for the Draft Local Plan has been undertaken using available GIS data provided by Stroud District Council during the preparation of the Draft Plan for consultation. For the exact boundaries of site allocations, the consultation version of the Draft Plan should be referred to.

Map 2: Potential development sites.



Map 3: Potential development sites in relation to European site buffer zones.



4. Screening for Likely Significant Effects

- 4.1 HRA is a step by step process, with the competent authority required to undertake screening for likely significant effects on European sites, after determining that the plan or project in question is not one that is entirely necessary for site management. Once relevant background information and potential impact pathways are understood, the HRA can progress to the screening for likely significant effects stage, fully informed by the background research undertaken. The screening for likely significant effects is undertaken on all policies within the plan. It is an initial check, made on a precautionary basis, to determine whether any part of the plan poses a risk to European sites in terms of its future implementation.
- 4.2 The Stroud District Local Plan is being prepared to steer sustainable development in the District over a 20-year timeframe, and whilst protection and enhancement of the natural environment is an integral part of sustainable development, the plan is not singularly focussed on European site management. The screening for likely significant effects is therefore undertaken.
- 4.3 When a HRA is being undertaken on a plan or project that is initiated by the competent authority themselves, there is greater opportunity to identify potential issues arising from the plan or project in the initial stages of design or preparation. Where a competent authority is approving a project being proposed by another party, the application for permission is usually made when the proposal has already been designed and all details finalised, thus the opportunity to identify issues early on is more limited unless an applicant chooses to hold early discussions with the competent authority.
- 4.4 For the Stroud Local Plan, the District Council is both the plan proposer and the competent authority, thus allowing the HRA to influence the plan in its earlier stages, at later refining stages and up to submission for Examination.

What constitutes a likely significant effect?

- 4.5 At the screening stage of HRA, there is the opportunity to identify changes to the plan that could be made to avoid risks to European sites. Any requirement for assessing the effectiveness of changes should be made at the appropriate assessment stage. The screening for likely significant effects is an initial check to identify risks or uncertainties in policy wording and recommend any obvious changes that can avoid those risks with clarifications, corrections or instructions for development project level HRA. Any recommendations that need to be justified in terms of effectiveness and applicability should be considered within

the appropriate assessment stage of HRA. As described in Appendix 1, screening for likely significant effect is an initial check to identify risks and uncertainties that could potentially be significant for the European sites, and to recommend any obvious changes that can avoid those risks. Where risks cannot be avoided with simple clarifications, corrections or instructions for project level HRA, a more detailed assessment is undertaken to gather more information about the likely significant effects and give the necessary scrutiny to potential mitigation measures. This is the appropriate assessment stage of HRA.

- 4.6 The screening check of each aspect of the plan is essentially looking for two things to enable a conclusion of no likely significant effect;
- Whether it is possible to say with certainty that there are no possible impacts on European sites, or
 - Whether, in light of a potential risk, simple clarifications can be built into the policy and/or its supporting text, which serve to avoid any likely impacts, or
 - Whether, in light of a potential risk, further assessment is required at the appropriate assessment stage of HRA to establish the nature, extent or duration of a potential impact, its implications for European site interest features, and the viability of any measures that are proposed.
- 4.7 If the first or second point can be met, it enables a competent authority to screen out from further stages of assessment. Where there is the potential for European sites to be affected, or mitigation measures need to be checked to ensure they are effective and appropriate, more detailed consideration is required and this then screens those aspects of the plan into the appropriate assessment.
- 4.8 A likely significant effect could be concluded on the basis of clear evidence of risk to European site interest, or there could be a scientific and plausible justification for concluding that a risk is present, even in the absence of direct evidence. The latter is a precautionary approach, which is one of the foundations of the high-level of protection pursued by EU policy on the environment, in accordance with the EU Treaty.⁸ The precautionary principle should be applied at all stages in the HRA process, and follows the principles established in case law relating to the use of such a principle in applying the European Directives and domestic Habitats Regulations. In particular, the European Court in the ‘Waddensee’ case⁹ refers to “*no reasonable scientific doubt*” and in the ‘Sweetman’

⁸ Article 191 of the Treaty on the Functioning of the EU. Previously Article 174 of the Treaty of the EC.

⁹ European Court of Justice case C - 127/02

case¹⁰ the Advocate General identified that a positive conclusion on screening for likely significant effects relates to where there *“is a possibility of there being a significant effect”*.

- 4.9 An additional recent European Court of Justice Judgment in 2018 (Case C-323/17) clarified that the need to carefully explain actions taken at each HRA stage, particularly at the screening for likely significant effects stage. The Judgment is a timely reminder of the need for clear distinction between the stages of HRA, and good practice in recognising the function of each. The screening for likely significant effects stage should function as a screening or checking stage, to determine whether further assessment is required. Assessing the nature and extent of potential impacts on European site interest features, and the robustness of mitigation options, should be done at the appropriate assessment stage.
- 4.10 Tables 3 and 4 below record the conclusions drawn and recommendations made on a check for likely significant effects of the Stroud Local Plan at Draft Plan stage, building on previous screening of the Emerging Strategy. Table 3 considers the policy topics, and Table 4 the preferred site allocations within the eight Parish Clusters. Screening of site allocations has been undertaken in relation to proximity to European sites, using a 400m zone that would highlight potential air quality and urbanisation effects, a 1km zone that would highlight potential water related impacts and the current mitigation zones for potential recreation impacts. In lieu of pending survey work for Cotswold Beechwoods, a 15.4km zone is used. This will be revised once Stroud District Council and its neighbouring local planning authorities have considered the new visitor survey work for Cotswold Beechwoods and advice from Natural England has been sought with regard to the need for a mitigation strategy.
- 4.11 Each aspect of the Draft Plan is checked, and conclusions recorded in the screening table. Potential risks are highlighted. For a number of aspects of the plan, particularly those related to site allocations, the screening has identified a likely significant effect. At the current Draft Plan stage, the screening table is considering policies that will be further refined at Regulation 19 stage, and therefore makes recommendations to inform that next stage of plan making as follows:
- For policy topics that do not set a quantum of development or specific locations, the potential for significant effects relates to the possibility of development coming forward in a particular location or with particular characteristics, or simply the quantum of growth proposed. In such instances, the risks may be simply

¹⁰ European Court of Justice case C - 258/11

avoided with straightforward clarifications, which remove any uncertainty. The recommendations add text to the policy to explain how the policy should be implemented to prevent adverse effects. This does not exclude the need for project level HRA but enables a conclusion of no likely significant effects at the plan level, because the identified risks to European sites have been removed. Project level HRA provides a means of checking for any further risks unforeseen at the plan level, and for developing project specific mitigation measures in greater detail within a project level appropriate assessment.

- For policy topics that do set a quantum of development or specific locations, the risks are primarily related to recreation pressure, but there are also potential impact pathways relating to urbanisation effects (including increased noise and lighting), water and air quality. The further detailed assessment of these impact pathways is discussed in more detail in the appropriate assessment chapter. These are also impact pathways that would typically be re-considered at the development project level HRA.
- For policy topics that will provide specific protection of European sites or direct mitigation requirements, the risks relate to whether the policy provides robust means of protecting the European sites and delivering the required mitigation. Further scrutiny of this is undertaken within the appropriate assessment.

- 4.12 The screening was undertaken immediately prior to the finalisation of the Draft Plan for public consultation at Regulation 18 stage. This HRA report provides the topics for further in-depth assessment at appropriate assessment.
- 4.13 The screening tables will be updated when the Stroud Local Plan is re-screened later at the Final Draft Plan stage, which is anticipated to be in Autumn 2020. There may also be a need to undertake further screening on any proposed modifications after Examination in Public, prior to adoption. This ensures that the final adopted plan has an up to date HRA report.
- 4.14 The screening for likely significant effects checks for any potential impacts on the three European sites screened into the assessment in Table 1, in terms of the potential impact pathways identified in Table 2.

Stroud District Local Plan HRA

Table 3: Screening for likely significant effects – Stroud District Local Plan policy topics at Preferred Strategy stage

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
The Development Strategy	12,800 new dwellings over the plan period. Concentration of housing growth at Cam and Dursley, Stroud and Stonehouse. New settlements at Sharpness and Wisloe. Additional housing need could be met at Hardwicke and Whaddon. Plus the larger villages.	LSE. The quantum of growth over the plan period 2020 to 2040 overall and the specific locations for growth.	Growth at Stroud and larger villages in the vicinity of Rodborough Common within 3km – recreation, hydrology. No allocations within 400m. Cotswold Beechwoods – recreation. No allocations within 1km. Severn Estuary – Recreation, urbanisation, water issues, future estuary re-alignment may be an issue. Large scale allocations within 400m.	Appropriate Assessment of all potential risks identified.
Core Policy DCP1 Delivering carbon neutral by 2030	An ambitious environmental policy to achieve carbon neutrality for the District by 2030	No LSE	None, a strong environmental policy that will benefit European sites.	N/A
Core Policy CP2 Strategic growth and development locations	12,800 new dwellings over the plan period - 638 dwellings per annum for a 20-year period, net housing delivery after accounting for completions prior to 2020 is 8,000.	LSE. The quantum of growth over the plan period 2020 to 2040 overall and the specific locations for growth.	Growth at Stroud and larger villages in the vicinity of Rodborough Common within 3km – recreation, hydrology. No allocations within 400m. Cotswold Beechwoods – recreation. No allocations within 1km.	Appropriate Assessment of all potential risks identified.

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
			Severn Estuary – Recreation, urbanisation, hydrology. Large scale allocations within 400m.	
Core Policy CP3 Settlement hierarchy	Concentration of growth at the main towns, with new settlements at Sharpness and Wilsloe, an option for large scale housing at Hardwicke and at Whaddon for neighbouring housing needs. Larger villages/service centres and lower tier settlements with local facilities.	LSE. The specific locations for growth.	Growth at Stroud and larger villages in the vicinity of Rodborough Common within 1km – recreation, hydrology. No allocations within 400m. Cotswold Beechwoods – recreation. No allocations within 1km. Severn Estuary – Recreation, urbanisation, hydrology. Large scale allocations within 400m.	Appropriate Assessment of all potential risks identified.
Core Policy CP4 Place Making	Each of the parish clusters has a vision and preferred development allocations	LSE	Allocations pose risks in terms of key impact pathways, depending on proximity. See screening table for allocations below.	Appropriate assessment of allocations screened due to proximity, as per screening table for allocations below
Core Policy CP5 Environmental development principles for strategic sites	An environmentally positive policy setting out sustainable development requirements	No LSE	None, a strong environmental policy that will be of indirect benefit European sites.	N/A
Core Policy CP6	Qualitative policy supporting the	No LSE	Qualitative policy that does not lead to impact	N/A

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
Infrastructure and developer contributions	preparation of the Infrastructure Delivery Plan and securing contributions as required for infrastructure needs.		pathways	
Core Policy DCP2 Supporting older people	Qualitative policy relating to healthy and inclusive communities	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Core Policy CP7 Lifetime communities	Qualitative policy relating to healthy and inclusive communities	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Core Policy CP8 New housing development	Criteria for meeting the differing housing needs	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Core Policy CP9 Affordable housing	Criteria for meeting the differing housing needs	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Core Policy CP10 Gypsy, traveller and travelling showpeople sites	Criteria for meeting the differing housing needs	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Delivery Policy DHC1 Meeting housing need within defined settlements	Criteria for meeting the differing housing needs Policy to be developed for Regulation 19	No LSE, recheck at Regulation 19	Recheck at Regulation 19	Recheck at Regulation 19
Delivery Policy DHC2 Sustainable rural communities	Criteria for meeting the differing housing needs – small	No LSE	Qualitative policy, but each housing proposal will need to adhere to	N/A

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
	housing sites		mitigation strategies in place where located within mitigation zones	
Delivery Policy HC2 Providing new homes above shops in town centres	Criteria for meeting the differing housing needs	No LSE	Qualitative policy, but each housing proposal will need to adhere to mitigation strategies in place where located within mitigation zones	N/A
Delivery Policy HC3 Self-build and custom build provision	Criteria for meeting the differing housing needs	No LSE	Qualitative policy, but each housing proposal will need to adhere to mitigation strategies in place where located within mitigation zones	N/A
Delivery Policy HC4 Local housing need (exception sites)	Criteria for meeting the differing housing needs	No LSE	Qualitative policy, but each housing proposal will need to adhere to mitigation strategies in place where located within mitigation zones	N/A
Delivery Policy HDC3 Live-work development	Criteria for meeting the differing housing needs	No LSE	Qualitative policy, but each housing proposal will need to adhere to mitigation strategies in place where located within mitigation zones	N/A
Delivery Policy HC1 Detailed criteria for new housing developments	Criteria for meeting the differing housing needs	No LSE	Qualitative policy, but each housing proposal will need to adhere to mitigation strategies in place where located within mitigation zones	N/A
Delivery Policy	Criteria for meeting	No LSE	Qualitative policy, but	N/A

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
DHC4 Community-led housing	the differing housing needs		each housing proposal will need to adhere to mitigation strategies in place where located within mitigation zones	
Delivery Policy HC5 Replacement dwellings	Criteria for meeting the differing housing needs	No LSE	Qualitative policy, but each housing proposal will need to adhere to mitigation strategies in place where located within mitigation zones (any net increase in dwellings or dwelling units)	N/A
Delivery Policy HC6 Residential sub-division dwellings	Criteria for meeting the differing housing needs	No LSE	Qualitative policy, but each housing proposal will need to adhere to mitigation strategies in place where located within mitigation zones (any net increase in dwellings or dwelling units)	N/A
Delivery Policy HC7 – Annexes for dependents or carers	Criteria for meeting the differing housing needs	No LSE	Qualitative policy, but each housing proposal will need to adhere to mitigation strategies in place where located within mitigation zones (any net increase in dwellings or dwelling units would ordinarily not include annexes)	N/A
Delivery Policy	Criteria for meeting	No LSE	Qualitative policy, but	N/A

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
HC8 – Extensions to dwellings	the differing housing needs		each housing proposal will need to adhere to mitigation strategies in place where located within mitigation zones (any net increase in dwellings or dwelling units would ordinarily not include extensions)	
Delivery Policy DHC5 - Wellbeing and healthy communities	Qualitative policy relating to healthy and inclusive communities	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Delivery Policy DHC6 - Protecting existing open spaces and built and indoor sports facilities	Qualitative policy relating to healthy and inclusive communities	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Delivery Policy DHC7 – Provision of new open space and built and indoor sports facilities	Qualitative policy relating to healthy and inclusive communities	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Core Policy CP11 – New employment development	Qualitative overarching employment policy	No LSE – no employment sites within 400m of a European site (except for new settlement sites) Criteria includes consideration of SUDs, GI etc.	Qualitative policy that does not lead to impact pathways, but there may be sites where project level HRA may be required	N/A New settlement sites considered within appropriate assessment
Core Policy CP12 – Town centres and retailing	Town centre focussed policy	No LSE due to no proximity to European sites and nature of development	Qualitative policy that does not lead to impact pathways, but there may be sites where project level HRA may be	N/A

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
			required	
Core Policy CP13 – Demand management and sustainable travel measures	Sustainability policy, of benefit to the natural environment	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Delivery Policy EI1 - Key employment sites	List of sites for B class use	No LSE – no employment sites within 400m of a European site (except for new settlement sites) Criteria for policy CP11 includes consideration of SUDs, GI etc.	Lack of proximity and development type does not lead to impact pathways, but there may be sites where project level HRA may be required	N/A
Delivery Policy EI2 - Regenerating existing employment sites	Requirements and safeguarding for existing employment sites	No LSE – no employment sites within 400m of a European site (except for new settlement sites) Criteria for policy CP11 includes consideration of SUDs, GI etc.	Lack of proximity and development type does not lead to impact pathways, but there may be sites where project level HRA may be required	N/A
Delivery Policy EI2a – Former Berkley Power Station	Requirements and safeguarding for existing employment sites	No LSE – no employment sites within 400m of a European site (except for new settlement sites) Criteria for policy CP11 includes consideration of SUDs, GI etc.	Lack of proximity and development type does not lead to impact pathways, but there may be sites where project level HRA may be required	N/A
Delivery Policy EI4 – Development at existing employment sites in the countryside	Requirements and safeguarding for existing employment sites	No LSE – no employment sites within 400m of a European site (except for new settlement sites) Criteria for policy CP11 includes consideration of SUDs, GI etc.	Lack of proximity and development type does not lead to impact pathways, but there may be sites where project level HRA may be required	N/A

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
Delivery Policy EI5 – Farm and Forestry diversification	Small scale employment use	No LSE	Impact pathways unlikely but project level HRA may be required in close proximity to European sites	N/A
Delivery Policy EI6 – Protecting individual and village shops, public houses and other community uses	Small scale employment use	No LSE	Impact pathways unlikely but project level HRA may be required in close proximity to European sites	N/A
Delivery Policy EI7 – Non-retail uses in primary frontages	Small scale employment use	No LSE	Impact pathways unlikely but project level HRA may be required in close proximity to European sites	N/A
Delivery Policy EI8 – Non-retail uses in secondary frontages	Small scale employment use	No LSE	Impact pathways unlikely but project level HRA may be required in close proximity to European sites	N/A
Delivery Policy EI9 – Floorspace thresholds for Retail Impact Assessments	Small scale employment use	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Delivery Policy EI10 – Provision of new tourism opportunities	Promotion of tourism development in settlements	No LSE due to qualitative nature of policy	Tourism development could have implications depending on location and nature of development	Add in text to supporting text to highlight need for HRA where in proximity to European sites.
Delivery Policy EI11 – Providing sport, leisure,	Qualitative policy relating to healthy and inclusive	No LSE	Qualitative policy that does not lead to impact pathways	N/A

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
recreation and cultural facilities	communities			
Delivery Policy E112 – Promoting transport choice and accessibility	Promotion of sustainable transport	No LSE due to qualitative nature of policy	Transport development could have implications depending on location and nature of development	Add in text to supporting text to highlight need for HRA where in proximity to European sites.
Delivery Policy DE1 – District wide mode-specific strategies	A range of sustainable travel strategies to be developed	No LSE	None, policy commits to strategy preparation	Add in HRA linkages where appropriate
Delivery Policy E114 – Provision and protection of rain stations and halts	Qualitative policy allowing for rail travel options to be developed	No LSE due to qualitative nature of policy	Rail development could have implications depending on location and nature of development	Add in text to supporting text to highlight need for HRA where in proximity to European sites.
Delivery Policy E115 – Protection of freight facilities at Sharpness Docks	Qualitative policy allowing for freight/shipping proposals to be developed	No LSE due to qualitative nature of policy	freight/shipping development could have implications for the Severn Estuary depending on nature of development	Add in text to supporting text to highlight need for HRA due to close proximity to the Severn Estuary.
Delivery Policy E116 – Provision of public transport facilities	Promotion of sustainable transport	No LSE due to qualitative nature of policy	Transport development could have implications depending on location and nature of development	Add in text to supporting text to highlight need for HRA where in proximity to European sites.
Core Policy CP14 – High quality sustainable development	Sustainability policy, of benefit to the natural environment	No LSE	Qualitative policy that does not lead to impact pathways. Strong wording in relation to the natural environment and biodiversity.	N/A
Core Policy CP15 – A quality living and	Sustainability policy, of benefit to the	No LSE	Qualitative policy that does not lead to impact	N/A

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
working countryside	natural environment		pathways. Strong wording in relation to natural assets and other environmental policies will apply.	
Delivery Policy ES1 – Sustainable construction and design	Sustainability policy, of benefit to the natural environment	No LSE	Qualitative policy that does not lead to impact pathways.	N/A
Delivery Policy ES2 – Renewable or low carbon energy generation	Sustainability policy, of benefit to the natural environment	No LSE	Qualitative policy unlikely to lead to impact pathways, but project level HRA may be required in proximity to European sites.	Add in text to supporting text to highlight need for HRA where in proximity to European sites.
Delivery Policy DES3 – Heat supply	Sustainability policy, of benefit to the natural environment	No LSE	Qualitative policy unlikely to lead to impact pathways, but project level HRA may be required in proximity to European sites.	Add in text to supporting text to highlight need for HRA where in proximity to European sites.
Delivery Policy ES3 – Maintaining quality of life within environmental limits	Sustainability policy, of benefit to the natural environment	No LSE	Qualitative policy that does not lead to impact pathways. Strong wording in relation to the natural environment and biodiversity.	N/A
Delivery Policy ES4 – Water resources, quality and flood risk	Sustainability policy, of benefit to the natural environment	No LSE	Qualitative policy that does not lead to impact pathways. Strong wording in relation to the natural environment and biodiversity. Provides project level HRA	N/A

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
			justifications for surface water management to demonstrate no adverse effects on European sites	
Delivery Policy ES5 – Air quality	Sustainability policy, of benefit to the natural environment	No LSE	Qualitative policy that does not lead to impact pathways. Strong wording in relation to the natural environment and biodiversity. Provides project level HRA justifications where air quality modelling may be required to demonstrate no adverse effects on European sites	N/A
Delivery Policy DES1 – Conversion of redundant agricultural or forestry buildings	Criteria for meeting the differing housing needs	No LSE	Qualitative policy, but each housing proposal will need to adhere to mitigation strategies in place where located within mitigation zones (any net increase in dwellings or dwelling units)	N/A
Delivery Policy ES6 – Providing for biodiversity and geodiversity	Requirements for protecting, enhancing and expanding biodiversity interest, protecting geodiversity interest	No LSE	Policy does not lead to impact pathways. Strong policy wording that provides comprehensive protection of internationally designated sites, along with the full suite of biodiversity assets both designated	N/A (Note that geological interest can be taken out of the sentence relating to internationally important sites).

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
			and non-designated. Policy provides for biodiversity net gains as part of development and has regard for cumulative impacts and the status of species.	
Delivery Policy ES7 – Landscape character	Requirements for protecting landscape character	No LSE	Policy does not lead to impact pathways. An environmentally positive policy that recognises the importance of biodiversity as an integral part of landscape character	N/A
Delivery Policy ES8 – Trees, hedgerows and woodlands	Requirements for protecting, enhancing and expanding woodland	No LSE	Policy does not lead to impact pathways. An environmentally positive policy, contributing to the preservation of the natural environment	N/A
Delivery Policy ES9 – Equestrian development	Small scale rural development - equestrian	No LSE	Impact pathways unlikely but project level HRA may be required in close proximity to European sites	N/A
Delivery Policy ES10 - Valuing our historic environment and assets	Protective policy relating to historic assets	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Delivery Policy ES11 - Maintaining, restoring and regenerating the	Requirements for protecting historic canal network	No LSE	Policy could contribute to greater recreation pressure by enhancing	N/A

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
District's canals			<p>canal towpath access to the Severn Estuary, but the policy development has specifically omitted any car park/leisure facilities that may significantly increase use.</p> <p>The policy is environmentally positive in that recognises the importance of biodiversity as an integral part of the character and setting of the canal network and the focus of the policy enables a conclusion of no LSE.</p>	
Delivery Policy ES12 - Better design of places	Qualitative policy relating to high quality design and place making	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Delivery Policy DES2 – Green infrastructure	Requirements for protecting, enhancing and expanding green infrastructure as part of development	No LSE	<p>Policy does not lead to impact pathways. Strong policy wording that provides complementary policy wording for Policy ES6. Green infrastructure expansion outside designated sites plays a critical role in the long-term ecological robustness of designates sites.</p> <p>Policy includes positive</p>	N/A

Stroud District Local Plan HRA

Policy Topic	Description	Initial LSE screening	Potential impact pathways	Recommendations and actions
			wording in relation to biodiversity and the function of green infrastructure.	
Delivery Policy ES16 - Public art contributions	Requirements for developer contributions towards art installations in public spaces	No LSE	Qualitative policy that does not lead to impact pathways	N/A
Delivery and monitoring	Informative section of the plan noting reference to some mechanisms for delivery that will be used for natural environment protection	No LSE	Informative text, which does not lead to impact pathways. Provides useful timelines for delivering proportions of houses at key sites, which will be of assistance in mitigation planning.	N/A But note the importance of designated site mitigation delivery as part of monitoring
Appendices	Informative section of the plan	No LSE	Informative text, which does not lead to impact pathways	N/A

Table 4: Screening for likely significant effects – Stroud District Local Plan site allocations at Draft Plan stage

Policy topic/allocation	Recommendations	Proposed use	Area (Ha)	400m zone	1km zone	Mitigation zone
The Stroud Valleys	Reference to Rodborough Common should be added as part of the mini vision. Vision may also benefit from reference to the River Frome catchment and					

Stroud District Local Plan HRA

Policy topic/allocation	Recommendations	Proposed use	Area (Ha)	400m zone	1km zone	Mitigation zone
	potential involvement in the Salmon to Salmon Springs project involving positive works such as weir removal to improve habitat for migratory fish, of which some are interest features of the Severn Estuary SAC.					
PS01 Brimscombe Mill	LSE – application of Rodborough Common mitigation strategy. LSE - Brownfield site within flood zone 3 (SA). Next iteration of the plan to highlight project level HRA requirement for surface water management and links to SAC to be checked as part of flood risk assessment that will be required to support the planning application.	Residential and other	1.7		Rodborough Common	Rodborough Common Possible Cotswold Beechwoods
PS02 Brimscombe Port	LSE – application of Rodborough Common mitigation strategy. LSE - Brownfield site within flood zone 3 (SA). Next iteration of the plan to highlight project level HRA requirement for surface water management and links to SAC to be checked as part of flood risk	Residential and other	3.9		Rodborough Common	Rodborough Common Possible Cotswold Beechwoods

Stroud District Local Plan HRA

Policy topic/allocation	Recommendations	Proposed use	Area (Ha)	400m zone	1km zone	Mitigation zone
	assessment that will be required to support the planning application.					
PS05 East of Tobacconist Road	LSE – application of Rodborough Common mitigation strategy	Residential and other	8.6			Rodborough Common Possible Cotswold Beechwoods
PS06 The New Lawn, Nailsworth	LSE – application of Rodborough Common mitigation strategy	Residential and other	2.8			Rodborough Common Possible Cotswold Beechwoods
PS07 North of Nympsfield Road	LSE – application of Rodborough Common mitigation strategy	Residential and other	1.2			Rodborough Common Possible Cotswold Beechwoods
PS10 Railway Land/ car parks, Cheapside	LSE – application of Rodborough Common mitigation strategy Brownfield site outside high risk flood zones (SA), but as a precautionary measure, project level HRA should check surface water management proposals.	Residential and other	1.9		Rodborough Common	Rodborough Common Possible Cotswold Beechwoods
PS11 Merrywalks Arches, Merrywalks	LSE – application of Rodborough Common mitigation strategy. Brownfield site outside high risk flood zones (SA), but as a precautionary measure, project level HRA should	Residential and other	0.2		Rodborough Common	Rodborough Common Possible Cotswold Beechwoods

Stroud District Local Plan HRA

Policy topic/allocation	Recommendations	Proposed use	Area (Ha)	400m zone	1km zone	Mitigation zone
	check surface water management proposals.					
PS12 Police station/ Magistrates Court, Parliament St	LSE – application of Rodborough Common mitigation strategy	Residential and other	0.4			Rodborough Common Possible Cotswold Beechwoods
PS13 Central River/Canal Corridor	LSE – application of Rodborough Common mitigation strategy LSE - Brownfield site within flood zone 3 (SA). Next iteration of the plan to highlight project level HRA requirement for surface water management and links to SAC to be checked as part of flood risk assessment that will be required to support the planning application.	Residential and other	10.8		Rodborough Common	Rodborough Common Possible Cotswold Beechwoods
The Stonehouse Quarter						
PS16 South of Leonard Stanley Primary School	LSE – application of Severn Estuary mitigation strategy	Residential and other	1			Severn Estuary Possible Cotswold Beechwoods
PS42 Land off Dozule Close	LSE – application of Severn Estuary mitigation strategy	Residential	1			Severn Estuary Possible Cotswold Beechwoods
PS17 Magpies site, Oldends Lane	LSE – application of Severn Estuary mitigation strategy	Residential and other	0.1			Severn Estuary Possible Cotswold

Stroud District Local Plan HRA

Policy topic/allocation	Recommendations	Proposed use	Area (Ha)	400m zone	1km zone	Mitigation zone
						Beechwoods
PS19 North/North west of Stonehouse	LSE – application of Severn Estuary mitigation strategy	Residential and other	37.5			Severn Estuary Possible Cotswold Beechwoods
PS20 M5 Junction 13	LSE – application of Severn Estuary mitigation strategy	Sports stadium/employment/community/open space	42			Severn Estuary Possible Cotswold Beechwoods
Cam and Dursley						
PS21 Land adjacent to Tilsdown House	LSE – application of Severn Estuary mitigation strategy	Residential	0.8			Severn Estuary
PS24 West of Draycott	LSE – application of Severn Estuary mitigation strategy	Residential and other	45.8			Severn Estuary Possible Cotswold Beechwoods
PS25 East of River Cam	LSE – application of Severn Estuary mitigation strategy	Residential and other	7			Severn Estuary
PS27 1-25 Long Street	LSE – application of Severn Estuary mitigation strategy	Town centre	0.5			Severn Estuary
PS28 Land off Prospect Place	Land off Prospect Place	Residential and other	0.4			Severn Estuary
Gloucester's Rural Fringe						
PS30 Hunts Grove Extension	LSE – application of Severn Estuary mitigation strategy	Residential and other	34.8			Severn Estuary Possible Cotswold Beechwoods
PS32 South of M5/J12	LSE – application of Severn Estuary mitigation strategy	Employment	12.1			Severn Estuary Possible Cotswold Beechwoods
PS43 Javelin Park	LSE – application of Severn		9.5			Severn Estuary

Stroud District Local Plan HRA

Policy topic/allocation	Recommendations	Proposed use	Area (Ha)	400m zone	1km zone	Mitigation zone
	Estuary mitigation strategy. Potentially within a new zone for Cotswold Beechwoods					Possible Cotswold Beechwoods Possible Cotswold Beechwoods
New Settlement/extension - Land at Whaddon	Potentially within a new zone for Cotswold Beechwoods	Residential and other	172.7			Possible Cotswold Beechwoods
New Settlement/extension - Land south of Hardwicke	LSE – application of Severn Estuary mitigation strategy	Residential and other	67.7			Severn Estuary
Berkeley Cluster	Add more in the mini vision re Severn Estuary and mitigation need					
PS33 Northwest of Berkeley	LSE – application of Severn Estuary mitigation strategy	Residential and other	6.5			Severn Estuary
PS34 Sharpness Docks	LSE – proximity to Severn Estuary, within 400m. LSE – application of Severn Estuary mitigation strategy	Residential and other	96	Severn Estuary	Severn Estuary	Severn Estuary
PS35 Land at Focus School, Wanswell		Residential and other	5			Severn Estuary
PS36 New settlement at Sharpness	LSE – proximity to Severn Estuary, within 400m. LSE – application of Severn Estuary mitigation strategy	Residential and other	320.1	Severn Estuary	Severn Estuary	Severn Estuary
PS37 New settlement at Wisloe	LSE – application of Severn Estuary mitigation strategy	Residential and other	77			Severn Estuary Possible Cotswold Beechwoods
Severn Vale						
PS44 Northwest of	LSE – application of Severn		5.52			Severn Estuary

Stroud District Local Plan HRA

Policy topic/allocation	Recommendations	Proposed use	Area (Ha)	400m zone	1km zone	Mitigation zone
Whitminster Lane	Estuary mitigation strategy. Potentially within a new zone for Cotswold Beechwoods					Possible Cotswold Beechwoods
PS45 Land west of Upton's Gardens	LSE – application of Severn Estuary mitigation strategy. Potentially within a new zone for Cotswold Beechwoods		0.91			Severn Estuary Possible Cotswold Beechwoods
PS46 Land west of School Lane	LSE – application of Severn Estuary mitigation strategy. Potentially within a new zone for Cotswold Beechwoods		1.94			Severn Estuary Possible Cotswold Beechwoods
Wotton Cluster						
PS38 South east of Wickwar Road	No LSE	Residential and other	2.5			
PS47 Land west of Renishaw New Mills	No LSE		16.18			
Cotswold Cluster						
PS41 Washwell Fields	Potentially within a new zone for Cotswold Beechwoods	Residential and other	1.1			Possible Cotswold Beechwoods

5. Screening Conclusions and Impact Pathways

- 5.1 The screening for likely significant effects at Tables 3 and 4 are precautionary checks of the Draft Local Plan, to inform more detailed appropriate assessment. There are a small number of clarifications for some of the policies, particularly the Parish Clusters and their allocations and mini visions. It is understood that these will be developed further for the Regulation 19 consultation and recommendations can therefore be added. These do not require further scrutiny at the appropriate assessment stage, as they simply strengthen understanding in the plan or rely on standard measures that will be developed at the project level such as surface water management plans. Where it can be identified at the plan level, any requirements for project level HRA are flagged within the screening table but does not require action at the plan level.
- 5.2 Checks made at 400m (primarily for urbanisation impacts) and 1km (primarily for hydrological impacts) distance from European sites have highlighted where some additional text should be added to the Local Plan policies and supporting text at Regulation 19 stage.
- 5.3 The screening table for site allocations at Table 4 has flagged a number of allocations for more in-depth consideration within an appropriate assessment, based on proximity to European sites triggering particular potential impact pathways. These impact pathways are introduced in this section, and then the following appropriate assessment sections will assess these in more detail in relation to the plan policies.
- 5.4 There is now a strong body of evidence showing how increasing levels of development, even when well outside the boundary of protected wildlife sites, can have negative impacts on the sites and their wildlife interest. Work on grasslands and heathlands (Mallord 2005; Underhill-Day 2005; Liley & Clarke 2006; Clarke, Sharp & Liley 2008; Sharp *et al.* 2008; Clarke & Liley 2013; Clarke *et al.* 2013), woodlands and estuarine and coastal sites (Saunders *et al.* 2000; Randall 2004; Liley & Sutherland 2007; Clarke, Sharp & Liley 2008; Liley 2008; Stillman *et al.* 2009) demonstrates links between housing, development and nature conservation impacts.
- 5.5 Once a likely significant effect has been identified, the purpose of the appropriate assessment is to examine evidence and information in more detail to establish the nature and extent of the predicted impacts, in order to answer the question as to whether such impacts could lead to adverse effects on European site integrity.

- 5.6 An appropriate assessment should be informed by the most up to date information available, including the current site conservation objectives, site improvement plans and direct discussion with Natural England officers.
- 5.7 Appropriate assessments are based on evidence, and that can take different forms (direct evidence, comparable evidence, modelling, expert opinion, Natural England's advice etc). In reality however, appropriate assessments are often undertaken with some evidence, but not enough to give absolute or definitive answers. The assessment is therefore often drawing on the knowledge and experience of the assessors, to make scientifically justified decisions about risk.
- 5.8 The 'precautionary principle' is described in the screening section. It is equally relevant for the appropriate assessment as it is for screening likely significant effects. It is an accepted principle that is embedded within the wording of the legislation, and latterly within case decisions, both European and domestic. Essentially, the appropriate assessment stage is, in accordance with the Habitats Regulations, an assessment that enables a competent authority to only give effect to a plan or authorise/undertake a project after having ascertained that it will not adversely affect the integrity of the European site.
- 5.9 It is for the competent authority to gather the information and evidence necessary for the appropriate assessment to give them certainty that adverse effects will not occur. Fundamentally that therefore means that in the absence of certainty, the plan or project should not normally proceed (subject to the further exceptional tests explained in Appendix 1). Hence the precaution is in the competent authority's duty to only allow plans or projects to proceed where there is certainty and to apply a precautionary approach where uncertainties remain. Competent authorities should have enough evidence to satisfy themselves that there are feasible and viable measures to prevent adverse effects. These should be feasible in terms of cost, practical implementation, timeliness and attributing responsibility.
- 5.10 The following key topics form the appropriate assessment for the Stroud Local Plan:
- Recreation – residential. Checking that the mitigation strategies in place for Rodborough Common and the Severn Estuary remain fit for purpose for the increased housing from the emerging Stroud Local Plan, reviewing its progress to date since implementation. Additionally, the appropriate assessment will consider the findings of the Spring 2019 visitor survey work for Cotswold Beechwoods and make recommendations for any required mitigation measures accordingly.

Stroud District Local Plan HRA

- Recreation from tourism – checking that the local plan does not give rise to additional recreation impacts as a result of its promotion of tourism growth.
- Other urbanisation effects – checking development site allocations within 400m of any European site for any urbanisation risks other than recreation.
- Water – checking development site allocations within 1km of any European site for any water quality, abstraction or run off risks, potentially including discussion with the water utility company and Environment Agency
- Air Quality – consideration of traffic increases in close proximity to European sites as a result of site allocations
- Site allocations for new settlements/settlement extensions – a more focussed assessment of the implications for each of the large-scale housing allocations to form new settlements or settlement extensions
- Links to wider biodiversity issues and opportunities – ensuring that wider biodiversity is adequately protected, and contributions are made through spatial planning to biodiversity restoration. This underpins European site protection and long-term maintenance.

6. Recreation impact concerns

- 6.1 With a rising human population, areas that are important for nature conservation are often important for a range of other services, including providing space for recreation ranging from the daily dog walk to extreme sports. A challenging issue for UK nature conservation is how to accommodate increasing demand for access without compromising the integrity of protected wildlife sites.
- 6.2 There is now a strong body of evidence showing how increasing levels of access can have negative impacts on wildlife. Issues are varied and include disturbance, increased fire risk, contamination and damage (for general reviews see Underhill-Day 2005; Lowen *et al.* 2008; Liley *et al.* 2010; Ross *et al.* 2014)
- 6.3 The issues are not however straightforward. It is now increasingly recognised that access to the countryside is crucial to the long term success of nature conservation projects and has wider benefits such as increasing public awareness of the natural world, as well as health benefits (Alessa, Bennett & Kliskey 2003; Pretty *et al.* 2005; Moss 2012) and economic benefits (e.g. Bennett, Tranter & Blaney 2003; Downward & Lumsdon 2004). Nature conservation bodies are trying to encourage people to spend more time outside and government policy (for example through extending coastal paths) is promoting access. Furthermore, access to many sites is a legal right, with an extensive Public Rights of Way network and open access to many sites through the Countryside and Rights of Way Act (2000). Therefore, a difficult balancing act is required to resolve impacts associated with recreation, complying with legislation without compromising the ability of people to be outside enjoying sites for recreation.
- 6.4 The impact of recreation on Rodborough Common and the Severn Estuary European sites has already been recognised in previous HRA work and is the reason for the development of the interim strategic mitigation approaches described earlier in this report. These mitigation strategies are funded by developer contributions, made proportionate to the size of residential development and therefore the potential impact. The zones of influence for these sites are shown on Map 4.
- 6.5 A number of allocations lie within the strategy zones, and these allocations will therefore contribute towards the mitigation strategies in place once development comes forward. New visitor survey work undertaken in 2019 for Rodborough Common will be analysed once the report is finalised. A check will be made to ensure that the mitigation strategy remains fit for purpose in terms of:

- The visitor behaviour identified from the new survey work in terms of the nature of recreation activities and zone of influence.
 - The levels of growth proposed within the zone of influence.
- 6.6 Visitor survey work has also been undertaken for the Cotswold Beechwoods in 2019. Again, this will inform the next iteration of the HRA once finalised. However, a brief review of the findings indicates that this site attracts visitors from a relatively large area, covering a number of neighbouring local planning authority areas. Map 4 shows an indicative zone of influence of 15.4km, which is used in the screening table.
- 6.7 Discussions between the neighbouring authorities are actively being progressed to consider the findings of the visitor survey and whether there is a need for a strategic mitigation approach for Cotswold Beechwoods SAC. Until these discussions have taken place and Natural England advice sought, this HRA cannot provide further analysis. The progression of these discussions and any scope for a mitigation strategy will be assessed in the next iteration of this HRA.
- 6.8 The need for a mitigation strategy will be informed by:
- Current access levels
 - Site condition
 - Proposed levels of growth within the zone of influence
 - Other available evidence from stakeholders such as land managers.
- 6.9 The Severn Estuary has a mitigation strategy in place that provides measures to protect the site from adverse effects of additional recreation pressure identified in the HRA work for the adopted Stroud Local Plan. This therefore includes the proposal for 300 houses at Sharpness Docks, for example. At publication of the strategy, it was recognised that there will be a need for review and update, which is generally good practice for any strategic mitigation approach. As discussed in the section below for the site allocations, the proposal for a new settlement at Sharpness triggers a clear requirement for reviewing and updating the strategy, given the step change in housing delivery that will take place if the new settlement proposal is adopted.

Actions and recommendations for Regulation 19 stage

- Review of Rodborough Common SAC mitigation strategy with new visitor survey findings.
- Progression of consideration of the need for a strategic approach for recreation pressure at Cotswold Beechwoods SAC.
- Review of Severn Estuary mitigation strategy with a focus on the implications of the Sharpness settlement proposal.

7. Air quality impact concerns

- 7.1 Reductions in air quality associated with increased traffic are primarily as a result of increased nitrogen deposition but are also related to increases in both sulphur and ammonia. Traffic generated air quality reductions can impact on vegetation communities (Bobbink, Hornung & Roelofs 1998; Stevens *et al.* 2011).
- 7.2 The main impacts of NO_x and NH₃ are through N deposition and acidification. N deposition can lead to an increase in N loving species at the expense of other species; an increased risk of frost damage in spring; increased sensitivity to drought; increased incidence from pest and pathogen attack; and direct damage to sensitive species. The impacts of acid deposition are often indirect, resulting from a change of pH in soils and water. Chemical changes lead to nutrient deficiencies, release of toxins and changes in microbial N transformations.
- 7.3 The Design Manual for Roads and Bridges (DMRB) currently advises that the effect of traffic emissions is focussed on the first 200m to the side of a road. There is a declining effect out to 200m and beyond this it is currently agreed that the effects are *de minimis*, i.e. of no consequence against background levels.
- 7.4 The DMRB highlights the need for further assessment where changes to the road network or traffic volumes might increase daily traffic flows by 1,000 Average Annual Daily Traffic (AADT) or more where the road stretch has sensitive habitats within 200m of the road. This is a simple measurement of change, using the total volume of traffic on a road and dividing it by 365 days to give a daily average.
- 7.5 Following a recent case decision from Ashdown Forest (Wealden v SSCLG 2017) it is essential that air quality considerations have appropriate regard for any impacts that may act in-combination in HRA work. An appropriate assessment of air quality should be undertaken with regard for the principles of this recent case.
- 7.6 Critical thresholds, beyond which plant communities may change in response to pollutants, have been developed for a range of habitat types, and are available from the Air Pollution Information Service (APIS). This database is funded and provided by the Centre for Ecology and Hydrology and the UK pollution and conservation agencies including Natural Resources Wales (NRW), the Environment Agency, Northern Ireland Environment Agency, Natural England, the Joint Nature Conservation Committee (JNCC), Scotland and Northern Ireland Forum for Environmental Research (SNIFFER), the Scottish Environment Protection Agency (SEPA), and Scottish Natural Heritage (SNH). By comparing actual or predicted pollutant loads with this database, an assessment of potential air quality impacts for sensitive European site habitats can be made.

This does however require information on traffic, and this is then used to make air quality change predictions.

- 7.7 Natural England and its partner UK statutory nature conservation bodies have a specialist air quality technical group known as the Air Quality Technical Advisory Group (AQTAG). This group regularly meets to discuss key issues in relation to air quality concerns for designated sites and will occasionally issue formal advice notes on key topics. AQTAG21 is an advice note that includes reference to a 1% threshold to be used in air quality assessments. This threshold has been consistently used by the statutory nature conservation bodies over a number of years to indicate where an increase in atmospheric pollutant might be deemed significant. The AQTAG21 refers to a 1% threshold in terms of the relevant critical load for the habitat type. Where the pollutant contribution is less than 1% of the critical load, it is deemed to be inconsequential (*de minimis*) and does not warrant further consideration for likely significant effects.
- 7.8 A number of Natural England operational guidance documents and research reports have recently been produced in relation to the assessment of air quality on designated sites. Key documents include the Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001)¹¹ and Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance (NECR210).¹²
- 7.9 The Institute of Air Quality Management has very recently published new guidance in June 2019 entitled 'A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites'.
- 7.10 This new guidance contains detailed and relevant advice in relation to the assessment of traffic generated air quality impacts. The guidance highlights the 1% threshold as a widely used threshold, below which fluctuations are not likely to be discernible from background fluctuations/measurements, and above which a need for further assessment is identified but does not automatically imply damage will occur.

Key points for consideration of air quality

- 7.11 Rodborough Common is exceeding critical thresholds for ammonia, but not other pollutants. Ammonia (NH₃) primarily originates from agricultural sources

¹¹ <http://publications.naturalengland.org.uk/publication/4720542048845824>

¹² <http://publications.naturalengland.org.uk/publication/5354697970941952>

and is a key component of fertiliser. It is however also produced by petrol cars through the catalytic converter and can be emitted by a number of industrial processes that include combustion.

- 7.12 Rodborough Common is not showing exceedance of other pollutants associated with traffic emissions and it is therefore concluded that traffic is unlikely to be a major threat to the site. However, understanding the primary sources of ammonia for Rodborough Common needs to be developed for the next iteration of the HRA to give confidence that development is not contributing to this issue. It is concluded that adverse effects are likely to be ruled out, but that further checks should be made before this impact pathway is excluded for Rodborough Common.
- 7.13 The length of roads within 200m of the European sites provides a visual check of how those road sections may relate to allocations within the Stroud Local Plan, in order to flag whether there is a relevant pathway with air quality issues and transport that requires further consideration.
- 7.14 For the Cotswold Beechwoods, the levels of nitrogen and acid deposition are currently exceeding the critical loads for the woodland habitat. Given the location of the site, its elevation and complex road network that intertwines the site, sources are likely to be wide ranging, but traffic emissions are likely to be playing a role in the current exceedance of pollutant thresholds.
- 7.15 The Stroud Draft Plan does not propose any development allocations within 1km of the SAC and any large-scale development is focussed at a considerable distance from the site. These developments are however located along the M5 corridor. This motorway is the main route down from Birmingham to the south west, linking the cities of Bristol and Exeter to the West Midlands. Air quality impacts arising from the M5 are therefore of national concern and it would be very difficult to isolate the contributions from individual developments.
- 7.16 Whilst there are a number of European sites around the country where air quality concerns are significant enough to have led to the development of strategic approaches to alleviating the impact of traffic emissions, these are where there is a much greater attribution of sources from development in close proximity and impact pathways are clear. The traffic modelling work being undertaken to support the Stroud Local Plan will be reviewed for the next iteration of this HRA to give greater confidence that the plan will not lead to adverse effects, and checks will be made with Natural England on final conclusions drawn.
- 7.17 For the Severn Estuary the habitats present are less sensitive to air quality impacts, but the concentration of development proposed at both the Sharpness

settlement and Sharpness docks highlights the need to assess this potential impact pathway further. As discussed below in relation to the allocations, there is a suite of further evidence gathering and assessment to be undertaken for Sharpness and this will include the cumulative impacts of a number of impact pathways, which should also include consideration of air quality.

Actions and recommendations for Regulation 19 stage

- Check final traffic modelling work.
- Include air quality in the further assessment of the Sharpness settlement.

8. Water issues

- 8.1 Water issues include water quality and water quantity (i.e. water availability), and flood management. Run-off, outflow from sewage treatments and overflow from septic tanks can result in increased nutrient loads and contamination of water courses. Abstraction and land management can influence water flow and quantity, resulting in reduced water availability at certain periods or changes in the flow. Such impacts particularly relate to aquatic and wetland habitats.
- 8.2 Assessment of water related issues are primarily a check that the overall quantum of growth can be accommodated without compromising the ecological integrity of hydrologically sensitive European sites. Water supply is not deemed to be an issue for the District and the emerging Local Plan does not therefore impose any measures relating to water supply considerations, other than to encourage sustainable measures as part of the overall sustainability focus of the plan.
- 8.3 The lack of site allocations in close proximity to Cotswold Beechwoods rules out any water related issues for this SAC. The screening for likely significant effects has highlighted a small number of site allocations within 1km of Rodborough Common, and recommendations are made within the screening table for text to be added to the plan at its next iteration to highlight where project level HRA must consider surface water management. The elevated position of Rodborough Common makes potential impacts less likely, and where surface water management could pose a risk, there are standard methodologies for dealing with water run off that can be secured and implemented within a development.
- 8.4 The concentration of development proposed with the Sharpness new settlement may pose some risks in relation to water quality, due to the proximity of the site allocation to the Estuary. This is discussed further in the assessment of site allocations below.

Actions and recommendations for Regulation 19 stage

- Include water quality in the further assessment of the Sharpness settlement.

9. Urban effects

- 9.1 Urban effects relate to issues where development is close to the European site boundary and is an umbrella term relating to impacts such as cat predation, lighting, fly tipping and vandalism (see Underhill-Day 2005 for review). These impacts are particularly relevant for allocations that are proposed within 400m of European sites, and the site allocations within this close distance have the potential to result in a range of urbanisation impacts.
- 9.2 Where strategic mitigation schemes are in place elsewhere, a number of European sites¹³ have a 400m zone around the boundary where there is a presumption of no further development (net increase in residential properties). This primarily relates to heathland sites and this presumption reflects the issues with urbanisation and the lack of suitable mitigation and avoidance measures. For example, for development so close to the European sites the options to divert access or provide suitable alternatives are very limited. The choice of 400m is based on the literature (summarised in Underhill-Day 2005) and to some extent is a pragmatic choice. Studies of cat roaming behaviour have shown 400m to be an appropriate buffer width to limit cats in very urban environments (Thomas, Baker & Fellowes 2014), however in more rural areas cats can roam considerably further and some studies have suggested ranges over 2km for more rural situations (Metsers, Seddon & van Heezik 2010; Hall *et al.* 2016). Studies of fire incidence have shown that heathland sites with high levels of housing within 500m of the site boundary have a higher fire incidence (Kirby & Tantram 1999). Fires can start in a range of ways, including deliberate arson, children playing, campfires, barbeques, sparks from vehicles, discarded cigarettes etc.
- 9.3 Where housing is directly adjacent to sites, access can occur directly from gardens and informal access points. Parking areas can be used as residential parking and access can include short-cuts and a range of other uses that are not necessarily compatible with nature conservation. Fly-tipping and dumping of garden waste can be more common. Where residential development in close proximity consists of apartments without gardens, use of the site can become a 'garden extension' for socialising, barbeques, children's play and daily toileting for pet dogs. As such managing and looking after such sites can be more challenging.
- 9.4 Urban issues are perhaps most relevant to sites that are vulnerable to fire, nutrient enrichment and have sensitive ground-nesting birds. Urban effects are

¹³ E.g. the Thames Basin Heaths, the Dorset Heaths, the East Devon Pebblebed Heaths

however relevant to other habitats, and similar issues may be seen with urbanisation in close proximity to other habitat types.

- 9.5 The screening for likely significant effects included a check for any site allocations within 400m of any European site. There are two allocations within 400m of the Severn Estuary, and all other allocations are at a greater distance. The two allocations are the Sharpness Docks proposal for 300 new homes, which is an allocation carried forward from the adopted Stroud Local Plan, and the proposal for a new settlement at Sharpness comprising of 2,400 new homes. There is also a proposal for the new settlement to be extended further in the future after the plan period of 2040.
- 9.6 Whilst urbanisation effects can be ruled out for all other allocations, the Sharpness proposals are currently concluded as posing risks in terms of the urbanisation impact pathway and are discussed in more detail in the site allocations appropriate assessment below.

Actions and recommendations for Regulation 19 stage

- Include urbanisation in the further assessment of the Sharpness settlement, in conjunction with the Sharpness docks allocation.

10. Site allocations for new settlements/ settlement extensions

- 10.1 The screening for likely significant effects considers each of the proposed allocations at draft plan stage. For the majority of allocations, either likely significant effects can be ruled out, or their impacts solely relate to matters covered within the strategic mitigation approaches for recreation, either in place, being reviewed or being considered. This HRA will be updated following those reviews and considerations.
- 10.2 The large-scale housing allocations proposed within the plan are as follows:
- Wisloe – new settlement of 1,500 dwellings
 - Land at Sharpness - new settlement of 2,400 dwellings (adjacent to the Sharpness Docks allocation of 300 dwellings)
 - Whaddon – potential site for housing contribution to wider housing needs outside the District
 - Hardwicke – potential site for housing contribution of 1,200 dwellings.
- 10.3 The Draft Plan proposes two new settlements at Sharpness and Wisloe. These are to be developed in line with Garden Village Principles, and with a focus on sustainability in terms of carbon neutrality and sustainable transport linkages. The Draft Plan provides an explanation of the Garden City Principles that will apply to the settlements, which are originally defined by the Town and Country Planning Association. These include comprehensive green infrastructure networks and biodiversity gains, climate resilience and enhancement of the existing natural environment.
- 10.4 Wisloe and Hardwicke are located within the zone of influence for the Severn Estuary recreation strategy and their distance from the Estuary does not present any other impact pathways. As noted below, it is recommended that the strategy is reviewed and updated in light of the Sharpness proposal, and this review should have regard for additional housing within the zone of influence. The Whaddon allocation is not within any existing zone of influence.
- 10.5 Two allocations fall within the indicative zone of influence for the Cotswold Beechwoods, which is taken from an initial consideration of the findings of the 2019 visitor survey report, which is yet to be finalised.
- 10.6 Once the need for a mitigation strategy has been fully discussed between the relevant local planning authorities and Natural England, this HRA will be updated.

Land at Sharpness

- 10.7 The Draft Local Plan allocates a new settlement in the form of a garden community at Sharpness, which as explained above, will follow Government approved garden city principles. This includes 2,400 new dwellings and 10ha of employment land, a local centre with shops and community facilities, schools, open space and green infrastructure. The Draft Plan also identifies land for a potential future phase of additional development, expanding the new settlement further in the next plan period.
- 10.8 The new settlement at Sharpness raises a number of potential impact pathways in relation to the Severn Estuary. The site boundary runs to the edge of the estuary and its hinterland, encompassing a large area of currently undeveloped greenfield land that has the potential to provide a range of supporting functions to the estuary and its designated interest features.
- 10.9 Allocations at very close proximity can potentially lead to a number of urbanisation impacts and these are relevant for both the SPA and SAC features. Urbanisation impacts include increased lighting, noise, fires, rubbish dumping, garden waste dumping, increased predators, both wild and domestic, and also a recreation pressure risk that is over and above that highlighted as a cumulative impact of all residential development. At very close proximity people will use greenspaces as essentially an extension to their garden. Activities include short dog walks multiple times a day primarily for toileting, summer BBQs and socialising. Apartments without a garden or a lack of greenspace in walking distance can further intensify these types of uses.
- 10.10 An additional but critical factor for the Sharpness settlement is the future adaptation of the estuary as a dynamic geomorphological habitat that will change over time, and those changes will be amplified by climatic changes. Flood defences impede these changes and alteration or loss of habitats over time, and high value development in close proximity can lead to calls for the retention and maintenance of existing defences that might otherwise be planned for decline and breaching over time, and can also strongly support the building of new defences.

Key issues for development at Sharpness

- 10.11 At this Regulation 18 stage, it is necessary to highlight that the Sharpness settlement requires a range of additional assessment work that needs to be informed by a number of discussions with technical specialists and also some evidence that is not yet available. A HRA conclusion cannot be drawn at this stage, but rather the following recommendations are provided to assist with a much more detailed analysis to inform the Regulation 19 stage of plan making.

- 10.12 Recreation pressure in relation to visiting the estuary - as a destination for informal recreation the Severn Estuary is an attractive and expansive natural greenspace and in many ways is a visitor attraction in its own right. This is recognised in the HRA work for the adopted Local Plan and is the impact pathway which the mitigation strategy is designed to cover. This HRA now needs to review the mitigation strategy to consider its adequacy for the volume of housing proposed.
- 10.13 Current visitor pressure is thought to be relatively low, and the new settlement presents a step change in housing numbers in the local area. Within 1km of Sharpness at the moment there are currently around 540 residential properties. The 2,400 additional dwellings would therefore represent an increase of around 444%. Within a 5km radius (and limited to the east side of the Severn Estuary) there are currently 2,100 residential properties. The 2,400 further dwellings would therefore more than double the current level of housing, with a 114% increase. The proposed allocation therefore represents a very marked uplift in housing in an area that currently has few houses.
- 10.14 Recreation pressure in relation to daily use - as noted above, where development is in very close proximity to a designated site, the use is akin to that of the open space that is within the development as a garden extension, daily dog walking area, daily use for children's play and exploration etc. This is over and above the type of recreation use for which the mitigation strategy is designed.
- 10.15 Recreation pressure for specific sporting activities – consideration of how the new settlement may increase use of the estuary for water sports needs to be undertaken. The nearby marina may be under pressure to expand in future as a result of the settlement, for example, and these potential impacts that may take some time to realise need to be factored into the assessment.
- 10.16 Water quality – potential impacts such as pollution and sedimentation via run off and changes to intermediary habitats between saline and fresh water need to be considered further, particularly in relation to existing defences that may impede habitat migration over time.
- 10.17 Climate change resilience – the extent to which the development of land will alter or impede future options for allowing climate change adaptation and dynamics of coastal change are a key consideration for this HRA. Implications for future flood defences need to be discussed with the Environment Agency, alongside a review of documents such as the Shoreline Management Plan.
- 10.18 Loss or sterilisation of functionally linked land for birds – Natural England has commissioned a study into the use of land outside the designated site boundary

that provides a key supporting function for SPA birds. This study is due to report in the Summer of 2020 and can be considered alongside any other available bird data in the vicinity of the site allocation.

- 10.19 Loss or sterilisation of functionally linked land for other interest features – this HRA will need to undertake a check of any other supporting functions provided by the land within the allocation, such as watercourse use by migratory fish. This may also include functions for other designated sites such as those that include lesser and greater horseshoe bats, for example. Urbanisation impacts such as building height and lighting will also need to be considered.

Actions and recommendations for Regulation 19 stage

- 10.20 The following are key points for further progression in the period between the Regulation 18 and Regulation 19 consultations:
- Review of current interim mitigation strategy with the step change in housing numbers in the area. Consider key measures such as wardening.
 - On the ground review of footpaths and access, opportunities for green infrastructure as part of the settlement. Assess role and suitability of SANGs for coastal sites with good practice from elsewhere.
 - Assess the findings of NE functionally linked land study
 - Undertake meetings with Environment Agency and Natural England with regard to climate change adaptation, flood defences and future allowances for estuary movement and preservation of extent of designated features. Explore opportunities for the settlement to provide positive benefits for climate change adaptation with land for habitat migration, preservation of functionally linked land. Seek lessons learnt from elsewhere.
 - More in depth consideration of water issues with the Environment Agency, Lead Drainage Authority and to include discussions with the Council's land drainage engineers.
 - Consider opportunities for discussions with wider stakeholders with an interest in the estuarine environment.
 - Consider in-combination effects with Sharpness Docks, and other development commitments and project proposals.
- 10.21 In conclusion it is advised that at Regulation 18 stage, this HRA cannot rule out adverse effects on the integrity of the Severn Estuary SPA/SAC/Ramsar site in relation to the Sharpness settlement proposal. Further work is needed to establish the extent and nature of the impacts, and their combined effects on the site, and then what avoidance and mitigation measures may be possible, and how they can be justified and supported by evidence.

- 10.22 In order to assist the Council at this stage the following is advised - It may be possible for a settlement to be developed at Sharpness, but this cannot be certain without additional work. This may lead to recommendations that alter the number of houses that can be accommodated or the distance from the estuary that the settlement is located. Land immediately adjacent to the estuary is most vulnerable and may need to be removed from the developable area of the allocation.
- 10.23 Opportunities for the allocation to be a positive benefit for climate change adaptation need to be explored and could contribute further to the sustainability credentials of the settlement. It is recognised that the HRA and SA consultants need to work together to assist the Council to determine the measures that may be required and how those affect the delivery of a settlement in terms of critical housing numbers and provision of key facilities that are essential for a new community. Close liaison with both Natural England and the Environment Agency is required, along with the site promoters and their specialist consultants, in order to assess and work through any potential solutions as a priority.

11. Biodiversity Issues and Opportunities

11.1 With a growing momentum for biodiversity net gain across the UK there is an opportunity to recognise the fundamental importance of wider biodiversity to the long-term integrity of designated sites. The Lawton Review made the critical importance of biodiversity connectivity patently clear. This has been subsequently followed by a Government pilot on biodiversity offsetting in 2012, the preparation of professional institute Good Practice Principles and Good Practice Guidance on Biodiversity Net Gain in Development, a Government consultation on the proposal to introduce a mandatory requirement for biodiversity net gain in development, running in December 2018 and now the Environment Bill proposed by Government that will take forward and legislate for that mandatory requirement. The Environment Bill Policy Statement issued in October 2019 makes clear that local planning authorities have a fundamental role to play in achieving biodiversity net gain through development and that locally relevant and meaningful gains for biodiversity through development can be set out in biodiversity priorities, which should be articulated through Local Nature Recovery Strategies.

11.2 The Stroud Local Plan at Draft Plan stage provides wide ranging opportunities to focus gains on improving supporting habitats and ecological functions that are critical to designated sites, in areas that lie outside site boundaries. A number of policies have regard for the linkages between development and biodiversity assets and recognise the critical role that biodiversity plays in landscape character, place making, sustainability, ecosystem services and climate change adaptation. Notably, policies ES6 and DES2 provide robust requirements for the natural environment and the expansion of biodiversity through the District. Biodiversity net gain and expansion of green infrastructure are the key components of these policies, as well as providing protection for existing assets. These two policies are up to date in terms of the current priorities for biodiversity restoration and will ensure that the Stroud Local Plan is ready for the mandatory requirement. These policies are exemplary in their holistic approach to biodiversity, and fully recognise the critical importance of wider biodiversity restoration to support designated sites.

12. Conclusions and Recommendations

- 12.1 This HRA, undertaken at Draft Plan stage of the Stroud Local Plan has recommendations from the screening assessment for key topic areas for consideration at appropriate assessment. These are recreation, air quality, water, urbanisation and new/extensions to settlements. Additionally, a holistic approach to biodiversity protection through the plan has been considered.
- 12.2 The appropriate assessment sections conclude that:
- Air quality matters do not present adverse effects on site integrity based on current information, with the exception of more detailed assessment of the Sharpness settlement. The next iteration of the HRA will check final traffic modelling work to give greater confidence in this conclusion.
 - Consideration of recreation pressure on the European sites needs to be informed by a review of the Rodborough Common SAC mitigation strategy with new 2019 visitor survey findings and by consideration of the need for a strategic approach for recreation pressure at Cotswold Beechwoods SAC, again informed by the new 2019 visitor survey work. A review of Severn Estuary mitigation strategy with a focus on the implications of the Sharpness settlement proposal is recommended and will be a key component of the next iteration of this HRA.
 - For both water quality and urbanisation impacts, all sites are screened out (subject to recommendations for text highlighting a need for surface water run off consideration in project level HRA), with the exception of the new settlement at Sharpness, and these considerations need to take account of the combined effect of the adjacent allocation at Sharpness Docks.
 - For site allocations, the HRA highlights the need for a range of additional evidence to be gathered to inform the appropriate assessment of the Sharpness settlement proposal, and any combined potential impacts with Sharpness Docks.
 - In relation to wider biodiversity linkages, it is concluded that the emerging Stroud Local Plan is exemplary in its holistic approach to biodiversity, and fully recognises the critical importance of wider biodiversity restoration to support designated sites.
- 12.3 The screening stage will be undertaken again for the Regulation 19 stage when the policies are refined, and site allocations finalised. In the interim, the appropriate assessment themes are progressed as described in Section 6, in order to inform further decisions on policy refinement and final choices for site allocations to meet growth needs. The appropriate assessment for Regulation 19 will have regard for visitor survey findings, and emerging work on functionally linked land for the Severn Estuary SAC.

- 12.4 This HRA is being developed with ongoing discussions with Natural England. The appropriate assessment now also recommends that discussions with the Environment Agency are essential to inform the assessment of climate change implications and how this needs to be accommodated for the Severn Estuary within the final decisions made on site allocations in close proximity. A factor in this consideration will be the extent of functionally linked land to be identified in Natural England's forthcoming study. Comments from the Draft Plan Regulation 18 consultation, particularly from Natural England and the Environment Agency as statutory consultees on the HRA, will be reviewed to inform the next iteration of this HRA report.
- 12.5 At the time of preparing this HRA report for the Draft Plan, there are active discussions taking place between Stroud District Council, Natural England, surrounding local planning authorities and other key stakeholders in relation to the new visitor survey work at Cotswold Beechwoods, and there are a number of emerging discussions and evidence base documents in relation to the Severn Estuary. Additionally, new survey work for Rodborough Common has just been finalised. Each of these will be of importance to the appropriate assessment as it is refined before the Regulation 19 consultation, and for the Cotswold Beechwoods, may lead to collaborative cross boundary working in developing any required avoidance and mitigation measures for this SAC.

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14. Appendix 1 - The Habitats Regulations Assessment Process

- 14.1 The designation, protection and restoration of European wildlife sites is embedded in the Conservation of Habitats and Species Regulations 2017, as amended, which are commonly referred to as the 'Habitats Regulations.' The most recent version of the Habitats Regulations does not affect the principles of European site assessment as defined by the previous Regulations, and which forms the focus of this report. Regulation numbers have changed from the 2010 Regulations.
- 14.2 The Habitats Regulations are in place to transpose European legislation set out within the Habitats Directive (Council Directive 92/43/EEC), which affords protection to plants, animals and habitats that are rare or vulnerable in a European context, and the Birds Directive (Council Directive 2009/147/EC), which originally came into force in 1979, and which protects rare and vulnerable birds and their habitats. These key pieces of European legislation seek to protect, conserve and restore habitats and species that are of utmost conservation importance and concern across Europe. Although the Habitats Regulations transpose the European legislation into domestic legislation, the European legislation still directly applies, and in some instances, it is better to look to the parent Directives to clarify particular duties and re-affirm the overarching purpose of the legislation.
- 14.3 European sites include Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) classified under the Birds Directive. The suite of European sites includes those in the marine environment as well as terrestrial, freshwater and coastal sites. European sites have the benefit of the highest level of legislative protection for biodiversity. Member states have specific duties in terms of avoiding deterioration of habitats and species for which sites are designated or classified, and stringent tests have to be met before plans and projects can be permitted, with a precautionary approach embedded in the legislation, i.e. it is necessary to demonstrate that impacts will not occur, rather than they will. The overarching objective is to maintain sites and their interest features in an ecologically robust and viable state, able to sustain and thrive into the long term, with adequate resilience against natural influences. Where sites are not achieving their potential, the focus should be on restoration.
- 14.4 The UK is also a contracting party to the Ramsar Convention, which is a global convention to protect wetlands of international importance, especially those wetlands utilised as waterfowl habitat. In order to ensure compliance with the

requirements of the Convention, the UK Government expects all competent authorities to treat listed Ramsar sites as if they are part of the suite of designated European sites, as a matter of government policy, as set out in Section 118 of the National Planning Policy Framework. Most Ramsar sites are also a SPA or SAC, but the Ramsar features and boundary lines may vary from those for which the site is designated as a SPA or SAC.

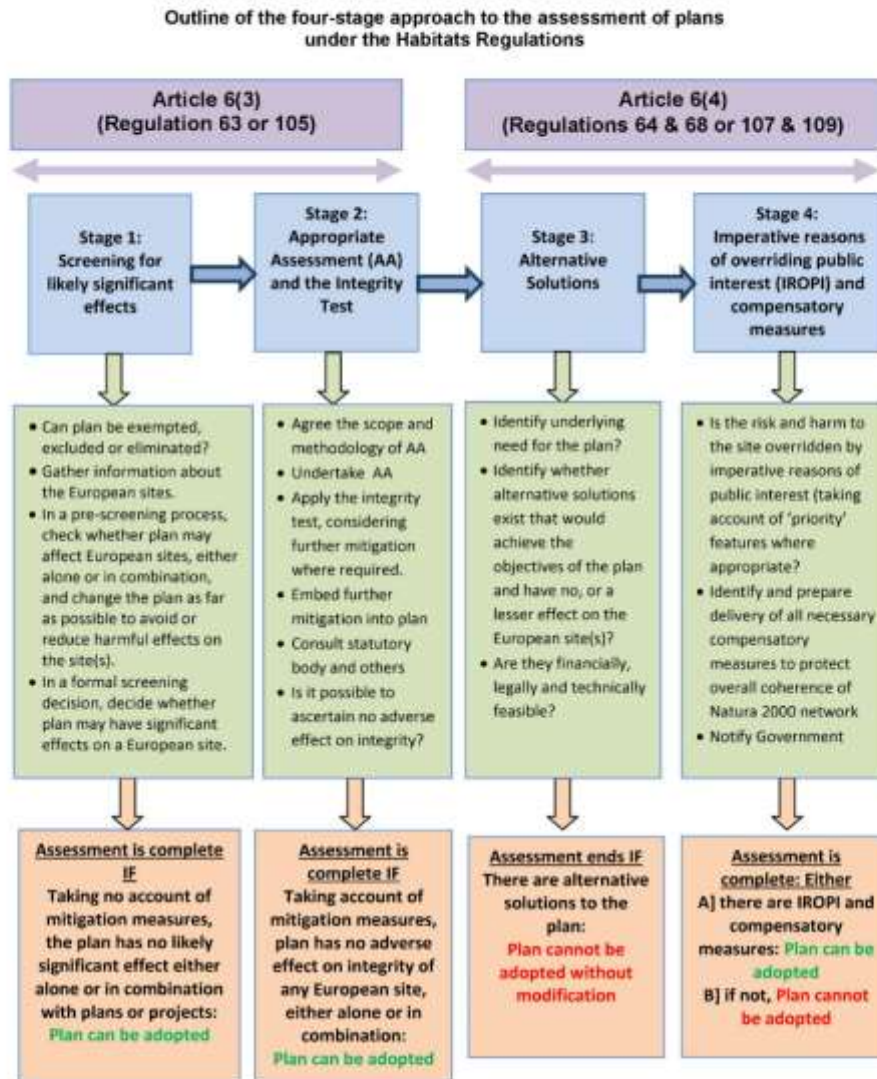
- 14.5 It should be noted that in addition to Ramsar sites, the National Planning Policy Framework also requires the legislation to be applied to potential SPAs and possible SACs, and areas identified or required for compensatory measures where previous plans or projects have not been able to rule out adverse effects on site integrity, yet their implementation needs meet the exceptional tests of Regulation 64 of the Habitats Regulations, as described below.
- 14.6 The step by step process of HRA is summarised in the diagram below. Within the Habitats Regulations, local planning authorities, as public bodies, are given specific duties as 'competent authorities' with regard to the protection of sites designated or classified for their species and habitats of European importance. Competent authorities are any public body individual holding public office with a statutory remit and function, and the requirements of the legislation apply where the competent authority is undertaking or implementing a plan or project, or authorising others to do so. Regulation 63 of the Habitats Regulations sets out the HRA process for plans and projects, which includes development proposals for which planning permission is sought. Additionally, Regulation 105 specifically sets out the process for assessing emerging land use plans.
- 14.7 The step by step approach to HRA is the process by which a competent authority considers any potential impacts on European sites that may arise from a plan or project that they are either undertaking themselves, or permitting an applicant to undertake. The step by step process of assessment can be broken down into the following stages, which should be undertaken in sequence:
- Check that the plan or project is not directly connected with or necessary for the management of the European site
 - Check whether the plan or project is likely to have a significant effect on any European site, from the plan or project alone
 - Check whether the plan or project is likely to have a significant effect on any European site, from the plan or project in-combination with other plans or projects
 - Carry out an Appropriate Assessment
 - Ascertain whether an adverse effect on site integrity can be ruled out
- 14.8 Throughout all stages, there is a continual consideration of the options available to avoid and mitigate any identified potential impacts. A competent authority may consider that there is a need to undertake further levels of evidence

gathering and assessment in order to have certainty, and this is the Appropriate Assessment stage. At this point the competent authority may identify the need to add to or modify the project in order to adequately protect the European site, and these mitigation measures may be added through the imposition of particular restrictions and conditions.

- 14.9 For plans, the stages of HRA are often quite fluid, with the plan normally being prepared by the competent authority itself. This gives the competent authority the opportunity to repeatedly explore options to prevent impacts, refine the plan and rescreen it to demonstrate that all potential risks to European sites have been successfully dealt with.
- 14.10 When preparing a plan, a competent authority may therefore go through a continued assessment as the plan develops, enabling the assessment to inform the development of the plan. For example, a competent authority may choose to pursue an amended or different option where impacts can be avoided, rather than continue to assess an option that has the potential to significantly affect European site interest features.
- 14.11 After completing an assessment, a competent authority should only approve a project or give effect to a plan where it can be ascertained that there will not be an adverse effect on the integrity of the European site(s) in question. In order to reach this conclusion, the competent authority may have made changes to the plan, or modified the project with restrictions or conditions, in light of their Appropriate Assessment findings.
- 14.12 Where adverse effects cannot be ruled out, there are further exceptional tests set out in Regulation 64 for plans and projects and in Regulation 107 specifically for land use plans. Exceptionally, a plan or project could be taken forward for imperative reasons of overriding public interest where adverse effects cannot be ruled out and there are no alternative solutions. It should be noted that meeting these tests is a rare occurrence and ordinarily, competent authorities seek to ensure that a plan or project is fully mitigated for, or it does not proceed.
- 14.13 In such circumstances where a competent authority considers that a plan or project should proceed under Regulations 64 or 107, they must notify the relevant Secretary of State. Normally, planning decisions and competent authority duties are then transferred, becoming the responsibility of the Secretary of State, unless on considering the information, the planning authority is directed by the Secretary of State to make their own decision on the plan or project at the local level. The decision maker, whether the Secretary of State or the planning authority, should give full consideration to any proposed 'overriding reasons' for which a plan or project should proceed despite being unable to rule out adverse effects on European site interest features, and ensure

that those reasons are in the public interest and are such that they override the potential harm. The decision maker will also need to secure any necessary compensatory measures, to ensure the continued overall coherence of the European site network if such a plan or project is allowed to proceed.

- 14.14 Figure 1 below provides an illustration of the HRA process, taken from The Habitats Regulations Handbook, which is a subscriber resource published by DTA Publications Ltd, a leading consultancy in the application of the legislation and caselaw relating to HRA.



Extract from *The Habitats Regulations Assessment Handbook*, www.dtapublications.co.uk
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Figure 1: Outline of the assessment of plans under the Habitat Regulations

15. Appendix 2 –Conservation Objectives

- 15.1 As required by the Directives, 'Conservation Objectives' have been established by Natural England, which should define the required ecologically robust state for each European site interest feature. All sites should be meeting their conservation objectives. When being fully met, each site will be adequately contributing to the overall favourable conservation status of the species or habitat interest feature across its natural range. Where conservation objectives are not being met at a site level, and the interest feature is therefore not contributing to overall favourable conservation status of the species or habitat, plans should be in place for adequate restoration.
- 15.2 Natural England has embarked on a project to renew all European site Conservation Objectives, in order to ensure that they are up to date, comprehensive and easier for developers and consultants to use to inform project level HRAs in a consistent way. In 2012, Natural England issued now a set of generic European site Conservation Objectives, which should be applied to each interest feature of each European site. These generic objectives are the first stage in the project to renew conservation objectives, and the second stage, which is to provide more detailed and site-specific information for each site to support the generic objectives, is now underway. This has been completed for Cotswold Beechwoods, as described below, but not yet finalised for Rodborough Common. Marine site conservation advice provides a similar site-specific detail for the Severn Estuary, as described below.
- 15.3 The new list of generic Conservation Objectives for each European site includes an overarching objective, followed by a list of attributes that are essential for the achievement of the overarching objective. Whilst the generic objectives currently issued are standardised, they are to be applied to each interest feature of each European site, and the application and achievement of those objectives will therefore be site specific and dependant on the nature and characteristics of the site. The second stage, provision of the more supplementary information to underpin these generic objectives, provides much more site-specific information, and this detail will play a fundamental role in informing HRAs, and importantly will give greater clarity to what might constitute an adverse effect on a site interest feature.
- 15.4 Natural England advises that HRAs should use the generic objectives and apply them to the site-specific situation. This should be supported by comprehensive and up to date background information relating to the site as well as reference to the supplementary advice published by Natural England.
- 15.5 For SPAs, the overarching objective is to:

15.6 'Avoid the deterioration of the habitats of qualifying features, and the significant disturbance of the qualifying features, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving the aims of the Birds Directive.'

15.7 This is achieved by, subject to natural change, maintaining and 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 populations of the qualifying features.
- The distribution of the qualifying features within the site.

15.8 For SACs, the overarching objective is to:

'Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.'

15.9 This is achieved by, subject to natural change, maintaining and restoring:

- The extent and distribution of the qualifying natural habitats and habitats of qualifying species.
- The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species.
- The supporting processes on which qualifying natural habitats and habitats of qualifying species rely.
- The populations of qualifying species.
- The distribution of qualifying species within the site.

15.10 Conservation objectives inform any HRA of a plan or project, by identifying what the interest features for the site should be achieving, and what impacts may be significant for the site in terms of undermining the site's ability to meet its conservation objectives.

Rodborough Common supplementary advice

15.11 The draft supplementary advice for Cotswold Beechwoods SAC has recently been published by Natural England in December 2018. This is referenced in detail as part of the appropriate assessment, and informs the required mitigation measures for this site. Key points of relevance for the HRA of the Stroud Local Plan from the draft supplementary advice are:

- The habitats are a number of vegetation types and maintaining these and their transitional zones is essential to the diversity of the site.
- Management is critical to maintaining the habitat features. Grazing levels need to maintain a low cover of scrub and retain differing sward heights to attract a range of invertebrate species.
- Eutrophication is a particular threat and can arise from nutrient enrichment through dog waste, chemicals entering the site or a lack of biomass removal through grazing or cutting.
- Recreation pressure is affecting the soils through compaction and erosion. Recreation management is highlighted as a key issue for maintaining the site.
- Spread of non-native or invasive species is a particular concern.
- Connections to the wider landscape through complementary features such as green infrastructure, hedgerows, local wildlife sites, watercourses and grass verges is beneficial for site and wider biodiversity.
- Habitats have some sensitivity to air pollution. Critical loads for Nitrogen, Nitrogen Oxides and Sulphur Dioxide are below acceptable limits, but Ammonia levels are above acceptable limits for maintaining sensitive lichens on site.

Cotswold Beechwoods supplementary advice

15.12 The draft supplementary advice for Cotswold Beechwoods SAC has recently been published by Natural England in October 2018. This is referenced in detail as part of the appropriate assessment, and informs the required mitigation measures for this site. Key points of relevance for the HRA of the Stroud Local Plan from the draft supplementary advice are:

- A number of veteran trees of importance to the site are outside the site boundary
- Appropriate age structure is affected by a lack of younger trees in some of the underpinning SSSI units
- Soil biodiversity has a vital role to recycle organic matter. Changes to natural soil properties may therefore affect the ecological structure, function and processes, leaving little space for air and water which are essential for root growth. Unless carefully managed, activities such as construction, forestry management and trampling by grazing livestock and human feet during recreational activity may all contribute to excessive soil compaction around ancient trees.
- Recreational pressure including walking and mountain biking can be an issue in this SAC.
- The levels of nitrogen and acid deposition are currently exceeding the critical loads for the woodland habitat.

- The calcareous grassland feature is a very small component of this SAC <1% and is fragmented within the woodland, however, extensive areas of calcareous grassland lie adjacent to the SAC.

Severn Estuary marine site conservation advice

- 15.13 The marine site conservation advice for the Severn Estuary was published in 2009 as a joint publication between Natural England and the Countryside council for Wales (now Natural Resources Wales). The marine site as a whole includes the Severn Estuary SPA and the Severn Estuary Mor Hafren SAC, which is located much further south down the estuary from the Stroud District. Both sites are also listed as Ramsar sites.
- 15.14 The marine advice includes a detailed description of what is required to maintain the interest features of the site, which will be reviewed as part of the appropriate assessment in terms of whether the targets align with the mitigation strategy in place for the Stroud District.

16. Appendix 3 – The Nature Conservation Interest of the European Sites

- 16.1 The Stroud District hosts a number of European sites located within and just outside the District. The range of sites, habitats and designations is varied, from estuary to woodland and grassland, with some areas having more than one designation.
- 16.2 The relevant European sites are summarised in Table 4 below, where the interest features, threats and pressures and links to the relevant conservation objectives are listed.

Table 5: Summary of relevant European sites, their interest features and relevant pressures/threats. NB = non-breeding. Pressures/threats are taken from the [site improvement plans](#) (SIP) of relevance to development are listed.

Site	Reason for designation (# denotes UK special responsibility)	Pressures and threats (from relevant SIP)
Severn Estuary SPA and Ramsar site	<p>Waterbird assemblage A394(NB) <i>Anser albifrons albifrons</i>: Greater White-fronted Goose A037(NB) <i>Cygnus columbianus bewickii</i>: Bewick Swan A048(NB) <i>Tadorna tadorna</i>: Common Shelduck A051(NB) <i>Anas strepera</i>: Gadwall A149(NB) <i>Calidris alpina alpina</i>: Dunlin A162(NB) <i>Tringa totanus</i>: Common Redshank</p> <p>The Ramsar listing is for a number of criteria relating to estuarine habitat communities and migratory fish (Salmon <i>Salmo salar</i>, Sea Trout <i>S. trutta</i>, Sea Lamprey <i>Petromyzon marinus</i>, River Lamprey <i>Lampetra fluviatilis</i>, Allis Shad <i>Alosa alosa</i>, Twaites Shad <i>A. fallax</i>, and Eel <i>Anguilla anguilla</i>) in addition to the extensive waterfowl assemblage. Full details can be found at: http://jncc.defra.gov.uk/pdf/RIS/UK11081.pdf</p>	<p>The SIP highlights a number of issues and threats, including public access and disturbance, water pollution, air pollution and an additional specific threat listed as being the impact of development, which would cover a range of impact pathways.</p> <p>http://publications.naturalengland.org.uk/publication/4590676519944192</p>
Rodborough Common SAC	<p>H6210# Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>)</p>	<p>The SIP highlights public access/disturbance and air pollution as being of relevant to growth, and also under-grazing as an issue, which is in part indirectly related to recreation as grazing management can be affected by recreation.</p> <p>http://publications.naturalengland.org.uk/publication/5525408413908992</p>
	<p>H6210# Semi-natural dry grasslands and scrubland facies: on</p>	<p>The SIP highlights a number of issues and threats, with</p>

Stroud District Local Plan HRA

Site	Reason for designation (# denotes UK special responsibility)	Pressures and threats (from relevant SIP)
Cotswold Beechwoods SAC	calcareous substrates (<i>Festuco-Brometalia</i>) H9130 <i>Asperulo-Fagetum</i> beech forests	recreation pressure and air quality being of relevance to growth. http://publications.naturalengland.org.uk/publication/6276086220455936

17. Appendix 4 - Consultation Questions

17.1 The following questions are suggested to enable consultees to respond with comments that will be useful to shape the next iteration of the HRA, and in particular the further development of the appropriate assessment sections:

1. Does the background information provide a good overview of the current situation in relation to the European sites and previous HRA work?
2. Is there any additional evidence or information that would be useful to inform the HRA?
3. Are there any specific stakeholders that should be contacted in relation to the HRA?
4. Are there any key points missing from the appropriate assessment or any locally relevant information that would assist with further refinement of the appropriate assessment at Regulation 19 stage?
5. Are there any local issues in relation to the European sites that would inform the assessment (e.g. particular access issues)?
6. Are there any measures that you think should be included to help prevent impacts on the European sites in relation to recreation?