
Gloucester, Cheltenham & Tewkesbury



Pre-Submission Draft Joint Core Strategy

HABITATS REGULATIONS ASSESSMENT REPORT

March 2014

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HABITATS REGULATIONS ASSESSMENT SCREENING REPORT

Gloucester City, Cheltenham Borough and Tewkesbury Councils Pre-Submission Draft Joint Core Strategy

Prepared for: Gloucester City, Cheltenham Borough and Tewkesbury
Councils

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EXECUTIVE SUMMARY

- 0.1 This report outlines the methods used and the findings arising from the HRA for the Pre-Submission Draft JCS for Gloucester City, Cheltenham Borough and Tewkesbury Borough Councils. The HRA of the JCS has been undertaken in accordance with available guidance and good practice and has been informed by the HRA screening work and findings produced for earlier iterations of the JCS (2011), as well as advice received from Natural England and Countryside Council for Wales (now Natural Resources Wales).

HRA Screening

- 0.2 The first stage of the HRA process (screening) considered the likely significant effects on fourteen European sites within the influence the JCS. The screening process considered the potential impacts arising as a result of the policies and whether these have the potential to lead to likely significant effects (LSE). The screening identified five Pre-Submission Draft JCS Policies for which the impacts could potentially lead to significant effects alone. The six Pre-Submission Draft JCS Policies and their potential impacts were then screened against each of the European sites scoped into the HRA. This included consideration of the environmental pathways and sensitivities of the sites, as well as mitigation provided by Policies. The further screening found that for the majority of the European sites, there were unlikely to be any significant effects alone as a result of the Pre-Submission Draft JCS. However, uncertainty was identified with regard to short range and diffuse atmospheric pollution impacts as well as recreational impacts both alone and in-combination on the Cotswold Beechwoods SAC. Furthermore, the screening also identified uncertainty with regard to the potential for significant in-combination effects on six European sites as a result of changes to water levels and/ or as a result of changes to water quality. Based on the precautionary approach these uncertain issues were considered in more detail through AA.

HRA Appropriate Assessment (AA)

- 0.3 The AA considered the potential for the Pre-Submission Draft JCS to have adverse effects on the integrity of identified European sites in combination with other plan/ programs and projects through changes to air quality, increased disturbance (recreational activity) and reduced water levels and quality. It also considered the potential for adverse effects alone with regard to air quality and disturbance on the Cotswold Beechwoods SAC.

Air Quality

- 0.4 The AA found that while it is unlikely that there would be significant effects on the Cotswolds Beechwoods SAC as a result of increased atmospheric pollution (both alone and in-combination) given the mitigation provided through JCS policies above, there is still an

element of uncertainty given the lack of existing information. However, it was concluded that this uncertainty is addressed in the JCS through the further mitigation provided by Policies INF7 (Infrastructure Delivery) and Policy INF8 (Developer Contributions). These policies provide a mechanism to require financially contribute from developers towards the protection and enhancement environmental assets, which includes the Cotswolds Beechwoods SAC. It was therefore concluded that the mitigation provided through Pre-Submission Draft JCS policies and available at the project level will address the potential for adverse effects both alone and in-combination on the Cotswolds Beechwoods SAC as a result of increased atmospheric pollution.

Disturbance

- 0.5 The AA considered that determining the significance of increased disturbance on European sites is complex and dependent on a variety of factors including the sensitivity of designated features and the level of their exposure to recreational activities. Pre-Submission Draft JCS policies seek protect and enhance European sites as well as provide open space and areas for recreation. The plan contains strong policies on Green Infrastructure that require development to conserve and enhance GI assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. It also requires existing GI assets to be retained (where appropriate), improved and better managed, and new features to be created. This includes requiring developer contributions for such provision (for example, a contribution towards the management of the Cotswolds Beechwoods SAC). Policies INF7 and INF8 gives the Council's the ability to secure financial contributions from developers that would go towards the management of the Cotswolds Beechwoods SAC to address any potential increase in recreation.
- 0.6 Whilst there will need to be further detailed discussions between the Council's and NE with regard to financial contributions from developers and the management of the SAC, the mechanisms are in place at a strategic policy level to deliver them. It was therefore concluded that the mitigation provided through Pre-Submission Draft JCS policies and available at the project level will address the potential for adverse in-combination effects on the Cotswolds Beechwoods SAC as a result of increased recreational activity.

Water Levels and Quality

- 0.7 The AA assessed that the mitigation provided by Pre-Submission Draft JCS Policies and current regulatory processes (EA Review of Consents) would ensure that the potential impacts of proposed development on the water environment would be minimised. In addition one recommendation was made to improve the current baseline to provide further evidence to demonstrate that there are unlikely to be any significant effects with regard to water levels and quality:

- In addition to the Infrastructure Development Plan, it recommended that a water cycle study is carried out to fully assess the impacts of the plan on the water environment as a whole in combination with other plans and programmes.
- 0.8 Given the mitigation provided by Draft JCS Policies, current regulatory processes (EA Review of Consents) and taking into account the recommendations above, it is assessed that the Pre-Submission Draft JCS will not have adverse in-combination effects on the integrity of the identified European sites through reduced water levels or water quality.

Consultation and Further Work

- 0.9 These findings will be subject to further consultation comments and advice from NE and wider stakeholders. HRA is an iterative process and further work will be undertaken alongside the JCS to inform its development.
- 0.10 The findings of this plan level HRA do not obviate the need to undertake HRA for lower level, project scale/ implementation plans where there is potential for significant effect on one or more European sites. The findings of this HRA should be used to inform any future assessment work.

1.0 INTRODUCTION

- 1.1 Gloucester City Council, Cheltenham Borough Council and Tewkesbury Borough Councils (the 'Councils') are producing a Joint Core Strategy (JCS) that will provide the planning framework that guides development in the area up to 2031. The JCS sets out the spatial vision, strategic objectives, development strategy and policies, of the planning framework for the area, having regard to the Community Strategies.
- 1.2 Enfusion has been commissioned to progress the Habitats Regulations Assessment (HRA) of the JCS on behalf of the Councils in their role as the competent authority. At the same time Enfusion was also commissioned to undertake Sustainability Appraisal (incorporating Strategic Environmental Assessment [SEA]) of the JCS and this work has been undertaken concurrently, with the two processes informing each other as appropriate.

Background

- 1.3 The HRA process for the plan began in 2011, when a Habitats Regulation Scoping Assessment Report was produced. The JCS Habitats Regulation Scoping Assessment Report was placed on a five week consultation period during April and May 2011. Comments were received from NE and CCW (now Natural Resources Wales (NRW)) and helped to inform the final version of the JCS Habitats Regulation Scoping Assessment which was published in July 2011. It was concluded that more assessment would be required once further policy detail was available.
- 1.4 Further work was carried out on the JCS and a Developing the Preferred Option Consultation Document was produced and then published in December 2011. The consultation document set out the vision for the JCS area to 2031 as well as a number of options for how it could be achieved. This included the potential employment and housing requirements for the JCS area as well as a number of strategic allocations. Options for broad locations to deliver development requirements post 2021 across the JCS area were also identified. Building on the findings of the Habitats Regulation Scoping Assessment Report (July 2011) further screening assessment work was undertaken for the Preferred Option Consultation Document. The work was presented in an HRA Screening Report that accompanied the Preferred Option Consultation Document on a six week consultation in December 2011. The JCS vision, strategic objectives, strategic development management policies and a number of spatial development scenarios were considered through the screening assessment.
- 1.5 Following the consultation on the Preferred Option in December 2011 a number of changes were made to the JCS including: new housing and employment targets; a urban focused spatial development strategy;

an amended vision and strategic objectives; new and amended policies complete with firm urban extension and strategic allocation sites to accommodate major development. The updated plan was called the Draft JCS 2013 and further HRA screening work and then AA was carried out on this iteration of the Plan in October 2013. The findings of the HRA were subject to consultation alongside the Draft JCS 2013 between October and December 2013.

- 1.6 Between December 2013 and March 2014, as a result of public consultation, the JCS has undergone a number of changes. These include new housing and employment targets lower than previously considered - 30,500 new homes and land to support 28,000 new jobs - as well as amended policies with more robust mitigation in relation to water quality, green infrastructure, and infrastructure provision in general. In addition, one urban extension in Cheltenham has been removed and another in Gloucester reduced in size by almost half.
- 1.7 The assessment and findings presented in the Draft JCS HRA Report (Oct 2013) have been revised and updated to ensure that the changes to the JCS have been sufficiently considered through the HRA process. The work set out in this Report builds on the previous HRA screening and AA work undertaken. Consultation responses received on the Draft JCS HRA Report (Oct 2013) have also informed the further HRA work.

Consultation

- 1.8 The Habitats Regulations require the plan making/competent authority to consult the appropriate nature conservation statutory body. Given the proximity to Wales and the potential far reaching effects of European sites, in this case both Natural England and Natural Resources Wales (NRW) will be consulted.
- 1.9 Comments from the statutory nature conservation bodies were received on the HRA Scoping Report (July 2011), the HRA Screening of the Gloucester, Cheltenham and Tewkesbury JCS 'Developing the Preferred Option Consultation Document (Dec 2011) and the Draft JCS HRA Report (October 2013). These comments and any advice provided have been taken forward in the iterative HRA work documented in this Report.
- 1.10 The Habitats Regulations leave consultation with other bodies and the public to the discretion of the plan making authority. Therefore, in addition to the statutory consultation undertaken with the appropriate nature conservation bodies, this HRA (AA) Report is available for wider public consultation alongside the Pre-Submission Draft JCS.

Purpose & Structure of Report

- 1.11 This report documents the process and the findings of the HRA for the JCS. Following this introductory section the document is organised into a further four sections:
- **Section 2** summarises the requirement for HRA and the background to the Joint Core Strategy.
 - **Section 3** outlines the screening process and the findings of the screening assessment.
 - **Section 4** outlines the AA process and the findings of the assessment, including avoidance and mitigation measures where necessary.
 - **Section 5** summarises the findings of the HRA and sets out the next steps.

2.0 HABITATS REGULATIONS ASSESSMENT (HRA) AND THE PLAN

Requirement for Habitats Regulations Assessment

- 2.1 The Conservation of Habitats and Species Regulations 2010 (as amended) [the Habitats Regulations] require that HRA is applied to all statutory land use plans in England and Wales. The aim of the HRA process is to assess the potential effects arising from a plan against the conservation objectives of any site designated for its nature conservation importance.
- 2.2 The Habitats Regulations transpose the requirements of the European Directive (92/43/EEC) on the Conservation of Natural Habitats and Wild Flora and Fauna [the Habitats Directive] which aims to protect habitats and species of European nature conservation importance. The Directive establishes a network of internationally important sites designated for their ecological status. These are referred to as Natura 2000 sites or European Sites, and comprise Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) which are designated under European Directive (2009/147/EC) on the conservation of wild birds [the Birds Directive]. In addition, Government guidance also requires that Ramsar sites (which support internationally important wetland habitats and are listed under the Convention on Wetlands of International Importance [Ramsar Convention]) are included within the HRA process as required by the Regulations.
- 2.3 The process of HRA is based on the precautionary principle and evidence should be presented to allow a determination of whether the impacts of a land-use plan, when considered in combination with the effects of other plans and projects against the conservation objectives of a European Site; would adversely affect the integrity of that site. Where effects are considered uncertain, the potential for adverse impacts should be assumed.

Guidance and Good Practice

- 2.4 The application of HRA to Local Plans is an emerging field and has been informed by a number of key guidance and practice documents. Draft guidance for HRA 'Planning for the Protection of European Sites: Appropriate Assessment', was published by the Government (DCLG, 2006) and is based on the European Commission's (2001) guidance for the Appropriate Assessment of Plans. The DCLG guidance recommends three main stages to the HRA process:
 - **Stage 1:** Screening for Likely Significant Effect
 - **Stage 2:** Appropriate Assessment, Ascertaining Effects on Integrity
 - **Stage 3:** Mitigations Measures and Alternatives Assessment.

- 2.5 If alternative solutions or avoidance/ mitigation measures to remove adverse effects on site integrity cannot be delivered then current guidance recommends an additional stage to consider Imperative Reasons of Overriding Public Interest (IROPI) for why the plan should proceed. For the HRA of land use plans IROPI is only likely to be justified in a very limited set of circumstances and must be accompanied by agreed, deliverable compensation measures for the habitats and species affected. For this reason the IROPI stage is not detailed further in this report.
- 2.6 More recently Natural England has produced additional, detailed guidance on the HRA of Local Development Documents (Tyldesley, 2009 (as updated)) that complements the DCLG guidance, and builds on assessment experience and relevant court rulings. The guidance: sets out criteria to assist with the screening process; addresses the management of uncertainty in the assessment process; and importantly outlines that for the HRA of plans; ' ... what is expected is as rigorous an assessment as can reasonably be undertaken in accordance with the requirements of the Regulations ...'.
- 2.7 The approach taken for the HRA of the Draft JCS follows the method set out in formal guidance documents.
- 2.8 The key stages of the HRA process overall, and the specific tasks undertaken for each stage are set out in Table 2.1.

Table 2.1: Habitats Regulations Assessment: Key Stages

Stages	Habitats Regulations Assessment
Stage 1: Screening for Likely significant Effects	1. Identify European sites in and around the plan area.
	2. Examine the conservation objectives of each interest feature of the European site(s) potentially affected.
	3. Analyse the policy/ plan and the changes to environmental conditions that may occur as a result of the plan. Consider the extent of the effects on European sites (magnitude, duration, and location) based on best available information.
	4. Examine other plans and programmes that could contribute (cumulatively) to identified impacts/ effects.
	5. Produce screening assessment based on evidence gathered and consult statutory nature conservation body on findings.
	6. If effects are judged likely or uncertainty exists – the precautionary principle applies proceed to Stage 2 .
Stage 2: Appropriate Assessment	1. Agree scope and method of Appropriate Assessment with statutory nature conservation body.
	2. Collate all relevant information and evaluate potential impacts on site(s) in light of conservation objectives.
Stage 3: Mitigation Measures and Alternatives Assessment	1. Consider how effect on integrity of site(s) could be avoided by changes to plan and the consideration of alternatives (e.g. an alternative policy/ spatial location). Develop mitigation measures (including timescale and mechanisms for delivery).
	2. Prepare HRA/ AA report and consult statutory body.
	3. Finalise HRA/AA report in line with statutory advice to accompany plan for wider consultation.

Pre-Submission Draft Joint Core Strategy - Key Proposals

- 2.9 The JCS sets out the preferred strategy to accommodating development. The objectives of the JCS are aligned with the community ambitions in the 3 local authorities' adopted Sustainable Community Strategies that set out the long-term ambitions for the communities. The JCS sets out the key challenges for the JCS area and a Vision for the development of the area until 2031. This is followed by Strategic Objectives to deliver the Vision for the area and these objectives have been grouped under the headline aims of the 3 Sustainable Community Strategies:
- A thriving economy
 - A sustainable natural and built environment
 - A healthy, safe and inclusive community
- 2.10 Chapter 3 of the JCS contains a number of strategic policies for the sub-areas of Gloucester, Cheltenham and Tewkesbury, including strategic proposals for housing and employment development in broad locations. Chapter 4 presents a number of Sustainable Development Policies grouped within the key ambitions of the Strategic Community Strategies. Chapter 5 contains the Infrastructure Policies and Chapter 6 is concerned with the Strategic Allocation Policies Chapter 7 sets out how the objectives and policies of the plan will be monitored and reviewed.
- 2.11 The Vision and the Strategic Objectives for the Pre-submission Draft JCS are as follows:

GCT JCS Vision

By 2031 Tewkesbury Borough, Cheltenham Borough and Gloucester City will have continued to develop as highly attractive and highly accessible places in which to live, work and socialize.

The Joint Core Strategy area will be recognized nationally as enjoying a vibrant, competitive economy with increased job opportunities and a strong reputation for being an attractive place in which to invest.

The character and identity of individual communities will have been retained while improved access to housing will have addressed the needs of young families, single people and the elderly.

New developments will have been built to the highest possible standards of design and focused protecting the quality and distinctiveness of each community.

Established in sustainable locations, without increasing the risk of flooding, new development will have been designed with sensitivity towards existing villages, towns and cities and with respect for the natural environment.

As a result of a strong commitment to the housing and employment needs of the existing and growing population, all residents and businesses will benefit from the improved infrastructure, which will include roads, public transport and services, and community facilities.

JCS Strategic Objectives:

JCS Strategic Objective 1: Building a strong and competitive economy
JCS Strategic Objective 2: Ensuring vitality of town centres
JCS Strategic Objective 3: Supporting a prosperous rural economy
JCS Strategic Objective 4: Conserving and enhancing the environment
JCS Strategic Objective 5: Delivering excellent design in new developments
JCS Strategic Objective 6: Meeting the challenge of climate change
JCS Strategic Objective 7: Promoting sustainable transport
JCS Strategic Objective 8: Delivering a wide choice of quality homes
JCS Strategic Objective 9: Promoting healthy communities

- 2.12 The JCS is based on collaborative research into the three council areas' characteristics, relationships (with each other and adjoining areas), past trends and future predictions. The most recent research on the Objectively Assessed need (OAN) indicates that there will be a need for 30,500 new homes and between 28,000 new jobs over the period to 2031.
- 2.13 Taking into account the likely employment and housing needs, the emerging JCS identified a preferred strategy for distributing development through an Urban Focus. This means that the development will be distributed in the existing urban areas mainly in Gloucester, Cheltenham and Tewkesbury and in urban extensions and strategic allocations set out in Policy SA1.
- 2.14 The Pre-Submission Draft JCS includes policies which set out the strategic locations for and the requirements that development in the JCS area will have to meet. A list of the policies is provided below:

STRATEGIC POLICIES

Policy SP1 – Scale of New Development
Policy SP2 – Distribution of New Development

SUSTAINABLE DEVELOPMENT POLICIES

Policy SD1 – Presumption in Favour of Sustainable Development
Policy SD2 – Employment
Policy SD3 – Retail Hierarchy and Town Centres
Policy SD4 – Sustainable Design and Construction
Policy SD5 – Design Requirements
Policy SD6 – Green Belt
Policy SD7 – Landscape
Policy SD8 – Cotswolds Area Of Outstanding Natural Beauty

- Policy SD9 – Historic Environment
- Policy SD10 – Biodiversity and Geodiversity
- Policy SD11 – Residential Development
- Policy SD12 – Housing Mix and Standards
- Policy SD13 – Affordable Housing
- Policy SD14 – Gypsies, Travellers and Travelling Showpeople
- Policy SD15 – Health and Environmental Quality

INFRASTRUCTURE POLICIES

- Policy INF1 – Access to the Transport Network
- Policy INF2 – Safety and Efficiency of the Transport Network
- Policy INF3 – Flood Risk Management
- Policy INF4 – Green Infrastructure
- Policy INF5 – Social and Community Infrastructure
- Policy INF6 – Renewable Energy/Low Carbon Energy Development
- Policy INF7 – Infrastructure Delivery
- Policy INF8 – Developer Contributions

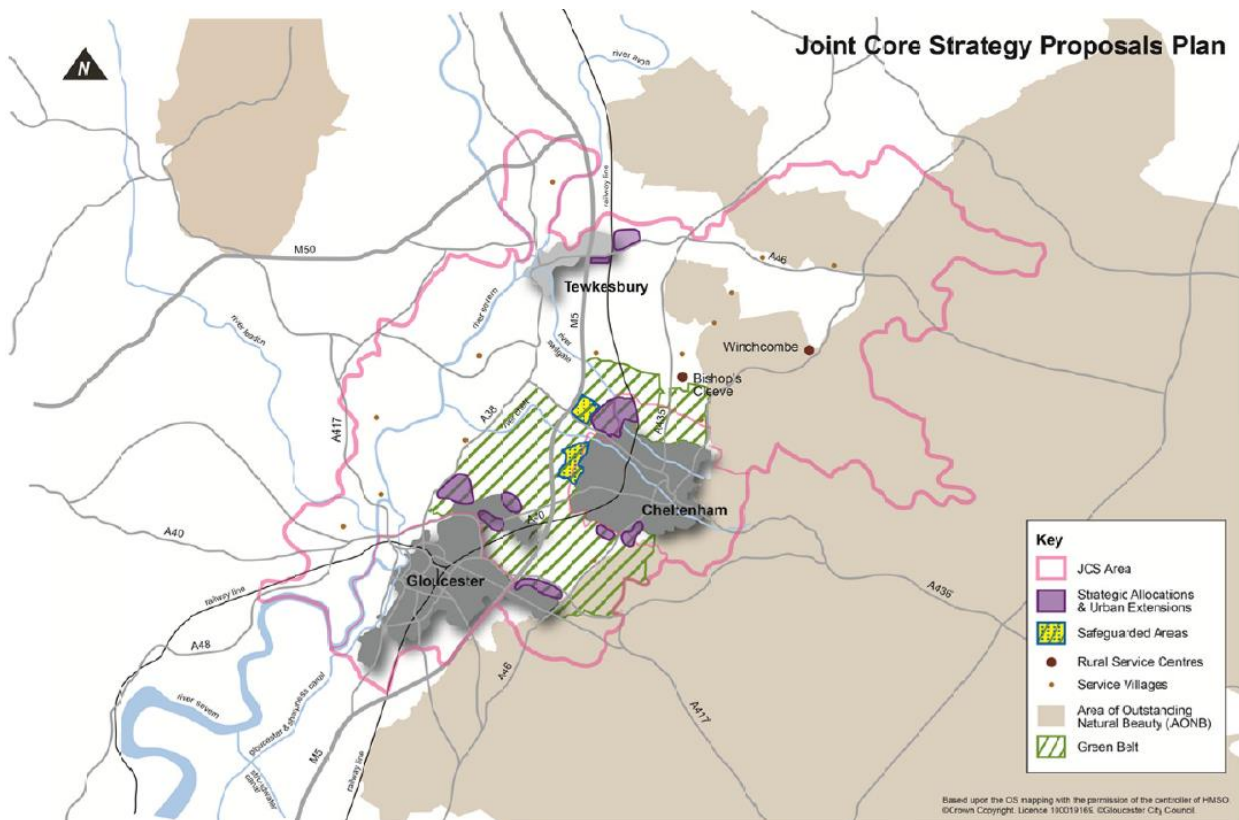
STRATEGIC ALLOCATIONS

- Policy SA1 – Strategic Allocations Policy
- Strategic Allocations Information

Overview of Plan Area

2.15 The Pre-Submission Draft JCS covers the local authority areas of Gloucester City, Cheltenham Borough and Tewkesbury Borough and its spatial extent is shown in the Figure 2.1 below.

Figure 2.1: Map of JCS Area



*Sourced: Gloucester City, Cheltenham Borough and Tewkesbury Borough Councils, 2013

3.0 SCREENING

3.1 As detailed in Section 2, Table 2.1, HRA typically involves a number of stages. This section of the report sets out the approach and findings for Stage 1, HRA Screening for the Pre-Submission Draft JCS. The aim of the screening stage is to assess in broad terms whether the policies and proposals set out in the plan are likely to have a significant effect on a European site(s), and whether in the light of available avoidance and mitigation measures, an Appropriate Assessment (AA) is necessary.

Previous Screening Work

3.2 It was noted in Section 1 that a high level HRA Screening was first undertaken in early 2011 for the JCS. The JCS Habitats Regulation Scoping Assessment Report was placed on a five week consultation period during April and May 2011. Comments were received from NE and CCW (now Natural Resources Wales (NRW)) and helped to inform the final version of the JCS Habitats Regulation Scoping Assessment which was published in July 2011.

3.3 The report concluded that it was not possible to make precise judgments about the likely significant effects of the JCS at that stage given the lack of policy detail available. However, it did identify some areas to focus on, which included the general location and quantum of proposed development. The potential impacts identified were as follows:

- Direct - During construction, noise, lighting, increased traffic.
- Pollution in the air (mainly nitrogen) is a key concern through polluting stack emissions.
- Air pollution from increase in traffic.
- Direct - dust arising during construction.
- Hydrological links – siltation could occur through connecting watercourses to the estuarine sites.
- Direct - development could provide further perches for predators.
- Direct - from large scale industry or waste facility which would produce toxic contaminants.
- Hydrological links - leachate, surface run off and groundwater infiltration from development sites could potentially enter European river sites during site construction and operation.
- Disturbance to bats, roost and supporting woodland.
- Indirect - Development could interrupt flight lines.

3.4 It was concluded that more assessment would be required once further policy detail was available.

3.5 Further work was carried out on the JCS and a Developing the Preferred Option Consultation Document was produced and then published in December 2011. The consultation document set out the vision for the JCS area to 2031 as well as a number of options for how it could be achieved. This included the potential employment and

housing requirements for the JCS area as well as a number of strategic allocations. Options for broad locations to deliver development requirements post 2021 across the JCS area were also identified.

- 3.6 Building on the findings of the Habitats Regulation Scoping Assessment Report (July 2011) further screening assessment work was undertaken for the Preferred Option Consultation Document. The work was presented in an HRA Screening Report that accompanied the Preferred Option Consultation Document on a six week consultation in December 2011. The JCS vision, strategic objectives, strategic development management policies and a number of spatial development scenarios were considered through the screening assessment.
- 3.7 The HRA Screening of the JCS Preferred Option Consultation Document assessed that likely significant effects on the integrity of certain European sites for each of the development scenarios could not be ruled out, either alone or in-combination. The findings of the screening assessment for the four development scenarios are presented in Table 3.1.

Table 3.1: Summary of likely significant effects in the HRA Screening of the JCS Preferred Option Consultation Document (LUC, 2011)

Types of likely significant effect not able to be ruled out under...					
European site	Scenario A	Scenario B, C, D Phase I	Theme 1	Theme 2	Theme 3
Sites wholly or partly within the JCS boundaries:					
Cotswold Beechwoods SAC.	Direct habitat loss/damage; air pollution; recreation	Direct habitat loss/damage; air pollution; recreation	Air pollution; recreation	None	Air pollution; recreation
Dixton Wood SAC.	Direct habitat loss/damage; vandalism	Direct habitat loss/damage; vandalism	None	Vandalism	None
Sites outside the JCS boundaries but wholly or partly within a 15km radius:					
Bredon Hill SAC.	None	None	None	None	None
Rodborough Common SAC.	Air pollution	Air pollution	None	None	None
Severn Estuary SAC, SPA and Ramsar.	Loss/damage to supporting habitats; water quality; recreation	Loss/damage to supporting habitats; water quality; recreation	Loss/damage to supporting habitats; water quality; recreation; water abstraction (Scenarios C & D only)	Loss/damage to supporting habitats; water quality; recreation; water abstraction (Scenarios C & D only)	Loss/damage to supporting habitats; water quality; recreation; water abstraction (Scenarios C & D only)
Walmore Common SPA and Ramsar.	None	None	Water abstraction (Scenarios C & D only)	Water abstraction (Scenarios C & D only)	Water abstraction (Scenarios C & D only)
Wye Valley and Forest of Dean Bat Sites SAC.	Loss/damage to supporting habitats	Loss/damage to supporting habitats	None	Loss/damage to supporting habitats	None
Sites outside the 15km radius where a potential pathway for effects exists:					
Lyppard Grange Ponds SAC.	None	None	None	None	None
River Usk SAC	Water abstraction	Water abstraction	Water abstraction	Water abstraction	Water abstraction
River Wye SAC.	Water abstraction; water quality	Water abstraction; water quality	Water abstraction; water quality	Water abstraction; water quality	Water abstraction; water quality
Wye Valley Woodlands SAC.	Air pollution	Air pollution	Air pollution	Air pollution	Air pollution

- 3.8 The screening concluded that although the development scenarios have the potential to adversely impact European sites, some if not all of these effects may be ruled out with more detailed understanding and research of the sensitivity of the sites and current management arrangements. Natural England's response to the Screening Report indicated that the scope and the overall conclusions of the HRA were appropriate (see Appendix V).

Screening the Draft JCS 2013

- 3.9 Following the consultation on the Preferred Option in December 2011 there were a number of changes made to the JCS which included:
- New housing and employment targets – 33,200 new homes and land to support 21,800 new jobs;
 - An urban focused spatial development strategy - development will be distributed in the existing urban areas mainly in Cheltenham, Gloucester and Tewkesbury and in urban extensions and strategic allocations. Rural Service Centres and Service Villages will accommodate approximately 2740 new homes;
 - An amended vision and strategic objectives – including an objective relating specifically to conserving and enhancing the environment; and
 - New and amended policies complete with firm urban extension and strategic allocation sites to accommodate major development.
- 3.10 Building on the previous screening work and informed by the consultation responses received the screening tasks (Table 2.1) were revisited for the JCS.

Identification of European Sites

- 3.11 The HRA Scoping Report (July 2011) considered that the following sites should be included in the HRA of the JCS, which was agreed with NE and CCW:

Sites wholly or partly within the JCS boundaries

- Cotswold Beechwoods SAC
- Dixon Wood SAC

Sites outside the JCS boundaries

- Bredon Hill SAC
- Lyppard Grange Ponds SAC
- River Wye SAC
- Rodborough Common SAC
- Severn Estuary SAC, SPA and Ramsar
- Walmore Common SPA and Ramsar
- Wye Valley and Forest of Dean Bat Sites SAC
- Wye Valley Woodlands SAC

- 3.12 In response to the HRA Scoping Report CCW requested that sites at even greater distance be considered where there is a potential pathway for significant effects to take place. Plans such as the JCS can have spatial implications that extend beyond the intended plan boundaries. In particular, it is recognised that when considering the potential for effects on European sites, distance in itself is not a definitive guide to the likelihood or severity of an impact. Other factors such as inaccessibility/ remoteness, the prevailing wind direction, river flow direction, and ground water flow direction will all have a bearing on the relative distance at which an impact can occur. This means that a plan directing development some distance away from a European Site could still have effects on the site and therefore, needs to be considered as part of the HRA screening.
- 3.13 To address CCW's comment, the HRA Screening Report (Dec 2011) included the River Usk SAC within the scope of the HRA for the JCS as it is connected to the River Wye via the South East Wales Conjunctive Use Scheme. Based on the proposed development set out in the JCS Developing the Preferred Option, the scope set out in the HRA Screening Report (Dec 2011) is still considered appropriate for the HRA of the JCS. The HRA Screening report (Dec 2011) concluded that the JCS would not have significant effects on Bredon Hill SAC and Lyppard Grange Ponds SAC; however, given the further detail available with regard to proposed development these European sites have been included in the further screening work to ensure that there are no adverse effects. The European sites scoped into the screening work in 2013 are set out in Table 3.2 below.

Table 3.2: European Sites within HRA Scope

European Site	Designation
European Sites within Plan Area	
Cotswold Beechwoods	SAC
Dixton Wood	SAC
European Sites outside Plan Area	
Bredon Hill	SAC
Lyppard Grange Ponds	SAC
River Usk	SAC
River Wye	SAC
Rodborough Common	SAC
Severn Estuary	SAC/ SPA/ Ramsar
Walmore Common	SPA/ Ramsar
Wye Valley and Forest of Dean Bat Sites	SAC
Wye Valley Woodlands	SAC

- 3.14 The first stage in the screening process considered the potential impacts arising as a result of the policies and whether these have the potential to lead to likely significant effects (LSE). The screening identified eleven Draft JCS Policies for which the impacts could potentially lead to significant effects alone. The eleven Draft JCS

Policies and their potential impacts were then screened against each of the European sites scoped into the HRA. This included consideration of the environmental pathways and sensitivities of the sites, as well as mitigation provided by Draft JCS Policies. The key findings are summarised below.

Table 3.3: HRA Screening Summary

European sites	Potential Likely Significant Effects							
	Air Quality		Disturbance		Water Levels & Quality		Habitat Loss & Fragmentation	
	A ¹	IC ²	A	IC	A	IC	A	IC
European sites within DRAFT JCS area								
Cotswold Beechwoods SAC	?	?	No	?	No	?	No	No
Dixton Wood SAC	No	No	No	No	No	No	No	No
European sites outside DRAFT JCS area								
Bredon Hill SAC	No	No	No	No	No	No	No	No
Lyppard Grange Ponds SAC	No	No	No	No	No	?	No	No
River Usk SAC	No	No	No	No	No	?	No	No
River Wye SAC	No	No	No	No	No	?	No	No
Rodborough Common SAC	No	No	No	No	No	No	No	No
Severn Estuary SAC/ SPA/ Ramsar	No	No	No	No	No	?	No	No
Walmore Common SPA/ Ramsar	No	No	No	No	No	?	No	No
Wye Valley and Forest of Dean Bat Sites SAC	No	No	No	No	No	No	No	No
Wye Valley Woodlands SAC	No	No	No	No	No	?	No	No

¹ AA required alone?

² AA required in combination?

Table 3.4: Screening Summary Key

Likely Significant Effect	Yes	Appropriate Assessment required
No Likely Significant Effect	No	No further assessment required
Significant Effect Uncertain	?	Uncertain, precautionary approach taken and Appropriate Assessment required

3.15 The screening assessment identified uncertainty with regard to the potential for significant effects on seven European sites as a result of changes to air quality, increased disturbance; changes to water levels and/ or water quality. Based on the precautionary approach these issues were considered in more detail through AA. The findings of the HRA (AA) Report 2013 were subject to consultation between October and December 2013. The responses received have been included in Appendix V of this HRA Report.

Screening the Pre-Submission Draft JCS 2014

- 3.16 Since the consultation on the Draft JCS 2013 there have been a number of changes made to the JCS which include:
- New housing and employment targets - with lower housing requirements at 30,500 new homes and a higher level of job growth at 28,000 new jobs;
 - Amended policies with more robust mitigation in relation to water quality, green infrastructure, infrastructure provision in general referring specifically to Green space and environmental assets. In addition, one urban extension in Cheltenham has been removed and another in Gloucester reduced in size by almost half.
 - The removal of the South Cheltenham – Up Hatherley Urban Extension and the reduction in size and capacity of the Innsworth Urban Extension.
- 3.17 It is therefore necessary to revisit the screening tasks (Table 2.1) for the JCS. This work will build on the previous HRA screening work undertaken in 2011 and 2013.

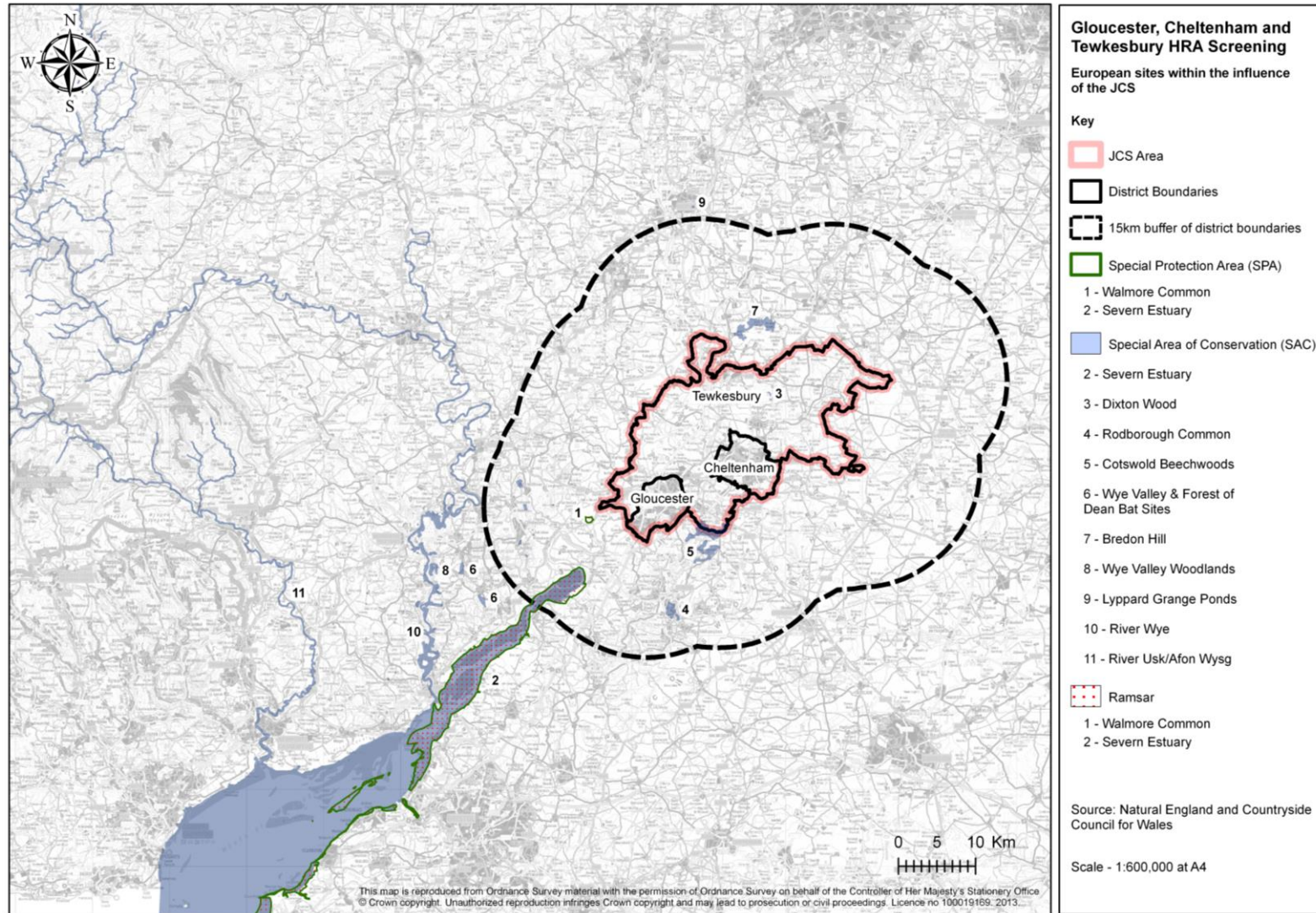
Identification of European Sites

3.18 The European sites scoped into the HRA in 2013 are still considered appropriate for the further screening work for the Pre-Submission Draft JCS. No further comments have been received from statutory consultees with regard to the scope of the HRA and the changes to the JCS are not considered likely to significantly affect the European sites scoped in. The European sites scoped into the HRA for the JCS are set out in Table 3.5 below and presented in Figure 3.1.

Table 3.5: European Sites within HRA Scope

European Site	Designation
European Sites within Plan Area	
Cotswold Beechwoods	SAC
Dixton Wood	SAC
European Sites outside Plan Area	
Bredon Hill	SAC
Lyppard Grange Ponds	SAC
River Usk	SAC
River Wye	SAC
Rodborough Common	SAC
Severn Estuary	SAC/ SPA/ Ramsar
Walmore Common	SPA/ Ramsar
Wye Valley and Forest of Dean Bat Sites	SAC
Wye Valley Woodlands	SAC

Figure 3.1 - European Sites within HRA Scope



Characterisation of European Sites

- 3.19 A general overview of the thirteen sites scoped into the assessment is provided below in Figure 3.2. More detailed characterisations including conservation objectives and the specific vulnerabilities for each site are provided in Appendix I.

Figure 3.2: European Site Characterisations

European Sites within Plan Area

Cotswold Beechwoods SAC is situated at the southern edge of the JCS area and covers part of Tewkesbury, plus Stroud and Cotswold Districts of Gloucestershire. The SAC consists of ancient beech woodlands and unimproved grassland lying over Jurassic limestone at the western edge of the Cotswolds. The woodlands are amongst the most diverse and species rich of their type while the grasslands typify the unimproved calcareous pastures for which the area is famous.

Dixton Wood SAC is situated approximately 6.7km to the South East of Tewkesbury and is an area of broadleaved woodland (formerly partially grazed) with a dominance of ash including exceptionally large ancient pollards. The site is designated for its population of Violet Click Beetle, which is largely dependent on these pollards (for breeding). Principal risks to the site's integrity are lack of future replacement pollards (age-class skewed to older generation) and game management practices.

European Sites outside Plan Area

Bredon Hill SAC is an area of pasture woodland and ancient parkland situated approximately 4.5km to the North East of Tewkesbury. The site provides habitat for the Violet Click Beetle *Limoniscus violaceus* beetle, which develops in the decaying wood either of very large, old hollow beech trees (Windsor Forest) or ash trees (Worcestershire/ Gloucestershire border sites). Currently the key site attributes which Natural England understands the species to require is related to the abundance and condition of the ancient trees on the designated site within which it develops.

Lyppard Grange SAC is located on the East outskirts of Worcester and is situated amongst a recent housing development on former pastoral farmland. The site is composed of two ponds in an area of grassland and scrub (public open space). The site provides habitat for Great Crested Newts *Triturus cristatus*, which are dependent on both the existing terrestrial habitat (to provide foraging areas and refuge) and on the pond, aquatic habitat (for breeding).

The River Usk SAC is entirely within Wales, rising in the Black Mountain range in the west of the Brecon Beacons National Park and flowing east and then south, to enter the Severn Estuary at Newport. The ecological structure and functions of the site are dependent on hydrological and geomorphological processes (often referred to as hydromorphological processes), as well as the quality of riparian habitats and connectivity of habitats. Animals that move

around and sometimes leave the site, such as migratory fish and otters, may also be affected by factors operating outside the site. The River Usk is important for its population of sea lamprey and supports a healthy population of brook lamprey and river lamprey. The site supports a range of Annex II fish species, which includes twaite shad *Alosa falla*, salmon *Salmo salar* and bullhead *Cottus gobi*. The River Usk is an important site for otters *Lutra lutra* in Wales.

The River Wye SAC, on the border of England and Wales, is a large river of plain to montane levels. It has a geologically mixed catchment, including shales and sandstones, and there is a clear transition between the upland reaches, with characteristic bryophyte-dominated vegetation, and the lower reaches, with extensive *Ranunculus* beds. There is an exceptional range of aquatic flora in the catchment including river jelly-lichen. The river channel is largely unmodified and includes some excellent gorges, as well as significant areas of associated woodland. The site is also designated for its populations of Lamprey, White-clawed crayfish, Twaite Shad, Atlantic Salmon, Bullhead and Otter.

Rodborough Common SAC is situated approximately 8km to the south of the JCS area in the Stroud District of Gloucestershire. The SAC is on the Cotswold scarp on a central plateau area with steep drops on all sides. The vegetation is unimproved herb-rich calcareous grassland.

Severn Estuary SPA/Ramsar/SAC is the largest coastal plain estuary in the UK with extensive mudflats and sandflats, rocky shore platforms, shingle and islands. Saltmarsh fringes the coast, backed by grazing marsh with freshwater and occasional brackish ditches. The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have the second highest tidal range in the world (after the Bay of Fundy in Canada) at more than 12 meters. This tidal regime results in plant and animal communities typical of the extreme physical conditions of strong flows, mobile sediments, changing salinity, high turbidity and heavy scouring. The resultant low diversity invertebrate communities, that frequently include populations of ragworms, lugworms and other invertebrates in high densities, form an important food source for passage and wintering birds. The site is important in the spring and autumn migration periods for waders moving along the west coast of Europe, as well as in winter for large numbers of waterbirds including swans, geese, ducks and waders. These bird populations are regarded as internationally important.

Walmore Common SPA/Ramsar is located in Gloucestershire, in the west of England, about 10 km south-west of Gloucester. The site is a wetland overlying peat providing a variety of habitats including improved neutral grassland, unimproved marshy grassland and open water ditches. The area is subject to regular winter flooding and this creates suitable conditions for regular wintering by an important number of Bewick's Swan *Cygnus columbianus bewickii*. The highest bird numbers are seen during the harshest winters, when Walmore Common provides an essential feeding and roosting area.

Wye Valley and Forest of Dean Bat Sites SAC straddles the Wales-England border and covers an area of 142.7ha. It is underpinned by 4 SSSI in Wales and 9 in England, all of which lie entirely within the SAC. This complex of sites contains by far the greatest concentration of lesser horseshoe bat in the UK, totalling about 26% of the national population. It has been selected on the grounds of the exceptional breeding population, and the majority of sites within the complex are maternity roosts. The site also supports the greater horseshoe bat in the northern part of its range, with about 6% of the UK population. The site contains the main maternity roost for bats in this area, which are believed to hibernate in the many disused mines in the Forest.

Wye Valley Woodlands SAC straddles the Wales-England border and covers an area of 914ha. It is underpinned by 9 SSSIs in Wales and 7 in England, all of which lie entirely within the SAC. The woodlands of the lower Wye Valley form one of the most important areas for woodland conservation in Britain. Many rare and local species are present, including some of the rarest native tree species. These woods sit in a matrix of unimproved grassland and other semi-natural habitats.

Effects of the Pre-Submission Draft JCS 2014

- 3.20 The emphasis of the Pre-submission Draft JCS is on jobs and economic prosperity and a key element of the plan is the delivery across the plan area of 30,500 new homes over the life of the plan (to 2031). Housing, employment and infrastructure development has the potential to generate a range of environmental impacts which can, (depending on their nature, magnitude, location and duration), have effects on European sites. A summary of the types of impacts and effects that can arise from these types of development is provided in Table 3.6.

Table 3.6: Housing, Employment and Infrastructure Development: Summary of Impacts and Effects on European Sites

Effects on European Sites	Impact Types
Habitat (& species) fragmentation and loss	<ul style="list-style-type: none"> ■ Direct land take, removal of green/ connecting corridors/ supporting habitat, changes to sediment patterns (rivers and coastal locations) ■ Introduction of invasive species (predation)
Disturbance	<ul style="list-style-type: none"> ■ Increased recreational activity (population increase) ■ Noise and light pollution (from development and increased traffic)
Changes to hydrological regime/ water levels	<ul style="list-style-type: none"> ■ Increased abstraction levels (new housing) ■ Increased hard standing non-permeable surfaces/ accelerated run-off ■ Laying pipes/ cables (surface & ground) ■ Topography alteration
Changes to water quality	<ul style="list-style-type: none"> ■ Increase in run-off/ pollutants from non-permeable surfaces (roads, built areas) ■ Increased air pollution (eutrophication) (traffic,

Effects on European Sites	Impact Types
	housing) <ul style="list-style-type: none"> ■ Increased volume of discharges (consented)
Changes in air quality	<ul style="list-style-type: none"> ■ Increased traffic movements ■ Increased emissions from buildings

3.21 The first stage in the screening process considered the potential impacts (Table 3.6 above) arising as a result of the policies and whether these have the potential to lead to likely significant effects (LSE). The screening identified five Pre-Submission Draft JCS Policies for which the impacts could potentially lead to significant effects (Appendix III) alone. The policies and their potential impacts are provided in Table 3.7.

Table 3.7: Pre-submission Draft JCS Policies identified as having impacts that could lead to LSE

Policy/ Allocation	Potential impacts of the Policy/ Allocation
SP1 – Scale of New Development	<p>The Policy makes provision over the Plan period for 30,500 new homes and land to support 28,000 new jobs. It aims to deliver this through development within existing urban area via District Plans and through urban extensions and strategic allocations set out in Policy SA1. The allocations have been considered separately below.</p> <p>The Policy has the potential to result in:</p> <ul style="list-style-type: none"> ▪ atmospheric pollution through increased traffic, which could reduce air quality; ▪ increased levels of disturbance - recreational activity, noise and light pollution; ▪ increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels; and ▪ land take, which could lead to the loss and fragmentation of habitats.
SP2 – Distribution of Development	<p>The Policy sets out the broad locations and the level of development (housing and jobs) for each broad location. Again the development is based in the existing urban area and in urban extensions and strategic allocations A1 to A9. The allocations have been considered separately below. Policy has the potential to result in:</p> <ul style="list-style-type: none"> ▪ atmospheric pollution through increased traffic, which could reduce air quality; ▪ increased levels of disturbance - recreational activity, noise and light pollution; ▪ increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels; and ▪ land take, which could lead to the loss and fragmentation of habitats.
SD6 – Green Belt (Previously	The Policy seeks to protect the Green Belt from harmful development to ensure that it continues to serve its key

Policy/ Allocation	Potential impacts of the Policy/ Allocation
known as S5 – Green Belt)	<p>functions. The policy designates two sites as developed sites in the Green Belt including Gloucestershire Airport and Cheltenham Racecourse and supports developed related to these uses on these sites. It also mentions that waste management sites are allocated within the Green Belt but these are being taken forward by the Gloucestershire waste management Strategy and not being allocated through this plan. Furthermore, two safeguarded areas have been identified for potential future development in the green belt: an area of land to the West of Cheltenham and an area of land to the north west of Cheltenham.</p> <p>Gloucestershire Airport Site is just over 6km away from the Cotswold Beechwoods SAC so unlikely to have a significant effect alone. Norman's Brook runs along the western edge of the site and eventually flows into Hatherley Brook, which flows into the River Severn. The River Severn SAC/ SPA/ Ramsar and Walmore Common SPA/Ramsar are downstream so there is the potential for impacts alone on water quality. Norman's Brook should be protected and retained and any proposal for development should ensure that impacts on water quality and resources are minimised.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p> <p>Cheltenham Racecourse Given the type of the development (employment) and the location of the site it is unlikely that there will be significant effects on European sites. Similar to other potential sites any proposal for development should seek to minimise impacts on water quality and water resources.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p> <p>Land to the West of Cheltenham Given the location of the site it is unlikely that there will be significant effects on European sites. Similar to other potential sites any proposal for development should seek to minimise impacts on water quality and water resources.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p> <p>Land to the North West of Cheltenham Please refer to allocation A5 below. This parcel of safeguarded land is directly adjacent to the allocation set out in A5 and is included as an integral part of it.</p>
INF7 – Infrastructure Delivery (Previously	The Policy requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or

Policy/ Allocation	Potential impacts of the Policy/ Allocation
known as D1 – Infrastructure)	<p>off-site infrastructure and services. It states that where need for additional infrastructure and services and/or impacts on existing infrastructure and services is expected to arise, the local planning authority will seek to secure appropriate and proportionate infrastructure provision in respect of in particular:</p> <ul style="list-style-type: none"> ■ Climate change mitigation / adaptation ■ Community facilities ■ The highway network, traffic management, sustainable transport and disabled people's access ■ Protection of environmental assets and the potential for their enhancement ■ Provision of Green Infrastructure including open space <p>Priority for provision will be assessed both on a site by site basis and having regard to the mitigation of cumulative impact together with implementation of the JCS Infrastructure Delivery Plan. Planning permission will be granted only where sufficient provision has been made for infrastructure and services (together with their continued maintenance) to meet the needs of new development and/or which is required to mitigate the impact of new development upon existing communities.</p> <p>This policy will generate additional development which could result in land take which could lead to the loss and or fragmentation of habitats. However, it generally seeks to provide mitigation which could reduce emission to air, increased levels and disturbance and protection of environmental assets and the potential for their enhancement.</p>
<p>SA1 –Strategic Allocations Policy</p> <p>A1 – Innsworth (Previously known as A1 – Innsworth and Twelfthworth Urban Extension, Gloucester)</p> <ul style="list-style-type: none"> ■ 1250 dwellings. ■ 9.1 ha employment land. 	<p>Site is over 7 km from the Cotswold Beechwoods SAC so unlikely to have a significant effect alone. The site has one brook (Hatherley Brook) running through it which eventually flow into the River Severn a km away. The River Severn SAC/ SPA/ Ramsar and Walmore Common SPA/Ramsar are downstream so there is the potential for impacts alone on water quality. The Brooks flowing through the site should be protected and retained and any proposal for development should ensure that impacts on water quality and resources are minimised.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p>
<p>SA1 –Strategic Allocations Policy</p> <p>A2 – North</p>	<p>Site is just over 6 km away from the Cotswold Beechwoods SAC so unlikely to have a significant effect alone. Norman's Brook runs through the site and eventually flows into Hatherley Brook, which flows into the River Severn. The River Severn SAC/ SPA/ Ramsar and Walmore Common</p>

Policy/ Allocation	Potential impacts of the Policy/ Allocation
<p>Churchdown (Previously known as A2 – North Churchdown Urban Extension, Gloucester)</p> <ul style="list-style-type: none"> ■ 530 dwellings 	<p>SPA/Ramsar are downstream so there is the potential for impacts alone on water quality. Norman's Brook should be protected and retained and any proposal for development should ensure that impacts on water quality and resources are minimised.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p>
<p>SA1 –Strategic Allocations Policy</p> <p>A4 – North Brockworth (Previously known as A4 – North Brockworth Urban Extension, Gloucester)</p> <ul style="list-style-type: none"> ■ 1550 dwellings. 	<p>Site is approximately 2 km away from the Cotswold Beechwoods SAC; need to consider potential impacts of development on the A46 which runs adjacent to the SAC. Potential for increased levels of atmospheric pollution as the A46 is within 200m of the SAC. Will require further investigation on the sensitivity of the SAC to recreational activity. Horsbere Brook runs along the boundary of the site and eventually flows into the River Severn. The River Severn SAC/ SPA/ Ramsar and Walmore Common SPA/Ramsar are downstream so there is the potential for impacts alone on water quality. Horsbere Brook should be protected and retained and any proposal for development should ensure that impacts on water quality and resources are minimised. It is considered that suitable mitigation will be available to address the potential likely significant effect of development alone on water quality.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p>
<p>SA1 –Strategic Allocations Policy</p> <p>A5 – North West Cheltenham (Previously known as A5 – North West Cheltenham Urban Extension, Cheltenham)</p> <ul style="list-style-type: none"> ■ 4785 dwellings. ■ 23 ha of employment land. 	<p>Site is approximately 6.5 km away from Dixton Woods SAC and therefore there are unlikely to be any significant effects alone with regard to recreational activity. The River Swilgate and Hyde River flow through the site and eventually into the River Severn. The River Severn SAC/ SPA/ Ramsar and Walmore Common SPA/Ramsar are downstream so there is the potential for impacts alone on water quality. The Rivers flowing through the site should be protected and retained and any proposal for development should ensure that impacts on water quality and resources are minimised.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p>
<p>SA1 –Strategic Allocations Policy</p> <p>A6 – South Cheltenham</p>	<p>Site is situated to the south of Cheltenham, adjacent to the existing settlement. The Cotswold Beechwoods SAC lies approximately 5.5 km away to the South West of the site. Need to consider potential impacts of development on the A46 which runs along the eastern boundary of the site and adjacent to the SAC. Potential for increased levels of</p>

Policy/ Allocation	Potential impacts of the Policy/ Allocation
<p>Leckhampton (Previously known as A6 – South Cheltenham – Leckhampton Urban Extension, Cheltenham)</p> <ul style="list-style-type: none"> ■ 1125 dwellings. 	<p>atmospheric pollution as the A46 is within 200m of the SAC. Given the proximity of the SAC to Gloucester, development at this site is unlikely to significantly increase the levels of recreation at the SAC alone. Hatherley Brook runs through the site and eventually flows into the River Severn. The River Severn SAC/ SPA/ Ramsar and Walmore Common SPA/Ramsar are downstream so there is the potential for impacts alone on water quality. Hatherley Brook should be protected and retained and any proposal for development should ensure that impacts on water quality and resources are minimised.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p>
<p>SA1 –Strategic Allocations Policy</p> <p>A8 – Mod Site At Ashchurch (Previously known as A8 – Mod Site At Ashchurch Strategic Allocation)</p> <ul style="list-style-type: none"> ■ 2762 dwellings. ■ 20 ha of employment land. 	<p>Site is approximately 4 km away from Dixton Woods SAC and 5.2 km from Bredon Hill SAC. Potential for significant effects through increased recreational activity at both SACs. Will require further investigation on the sensitivity of the SAC to recreational activity. Similar to other potential sites any proposal for development should seek to minimise impacts on water quality and water resources.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p>

3.22 The five Pre-Submission Draft JCS Policies and their potential impacts were then screened against each of the European sites scoped into the HRA (Appendix IV). This included consideration of the environmental pathways and sensitivities of the sites, as well as mitigation provided by Pre-Submission Draft JCS Policies. Appendix III and IV detail the results of the HRA screening process for the Pre-Submission Draft JCS, the key findings are summarised below.

Screening Assessment

3.23 HRA screening good practice combines both a plan and a European site focus. The policy screening removes from consideration, those elements of the plan unlikely to have effects on European sites. The remaining eleven plan elements (summarised above) can then be considered in more detail for their impacts on European sites. The site

focus considers the impacts and potential effects identified through the policy screening, in the light of the environmental conditions necessary to maintain site integrity for the European sites scoped into the assessment (Table 3.8).

- 3.24 Table 3.8 considers the potential impacts (Table 3.6) arising from the Pre-Submission Draft JCS policies (Appendix III) against the identified European sites (Appendix IV) to determine if there is the potential for likely significant effects. Table 3.9 provides the key to Table 3.8 to describe the results of the assessment.

Table 3.8: HRA Screening Summary

European sites	Potential Likely Significant Effects							
	Air Quality		Disturbance		Water Levels & Quality		Habitat Loss & Fragmentation	
	A ³	IC ⁴	A	IC	A	IC	A	IC
European sites within DRAFT JCS area								
Cotswold Beechwoods SAC	?	?	?	?	No	?	No	No
Dixton Wood SAC	No	No	No	No	No	No	No	No
European sites outside DRAFT JCS area								
Bredon Hill SAC	No	No	No	No	No	No	No	No
Lyppard Grange Ponds SAC	No	No	No	No	No	?	No	No
River Usk SAC	No	No	No	No	No	?	No	No
River Wye SAC	No	No	No	No	No	?	No	No
Rodborough Common SAC	No	No	No	No	No	No	No	No
Severn Estuary SAC/ SPA/ Ramsar	No	No	No	No	No	?	No	No
Walmore Common SPA/ Ramsar	No	No	No	No	No	?	No	No
Wye Valley and Forest of Dean Bat Sites SAC	No	No	No	No	No	No	No	No
Wye Valley Woodlands SAC	No	No	No	No	No	No	No	No

³ AA required alone?

⁴ AA required in combination?

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Table 3.9: Screening Summary Key

Likely Significant Effect	Yes	Appropriate Assessment required
No Likely Significant Effect	No	No further assessment required
Significant Effect Uncertain	?	Uncertain, precautionary approach taken and Appropriate Assessment required

Air Quality

3.25 For the majority of European sites it was assessed that there would be no significant effects as a result of the JCS alone through increased short range and diffuse atmospheric pollution as there are either no existing pathways or the designated features are not considered sensitive. Pre-Submission Draft JCS policies seek to protect air quality and minimise the impacts of increased atmospheric pollution and traffic:

- **SP2 - Distribution of Development** - focuses development in and around existing urban areas, which will help to promote and improve sustainable transport and reduce use of the private vehicle.
- **SD15 - Health and Environmental Quality** - the Policy requires that new development must result in no unacceptable levels of air pollution either alone or cumulatively, with respect to national and EU limit values.
- **SD4 - Sustainable Design and Construction** - requires that development proposals will demonstrate how they contribute to the aims of sustainability by increasing energy efficiency, minimising waste and avoiding the unnecessary pollution of air or interference in other natural systems.
- **SD5 - Design Requirements** - requires that new development should be designed to prioritise movement by sustainable transport modes.
- **INF1 - Access to the Transport Network** - requires that all proposals must ensure that connections should be provided where appropriate to existing walking, cycling and passenger transport networks and should be designed to enable and encourage maximum potential use. It also requires that mitigation is put in place to prevent congestion at junctions.
- **INF2 - Safety and Efficiency of the Transport Network** - The Policy requires that development will need to assess its impact on the transport network and where impact on factors including noise and atmospheric pollution are considered to be severe then mitigation will need to be provided to the satisfaction of the Local Planning Authority.
- **INF4 - Green Infrastructure** - development is required to conserve and enhance Green Infrastructure (GI) assets.

- **INF7 - Infrastructure Delivery** - The Policy requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or off-site infrastructure and services. It states that where need for additional infrastructure and services and/or impacts on existing infrastructure and services is expected to arise, the local planning authority will seek to secure appropriate and proportionate infrastructure provision in respect of in particular: Climate change mitigation / adaptation; The highway network, traffic management, sustainable transport and disabled people's access; Protection of environmental assets and the potential for their enhancement; and Provision of Green Infrastructure including open space.
- **SD10 - Biodiversity and Geodiversity** - The Policy states that the biodiversity and geological resource of the JCS area will be protected and enhanced in order to establish and reinforce ecological networks that are resilient to current and future pressures. The Policy also requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.
- In addition, the Plan proposes to monitor the number of AQMQs in the area with the aim of reducing the number of areas designated.

- 3.26 The screening identified that the Cotswold Beechwoods SAC is potentially at risk from the impacts of JCS alone through increased short range and diffuse atmospheric pollution. The A46 is within 200m of the site and there are three large urban extensions proposed in the JCS that could potentially result in a significant increase in traffic along the A46. It is considered that mitigation provided through plan policies should ensure that there are no significant increases in traffic along the A46 and that any impacts on air quality are minimised; however, there is still some uncertainty with regard to the potential increase of traffic along the A46.
- 3.27 Given the uncertainty outlined above, atmospheric pollution (short range and diffuse) will be carried forward into the AA to be considered in further detail with regard to the Cotswold Beechwoods SAC.

Disturbance

- 3.28 The screening considered that the Pre-Submission Draft JCS is unlikely to have significant effects alone or in-combination on all European sites (except for one) with regard to increased disturbance. All but two of the European sites are located outside of the JCS area and many are located well over 6 km away from the boundary. Therefore, in most cases increased recreational activity and noise and light pollution were considered to be unlikely to have significant effects. Where risks

were identified in terms of the existence of environmental pathways and particular vulnerabilities to disturbance, it was considered that the mitigation provided in the Pre-Submission Draft JCS policies was sufficient to address the potential adverse impacts. These include:

- **SD10 - Biodiversity and Geodiversity** - states that the biodiversity and geological resource of the JCS area will be protected and enhanced in order to establish and reinforce ecological networks that are resilient to current and future pressures. The Policy also requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.
- **SD15 - Health and Environmental Quality** - seeks high quality development that results in no unacceptable levels of air, noise, water, light, soil pollution or odour, either alone or cumulatively. Avoids any adverse impact from artificial light on intrinsically dark landscapes.
- **INF4 - Green Infrastructure** - development is required to conserve and enhance Green Infrastructure (GI) assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. Development proposals should consider and contribute positively towards green infrastructure, including the wider landscape context and strategic corridors between major assets and populations. Where new residential development will create, or add to, a need for publicly accessible green space or outdoor space for sports and recreation, this will be fully met in accordance with Policy INF5.
- **INF5 - Social and Community Infrastructure** - Where new residential development will create, or add to, a need for community facilities, it will be fully met as on-site provision and/or as a contribution to facilities or services off-site.
- **INF7 - Infrastructure Delivery** - The Policy requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or off-site infrastructure and services. This includes community facilities, the protection of environmental assets and the potential for their enhancement and provision of Green Infrastructure including open space.

3.29 The screening concluded that despite the mitigation provided by the JCS policies, there is uncertainty as to whether the Plan alone and in combination is likely to have significant effects on the Cotswold Beechwoods SAC through increased disturbance. As a result, increased disturbance has been carried forward to the AA for further consideration with regard to the Cotswold Beechwoods SAC.

Water Levels & Quality

3.30 The screening considered that the Pre-Submission Draft JCS is unlikely to have significant effects alone on the European sites through

reduced water levels and quality. The JCS area is characterised by a large number of water courses and has significant issues with flooding. It was found that where environmental pathways existed and European sites were sensitive /vulnerable to changes in water levels and/or quality, mitigation provided by the JCS Policies and current regulatory processes (EA Review of Consents) are sufficient to address the potential significant effects of the plan alone. In particular, specific mitigation for water quality is provided by Policy SD4 (Sustainable Design and Construction), which requires proposals to demonstrate that development is designed to use water efficiently, will not adversely affect water quality and will not hinder the ability of a water body to meet the requirements of the Water Framework Directive. Policy SD15 (Health and Environmental Quality) protects and seeks improvements to environmental quality by requiring development to not result in unacceptable levels of water pollution, either alone or cumulatively, with respect to relevant national and EU limit values. Furthermore, Policy SD10 requires that any development that has the potential to have a significant impact on a European or International site will be subject to HRA.

- 3.31 The screening could not rule out the potential for in-combination effects on European sites through reduced water quality and levels. Therefore this has been carried forward to be considered in more detail through the AA.

Habitat Loss & Fragmentation

- 3.32 The screening concluded that the Pre-Submission Draft JCS would not lead to the direct loss of designated habitat as there is no development proposed within or adjacent to a European site. The plan focuses development in and around the existing urban areas. The screening identified that there was the potential for the loss and fragmentation of non designated habitats supporting mobile species designated under the Severn Estuary SAC.
- 3.33 Pre-Submission JCS Policy SD10 seeks to protect and enhance the biodiversity and geological resource of the JCS area in order to establish and reinforce ecological networks that are resilient to current and future pressures. The Policy ensures that European Protected Species are safeguarded in accordance with the law and requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.
- 3.34 Policy INF4 (Green Infrastructure) requires development to conserve and enhance Green Infrastructure (GI) assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. Development proposals should consider and contribute positively towards green infrastructure, including the wider landscape context and strategic corridors between major assets and populations. Existing green infrastructure will be protected in a manner that reflects its

contribution to ecosystem services (including biodiversity, landscape/townscape quality, the historic environment, public access, recreation and play) and the connectivity of the green infrastructure network. Development proposals that will have an impact on woodlands, hedges and trees will need to include a justification for why this impact cannot be avoided and should incorporate measures acceptable to the local planning authority to mitigate the loss. Mitigation should be provided on-site or, where this is not possible, in the immediate environs of the site.

- 3.35 It is considered that the mitigation provided by Policy SD10 in addition to Policy INF4 is sufficient to address the potential for likely significant effects either alone or in-combination on the Severn Estuary SAC.

Further Assessment Required

- 3.36 The screening assessment identified uncertainty with regard to the potential for significant effects on seven European sites as a result of changes to air quality, increased disturbance; changes to water levels and/ or water quality. Based on the precautionary approach these issues will be considered in more detail through AA.

4.0 APPROPRIATE ASSESSMENT

- 4.1 This section addresses Stage 2 (Appropriate Assessment) of the HRA process, which considers if the likely significant effects on European Sites identified through the first Screening Stage (Section 3) have the potential to adversely affect European site integrity.
- 4.2 The screening of the Pre-Submission Draft JCS (Appendix III & IV) and the review of plans and programmes 'in-combination' work (Appendix II) undertaken at the screening stage identified (Section 3) three main areas of impact arising that may have a significant effect on the identified European sites: air quality; disturbance; and water levels and quality. Each of these issues is investigated further below.

Air Quality

- 4.3 The screening assessment concluded that there is uncertainty with regard to the potential for likely significant effects alone and in combination at the Cotswold Beechwoods SAC through increased atmospheric pollution.

What are the issues arising from the plan?

- 4.4 Development proposed in the Pre-Submission Draft JCS has the potential to increase short range atmospheric pollution both alone and in-combination with development proposed in surrounding areas through increased traffic along the A46. This is mainly due to two large urban extensions outlined in Policy SA1 (Allocations A4 and A6) and development which the Stroud Local Plan makes provision for 2,400 new dwellings and 6,200 jobs. The two urban extensions set out in Policy SA1 are summarised below:
- A4 - North Brockworth - makes provision for 1,550 dwellings.
 - A6 - South Cheltenham Leckhampton makes provision for 1,125 dwellings.
- 4.5 The Pre-Submission Draft JCS also has the potential to increase levels diffuse atmospheric pollution in-combination with other plans and programmes, which will predominantly arise from an increase in traffic, associated with the projected population growth over the life of the plan.

How might the European sites be affected?

- 4.6 Table 4.1 below, identifies the potential impacts of atmospheric pollution on the designated habitats of the Cotswold Beechwoods SAC.

Table 4.1: Impacts of Atmospheric Pollution on Annex I Habitats

Annex I Habitats ⁵	Impacts of Atmospheric Pollution ⁶
Forests and semi-natural dry grassland (Cotswold Beechwoods SAC)	
<p>Annex I habitats primary reason for selection:</p> <ul style="list-style-type: none"> ■ <i>Asperulo-Fagetum</i> beech forests <p>Annex I habitats qualifying feature:</p> <ul style="list-style-type: none"> ■ Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) 	<p>Forests</p> <p>Nitrogen Deposition - Woodlands and forests scavenge air pollutants effectively, with the result that inputs of nitrogen deposition to woodlands are generally larger than for other habitat types. There has been a long-running debate regarding the extent to which actual "forest decline" occurs as a result of nitrogen deposition. What is clear is that the most sensitive elements are actually the woodland ground flora and epiphyte communities, which are particularly relevant in defining conservation status. Changes in forest ground flora have been clearly documented as a result of enhanced N deposition near farms and are also expected to occur in regions with high wet deposition of ammonium and nitrate.</p> <p>Acid Deposition - Deposition of acidifying air pollutants is primarily seen as affecting the soils of woodland habitats, where effective inputs of sulphuric and nitric acids lead to leaching of the soil. The resulting soil acidification can lead to mobilisation of naturally occurring aluminium in the soil, which may have toxic effects on plant roots, leading to problems of tree health. Acidification also has the potential to reduce tree growth.</p> <p>Ozone - The impacts of ozone on forests are predicted to be widespread in the UK, due to the exceedance of the critical level for forests. The expected impacts include reduction in growth, as well as possibly changes in ground flora and epiphyte species composition. The latter is an area where there is a serious gap in information.</p> <p>Heavy Metals - Heavy metals (especially lead, cadmium, copper, mercury and zinc) can, at high concentrations, have toxic effects on plants. Symptoms include reduced root growth, and inhibition of various physiological processes including transpiration, respiration and photosynthesis. However large variations in inter-species sensitivity and bioavailability heavy metals must be taken into account when assessing possible effects. Heavy metals can accumulate over a long period in the organic layer and top soil leading to contamination of soil organisms, especially those that play a role in the formation of the soil. Furthermore, acidification of soils causes the mobilisation of these accumulations in the soil where they can be taken up by plant and animal species of the forest ecosystems.</p>
	<p>Semi-natural dry grassland</p> <p>Ozone - Expected effects include the development of ozone tolerant sub-species, which may lead to altered competitive abilities between plants. Studies on both acid and calcareous grasslands showed an increased ageing in plants subject to higher levels of ozone. Species composition changes were also observed in some</p>

⁵ JNCC - Annex I Habitat Accounts: http://www.jncc.gov.uk/ProtectedSites/SACselection/SAC_habitats.asp

⁶ APIS - Impacts by Ecosystem: <http://www.apis.ac.uk/>

Annex I Habitats ⁵	Impacts of Atmospheric Pollution ⁶
	<p>studies. Where they have been studied, lowland and upland hay meadows (neutral grassland types) have not been demonstrated to be sensitive to ozone. However, both lowland and upland acid grasslands are sensitive to ozone particularly at the community level. Studies on calcareous grasslands have shown a reduction in plant growth. Ozone also affects agricultural grassland.</p> <p>Nitrogen (N) deposition is of particular concern for semi-natural grasslands that are not fertilised. In these situations, plant species composition is adapted to nutrient-poor conditions, with low productivity. Enhanced nitrogen supply from atmospheric deposition tends to favour the growth of some grasses at the expense of other herbs, bryophytes and lichens, which may be of more conservation interest. Studies on acid grasslands across the UK and Europe showed a decline in species richness caused mainly by increasing N deposition. Management regimes may obscure or modify some of the relationships between atmospheric deposition and habitat change. Intensive management can offset higher N inputs to a certain extent from high N inputs and by removal through grazing, mowing or harvesting.</p> <p>Acid deposition - Critical loads are estimated for the effects of acid deposition on to grasslands, depending on soil type. Most at risk are grasslands which are already moderately acidic, while base-rich calcareous grasslands are resistant to acid deposition, due to a high weathering potential. A particular concern is where small base-rich areas occur in otherwise acid grasslands, as it has been suggested that these, and the associated species communities, may be rather sensitive to acid inputs.</p>

Air Quality - What is the current situation?

- 4.7 The Air Pollution in the UK 2012 Report (Defra, 2013) indicates that during the period between 1990 – 2012, most of the monitored pollutants ambient concentrations had decreased. These include SO₂; NO₂; PM₁₀; CO; O₃; and metallic pollutants.
- 4.8 Local Authorities are required to carry out regular review and assessments of air quality in their area and take action to improve air quality when the objectives set out in regulation cannot be met by the specified dates. Within the JCS area National Air Quality Objectives for nitrogen dioxide (NO₂) are being exceeded in five areas. In Gloucester, three Air Quality Management Areas (AQMA) have been designated at Barton Street, Priory Road and Painswick Road⁷. There are also AQMA in Tewkesbury⁸ and Cheltenham⁹, which were

⁷ Gloucester City Council (2013) Gloucester City Council Website - Air Quality:

<http://www.gloucester.gov.uk/LGNL/Communityandliving/Pollution/Pollutioncontrol-airquality/EnvironmentalHealth-AirQualityinGloucester.aspx> [accessed October 2013]

⁸ Tewkesbury Borough Council (2013) Tewkesbury Borough Council Website - Air Quality:

<http://tewkesbury.gov.uk/index.aspx?articleid=1929> [accessed October 2013]

⁹ Cheltenham Borough Council (2013) Cheltenham Borough Council - Air Quality:

http://www.cheltenham.gov.uk/info/200075/pollution/288/air_quality [accessed October 2013]

designated in 2008. Cheltenham's AQMA was updated in 2011 to include the whole of the Borough. Emissions from transport (road and other types) are the main source in 97% of the AQMAs declared for NO₂; only a few have been declared as a result of other sources, such as industrial or domestic emissions¹⁰.

- 4.9 The Air Pollution Information System (APIS) provides critical loads for acidity and nitrogen for each designated feature within every SAC and SPA in the UK; however this information is based on predictive modeling rather than from real monitoring data taken at the sites themselves. The different environmental conditions at each European site mean that the sensitivity of qualifying features to atmospheric pollution can vary between European sites. The APIS identified that critical loads for nitrogen are being exceeded for both the beech forest (≈ 39 kg N/ha/yr) and for grassland (≈ 21 kg N/ha/yr) at the site¹¹. The figure recorded for the beech wood is approximately double the maximum of its critical load and for grasslands it is above its minimum but below its maximum critical load. However, the critical loads for acid deposition are not being exceeded at the site for either habitat¹².

Is there potential for adverse effects on the integrity of European sites alone?

- 4.10 It was noted in the screening that both the beech woods and grasslands are sensitive to atmospheric pollution. Approximately about 10% of the Cotswold Beechwoods SAC is within 200m of the A46. Development proposed through the Pre-Submission Draft JCS (Allocations A4 and A6,) has the potential to increase traffic alone on the A46.
- 4.11 Determining the significance of this impact in relation to the integrity of European sites is extremely complex. The sensitivity of European sites to atmospheric pollutants is dependent on a range of factors including the types of habitat present and the environmental conditions at each site. This means the sensitivity of each European site is different, even if they have the same designated features. Determining the critical loads for sites (habitats) and assessing the effect of atmospheric pollution is most appropriately carried out at a site specific level. The information available on APIS indicates the qualifying features are sensitive to atmospheric pollution and that critical loads for NO_x are being exceeded. However, baseline information indicates that the majority of residents within the JCS area predominantly commute for work between the three main settlements¹³ of Gloucester City, Cheltenham Town and Tewkesbury Town. Therefore, much of the traffic which may

¹⁰ Department for Environment, Food & Rural Affairs (September 2013) Air Pollution in the UK 2012. Online at http://uk-air.defra.gov.uk/library/annualreport/air_pollution_uk_2012_issue_1.pdf [accessed October 2013]

¹¹ Air Pollution Information System (2012) Site Relevant Critical Loads. Online at <http://www.apis.ac.uk/> [accessed October 2013]

¹² Air Pollution Information System (2012) Site Relevant Critical Loads. Online at <http://www.apis.ac.uk/> [accessed October 2013]

¹³ ONS - Area Based Analysis, Commuting Patterns from the Annual Population Survey, Local Authorities, 2010 and 2011

increase on the A46 as a result of certain Allocation Policies is unlikely to travel near to the site as the site is south (approx. between 2 and 5.5km away) of the three main settlements. Therefore, the policies are unlikely to result in a significant increase in traffic on major roads within 200m of the site.

4.12 The Pre-Submission Draft JCS contains policies that seek to minimise the impacts of proposed development on air quality, these include:

- **SP2 - Distribution of Development** - focuses development in and around existing urban areas, which will help to promote and improve sustainable transport and reduce use of the private vehicle.
- **SD15 - Health and Environmental Quality** - the Policy requires that new development must result in no unacceptable levels of air pollution either alone or cumulatively, with respect to national and EU limit values.
- **SD4 - Sustainable Design and Construction** - requires that development proposals will demonstrate how they contribute to the aims of sustainability by increasing energy efficiency, minimising waste and avoiding the unnecessary pollution of air or interference in other natural systems.
- **SD5 - Design Requirements** - requires that new development should be designed to prioritise movement by sustainable transport modes.
- **INF1 - Access to the Transport Network** - requires that all proposals must ensure that connections should be provided where appropriate to existing walking, cycling and passenger transport networks and should be designed to enable and encourage maximum potential use. It also requires that mitigation is put in place to prevent congestion at junctions.
- **INF2 - Safety and Efficiency of the Transport Network** - The Policy requires that development will need to assess its impact on the transport network and where impact on factors including noise and atmospheric pollution are considered to be severe then mitigation will need to be provided to the satisfaction of the Local Planning Authority.
- **INF4 - Green Infrastructure** - development is required to conserve and enhance Green Infrastructure (GI) assets.
- **INF7 - Infrastructure Delivery** - The Policy requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or off-site infrastructure and services. It states that where need for additional infrastructure and services and/or impacts on existing infrastructure and services is expected to arise, the local planning authority will seek to secure appropriate and proportionate infrastructure provision in respect of in particular: Climate change mitigation / adaptation; The highway network, traffic management, sustainable transport and disabled people's access; Protection of environmental assets and the potential for their

enhancement; and Provision of Green Infrastructure including open space.

- **SD10 - Biodiversity and Geodiversity** - The Policy states that the biodiversity and geological resource of the JCS area will be protected and enhanced in order to establish and reinforce ecological networks that are resilient to current and future pressures. The Policy also requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.
- In addition, the Plan proposes to monitor the number of AQMQs in the area with the aim of reducing the number of areas designated.

- 4.13 Furthermore, in order to enable the effective delivery of the Plan, the Councils have developed a detailed monitoring framework that will form the basis of the Council's Monitoring Report (MR). Within the monitoring framework a number of indicators have been identified to collect information on air quality and traffic under the Plan Objectives: 6 - Meeting the Challenges of Climate Change; 7- Promoting Sustainable Transport; and 9 - Promoting Healthy Communities. The results of the MR will feed into ongoing review and adjustment of the JCS and also any other Supplementary Planning Guidance.
- 4.14 While it is unlikely that there would be significant effects on the site as a result of increased atmospheric pollution given the mitigation provided through JCS policies above, there is still an element of uncertainty given the lack of existing information. However, this uncertainty is addressed in the JCS through the further mitigation provided by Policies INF7 (Infrastructure Delivery) and Policy INF8 (Developer Contributions). Policy INF7 requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or off-site infrastructure and services, which includes the protection of environmental assets and the potential for their enhancement.
- 4.15 Policy INF8 provides the mechanism for the delivery of infrastructure through requiring financial contributions from developers. This gives the Council's the ability to secure financial contributions from developers that would go towards the management of the Cotswolds Beechwoods SAC. This is referred to in the supporting text of Policy INF4 (Green Infrastructure) which states that the enhancement of green infrastructure and ecological networks will require existing assets to be retained (where appropriate), improved and better managed, and new features to be created. This could include requiring developer contributions for such provision (for example, a contribution towards the management of the Cotswolds Beechwoods SAC).
- 4.16 Pre-Submission Draft JCS policies seek to protect and enhance designated biodiversity as well as minimise the increase of traffic and pollution. There are also mechanisms in place that require developers to financially contribute towards the protection and enhancement

environmental assets, which includes the Cotswolds Beechwoods SAC. It is considered that the mitigation provided through Pre-Submission Draft JCS policies and available at the project level will address the potential for adverse effects alone on the Cotswolds Beechwoods SAC as a result of increased atmospheric pollution.

Is there potential for adverse effects on the integrity of European sites in-combination?

- 4.17 The following plan/ programmes and projects have the potential to act in-combination with the Pre-Submission Draft JCS as they propose development that will lead increases along the A46 and to cumulative increases in emissions to air over the life of the plan:
- South Worcestershire Development Plan - Submission
 - Gloucestershire County Council Minerals Core Strategy
 - Gloucestershire Waste Core Strategy
 - Gloucestershire County Council Third Local Transport Plan
 - Forest of Dean District Council Core Strategy
 - Cotswold District Council Local Plan Consultation Paper: Preferred Development Strategy (May 2013)
 - Tewkesbury Town Centre Masterplan Strategic Framework Document (July 2012)
 - Stroud Local Plan (Pre-submission 2013)
 - Herefordshire Draft Core Strategy (March 2013)
 - Monmouthshire Local Development Plan (DRAFT JCS) (Focused Changes 2012)
 - Powys Local Plan: Preferred Strategy (2012)
 - Development associated with the decommissioning of Berkeley Power Station
 - Development proposals for Oldbury Power Station
- 4.18 The development proposed by the Pre-Submission Draft JCS through Policy SA1 (Allocations A4 and A6) has the potential to increase traffic on the A46 in-combination with development proposed by other plans and programmes, in particular the Stroud Local Plan. As stated previously, the Stroud Local Plan makes provision for 2,400 new dwellings and 6,200 jobs and also the HRA for the Stroud Local Plan (URS, July 2013) stated that it was unclear about whether the Stroud local Plan would significantly increase traffic on the A46. There is also the potential for in-combination effects through increased diffuse pollution.
- 4.19 Levels of primary pollutants emitted directly into the atmosphere, tend to be highest around their sources; these are usually located in urban and industrial areas. According to the National Atmospheric Emissions Inventory, road transport is now the largest single UK source of NO_x,

accounting for one third of UK emissions¹⁴ although the general trend in background UK ambient concentrations of NO_x is a decreasing one.

- 4.20 As noted above, the National Air Quality Objectives for nitrogen dioxide (NO₂) are being exceeded in five areas, the impacts of which are most relevant close to source. Therefore, the contribution of NO_x beyond the specific areas where development and related infrastructure is located is likely to be negligible. The most acute impacts of NO_x take place close to where they are emitted (generally within 200m of the roadside¹⁵) but these gases also have the potential to contribute to background pollution levels.
- 4.21 It is clear that the development proposed in the Pre-Submission Draft JCS will contribute to background pollution levels in combination with other plans, programmes and projects. There is uncertainty however with regard to the significance of this in combination impact on the European sites. The Pre-Submission Draft JCS alone cannot be expected to mitigate for the in combination effects of increased background pollution on the European sites. To effectively address the issue of air quality across the wider Gloucestershire area and in particular, the effects on European designated sites, a strategic regional approach to air quality management is required.
- 4.22 The mitigation provided by Pre-submission Draft JCS policies is set out earlier in Para 4.12, which includes policies to minimise the impacts of proposed development on traffic and air quality.
- 4.23 The production of the Pre-submission Draft JCS provides an effective mechanism whereby monitoring can occur across a broader area in relation to air quality. However, to properly address the issue of air quality across the wider Gloucestershire area and in particular, the effects on European designated sites, a strategic regional approach to air quality management is required. Although at this stage it is unclear whether this is achievable, the provisions provided by the Planning and Compulsory Purchase Act 2004 (local development) (as amended) with regard to 'Duty to Cooperate' should allow for the sharing of information on air quality and a joined up approach to managing air quality over administrative boundaries.
- 4.24 While it is unlikely that there would be significant effects on the site as a result of increased atmospheric pollution given the mitigation provided through JCS policies above, there is still an element of uncertainty given the lack of existing information. However, this uncertainty is addressed in the JCS through the further mitigation provided by Policies INF7 (Infrastructure Delivery) and Policy INF8 (Developer Contributions). Policy INF7 requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported

¹⁴ National Atmospheric Emissions Inventory (2013) Online at <http://naei.defra.gov.uk/> [accessed October 2013]

¹⁵ Highways Agency (2007) Design Manual for Roads and Bridges: Volume 11, Section 3, Part 1.

by adequate and appropriate on- and/or off-site infrastructure and services, which includes the protection of environmental assets and the potential for their enhancement.

- 4.25 Policy INF8 provides the mechanism for the delivery of infrastructure through requiring financial contributions from developers. This gives the Council's the ability to secure financial contributions from developers that would go towards the management of the Cotswolds Beechwoods SAC. This is referred to in the supporting text of Policy INF4 (Green Infrastructure) which states that the enhancement of green infrastructure and ecological networks will require existing assets to be retained (where appropriate), improved and better managed, and new features to be created. This could include requiring developer contributions for such provision (for example, a contribution towards the management of the Cotswolds Beechwoods SAC).
- 4.26 Pre-Submission Draft JCS policies seek to protect and enhance designated biodiversity as well as minimise the increase of traffic and pollution. There are also mechanisms in place that require developers to financially contribute towards the protection and enhancement environmental assets, which includes the Cotswolds Beechwoods SAC. It is considered that the mitigation provided through Pre-Submission Draft JCS policies and available at the project level will address the potential for adverse effects in-combination on the Cotswolds Beechwoods SAC as a result of increased atmospheric pollution.

Disturbance

- 4.27 The screening assessment concluded that there is uncertainty with regard to the potential for likely significant effects at the Cotswold Beech woods SAC through increased recreational activity.

What are the issues arising from the plan?

- 4.28 The Cotswolds Beechwoods SAC is partly located in the JCS area and Stroud District, with the majority being located within the latter. Around a third of the urban area of Gloucester is located within 5.6 km of the Cotswolds Beechwoods SAC and one urban extension at Brockworth is within 2 km of the SAC. It is anticipated that approximately 7,823 new homes will need to be provided over the JCS period with these distributed across the whole of the existing Gloucester urban area. In addition, approximately 1,550 new homes are anticipated to be provided at the urban extension in Brockworth.

How might the European site be affected?

- 4.29 Increased recreational activity at European sites has the potential to cause disturbance to designated habitats and species through a variety of different pathways. This could include physical disturbance

through trampling of habitats as a result of increased recreation (horse riding, cycling, walkers).

What is the current situation?

- 4.30 The majority of the site is open access land for people on foot. There is also a network of footpaths, as well as bridleways open to horse and bike riders. The Cotswold Way National Trail also passes through the site. The NE Officer responsible for the Cotswold Beech Wood SAC has indicated that the site is at risk from increasing recreational pressure, in particular mountain biking. The Officer stated that the site has high levels of use and as a result there have been an increasing number of tracks being formed which are eroding ground flora.¹⁶

Is there potential for adverse effects on the integrity of European sites alone?

- 4.31 Determining the significance of increased disturbance on European sites is complex and dependent on a variety of factors including the sensitivity of designated features and the level of their exposure to recreational activities. Although, any increase in the number of people within an area is likely to increase recreation on natural open space in close proximity. It is understood that the closer the area of natural open space is to residential development, the more likely it is that the residents will use the area for recreation. However, it is also dependent on the type and the availability of other open space provided within an area.
- 4.32 The Cotswold Beechwoods SAC provides a large area of Beechwood and grassland and it has been recorded that already the site is at risk from increased recreational pressure. However, the NE Officer stated that in terms of maintaining the favourable condition status, the key issue is the site level management of controlling sycamore and deer browsing¹⁷. It was stated that no units were currently in unfavourable status as a result of recreational activity¹⁸.
- 4.33 The Cotswolds Beechwoods SAC is likely to attract visitors from a wide area. Although there is no available information on visitor numbers or where they come from with regard to the SAC, detailed survey has been undertaken in relation to visitor numbers and recreational disturbance for other European sites. The Solent Disturbance and Mitigation Project was one such study, which identified that 75% of visitors to the Solent came from 5.6 km away (based on the survey work

¹⁶ Alastair Peattie (Enfusion) telephone conversation with Paul Hackman (Natural England). 01/08/2013.

¹⁷ Ibid.

¹⁸ Ibid.

undertaken in Phase 2 (measured as the crow flies)¹⁹. Given the level of proposed development proposed within 5.6 km of the Cotswolds Beechwoods SAC there is clearly the potential for increased levels of recreational activity.

4.34 The Pre-Submission Draft JCS contains policies that seek to protect and enhance European sites as well as provide open space and recreational areas, these include:

- **SD10 - Biodiversity and Geodiversity** - states that the biodiversity and geological resource of the JCS area will be protected and enhanced in order to establish and reinforce ecological networks that are resilient to current and future pressures. The Policy also requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.
- **SD15 - Health and Environmental Quality** - seeks high quality development that results in no unacceptable levels of air, noise, water, light, soil pollution or odour, either alone or cumulatively. Avoids any adverse impact from artificial light on intrinsically dark landscapes.
- **INF4 - Green Infrastructure** - development is required to conserve and enhance Green Infrastructure (GI) assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. Development proposals should consider and contribute positively towards green infrastructure, including the wider landscape context and strategic corridors between major assets and populations. Where new residential development will create, or add to, a need for publicly accessible green space or outdoor space for sports and recreation, this will be fully met in accordance with Policy INF5. The supporting text of this policy states that the enhancement of green infrastructure and ecological networks will require existing assets to be retained (where appropriate), improved and better managed, and new features to be created. This could include requiring developer contributions for such provision (for example, a contribution towards the management of the Cotswolds Beechwoods SAC).
- **INF5 - Social and Community Infrastructure** - Where new residential development will create, or add to, a need for community facilities, it will be fully met as on-site provision and/or as a contribution to facilities or services off-site.
- **INF7 - Infrastructure Delivery** - The Policy requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or off-site infrastructure and services. This includes community

¹⁹R. A. Stillman*, A. D. West*, R. T. Clarke* & D. Liley** (February 2012) Solent Disturbance and Mitigation Project Phase II - Predicting the impact of human disturbance on overwintering birds in the Solent. Online at http://www.solentforum.org/forum/sub_groups/Natural_Environment_Group/Disturbance_and_Mitigation_Project/SDMP_Phase2_report_Feb2012.pdf [accessed March 2014]

facilities, the protection of environmental assets and the potential for their enhancement and provision of Green Infrastructure including open space.

- **INF8** - Developer Contributions - provides the mechanism for the delivery of infrastructure through requiring financial contributions from developers.

- 4.35 Pre-Submission Draft JCS policies seek protect and enhance European sites as well as provide open space and areas for recreation. The plan contains a strong policy on Green Infrastructure that requires development to conserve and enhance GI assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. The supporting text of Policy INF4 requires existing GI assets to be retained (where appropriate), improved and better managed, and new features to be created. This includes requiring developer contributions for such provision (for example, a contribution towards the management of the Cotswolds Beechwoods SAC).
- 4.36 Policy INF7 requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or off-site infrastructure and services, which includes the protection of environmental assets and the potential for their enhancement. Policy INF8 provides the mechanism for the delivery of infrastructure through requiring financial contributions from developers. This gives the Council's the ability to secure financial contributions from developers that would go towards the management of the Cotswolds Beechwoods SAC to address any potential increase in recreation.
- 4.37 Whilst there will need to be further detailed discussions between the Council's and NE with regard to financial contributions from developers and the management of the SAC, the mechanisms are in place at a strategic policy level to deliver them. It is therefore considered that the mitigation provided through Pre-Submission Draft JCS policies and available at the project level will address the potential for adverse effects alone on the Cotswolds Beechwoods SAC as a result of increased recreational activity.

Is there potential for adverse effects on the integrity of European sites in-combination?

- 4.38 The following plan and programmes have the potential to act in-combination with the Pre-Submission Draft JCS as they propose development that will lead increases in the population and therefore levels of recreational activity at or near to the European site.
- Cotswold District Council Local Plan Consultation Paper: Preferred Development Strategy (May 2013)
 - Stroud Local Plan (Pre-submission 2013)

- 4.39 The mitigation provided by Pre-Submission Draft JCS policies is set out earlier in Para 4.34, which includes policies to protect and enhance European sites as well as provide open space, recreational areas and GI.
- 4.40 Pre-Submission Draft JCS policies seek protect and enhance European sites as well as provide open space and areas for recreation. The plan contains a strong policy on Green Infrastructure that requires development to conserve and enhance GI assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. The supporting text of Policy INF4 requires existing GI assets to be retained (where appropriate), improved and better managed, and new features to be created. This includes requiring developer contributions for such provision (for example, a contribution towards the management of the Cotswolds Beechwoods SAC).
- 4.41 Policy INF7 requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or off-site infrastructure and services, which includes the protection of environmental assets and the potential for their enhancement. Policy INF8 provides the mechanism for the delivery of infrastructure through requiring financial contributions from developers. This gives the Council's the ability to secure financial contributions from developers that would go towards the management of the Cotswolds Beechwoods SAC to address any potential increase in recreation.
- 4.42 Whilst there will need to be further detailed discussions between the Council's and NE with regard to financial contributions from developers and the management of the SAC, the mechanisms are in place at a strategic policy level to deliver them. It is therefore considered that the mitigation provided through Pre-Submission Draft JCS policies and available at the project level will address the potential for adverse in-combination effects on the Cotswolds Beechwoods SAC as a result of increased recreational activity.

Water Levels & Quality

- 4.43 The screening assessment concluded that there is uncertainty with regard to the potential for likely significant in-combination effects on the Severn Estuary SAC/ SPA/ Ramsar and Walmore Common SPA/ Ramsar through reduced water levels and quality. It also concluded that there is uncertainty with regard to the potential for likely significant in-combination effects at the River Usk SAC, Cotswolds Beechwoods SAC, the River Wye SAC and Lyppard Grange Ponds SAC through reduced water levels.

What are the issues arising from the plan?

- 4.44 Development proposed in the Pre-Submission Draft JCS has the potential to act in-combination with development proposed in surrounding areas through increased levels of abstraction to provide water supply. There is also the potential for the JCS to act in combination with other plans and programmes to increase pressure on sewerage capacity and levels of surface water run-off.

How might the European sites be affected?

- 4.45 Increased abstraction in the Severn Water resource Zone has the potential to lead to reduced water levels, which can have adverse effects on the integrity of water dependent European sites. Changes to water levels can impact river flow and water quality, which can adversely affect water dependent habitats and the species that rely upon them. Increased discharges (consented) and surface water run-off (which can transfer pollutants to water bodies) has the potential to result in reduced water quality in the River Severn, which flows into the Severn Estuary SAC/ SPA/ Ramsar and adjacent to the Walmore Common SPA/ Ramsar. Woodland habitats are considered to be sensitive to changes in water levels.

Water Levels and Quality - What is the current situation?

Water levels

- 4.46 Water resources for domestic supply within the region are scarce, Catchment Abstraction Management Strategies (CAMS) produced by the Environment Agency show that the majority of surface and groundwater sources in the JCS area are either being over-abstracted or have no water available for further abstractions. Severn Trent Water (STW) has produced a Water Resource Management Plan (WRMP) that outlines a 25 year strategy for managing water resources across the supply area. The WRMP identifies six water resource zones (WRZs) within the supply area. The JCS area is contained within the Severn WRZ. The WRMP predicts a net increase of approximately 31 Megalitres/day (MI/d) in water consumption from 2006 - 2035 in the Severn WRZ. The supply/demand balance for the zone became negative in 2006/2007. The current projected supply/demand shortfall is around 120MI/d by 2035, taking into account the effects of climate change. This shortfall will arise if no further investment was made to leakage reduction, demand management and resource development. The WRMP outlines investment proposals to maintain the target headroom required to ensure security of supply to customers over the next 25 years. Sustainable and efficient use of available water resources will be required and in the long term there will be a need for more water resources and treatment capacity to meet the supply/demand balance.

Water Quality

- 4.47 The River Severn flows through the JCS area to the west of Tewkesbury and Gloucester. The JCS area lies within the Sever River Basin, which was assessed as having 29% of surface waters meet 'good' status or better and 71% do not meet 'good' status (621 water bodies). Of the groundwater bodies present in the river basin district 75% are at good status with the rest being poor status. It is predicted that by 2015, 17 per cent of surface waters - 152 water bodies - will show improvements and that 34 per cent will have at least good ecological status/potential and 43 per cent of assessed surface waters will be in at least good biological status²⁰.
- 4.48 The JCS area is within the Severn Catchment Abstraction Management Strategy area, which has very good ecological quality throughout reaches. There is risk associated with oxygen levels in Severn Estuary: if freshwater input not sufficient during high tide (due to suspended solids and organic matter) this can lead to depletion in oxygen levels which could lead to fish kills.
- 4.49 In addition, flooding of an area can reduce water quality. Flood risk is a particular issue for the JCS area, with flood zones along the Rivers Severn and Avon and their tributaries influencing much of the sub-region (Figure 3.1). Fluvial flood risk is a particular issue at Tewkesbury, where the Rivers Severn and Avon meet as the topography is flat and the underlying bedrock largely impermeable. During high flows there is substantial risk of these rivers flooding local areas, such as the major flood event that occurred in July 2007. Given the lowland setting of the JCS area, an increase in flood extent is expected, but flood waters might also be deeper. This means that the flood hazard is likely to increase over time, creating increased risk to humans, more damage to property and higher economic damages²¹.

Which other plans/ projects could lead to in-combination effects?

- 4.50 The following plans/ programmes and projects have the potential to act in-combination with the Draft JCS as they propose development that has the potential to result in cumulative effects on water levels and quality:
- Severn Trent Water Resources Management Plan
 - Our draft Water Resources Management Plan 2015-2040 – Thames Water
 - Welsh Water's Final Water Resource Management Plan
 - Severn Estuary River Basin Management Plan
 - Relevant Catchment Flood Management Plans & Catchment Abstraction Management Strategies (EA)
 - Severn Estuary Flood Risk Management Strategy (EA)
 - South Worcestershire Development Plan - Submission
 - Gloucestershire County Council Minerals Core Strategy

²⁰ Environment Agency (2009) Severn River Basin Management Plan

²¹ Gloucester City Council Strategic Flood Risk Assessment for Local Development Framework Level 1 Volume 1 - FINAL September 2008

- Gloucestershire Waste Core Strategy
- Gloucestershire County Council Third Local Transport Plan
- Forest of Dean District Council Core Strategy
- Cotswold District Council Local Plan Consultation Paper: Preferred Development Strategy (May 2013)
- Tewkesbury Town Centre Masterplan Strategic Framework Document (July 2012)
- Stroud Local Plan (Pre-submission 2013)
- Herefordshire Draft Core Strategy (March 2013)
- Monmouthshire Local Development Plan (DRAFT JCS) (Focused Changes 2012)
- Powys Local Plan: Preferred Strategy (2012)
- Development associated with the decommissioning of Berkeley Power Station
- Development proposals for Oldbury Power Station

Is there potential for adverse effects on the integrity of European sites?

- 4.51 All of the identified European sites are sensitive to changes in water levels and/ or quality, in particular European sites with water dependent interest features. Sufficient levels of freshwater inputs are important to the designated species and habitats. Development proposed in the Draft JCS and other plan/ programmes in surrounding areas will increase abstraction levels which have the potential to result in reduced water levels. Development could increase pressure on sewerage capacity and increase levels of surface water run-off, which can result in reduced water quality. Effluent discharges can contain contaminants which build up in the food chain and can have toxic effects on organisms. They can also contain non-toxic contaminants, such as oxygen-depleting substances and nutrients. Eutrophication of water based habitats can lead to the excessive growth of planktonic or benthic algae, which is caused by increased nutrient inputs originating from sewage or agricultural run-off. Water quality is an important factor in maintaining the plant and animal communities, which support the important bird populations by providing feeding, nesting and roosting areas.
- 4.52 Any applications for new abstraction licences are assessed by the Environment Agency (EA) (through the Habitats Directive led, Review of Consents [RoC] process) to ensure that adverse impacts on internationally important nature conservation sites do not occur. If the assessment of a new application shows that it could have an impact on a European site the EA follows strict rules in setting a time limit for that license. This ensures that water levels at European sites do not fall below critical levels. The EA also has a duty to assess the effects of consented discharges to address the potential for impacts on internationally important nature conservation sites. This regulated process serves to protect European sites.

- 4.53 Even with the regulatory processes in place to protect European sites, the Councils should seek to ensure that Pre-Submission Draft JCS policies address water quality and resource issues and put robust policy measures in place to provide mitigation. The JCS contains policies that seek to minimise the impacts of proposed development on the water environment.
- 4.54 Policy SD4 (Sustainable Design and Construction) requires proposals to demonstrate that development is designed to use water efficiently, will not adversely affect water quality and will not hinder the ability of a water body to meet the requirements of the Water Framework Directive. Policy SD15 (Health and Environmental Quality) protects and seeks improvements to environmental quality by requiring development to not result in unacceptable levels of water pollution, either alone or cumulatively, with respect to relevant national and EU limit values. Furthermore, Policy SD10 requires that any development that has the potential to have a significant impact on a European or International site will be subject to HRA.
- 4.55 It should also be noted that it was identified that the 'Our draft Water Resources Management Plan 2015-2040 ' for Thames Water sets out to fix of leaking pipes, to reduce demand and generate initiatives to re-use waste water which could have the potential to reduce water abstraction.
- 4.56 It should also be acknowledged that Cheltenham, Gloucester and Tewkesbury have produced an Infrastructure Delivery Plan which forms part of the evidence base for the JCS. This evaluated, amongst other factors, water resources, flooding and waste water management, that will be required to support the levels of housing and employment growth proposed through the Pre-Submission Draft JCS. The plan seeks to identify what local infrastructure requirements and priorities may be and whether there is a reasonable prospect of provision of the necessary infrastructure including identifying appropriate mitigation.
- 4.57 It is recommended that Policy S2 is strengthened to recognise the interconnectedness of all elements of the water environment rather than just considering flood risk. Also development, in particular large scale development, should contribute to meeting with the objectives of the EU Water Framework Directive in line with the Severn River Basin Management Plan.
- 4.58 In addition to the Infrastructure Development Plan, it is recommended that a water cycle study is carried out to fully assess the impacts of the plan on the water environment as a whole in combination with other plans and programmes. This was a recommendation also advocated by the Environment Agency with regard to comments made on the Cheltenham, Tewkesbury and Gloucester Joint Core Strategy: Developing the Preferred Option consultation (2011). This would improve the current baseline which would provide further evidence to demonstrate that there are unlikely to be any significant effects with

regard to water levels and quality.

- 4.59 Given the mitigation provided by Pre-submission Draft JCS Policies, current regulatory processes (EA Review of Consents) and taking into account the recommendations above, it is assessed that the Pre-Submission Draft JCS will not have adverse in-combination effects on the integrity of the identified European sites through reduced water levels or water quality.

5.0 HRA CONCLUSIONS

- 5.1 This report outlines the methods used and the findings arising from the HRA for the Pre-Submission Draft JCS for Gloucester City, Cheltenham Borough and Tewkesbury Borough Councils. The HRA of the Pre-Submission Draft JCS has been undertaken in accordance with available guidance and good practice and has been informed by the previous HRA screening work and findings produced for earlier iterations of the JCS, as well as advice received from Natural England and Countryside Council for Wales (now Natural Resources Wales).

HRA Screening

- 5.2 The first stage of the HRA process (screening) considered the likely significant effects on fourteen European sites within the influence the JCS. The screening process considered the potential impacts arising as a result of the policies and whether these have the potential to lead to likely significant effects (LSE). The screening identified five Pre-Submission Draft JCS Policies for which the impacts could potentially lead to significant effects alone. The six Pre-Submission Draft JCS Policies and their potential impacts were then screened against each of the European sites scoped into the HRA. This included consideration of the environmental pathways and sensitivities of the sites, as well as mitigation provided by Policies. The further screening found that for the majority of the European sites, there were unlikely to be any significant effects alone as a result of the Pre-Submission Draft JCS. However, uncertainty was identified with regard to short range and diffuse atmospheric pollution impacts as well as recreational impacts both alone and in-combination on the Cotswold Beechwoods SAC. Furthermore, the screening also identified uncertainty with regard to the potential for significant in-combination effects on six European sites as a result of changes to water levels and/ or as a result of changes to water quality. Based on the precautionary approach these uncertain issues were considered in more detail through AA.

HRA Appropriate Assessment (AA)

- 5.3 The AA considered the potential for the Pre-Submission Draft JCS to have adverse effects on the integrity of identified European sites in combination with other plan/ programs and projects through changes to air quality, increased disturbance (recreational activity) and reduced water levels and quality. It also considered the potential for adverse effects alone with regard to air quality and disturbance on the Cotswold Beechwoods SAC.

Air Quality

- 5.4 The AA found that while it is unlikely that there would be significant effects on the Cotswolds Beechwoods SAC as a result of increased atmospheric pollution (both alone and in-combination) given the mitigation provided through JCS policies above, there is still an

element of uncertainty given the lack of existing information. However, it was concluded that this uncertainty is addressed in the JCS through the further mitigation provided by Policies INF7 (Infrastructure Delivery) and Policy INF8 (Developer Contributions). These policies provide a mechanism to require financially contribute from developers towards the protection and enhancement environmental assets, which includes the Cotswolds Beechwoods SAC. It was therefore concluded that the mitigation provided through Pre-Submission Draft JCS policies and available at the project level will address the potential for adverse effects both alone and in-combination on the Cotswolds Beechwoods SAC as a result of increased atmospheric pollution.

Disturbance

- 5.5 The AA considered that determining the significance of increased disturbance on European sites is complex and dependent on a variety of factors including the sensitivity of designated features and the level of their exposure to recreational activities. Pre-Submission Draft JCS policies seek protect and enhance European sites as well as provide open space and areas for recreation. The plan contains strong policies on Green Infrastructure that require development to conserve and enhance GI assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. It also requires existing GI assets to be retained (where appropriate), improved and better managed, and new features to be created. This includes requiring developer contributions for such provision (for example, a contribution towards the management of the Cotswolds Beechwoods SAC). Policies INF7 and INF8 gives the Council's the ability to secure financial contributions from developers that would go towards the management of the Cotswolds Beechwoods SAC to address any potential increase in recreation.
- 5.6 Whilst there will need to be further detailed discussions between the Council's and NE with regard to financial contributions from developers and the management of the SAC, the mechanisms are in place at a strategic policy level to deliver them. It was therefore concluded that the mitigation provided through Pre-Submission Draft JCS policies and available at the project level will address the potential for adverse in-combination effects on the Cotswolds Beechwoods SAC as a result of increased recreational activity.

Water Levels and Quality

- 5.7 The AA assessed that the mitigation provided by Pre-Submission Draft JCS Policies and current regulatory processes (EA Review of Consents) would ensure that the potential impacts of proposed development on the water environment would be minimised. In addition one recommendation was made to improve the current baseline to provide further evidence to demonstrate that there are unlikely to be any significant effects with regard to water levels and quality:

- In addition to the Infrastructure Development Plan, it recommended that a water cycle study is carried out to fully assess the impacts of the plan on the water environment as a whole in combination with other plans and programmes.

5.8 Given the mitigation provided by Draft JCS Policies, current regulatory processes (EA Review of Consents) and taking into account the recommendations above, it is assessed that the Pre-Submission Draft JCS will not have adverse in-combination effects on the integrity of the identified European sites through reduced water levels or water quality.

Consultation and Further Work

- 5.9 These findings will be subject to further consultation comments and advice from NE and wider stakeholders. HRA is an iterative process and further work will be undertaken alongside the JCS to inform its development.
- 5.10 The findings of this plan level HRA do not obviate the need to undertake HRA for lower level, project scale/ implementation plans where there is potential for significant effect on one or more European sites. The findings of this HRA should be used to inform any future assessment work.

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