UE ASSOCIATES

HABITATS REGULATIONS ASSESSMENT OF THE BLACK COUNTRY JOINT CORE STRATEGY

Appropriate Assessment

June 2010

Habitats Regulations Assessment of the Black Country Joint Core Strategy

Appropriate Assessment Report

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Abbreviations

AA	Appropriate Assessment	NO_X	Oxides of Nitrogen
AONB	Area of Outstanding Natural Beauty	ODPM	Office of the Deputy Prime Minister (now disbanded)
BAT	Best Available Technique	PINS	Planning Inspectorate
BC	Black Country	PPS	Planning Policy Statement
BCA	Black Country Authorities	RoC	Review of Consents
CCW	Countryside Council for Wales	RSS	Regional Spatial Strategy
cSAC	Candidate Special Area of Conservation	SAC	Special Area of Conservation
DCLG	Department of Communities and Local Government	SANGS	Suitable Alternative Natural Green Space
DEFRA	Department of Environment, Food and Rural Affairs	SPA	Special Protection Area
DPD	Development Plan Document	SSSI	Site of Special Scientific Interest
EA	Environment Agency	SSW	South Staffordshire water
EIG	Environmental Infrastructure Guidance	ST	Severn Trent
HRA	Habitats Regulations Assessment	UNESCO	United Nations Educational, Scientific and Cultural Organisation
IROPI	Imperative Reasons of Overriding Public Interest	WCS	Water Cycle Study
JCS	Joint Core Strategy	WFD	Water Framework Directive
LDD	Local Development Document	WMRSS	West Midlands Regional Spatial Strategy
LPA	Local Planning Authority	WRMP	Water Resource Management Plan
LTP	Local Transport Plan	WRZ	Water Resource Zone
		WwTWs	Wastewater Treatment Works

Executive Summary

E1.1 Background

This report presents the findings and recommendations of the Habitats Regulations Assessment for the Black Country Joint Core Strategy. It follows a screening exercise (UE Associates, 2010).

E1.2 Scope

The HRA screening exercise for the Joint Core Strategy identified the following European sites for consideration:

- Cannock Chase SAC;
- Humber Estuary cSAC;
- Humber Estuary SPA;
- Humber Estuary Ramsar;
- Severn Estuary cSAC;
- Severn Estuary SPA; and
- Severn Estuary Ramsar.

The following sites were screened out from further consideration, largely due to their distance from the Black Country boundaries or because they were not thought to be significantly affected by the Joint Core Strategy policies (BCA, November, 2009), and are not considered further during the assessment:

- Cannock Extension Canal SAC;
- Fens Pools SAC;
- Midland Meres and Mosses (Phases 1 and 2) Ramsar;
- Mottey Meadows SAC;
- Pasturefields Salt Marsh SAC;
- Peak District Dales SAC;
- Peak District Moors (South Pennine Moors Phase 1) SPA;
- River Mease SAC;
- South Pennine Moors SAC;
- South Pennine Moors Phase 2 SPA; and

- West Midlands Mosses SAC.

The likely significant effects identified during the screening exercise were:

- Air pollution;
- Recreational pressure and disturbance;
- Water quality; and
- Water supply.

E1.3 Findings and Recommendations

As a result of the assessment and recommendations it is considered that **all negative effects of the JCS in relation to the conservation objectives of Cannock Chase SAC,** Humber Estuary cSAC/SPA/Ramsar, and Severn Estuary cSAC/SPA/Ramsar **can be overcome** by pursuing these actions and undertaking comprehensive HRA of all future spatial development DPDs for the BC. The plan does not require further assessment in combination with effects of other plans and projects, provided the avoidance and mitigation measures are adopted and implemented successfully.

1 Introduction

1.1 Background

This report presents the findings and recommendations of the Habitats Regulations Assessment (HRA) for the Black Country Joint Core Strategy (JCS) Development Plan Document, revisited following new evidence presented by a consortium of planning authorities in Staffordshire in connection with Cannock Chase Special Area of Conservation (SAC), and via the Black Country Water Cycle Study (Scott Wilson, 2009). This report is informed by a screening exercise prepared by UE Associates (2010) and is the culmination of a series of iterative HRA screening assessments of the plan, published during 2007-2008.

The assessment focuses on:

- Cannock Chase SAC;
- Humber Estuary cSAC, SPA and Ramsar; and
- Severn Estuary cSAC, SPA and Ramsar.

1.2 Habitats Regulations Assessment

The application of Habitats Regulations Assessment to land use plans is a requirement of the Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations), the UK's transposition of European Union Directive 92/43/EEC *on the conservation of natural habitats and of wild fauna and flora* (the Habitats Directive). HRA must be applied to all Local Development Documents (LDD) in England and Wales and aims to assess the potential effects of a land use plan against the conservation objectives of any sites designated for their nature conservation importance as part of a system known collectively as the Natura 2000 network of European sites.

European sites provide ecological infrastructure for the protection of rare, endangered or vulnerable natural habitats and species of exceptional importance within the European Union. These sites consist of Special Areas of Conservation (SACs, designated under the Habitats Directive) and Special Protection Areas (SPAs, designated under European Union Directive 2009/147/EC *on the conservation of wild birds* (the Birds Directive)). Meanwhile, Government policy (PPS9 (ODPM, 2005a) and Circular 06/05 (ODPM, 2005b)) recommends that Ramsar sites (UNESCO, 1971) are treated as if they are fully designated European sites for the purposes of considering development proposals that may affect them.

Under Regulation 102 of the Habitats Regulations, the assessment must determine whether or not a plan will adversely affect the integrity of the European site(s) concerned. The process is characterised by the precautionary principle. The European Commission (2001) describes the principle as follows:

> *If a preliminary scientific evaluation shows that there are reasonable grounds for concern that a particular activity might lead to damaging effects on the environment, or on human, animal or plant health, which would be inconsistent with the protection normally afforded to these within the European Community, the Precautionary Principle is triggered.*
>
> *Decision-makers then have to determine what action to take. They should take account of the potential consequences of taking no action, the uncertainties inherent in the scientific evaluation, and they should consult interested parties on the possible ways of managing the risk. Measures should be proportionate to the level of risk, and to the desired level of protection. They should be provisional in nature pending the availability of more reliable scientific data.*
>
> *Action is then undertaken to obtain further information enabling a more objective assessment of the risk. The measures taken to manage the risk should be maintained so long as the scientific information remains inconclusive and the risk unacceptable.*

The hierarchy of intervention is important: where effects on ecological integrity are identified, plan makers must firstly seek to avoid the effect through for example, a change to policy wording. If this is not possible, mitigation measures should be explored to remove or reduce the significant effect. If neither avoidance, nor subsequently, mitigation is possible, alternatives to the plan should be considered. Such alternatives should explore ways of achieving the plan's objectives that avoid significant effects entirely. If there are no alternatives to removing the adverse effect, plan-makers must demonstrate, under the conditions of Regulation 103 of the Habitats Regulations, that there are Imperative Reasons of Overriding Public Interest (IROPI) to continue with the proposal. This is widely perceived as an undesirable position and should be avoided if at all possible. ODPM/Defra Circular 06/05 notes that:

> *Different tests apply depending on whether the site hosts a priority natural habitat type or species. If the site does not host a priority natural habitat type or species, planning permission can be granted if the proposed development has to be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. Such reasons would need to be sufficient to override the harm to the ecological importance of the designation. If the site hosts a priority habitat or species, and there is no alternative solution, the only considerations which can justify the grant of planning permission are (a) those which relate to human health, public safety, or beneficial consequences of primary importance to the environment or (b) other imperative reasons of overriding public interest agreed by the European Commission. The Government may obtain the opinion of the European Commission as to whether any particular reasons may be considered imperative and overriding in the public interest.*

1.3 Guidance and Best Practice

Guidance on Habitats Regulations Assessment has been published in draft form by the Government (Department for Communities and Local Government (DCLG), 2006). This draws

on advice from a range of experts as well as European Union guidance regarding methodology for Appropriate Assessment of plans (European Commission, 2001).

The guidance recognises that there is no statutory method for undertaking Habitats Regulations Assessment and that the adopted method must be *appropriate* to its purpose under the Habitats Directive and Regulations; this concept is one of the reasons why HRA is also often referred to as Appropriate Assessment (AA). The guidance identifies three stages to the HRA process:

- AA1: Likely Significant Effects (Screening)
- AA2: Appropriate Assessment and Ascertaining the Effect on Integrity
- AA3: Mitigation Measures and Alternative Solutions

Where stage AA3 cannot produce alternative solutions to remove or reduce adverse effects to insignificant levels, there may be a need to explore Imperative Reasons of Overriding Public Interest. This is discouraged by DCLG. The three stages collectively make up Habitats Regulations Assessment, while Stage AA2 is the point at which Appropriate Assessment of the plan is carried out if the evidence points to a need for such an assessment.

Natural England has produced more prescriptive draft guidance on the assessment of Regional Spatial Strategies (RSS) and sub-regional strategies under the provisions of the Habitats Regulations (David Tyldesley and Associates, 2006). This introduces the concept of a stepped approach to the assessment process and fits within the framework of the three stages identified by DCLG. Whilst the guidance has been written for RSS similar guidance, drawing on the same principles, is being prepared for Development Plan Documents (DPD); Natural England has confirmed that the RSS guidance is appropriate for use in the interim. **Table 1.1** illustrates how the two approaches can be operated as one integrated methodology to achieve the same outcome from each approach.

1.4 Scope, Method and Consultation

Step six of **Table 1.1** requires an agreement to be reached with Natural England on the scope, method and consultation arrangements for an assessment, so that they are appropriate to the plan being assessed and European sites in question. Details on the scope and methodology were set out in the Screening Report published alongside this document (UE Associates, 2010); the HRA presented in this report follows the combined methodology shown in **Table 1.1 and discussed with Natural England**[1].

Table 1.1: *Stages in the HRA process drawing on guidance from DCLG and Natural England*

DCLG Stage	Natural England (Tyldesley) Steps
AA1: Likely	1. Identify all international sites in and around the area.

[1] Pers comm between Eric Steer and Neil Davidson, 4th June 2010.

significant effects	2. Acquire, examine and understand conservation objectives of each interest feature of each European site potentially affected.
	3. Consider the policies and proposals in the plan and the changes that they may cause that may be relevant to the European sites. This is likely to involve estimating likely magnitude, duration, location and extent of effects of the changes as far as they may reasonably be predicted at this stage.
	4. Acknowledging the plan is not necessary for site management, would any elements of the plan be likely to have a significant effect on any interest feature, alone or in combination with other projects and plans, directly or indirectly?
	5. Seek official screening statement from Natural England.
AA2: Appropriate Assessment and ascertaining the effect on integrity	6. Agree scope and method of the Appropriate Assessment and consultation period with Natural England.
	7. Undertake an Appropriate Assessment of the implications for each affected site in light of its conservation objectives, using the best information, science and technical know-how available.
AA3: Mitigation measures and alternative solutions	8. Consider whether any possible adverse effect on integrity of any site could be avoided by changes to the plan, such as an alternative policy or proposal whilst still achieving its aims and objectives.
	9. Draft a report on the Appropriate Assessment and consult Natural England and if necessary the public.
	10. Taking account of Natural England and public representations, can it be ascertained that the plan will not adversely affect the integrity of any international site?

HRA is an iterative process that aims to influence the development of a plan or project so as to ensure the ecological integrity of affected European sites is maintained. This report follows on from the HRA screening process which produced three revised documents, the last of which dated November 2008, and a new Screening Report (UE Associates, 2010) which assessed new evidence presented by various Staffordshire planning authorities on Cannock Chase SAC, as well as the recently published Black Country Water Cycle Study.

This report is an AA of the sites which were screened in by the 2010 Screening Report.

1.5 Purpose and Structure of this Document

This report documents the process, findings and recommendations of HRA stages AA2 and AA3 as described in the DCLG (2006) guidance. It identifies, analyses and quantifies (where possible) potential negative impacts on the European site in question. It presents measures to avoid or reduce these effects to the point at which they are no longer significant, either alone or in combination with other plans and projects.

The sections of the report are as follows:

- **Chapter Two:** provides a review of the screening stage of HRA and introduces the Appropriate Assessment, describes how to interpret it and explains any common value judgements or assumptions;
- **Chapter Three:** Appropriate Assessment of Cannock Chase SAC
- **Chapter Four:** Appropriate Assessment of Humber Estuary cSAC, SPA and Ramsar;
- **Chapter Five:** Appropriate Assessment of Severn Estuary cSAC, SPA and Ramsar;
- **Chapter Six:** illustrates the outcomes of the HRA process, presents recommendations, and concludes the document.

For further information, please see the Screening Report (UE Associates, 2010), published alongside this document. In particular:

- Section 1.4 provides detailed information on the Joint Core Strategy, including the Spatial Objectives;
- Chapter 2 provides a summary of earlier HRA work and an outline of the new evidence;
- Appendices I, II, III and IV provide details on the European sites (including ecological descriptions, qualifying features, conservation objectives, and specific vulnerabilities);
- Appendix V provides a full listing of the JCS policies; and
- Appendix VI provides all the correspondence to date with Natural England.

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2 Appropriate Assessment

2.1 Introduction

This chapter sets out the findings of the HRA screening exercise (UE Associates, 2010), before going on to describe the Appropriate Assessment stage.

2.2 Findings of the Screening Stage

In accordance with regulation 102(1) of the Habitats Regulations the purpose of the screening exercise, acknowledging that the plan is not directly connected with or necessary to the management of any European site, was to identify which elements of the Joint Core Strategy are considered likely to lead to significant effects at a European site. The screening exercise revealed that significant adverse effects could not be ruled out for seven of the eighteen European sites investigated. These are summarised in **Table 2.1**, which is taken from the Screening Report (UE Associates, 2010).

Table 2.1: *Summary of likely significant effects associated with the BC JCS*

Effect	Pathway	Receptor	Cause
Air pollution	Increased traffic flow	Cannock Chase SAC	CSP1, CSP2, HOU1, SC1, SC3, SC4, RC2, RC3, RC4, RC5, RC6, RC7, RC8, RC9, RC10, RC11a, RC11b, RC12, RC13, RC14, RC15, RC16
Recreational pressure and disturbance	Increased number of residents and tourists resulting from new housing and/or improved facilities	Cannock Chase SAC	CSP1, CSP2, HOU1, SC1, SC3, SC4, RC2, RC3, RC4, RC5, RC6, RC7, RC8, RC9, RC10, RC11a, RC11b, RC12, RC13, RC14, RC15, RC16
Water quality	Increased pressure on waste water treatment resulting from new housing	Humber Estuary cSAC, SPA and Ramsar	CSP1, CSP2, HOU1, HOU4, SC3, SC4, RC4, RC5, RC6, RC7, RC8, RC9, RC12, RC15, RC16
		Severn Estuary cSAC, SPA and Ramsar	CSP1, CSP2, HOU1, HOU4, SC1, SC3, SC4, RC2, RC3, RC4, RC9, RC10, RC11a, RC11b, RC12, RC13, RC14, RC16
Water supply	Increased abstractions to provide for new housing	Severn Estuary cSAC, SPA and Ramsar	CSP1, CSP2, HOU1, HOU4, SC1, SC4, RC2, RC3, RC4, RC5, RC6, RC7, RC10, RC11a, RC11b, RC12, RC13, RC14, RC16

The Joint Core Strategy therefore requires further assessment to ascertain the nature of effects, in accordance with the precautionary principle.

2.3 The Appropriate Assessment Stage

The purpose of the Appropriate Assessment (HRA Stage AA2) is to further analyse likely significant effects identified during the screening stage, as well as those effects which were uncertain or not well understood and taken forward for assessment in accordance with the precautionary principle. The assessment should seek to establish whether or not the plan's effects, either alone or in combination with other plans or projects, will lead to adverse effects on site integrity, with regard to the site's conservation objectives (see **Appendix III of the Screening Report**). Site integrity can be described as follows (ODPM, 2005b):

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

The Appropriate Assessment first focuses on the effects generated by the Joint Core Strategy and considers ways in which they can be avoided altogether. Where adverse effects cannot be avoided by changes to the plan, mitigation measures are introduced to remove or reduce the effects to the level of non-significance. Any residual (non-significant) effects can then be taken forward for further analysis to establish whether they might be expected to become significant in combination with the effects of other plans or projects.

The European Commission (2001) has also set out details on site integrity, formulating a checklist of factors that might affect integrity. The checklist is shown in **Box 1**, where each item is coded from one to fourteen.

2.4 How to Interpret the Assessment

The assessment presented in **Chapters Three to Five**, which is organised by European site, focuses on the policy elements causing likely significant effects, as identified during the screening stage. It also addresses aspects of the plan where the precautionary principle had been applied during screening because uncertainty existed due to limited availability of data.

For each chapter commentary, four main sections are provided: the screening results for the site in question; the site's qualifying features; an overview of the effect(s) identified for the site; and recommendations for the site. The effects section(s) is further subdivided as follows:

- Context: the background to the effect at the site;
- Effects on site integrity: a statement of effects on ecological integrity that could arise, based on the categories listed in **Box 1**; and
- Mitigation measures.

Box 1: Site Integrity Checklist

Conservation objectives

Does the project or plan have the potential to: (Yes/No)

1 Cause delays in progress towards achieving the conservation objectives of the site?

2 Interrupt progress towards achieving the conservation objectives of the site?

3 Disrupt those factors that help to maintain favourable conservation status onsite?

4 Interfere with the balance, distribution and density of key species that are the indicators of the favourable conservation status of the site?

Other indicators

Does the project or plan have the potential to: (Yes/No)

5 Cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?

6 Change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?

7 Interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?

8 Reduce the area of key habitats?

9 Reduce the population of key species?

10 Change the balance between key species?

11 Reduce the diversity of the site?

12 Result in disturbance that could affect population size or density or the balance between key species?

13 Result in fragmentation?

14 Result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?

Source: European Commission, 2001

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3 Cannock Chase SAC

3.1 Screening Results

Cannock Chase SAC has been screened in due to uncertainty associated with air quality and recreational impacts that might be associated with the Joint Core Strategy. Recently published information by Footprint Ecology (2009 and 2010) suggests that the proposals for new housing and associated population growth in the Black Country might lead to increases in visits to Cannock Chase; the results of which might prove deleterious to the conservation objectives for the SAC.

3.2 Qualifying Features

Cannock Chase has been designated due to the following qualifying features:

- European dry heaths (Annex I Habitat) for which this is considered to be one of the best areas in the United Kingdom; and
- Northern Atlantic wet heaths with Erica tetralix (supporting Annex I habitat) for which the area is considered to support a significant presence.

The Conservation Objectives for the site are:

- To maintain, in favourable condition, European dry heaths with particular reference to the H8 Calluna vulgaris-Uex galli and H9 Calluna vulgaris-Deschampsia flexuosa communities; and
- To maintain, in favourable condition, North Atlantic wet heaths with Erica tetralix, with particular reference to the M10 Carex dioica-Pinguicula vulgaris mire and M16 Erica tetralix-Sphagnum compactum wet heath communities.

The conservation status of a European site can be determined by progress towards the site's conservation objectives; favourable conservation status is attained when the site's conservation objectives are maintained or surpassed. This is an important baseline position from which to approach the HRA and can be affected by a number of factors.

As an illustration of conservation status it can be helpful to examine the condition status of Sites of Special Scientific Interest (SSSI) which often coincide with European sites. Although it should be noted that SSSIs are designated for national (as opposed to international) nature conservation interest, and so the condition of SSSIs cannot be fully relied upon as an indication of the conservation status of a European site, many of the ecological conditions that help to support site integrity are shared across the designations.

There are 30 SSSI units which make up the Cannock Chase SAC. The SSSI condition surveys, dated from between 2003 and 2008 (obtained from Natural England's Nature on the Map website, 2010) reveal that only 2.26% (29.03 ha) of the total SSSI area is in a favourable

condition, though the vast majority (95.9%) is deemed to be unfavourable but recovering. However, a small proportion of the total designated area (23.7 ha or 1.85%) is unfavourable without improvement, due to water abstraction issues.

3.3 Air Quality

3.3.1 Context

Previous HRA work prepared for the RSS and also the Staffordshire Local Planning Authorities (LPA) surrounding Cannock Chase SAC have recognised that air pollution can lead to deleterious effects on the qualifying features of the Chase. In particular, Ursus & Treweek Environmental Consultants (September, 2007) in the RSS Phase 2 HRA Screening Report note that:

> *"Those parts of Cannock Chase SAC within 200 m of the A34, 513 or 460 may be exposed to increased levels of deposition of atmospheric pollutants, causing changes in the plant species composition of the vegetation communities for which the site is designated."*

Similarly, Footprint Ecology (November, 2009) note that:

> *"Airborne nitrogen arising from the burning of fossil fuels in industry, traffic, aviation and agriculture poses a considerable threat to heathland. Many heathland plant species can only survive and compete successfully on acid soils with low nitrogen availability. The addition of nutrients in rain or dust particles increases the nitrogen in the vegetation, litter and upper soil layers, and this builds up over time. Heather can initially benefit from inputs of nitrogen, but this also causes more rapid ageing of the plants and greater susceptibility to drought, frost and insect attack. Where the heather is weakened or removed, for example by fire, then grasses gain a competitive advantage both from the higher nutrient levels and from the increase in light; and this triggers a conversion from heather to grass-dominated communities with the loss of many specialist species associated with heatherdominated heaths. Grasses which can benefit from inputs of atmospheric nitrogen to the detriment of the heath vegetation include purple moor grass Molinia caerulea on wet heath and mire, and wavy hair grass Deschampsia flexuosa on dry heathland."*

These findings are both consistent and can be considered relevant to the considerations of this AA report.

It should be noted that the WMRSS AA work for Phase 1, i.e. the Black Country, concluded no adverse effect on Cannock Chase. It also records that the issue of air quality should be revisited in RSS Phase 2 and that air quality issues be monitored. RSS 2 (which looked at housing numbers across the West Midlands including the Black Country) did explore the issue in more detail and concluded that uncertainties about the effects (in particular the source) of air pollution remained outstanding.

The issue was therefore explored more fully as part of the WMRSS Phase 2 Examination process (see UE Associates Screening Report (2010) for more details of the Examination

outcome). Indeed, the Panel report which was published in September 2009 recognised the inherent difficulties of conclusively dealing with potential diffuse air quality effects. The Panel Report suggested that air quality be addressed through a series of policy making initiatives at the Local Development Framework (LDF) level. These are carefully set out in revised WMRSS2 policy SR4 of the Panel Report (PINS, 2009). These are reproduced in **Figure 3.1**.

In relation to Air Quality issues identified by the HRA, local authorities and other plan makers should:

(i) Secure the fullest possible use of sustainable transport choices (T1), reduce the need to travel (T2) and encourage the development of sustainable communities (SR2);

(ii) Include policies to improve air quality and reduce the levels of emissions as set out in air quality strategies so as to take account of the risks to European sites;

(iii) Ensure that both the diffuse and local air pollution effects of proposed development on European sites are considered;

(iv) Ensure that development is only permitted where it is clearly demonstrated by the HRA that it will not significantly contribute to adverse effects caused by diffuse air pollution at European sites, alone or in combination with other plans and projects. Where development would result in such increases it should include measures to secure an equivalent improvement in air quality or reduction in emissions from other sources;

(v) Avoid the siting of new sources of emissions or development that would increase traffic levels on roads near to sensitive European sites;

(vi) Consider the local air pollution impacts of increased road traffic within 200 metres of a sensitive European site, including impacts from dust;

(vii) Require a pollution-neutral strategy for major development based on the results of local air quality assessments, especially for potentially polluting development near to European sites.

Figure 3.1: *Extract from the revised WMRSS2 Policy SR4 for air quality (PINS, 2009)*

3.3.2 Effects on Site Integrity

Potential effects on Site Integrity at Cannock Chase are associated with diffuse air pollution (see Section 3.3.1 above) and local air pollution that can lead to eutrophication, change in vegetation structure and ultimately change in habitat. Diffuse air pollution is thought to be strongly associated with Rugely Power Station (Footprint Ecology, 2009). Local air pollution is associated with vehicular activity through and adjacent to the SAC (a distance of 200m has been cited by Footprint Ecology, 2009). It is not clear as to whether or not visitors to Cannock Chase who arrive by car come from the Black Country. If they do, it is not clear whether or not they are contributing to this effect or not. The findings of the Footprint Ecology report (2010) which suggests people living in the north of the Black Country do visit Cannock Chase should be updated using more recent data in order to explore this issue in more detail.

Similarly, it would be helpful to find out more information about likely air pollution arising from vehicular activity along the roads which cross the SAC or are within 200m of its boundary.

Such research may be explored by the Staffordshire LTP3 process; this matter should be explored further with Staffordshire County Council.

3.3.3 Mitigation Measures

Mitigation measures should only be considered if a significant effect arsing from BC visitors can be demonstrated. Currently, there is no conclusive proof that this is the case. In light of the Footprint Ecology reports which have used data from ten years ago, it would be a precautionary action for the BCAs to explore some of the outcomes of the Footprint Ecology work in more detail. This could helpfully be done in partnership with the Staffordshire LPAs and take the form of an updated visitor survey.

It should be noted that if indeed visitors from the Black Country do have an impact on Cannock Chase, the effect cannot be avoided by modifying the JCS to remove development proposals. There are however, mitigation measures which can be considered, depending on new visitor survey findings. One such measure will be the Environmental Infrastructure Guidance (EIG) which is being prepared for the Black Country. This is a work in progress at the moment but is expected to provide more open air recreational opportunities within the Black Country. Likewise, it is being prepared in complete knowledge of the potential HRA issues associated with Cannock Chase SAC.

Another mitigation measure is the suggestion that a roof tax be imposed for properties that fall within a 75% zone of influence be levied so that contributions can be made to the conservation of the SAC such that integrity is not diminished by new development. Whilst this again depends on new visitor survey findings, such mitigation may be best considered through HRA of the forthcoming Site Allocation DPDs and Area Action Plans.

3.4 Recreational Pressure and Disturbance

3.4.1 Context

Recent work by various Staffordshire local planning authorities has produced the following two documents:

- Footprint Ecology (2009) Evidence base relating to Cannock Chase SAC and the Appropriate Assessment of Local Authority Core Strategies. 10th November, 2009.
- Footprint Ecology (2010) Cannock Chase Visitor Impact Mitigation Strategy. 11th January, 2010.

Recreational impacts are cited by both Footprint Ecology reports in considerable depth and provide a helpful account of potential effects on lowland heathland habitat. The Evidence Base (2009) has been drawn up to provide an empirical platform against which assessments can be made about visitor patterns that might change in the light of DPD proposals from various Staffordshire local planning authorities. The report has focused on the potential effects associated with air quality, water abstraction and recreation.

The Black Country Joint Core Strategy is mentioned when considering in combination effects of the Staffordshire Core Strategies. The report's conclusions include a recommendation that

visitor numbers are likely to rise by 9% during the period of the plans. Drawing on the Thames Basin Heaths SPA as a comparator process, whereby 75% of all visits to the SPA were calculated to arise from the nearest 5km surrounding the Thames Basin Heaths SPA, the data from the Cannock Chase Evidence Report suggests that initially a zone of 12 miles (19.3km) be used to assume that around 75% of visits arise within this area (see para 8.3.9).

Throughout the report, reference is made to factors that recognise the limitations of the report in terms of accuracy and precision. This is in principle due to the fact that (i) the data on which the Footprint Ecology work has been prepared comes from an AONB Visitor Survey undertaken in 2000 by Staffordshire University (i.e. the data is ten years old and therefore needs updating); and (ii) factors such as the designation of a Country Park and AONB (both of which coincide, geographically) with the SAC designation require careful consideration as these both represent direct visitor attractions in their own right.

3.4.2 Effects on Site Integrity

Potential effects on site integrity are associated with visitor impacts. Effects of recreational activity undertaken by visitors can include:

- soil erosion and compaction;
- disturbance to ground nesting birds;
- trampling / increased bare ground;
- nutrient enrichment and eutrophication;
- increased fire risk;
- spread of disease;
- restrictions on management;
- litter and dumping / fly tipping; and
- predation from pets.

It is not clear as to whether or not visitors to Cannock Chase who use the site for recreational purposes are contributing to this effect. It is therefore recommended that an updated visitor survey be prepared to validate the results of the Footprint Ecology report and help establish whether or not (and if so, how many, and how regularly) people from the Black Country visit the SAC.

3.4.3 Mitigation Measures

Mitigation measures should only be considered if a significant effect arsing from BC visitors can be demonstrated. A range of mitigation measures are available to address recreation impacts, depending on whether or not the Black Country residential population has a positive correlation with visitor impacts at Cannock Chase. The Footprint Ecology report (2010) summarises these. They include management measures, visitor restrictions, roof tax, SANGS (which are relevant to the progressive EIG work).

3.5 Recommendations

The following recommendations are made for further action:

1. It is suggested that a new visitor survey be prepared as a matter of priority, in the near future, on a partnership basis with the Staffordshire LPAs who would lead on the project. The Footprint Ecology (p.40, 2010) report suggests a number of survey methods: household survey, on-site monitoring, car park counts, and discreet counts and interviews.

2. The strategic growth network established in the Joint Core Strategy will be delivered through other Development Plan Documents: Site Allocation Plans and Area Action Plans. It is recommended that each of these documents are informed by updated visitor survey information and that the mitigation options cited in **Section 3.3.3 and 3.4.3** are re-examined as part of the HRA work prepared for these plans.

3. The Staffordshire LTP3 may be able to provide information about local air pollution associated with roads in the county. Information garnered through this plan making process should also be used to inform future HRA work.

4 Humber Estuary cSAC, SPA and Ramsar

4.1 Screening Results

The Humber Estuary cSAC, SPA and Ramsar has been screened in due to uncertainty associated with water quality effects associated with waste water treatment arising from the Black Country Joint Core Strategy. The recently published Outline Water Cycle Study (Scott Wilson, 2009) information notes that current water quality levels are unlikely to be affected but that new water quality standards associated with the Water Framework Directive (which come into effect in 2015) may be affected.

4.2 Qualifying Features

Table 4.1: *Qualifying features at the Humber Estuary*

Qualifying features at each designated European site	
Humber Estuary cSAC	
Primary Habitats: ▸ Estuaries ▸ Mudflats and sandflats not covered by seawater at low tide	**Primary Species:** ▸ Not applicable
Supporting Habitats: ▸ Sandbanks which are slightly covered by sea water all the time ▸ Coastal lagoons ▸ *Salicornia* and other annuals colonising mud and sand ▸ Atlantic salt meadows (*Glauco-Puccinellietalia maritimae* ▸ Embryonic shifting dunes ▸ Shifting dunes along the shoreline with *Ammophila arenaria* (`white dunes`) ▸ Fixed dunes with herbaceous vegetation (`grey dunes') ▸ Dunes with *Hippophae rhamnoides*	**Supporting Species:** ▸ Sea lamprey *Petromyzon marinus* ▸ River lamprey *Lampetra fluviatilis* ▸ Grey seal *Halichoerus grypus*
Humber Estuary SPA	
Article 4.1: ▸ Eurasian bittern *Botaurus stellaris* ▸ Marsh harrier *Circus aeruginosus* ▸ Avocet *Recurvirostra avosetta* ▸ Little tern *Sterna albifrons* ▸ Hen harrier *Circus cyaneus* ▸ Bar-tailed godwit *Limosa lapponica*	**Article 4.2:** ▸ Dunlin *Calidris alpina alpine* ▸ Red knot *Calidris canutus* ▸ Black-tailed godwit *Limosa limosa islandica* ▸ Common shelduck *Tadorna tadorna* ▸ Common redshank *Tringa totanus* ▸ In the non-breeding season the area regularly

Qualifying features at each designated European site	
▸ European golden plover *Pluvialis apricaria* ▸ Ruff *Philomachus pugnax*	supports an internationally important assemblage of: 153934 waterfowl (5 year peak mean 1996/7 to 2000/1)
Humber Estuary Ramsar site	
Criterion 1: ▸ The site is a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons.	**Criterion 3:** ▸ The breeding colony of grey seals Halichoerus grypus at Donna Nook is the second largest grey seal colony in England and the furthest south regular breeding site on the east coast. ▸ The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad Bufo calamita.
Criterion 5: ▸ Assemblages of international importance: 153,934 waterfowl, non-breeding season (5 year peak mean 1996/97-2000/2001)	**Criterion 6:** Species/populations occurring at levels of international importance: ▸ European golden plover *Pluvialis apricaria apricaria* ▸ Red knot *Calidris canutus islandica* ▸ Dunlin *Calidris alpina alpina* ▸ Black-tailed godwit *Limosa limosa islandica* ▸ Common redshank *Tringa totanus* ▸ Common shelduck *Tadorna tadorna* ▸ Bar-tailed godwit *Limosa lapponica lapponica*
Criterion 8: ▸ The Humber Estuary acts as an important migration route for both river lamprey Lampetra fluviatilis and sea lamprey Petromyzon marinus between coastal waters and their spawning areas.	

The Conservation Objectives for the Humber Estuary are:

- To maintain, in a favourable condition, the habitats and species for which this site is designated (cSAC)
- To maintain, in a favourable condition, the populations of birds for which this site is designated and the habitats which support them (SPA)

The conservation status of a European site can be determined by progress towards the site's conservation objectives; favourable conservation status is attained when the site's conservation objectives are maintained or surpassed. This is an important baseline position from which to approach the HRA and can be affected by a number of factors.

As reported in the WCS (Scott Wilson, 2009), 94% of Humber Estuary cSAC was found to be in favourable condition during the 2007 Condition Assessment Process, with the remainder unfavourable but recovering.

4.3 Water Quality

4.3.1 Context

In association with the Severn Estuary cSAC, SPA and Ramsar, the issue of water quality was explored more fully as part of the WMRSS2 Examination process. As the UE Associates Screening Report (2010) notes, the issue of water quality has previously been the subject of scrutiny at Examination. Indeed, the Panel report which was published in September 2009 recognised the inherent difficulties of conclusively dealing with potential water quality effects at sites which are a considerable distance from source of impact. The Panel Report suggested that water quality be addressed through a series of policy making initiatives. These are carefully set out in revised WMRSS2 policy SR4 of the Panel Report. These are reproduced in **Figure 4.1**.

In relation to Water Quality issues identified by the HRA, local authorities and other plan makers should:

(i) engage in early consultation with water companies, the Environment Agency and the HRA statutory consultation bodies in relation to site allocations to ensure that development is located and appropriately phased and that there is capacity available in the waste water treatment works and sewerage network in order to ensure there will be no adverse effects on a European site;

(ii) where significant effects on a European site are possible, to ensure that Water Cycle studies inform the evidence for LDDs.

Figure 4.1: *Extract from the revised WMRSS2 Policy SR4 for water quality (PINS, 2009)*

The most significant recommendation is that local planning authorities should produce a Water Cycle Study to explore in more detail the potential effects which may arise from water supply and treatment in a particular geographic area. On this basis, the Black Country Authorities have prepared a Water Cycle Study (2009).

The WCS identifies that the Humber Estuary is fed amongst other rivers by the River Tame, which rises and flows through the Black Country. Presently water quality in the Black Country is at or above acceptable standards for ecological, biological and chemical quality (WCS, p. 144, 2009). However when new water quality standards are introduced, predicted water quality is likely to drop below the standards. The new standards, drawn up by the Environment Agency in line with the Water Framework Directive are not due to take effect until 2015.

The WCS (p. 137, 2009) records that:

"The Black Country falls within the Humber (via the River Trent) and Severn River Basin Districts and the Humber and Severn estuaries will therefore be ultimate [error, not corrected] *receiving waters for treated effluent discharged to the Rivers Trent or Severn. The estuaries of both the Humber and Severn are designated for their international wildlife importance (Sections 10.3.1 and 10.3.3, respectively). It is therefore possible that cumulative impacts may result on the receiving estuaries from development in the Black Country considered 'in combination' (as required by legislation) with the additional housing to be delivered across the wider West Midlands, East Midlands, Yorkshire and Humber regions under their respective Regional Spatial Strategies."*

4.3.2 Effects on Site Integrity

Natural England produced a detailed guidance document for the Humber Estuary cSAC, SPA and Ramsar sites as an integral part of Regulation 33(2) of the Habitats Regulations 1994 (English Nature, 2003). The report outlines the possible operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species for the Humber Estuary. These have been summarised and updated through the West Midlands Natura 2000 sites information document (Treweek Environmental Consultants, 2009), from which potential effects on Site Integrity at the Humber are reproduced below.

Table 4.2: *Water Quality Effects on Site Integrity at the Humber Estuary*

Hazards/pressures this site is potentially sensitive to	Sources of potential hazard/pressure	Current impacts and threats
Eutrophication	As with (and in combination with) aerial inputs (particularly from NOx from local traffic and industrial sources), nutrient deposition from surrounding agriculture has potential to alter both terrestrial and aquatic habitats. This can result in smothering of intertidal habitats with blanketing algae.	Discharges are known to have an effect at present.
Toxic contamination	Aquatic fauna and flora particularly sensitive to toxic contamination from discharges: direct mortality or problems caused by long-term accumulation of toxic substances.	Midlands discharges are considered to affect or have risk of effect.
Dissolved oxygen	Fish are the most sensitive form of marine biota to oxygen levels.	There is known to be a dissolved oxygen sag in the upper estuary. It is thought that this is caused by organic matter and may impede the migration of lamprey.

		Therefore, any licence which may lead to an increase in organic matter will need to consider this.

4.3.3 Mitigation Measures

It should be noted that mitigation measures for this particular effect on the European sites at the Humber Estuary are being considered in relation to an effect that is planned to take effect during the lifetime of the Black Country Core Strategy rather than at the beginning i.e. from 2015 onwards.

The WCS recommends the following actions to help ensure that water quality does not affect the integrity of European sites as follows:

1. All WwTWs (where information was available to undertake the assessment) have sizeable spare capacity to treat flows from new development in the area. However, no detailed information on trade flow was provided and therefore the assumptions that have been made as part of this assessment will need to be revisited in the Detailed WCS to refine the calculated volumetric capacity at the WwTWs.

2. The existing sewer network has been used to identify the volume of proposed development that is likely to be served by each of the WwTWs and this has been used to calculate the future wastewater flows to be treated at the works and therefore future capacity.

3. Based on the proposed housing development in the area, all WwTWs have the capacity to treat the new development without requiring any upgrades to the existing wastewater treatment works (in terms of volumetric capacity).

4. WwTW quality consents are likely to require tightening under the WFD and as a result of the proposed growth within the area to comply with WFD standards. Some of the consents, particularly at Barnhurst WwTW is already close to BAT and therefore alternative treatment options may be needed to treat the additional effluent generated from the proposed development in the study area. A Monte Carlo modelling exercise will need to be carried out as part of the Detailed WCS to determine the future consents required under the WFD for future effluent discharges.

5. The wastewater network assessment showed that there is a good coverage of existing strategic sewers across the study area which will facilitate new connections to the existing network. However, detailed modelling will need to be undertaken to assess the capacity in the network especially in areas where more than one regeneration corridor will feed into the same sewer i.e. Ray Hill and Roundhill catchments, or the area does not currently have an existing strategic network but significant growth is planned, i.e. Brierley Hill.

In terms of mitigation in the Joint Core Strategy attention is drawn to the infrastructure policy (DEL1 – Infrastructure Provision) which states that:

"All new developments should be supported by sufficient on and off-site infrastructure to serve the development, mitigate its impacts on the environment".

The policy is reproduced in full in **Box 2**.

Box 2: Joint Core Strategy Policy DEL1 – Infrastructure Provision (p.47, Publication Version, 2009)

All new developments should be supported by sufficient on and off-site infrastructure to serve the development, mitigate its impacts on the environment, and ensure that the development is sustainable and contributes to the proper planning of the wider area. Unless defined circumstances apply, development proposals will only be permitted if all necessary infrastructure improvements, mitigation measures and sustainable design requirements can be secured through planning obligations, the Community Infrastructure Levy, conditions or other relevant means, to an appropriate timetable, and supported by the necessary resources.

Local Development Documents for each authority will set out:

- The range of infrastructure to be provided or supported;
- The scale and form of obligation or levy to be applied to each type of infrastructure, including maintenance payments and charges for preparing agreements;
- The defined circumstances and procedure for negotiation regarding infrastructure provision, where viability is at issue.

4.4 Recommendations

1. It is suggested that further Water Cycle Study work be prepared along the lines of the 2009 WCS suggestions see above.

2. The strategic growth network established in the Joint Core Strategy will be delivered through other Development Plan Documents: Site Allocation Plans and Area Action Plans. It is recommended that each of these documents are informed by more detailed WCS research which will enable appropriate mitigation options to be considered as part of the HRA work prepared for these plans.

5 Severn Estuary cSAC, SPA and Ramsar

5.1 Screening Results

The Severn Estuary cSAC, SPA and Ramsar has been screened in due to uncertainty associated with water quality and water supply effects associated with the Black Country Joint Core Strategy. The recently published Outline Water Cycle Study (Scott Wilson, 2009) information notes that current water quality levels are unlikely to be affected but that new water quality standards associated with the Water Framework Directive (which come into effect in 2015) may be affected. In terms of water supply, the Study notes that the Black Country is in an area of moderate water stress. The Study also notes that water is supplied by two companies; in the case of one of them, Severn Trent, water supply may have in combination effects on the Severn Estuary.

5.2 Qualifying Features

Table 5.1: *Qualifying features at the Severn Estuary*

Qualifying features at each designated European site	
Severn Estuary cSAC	
Primary Habitats: ▸ Estuaries ▸ Mudflats and sandflats not covered by seawater at low tide ▸ Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*	**Primary Species:** ▸ Allis shad *Alosa alosa* ▸ Twaite shad *Alosa fallax* ▸ River lamprey *Lampetra fluviatilis* ▸ Sea lamprey *Petromyzon marinus*
Supporting Habitats: ▸ Sandbanks which are slightly covered by sea water all the time ▸ Reefs	**Supporting Species:** ▸ Not applicable
Severn Estuary SPA	
Article 4.1: ▸ Bewick's Swan Cygnus columbianus bewickii	**Article 4.2:** ▸ Gadwall Anas strepera ▸ Greater white-fronted goose Anser albifrons ▸ Dunlin *Calidris alpina alpine* ▸ Common redshank *Tringa totanus* ▸ Common shelduck *Tadorna tadorna* ▸ Over the winter the area regularly supports an internationally important assemblage of: 84317 waterfowl (5 year peak mean 1998)
Severn Estuary Ramsar site	
Criterion 1:	**Criterion 3:**

Qualifying features at each designated European site	
Due to immense tidal range (second-largest in world) this affects both the physical environment and biological communities. Habitats Directive Annex I features present on the pSAC include: ▸ H1110 Sandbanks which are slightly covered by sea water all the time ▸ H1130 Estuaries ▸ H1140 Mudflats and sandflats not covered by seawater at low tide ▸ H1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	▸ Due to unusual estuarine communities, reduced diversity and high productivity.
Criterion 4: ▸ This site is important for the run of migratory fish between sea and river via estuary. ▸ Species include Salmon Salmo salar, sea trout S. trutta, sea lamprey Petromyzon marinus, river lamprey Lampetra fluviatilis, allis shad Alosa alosa, twaite shad A. fallax, and eel Anguilla anguilla. ▸ It is also of particular importance for migratory birds during spring and autumn.	**Criterion 5:** ▸ Assemblages of international importance: 70919 waterfowl (5 year peak mean 1998/99-2002/2003)
Criterion 6: Species/populations occurring at levels of international importance: ▸ Tundra swan *Cygnus columbianus bewickii* ▸ Greater white-fronted goose *Anser albifrons* ▸ Common shelduck *Tadorna tadorna* ▸ Gadwall *Anas strepera* ▸ Dunlin *Calidris alpina* ▸ Common redshank *Tringa totanus* ▸ Lesser black-backed gull *Larus fuscus graellsii* ▸ Ringed plover *Charadrius hiaticula* ▸ Eurasian teal *Anas crecca* ▸ Northern pintail *Anas acuta*	**Criterion 8:** ▸ The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon Salmo salar, sea trout S. trutta, sea lamprey Petromyzon marinus, river lamprey Lampetra fluviatilis, allis shad Alosa alosa, twaite shad A. fallax, and eel Anguilla Anguilla use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. ▸ The site is important as a feeding and nursery ground for many fish species particularly allis shad Alosa alosa and twaite shad A. fallax which feed on mysid shrimps in the salt wedge.

The Conservation Objectives for the site are:

- To maintain these designated features and species in favourable condition: in the case of the designated fauna, this will require successful maintenance of supporting habitats; and
- To maintain, in a favourable condition, the populations of birds for which this site is designated and the habitats which support them.

The conservation status of a European site can be determined by progress towards the site's conservation objectives; favourable conservation status is attained when the site's

conservation objectives are maintained or surpassed. This is an important baseline position from which to approach the HRA and can be affected by a number of factors.

The condition status of the Severn Estuary European sites has been requested from Natural England, but not yet received.

5.3 Water Quality

5.3.1 Context

In association with the Severn Estuary cSAC, SPA and Ramsar, the issue of water quality was explored more fully as part of the WMRSS2 Examination process. As the UE Associates Screening Report (2010) notes, the issue of water quality has previously been the subject of scrutiny at Examination. Indeed, the Panel report which was published in September 2009 recognised the inherent difficulties of conclusively dealing with potential water quality effects at sites which are a considerable distance from source of impact. The Panel Report suggested that water quality and water supply be addressed through a series of policy making initiatives. These are carefully set out in revised WMRSS2 policy SR4 of the Panel Report (see **Figure 4.1** for details of the water quality recommendations).

The most significant recommendation is that LPAs should produce a Water Cycle Study to explore in more detail the potential effects which may arise from water supply and treatment in a particular geographic area. On this basis, the Black Country Authorities have prepared a Water Cycle Study (2009).

The WCS identifies that the Severn Estuary is fed by several WwTWs, which deposit treated waste water from the Black Country. Presently water quality in the Black Country is at or above acceptable standards for ecological, biological and chemical quality (WCS, p. 144, 2009). However when new water quality standards are introduced, predicted water quality is likely to drop below the WFD standards. The new standards, drawn up by the Environment Agency in line with the Water Framework Directive are not due to take effect until 2015.

The WCS (p. 137, 2009) records that:

> *"The Black Country falls within the Humber (via the River Trent) and Severn River Basin Districts and the Severn and Severn estuaries will therefore be ultimate [uncorrected typo] receiving waters for treated effluent discharged to the Rivers Trent or Severn. The estuaries of both the Severn and Severn are designated for their international wildlife importance (Sections 10.3.1 and 10.3.3, respectively). It is therefore possible that cumulative impacts may result on the receiving estuaries from development in the Black Country considered 'in combination' (as required by legislation) with the additional housing to be delivered across the wider West Midlands, East Midlands, Yorkshire and Severn regions under their respective Regional Spatial Strategies."*

5.3.2 Effects on Site Integrity

In line with Regulation 33 advice (Natural England & CCW, 2009) on the possible operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species for the Severn Estuary, the West Midlands Natura 2000 sites information document

(Treweek Environmental Consultants for Natural England, 2009) outlines the current threats to Site Integrity at the Severn Estuary. These are reproduced below.

Table 5.2: *Water Quality Effects on Site Integrity at the Severn Estuary*

Hazards/ pressures this site is potentially sensitive to	Sources of potential hazard/pressure	Current impacts and threats
Toxic contamination	Introduction of synthetic and non-synthetic compounds. This could also occur as a result of disturbance of settled sediment containing historic accumulations of toxic substances. Potential for example, of accumulation of toxic substances in fauna and flora, causing disease, mortality or affecting lifecycles.	May not be a problem at present, but estuary is vulnerable to oil spills and experiences continuous toxic discharges: potential also for bioaccumulation. Particular contaminants of note include: mercury, cadmium, chromium, copper, iron, lead, manganese, nickel and zinc. Key threats identified include ports, dredging, sea-based recreation, coastal farming, shipping, industrial and sewerage effluents, perhaps also runoff, shipping waste and spoil dumping. **NB**: there are also (apparently non-significant) atmospheric inputs, which account for a number of metals, but mercury in particular comes from discharges. Published data suggest that the estuary is relatively uncontaminated in comparison with other European estuaries.
Change in salinity	Runoff from land reduces salinity of the estuary, at least in proximity to land.	Agricultural and urban runoff, including storm runoff, has greatest threat potential. Localised impacts can also come from discharges to the site, which may be large enough to affect significant areas.
Change in oxygenation	Reduced dissolved oxygen in water affects the populations of aquatic fauna and flora.	Mechanisms identified as posing a threat include coastal defence, dredging, aggregate extraction, recreational boating, coastal farming, shipping, industrial effluent, runoff, sewage, shipping waste, spoil dumping.
Temperature	Increased water temperature, coming from discharges and potentially from reduced flow in smaller areas, can affect the populations of aquatic flora	Uncertain as to the level of risk at this site. There is a risk particularly from power station cooling waters. Currently there are two power stations on the Estuary – Oldbury and Hinkley.

	and fauna.	
Turbidity/ siltation	Increased turbidity reduces available oxygen and alters substrate, possibly smothering sensitive habitats such as pioneer saltmarshes.	Threats identified that contribute include coastal defences, ports, dredging, aggregate extraction, nuclear power generation, shipping, industrial effluent, runoff, sewage, shipping waste, and spoil dumping. The physical characteristics of this site result in high turbidity, to which the fish species are well adapted here; uncertainty remains as to impacts on habitats in general.
Eutrophication	Changes in nutrient and/or organic loading: this changes species composition and structure in saltmarsh, promotes algal growth on mudflats, and changes invertebrate composition.	Threats identified include beach replenishment, dredging, aggregate extraction, recreational boating, coastal farming, shipping, industrial effluent, runoff, sewage, shipping waste, and spoil dumping. The high native turbidity in the Severn is likely to reduce the impact of high nutrient levels for some habitats.

5.3.3 Mitigation Measures

It should be noted that mitigation measures for this particular effect on the European sites at the Severn Estuary are being considered in relation to an effect that is planned to take effect during the lifetime of the Black Country Core Strategy rather than at the beginning i.e. from 2015 onwards. For details of Water Quality mitigation see **Section 4.3.3.**

5.4 Water Supply

5.4.1 Context

The WCS (2009) notes that the Black Country has been assessed as an area of moderate water stress. The Black Country is served by two water companies, Severn Trent Water (ST) and South Staffordshire Water (SSW). The parts of the Black Country lying within ST's Severn WRZ (3) are the areas around Wolverhampton and also southwest corner of the Black Country around Stourbridge and Halesowen. SSW provides water only services for the four population centres of Dudley, Wolverhampton, Sandwell and Walsall. ST's draft WRMP indicates a supply/demand shortfall within the Severn WRZ (3) over the entire planning period through to 2035. Their final Water Resource Management Plan (WRMP) to be published shortly (subject to DEFRA's approval) indicates a worsening position in terms of deficits once the latest effects of climate change are included. As a result, ST is now proposing resources schemes (mainly groundwater) and demand management measures within WRZ 3. SSW has sufficient resources to meet the forecast growth in demand plus target headroom for both the annual average and peak week conditions throughout the plan period to 2035. Demand management measures are therefore all that is required by SSW.

The Panel report which was published in September 2009 recognised the call by the Environment Agency for all LDDs to be supported by a WCS as being a key requirement which needs to be reflected in the RSS. The Report suggested that water supply be addressed through a series of policy making initiatives, as set out in the revised WMRSS2 policy SR4, and reproduced in **Figure 5.1**.

In relation to Water Supply issues identified by the HRA, local authorities and other plan makers should:

(i) engage in early consultation with water companies, the Environment Agency and the HRA statutory consultation bodies on site allocations to ensure development is located and appropriately phased in Water Resource Zones where a sustainable water supply is available and where water supply can be secured without adverse effects upon a European site;

(ii) avoid development within the Pilleth Water Resource Zone (affecting a small part of rural Herefordshire) unless it can be demonstrated that water supply can be secured without adverse effects on a European site;

(iii) where significant effects on a European site are possible, ensure that Water Cycle studies inform the evidence base for LDDs.

Figure 5.1: *Extract from the revised WMRSS2 Policy SR4 for water supply (PINS, 2009)*

5.4.2 Effects on Site Integrity

In line with Regulation 33 advice (Natural England & CCW, 2009) on the possible operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species for the Severn Estuary, the West Midlands Natura 2000 sites information document (Treweek Environmental Consultants for Natural England, 2009) outlines the current threats to Site Integrity at the Severn Estuary. These are reproduced below.

Table 5.2: *Water Supply Effects on Site Integrity at the Severn Estuary*

Hazards/ pressures this site is potentially sensitive to	Sources of potential hazard/pressure	Current impacts and threats
Reduced flow	**Abstraction** reduces the ability of systems to dilute contaminants. Reduced flows can also affect the overall hydrology and morphology of the site. Reduction of flows in the main rivers can also affect the migratory fish species.	Abstractions that could affect the hydrology and morphology of the site would need to be very large, but they are a potential risk, particularly when considering the effects of an accumulation of abstractions along the catchment, although it is not currently an issue. Currently abstraction levels within the River Severn not thought to be impacting on the migratory fish any increase would be a risk. Abstractions level for the River Wye do present

		a risk and should be modified to remove this risk through the EA RoC process.

5.4.3 Mitigation Measures

The ST WRMP can provide the means of off setting the potential effects of water supply associated with demand for water in the Black Country. The Study states that:

> *"ST's draft WRMP indicates a supply/demand shortfall within the Severn WRZ (3) over the entire planning period through to 2035. In the latest update (March 2009), the impacts of climate change on deployable output gives more severe results (i.e. greater shortfalls) than in the draft WRMP. Although there has been some reduction in the demand, brought about the recent down-turn, the overall net effect of these changes in the projected supply/demand shortfall is around 120 Mld-1. As a result, ST is now proposing resources schemes (mainly groundwater) and demand management measures within this WRZ. The precise timing of these schemes will be included in the final WRMP. The situation with regards to water resources has been confirmed in an e-mail sent by Steve Southern (ST) on 30th March 2009. The parts of the Black Country lying within the Severn WRZ are the areas around Wolverhampton and also southwest corner of the Black Country around Stourbridge and Halesowen".*

In effect therefore, the precise solutions to water supply issues are a work in progress as far as the role of the water company is concerned. As implied by the e-mail response, ST are preparing to ensure that matters are resolved with the publication of the WRMP. Significantly, as this plan is in turn informed by the Review of Consents process at the Environment Agency (which also considers HRA implications) it can be considered that the potential effects associated with Water Supply are going to be mitigated effectively. This factor is further helped by policy DEL1 in the joint core strategy. It is important however to monitor progress with the WRMP and ensure that it can address the water supply issue through the various means that it has already cited which include water efficiency measures.

5.5 Recommendations

1. It is suggested that further Water Cycle Study work be prepared along the lines of the 2009 WCS suggestions (see **Section 4.3.3**).

2. The strategic growth network established in the Joint Core Strategy will be delivered through other Development Plan Documents: Site Allocation Plans and Area Action Plans. It is recommended that each of these documents are informed by more detailed WCS research which will enable appropriate mitigation options to be considered as part of the HRA work prepared for these plans.

3. Work progressed as part of the ST WRMP by Severn Trent Water should be closely monitored in order that any necessary actions be incorporated into work prepared for future Development Plan Documents in the Black Country.

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6 Summary and Conclusions

6.1 Conclusions to the Appropriate Assessment Process

This chapter summarises the findings of the appropriate assessment process.

6.2 Appropriate Assessment findings for Cannock Chase SAC

Cannock Chase SAC has been examined in terms of potential effects associated with the suggestion by new evidence (Footprint Ecology, 2009) that visitors from the Black Country cause adverse effects on the integrity of the SACs conservation objectives. Having reviewed the available evidence, it is concluded that many of the findings depend heavily on data that is now 10 years old and therefore somewhat likely to be different now. Only a refreshed visitor survey will address this issue. New research into visitor numbers should also consider likely population changes associated with the plan period, as well as other factors such as existing management strategies for the AONB and Country Park.

The following three recommendations have been made to consider this matter further:

1. It is suggested that a new visitor survey be prepared as a matter of priority, in the near future, on a partnership basis with the Staffordshire LPAs who would lead on the project. The Footprint Ecology (p.40, 2010) report suggests a number of survey methods: household survey, on-site monitoring, car park counts, and discreet counts and interviews.

2. The strategic growth network established in the Joint Core Strategy will be delivered through other Development Plan Documents: Site Allocation Plans and Area Action Plans. It is recommended that each of these documents are informed by updated visitor survey information and that the mitigation options cited in **Section 3.3.3 and 3.4.3** are re-examined as part of the HRA work prepared for these plans.

3. The Staffordshire LTP3 may be able to provide information about local air pollution associated with roads in the county. Information garnered through this plan making process should also be used to inform future HRA work.

In terms of the matter affecting the JCS proposals, it is suggested that the forthcoming site allocation DPDs and Area Action Plan DPDs, which will allocate development proposals in the Black Country more precisely should examine this issue as part of the HRA processes for each plan.

6.3 Appropriate Assessment findings for the Humber Estuary cSAC, SPA and Ramsar

If the mitigation measures are followed, and further, more detailed WCS studies are completed and actioned before 2015, there will be no significant effect on water quality at this site. The HRA process should be applied to all DPDs with spatial development proposals, e.g. Site Allocations and AAPs to revise this issue and incorporate detailed WCS recommendations when they are available.

The following two recommendations have been made to consider this matter further:

1. It is suggested that further Water Cycle Study work be prepared along the lines of the 2009 WCS suggestions see above.

2. The strategic growth network established in the Joint Core Strategy will be delivered through other Development Plan Documents: Site Allocation Plans and Area Action Plans. It is recommended that each of these documents are informed by more detailed WCS research which will enable appropriate mitigation options to be considered as part of the HRA work prepared for these plans.

6.4 Appropriate Assessment findings for the Severn Estuary cSAC, SPA and Ramsar

The forthcoming ST WRMP (which is the plan providing water to parts of the Black Country) will be subject to a detailed Review of Consents process, prepared by the Environment Agency. This RoC process will include consideration of Habitats Regulations issues. On this basis, and due to the requirement for Defra approval which will also expect to see that the WRMP has considered HRA issues, it is anticipated that the water to be supplied by Severn Trent for use in the Black Country will not cause adverse effects on the Severn Estuary. Additionally policy DEL1 (infrastructure) provides a requirement for sustainable development which will include consideration of water supply to new development. It should be noted therefore that the forthcoming WMRP and its recommendations for water conservation measures (such as retrofitting water meters) may be a consideration for future DPDs in the Black Country.

Three recommendations have been made with respect to further work in association with the Severn Estuary European site designations:

1. It is suggested that further Water Cycle Study work be prepared along the lines of the 2009 WCS suggestions (see **Section 4.3.3**).

2. The strategic growth network established in the Joint Core Strategy will be delivered through other Development Plan Documents: Site Allocation Plans and Area Action Plans. It is recommended that each of these documents are informed by more detailed WCS research which will enable appropriate mitigation options to be considered as part of the HRA work prepared for these plans.

3. Work progressed as part of the ST WRMP by Severn Trent Water should be closely monitored in order that any necessary actions be incorporated into work prepared for future Development Plan Documents in the Black Country.

6.5 Conclusions

This report presents the Appropriate Assessment of the Black Country JCS. It is informed by a screening exercise published alongside this report (UE Associates, 2010) and is the culmination of a series of iterative assessments of the plan and new evidence presented by a consortium of Staffordshire planning authorities on Cannock Chase SAC, and via the Black Country Water Cycle Strategy.

The assessment establishes the nature of effects on the ecological integrity of Cannock Chase SAC, Humber Estuary cSAC/SPA/Ramsar, and Severn Estuary cSAC/SPA/Ramsar. It recommends further research to inform HRA work for future BC DPDs which will allocate development proposals in the Black Country. This relates to visitor surveys on Cannock Chase SAC and detailed Water Cycle Studies.

As a result of the assessment and recommendations it is considered that all negative effects of the JCS in relation to the conservation objectives of Cannock Chase SAC, Humber Estuary cSAC/SPA/Ramsar, and Severn Estuary cSAC/SPA/Ramsar can be overcome by pursuing these actions and undertaking comprehensive HRA of all future spatial development DPDs for the BC. The plan does not require further assessment in combination with effects of other plans and projects, provided the avoidance and mitigation measures are adopted and implemented successfully.

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