



**WEALDEN DISTRICT (INCORPORATING PART OF
THE SOUTH DOWNS NATIONAL PARK) LOCAL
DEVELOPMENT FRAMEWORK:
ASSESSMENT OF THE
CORE STRATEGY UNDER THE
HABITATS REGULATIONS**

**Submission Stage
August 2011**





**Wealden District (incorporating part of the South
Downs National Park)**

Local Development Framework:

**Assessment of the Core Strategy under the
Habitats Regulations**

Submission Stage

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Contents

Executive Summary	i
E1.1 Background	i
E1.2 Scope	i
E1.3 Findings and Recommendations	i
1 Introduction	1
1.1 Background	1
1.2 Habitats Regulations Assessment	1
1.3 Guidance and Best Practice	2
1.4 Scope, Method and Consultation	4
1.5 Purpose and Structure of this Document	4
2 The Wealden District Core Strategy	5
2.1 Background to the Core Strategy	5
2.2 Character and Geography of the Borough	5
2.3 Likely Key Outcomes of the Plan	6
3 European Site Information	7
3.1 Introduction	7
3.2 Ecological Information about the European Sites	7
4 Appropriate Assessment	13
4.1 Introduction	13
4.2 Findings of the Screening Stage	13
4.3 The Appropriate Assessment Stage	13
4.4 Related Studies	16
5 Atmospheric Pollution: Ashdown Forest SAC and Lewes Downs SAC	17
5.1 Impact Source	17
5.2 Impact Pathway	17
5.3 Effects on Site Integrity	20
5.4 Other Considerations	20
5.5 Assumptions and Limitations	25
5.6 Appropriate Assessment Findings	25
5.7 Recommendations	26
5.8 Residual and In Combination Effects	26

6	Disturbance: Ashdown Forest SPA	27
6.1	Impact Source	27
6.2	Impact Pathway	27
6.3	Effects on Site Integrity	30
6.4	Other Considerations	30
6.5	Assumptions and Limitations	34
6.6	Appropriate Assessment Findings	34
6.7	Recommendations	35
6.8	Residual and In Combination Effects	36
7	Urbanisation Effects: Ashdown Forest SAC/SPA	37
7.1	Impact Source	37
7.2	Impact Pathway	37
7.3	Effects on Site Integrity	38
7.4	Other Considerations	39
7.5	Assumptions and Limitations	39
7.6	Appropriate Assessment Findings	39
7.7	Recommendations	39
7.8	Residual and In Combination Effects	39
8	Atmospheric Pollution, Hydrology and Water Quality: Pevensey Levels pSAC/Ramsar	41
8.1	Impact source	41
8.2	Consideration of impacts	41
8.3	Appropriate Assessment Findings	41
8.4	Recommendations	43
8.5	Residual and In Combination Effects	43
9	Summary and Outcomes of the HRA	45
9.1	Summary of HRA Recommendations	45
9.2	Summary of Outcomes	47
10	Conclusion	49
10.1	Conclusions	49
	References	51

Appendices

Appendix I Core Strategy Policy

Appendix II Ecological Descriptions

Appendix III Conservation Objectives

Appendix IV Key Conditions supporting Site Integrity

Appendix V Re-Screening of Core Strategy Policies under 2009 Natural England Draft Guidance

Appendix VI Current Annual Average Daily Traffic Flows

Appendix VII Routeing Options and Assignment Results for Road Network relating to Ashdown Forest and Lewes Downs SACs

Appendix VIII Recreational Pressure Source Maps

Appendix IX Design Requirements for Suitable Alternative Natural Greenspaces

List of Tables

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

Table 3.1: *Qualifying features of European sites in and around Wealden District*

Table 3.2: *Status of SSSIs coinciding with the European sites, % area (Source: Natural England, January 2010)*

Table 3.3: *National and local bird population trends (Source: RSPB, Ashdown Conservators)*

Table 4.1: *Summary of likely significant effects of the Wealden District Core Strategy at the Regulation 25 stage (Source: adapted from WDC, 2009a)*

Table 5.1: *Baseline nitrogen load and level for Ashdown Forest and Lewes Downs SACs (Source: APIS, data to 2008)*

Table 5.2: *Additional Annual Average Daily Traffic Flows (AADT) on Ashdown Forest and Lewes Downs Highway Links from Allocations and Commitments in Uckfield and Crowborough*

Table 5.3: *Recommendations relevant to atmospheric pollution*

Table 6.1: *Predicted additional visitor rates to Ashdown Forest SPA as a result of new development at a selection of locations (Source: Clarke et al, 2010)*

Table 6.2: *Wealden strategic housing allocations 2006-2030, together with requisite SANG provision (at 8ha/1,000 population)*

Table 6.3: *Avoidance and mitigation measures relevant to disturbance*

Table 7.1: *Avoidance and mitigation measures relevant to urbanisation*

Table 8.1: *Avoidance and mitigation measures relevant to hydrology*

Table 9.1: *Unified avoidance and mitigation package for the Wealden District Core Strategy*

List of Figures

Figure 3.1: *European sites in and around Wealden District*

Figure 5.1: *Road network in and around Ashdown Forest and Lewes Downs*

Figure 6.1: *Zones of influence around Ashdown Forest*

Abbreviations

AA	Appropriate Assessment	N	Nitrogen
AADP	Annual Average Daily Persons trip rate	NH ₄	Ammonia
AADT	Annual Average Daily Traffic flow	NO _x	Oxides of nitrogen
AAWP	Annual Average Weekday Person triprate	RSS	Regional Spatial Strategy
CL	Critical Load or Level	SAC	Special Area of Conservation
DMRB	Design Manual for Roads and Bridges	SANG	Suitable Alternative Natural Greenspace
DPD	Development Plan Document	SO ₂	Sulphur dioxide
ha	Hectare	SPA	Special Protection Area
HRA	Habitats Regulations Assessment	SSSI	Site of Special Scientific Interest
IROPI	Imperative Reasons of Overriding Public Interest	µg	Microgram
LDD	Local Development Document	WDC	Wealden District Council

Executive Summary

E1.1 Background

This report presents the findings and recommendations of the Habitats Regulations Assessment (HRA) for the Wealden District Core Strategy. It follows a screening exercise, published in July 2009 (Wealden District Council, 2009a).

E1.2 Scope

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

- ▶ Ashdown Forest Special Area of Conservation (SAC);
- ▶ Ashdown Forest Special Protection Area;
- ▶ Castle Hill SAC;
- ▶ Lewes Downs SAC; and
- ▶ Pevensey Levels possible SAC / Ramsar site.

Castle Hill SAC was screened out from further consideration due to its specific ecological vulnerabilities and distance from the district. Natural England (2010) concurred with these findings in its screening opinion on the plan.

The likely significant effects of the Core Strategy identified during the screening exercise were:

- ▶ Atmospheric pollution;
- ▶ Disturbance from recreation;
- ▶ Urbanisation effects on lowland heathland habitat;
- ▶ Surface water run-off impacts on hydrology; and
- ▶ Deteriorating water quality.

E1.3 Findings and Recommendations

This HRA Report demonstrates that there will be **no adverse effects** on the ecological integrity of any European site as a result of the Wealden District Core Strategy in relation to the following impact types:

- ▶ **Atmospheric pollution at Ashdown Forest SAC and Lewes Downs SAC;**
- ▶ **Atmospheric pollution at Pevensey Levels pSAC/Ramsar; and**

▶ **Deteriorating water quality at Pevensey Levels pSAC/Ramsar.**

The report further demonstrates that adverse effects associated with the Core Strategy in relation to the following impact types **can be overcome** provided the avoidance and mitigation package is successfully adopted and implemented:

- ▶ **Disturbance from recreation at Ashdown Forest SPA;**
- ▶ **Urbanisation effects at Ashdown Forest SAC/SPA; and**
- ▶ **Surface water impacts on hydrology at Pevensey Levels pSAC/Ramsar.**

Chapter Nine to the main report summarises all HRA recommendations for avoidance and mitigation, and gathers them together in one place for ease of reference.

1 Introduction

1.1 Background

This report presents the findings and recommendations of the Habitats Regulations Assessment (HRA) for the Wealden District Core Strategy. It follows a screening exercise undertaken during spring 2009, published in July (Wealden District Council (WDC), 2009a).

The assessment focuses on:

- ▶ Ashdown Forest Special Area of Conservation (SAC);
- ▶ Ashdown Forest Special Protection Area;
- ▶ Lewes Downs SAC; and
- ▶ Pevensey Levels possible SAC / Ramsar site.

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 (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 (designated under the *Convention on Wetlands of International Importance*, 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, whilst adhering to the precautionary principle. The European Commission (2000) 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 significant effects are likely or uncertain, plan makers must firstly seek to avoid the effect, for example, through a change of policy. If this is not possible, mitigation measures should be explored to remove or reduce the effect. If neither avoidance, nor subsequent 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 suitable for removing an 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.

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 or mitigation 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 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 Local Development Documents under the provisions of the Habitats Regulations (Tyldesley, 2009). 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 is draft it nevertheless provides a helpful approach to HRA and is followed within this report.

Table 1.1 illustrates how the two approaches (DCLG and Natural England) can be operated as one integrated methodology to achieve the same outcome from each approach.

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

DCLG Stage	Natural England (Tyldesley) Steps		
AA1: Likely significant effects	1. Gather the evidence base about international sites.		
	2. Consult Natural England and other stakeholders on the method for HRA and sites to be included.		
	3. Screen elements of the plans for likelihood of significant effects.		
	4. Eliminate likely significant effects by amending the plan / option.		
	5. Consult Natural England and other stakeholders on the findings of the screening stage, and scope of the Appropriate Assessment if required.		
AA2: Appropriate Assessment and ascertaining the effect on integrity	6. Appropriate Assessment of elements of the plan likely to have significant effects on a European site.	8. Assess additions and changes to the plan and prepare draft HRA record.	ITERATIVE
AA3: Mitigation measures and alternative solutions	7. Amend the plan / option or take other action to avoid any adverse effect on integrity of European site(s).	9. Complete the draft Appropriate Assessment and draft HRA record.	
Reporting and recording	10. Submit draft HRA and supporting documents to Natural England.		
	11. Consult Natural England, other stakeholders and the public (if suitable).		
	12. Publish final HRA record and submit with Natural England letter to Inspector for Examination.		
	13. Respond to any representations relating to the HRA and to Inspector's questions.		
	14. Check changes to the plan, complete HRA record and establish any monitoring required.		

1.4 Scope, Method and Consultation

Step five 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 of assessment were set out in the Screening Statement (WDC, 2009a) published with the Core Strategy Spatial Development Options (WDC, July 2009b); the HRA presented in this report follows the combined methodology shown in Table 1.1.

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. Draft assessments were prepared in tandem with Core Strategy policy development in order to provide relevant information on ecological matters to Wealden District Council planning policy officers as they prepared the Core Strategy for publication under Regulation 27 (of the Town and Country Planning (Local Development) (England) Regulations 2008).

A stakeholder meeting was held on 19 February 2010, where representatives from Natural England, the Environment Agency, RSPB, Conservators of Ashdown Forest and Wildlife Trust were given the opportunity to discuss issues relating to the development of the HRA and Core Strategy. Following this, the Core Strategy was revised and further meetings were held with Natural England to agree proposals for avoidance and mitigation. More details on consultation are given in **Chapter Ten** and any comments made will be taken into account during future revisions of the assessment, if required.

1.5 Purpose and Structure of this Document

This report documents the process, findings and recommendations of HRA. It identifies, analyses and quantifies (where possible) potential negative impacts on the European sites 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 remaining sections of the report are as follows:

- ▶ **Chapter Two:** introduces the Core Strategy, and describes its aims and objectives, together with the likely outcomes of the plan;
- ▶ **Chapter Three:** identifies the European sites which are receptors of the plan's likely significant effects, together with ecological information about these sites;
- ▶ **Chapter Four:** provides a review of the screening stage of HRA and introduces the Appropriate Assessment stage, describes how to interpret it and explains any common value judgements or assumptions;
- ▶ **Chapters Five to Eight:** assess the effects of the plan in relation to the European sites affected, and set out the avoidance and mitigation measures required;
- ▶ **Chapter Nine:** illustrates the outcomes of the HRA process and how it has influenced the development of the Core Strategy; and
- ▶ **Chapter Ten:** presents consultation arrangements and concludes the document.

2 The Wealden District Core Strategy

2.1 Background to the Core Strategy

The Wealden District Core Strategy will be the overarching planning document, which forms part of a wider set of local planning policy documents known as the Local Development Framework (LDF). The LDF will gradually replace the policies in the Wealden Local Plan (WDC, 1998) and Non-Statutory Wealden Local Plan 2006-11 (WDC, 2005). When finalised, the Core Strategy will:

- ▶ Deliver the spatial elements of Wealden's Sustainable Community Strategy;
- ▶ Set strategic objectives and policies;
- ▶ Identify broad locations for development, protection or change, and show these on a key diagram; and
- ▶ Set out an implementation and monitoring framework.

The vision for Wealden, which will drive the plan forward and set the direction for future development, is:

By 2030 Wealden will have successfully accommodated growth to meet future needs whilst protecting and enhancing its essential rural character and high quality environment and promoting the countryside as a resource for recreation and tourism. Its market towns will have been regenerated providing opportunities for residents to access suitable housing, local jobs, services, facilities and recreational opportunities and a number of its villages and rural settlements will have enhanced their sustainability through successful growth including provision of affordable housing.

The vision is supported by 15 Spatial Planning Objectives.

2.2 Character and Geography of the Borough

As described in the Core Strategy, Wealden is a large and diverse rural district, encompassing a range of settlements and communities. It contains five relatively small market towns and a large number of villages, some of which are picturesque and are particularly popular with visitors. Each town is different and its role varies according to its location. The proximity of larger towns outside the district has a major impact on the area as many people travel outside Wealden to work, shop or use other facilities.

Half of the District's population of around 146,000 live in the rural areas, often remote from services. This dispersed settlement pattern creates particular challenges for local service provision, but helps to give the District its spatial character. The scattered settlement pattern makes an efficient and viable public transport system more difficult to provide. Existing networks of main roads and railways tend to focus on routes to London and large towns

outside the District, rather than between the towns themselves. This has restricted investment in the local economy, and impacted on access to employment and leisure opportunities for residents within the District.

A high proportion the District is designated and protected for its landscape and biodiversity importance. Many parts of the District offer a contrast to urban life and pressures, making a unique contribution to quality of life. There is a high coverage of internationally important areas of conservation including Ashdown Forest and the Pevensey Levels. The South Downs became a National Park in 2010 and includes a significant area of the south of the District.

2.3 Likely Key Outcomes of the Plan

Over the period 2006 to 2030, the Core Strategy makes provision for at least 9,600 homes, at an average of 400 dwellings per year, centred mainly on the towns of Hailsham / Hellingly, Polegate / Willingdon and Uckfield, and to a lesser extent Crowborough, Heathfield and Stone Cross. Sustainable development of the district's towns and villages will be supported by the provision of an additional 40,000 square metres of employment floorspace, and 17,000sqm retail. Development will be allocated according to the settlement hierarchy:

- ▶ **District centres:** Crowborough, Uckfield and Hailsham;
- ▶ **Service centres:** Heathfield, Polegate, Willingdon, Stone Cross, Wadhurst and Forest Row;
- ▶ **Local service centres:** Mayfield, Frant, Buxted, Herstmonceux, Ninfield, Pevensey Bay, Horem, Alfriston, Groombridge, Hartfield, Westham and Rotherfield;
- ▶ **Neighbourhood centres:** Pevensey, East Hoathly, Maresfield, Danehill, East Dean, Five Ash Down, Berwick Station, Broad Oak, Withyham, Fletching, Nutley, Boreham Street, Laughton, High Hurstwood, Little Horsted, Isfield, Upper Dicker, Lower Horsebridge, Hellingly, Ripe, Selmeston, Magham Down, Windmill Hill, Rushlake Green, Bells Yew Green, Mark Cross, Cross-in-Hand and Chelwood Gate; and
- ▶ **Other unclassified settlements:** all other settlements in Wealden district.

Core Strategy policy wordings can be viewed at **Appendix I**.

3 European Site Information

3.1 Introduction

The HRA screening exercise for the Wealden District Core Strategy (WDC, 2009a) identified the following European sites for consideration:

- ▶ Ashdown Forest Special Area of Conservation;
- ▶ Ashdown Forest Special Protection Area;
- ▶ Castle Hill SAC;
- ▶ Lewes Downs SAC; and
- ▶ Pevensey Levels Ramsar site and possible SAC (pSAC).

Castle Hill SAC was screened out from further consideration due to its specific ecological vulnerabilities and distance from the district. Favourable conservation status at this site is largely governed by appropriate management, which requires a suitable grazing regime and protection from leachates and drift spray from surrounding arable land, both of which would be unaffected by the Wealden Core Strategy. It is also vulnerable to atmospheric pollution from road traffic, but its distance both from Wealden district (c.11.5km) and the nearest road (B2123; c.400m) mean that this is not a likely impact of the Wealden Core Strategy.

The HRA therefore focuses on the Ashdown Forest SAC/SPA, Lewes Down SAC and Pevensey Levels pSAC/Ramsar; see **Figure 3.1**. Natural England (2010) concurred with these findings in its screening opinion on the plan.

3.2 Ecological Information about the European Sites

3.2.1 *Site descriptions*

An ecological description of each European site is given in **Appendix II**.

3.2.2 *Qualifying features*

The qualifying features of each site (that is, the reasons for which the sites were designated as European sites) are listed in **Table 3.1**.

3.2.3 *Conservation objectives*

Natural England is in the process of setting out conservation objectives for all SACs and SPAs, and progress towards these objectives can be taken as an indicator of favourable conservation status at the site. The conservation objectives of the above sites are currently a work in progress and are provided in **Appendix III**.

European sites in and around Wealden District



The Summit | 40 Highgate West
Hill | London | N6 6LS
www.ue-a.co.uk

Scale	Date
1:260,500	Jan. 2010
Created by	Reviewed by
HLG	NP

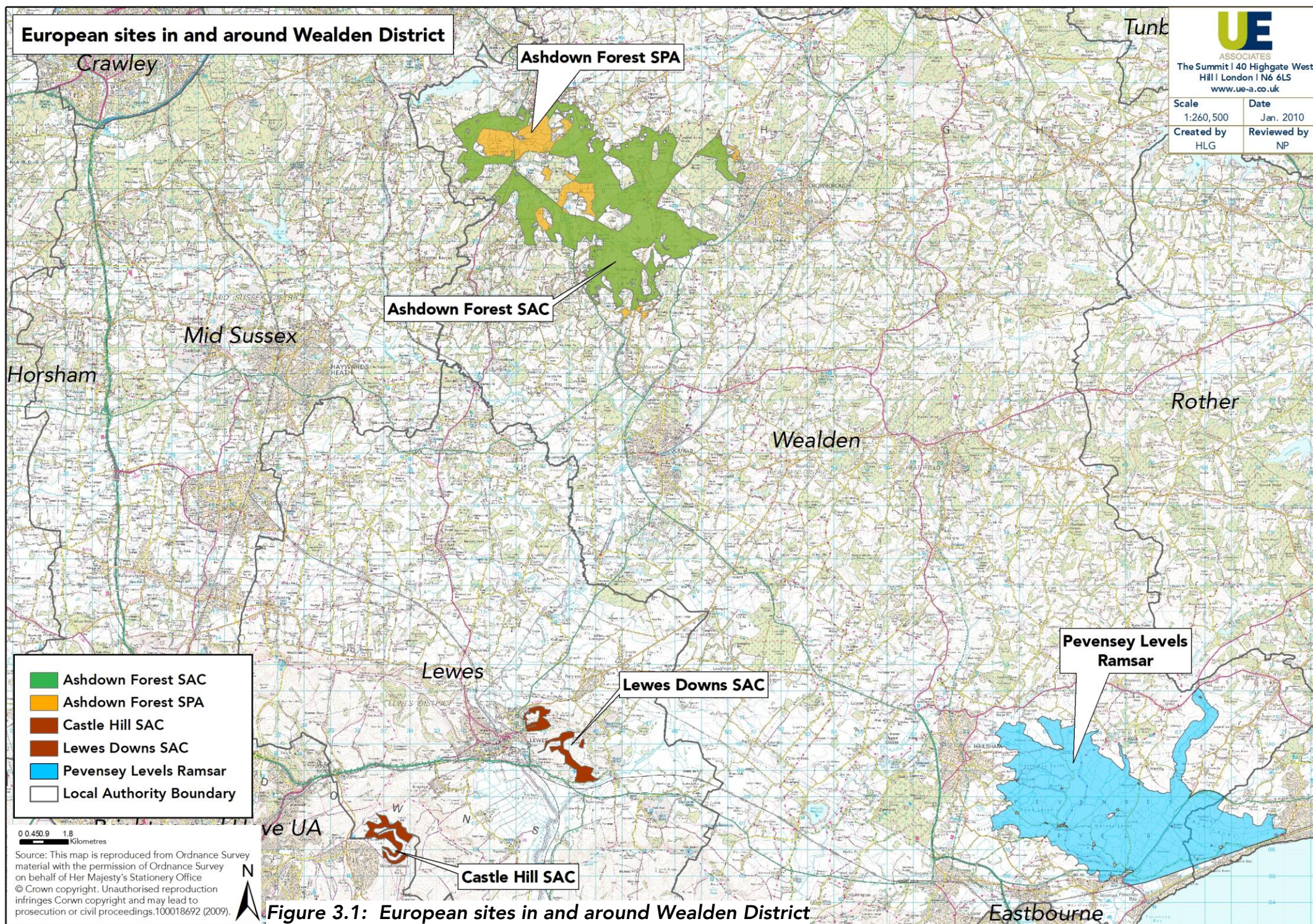


Table 3.1: Qualifying features of European sites in and around Wealden District

Ashdown Forest SAC	Ashdown Forest SPA
Annex I Habitats - European dry heaths - Northern Atlantic wet heaths with <i>Erica tetralix</i> Annex II Species - Great crested newt <i>Triturus cristatus</i>	Annex I Birds - Dartford warbler <i>Sylvia undata</i> (20 pairs or 2.1% of the GB breeding population; 1994 count) - Nightjar <i>Caprimulgus europaeus</i> (35 pairs or 1.1% of GB breeding population; 1991/92 count)
Lewes Downs SAC	Pevensey Levels Ramsar
Annex I Habitats Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (important orchid sites) *	Ramsar Criterion 2: The site supports an outstanding assemblage of wetland plants and invertebrates including many British Red Data Book species. 3: The site supports 68% of vascular plant species in Great Britain that can be described as aquatic. It is probably the best site in Britain for freshwater molluscs, one of the five best sites for aquatic beetles <i>Coleoptera</i> and supports an outstanding assemblage of dragonflies <i>Odonata</i>.

* Denotes priority feature.

3.2.4 Key environmental conditions supporting site integrity

Each European site has distinctive characteristics that make it vulnerable to a variety of impact-inducing activities. The key identified environmental conditions that support ecological integrity at each European site are listed in **Appendix IV**.

3.2.5 Conservation status

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, such as:

- ▶ The area of habitat is stable or increasing within its natural range within the site.
- ▶ The structure and functions of the habitat necessary for its long-term maintenance continue to exist.
- ▶ The population of a species is maintaining itself as viable on a long-term basis.
- ▶ The natural range of a species within the site is stable.
- ▶ There is sufficient habitat to maintain the species population on a long-term basis.

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 (**Table 3.2**); the conservation objectives and definitions of favourable condition for features on the SSSI may inform the scope and nature of an assessment under the Habitats Regulations. Although it should be noted that SSSIs are designated for national (as opposed to international) nature

conservation interest, and so the condition of a SSSI cannot be 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. Therefore, while favourable condition of a SSSI cannot guarantee favourable conservation status of a European site, it can help to illustrate the situation: 41.73% of corresponding SSSI areas are in a favourable condition, but the majority of the total designated area (56.28%) is assessed as unfavourable (recovering), while 1.99% is unfavourable without improvement, or declining or part destroyed.

Table 3.2: Status of SSSIs coinciding with the European sites, % area (Source: Natural England, January 2010)

European site name	Favourable	Unfavourable recovering	Unfavourable no change	Unfavourable declining	(Part) destroyed
Ashdown Forest	2.26	97.74	0.00	0.00	0.00
Lewes Downs	91.62	5.51	0.00	2.88	0.00
Pevensey Levels	31.31	65.6	2.09	0.61	0.38
Ave.	41.73	56.28	0.70	1.16	0.13

For the Ashdown Forest SPA, this information is helpfully supplemented by a comparison of bird population trend data at the local and national levels (**Table 3.3**; Pers. comm., 2008a and 2009). According to *Birds of Sussex* (James [ed.], 1996), Sussex typically holds 20% of the country's nightjars. The Dartford warbler re-colonised Ashdown Forest in 1989 (one pair) and has since expanded; for example twelve pairs by 1993 and 26 by 1994. Species numbers go up and down irrespective of visitors, for example the very cold spring of 2005 and winters of 2008/09, 2009/10 and 2010/11 are likely to have led to a sharp drop in the numbers of Dartford warbler.

The data in Table 3.3 show that, although starting from a very low base, Dartford warbler fared better within Ashdown Forest than nationally, with the population 200% larger in 2005 than it was in 1993. During the period 1994 – 2006 the national population grew by 70% in comparison. Turning to nightjar, the Ashdown Forest population grew by almost 29% from 1997 – 2004, while the national population increased 35% between 1992 and 2004.

For both species, however, there has been a decline in the 2005 population since the highs of 2001; a decline of -57.6% for Dartford warbler and -21.7% for nightjar based on the 2001 figures. The reasons for this remain unclear but could relate to weather conditions, survey coverage, or increasing disturbance from visitors or other activities. But according to available data, both species populations remain above the levels present at the time of designation, meeting their SSSI conservation objectives.

Table 3.3: National and local bird population trends (Source: RSPB, Ashdown Conservators)

Year	Dartford warbler (pairs)				Nightjar (pairs)			
	Ashdown Forest	+/- (%)*	National	+/- (%)*	Ashdown Forest	+/- (%)*	National	+/- (%)*
1992	-	-	-	-	-	-	3,400 ⁽³⁾	0.0
1993	12	0.0	-	-	-	-	-	-
1994	26	+116.7	1,889 ⁽¹⁾	0.0	-	-	-	-
1995	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-
1997	53	+341.7	-	-	52	0.0	-	-
1998	67	+458.3	-	-	-	-	-	-
1999	60	+400.0	-	-	64	+23.1	-	-
2000	77	+541.7	-	-	69	+32.7	-	-
2001	85	+608.3	-	-	69	+32.7	-	-
2002	62	+416.7	-	-	-	-	-	-
2003	37	+208.3	-	-	-	-	-	-
2004	42	+250.0	-	-	67	+28.8	4,606 ⁽⁴⁾	+35.5
2005	36	+200.0	-	-	54	+3.8	-	-
2006	-	-	3,214 ⁽²⁾	+70.1	-	-	-	-

1. Gibbons and Wotton (1996)

2. Wotton *et al.* (in press)

3. Morris *et al.* (1994)

4. Conway *et al.* (2007)

* Percentage change in comparison to first year of data listed in this table.

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4 Appropriate Assessment

4.1 Introduction

This chapter sets out the findings of the HRA screening exercise, before going on to describe the Appropriate Assessment stage. The screening process was carried out during spring 2009 (WDC, 2009a), and its findings have been endorsed by Natural England, the statutory agency for nature conservation (Natural England, 2010).

4.2 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 Core Strategy are considered likely to lead to significant effects at a European site. The screening exercise revealed that several European sites are at risk from negative effects, and the Core Strategy therefore requires further assessment to establish whether there would be adverse effects on ecological integrity. Identified likely significant effects are summarised in **Table 4.1**, which is adapted from the Screening Statement (see also **Appendix V** which re-screens Core Strategy policies using the 2009 draft guidance from Natural England).

It is possible that the findings of the screening exercise could be superseded upon more detailed analysis during the Appropriate Assessment stage. Wherever changes to screening findings are made, the decision and clear justification is set out in the relevant section of the Appropriate Assessment presented in **Chapters Five to Eight**.

4.3 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, in view of the site's conservation objectives (see **Chapter Three** and **Appendix III**). 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 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**.

Table 4.1: Summary of likely significant effects of the Wealden District Core Strategy at the Regulation 25 stage (Source: adapted from WDC, 2009a)

Effect	Cause	Pathway	Receptor
Ashdown Forest SAC			
Atmospheric pollution	Development of 9,600 dwellings, esp those to the north	Growth in traffic flow on A22, A275, A26, & possibly minor roads	- European dry heaths - Northern Atlantic wet heaths
Multiple effects of urbanisation	Development of 9,600 dwellings, esp those to the north	Generally increasing footfall, fly-tipping, predation	- European dry heaths - Northern Atlantic wet heaths
Ashdown Forest SPA			
Disturbance	Development of 9,600 dwellings, esp those to the north	Recreational pressure leading to increasing visitor activity	- Dartford warbler - Nightjar
Multiple effects of urbanisation	Development of 9,600 dwellings, esp those to the north	Generally increasing footfall, fly-tipping, predation	- Dartford warbler - Nightjar
Lewes Downs SAC			
Atmospheric pollution	Development of 9,600 dwellings and commercial floorspace	Growth in traffic flow on A26, and possibly B2192	- Calcareous grassland
Pevensey Levels pSAC/Ramsar			
Altered hydrological regime	Development of 9,600 dwellings and commercial floorspace	Increased water abstraction lowering water table	- Assemblage of wetland plants - Freshwater molluscs, aquatic beetles, dragonflies
Atmospheric pollution	Development of 9,600 dwellings and commercial floorspace	Growth in traffic flow on A27, and possibly minor roads	- Assemblage of wetland plants - Freshwater molluscs, aquatic beetles, dragonflies
Decreased water quality	Development of 9,600 dwellings and commercial floorspace	Growth in waste water with increasing discharges from treatment works	- Assemblage of wetland plants - Freshwater molluscs, aquatic beetles, dragonflies

The assessment first focuses on the effects generated by the proposed policies of the 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.

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

The assessments presented in **Chapters Five to Eight** are comprised of the following main sections:

- ▶ Impact source: proposals within the plan that cause the effect;
- ▶ Impact pathway: the mechanisms through which the proposed action may adversely affect certain qualifying features;
- ▶ Effects on site integrity: a statement of effects on ecological integrity, based on the categories listed in Box 1;
- ▶ Other considerations: a presentation of other material, as may be relevant to the issue being assessed; and

- ▶ Assumptions and limitations: any limiting factors to the assessment which should be borne in mind when considering the recommendations, such as any distance variables or specific vulnerabilities that need to be taken into account.

Each chapter concludes with a summary of the assessment findings, recommendations for avoidance and mitigation, and consideration of residual and in combination effects. The recommendations provide avoidance measures in the first instance, intended to remove the effects, and these are further supported by mitigation measures where necessary to ensure the effects of the plan can successfully be eliminated.

4.4 Related Studies

Four related studies have been undertaken in order to inform the Habitats Regulations Assessment of the Wealden District Core Strategy. The latest findings of these studies are drawn upon within the assessment, and they are listed below:

- ▶ Clarke *et al* (2010): *Ashdown Forest Visitor Survey Data Analysis*;
- ▶ Scott Wilson (2009): *Appropriate Assessment and Air Quality local to the Pevensey Levels Ramsar Site*;
- ▶ UE Associates & University of Brighton (2009): *Visitor Access Patterns on Ashdown Forest*; and
- ▶ Wealden District Council (2010): *Wealden and Rother Core Strategies Appropriate Assessment: Hydrology local to the Pevensey Levels*.

5 Atmospheric Pollution: Ashdown Forest SAC and Lewes Downs SAC

5.1 Impact Source

The screening exercise identified the **residential and commercial floorspace** elements of the Core Strategy as the drivers of increasing atmospheric pollution through **traffic growth**. This includes policies **WCS2, 3, 4** (in particular strategic sites at Uckfield and Crowborough; SD1, 8, 9 and 10) **6 and 10**; see **Appendix I**.

5.2 Impact Pathway

The habitats most sensitive to atmospheric pollution present in the European sites within the scope of the assessment are:

- ▶ At Ashdown Forest SAC: **European dry heaths and North Atlantic wet heaths**; and
- ▶ At Lewes Downs SAC: **semi-natural dry grasslands and scrubland facies on calcareous substrates**.

The main pollutant effects of interest are **acid deposition** and **eutrophication by nitrogen deposition**. The following brief descriptions draw on information presented through the Air Pollution Information System (APIS).

Acid deposition: caused by oxides of nitrogen (NO_x) (or sulphur dioxide, SO₂) reacting with rain/cloudwater to form nitric (or sulphuric) acid, and is caused primarily by energy generation, as well as road traffic and industrial combustion. Both wet and dry acid deposition have been implicated in the damage and destruction of vegetation (heather, mosses, liverworts and lichens are particularly susceptible to cell membrane damage due to excessive pollutant levels) and in the degradation of soils and watercourses (including acidification and reduced microbial activity).

Eutrophication by nitrogen deposition: consists of the input of nitrogen from NO_x (and sometimes ammonia, NH₃) emissions by deposition, and is caused primarily by road traffic, as well as energy generation, industrial combustion and agricultural practices. Nitrogen deposition can cause direct damage to heather, mosses, liverworts and lichens, as well as other plant species, because of their sensitivity to additional atmospheric nitrogen inputs, whilst deposition can also lead to long term compositional changes in vegetation and reduced diversity. For example a marked decline in heather and an increased dominance of grasses have been observed throughout the Netherlands and also in the East Anglian Brecklands (see for example Bobbink *et al* (1993) and Pitcairn *et al* (1991)).

Furthermore, while plants are able to detoxify and assimilate low exposure to **atmospheric concentrations of NO_x**, high levels of uptake can lead to detrimental impacts including:

- ▶ Inhibition of pigment biosynthesis, leading to reduced rates of photosynthesis;
- ▶ Water soaking as NO₂ molecules attach to lipids in membranes, causing plasmolysis (removal of water) and eventually necrosis;
- ▶ Inhibition of lipid biosynthesis, leading to reduced rates of regeneration and growth;
- ▶ Injury to mitochondria and plastids, essential to internal processing of energy and proteins;
- ▶ Decrease in stomatal conductance of air and water vapour; and
- ▶ Inhibition of CO₂ fixation (at least under low light levels).

As can be seen, nitrogen plays an important role in all three impact mechanisms. Sulphur dioxide emissions, which have decreased significantly in the UK over the last two to three decades through tighter regulation, are generally associated with centralised power generation, while ammonia emissions are largely related to agricultural sources and some industrial processes. The Core Strategy does not promote new energy generation facilities or significant changes to District's agricultural economy.

Over half of all emissions of nitrogen and nitrogen oxides in the UK are the result of vehicle exhausts, with an estimated 92% of those associated with residential development being contributed by road traffic (Dore *et al*, 2005). **Nitrogen emissions from traffic generated by residential and commercial developments will therefore be the focus of this part of the assessment.** The scope can be further refined by concentrating on traffic growth on roads within 200m of European sites, as beyond 200m effects of NO_x from this source diminish to the equivalent of background levels (Laxen & Wilson (2002), DfT (2005)). The main road corridors of interest are: the **A22, A275, A26, B2026 and B2188** at Ashdown Forest, and **A26 and B2192** at Lewes; see **Figure 5.1**.

Current scientific understanding of the effects of air pollution on natural and semi-natural habitats is limited by its complexity and interdependence with local environmental factors including soil type, geology and prevailing weather conditions. As a result considerations of pollution impacts, particularly at the strategic scale, are predominantly expressed in relation to a pollutant's experimentally derived critical load or level. Nilsson and Grennfelt (1988) define critical loads and levels as "*a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge*". Critical loads concern the quantity of pollutants deposited from the air to the ground (for example nitrogen deposition and acid deposition), whilst critical levels concern the gaseous concentration of a pollutant in the air (for example ammonia, sulphur dioxide, nitrous oxides and ozone).

Information derived from APIS (data up to 2008) demonstrates the nitrogen deposition load and level of atmospheric nitrogen at Ashdown Forest and Lewes Downs toward the centre of the sites; see **Table 5.1**. The concentration of atmospheric nitrogen is well within the receiving environment's capacity at both locations. However, the nitrogen deposition load at both locations is significantly exceeded beyond the ability of habitats to withstand deleterious effects, even without implementation of the Core Strategy. The situation is likely to be more severe in closer proximity to busy road corridors.

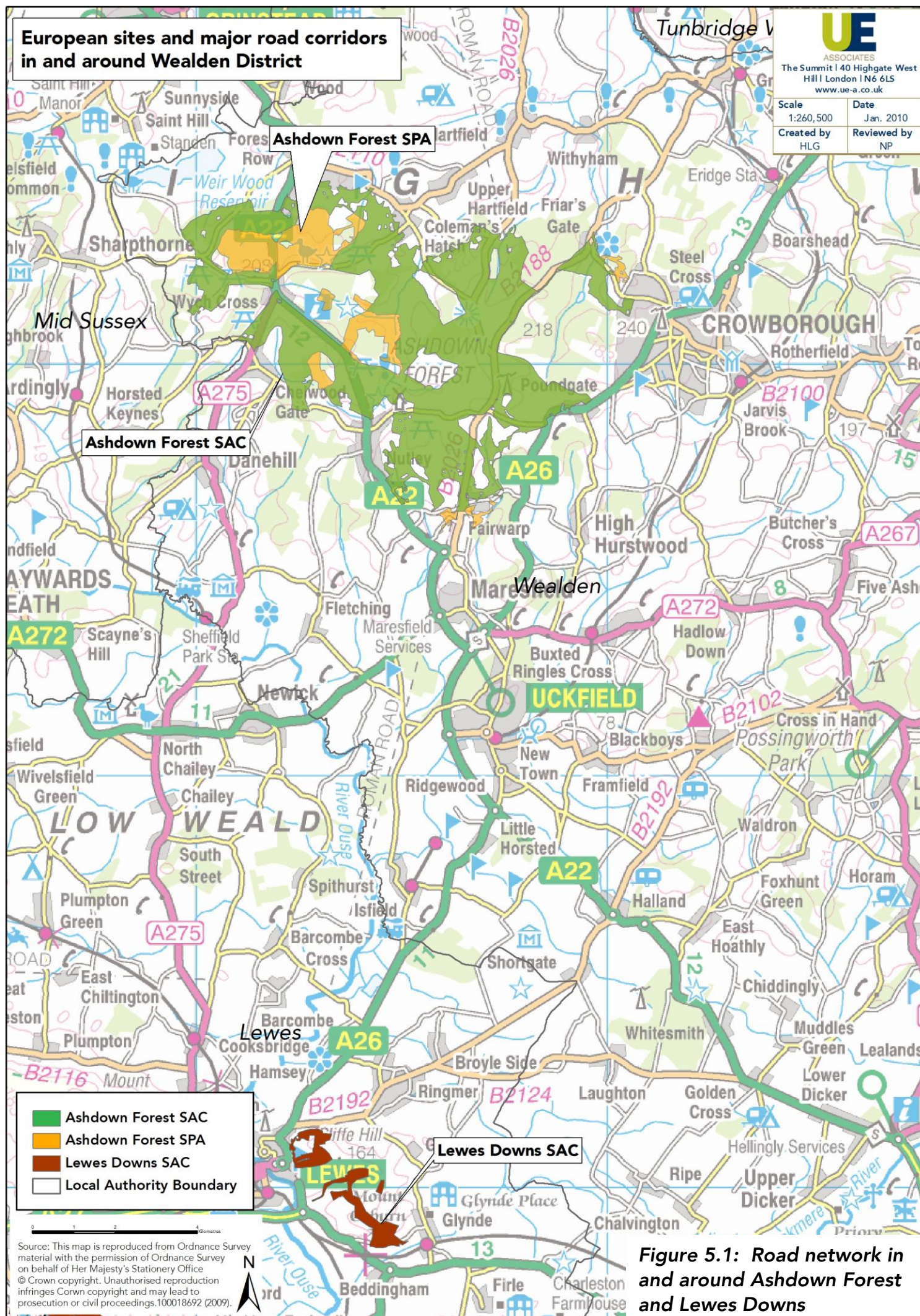


Table 5.1: Baseline nitrogen load and level for Ashdown Forest and Lewes Downs SACs
 (Source: APIS, data to 2008, where CL denotes critical load/level)

Site	National Grid Ref	Atmospheric N (μgm^{-3})		N Deposition (N/ha/yr)	
		Level	% of CL*	Load	% of CL*
Ashdown Forest	546171,128150	14.2	47.3%	14.6	146%
Lewes Downs	543831,109682	16.6	55.3%	16.4	164%

* Percentage is expressed as a percentage of the lowest CL where a range is given.

5.3 Effects on Site Integrity

The following effects on the ecological integrity of Ashdown Forest SAC and Lewes Downs SAC may occur (see **section 4.3**):

- ▶ Interrupts progress towards achieving the conservation objectives of the site;
- ▶ Disrupts those factors that help to maintain favourable conservation status onsite;
- ▶ Interferes with the balance, distribution and density of key species that are the indicators of the favourable conservation status of the site;
- ▶ Causes changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem;
- ▶ Reduces the area of key habitats;
- ▶ Changes the balance between key species; and
- ▶ Reduces the diversity of the site.

5.4 Other Considerations

Given that baseline nitrogen deposition exceeds critical loads within Ashdown Forest and Lewes Downs, the Council embarked on further assessment to determine the predicted increase in traffic flow on roads within 200m of these sites as a result of Core Strategy development. The following methodology was agreed with Natural England to ensure it was suitable for use in the HRA.

Guidance

The Design Manual for Roads and Bridges (DMRB; Highways Agency, 2007) provides guidance on assessment of the impact that road projects may have on local air quality. Specific provision is made in relation to sites designated pursuant to the Habitats Directive. In this instance the assessment is in relation to existing, as opposed to new roads, however the guidance clarifies that 'where appropriate, the advice may be applied to existing roads'. In accordance with this guidance, and with agreement by Natural England (minutes of meeting between Natural England, Mid Sussex District Council and Wealden District Council, 16 September 2010), the HRA will examine whether there is a likely significant effect using the DMRB guidance.

DMRB provides a scoping assessment for local air quality and initially requires the identification of roads which are likely to be affected by the proposals. The criteria for defining an affected road are:

- ▶ Road alignment will change by 5 metres or more; or
- ▶ Daily traffic flows will change by 1,000 AADT or more; or
- ▶ Heavy Duty Vehicle (HDV) flows will change by 200 AADT or more; or
- ▶ Daily average speed will change by 10km/hr or more; or
- ▶ Peak hour speed will change by 20km/hr or more.

The scoping assessment then requires that nature conservation sites within 200 metres of the road and their characteristics be identified (including SACs and SPAs). The guidance clarifies that if none of the roads in the network meet the traffic/alignment criteria (that is, they are not affected roads) or there are no relevant designated sites near the affected roads, then the impact of the scheme can be considered neutral in terms of local air quality and no further work is needed.

Scope of Study

There are a number of roads directly linking Wealden to other parts of the South East which transect Ashdown Forest SAC several of which are within 200m of the SAC. Routes across the Forest, and bordering Lewes Downs SAC, are shown on Figure 5.1 and include parts of:

- | | |
|--------------------------------|-------------------------------|
| ▶ St Johns Road, Crowborough | ▶ Mardens Hill, Crowborough |
| ▶ B2188 | ▶ B2026 |
| ▶ A26 | ▶ Road linking A26 with B2026 |
| ▶ Crowborough Road | ▶ Toll Lane |
| ▶ A22 at Nutley and Wych Cross | ▶ A275 at Wych Cross |
| ▶ Legsheath Road | ▶ Priory Road |
| ▶ Lewes Road | ▶ Plawhatch Lane |
| ▶ Colemans Hatch Road | ▶ Kidds Hill |
| ▶ Roads at Chuck Hatch | |

The population within the affected area is generally concentrated in the main settlements of Lewes, Forest Row, Uckfield and Crowborough with the remaining population dispersed within the surrounding rural area. Therefore the area of study has been restricted to the main road corridors of interest including the A22, A275, A26, B2026 and B2188 at Ashdown Forest, and A26 and B2192 at Lewes. These roads link these larger settlements together, and with the surrounding main South East Road Network.

Methodology

Development that could lead to significant air pollution effects is listed in **Appendix I**, in particular policies **WCS2, 3, 4, 6 and 10**. However, not all new development will be utilising the identified roads. The methodology therefore follows the calculation process described in **Box 2**.

Box 2: Traffic flow calculation process

Current Annual Average Daily Traffic:

Using data held by East Sussex County Council the current AADT for 2009, for the A22, A275, A26, B2026 and B2188 at Ashdown Forest, and A26 and B2192 at Lewes, are shown in **Appendix VI**.

Identify relevant development areas:

Travel to work data were used to provide an indication of the general use of the road system and to help determine the relevant settlements to include in the study. Wealden District covers a large area and not all residents or businesses will use the roads crossing or close to the Ashdown Forest and the A26 at Lewes on a regular basis. This is particularly relevant for the settlements to the south and east of Wealden, where there are alternative strategic and local road systems available.

For the assessment of impacts at Ashdown Forest SAC, relevant settlements are Uckfield (plus Maresfield) and Crowborough. For the purposes of this assessment Maresfield commitments have been included with Uckfield and therefore the same routing pattern applied. For the impacts upon Lewes Downs SAC, the relevant settlements used are Uckfield and Crowborough. While it is acknowledged that some (minor) additional traffic movements may originate from Hailsham and Polegate this would be difficult to quantify to any degree of certainty due to the alternative routing available to Lewes and beyond using the A27. Therefore for the purposes of this study, Polegate and Hailsham development has not been included in the assessment relating to Lewes Downs SAC.

Figures for new housing allocations and commitments as at December 2010 are:

Uckfield + Maresfield: $1,548 + 61 = 1,609$

Crowborough: 657

Determine average weekday person total trips per household using TRICS:

TRICS trip rates for private residential development vary according to the amount of mixed development (principally the extent of flats/apartments within the total development). Private housing in single house units gives a trip rate of 8.95 person trips / household all modes, all purposes, 12 hour (0700-1900) average annual weekday. Private housing in mixed developments (ie, houses and flats) gives an equivalent trip rate of 6.78. Without knowing the precise mix likely in new allocations, the analysis uses the average of the above 2 values, ie, 7.87 person trips / household all modes, all purposes, 12 hour (0700-1900) average annual weekday. The equivalent average trip rate for vehicles is 4.51 / household. Using National Travel Survey Table NTS0503, the factor to growth 12 hour person trips (all purposes, all modes, weekdays) to 24 hour is: 1.16.

Therefore annual average weekday person (AAWP) trip rate is:

$$7.87 \times 1.16 = \underline{9.13} \text{ trips / household.}$$

Determine average weekday commuter person trips per household using census Journey to Work data:

Census Journey to Work data gives figures for employed persons per household in Crowborough and Uckfield as follows:

Crowborough:	10,097 / 7,892
Uckfield:	7,322 / 5,535

Multiplying by 2 for return trips, and factoring by 0.9 to account for non-work weekdays (5 weeks non-work per year), the AAWP commuter person trips from existing development in Uckfield and Crowborough is:

Crowborough:	2.30 trips / household
Uckfield:	2.38 trips / household
Average:	2.34 trips / household

Therefore annual average weekday (AAWP) person commuter trip rate is 2.34 trips / household.

Calculate annual average weekday (AAWP) non-commuter person trip rate:

Subtract annual average weekday (AAWP) person commuter trip rate from annual average weekday person (AAWP) trip rate:

$$9.13 - 2.34 = \underline{6.79} \text{ trips / household}$$

Convert from AAWP to AADP (annual average [7] daily persons) using National Travel Survey Table NTS0504:

Table NTS0504 gives an AAWP to AADP conversion factor of 0.80 for commuting trips, and 0.98 for non-commuting trips. Annual average daily person (AADP) trip rates are therefore:

Commuting:	$2.34 \times 0.80 = \underline{1.87}$ trips / household
Non-commuting:	$6.79 \times 0.98 = \underline{6.65}$ trips / household

Convert the above to account only for trips to / from areas external to Uckfield and Crowborough respectively ('strategic'):

Census Journey to Work data shows the ratio between external and internal workplaces for residents to be consistently 58% external to 42% internal in both towns. As non-commuter trips would include a greater proportion of internal (school journeys, higher proportion of walking trips, local social trips, etc) the reverse has been assumed for non-commuter trips. Annual average daily (AADP) 'strategic' person trip rates are therefore:

Commuting:	$1.87 \times 0.58 = 1.085$ trips / household
------------	--

Non-commuting: $6.65 \times 0.42 = 2.790$ trips / household

Total 'strategic' annual average daily person (AADP) trip rate is therefore 3.88 trips / household.

Convert from person trip rate (AADP) to vehicle trip rate (AADT) using TRICS data:

The TRICS person trip rate is 7.87 / household, while the TRICS vehicle trip rate is 4.51 / household. Therefore the conversion factor from persons to vehicles is 0.57.

Therefore 'strategic' annual average daily vehicle trip rate for use in this assessment is:

$3.88 \times 0.57 = \underline{2.21}$ vehicles / household.

Calculate the total number of new 'strategic' vehicle trips (AADT) that would arise from the assessment allocations + commitments figure:

The calculation is thus:

Crowborough: $657 \times 2.21 = 1452$ AADT

Uckfield: $1609 \times 2.21 = 3555$ AADT

Using Census Journey to Work workplace distribution as a proxy for the distribution for all 'strategic' trips, and determining route choices by use of Google Maps time and distance module, manually assign the new 'strategic' trips to the relevant highway network:

Routeing options and assignment results are shown in **Appendix VII**.

Assessment Results

The results of the assessment in terms of additional annual average daily traffic on routes in close proximity to Ashdown Forest and Lewes Downs SACs are shown in **Table 5.2** below.

Assessment Conclusions

Maximum increases in traffic would arise on the A26 connecting Uckfield and Crowborough, and on the A22 between Uckfield and Forest Row with an increase of 950 vehicles per day AADT. However, on no part of the Ashdown Forest highway network (A22, A26 and internal minor roads) or the road network in close proximity to Lewes Downs SAC would the housing commitments and proposed allocations result in an increase in AADT of more than 1,000 vehicles per day. The results for Lewes Downs SAC allow some margin for any minor increase in traffic resulting from routing to Lewes from Hailsham and Polegate.

The findings reveal that no roads passing close to either European site meet the traffic criterion under the DMRB guidance, and so cannot be classified as 'affected roads'. The impact of the Core Strategy is therefore considered neutral and further assessment is not required.

Table 5.2: Additional Annual Average Daily Traffic Flows (AADT) on Ashdown Forest and Lewes Downs Highway Links from Allocations and Commitments in Uckfield and Crowborough

LINK	ADDITIONAL AADT
Ashdown Forest SAC	
A22 north of Forest Row	583
A22 Forest Row - Wych Cross	583
A22 Wych Cross - Nutley	583
A22 Nutley - Maresfield	506
A26 Maresfield - Duddleswell Road	773
A26 Duddleswell Road - Crowborough	950
B2026 Maresfield - Duddleswell	105
B2026 Duddleswell - B2188	179
B2026 B2188 - Kidds Hill	179
B2026 Kidds Hill - Hartfield	105
B2188 B2026 - Friars Gate	0
Kidds Hill	74
Colemans Hatch - Wych Cross	0
Duddleswell Road (west)	77
Duddleswell Road (east)	151
B2110 Colemans Hatch - Forest Row	74
Lewes Downs SAC	
A26 north of Lewes	771
B2192	n/a *

* No routing options were assigned to B2192 for journey destinations during the analysis presented in Appendix VII.

5.5 Assumptions and Limitations

The data described in **section 5.4** relies on assumptions regarding probable traffic flows arising from Core Strategy development derived from Journey to Work (Census) data. A transport model for road links close to Ashdown Forest and Lewes Downs SACs was not prepared in support of the Core Strategy.

5.6 Appropriate Assessment Findings

Based on the information given above, there is considered to be **no effects on the ecological integrity of Ashdown Forest SAC and Lewes Downs SAC** as a result of the Core Strategy.

5.7 Recommendations

Notwithstanding the assessment findings, the Council recognises that increases in traffic will result from Core Strategy development, possibly leading to increases in atmospheric pollution generally, and has devised a mitigation strategy as a matter of good practice and in order to monitor the effects of development. The measures presented in **Table 5.3** were developed in consultation with Natural England.

Table 5.3: Recommendations relevant to atmospheric pollution

Measure	Notes / description
1. Transport policy to encourage modal shift	Work with Mid Sussex and Lewes District Councils, and East and West Sussex Counties through their Local Transport Plans, to promote modal shift and "Smarter Choices" through the development of sustainable transport options.
2. Monitoring, research and review	A programme of monitoring and research to allow the effects of development on SACs to be reviewed, to ensure the sites' conservation objectives are not compromised. The programme will include (but not be limited to) and should be incorporated into the Council's Annual Monitoring Report: ▪ Monitoring of traffic flow patterns within and near to the SACs; ▪ Monitoring the level of modal shift attained by sustainable transport and "Smarter Choices" policies; ▪ Regular monitoring of nitrogen deposition and concentration rates along road corridors within the SACs; and ▪ Research and monitoring of the onsite effects on habitat and vegetation diversity.
3. Building flexibility into Core Strategy and links to lower tier plans	Core Strategy policies should include sufficient flexibility in implementation to respond to the findings of monitoring described in item 7, to ensure that adverse effects are avoided. This should include clear links to other Local Development Documents that might be prepared in order, for example, to further promote modal shift (such as a Parking Standards SPD).

5.8 Residual and In Combination Effects

Since the Core Strategy has been found to be neutral in relation to air quality on roads local to European sites, as defined by DMRB guidance, there can be no residual impact. Further consideration of in combination effects is not required.

6 Disturbance: Ashdown Forest SPA

6.1 Impact Source

The screening exercise identified the **residential** elements of the Core Strategy as the drivers of increased disturbance through increasing **recreational pressure**. This includes policies **WCS2, 4** (in particular strategic sites at Uckfield and Crowborough; SD1, 8, 9 and 10) **6 and 10**; see **Appendix I**.

6.2 Impact Pathway

Ashdown Forest has been a popular place for recreation and natural resources since the Common Lands Regulation (Ashdown Forest) Provisional Order Confirmation Act of 1885, and before. It is now the largest free public access open space in the South East, attracting an estimated 1.35 million visitors each year (UE Associates and University of Brighton, 2009).

As such it is a vital resource that contributes exceptional value to the quality of life of residents in East and West Sussex and beyond. However, it is also home to approximately 2.1% and 1.1% of the UK's population of breeding Dartford warbler and nightjar, respectively. Many visitors to the Forest originate from the surrounding area, and large increases in the number of homes around the Forest may compound the effects of disturbance from recreation of these birds of European importance.

Murison *et al.* (2007) note that animals often react to human disturbance as a form of predation risk (see also Frid & Dill, 2002). Such a response can include elevated heart rate, heightened defensive behaviour, including evasive measures with associated energy expenditure, and the avoidance of high risk areas (Murison *et al.* (2007), Liley & Sutherland (2007)). It is possible, therefore, that high levels of human activity in important nature conservation areas changes the behaviour of animals to such a degree that conservation priorities become compromised. This may be elicited through, for example, reduced breeding success, increased predation or exposure of nests, eggs or young to trampling and the elements (Liley & Sutherland, 2007). Meanwhile, it has been observed that the removal of human disturbance effects could result in an increase of between 13% and 48% in the breeding population of woodlark *Lullula arborea* over 16 heathland sites (Mallord (2005), quoted in Underhill-Day & Liley (2007)).

Liley and Clarke (2003), following field studies into the population density of nightjar on 36 patches of heathland in Dorset, demonstrated that patches surrounded by higher levels of development supported smaller populations of nightjar. The types of effects associated with urbanisation that they identified as relevant in this respect included human disturbance, light pollution, predation from natural predators and domestic pets (as well as corvids, foxes *Vulpes vulpes*, and hedgehogs *Erinaceus europaeus*), and habitat change. In the face of these challenges, conservation officers and managers of open access land need consider a number

of responses to balance the effects of human disturbance and urbanisation with requirements for access to recreation.

These might include both site-level responses, such as restricted access at certain times of year or changes to planting regimes, as well as strategic alternatives, such as the provision of substitute recreational facilities in less sensitive areas (Underhill-Day & Liley, 2007). Langston *et al.* (2007) suggest that responsible access '*... necessitates the provision of information for visitors to heathland to help them understand their... responsibilities and... change their behaviour*'.

Ashdown Forest is qualitatively different to the Dorset heathlands, which are made up of a series of heathland fragments disconnected from one another, whereas Ashdown Forest is a single large contiguous site where the patches of heathland are interconnected by semi-natural grassland and woodland. Furthermore, Ashdown is a well-known destination not unlike the New Forest, albeit smaller in scale, and as result may prove to be under considerable visitor pressure.

An analysis of visitor access patterns, therefore, is an essential first stage in developing an understanding of how to react to the challenges presented by increasing levels of human disturbance that might be associated with increased development. As Underhill-Day and Liley (2007) put it, the range of site-level and strategic management responses available need to be considered in light of '*a range of questions on where heathland users come from, why they come to the heaths, where they go and what they do once there.*'

Several studies of the interrelationship between recreational access and heathland biodiversity have been undertaken in recent years (see for example Clarke *et al.* (2006), Liley (1999), Liley & Clarke (2002, 2003), Liley *et al.* (2006), Murison (2002) and Murison *et al.* (2007)). The focus of most of these studies has been on the Dorset Heathlands, and also Thames Basin Heaths. This section introduces some of the pertinent issues, which may prove relevant to a study of Ashdown Forest.

6.2.1 *Mechanisms and measures of disturbance*

In a study into the relationship between habitat type and disturbance effects on the breeding Dartford warbler, Murison *et al.* (2007) noted the following as important measures of disturbance. First, they noted that indirect disturbance was associated with factors such as the distance from the centre of the heathland patch (or nest) to the nearest road, path, building or car park. Second, the proximity of a nest territory to the nearest access point showed a strong, direct negative relationship with the timing of a first brood. Third, disturbance appeared to be associated with increased stress levels, with birds exhibiting an extended period of agitation while searching for cover, leading to increased energy expenditure.

They suggest that the mechanisms by which disturbance affects the Dartford warbler's breeding success are associated with its particular susceptibility to disturbance during nest-building activities, with birds often abandoning their work and materials. The effects of this are threefold. The timing of the first brood was delayed for long enough (up to six weeks) to prevent multiple broods in one season. Also, the fledgling success of a first brood delayed until June was limited by the decreased availability of invertebrate prey. And similarly, that

continued disturbance events reduced the foraging effectiveness of the birds, and their ability to feed their young, by keeping the adults away from the nest for longer than normal.

Analysing the results of their study, Murison *et al.* (2007) found that breeding pairs with territories in areas experiencing as many as 13 to 16 disturbance events each hour of every day, delayed breeding for sufficiently long enough to prevent multiple broods in one season. Importantly, they also found a significant correlation between the reproductive success of Dartford warbler and the proportion of different gorse types present in the heathland patch. They discovered a strong positive relationship with European gorse *Ulex europaeus*, where heathland patches containing more of this type produced more successful broods. While the significance of disturbance events in delaying breeding among Dartford warbler pairs nesting in heather-dominated territories was high, often leading to reduced breeding success, the correlation was weaker in territories dominated by Western gorse *U. gallii*.

During their surveys, dogs were observed ranging as far as 45m into heather dominated areas, but never strayed from the path in areas with vegetation dominated by gorse. This could provide a useful tool to heathland managers, whereby the targeted positioning of gorse varieties, particularly alongside paths and bridleways, may help to reduce the incidence of disturbance. This may, of course, conflict with other conservation priorities especially in areas where the heathland habitat itself is of international importance, such as Ashdown Forest.

6.2.2 *Vulnerabilities of ground-nesting birds*

As previously mentioned, Liley and Clarke (2003) found that nightjar populations appeared particularly vulnerable to the effects of urbanisation, including human disturbance, light pollution, and predation by natural predators, pets and urban scavengers. In a study investigating the relationship between walkers with dogs and the success of breeding nightjar, Langston *et al.* (2007) observed that the flushing of birds from the nest by a disturbance event during daylight hours led to predation by diurnal predators, particularly of eggs. Moreover, birds tend to flush more readily in response to dogs than to humans, and take longer to return to the nest.

Furthermore, Langston *et al.* (2007) noted that disturbance effects on nightjar were more marked when breeding conditions were less favourable due to incidental factors such as weather conditions. Birds flushing the nest as a result of disturbance events during harsh or wet weather tended to bear smaller, less successful broods. Overall, they found a significant relationship between nest failure and disturbance, with failure being more likely in nests with higher total footpath length within 50, 100 and 500m of the nest clearing.

6.2.3 *Summary*

In summary, impacts to ground and near-ground nesting breeding bird species can be described as follows:

- ▶ Increased nest predation by natural predators when adults are flushed from the nest or deterred from returning to it by the presence of people or dogs;
- ▶ Chicks or eggs dying of exposure because they are kept away from the nest;
- ▶ Accidental trampling of eggs by people, given that (nightjar and woodlark) nests are on the ground and may be close to paths;

- ▶ Predation of chicks or eggs by domestic dogs; and
- ▶ Increasing stress levels in adult birds.

6.3 Effects on Site Integrity

The following effects on the ecological integrity of Ashdown Forest SPA may occur (see section 4.3):

- ▶ Interrupts progress towards achieving the conservation objectives of the site;
- ▶ Disrupts those factors that help to maintain favourable conservation status onsite;
- ▶ Interferes with the balance, distribution and density of key species that are the indicators of the favourable conservation status of the site;
- ▶ Reduces the (inhabitable) area of key habitats;
- ▶ Reduces the population of key species;
- ▶ Reduces the diversity of the site;
- ▶ Results in disturbance that could affect population size or density or the balance between key species; and
- ▶ Results in fragmentation.

6.4 Other Considerations

A study undertaken by UE Associates and the University of Brighton (2009) during summer and autumn 2008 investigates visitor access patterns at Ashdown Forest in detail. Interviews were carried out at 20 different access points across the Forest and respondents were asked about where they came from that day. By establishing patterns of travel by distance and mode of transport it is possible to estimate additional visitor pressure as a result of new development; **Appendix VIII** contains three maps which depict differing levels of pressure source associated with populations within a series of distance ranges from the Forest.

The data gathered during the 2008 field survey were further analysed on behalf of Natural England (Clarke *et al*, 2010) in order to extrapolate the findings to derive estimates of visitor numbers at un-surveyed access points, and explore the relationship between visitor intensity and bird territories within the SPA. Their analysis concluded that:

The research undertaken indicates that the current level of visitor pressure is not affecting the distribution of nightjar, woodlark or Dartford warbler within Ashdown Forest SPA. Based upon the analysis undertaken, the birds do not appear to be avoiding areas of greater recreational pressure. Visitor densities at the site appear to be less than on the Thames Basin Heaths as a whole and slightly higher than the whole of the Dorset Heaths... In considering the duty set out within Article 6(2) [of the Habitats Directive] it is concluded that the current level of visitor pressure in Ashdown Forest is not displacing the birds from otherwise suitable habitat, even within areas that the analysis of the visitor data shows to hold greater concentrations of visitors.

Recreational disturbance could still however be having an impact on the Annex I bird species at Ashdown Forest. For example this study has not looked at breeding success. Also it may be that the density of birds is so low (due to other, currently unknown factors) that there is little competition for space and therefore no impacts of disturbance. While the results of the analysis presented in the report are potentially encouraging, in the absence of data on breeding success, and without understanding why bird densities are low, it currently cannot be concluded on the basis of scientific evidence that the ecological integrity of nightjar and Dartford warbler populations is not being adversely affected by a combination of existing pressure and/or habitat management. (Clarke et al, 2010, p.29)

Policy precedent on the combined issues of development, increasing visitor pressure and internationally important nature conservation areas can be derived from the consideration of the Thames Basin Heaths SPA within the South East Planⁱ (RSS). Approximately 40km to the north west at their easternmost extent, the Thames Basin Heaths share some similarities with Ashdown Forest, and form part of a series of fragmented lowland heathland sites supporting internationally important populations of ground and near-ground nesting birds, functioning at a landscape ecology scale across Berkshire, Surrey, Hampshire and Sussex.

RSS policy NRM6 requires that a minimum of 8ha of Suitable Alternative Natural Greenspace (SANG) should be provided for every 1,000 net increase in population as a result of new residential development within 5km of the Thames Basin Heaths SPA, to offset the impact of increasing visitor pressure. This, it is acknowledged, was derived from a partially scientific approach (Burley, 2007) which sought to draw a reasonably precautionary conclusion from the variety of potential methods proposed for determining SANG provision. The 5km threshold aims to 'capture' around three quarters of all visitors to the heaths, including 70% of drivers and all pedestrians.

Returning to Ashdown Forest, Clarke et al (2010) found that, across all Forest access points, the total number of people predicted to visit over 16 daylight hours in September was 5,198, or 325 per hour. Spreading these visitors out across the Forest's 2,388 visitable hectares, this equates to an average of 2.17 visitors per hectare over 16 daylight hours, which compares to 1.8 at Dorset Heathlands and 3.7 at Thames Basin Heaths. In addition they developed a statistical model of visiting rates of pedestrian and car visitors, taking into account observed visitor rates from the 2008 field survey, the residential density of nearby areas, and car park size.

The model can be used to predict the number of additional visitors to each access point, and therefore the whole Forest, arising from the proposed development of a specific number of dwellings in defined areas. A selection of settlements around Ashdown Forest were chosen to illustrate the model, and for each location the additional number of visits to Ashdown Forest arising from 100 extra dwellings is predicted; see **Table 6.1**. The model provides a means to directly compare the consequences of development (in terms of increased SPA visitor

ⁱ The South East Plan is likely to be revoked in due course, but evidence gathered in relation to Thames Basin Heaths SPA is still relevant.

numbers) at each potential development location. Accordingly, 100 new dwellings at **Crowborough**, in close proximity to parts of the SPA, is predicted to lead to **12.2 extra visitors per 16 hours**, in contrast to **0.3 extra visitors** for an equivalent number of dwellings near **Crawley**, further away from the Forest (Clarke et al, 2010).

Table 6.1: Predicted additional visitor rates to Ashdown Forest SPA as a result of new development at a selection of locations (Source: Clarke et al, 2010)

Settlement	Distance from SPA *	Number of added visits per 100 dwellings **
East Grinstead	5.10	4.1
Crawley	12.98	0.3
Haywards Heath	9.48	1.2
Uckfield	4.99	3.9
Crowborough	1.50	12.2
Royal Tunbridge Wells	10.25	0.8

* Shortest distance from settlement boundary to SPA boundary – except Crowborough

** Visits per 16 daylight hours in September

It is clear from this analysis that, although the existing numbers of visitors to Ashdown Forest may not be negatively affecting populations of Dartford warbler and nightjar, the visitors associated with new strategic housing allocations may do, especially in combination with the effects of other plans and projects. It is also clear that the closer an individual dwelling or residential development is to the Forest, the more likely its inhabitants are to visit on a regular basis.

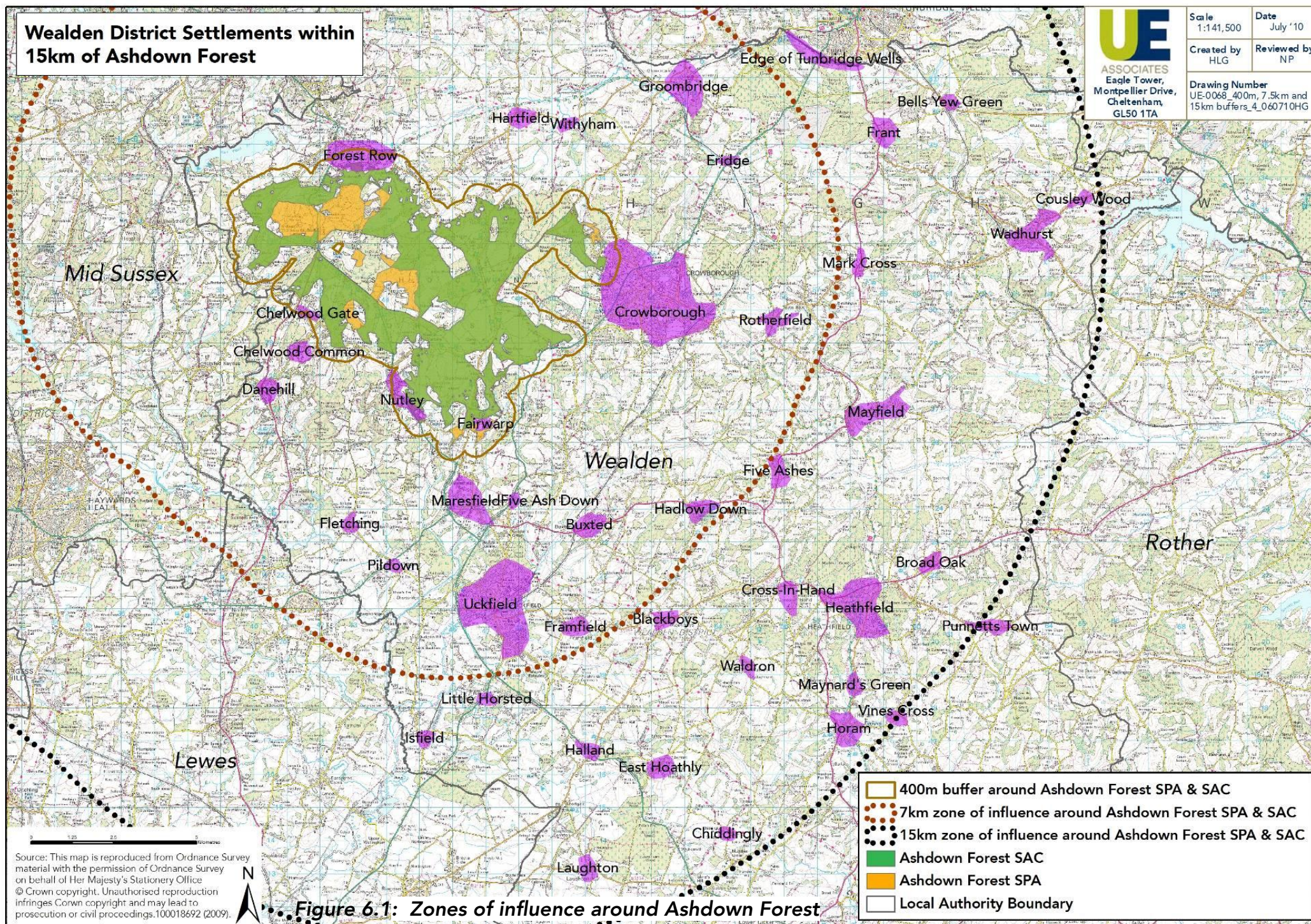
Further analysis of proposed Core Strategy housing scenarios was carried out based on residential development to be allocated to settlements close to Ashdown Forest (**Figure 6.1**), as provided by Council planning officers. **Table 6.2** lists the residential allocations for all main settlements in Wealden District, together with indicative calculations of the quantity of SANGs that could be required to offset the impact of increasing visitor numbers, drawing on the Thames Basin Heaths precedent provision of SANGs at 8ha per 1,000 net increase in population. **Please note that the hectareage of SANGs indicated for each settlement is not to be intended to be provided within that settlement, but rather as a proportion of the total strategic provision.**

At Ashdown Forest it is proposed that the threshold distance within which SANGs should be provided is set at **7km from the SPA boundary** (Figure 6.1). This is considered to be sufficient to capture a similar proportion of visitors to Ashdown Forest, as compared to the avoidance measures adopted in relation to the Thames Basin Heaths SPA.

Wealden District Settlements within 15km of Ashdown Forest

UE
ASSOCIATES
Eagle Tower,
Montpellier Drive,
Cheltenham,
GL50 1TA

Scale 1:141,500	Date July '10
Created by HLG	Reviewed by NP
Drawing Number UE-0068_400m, 7.5km and 15km buffers_4_060710HG	



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Figure 6.1: Zones of influence around Ashdown Forest

- 400m buffer around Ashdown Forest SPA & SAC
- 7km zone of influence around Ashdown Forest SPA & SAC
- 15km zone of influence around Ashdown Forest SPA & SAC
- Ashdown Forest SAC
- Ashdown Forest SPA
- Local Authority Boundary

Table 6.2: Wealden strategic housing allocations 2006-2030, together with requisite SANG provision (at 8ha/1,000 population)

Settlement	AA Testing	Dist to SPA (km)*	Est. pop (*2.36)	Added visits (per 16 daylight hrs)	SANG (8ha/1000 w/in 7km)
Hailsham and Hellingly	2945	>15	6950	-	0.00
Polegate and Willingdon	1265	>15	2985	-	0.00
Stone Cross and Westham	692	>15	1633	-	0.00
Crowborough	932	1.50	2200	113.7	17.60
Uckfield	1742	4.99	4111	67.9	32.9
Heathfield and Waldron	452	11.09	1067	-	0.00
Adjacent to Tunbridge Wells	120	10.25	283	1.0	0.00
SubTotal	8148	-	18602	182.6	50.5
<i>%age of current visits per 16 daylight hrs:</i>				3.51	
* Distance is calculated as edge of SPA to nearest edge of settlement - except Crowborough					

Table 6.2 suggests that residential development allocated to the district's main settlements generates a requirement for approximately **50.5ha of SANG** in order to offset the impact of increasing recreational pressure on Ashdown Forest SPA. Furthermore, it has been established through precedents in relation to Thames Basin Heaths SPA and also the New Forest SAC/SPA/Ramsar that disturbance impacts associated with residential development are immitigable for developments falling within 400m of the protected area. This is because the provision of SANGs within this distance is not considered likely to successfully divert additional visitors away from European sites (see also **Chapter Seven**).

6.5 Assumptions and Limitations

The assessment relies on certain assumptions and limitations made in UE Associates and University of Brighton (2009) and Clarke *et al* (2010).

6.6 Appropriate Assessment Findings

Based on the information given above, **it cannot be concluded that the Core Strategy will not lead to adverse effects on the ecological integrity of Ashdown Forest SPA** if allowed to proceed unchecked. In accordance with the precautionary principle, avoidance and/or mitigation measures are required to remove or reduce the effects.

6.7 Recommendations

A series of avoidance and mitigation measures are recommended in **Table 6.3**, which aim to eliminate the risk of adverse effects at the Ashdown Forest SPA. The measures were discussed with Natural England and other key stakeholders at a meeting held on 19 February 2010, and were subject to further scrutiny at a follow-up meeting on 8 June 2010. While some are not directly within the remit of the Core Strategy, they can be facilitated by spatial provisions, planning conditions and/or developer contributions.

Table 6.3: Avoidance and mitigation measures relevant to disturbance

Measure	Notes / description
1. Zonal approach to new development	Adoption of two zones of influence surrounding Ashdown Forest within which restrictions will be placed on residential development: (i) Zone A (<400m): residential developments that result in a net increase of one or more dwellings will not be permitted unless exceptional circumstances can be demonstrated. (SEE ALSO CHAPTER SEVEN) (ii) Zone B (400m – 7km): residential developments that result in a net increase of one or more dwellings will be required to contribute to: a) the provision of Suitable Alternative Natural Greenspace (SANG) to the level of 8ha per 1,000 net increase in population; and b) the implementation of an <i>Ashdown Forest Access Management Strategy</i>; and c) a programme of monitoring and research at Ashdown Forest. Large scale developments taking place outside Zone B and close to its boundary will be considered on a case by case basis for potential effects on Ashdown Forest and the need for avoidance and mitigation measures.
2. Provision of SANGs	All development referred to in 1(ii) above will be required to make a financial contribution to the provision and long-term maintenance and management of SANGs in order to offset the impact of new development on the Ashdown Forest Special Protection Area. SANGs will be provided at an appropriate scale, design and location (SEE APPENDIX IX) in order to successfully offset the impact. Based on discussion with Natural England, provision of two SANGs (one in Uckfield and the other in Crowborough) are considered appropriate in relation to the overall spatial distribution of development. It is likely that SANGs will need to be provided as part of strategic developments, at a sufficient scale to offset impacts from both the strategic development itself and other small scale development within Zone B.
3. Access management	All development referred to in 1(ii) above will be required to make a financial contribution to the implementation of an <i>Ashdown Forest Access Management Strategy</i> which will be developed in association with Natural England, the Conservators of Ashdown Forest (and if appropriate Mid Sussex, Tandridge, Sevenoaks and Tunbridge Wells District Councils, and the High Weald AONB Management Unit). The strategy will specify measures for the management of visitors to Ashdown Forest in such a way that reduces their impact on European qualifying features (SEE FOR EXAMPLE APPENDIX IX).
4. Monitoring, research and review	All development referred to in 1(ii) above will be required to make a financial contribution to a programme of monitoring and research to allow the effects of development on the SPA/SAC to be reviewed, to ensure the sites' conservation objectives are not compromised. The programme will include (but not be limited to):

	▪ Regular monitoring of Annex I bird populations; ▪ Long-term visitor monitoring, for example through the use of automated counters, car park counts, etc; and ▪ Research to determine why the density of Annex I bird species appears to be lower at Ashdown Forest than at other similar sites.
5. Core Strategy text	The Core Strategy or its explanatory text should highlight the measures described above through the inclusion of the following words or similar: "In accordance with advice from Natural England it will be necessary to reduce the recreational impact of visitors resulting from new housing development within 7 kilometres of Ashdown Forest by creating an exclusion zone of 400 metres for net increases in dwellings, requiring the provision of Suitable Alternative Natural Green Spaces (SANGS) in Uckfield and Crowborough and requiring contributions to on site management measures at Ashdown Forest."

6.8 Residual and In Combination Effects

It is considered that, subject to the measures outlined in **Table 6.3** being successfully adopted and implemented, effects connected with increasing recreational pressure can be satisfactorily avoided and reduced. Assuming this is the case, there are no further effects associated with the Core Strategy in relation to disturbance, and therefore the plan can **proceed to adoption without further tests under the Habitats Regulations** in this respect. An assessment of in combination effects is not required, because the effects of the Core Strategy are removed.

7 Urbanisation Effects: Ashdown Forest SAC/SPA

7.1 Impact Source

The screening exercise identified the **residential** elements of the Core Strategy as the drivers of effects associated with increasing **urbanisation** of areas surrounding Ashdown Forest. This includes policies **WCS2, 4** (in particular strategic sites at Uckfield and Crowborough; SD1, 8, 9 and 10) **6 and 10**; see **Appendix I**.

7.2 Impact Pathway

The risks associated with increasing urbanisation of areas surrounding Ashdown Forest can be summarised as:

- ▶ **SPA features:** increased predation risk of European-protected birds species; and
- ▶ **SAC features:** fly tipping and associated compositional changes to vegetation diversity.

7.2.1 Cat predation

Ownership of cats as domestic pets is commonplace in Britain, with estimates suggesting a national population of around 8 million, together with over 800,000 feral cats (Underhill-Day, 2005). An analysis of the figures produced by the Target Group Index, an annual survey of about 25,000 adults across Britain, investigated the pattern of cat ownership by households (Saul, 2000, cited in Underhill-Day, 2005). This found that 23% of households own at least one cat as a pet, with 13% of households having one cat and 10% of households, two or more cats. The results of the Target Group Index and others, suggests a figure of 320-330 cats per 1,000 households.

Based on a wide variety of research, and taking 320 as the estimated figure for number of cats per 1,000 households, Underhill-Day (2005) found that the likely number of prey items taken by cats would therefore be 9,261 per annum per 1,000 households. The figure is considered conservative, because it uses the lowest calculated estimates for cat numbers and the proportion of prey caught during winter, and also because not all prey items caught by domestic cats are brought home. Underhill-Day further estimates that, of this 9,261 prey items, around 22.4% are birds (2,075 items) although caution is advised due to variations in survey techniques, and the figure does not include feral cats.

Individual cat ranges vary widely, but the Underhill-Day review and studies by Barratt (1997) and Turner and Mertens (1988), suggest that the number of cats ranging further than 400m is significantly less than those ranging more than 400m. Barrett (1997) found that although the nocturnal ranges of cats varied, 60% travelled no further than 400m, which corresponds to

Turner and Mertens (1988) who found that the mean range of cats was 371m although the maximum range was 1578m.

A distance of 400m has also been established in relation to SPAs at Thames Basin Heaths and the New Forest as the distance within which the effects of increasing visitor pressure cannot be mitigated (see **section 6. 4**).

7.2.2 Fly tipping

Another factor associated with increasing urbanisation is the impact garden waste dumping and fly-tipping:

These are likely to be more prevalent when the urban area is within 500m of the heathland boundary (Liley, 2004; Liley, 2005; Underhill-Day, 2005). Garden extensions are dependant on dwellings being adjacent to the SPA boundary, while a study of Yateley Common to Castle Bottom SSSI (Liley, 2004) found that garden waste dumping was concentrated around the developed edges of the SSSI/SPA. The same study found fly-tipping to be spread along all roads and tracks around the site. (English Nature, draft 2006)

The effects associated with fly-tipping and dumping include the introduction of fertilisers and pesticides, and possibly also invasive species (such as the aquatic plant *Crassula helmsii* which has been shown to have adverse effects on great crested newt), with resulting changes in species composition and diversity. The effects are considered likely to be significantly reduced or eliminated by preventing residential development within appropriate zone of influence. The 400m zone referred to in **sections 6.4** and **7.2.1** is considered reasonable in this respect.

7.3 Effects on Site Integrity

The following effects on the ecological integrity of Ashdown Forest SAC/SPA may occur (see **section 4.3**):

- ▶ Disrupts those factors that help to maintain favourable conservation status onsite;
- ▶ Interferes with the balance, distribution and density of key species that are the indicators of the favourable conservation status of the site;
- ▶ Causes changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem;
- ▶ Changes 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;
- ▶ Interferes with predicted or expected natural changes to the site (such as chemical composition);
- ▶ Changes the balance between key species;
- ▶ Reduces the diversity of the site; and
- ▶ Reduces the population of key species.

7.4 Other Considerations

Current practice in relation to the Thames Basin Heaths SPA (the case for which much of the research précised above was examined) and the New Forest SPA pursues the avoidance of residential development within 400m of European sites. This is the distance at which it is not considered possible to mitigate these effects, and beyond which they are considered unlikely to occur at a significant level, based on research carried out in a range of locations.

7.5 Assumptions and Limitations

In the absence of locally specific research, and information on the prevalence of fly-tipping, invasive species and predation by domestic pets, it is assumed that these effects are also immitigable within 400m of Ashdown Forest SAC/SPA.

7.6 Appropriate Assessment Findings

Based on the information given above, it is considered likely that the **Core Strategy will lead to adverse effects on the ecological integrity of Ashdown Forest SAC/SPA** if allowed to proceed unchecked. Avoidance and/or mitigation measures are required to remove or reduce the effects.

7.7 Recommendations

A series of avoidance and mitigation measures are recommended in **Table 7.1**, which aim to eliminate the risk of adverse effects at the Ashdown Forest SAC/SPA. The measures were discussed with Natural England and other key stakeholders at a meeting held on 19 February 2010, and were subject to further scrutiny at a follow-up meeting on 8 June 2010. While some are not directly within the remit of the Core Strategy, they can be facilitated by spatial provisions, planning conditions and/or developer contributions.

7.8 Residual and In Combination Effects

It is considered that, subject to the measures outlined in **section 7.7** being successfully adopted and implemented, effects connected with increasing urbanisation can be satisfactorily avoided and reduced. Assuming this is the case, there are no further effects associated with the Core Strategy in relation to urbanisation, and therefore the plan can **proceed to adoption without further tests under the Habitats Regulations** in this respect. An assessment of in combination effects is not required, because the effects of the Core Strategy are removed.

Table 7.1: Avoidance and mitigation measures relevant to urbanisation

Measure	Notes / description
1. Zonal approach to new development	Adoption of two zones of influence surrounding Ashdown Forest within which restrictions will be placed on residential development: (i) Zone A (<400m): residential developments that result in a net increase of one or more dwellings will not be permitted unless exceptional circumstances can be demonstrated. (ii) Zone B (400m – 7km): residential developments that result in a net increase of one or more dwellings will be required to contribute to (SEE ALSO CHAPTER SIX): (a) the provision of Suitable Alternative Natural Greenspace (SANG) to the level of 8ha per 1,000 net increase in population; and (b) the implementation of an Ashdown Forest Access Management Strategy; and (c) a programme of monitoring and research at Ashdown Forest. Large scale developments taking place outside Zone B and close to its boundary will be considered on a case by case basis for potential effects on Ashdown Forest and the need for avoidance and mitigation measures.
2. Monitoring, research and review	All development referred to in 1(ii) above will be required to make a financial contribution to a programme of monitoring and research to allow the effects of development on the SPA/SAC to be reviewed, to ensure the sites' conservation objectives are not compromised. The programme will include (but not be limited to): ▪ Research on the effects of visitors on vegetation, especially near to car parks.
3. Review of wardening arrangements	The Zone A development exclusion area cannot be guaranteed to rule out the occurrence of fly-tipping as people have been observed to travel beyond their own properties to dispose of waste in this way. However, a distance barrier can reasonably be assumed to reduce the risk and frequency of the occurrence. The occurrence of fly-tipping could possibly be further reduced by reviewing the arrangements for and activities of wardens or rangers within Ashdown Forest, notwithstanding the excellent work already carried out by the Conservators, and by providing funds to increase the intensity of these activities via developer contributions.

8 Atmospheric Pollution, Hydrology and Water Quality: Pevensey Levels pSAC/Ramsar

8.1 Impact source

The screening exercise identified the **residential** and **commercial floorspace** elements of the Core Strategy as the drivers of atmospheric pollution, changing hydrological conditions and deteriorating water quality at the Pevensey Levels.

8.2 Consideration of impacts

Wealden District Council has separately prepared assessments under the Habitats Regulations in relation to the likely significant effects of the Core Strategy on the Pevensey Levels pSAC/Ramsar site. Readers are referred to the following reports which accompany this document and which, taken together, make up the Habitats Regulations Assessment of the Core Strategy:

- ▶ Scott Wilson (2009): *Appropriate Assessment and Air Quality local to the Pevensey Levels Ramsar Site*; and
- ▶ Wealden District Council (2010): *Wealden and Rother Core Strategies Appropriate Assessment: Hydrology local to the Pevensey Levels*.

8.3 Appropriate Assessment Findings

8.3.1 Atmospheric pollution at Pevensey Levels

The Appropriate Assessment of air quality local to the Pevensey Levels pSAC/Ramsar states that:

*It seems **unlikely** that the additional housing to be delivered across [Wealden and Rother Districts, and Hastings and Eastbourne Boroughs] will, even when considered 'in combination' with each-other and the other contributors to a predicted increase in vehicle movements on the A259 (such as the emerging East Sussex Waste & Minerals Development Framework) result in exceedance of the critical level or critical load for the Pevensey Levels Ramsar site, particularly when one considers the increased vehicle flows within the context of current national predictions that exhaust emissions are likely to improve over the plan period. (Scott Wilson, 2009, p16)*

Accordingly, it concludes that there will be **no adverse effect** on Pevensey Levels pSAC/Ramsar and no avoidance or mitigation measures are required. Natural England has confirmed that it agrees with this conclusion (pers. comm., 2010). The report is based on the in combination effects of development promoted by the South East Plan. Following

revocation of the plan, housing numbers are now reduced and it is therefore considered that the conclusion remains valid.

8.3.2 Changing hydrological conditions at Pevensey Levels

The Appropriate Assessment of hydrological conditions at the Pevensey Levels pSAC/Ramsar states that:

Development accommodated in the Pevensey Levels catchment area is likely to lead to increased run-off if unmitigated and has the potential to create a change in the hydrology of the Pevensey levels and convey pollutants to its watercourses and drainage network. (WDC, 2010, p19)

Current controls do allow development to take place without [Sustainable Drainage Systems (SuDS)] when it is not reasonably practicable. Whilst the potential for development to take place without SuDS is unquantifiable, based on the precautionary principle it is considered that any additional surface water run off would have a likely significant effect on the Pevensey Levels, with the main area of concern being the conveyance of pollutants. (WDC, 2010, p20)

Accordingly, it is considered likely that the **Core Strategy will lead to adverse effects on the ecological integrity of Pevensey Levels pSAC/Ramsar** if allowed to proceed unchecked. Avoidance and/or mitigation measures are required to remove or reduce the effects. Natural England has confirmed that it agrees with this conclusion (pers. comm., 2010).

8.3.3 Deteriorating water quality at Pevensey Levels

The Appropriate Assessment of water quality at the Pevensey Levels pSAC/Ramsar states that:

The Environment Agency has expressed fundamental concerns with regard to the impact of any new development within the catchment area of Hailsham North and South [Waste Water Treatment Works (WWTW)] due to the relationship between the discharge of effluent and continued decline in ecological quality downstream from them both... The Environment Agency and Southern Water have agreed the capacity in both Hailsham North and South WWTW... and identify that there is room to accommodate around an additional 3,287 dwellings... In view of this, it will not be possible to provide further housing and/or business development above the current consented capacity of the Hailsham North and South WWTW unless the location of an alternative site for discharge of treated effluent is identified and in place prior to any development. (WDC, 2010, pp20-21)

The Core Strategy allocations respond accordingly, and so the report concludes that there will be **no adverse effect** on Pevensey Levels pSAC/Ramsar and no avoidance or mitigation measures are required. Natural England has confirmed that it agrees with this conclusion (pers. comm., 2010).

8.4 Recommendations

No avoidance or mitigation measures are required in relation to atmospheric pollution or deteriorating water quality at Pevensey Levels. Avoidance and mitigation measures for surface water run-off impacts on hydrology are recommended in **Table 8.1**, which aim to eliminate the risk of adverse effects at Pevensey Levels pSAC/Ramsar. The measures presented were discussed with Natural England at a meeting on 8 June 2010.

Table 8.1: Avoidance and mitigation measures relevant to hydrology

Measure	Notes / description
1. Policy requirement for Sustainable Drainage Systems in all new development in Pevensey catchment	All development which creates impermeable surfaces that alter natural drainage patterns within the hydrological catchment of the Pevensey Levels should incorporate suitable Sustainable Drainage Systems (SuDS). The aim of SuDS, which should be agreed through liaison with Wealden District Council, the Environment Agency, Natural England and Southern Water, is to influence the infiltration and attenuation rates of surface water so that a favourable flow regime is maintained and the risk of pollution is avoided. SuDS will be required for all development within the Pevensey Levels catchment area, irrespective of the size and type of development, where such development will result in an increase in the volume and peak flow rate of surface water in comparison to the rates prior to proposed development.

8.5 Residual and In Combination Effects

Since there are no impacts associated with air quality or water quality at the Pevensey Levels there can be no residual impact. Further consideration of in combination effects is not required.

It is considered that, subject to the measures outlined in **section 8.4** being successfully adopted and implemented, effects connected with surface water run-off and the hydrological regime can be satisfactorily avoided and reduced. Assuming this is the case, there are no further effects associated with the Core Strategy in relation to hydrology, and therefore the plan can **proceed to adoption without further tests under the Habitats Regulations** in this respect. An assessment of in combination effects is not required, because the effects of the Core Strategy are removed.

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9 Summary and Outcomes of the HRA

9.1 Summary of HRA Recommendations

Table 9.1 summarises all recommendations for avoidance and mitigation made through the HRA process, and gathers them together in one place for ease of reference. It was discussed and agreed with Natural England at a meeting on 8 June 2010. Table 9.1 forms the complete HRA avoidance and mitigation package for the Core Strategy, and includes further recommendations for atmospheric pollution made as a matter of good practice.

Table 9.1: Unified avoidance and mitigation package for the Wealden District Core Strategy

Measure	Notes / description
Measures for the Prevention/Reduction of Atmospheric Pollution	
A1. Transport policy to encourage modal shift	Work with Mid Sussex and Lewes District Councils, and East and West Sussex Counties through their Local Transport Plans, to promote modal shift and "Smarter Choices" through the development of sustainable transport options.
A2. Monitoring, research and review	A programme of monitoring and research to allow the effects of development on SACs to be reviewed, to ensure the sites' conservation objectives are not compromised. The programme will include (but not be limited to) and should be incorporated into the Council's Annual Monitoring Report: ▪ Monitoring of traffic flow patterns within and near to the SACs; ▪ Monitoring the level of modal shift attained by sustainable transport and "Smarter Choices" policies; ▪ Regular monitoring of nitrogen deposition and concentration rates along road corridors within the SACs; and ▪ Research and monitoring of the onsite effects on habitat and vegetation diversity.
A3. Building flexibility into Core Strategy and links to lower tier plans	Core Strategy policies should include sufficient flexibility in implementation to respond to the findings of monitoring described in item 7, to ensure that adverse effects are avoided. This should include clear links to other Local Development Documents that might be prepared in order, for example, to further promote modal shift (such as a Parking Standards SPD).
Measures for the Prevention/Reduction of Disturbance from Recreation, & Urbanisation Effects	
B1. Zonal approach to new development	Adoption of two zones of influence surrounding Ashdown Forest within which restrictions will be placed on residential development: (i) Zone A (<400m): residential developments that result in a net increase of one or more dwellings will not be permitted unless exceptional circumstances can be demonstrated. (ii) Zone B (400m – 7km): residential developments that result in a net increase of one or more dwellings will be required to contribute to: a) the provision of Suitable Alternative Natural Greenspace (SANG) to the level of 8ha per 1,000 net increase in population; and

	b) the implementation of an <i>Ashdown Forest Access Management Strategy</i>; and c) a programme of monitoring and research at Ashdown Forest. Large scale developments taking place outside Zone B and close to its boundary will be considered on a case by case basis for potential effects on Ashdown Forest and the need for avoidance and mitigation measures.
B2. Provision of SANGs	All development referred to in B1(ii) above will be required to make a financial contribution to the provision and long-term maintenance and management of SANGs in order to offset the impact of new development on the Ashdown Forest Special Protection Area. SANGs will be provided at an appropriate scale, design and location (SEE APPENDIX IX) in order to successfully offset the impact. Based on discussion with Natural England, provision of two SANGs (one in Uckfield and the other in Crowborough) are considered appropriate in relation to the overall spatial distribution of development. It is likely that SANGs will need to be provided as part of strategic developments, at a sufficient scale to offset impacts from both the strategic development itself and other small scale development within Zone B.
B3. Access management	All development referred to in B1(ii) above will be required to make a financial contribution to the implementation of an <i>Ashdown Forest Access Management Strategy</i> which will be developed in association with Natural England, the Conservators of Ashdown Forest (and if appropriate Mid Sussex, Tandridge, Sevenoaks and Tunbridge Wells District Councils, and the High Weald AONB Management Unit). The strategy will specify measures for the management of visitors to Ashdown Forest in such a way that reduces their impact on European qualifying features (SEE FOR EXAMPLE APPENDIX IX).
B4. Review of wardening arrangements	The Zone A development exclusion area cannot be guaranteed to rule out the occurrence of fly-tipping as people have been observed to travel beyond their own properties to dispose of waste in this way. However, a distance barrier can reasonably be assumed to reduce the risk and frequency of the occurrence. The occurrence of fly-tipping could possibly be further reduced by reviewing the arrangements for and activities of wardens or rangers within Ashdown Forest, notwithstanding the excellent work already carried out by the Conservators, and by providing funds to increase the intensity of these activities via developer contributions.
B5. Monitoring, research and review	All development referred to in B1(ii) above will be required to make a financial contribution to a programme of monitoring and research to allow the effects of development on the SPA/SAC to be reviewed, to ensure the sites' conservation objectives are not compromised. The programme will include (but not be limited to): ▪ Regular monitoring of Annex I bird populations; ▪ Long-term visitor monitoring, for example through the use of automated counters, car park counts, etc; ▪ Research to determine why the density of Annex I bird species appears to be lower at Ashdown Forest than at other similar sites; and ▪ Research on the effects of visitors on vegetation, especially near to car parks.
B6. Core Strategy text	The Core Strategy or its explanatory text should highlight the measures described above through the inclusion of the following words or similar: "In accordance with advice from Natural England it will be necessary to reduce the recreational impact of visitors resulting from new housing development within 7 kilometres of Ashdown Forest by creating an exclusion zone of 400 metres for net increases in dwellings, requiring the provision of Suitable Alternative Natural Green Spaces (SANGS) in Uckfield and Crowborough and requiring contributions to on site management measures at

	Ashdown Forest.”
Measures for the Prevention/Reduction of Surface Water Run-off Impacts on Hydrology	
C1. Policy requirement for Sustainable Drainage Systems in all new development in Pevensey catchment	All development which creates impermeable surfaces that alter natural drainage patterns within the hydrological catchment of the Pevensey Levels should incorporate suitable Sustainable Drainage Systems (SuDS). The aim of SuDS, which should be agreed through liaison with Wealden District Council, the Environment Agency, Natural England and Southern Water, is to influence the infiltration and attenuation rates of surface water so that a favourable flow regime is maintained and the risk of pollution is avoided. SuDS will be required for all development within the Pevensey Levels catchment area, irrespective of the size and type of development, where such development will result in an increase in the volume and peak flow rate of surface water in comparison to the rates prior to proposed development.

9.2 Summary of Outcomes

This HRA Report demonstrates that there will be **no adverse effects** on the ecological integrity of any European site as a result of the Wealden District Core Strategy in relation to the following impact types:

- ▶ **Atmospheric pollution at Ashdown Forest SAC and Lewes Downs SAC;**
- ▶ **Atmospheric pollution at Pevensey Levels pSAC/Ramsar; and**
- ▶ **Deteriorating water quality at Pevensey Levels pSAC/Ramsar.**

The report further demonstrates that adverse effects associated with the Core Strategy in relation to the following impact types **can be overcome** provided the avoidance and mitigation package presented in Table 9.1 is successfully adopted and implemented:

- ▶ **Disturbance from recreation at Ashdown Forest SPA;**
- ▶ **Urbanisation effects at Ashdown Forest SAC/SPA; and**
- ▶ **Surface water impacts on hydrology at Pevensey Levels pSAC/Ramsar.**

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10 Conclusion

10.1 Conclusions

This report presents the Habitats Regulations Assessment of the Wealden District Core Strategy. It follows a screening exercise undertaken during spring 2009, published in July (WDC, 2009a), and draft assessments of the Council's spatial distributions options, informing the development of the Regulation 27 consultation edition of the plan.

The assessment identifies and analyses effects on the ecological integrity of the European sites of interest. It recommends a package of avoidance measures to be built into the Core Strategy to help remove identified effects, further supported by a series of mitigation measures to ensure there are no adverse effects on any European site.

As a result of the assessment and recommendations it is considered that **all negative effects of the Core Strategy in relation to the conservation objectives of European sites can be overcome** and do 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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Appendix I: Core Strategy Policy Wording

WCS1 Provision of homes and jobs 2006-2030

Land will be identified in subsequent Development Plan Documents for the provision of some 4685 net additional dwellings in Wealden District to provide for 9600 dwellings over the period 2006-2030.

Provision will be made for some net additional 40,000 sq. metres net employment floorspace (B1/B2/B8) to provide for 128,695 sq. metres net employment floorspace and 17,000 sq. metres net additional retail floorspace over the period 2006-2030.

WCS 2 Distribution of Housing Growth 2006-2030

Land will be allocated to meet the housing provision of WCS1 in accordance with the following distribution:

Town/settlement	Built or already committed (dwellings)	New allocations (dwellings)	Total dwellings (2006-2030)
Uckfield	742	1000	1742
Hailsham and Hellingly	1645	1300	2945
Polegate and Willingdon	565	700	1265
Stone Cross and Westham	42	650	692
Crowborough	632	300	932
Heathfield and Waldron	292	160	452
Adjacent to Tunbridge Wells boundary (within Frant Parish)	53 ⁱⁱ	120	120
Rural villages	971	455	1426
Total Wealden	4889	4685	9574

Broad locations for housing development in Policy WCS2 are shown as insets on the Key Diagram. Individual sites to meet these housing provisions will be allocated in the Site Allocation DPDs.

ⁱⁱ Commitments for Frant Parish including the settlements of Frant and Bells Yew Green

WCS 3 Distribution of Employment (B Class) and Retail (convenience and comparison)

Land will be allocated to meet the employment and retail provision of Policy WCS1 in accordance with the following distribution:

<i>Town/ Settlement</i>	<i>New allocations: Employment (B1/B2/B8) (net floorspace sq. metres)</i>	<i>New allocations: Retail (net floorspace sq. metres)</i>
<i>Uckfield</i>	<i>12,650</i>	<i>10,707</i>
<i>Hailsham and Hellingly</i>	<i>8,650</i>	<i>6,230</i>
<i>Crowborough</i>	<i>0</i>	<i>0</i>
<i>Heathfield</i>	<i>0</i>	<i>0</i>
<i>Polegate and Willingdon/ Stone Cross</i>	<i>16,890</i>	<i>0</i>
<i>Rural area</i>	<i>0</i>	<i>0</i>
<i>Total Wealden</i>	<i>38,190</i>	<i>16,937</i>

Broad locations for employment and retail development in Policy WCS3 are shown as insets on the Key Diagram. Individual sites to meet these provisions will be allocated in the Site Allocation DPDs.

WCS4 Strategic Development Areas

The following strategic development areas are the locations that are considered to be critical to delivery of the overall strategy.

- *SD1: Land to the west of Uckfield*
- *SD2: Land at East Hailsham*
- *SD3: Land at North Hailsham*
- *SD4: Land at South Polegate and East Willingdon*
- *SD5: Land at Dittons Road, Polegate*
- *SD6: Land at South East Stone Cross*
- *SD7: Land at North East Stone Cross*
- *SD8: Land at Pine Grove, Crowborough*
- *SD9: Land at Jarvis Brook, Crowborough*
- *SD10: Land at South East Crowborough*
- *SD11: Land at North West Heathfield*
- *SD12: Land Adjacent to Tunbridge Wells, in the Parish of Frant*

WCS 5 Managing the release of housing land

The release of land for housing will be managed so that it will deliver the level and broad distribution of development set out in Policy WCS2 and at the rate set out in the housing trajectory. The release of land will be dependant on the timely provision of infrastructure necessary to deliver housing, including affordable housing. The adequacy of housing land supply will be assessed regularly through reviews of the SHLAA, the Infrastructure Delivery Plan and through regular housing land availability monitoring. Depending on the results of monitoring, it may be necessary to adjust the pace of housing delivery by encouraging, or holding back, new development.

WCS6 Rural areas strategy

The rural areas comprise the following categories of settlement:

Service Centre

Local Service Centre

Neighbourhood Centre

Unclassified settlements

Within Service Centres, Local Centres and Neighbourhood Centres (excluding Stone Cross, Polegate and Willingdon and Heathfield) provision will be made for at least 455 new dwellings.

The Delivery and Site Allocations DPD will allocate sites for development sufficient to ensure that the requirements above can be met. Development boundaries will not be retained for settlements classified as a neighbourhood centre or unclassified settlement. Development boundaries will be retained or provided at:

Forest Row, Hartfield, Groombridge, Wadhurst, Mayfield, Frant, Buxted, Herstmonceux, Ninfield, Pevensey Bay, Horam, Alfriston, Westham and Rotherfield

Development boundaries as shown in the adopted Wealden Local Plan are removed from:

Berwick Station , Blackboys, Broad Oak ,Cross-in-Hand, East Dean and Friston, East Hoathly, Fairwarp, Five Ash Down, Five Ashes, Framfield, Hadlow Down, Halland, Hooe Common, Isfield, Lower Dicker, Lower Horsebridge, Maresfield, Mark Cross, Maynards Green, Nutley, Pevensey, Punnetts Town, Upper Dicker, Vines Cross, and Windmill Hill

Retained or new development boundaries will be reviewed as part of Strategic Sites and Delivery and Site Allocations DPDs as appropriate.

The following are settlements classified as Service Centres, Local Service Centres and Neighbourhood Centres within rural areas. The table indicates the proposed scale of additional housing development to be allocated up until 2030:

Name	New Allocations (Net Additional Dwellings)
Wadhurst	70
Frant ⁱⁱⁱ	20
Herstmonceux	70
Ninfield	50
Horam	100
Maresfield	50
East Dean	10
Berwick Station	20
Cross-in-Hand	25
Boreham Street	10
Ripe	10
Selmeston	10
Upper Dicker	10

WCS7 Effective provision of Infrastructure

The release of land for development will be conditional upon there being sufficient capacity in the existing local infrastructure to meet the requirements generated by the proposed development. Where development would create the need to provide additional or improved community facilities, services and infrastructure to mitigate its impact, a programme of delivery must be agreed with the relevant infrastructure providers which will ensure that these improvements are provided at the time they are needed. These may involve coordinating contributions from the development with other investment streams. This approach will ensure that the necessary improvements can be completed in a timely manner to support growth.

Arrangements for the provision or improvement of infrastructure to the required standard will be secured by planning agreement/ obligation, or by condition attached to the planning consent or by any other appropriate mechanism.

ⁱⁱⁱ Housing in Frant Village is in addition to the urban extension adjacent to Tunbridge Wells situated within the Parish of Frant

The adequacy of infrastructure provision in Wealden will be the subject of regular review with infrastructure providers as part of the ongoing work on the Infrastructure Delivery Plan. This will include health, transport, utility services, and education providers and will be reported as part of the LDF monitoring arrangements in the Annual Monitoring Report.

Policy WCS 8 Affordable Housing

New housing developments will be expected to provide for a mix of dwelling size, type and tenure that meet the identified housing needs of the community.

The Council will require affordable housing on sites of 5 or more dwellings (net) or on sites of 0.2 hectares or more. Affordable housing will be required at a level of 35% of the number of dwellings in any scheme. Where sites are allocated in a site allocations Development Plan Document, that document may specify a different, and potentially higher, housing target, having regards to the findings of the Wealden Housing Viability Assessment and any site specific considerations.

Affordable housing provision should incorporate a mix of tenures. The Council will negotiate the exact tenure split on each site. However, the presumption is that around 80% of the total number of affordable homes provided will be for social rented accommodation with the remainder being for intermediate accommodation.

The affordable housing will be integrated into the development and be indistinguishable in design terms from the market housing on the site.

Affordable housing should be delivered on site, however, in exceptional circumstances Wealden District Council will accept a commuted sum or free serviced land in lieu of on site provision. These circumstances may include provision where a Registered Provider finds it uneconomic or impractical to provide the units in the scale or form agreed. Any financial contributions will be pooled and used to enable affordable housing provision within Wealden District.

Policy WCS 9 Rural exception affordable housing

In exceptional circumstances, planning permission may be granted for small scale affordable residential development in rural areas outside development boundaries in order to meet an identified local housing need among those people unable to compete in the normal housing market.

Suitable sites will be located within or be well-related to a settlement which either provides reasonable access to local services and facilities, or has good accessibility to larger settlements nearby which provide a range of services and facilities. The scale of the proposed affordable housing development should be appropriate in relation to the size of the settlement and sites should not be isolated or intrusive within the landscape. Sites developed under this policy will be subject to controls on the occupancy of the housing to ensure it continues to provide affordable homes which address local housing needs in perpetuity. The affordable homes will be managed by an approved Registered Provider.

WCS 10 The Travelling Community - Provision for Gypsies, Travellers and Travelling Showpeople

To meet the identified need for Gypsies and Travellers within the District for the period 2006 to 2016, 32 pitches will be provided for (an additional 23 pitches). Sites will be allocated within the Delivery and Site Allocations Development Plan Document (DPD) to make up any shortfall.

Policy WSC11 The Travelling Community- Provision for Gypsies, Travellers and Travelling Showpeople: Site Criteria

In assessing the suitability of sites for allocation for permanent residential sites for Gypsies and Travellers, and for the purposes of considering planning applications for sites for Gypsies and Travellers and for Travelling Showpeople, proposals will be supported where the following criteria are met:

- Well related to existing settlements with local services and facilities. Sites should either be within or close to such settlements or close to major roads and/or public transport thus affording good access to local services
- Have safe and convenient vehicular access, be suitable in terms of topography and be in a location where the necessary infrastructure already exists or can reasonably be provided
- Be able to achieve a reasonable level of visual and acoustic privacy for both people living on the site and for those living nearby, and not lead to a reduction in the residential amenity of neighbouring dwellings
- Not compromise the essential features of designated areas of landscape, historical or nature conservation protection, including the South Downs National Park and High Weald Area of Outstanding Natural Beauty. Ashdown Forest Special Area of Conservation and Special Protection Area, and the Pevensey Levels Ramsar site should be avoided as potential locations
- Avoid locations where there is a risk of flooding, or which are adjacent to incompatible uses such as a refuse tip, sewage treatment works or significantly contaminated land

In the case of sites for Travelling Showpeople, proposals will be assessed upon the basis of established need. Site suitability assessment will also take account of the nature and scale of the Showpeople's business in terms of the land required for storage and/or the exercising of animals.

Policy WCS12 Biodiversity

In order to contribute to the biodiversity targets provided in the Sussex Biodiversity Action Plan the Council will prevent a net loss of biodiversity, ensure a comprehensive network of habitats, and work with partners to maximise opportunities to ensure habitats, biodiversity features and ecological networks are maintained, restored, enhanced and where possible created to achieve a net gain in biodiversity and sustain wildlife in both rural and urban areas. This will be achieved through the development and implementation of an integrated green network strategy.

In accordance with Planning Policy Statement 9 there may be exceptional circumstances when compensatory measures for a net loss of biodiversity is required. Appropriate compensatory measures will be required to contribute to Wealden's overall biodiversity resource, and may include

enhancement of Wealden's Biodiversity Opportunity Areas and other relevant Biodiversity Action Plan habitats, so that there is overall no net loss of biodiversity.

Policy WCS 13 Green infrastructure

The District's existing network of green infrastructure will be protected, improved and enhanced by the implementation of a Green Infrastructure Strategy, ensuring a multifunctional, accessible network which maintains and improves biodiversity and landscape character, increases opportunities for healthy living and contributes to healthy ecosystems and climate change objectives.

Development proposals will not be permitted which would result in the loss of existing open space or harm to Wealden's network of green spaces unless measures are incorporated within the development that will either mitigate the effects of development or alternative and suitable provision is made that is accessible, of good quality and value to its users, in an appropriate location, at an appropriate scale and nature and would positively contribute to the overall network of green space.

All new residential development will be required to contribute to the green infrastructure network and make provision for new open space. Where the scale of development would be too small to make on-site provision, the Council will seek developer contributions either towards the improvement of existing open spaces or towards the provision of open space elsewhere.

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Appendix II: European Site Descriptions

AIII.1 Ashdown Forest SAC (2,729ha)

Ashdown Forest contains one of the largest single continuous blocks of lowland heath in south-east England, with both **European dry heaths** and, in a larger proportion, **North Atlantic wet heath**.

The dry heath in Ashdown Forest is an extensive example of the south-eastern *Calluna vulgaris* – *Ulex minor* community. This vegetation type is dominated by heather *Calluna vulgaris*, bell heather *Erica cinerea* and dwarf gorse *Ulex minor*, with transitions to other habitats. It supports important lichen assemblages, including species such as *Pycnothelia papillaria*. This site supports the most inland remaining population of hairy greenweed *Genista pilosa* in Britain.

The *Erica tetralix* – *Sphagnum compactum* wet heath element provides suitable conditions for several species of bog-mosses *Sphagnum* spp., bog asphodel *Narthecium ossifragum*, deergrass *Trichophorum cespitosum*, common cotton-grass *Eriophorum angustifolium*, marsh gentian *Gentiana pneumonanthe* and marsh clubmoss *Lycopodiella inundata*. The site supports important assemblages of beetles, dragonflies, damselflies and butterflies, including the nationally rare silver-studded blue *Plebejus argus*.

The site also supports a significant presence of great crested newt *Triturus cristatus*, although this is not a primary reason for site selection.

AIII.2 Ashdown Forest SPA (3,207ha)

Ashdown Forest is located in the High Weald of East Sussex in south-east England, where valley mires, heath and damp woodland have developed on soils derived from Hastings Sands (Lower Cretaceous). Once a royal hunting forest, reduced grazing has resulted in the accelerated development of woodland and encroachment of bracken *Pteridium aquilinum* over former heath. Nevertheless, some fine examples of heathland habitats remain, with humid or wet heath predominating (around 45% cover), dominated by heather, bell heather and cross-leaved heath *E. tetralix* in the dampest conditions. Where drier heaths occur (around 15% cover) they are dominated by heather in association with gorse *Ulex europaeus* and dwarf gorse. Streamsides and mires add further variety (around 5% cover), with *Sphagnum* mosses, cottongrass *Eriophorum* sp., bog asphodel and round-leaved sundew *Drosera rotundifolia* all characteristic plants. The woodlands (around 35% cover) are also varied, with birch *Betula* sp. typically establishing first over heath, followed by oak *Quercus robur*, willow *Salix* sp. and pine *Pinus* sp. in places, eventually forming dense and shaded areas with sparse ground flora.

Together with the nearby Wealden Heaths SPA and Thames Basin Heath SPA, Ashdown Forest forms part of a complex of heathlands in southern England that support breeding bird populations of European importance – in particular **nightjar** *Caprimulgus europaeus* and **Dartford warbler** *Sylvia undata*. Breeding birds of scrub and woodland (such as Eurasian hobby *Falco subbuteo* and woodlark *Lullula arborea*) are also associated with the varied mosaic of their respective habitats, distributed over the higher slopes and valleys of the High Weald.

AIII.3 Lewes Downs SAC (147ha)

This chalk grassland site consists largely of *Festuca ovina* – *Avenula pratensis* and *Bromus erectus* calcareous grasslands. This site contains an important assemblage of rare and scarce orchids, including early spider-orchid *Ophrys sphegodes*, burnt orchid *Orchis ustulata* and musk orchid *Herminium monorchis*. The colony of burnt orchid is one of the largest in the UK.

AIII.4 Pevensey Levels Ramsar (3,578ha)

Pevensey Levels supports a range of important communities of wetland flora and fauna. Various stages of succession are present in the ditches. The site supports an outstanding assemblage of wetland plants, and 68% of vascular plant species in Great Britain that can be described as aquatic. Floating and submerged aquatic plants such as duckweeds *Lemna* spp., pondweeds *Potamogeton* spp. or water fern *Azolla* spp. represent the pioneer stages. These are followed by larger floating or emergent plants such as frogbit *Hydrocharis morsusraeae*, bur-reed *Sparganium erectum* and arrow-head *Sagittaria sagittifolia*. Finally, common reed *Phragmites australis* or hawthorn *Crataegus monogyna* becomes dominant. Left undredged, the ditches lose their diversity and varied structure. A rich bankside flora is also present onsite. An area of shingle and intertidal muds and sands is another important component of the site. Some flora associated with the shingle is present. For example, yellow horned-poppy *Glaucium flavum* and sea campion *Silene uniflora*.

The site supports outstanding invertebrate populations and is a top site for *Mollusca* and aquatic beetles *Coleoptera*. Over 15 species of dragonfly (*Odonata*) have been recorded, including several scarce species. One of Britain's largest and rarest spiders, the fen raft spider *Dolomedes plantarius* has its stronghold at Pevensey.

The lowland wet grassland supports a variety of bird species. For example, wintering lapwing *Vanellus vanellus* and snipe *Gallinago gallinago*. Breeding bird species include sedge warblers *Acrocephalus schoenobaenus*, reed warblers *Acrocephalus scirpaceus* which nest in the scrub and reeds in the ditches respectively.

Source: adapted from Joint Nature Conservation Committee (JNCC:
<http://www.jncc.gov.uk/>)

Appendix III: Conservation Objectives

AIV.1 Ashdown Forest SAC/SPA (09/06/06)

The Conservation Objectives for the Ashdown Forest SPA and SAC are shared with the SSSI (please note, only those components of relevance to the European-qualifying features are reproduced below): subject to natural change, to maintain the following habitats and geological features in favourable conservation status (*), with particular reference to any dependent component special interest features (habitats, vegetation types, species, species assemblages etc) for which the land is designated:

- Dwarf Shrub Heath
- Open Standing Water and Canals

(*) or restored to favourable conservation status if features are judged to be unfavourable.

AIV1.1 Conservation Objective for Habitat Extent

To maintain the designated habitats in favourable conservation status, which is defined in part in relation to a balance of habitat extent (extent attribute). On this site favourable conservation status requires the maintenance of the extent of each designated habitat type. Maintenance implies restoration if evidence from condition assessment suggests a reduction in extent.

Habitat Feature	Estimated extent (ha)	Measure	Site Specific Targets	Comments
Dwarf Shrub Heath	Dry heath: 320.49 Wet heath: 298.86 Mixed/unknown	Field survey and aerial photos (using photos from 2001). Check edges when they are defined by trees, scrub or bracken, to avoid encroachment into the heath. Aerial photos may be a	No un-consented decline in the area of the habitat, except where a target has been set to increase the extent of other habitat features on the site at the expense of lowland heath. Sufficient area of suitable habitat to bryophyte and lichen populations: Area maintained where	Lowland heathlands are habitats created mostly through human management by grazing, cutting and burning. If they are left to natural processes, then they lose their open character and disappear under thick scrub or secondary forest. However some fluctuations and variations from year to year

	heath: 969.64 Total: 1588.99	good way to measure any changes.	soils wet in winter /droughted in summer. No loss of open heath (where Calluna/grass cover is less than 50%). Open heath & bare ground to remain in same location.	are normal and acceptable. Heath is important for bryophytes and lichens, some species are poor dispersers. Factors that reduce the area of open heath are damaging. Several bryophyte and lichen species require open bare ground that is wet in winter but dry in summer. Refer to site dossier for base-line info and location of important areas for bryophytes and lichens.
Open Standing Water	At least 17.15ha (probably includes some running water) No more than 25% reduction in core habitat area from original baseline.	Assessment against baseline map. Aerial photographs may be useful. Record number of ponds once every 3 years (any time of year). Include breeding ponds and non-breeding ponds. The latter may be used to forage or to support prey populations.	Ponds (permanent and temporary) to remain in suitable numbers to sustain the size and range of great crested newt population. Once a survey has been carried out, a target for the minimum number of ponds should be set. No net loss of extent	There are over 100 ponds at Ashdown forest that support invertebrates and great crested newts. Assess changes caused by active management, such as infilling or channel diversion. Changes due to drying out or succession are covered later. In exceptional cases, a net loss may be acceptable if enhancements are made to remaining ponds. A full great crested newt survey is in process.

AIV1.2 Conservation Objective for Species Populations

To maintain the designated species in favourable conservation status, which is defined in part in relation to their population attributes. On this site favourable conservation status requires the maintenance of the population of each designated species or assemblage. Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage.

Species Feature	Habitat Feature	Population Attribute	Site Specific Target Range and Measures	Comments
Nightjar, <i>Caprimulgus europaeus</i>	Dwarf Shrub Heath	35 pairs (1991-92 survey) 1.1% of British population	Maintain population within acceptable limits: Maintain the population above 75% (27 pairs) of that at designation - loss of 25% (9 pairs) or more unacceptable. Use counts or estimates of numbers of breeding individuals, pairs or calling males, occupied breeding sites or occupied territories.	Standard monitoring methods are widely published and recommended species-specific surveys are listed in Part 2 (available on JNCC website).
Dartford warbler, <i>Sylvia undata</i>	Dwarf Shrub Heath	20 pairs (1994 survey) 2.1% of British population	Maintain population within acceptable limits: Maintain the population above 75% (15 pairs) of that at designation - loss of 25% (5 pairs) or more unacceptable. Use counts or estimates of numbers of breeding individuals, pairs or calling males, occupied breeding sites or occupied territories.	Standard monitoring methods are widely published and recommended species-specific surveys are listed in Part 2 (available on JNCC website).
Great crested newt, <i>Triturus cristatus</i>	Open standing water	Eggs - Awaiting the results of a full survey	Present in all or sample ^{iv} of breeding ponds ^v at least once every 4 years. (i.e. acceptable for eggs to be absent from individual ponds 3 years out of 4; fail if any breeding pond lacks eggs for 4 years) Record presence by one day or night visit Mid-March – Mid-May. Survey for 4 consecutive years	Eggs normally laid starting mid-February (southern England) but increasing numbers present (and therefore easier to find) through spring. Best to combine with visit for adult attribute.

^{iv} Use a sample at sites with high numbers of ponds (>20), where monitoring each pond is prohibitive; select at least 20 individual breeding ponds or 10% of all breeding ponds (whichever is larger), to represent geographic spread and variation in pond type plus immediate terrestrial habitat across the site. Sample ponds should ideally support a majority of the breeding population.

^v Breeding ponds are those which have egg-laying and successful metamorphosis at least 1 in every 4 years.

Great crested newt, <i>Triturus cristatus</i>	Open standing water	Adults - Awaiting the results of a full survey	Peak count^{vi} should be at least 20% of the previous peak count recorded over 4 consecutive years. Record total adults detected in all or sample 1 ponds in spring. Record for 4 consecutive years within each 6 year reporting cycle. 3 visits per year required. Timing based on known peak season for the area, and in-year weather conditions; likely to be Mid-April to Mid-May. Derive peak by summing counts across site on "best" night for each season.	Considerable between-year variation is frequent.
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AIV1.3 Conservation Objective for Dwarf Shrub Heath

To maintain the Dwarf Shrub Heath at this site in favourable conservation status, with particular reference to relevant specific designated interest features. Favourable conservation status is defined at this site in terms of the following site-specific standards:

Criteria Feature	Attribute	Measure	Site Specific Targets	Comments
Lowland dry and wet heathland	Bare ground (%)	Visual assessment of cover, using structured walk or transects	At least 1% but not more than 10% cover of the area of the feature should consist of firm, sunlit, horizontal, sloping or vertical, exposed bare ground. <1% of habitat heavily disturbed, eroded or showing signs of trampling/paths	Bare ground should form a patchwork with vegetation and be present mainly in south-facing slopes. Exclude rock, stone, litter and for wet heaths: bryophyte/lichen mats or heavily trampled soil. Tracks or paths can be a source of bare ground for nesting invertebrates. Record presence or signs of overgrazing & fires in the activities list on the field form.

^{vi} Peak count to be taken as the highest site total from monitoring data in the 3 years leading up to designation.

				Burning of wet heath should be carried out in a controlled manner on a 10-20 year cycle.
Bryophyte species of lowland heathland with bare ground that is winter-wet, summer droughted, and with light disturbance	Niche diversity	Visual assessment based on mapping and aerial photographs	Features such as banks and paths retained	Several species have specialist requirements of open bare ground (often with only other bryophytes and lichens as associates) that are wet in winter but dry out in summer. The regular use of paths or tracks is beneficial as long as there is not excessive erosion.
Lowland dry and wet heathland	Vegetation structure: growth phase composition of ericaceous cover	Visual assessment of total ericaceous cover, using structured walk or transects	Pioneer (& pseudo-pioneer): 10-40% Building/mature phase: 20-80% Degenerate phase: <30% Dead: <10% Presence of heather in all stages	Both young and mature stands would meet the targets, though structurally very different. Annual variation and succession should be accounted for within the targets. This attribute should be assessed only where it is possible to differentiate the growth phases. No one growth form should dominate.
	Vegetation structure: where bryophyte species of lowland heathland with bare ground that is winter-wet, summer droughted with light disturbance	Visual assessment	At least 50% of area to consist of pioneer/degenerate Calluna OR at least 50% of site with vegetation height less than 15 cm	Bryophytes can survive under an open canopy of Calluna in degenerate/pioneer stages, but not under a dense canopy. Aim should be to retain/create bare patches in heath mosaic.

	are present			
Lowland dry and wet heathland	Vegetation composition: dwarf shrubs	Visual assessment of cover, using structured walk or transects	At least two species of dwarf shrubs present and at least frequent. Dwarf shrub cover 25-90% Total Ulex and/or Genista spp. Cover <50%, Ulex europaeus <25% for dry heath and <10% for wet heath.	Dwarf-shrubs include: <i>Arctostaphylos uva-ursi</i> , <i>Calluna vulgaris</i> , <i>Empetrum nigrum</i> , <i>Erica ciliaris</i> , <i>E.cinerea</i> , <i>E.tetralix</i> , <i>E.vagans</i> , <i>Genista anglica</i> , <i>G.pilosa</i> , <i>Ulex gallii</i> , <i>U. minor</i> , <i>Vaccinium myrtillus</i> , <i>Vaccinium</i> spp. and <i>V.vitis-idaea</i> (and hybrids). Assess over whole feature. Annual variation and succession should be accounted for within the targets. Gorse species support a rich invertebrate and vertebrate fauna. However, they can also affect soil characteristics. See also 'negative indicators.'
Lowland dry heathland	Vegetation composition: graminoids	Record presence, using structured walk or transects	At least 1 spp frequent and 2 spp occasional (<i>Deschampsia flexuosa</i> and <i>Nardus stricta</i> no more than occasional & <25% cover): <i>Agrostis</i> , <i>Festuca</i> & <i>Carex</i> spp., <i>Ammophila arenaria</i> , <i>Trichophorum cespitosum</i> , <i>Deschampsia flexuosa</i> , <i>Danthonia decumbens</i> , <i>Molinia caerulea</i> , <i>Nardus stricta</i> .	In naturally species-poor sites, the presence of just one graminoid species may be enough to meet the target. For species-rich sites a higher target may be appropriate (see text).
Lowland wet heathland	Vegetation composition: graminoids	Visual assessment of cover, using structured walk or transects	At least 1 spp frequent and 2 spp occasional: <i>Eleocharis</i> spp., <i>Carex panicea</i> , <i>C.pulicaris</i> , <i>Eriophorum angustifolium</i> , <i>Juncus acutiflorus</i> , <i>J. articulatus</i> , <i>Molinia caerulea</i> , <i>Rhynchospora alba</i> , <i>Schoenus nigricans</i> , <i>Trichophorum cespitosum</i> .	<i>Molinia</i> no more than occasional and <i>Schoenus</i> at least occasional when naturally present. In naturally species-poor sites, the presence of just one graminoid species may be enough to meet the target. For species-rich sites a higher target may be appropriate (see text).
Lowland dry heathland	Vegetation composition: desirable forbs	Record presence, using structured walk or transects	At least 2 species occasional: <i>Viola riviniana</i> , <i>Armeria maritima</i> , <i>Galium saxatile</i> , <i>Genista anglica</i> , <i>Potentilla erecta</i> , <i>Hypochaeris radicata</i> , <i>Lotus corniculatus</i> , <i>Plantago lanceolata</i> , <i>P. maritima</i> , <i>Polygala serpyllifolia</i> , <i>Rumex acetosella</i> , <i>Scilla verna</i> , <i>Serratula</i>	In naturally species-poor sites, the presence of just one forb species may be enough to meet the target. For species-rich sites a higher target may be appropriate (see text).

			<i>tinctoria</i> , <i>Thymus praecox</i> ,	
Lowland wet heathland	Vegetation composition: desirable forbs	Visual assessment of cover, using structured walk or transects	At least 2 species occasional: <i>Anagallis tenella</i> , <i>Drosera</i> spp., <i>Galium saxatile</i> , <i>Genista anglica</i> , <i>Myrica gale</i> , <i>Narthecium ossifragum</i> , <i>Pinguicula</i> spp., <i>Polygala serpyllifolia</i> , <i>Potentilla erecta</i> , <i>Serratula tinctoria</i> , <i>Succisa pratensis</i> .	In naturally species-poor sites, the presence of just one forb species may be enough to meet the target. For species-rich sites a higher target may be appropriate (see text).
Lowland dry and wet heathland	Vegetation composition: bryophytes and lichens	Visual assessment of cover, using structured walk or transects	Dry Heath: % cover maintained or increased (if naturally present) Wet Heath: >10% cover of <i>Sphagna</i> and >5% cover of lichens (if naturally present)	Not applicable on all sites. Refer to existing information and surveys of the site. Does not include dense mats of acrocarpous mosses which should be no more than occasional
Lowland dry and wet heathland	Indicators of local distinctiveness :	As appropriate to feature	Maintain distinctive elements at current extent/levels and/or in current locations. Map area of species, maintain area	This attribute is not intended to set a target for detailed species monitoring, rather to provide a rapid indication of presence/absence and/or approximate extent
Lowland dry and wet heathland	Negative indicators: Exotic Species	Visual assessment of cover, use structured walk or transect	<1% exotic species, e.g.: <i>Gaultheria shallon</i> , <i>Fallopia japonica</i> , <i>Rhododendron ponticum</i> <i>Acrocarpous</i> mosses <occasional e.g. <i>Campylopus introflexus</i> <10% bracken but <5% bracken for wet heath	Exotic species should be eradicated if possible. Species in this list may be beneficial for a range of invertebrates and only become indicators of negative quality if they are over the established limit.
Lowland dry and wet heathland	Negative indicators: Herbaceous Species	Visual assessment of cover, use structured walk or transect	< 1 % ragwort, thistles and: <i>Cirsium arvense</i> , <i>Digitalis purpurea</i> , <i>Epilobium</i> spp. (excl. <i>E.palustre</i>), <i>Juncus effusus</i> , <i>J.squarrosus</i> , <i>Rumex obtusifolius</i> , <i>Urtica dioica</i> and: Dry heath <1%: <i>Chamerion angustifolium</i> , <i>Ranunculus</i> spp., <i>Senecio</i> spp. coarse grasses Wet heath <1%: <i>Apium nodiflorum</i> , <i>Fallopia japonica</i> , <i>Glyceria fluitans</i> , <i>Oenanthe crocata</i> , <i>Phragmites</i> spp., <i>Ranunculus repens</i> , <i>Senecio jacobaea</i> , <i>Typha</i> spp., <i>Urtica</i> spp.	Species in this list may be beneficial for a range of invertebrates and only become indicators of negative quality if they are over the established limit.
Lowland	Negative	Visual assessment of cover, using	Trees and shrub <15% (but <10% for wet	Up to 25% scrub cover can be accepted if

dry and wet heathland	indicators: Tree and Scrub Species	structured walk or transects	heath), e.g. <i>Prunus spinosa</i> , <i>Betula</i> , <i>Pinus</i> , <i>Quercus</i> & <i>Rubus</i> spp. Dry heath: <i>Hippophae rhamnoides</i> , <i>Sarothamnus scoparius</i> Wet heath: <i>Alnus glutinosa</i> , <i>Salix</i> sp.	indicated in conservation objectives or management plan.
Lowland wet heath	Negative indicators: signs of disturbance	Visual assessment of cover, use structured walk or transect	No silt, leachate or artificial drains	Drains can adversely affect hydrology.

AIV1.4 Conservation Objective for Open Standing Water

To maintain the open standing water habitat at this site in favourable conservation status, with particular reference to relevant specific designated interest features. Favourable conservation status is defined at this site in terms of the following site-specific standards:

Criteria Feature	Attribute	Measure	Site Specific Targets	Comments
Great crested newt, <i>Triturus cristatus</i>	Aquatic macrophyte cover	"Good" cover of marginal vegetation, emergent, submerged and/or floating vegetation to be present in at least 50% of breeding ponds.	Visual assessment between May and mid-September. Record for 4 consecutive years within each 6 year reporting cycle. 1 visit per year required. "Good" defined as: 25% - 100% of margin covered by marginal and emergent species, and 25% - 75% of pond bottom/ midwater/ surface covered by submerged or floating species.	This attribute allows for considerable variation in aquatic vegetation, but should prohibit a majority of ponds becoming overgrown, or suffering severe macrophyte die-back. Short-term algal blooms and duckweed <i>Lemna</i> coverage not normally problematic. Attribute should also serve as a proxy for detecting eutrophication, toxic spills, catastrophic reduction in invertebrate community, or underlying water quality issues; however if other evidence confirms one of these is a serious problem in >50% of ponds and the vegetation cover measures are nonetheless acceptable, then the attribute should fail.

Great crested newt, <i>Triturus cristatus</i>	Pond shading by scrub/trees	Sites with <20 breeding ponds: <25% of breeding ponds to have >20% of southern margin solidly shaded. Sites with >20 breeding ponds: Use above target in most cases, but if the habitat type and previous newt monitoring suggest a higher extent of shading is acceptable, <50% of breeding ponds to have >20% of southern margin solidly shaded.	Visual assessment of extent and orientation of pond margin solidly shaded by scrub/trees directly overhanging or adjacent to margin (not floating or emergent macrophytes). Assess April to June. Record once every 3 years. Shade should only be counted if relatively solid (and therefore likely to cause lower light levels and lower water temperatures).	Shading of southern margin is detrimental. Some shading of northern margin is often beneficial. Note that site context is important to consider (eg woodland sites should have higher threshold for shading than sand dune sites).
Great crested newt, <i>Triturus cristatus</i>	Terrestrial refuge habitat - structure and quality	Presence of suitable terrestrial refuge habitat – define on site basis.	Visual assessment at any time of year. Record once every 3 years.	High inter-site variation; dependent on site context. Record key features at time of designation and define components providing refuge potential; mark on map. May include discrete features or patches of habitat. Base on habitat structure that (i) provides refuge from extremes of climate (hot, cold, or dry); (ii) provides daytime shelter; (iii) is conducive to invertebrate prey populations. Most important close (<50m) to main breeding ponds. Most often provided by shrub layer, tussocky grass/rushes/sedges, scrub, woodland, leaf litter, cracked clay, quarry spoil, rubble, heaped brash, deadwood, log piles. Eg broadleaved woodland sites may have much undisturbed leaf litter, deadwood and exposed old root systems.
Great crested newt, <i>Triturus cristatus</i>	Pond persistence	Generic target for most sites: Minimum summer water depth 10cm for at least 50% of all or sample 1 breeding ponds on each year of assessment. Note: the target may be adjusted downwards at sites where early desiccation is a	Record approximate depth of water in identified breeding ponds between mid-August and mid-September. Visual assessment is suitable. Record once every 3 years.	High inter-site variation. Note the requirement for setting site-specific objectives with deviation from the standard target at sites where ponds naturally desiccate more frequently and earlier in the season without negatively affecting population viability. Target setting may

		natural feature (e.g. sand dunes, with many small, shallow ponds in close proximity) and where previous records demonstrate this is consistent with population viability. Target may be adjusted upwards at sites supporting ponds that do not normally dry out in summer.		require examination of historical site records and weather conditions to assess normal desiccation pattern. Premature desiccation (ie before mid-July (southern ponds) to mid-August (northern ponds)) is acceptable for all ponds in two out of three years provided highly successful recruitment in third year. Three consecutive years of desiccation with no recruitment should be considered unfavourable. Deep ponds are acceptable at sites where there is no chance of colonisation by fish.
Great crested newt, <i>Triturus cristatus</i>	Terrestrial habitat extent	No loss of area or fragmentation of site (through significant barriers to newt dispersal), compared with status at designation.	Determine area by walking site and comparing with map or aerial photo; most semi-natural habitats within 500m of breeding pond to be included. Assess presence of fragmentation. Any time of year. Record once every 3 years. Fragmentation refers to significant barriers to movement such as walls, buildings, and not, for instance, footpaths or tracks.	Can be modified if there have been major, beneficial habitat alterations since designation
Great crested newt, <i>Triturus cristatus</i>	Fish and wildfowl	Sites with fewer than 5 breeding ponds: Fish and wildfowl problems absent from all ponds. Sites with > 5 breeding ponds: Fish and wildfowl problems absent from >75% of ponds.	Visual assessment, March-September. Record for 4 consecutive years within each 6 year reporting cycle. 1 visit per year required. Look for fish and stocked wildfowl, or evidence of their presence: characteristic disturbance at water surface for fish, high turbidity, nests, droppings at pond margin, major loss of aquatic macrophytes, presence of algal blooms, heavily grazed grasses on bank. Numbers required to fail target: Fish: any number of individuals (need only to determine presence). Wildfowl: > 4 pairs/ha of open water.	Fish refers to all species known to be predators of great crested newt larvae, including stickleback, goldfish, orfe, rudd, pike, roach, perch. Target can be adjusted downwards if regular desiccation is likely, or (exceptionally) if larval survival is high despite fish presence. Target may be adjusted upwards if site is especially vulnerable (e.g. all ponds linked by ditches). "Wildfowl" refers to stocked ducks, swans or geese, and not natural populations of moorhens etc (which are not problematic).

AIV.2 Lewes Downs SAC (10/03/08)

The Conservation Objectives for the Lewes Downs SAC are shared with the SSSI (please note, only those components of relevance to the European-qualifying features are reproduced below): subject to natural change, to maintain the following habitats and geological features in favourable conservation status (*), with particular reference to any dependent component special interest features (habitats, vegetation types, species, species assemblages etc) for which the land is designated.

- Calcareous Grassland

(*) or restored to favourable conservation status if features are judged to be unfavourable.

AIV2.1 Conservation Objective for Habitat Extent

To maintain the designated habitats in favourable conservation status, which is defined in part in relation to a balance of habitat extent (extent attribute). On this site favourable conservation status requires the maintenance of the extent of each designated habitat type. Maintenance implies restoration if evidence from condition assessment suggests a reduction in extent.

Habitat Feature	Estimated extent (ha)	Measure	Site Specific Targets	Comments
CG2 Festuca ovina-Avenula pratensis grassland	95 ha (including the CG3/4 below) based on aerial photographs from 2000.	Total area (ha), mapped in relation to baseline (ie first available map of interest feature when/after notified), in period May-July.	No reduction in area and any consequent fragmentation without prior consent	Recoverable reduction = unfavourable; non-recoverable reduction = partially destroyed. Excludes bare ground associated with rabbit warrens. The monitoring of the condition of CG2 will mean the indirect attributes of Ophrys sphegodes are also assessed.
CG3 <i>Bromus erectus</i> ; CG4 <i>Brachypodium pinnatum</i> ; grassland				

AIV2.2 Conservation Objective for Species Populations

To maintain the designated species in favourable conservation status, which is defined in part in relation to their population attributes. On this site favourable conservation status requires the maintenance of the population of each designated species or assemblage. Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage.

Species Feature	Habitat Feature	Population Attribute	Site Specific Target Range and Measures	Comments
Early spider orchid (Ophrys sphegodes)	Calcareous grassland	Presence/absence	Orchids should be present - Colony at chalk pits in unit 7	This is the minimum amount of monitoring necessary for this species' direct attributes.
		Population size by mapping and count of functional individuals	Presence of species in a defined number of subpopulations or site sectors (spatial target); At least a minimum viable population size present; No loss in population extent > 10%; No decline in the population size category	This is a discretionary target. Many annual species undergo significant population fluctuations, and population size estimates may not be helpful in assessing condition. Unless there are fewer than 100 individuals (when an individual count is generally possible) on the site, counts of functional individuals should be made or assessed in the categories (101-300; 301-1 000; 1 001-3 000; 3 001-10 000; more than 10 000). Population extent is useful when it is difficult to define functional individuals.
		Successful regeneration by identification of the species and count of individuals	Presence of range of young and old plants; At least a minimum number/proportion of young plants or seedlings or full seed heads or flowers	This is a discretionary target. This is important for understanding the viability of a population, but may be difficult to assess for some species.

AIV2.3 Conservation Objective for Calcareous Grassland

To maintain the Calcareous Grassland at this site in favourable conservation status, with particular reference to relevant specific designated interest features. Favourable conservation status is defined at this site in terms of the following site-specific standards:

Criteria Feature	Attribute	Measure	Site Specific Targets	Comments
CG3 Bromus erectus; CG4 Brachypodium pinnatum: Lowland calcareous grassland	Sward structure: bare ground	Record extent of bare ground (not rock) distributed through the sward, noticeable without disturbing the vegetation, in period May-July. Measure annually if possible.	No more than 10%.	Outside target indicates management problems eg over-grazing.
CG3 Bromus erectus; CG4 Brachypodium pinnatum; Lowland calcareous grassland	Sward structure: localized bare ground	Record extent of localized bare ground around rabbit warrens. Measure annually if possible.	No more than 0.05 ha ie approx 20x20 metres	Outside target indicates rabbit grazing and disturbance levels are too high.
CG2 Festuca ovina- Avenula pratensis lowland calcareous grassland	Sward structure: bare ground	Record extent of bare ground (not rock) distributed through the sward, noticeable without disturbing the vegetation, in period May-July. Measure annually if possible.	No more than 10%.	Outside target indicates management problems eg over-grazing.
CG2 Festuca ovina- Avenula	Sward structure: localized bare ground	Record extent of localized bare ground around rabbit warrens. Measure annually if possible.	No more than 0.05 ha ie approx 20x20 metres	Outside target indicates rabbit grazing and disturbance levels are too high.

pratensis lowland calcareous grassland				
CG3 Bromus erectus; CG4 Brachypodi um pinnatum; Lowland calcareous grassland	Sward structure: litter	Record cover of litter where in a more or less continuous layer, distributed either in patches or in one larger area.	Total extent no more than 25% of the sward	Outside target indicates biomass removal is insufficient eg under-grazed.
CG2 Festuca ovina- Avenula pratensis lowland calcareous grassland	Sward structure: litter	Record cover of litter where in a more or less continuous layer, distributed either in patches or in one larger area.	Total extent no more than 25% of the sward	Outside target indicates biomass removal is insufficient eg under-grazed.
CG3 Bromus erectus; CG4 Brachypodi um pinnatum Lowland calcareous grassland	Sward structure: average height	Record sward height in period May-July.	Sward 2-15 cms.	Outside target indicates insufficient grazing or over-grazing.
CG2 Festuca ovina-	Sward structure: average	Record sward height in period May-July.	Sward 2-10 cms.	Outside target indicates insufficient grazing or over-grazing.

Avenula pratensis lowland calcareous grassland	height			
CG3 Bromus erectus; CG4 Brachypodium pinnatum; Lowland calcareous grassland	Sward composition: grass/herb ratio	Proportion of non-Graminae ("herbs"), in period May -July.	40-90%	Low proportion outside target indicates eutrophication, usually from fertilisers, or insufficient removal of biomass, leading to dominance by grasses.
CG2 Festuca ovina-Avenula pratensis lowland calcareous grassland	Sward composition: grass/herb ratio	Proportion of non-Graminae ("herbs"), in period May -July.	40-90%	Low proportion outside target indicates eutrophication, usually from fertilisers, or insufficient removal of biomass, leading to dominance by grasses.
CG3 Bromus erectus; CG4 Brachypodium pinnatum; Lowland calcareous grassland	Sward composition: positive indicator species	Record the frequency of positive indicator species in period May-July. <i>Brachypodium pinnatum</i> , <i>Bromopsis erecta</i> , <i>Anthyllis vulneraria</i> , <i>Asperula cynanchica</i> , <i>Campanula glomerata</i> , <i>Centaurea scabiosa</i> , <i>Cirsium acaule</i> , <i>Filipendula vulgaris</i> , <i>Galium verum</i> , <i>Genista tinctoria</i> , <i>Gentianella</i> spp., <i>Helianthemum nummularium</i> , <i>Hippocrepis comosa</i> , <i>Leontodon hispidus</i> /L. <i>saxatilis</i> , <i>Leucanthemum vulgare</i> ,	<i>Bromopsis erecta</i> (if CG3) or <i>Brachypodium pinnatum</i> (if CG4), or both (if CG5) frequent plus at least two species/taxa frequent and four occasional throughout the sward	Choice of species related to NVC type and restriction to unimproved grassland, considered satisfactory when inside target. Among possible species that could be used, choice further restricted by ease of identification, visibility in recording period.

		<i>Linum catharticum</i> , <i>Lotus corniculatus</i> , <i>Onobrychis viciifolia</i> , <i>Pilosella officinarum</i> (<i>Hieracium pilosella</i>), <i>Plantago media</i> , <i>Polygala</i> spp., <i>Primula veris</i> , <i>Sanguisorba minor</i> , <i>Scabiosa columbaria</i> , <i>Serratula tinctoria</i> , <i>Succisa pratensis</i> , <i>Thymus</i> spp., <i>Viola hirta</i> .		
CG2 Festuca ovina- Avenula pratensis lowland calcareous grassland	Sward composition: positive indicator species	Record the frequency of positive indicator species in period May-July. <i>Anthyllis vulneraria</i> , <i>Asperula cynanchica</i> , <i>Campanula glomerata</i> , <i>Cirsium acaule</i> , <i>Filipendula vulgaris</i> , <i>Genista tinctoria</i> , <i>Gentianella</i> spp., <i>Helianthemum nummularium</i> , <i>Hippocrepis comosa</i> , <i>Leontodon hispidus</i> /L. <i>saxatilis</i> , <i>Leucanthemum vulgare</i> , <i>Linum catharticum</i> , <i>Lotus corniculatus</i> , <i>Pilosella officinarum</i> (<i>Hieracium pilosella</i>), <i>Plantago media</i> , <i>Polygala</i> spp., <i>Primula veris</i> , <i>Sanguisorba minor</i> , <i>Scabiosa columbaria</i> , <i>Serratula tinctoria</i> , <i>Succisa pratensis</i> , <i>Thymus</i> spp.	At least four species/taxa frequent plus at least three species occasional throughout the sward.	Choice of species related to NVC type and restriction to unimproved grassland, considered satisfactory when inside target. Among possible species that could be used, choice further restricted by ease of identification, visibility in recording period.
CG3 Bromus erectus; CG4 Brachypodium pinnatum; Lowland calcareous	Sward composition: negative indicator species	Record the frequency and % cover of negative indicator species. Record in period May-July. <i>Cirsium arvense</i> , <i>Cirsium vulgare</i> , <i>Rumex crispus</i> , <i>Rumex obtusifolius</i> , <i>Senecio jacobaea</i> , <i>Urtica dioica</i> .	No species/taxa more than occasional throughout the sward or singly or together more than 5% cover	Invasive species chosen to indicate problems of eutrophication and disturbance from various sources when outside target eg poaching, stock feeding.

grassland				
CG3 Bromus erectus; CG4 Brachypodium pinnatum; Lowland calcareous grassland	Sward composition: negative indicator species	CG3 only: Record % cover of <i>Brachypodium pinnatum</i> , in period May-July.	No more than 10% cover	Outside target indicates insufficient removal of biomass eg under-grazing.
CG2 Festuca ovina - Avenula pratensis lowland calcareous grassland	Sward composition: negative indicator species	Record the frequency and % cover of negative indicator species. Record in period May-July. <i>Cirsium arvense</i> , <i>Cirsium vulgare</i> , <i>Rumex crispus</i> , <i>Rumex obtusifolius</i> , <i>Senecio jacobaea</i> , <i>Urtica dioica</i> .	No species/taxa more than occasional throughout the sward or singly or together more than 5% cover	Invasive species chosen to indicate problems of eutrophication and disturbance from various sources when outside target eg poaching, stock feeding.
CG2 Festuca ovina- Avenula pratensis lowland calcareous grassland	Sward composition: negative indicator species	Record % cover of <i>Brachypodium pinnatum</i> and <i>Bromopsis erecta</i> in period May-July.	Neither species at more than 10% cover	Outside target indicates insufficient removal of biomass eg under-grazing.
CG3 Bromus erectus; CG4 Brachypodium pinnatum; Lowland	Sward composition: negative indicator species	Record the frequency and % cover of all tree and scrub species excluding <i>Juniperus communis</i> , considered together. NB If scrub/tree species are more than occasional throughout the sward but less than 5% cover, they are soon likely to become a	No more than 5% cover.	Invasive species outside target shows that habitat is not being managed sufficiently eg under-grazed.

calcareous grassland		problem if grazing levels are not sufficient or if scrub control is not being carried out.		
CG2 Festuca ovina- Avenula pratensis lowland calcareous grassland	Sward composition: negative indicator species	Record the frequency and % cover of all tree and scrub species excluding <i>Juniperus communis</i> , considered together. NB If scrub/tree species are more than occasional throughout the sward but less than 5% cover, they are soon likely to become a problem if grazing levels are not sufficient or if scrub control is not being carried out.	No more than 5% cover.	Invasive species outside target shows that habitat is not being managed sufficiently eg under-grazed.

AIV.3 Pevensey Levels Ramsar (22/08/07)

The Conservation Objectives for the Pevensey Levels Ramsar are shared with the SSSI (please note, only those components of relevance to the Ramsar features are reproduced below): subject to natural change, to maintain the following habitats and geological features in favourable conservation status (*), with particular reference to any dependent component special interest features (habitats, vegetation types, species, species assemblages etc) for which the land is designated:

- Standing Open Water and Canals

(*) or restored to favourable conservation status if features are judged to be unfavourable.

AIV3.1 Conservation Objective for Habitat Extent

To maintain the designated habitats in favourable conservation status, which is defined in part in relation to a balance of habitat extent (extent attribute). On this site favourable conservation status requires the maintenance of the extent of the ditch systems within the grazing marsh which together support the notified features. Pevensey Levels is a system of interdependent components. The way that the whole system is managed is key

for maintaining both the extent and quality of the habitat. A threat to the habitat extent on Pevensey is further encroachment of scrub. Scrub reduces the heterogeneity of the ditches and is therefore of detriment to their structure and biodiversity and can lead to complete drying out and loss of the habitat. It is therefore fundamental that objectives are set which prevent scrub encroachment and help guide management of existing scrub.

Habitat Feature	Estimated extent (ha)	Site Specific Target Range and Measures	Comments
Standing open water and canals (Ditch systems in grazing marsh)	Habitat extent map will show all ditches. Current designated area 3603.15Ha Aerial photographs and a 2007 flyover of Pevensey captured on DVD offer a convenient means of rapidly assessing the extent of the ditch system.	A baseline map for each unit showing the boundary of the habitat and location of the ditches, will be used to assess any changes in extent. During a structured walk any changes caused by active management such as infilling or channel diversion should be noted. There should be no reduction in channel length of the ditches.	These observations do not include drying out or successional change.
Aggregations of <i>Vanellus vanellus</i>	Extent (3603.15Ha) Habitat extent based on current designated area of SSSI.	Whilst there are hotspots on Pevensey for wintering Lapwing populations it is considered that the whole designated area should be thought of as the habitat extent for potential wintering Lapwing populations. Extent of all habitats used by wintering Lapwing should be maintained - losses of 5% or more of the habitat is unacceptable. For Lapwing habitat 'loss' includes the loss of the open field structure, wet grassland and ditch habitat by encroachment of scrub. This element of percentage loss can be measured by comparing past aerial photographs. Aerial photographs from 1999 should be used as the baseline.	Many areas of Pevensey will be subject to seasonally flooded areas of land. These areas are important for lapwing and other wetland birds and form an important part of the habitat mosaic. However, these areas are hard to measure, change annually and are dictated by several variables and it is therefore difficult to set site specific targets.
Outstanding	Extent (3603.15Ha)	Until baseline data for core invertebrate habitat	Invertebrate monitoring has been undertaken on Pevensey

assemblage of invertebrates (W31 and W21)	Habitat extent based on current designated area of SSSI.	has been determined the general objective should be no reduction in the extent of the ditch habitat for which the invertebrate assemblage is associated as per the habitat extent objective.	Levels. A GIS layer which illustrates what surveys have been done and where may help identify areas of specific invertebrate interest and help set further specific habitat extent targets for the assemblage or species within it.
Outstanding assemblage of <i>Odonata</i>	Extent (3605.15 Ha) Habitat extent based on current designated area of SSSI. Individual areas of habitat for <i>Odonata</i> have not been mapped.	The baseline for core habitat for <i>Odonata</i> has not been refined beyond the total SSSI designated area and is not considered necessary for the following reason: Water bodies will undergo natural change and succession. Habitat across the designated area should therefore be managed to provide variety of successional stages. Ideal locations on Pevensey may change over time but the area of habitat available for <i>Odonata</i> should be maintained. There should therefore be no reduction in the extent of the ditch habitat for which the assemblage is associated and no more than 25% reduction in larval core habitat area. (For most dragonfly assemblages suitable larval habitat consists of belts of emergent, floating and submerged vegetation along the fringes of water bodies). This can be measured by the habitat structure monitoring, see 3a.	For dragonfly survey data see 'Pevensey Levels Dragonflies, by Phil Belden 1987'
Outstanding assemblage of wetland plants (<i>inc Potamogeton acutifolius</i>)	Extent (3605.15 Ha) Habitat extent based on current designated area of SSSI.	There should be no reduction in the extent of the ditch habitat for which the vascular plant assemblage is associated as per the habitat extent objective.	

AIV3.2 Conservation Objective for Species Populations

To maintain the notified species in favourable conservation status, which is defined in part in relation to their population attributes. On this site favourable conservation status requires the maintenance of the population of each designated species or assemblage. Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage.

Species Feature	Habitat Feature	Population Attribute	Site Specific Target Range and Measures	Comments
Outstanding assemblage of wetland plants	Standing open water and canals (Ditch systems in grazing marsh)	Presence/Absence	The following species should be present: <i>Potamogeton friesii</i> (flat stalked pondweed), <i>Wolffia arrhiza</i> (rootless duckweed), <i>Polygonum mite/Persicaria mitis</i> (tasteless water pepper), <i>Sium latifolium</i> (greater water parsnip), <i>Stratiotes aloides</i> (water soldier), <i>Althaea officinalis</i> (marshmallow) Where current species distribution maps exist, there should be continued presence of the species in these known locations (taking into account natural variation/cycles), in addition to any other locations. (See Pevensey Levels Water Level Management Plan, Environment Agency 2006) Map 1 – Distribution of rare flora	A GIS layer which maps the location of vascular plant surveys will be produced. This will be a quick reference guide to what surveys have been done, which area of the Levels they cover and where the information can be found. A longer term objective is to incorporate all survey data into GIS format. Key botanical assessments are: Pevensey Levels – Final report (proposed boundary for renotification) Joint Nature Conservation Council 1989 A botanical survey of ditches on the Pevensey Levels. Joint Nature Conservation Council 1986.
Locality of <i>Potamogeton acutifolius</i>	Standing open water and canals	Presence/absence	Species should be present. Known locations of this species can be located in the Pevensey Levels Water Level Management Plan (Map 1 – Distribution of rare flora). There should be continuing presence of species in these key areas in addition to any other locations.	The presence of <i>Potamogeton acutifolius</i> on the levels is important on a national scale and its presence on any part of the levels should be recognised as significant for the conservation of this species nationally.
Outstanding assemblage of	Standing open water	Specialist Direct monitoring of assemblage score based on presence/absence of specified	Monitor assemblage once in every 6 year monitoring cycle	This attribute is to be assessed through specialist survey. There is currently monitoring of some invertebrates across the

invertebrates W31 Permanent Wet mires (W314 – rich fen)	and canals (Ditch systems in grazing marsh)	proportion of species typical of habitat listed in ISIS	Using defined invertebrate sampling protocols thresholds to be met: ISIS score: W31 Permanent wet mire SQL score 160 W314 rich fen: Weighted Species Score: 10	Levels by specialists and interest groups. A GIS layer which maps the location of invertebrate surveys will be produced. This will be a quick reference guide to what surveys have been done and where the information can be found. A longer term objective is to incorporate all survey data into GIS format. Key Invertebrate surveys: (this needs to be updated) A survey of freshwater mollusca of Pevensey Levels in East Sussex. Killen 1994.
Outstanding invertebrate assemblage: W21 open water and mineral marsh (W211 – Open water on disturbed sediments)	Open standing water (Ditch systems in grazing marsh)	Specialist direct monitoring of assemblage score based on presence/absence of specified proportion of species typical of habitat listed in ISIS	Monitor assemblage once in every 6 year monitoring cycle Using defined invertebrate sampling protocols thresholds to be met: ISIS score: W21 open water and mineral marsh SQL score 170. W211 Open Water on Disturbed Sediments: Weighted Species Score: 4	As above.
Outstanding assemblage of <i>Odonata</i>	Open standing water (Ditch systems in grazing marsh)	Specialist direct monitoring is required to support existing records, to determine presence/absence and population size.	Pevensey Levels has strong populations of scarce dragonflies <i>Brachyton pratense</i> (see notes) and <i>Coenagrion pulchellum</i> as well as 16 other species. Monitor assemblage once in every six year monitoring cycle. Visits should be at least one month apart, spanning from late Spring (May/June) through mid summer (Late June- July) to late summer (late July – August)	Direct Monitoring – 18 species in notification should be assessed. The British Dragonfly Society (BDS) and the National Biodiversity Network (NBN) hold dragonfly records which should be utilised for condition assessments. Good baseline data exists in 'Pevensey Levels Dragonflies' Phil Belden 1987

Aggregation of wintering <i>Vanellus vanellus</i>	Standing open water and canals (Ditch systems in grazing marsh)	Bird population size. Number of wintering Lapwings has regularly exceeded 1% of the total British population.	Based on known natural fluctuations, maintain the population at or above 2,000 individuals. Wintering data will be collected through standard Wetland Birds Survey (WeBS), a national programme of monthly counts of wintering birds. Core counts are carried out monthly from September to March (See notes). A five year mean trend should be taken from the WeBS data as opposed to just using a single year. This five year trend will be established starting with data from the 2006/2007 survey year.	WeBS data for Pevensey can be accessed online. See www.bto.org/survey/webs/oindex This provides information on winter counts.
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AIV3.3 Conservation Objective for Standing Open Water and Canals (ditch systems in grazing marsh)

To maintain the ditch systems at Pevensey Levels in favourable conservation status, with particular reference to relevant specific designated interest features. Favourable conservation status is defined at this site in terms of the following site-specific standards: Invasion of the non-native plant species Floating Pennywort *Hydrocotyle ranunculoides* on Pevensey Levels is affecting the favourability of the site. Units on the Western side of the levels have been downgraded to unfavourable status due to the extent of the invasive weed. (See Water Level Management Plan, Environment Agency 2006 for distribution map). A strategy and action on how to deal with this weed is required if the site is to meet favourable status (assuming other remedies are achievable). Control of *Hydrocotyle ranunculoides* must be considered a key priority.

Criteria Feature	Attribute	Measure	Site Specific Targets	Comments
Ditch systems	Habitat structure: extent/composition of in-channel vegetation	Make an assessment for each ditch of the percentage (to nearest 5%) of channel length in early, mid and late successional stages.	Mix of early, mid and late successional ditches: 10-25% early 35-75% mid 10-25% late Where mechanical removal of <i>Hydrocotyle ranunculoides</i> has been a priority, it is acceptable that the majority of ditches will be	Characteristic faunal assemblages require a range of successional stages. Some open water plant species require early and mid-successional stages, but late succession ditches are important for emergents. Early succession ditches are defined here as those that have been desilted or reprofiled in

			at the same successional stage within a unit following the works.	the same year as the monitoring visit. Late succession ditches have >70% cover of emergents. This may not be apparent if ditch vegetation has been cut in the season of the site visit. The large amount of organic debris and stems under the water will indicate this.
Ditch systems	Habitat structure: extent/composition of bankside vegetation	For each ditch assess the percentage (to nearest 5%) of channel length that is heavily shaded (i.e. over 50% of the channel surface overhung) by coarse ruderal vegetation, scrub or hedges.	No more than 10% of the channel length should be heavily shaded. There are limited areas on Pevensey Levels where a higher proportion of scrub is considered acceptable and where this is the case it should not be considered to cause a unit to be unfavourable (See notes).	Although some bankside shading can provide habitat for some invertebrate species, heavy shading is detrimental to characteristic ditch flora and fauna. It shades out aquatic plants, leading to the loss of plant diversity and vegetated habitat for aquatic invertebrates and vertebrates.
Ditch systems	Habitat structure: channel form	During the structured walk, note variation in ditch profiles and make an estimate of the percentage (to the nearest 5%) of ditch length with trapezoidal and non-trapezoidal cross sections in each sub-section of the route. The overall result is calculated by taking the mean of the figures of the sub sections.	A range of variation in ditch profiles. If ditches are the only wetland feature, no more than 75% of ditch length with a trapezoidal cross-section.	Shallow, as well as deep water, is important for the maintenance of diverse plant and invertebrate assemblages. Non-trapezoidal profiles include those where the banks have been trampled by stock, where the ditch has been allowed to silt up but still contains water, or where berms have been constructed. Berm creation is especially desirable.
Ditch systems	Aquatic vegetation composition: native species richness	Fixed sampling points are established in each unit on a series of ditches between mid May and mid August, record (on DAFOR scale) all native aquatic plant taxa in each 20 m sampling site. Calculate the mean number of species to give the overall result.	Native aquatic flora of ditches species-rich: freshwater ditches - mean at least 7 species per 20m.	In-channel vegetation should be rich in native plant species. Plants are recorded using the DAFOR scale of abundance. This enables trends in relative species abundance to be detected over a series of monitoring cycles. In ditches of exceptional high quality, ditches may contain considerably more species per 20 m length than the target numbers. If this is the case, the mean number of taxa per sample should be used as the target in

				subsequent monitoring visits. If there is then a decrease of two or more species on average, compared with the initial visit, the condition of the ditch should be graded as unfavourable, even if the generalised target is met.
Ditch systems	Indicators of local distinctiveness: rare species and quality indicators	Record for each sub-section of the structured walk the presence of rare aquatic plant species and other species/ communities chosen as 'quality indicators'.	The following populations of rare species and other species/ communities characteristic of high quality ditch systems should persist. The following species were included in the original notification and are found on the Levels: <i>Potamogeton trichoides</i> (small pondweed) <i>Ceratophyllum submersum</i> (hornwort) <i>Oenanthe fluviatilis</i> (water dropwort) The broad leaved pondweed <i>Potamogetons Natans</i> and <i>Hydrocharis morsus-ranae</i> (Frog bit) are abundant in Pevensey ditches. <i>Stratoides aloides</i> (water soldier) requires further mention due to its importance on the Levels for its association in supporting fen raft spider populations, Britain's largest spider and one of the rarest, found at only three sites in the UK.	Pevensey Levels is perhaps the best site in Britain for freshwater mollusc fauna. Rare species which inhabit the levels include: Shining Ramshorn snail (<i>Segmentina nitida</i>) Ramshorn Snail (<i>Anisus vorticulus</i>) The large mouthed valve snail (<i>Valvata macrostoma</i>) Other invertebrates of note include Great silver water beetle (<i>Hydrophilic piceus</i>) Britains largest water beetle, only found in Southern Britain. Britain's only known location of <i>Placobdella costata</i>, a large leech.
Ditch systems	Indicators of negative change: introduction of or natural colonisation by non-native plants	For each structured walk sub-section estimate abundance of non-native or introduced aquatic plant species: (a) for each of the four most invasive non-native species - <i>Azolla filiculoides</i> - <i>Elodea spp</i>	Mean cover of each very aggressive non-native plant not exceeding 1%. Mean total combined cover of all non-native species and introduced species less than 30%.	The very aggressive <i>Hydrocotyle ranunculoides</i> has blanketed sections of ditch, these ditches are at significant risk of losing their diversity. Native plants are able to co-exist somewhat more easily with other non-native species, such as <i>Elodea spp</i>. The non-native <i>Lemna minuta</i> is not included in this assessment

		- <i>Hydrocotyle ranunculoides</i> - <i>Myriophyllum aquaticum</i> separate percentage cover values (b) for all non-native and introduced species: a combined percentage cover value (to the nearest 5%). The overall results (for a and b) are the mean of the cover values for the sub-sections.		unless it is found to be dominant, because it is very difficult to distinguish from <i>Lemna minor</i> .
Ditch systems	Habitat functioning: water quality a) water clarity	Along the structured walk note unnatural turbidity or discoloration of water. For each subsection, record % of the length (to nearest 5%) with clear water, % with slight turbidity/coloration and % with marked turbidity/coloration. The overall result is the mean of each set of figures from the sub-sections.	Water clear or only slightly turbid/discoloured in at least 90% of channel length	-
Ditch systems	Habitat functioning: water quality b) extent of algal dominance	For each structured walk sub-section, estimate % cover of the channel (to nearest 5%) by filamentous algae and <i>Enteromorpha</i> species taken together. The overall result is the mean of cover values for the sub-sections.	Mean cover of filamentous macro-algae and <i>Enteromorpha</i> not more than 10% (mid June to end August)	The effect of excessive nutrient enrichment is often signified by increased prevalence of algae, either filamentous or planktonic.
Ditch systems	Habitat functioning: water quality	Water chemistry should be assessed by reference to existing Environment Agency monitoring	Total phosphorus <0.1 mg L ⁻¹ ; Biological GQA Class 'a' or 'b' depending on	-

	c) water chemistry	data either for the site or, where this is not available, for the feeding waters.	reach type. In addition, no drop in class from existing situation. Chemical GQA Class 'A' or 'B' depending on reach type. In addition, no drop in class from existing situation	
Ditch systems	Habitat functioning: water availability	Ideally, depth gauges should be inserted in ditches at strategic points, including the main feeder. During the structured walk, water levels should be recorded using these gauges and/or by probing ditches with a pole marked in quarter metre intervals.	Characteristic water levels to be maintained. Generally, in wet ditches summer water depth at least 0.5 m in minor ditches and 1 m in major drains. 90% of channel length should reach this target. The water level management plan objectives for the Pevensey Levels SSSI should be implemented as follows: Maintain and enhance ditch habitat for which the site is designated by maintaining water level at 0.3 m below mean field level throughout the year and avoiding significant fluctuations in this level.	-

AIV3.4 Conservation Objective for Vascular Plants

To maintain the ditch systems at Pevensey Levels in favourable conservation status, with particular reference to vascular plants. Favourable conservation status is defined at this site in terms of the following site-specific standards:

- Locations of *Althaea officinalis* have not been established and there is no baseline data on the species. Due to the specific requirements of this species it is essential that the presence and distribution of this species is known. The following site specific requirements relating to this species can then be applied.
- Baseline data for *Persicaria mitis* does exist, however, further monitoring is required to establish its continued presence and distribution. As the species has specific requirements the targets for this species will be applied to areas where it is known to occur.

Criteria Feature	Attribute	Measure	Site Specific Targets	Comments
Outstanding assemblage of wetland plants (<i>Althaea officinalis</i>) Suite 14	Vegetation structure	Visual assessment	Area dominated by coarse grasses with scattered scrub and bare ground	Where this species is known to exist and scrub removal is being undertaken on a unit, then there should be less emphasis on completely clearing scrub. However as per the habitat targets scrub cover should not exceed 10%.
Outstanding assemblage of wetland plants (<i>Althaea officinalis</i>) Suite 14	Hydrology	Visual assessment	Whilst land subject to seasonal inundation by brackish to salt water is mandatory suite 14 attribute, on Pevensey Levels the deposition of a shingle ridge protects the levels from sea water inundation and this objective is therefore not relevant.	A certain amount of seawater intrusion occurs via the groundwater and whilst an assumption could be made that <i>Althaea officinalis</i> is likely to be located in units closest to the shingle ridge, the species has been known to exist some distance from the coast. A survey is therefore critical to establish its presence and distribution.
Outstanding assemblage of wetland plants (<i>Althaea officinalis</i>) Suite 14	Negative indicators: physical damage	Visual assessment	Where <i>Althaea officinalis</i> is located specific targets should be set to ensure no physical damage of the species. There should be no grazing or mowing.	This target highlights importance of establishing where this species occurs due to specific requirements.
Outstanding assemblage of wetland plants (<i>Persicaria mitis</i>) Suite 10	Vegetation structure	Visual assessment	Encroaching vegetation such as flote grass, willowherb, nettles, creeping bent, no more than rare where this species is known to occur. The development of thick marginal vegetation indicates unfavourable condition.	-
Outstanding assemblage of wetland plants (<i>Persicaria mitis</i>) Suite 10	Bare ground	Visual assessment	> 90% of margin to be open bare mud (The locality of this species needs to be identified. It is unlikely that 90% of the margin will be bare mud and it may be acceptable to reduce this percentage down)	Cattle grazed fields will help prevent competing vegetation and expose the seed bank. Where this species is located, berm creation will help create areas of exposed mud. Where existing structures are present, it may also be possible to

				manipulate water levels to expose mud, however conflict with the Water Level Management Plan should be avoided.
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AIV3.5 Conservation Objective for Invertebrates

To maintain the ditch systems at Pevensey Levels in favourable conservation status, with particular reference to relevant specific designated interest features. Favourable conservation status is defined at this site in terms of the following site-specific standards:

Criteria Feature	Attribute	Measure	Site Specific Targets	Comments
Outstanding assemblage of invertebrates: W31 Permanent Wet Mire – W314 (Rich Fen) Outstanding assemblage of invertebrates: W12 open water and mineral marsh - (W211 open water on disturbed sediments)	Sample based: Vegetation heterogeneity Diverse surface topography of vegetation types	Record Structural Monitoring Transect along series of linear ditch lengths to determine number of structural surfaces and representation of preferred surfaces within the assessed unit.	Favourable condition: A single surface present is no more than 5 out of 10 structural monitoring transects. More than 3 different surfaces present in at least 20% of structural monitoring transects. Preferred surfaces for this site are for the waterbody; Surface 3: Water column layer. This relates to the bulk of plants occupying the vertical water column profile such as (<i>Ceratophyllum</i> , <i>Calitriche</i> , <i>Potamogeton spp</i>) Surface 4 Water surface layer – The floating native duckweeds inhabit this layer but should be noted separately: <i>Stratiotes</i> , crowfoots, <i>Ranunculus</i> , <i>Polygonum</i>) Surface 5 low emergent layer This relates to shorter plants which rise above the water level such as (<i>Mentha</i> , <i>Ranunculus</i> , <i>Alisma</i>) Preferred surfaces for the ditch margins are;	Preferred features are micro-habitat features which should always be targeted during an assessment. These should be recorded and mapped. Preferred features for Pevensey Levels are; • Complex structure of submerged vegetation • Areas with a high proportion of macrophytes with floating leaves • Small patches of scrub can be beneficial for invertebrates (not more than 10% of any ditch length to co-exist with overall habitat objective) • Areas of bare wet sediment (especially berms) Ditches should not have steep banks (<45°) as this tends to lead to areas of deep water and only a small transitional zone. Berms are positive features. Where the ditches have a berm, water depth in spring and summer should not exceed 30cm above

			Layer 1; Bare substrate or detritus (wet muds) Layer 2; Benthic layer. marginal wetland vegetation with forbs	the berm.
Outstanding assemblage of invertebrates W31 and W21	Unit based: Vegetation heterogeneity Overhanging trees/scrub	2004 aerial photographs provide a good method of assessing amount of scrub in a unit. This should be used in combination with site unit assessment on the ground.	The scrub target for invertebrates is the same for the ditch habitat structure. No more than 10% of any channel length within a unit should be heavily shaded.	Scrub on Pevensey Levels is one of the main issues affecting favourability. Further work is required to ensure the right balance of scrub is maintained/removed across individual units and the levels as a whole.
Outstanding assemblage of invertebrates W31 and W21	Unit based: Open water (Extent of algal dominance, invasive non native species)	Visual assessment	These attributes are covered in the habitat assessment with the same targets.	The presence of <i>Azolla</i> and other floating invasive species should also be noted as negative indicators.
Outstanding assemblage of invertebrates: open water and mineral marsh	Fish	Visual assessment	No addition of large fish to otherwise fish free water	-
Outstanding assemblage of <i>Odonata</i>	Sample based – Habitat Recording Form for proxy habitat assessment. Assessment of vegetation	Visual assessment	Favourable condition: Considered favourable if emergent vegetation between 15 and 40% Considered favourable if the submerged vegetation	Dragonflies require varied habitat structure (basking sites, territorial markers, fly catching perches, roosting areas) For most dragonfly assemblages suitable larval habitat consists of emergent, floating and

	heterogeneity should be made.		between 30 and 50%.	submerged vegetation
Outstanding assemblage of <i>Odonata</i>	Bankside shading	Structural Monitoring Transect Percentage of trees and shrubs shading water edge	Favourable condition. Dragonflies in general need water bodies in sunshine the amount of shade cast over the water margin by trees should be no more than 10 %	Although dragonflies can tolerate scrub levels above the general habitat target, a target of 10% per unit has been set so that there is no conflict with the overall habitat target.

(Source: Natural England)

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Appendix IV: Key Conditions supporting Site Integrity

AV.1 Ashdown Forest SAC

Lack of management coordination (insofar as the absence of management would result in degradation, but a management plan is in place)

Absence of succession from open heathland to woodland

Lack of grazing

Absence of public opposition to grazing (including fencing, availability of graziers/suitable livestock, and constraints on dog-walkers)

Absence of scrub and invasive/non-native species such as bracken, rhododendron *Rhododendron sp*

Resources for scrub clearance, bracken mowing, etc., particularly in the ungrazed area

Absence of exposure to atmospheric pollutants (eg, nitrogen deposition)

Sufficiently buoyant water levels to supply open standing water

AV.2 Ashdown Forest SPA

Absence of disturbance during breeding, feeding and roosting

Predation

Sufficient quantity and quality of breeding, feeding and roosting habitats

Appropriate management of public access and recreation

AV.3 Lewes Downs SAC

Appropriate grazing by sheep and cattle (to conserve and enhance plant species diversity)

Absence of encroachment by scrub

Absence of leaching

Absence of spray-drift from surrounding arable fields

Absence of exposure to atmospheric pollutants

AV.4 Pevensey Levels Ramsar

Unpolluted water

Low levels of nutrient enrichment (primarily from surface runoff and hydrological pathways, but also from atmospheric deposition)

Control of non-native species (e.g. pennywort *Hydrocotyle vulgaris* and *Crassula* sp.)

Maintenance of appropriate hydrological regime

Control of recreational disturbance

Appendix V: Re-Screening of Core Strategy Policies under 2009 Natural England Draft Guidance

This appendix re-screens Core Strategy policies under the latest draft HRA guidance from Natural England (Tyldesley, 2009) in order to provide a clearer classification and justification for the way in which the assessment has been approached. The screening findings are presented in the table below, while a key to the table is provided on the following page. This is accompanied by a brief justification for the way in which policies are classified.

	Strategic Policy	Ashdown Forest SAC	Ashdown Forest SPA	Castle Hill SAC	Lewes Downs SAC	Pevensey Levels Ramsar
WCS 1	Provision of homes and jobs 2006-2030	A5	A5	A5	A5	A5
WCS 2	Distribution of Housing Growth	C1	C1	A4	C2	C2
WCS 3	Distribution of Employment (B Class) and Retail (convenience and comparison shopping)	C2	C2	A4	C2	C2
WCS 4	Strategic Development Areas	C1	C1	A4	C2	C2
WCS 5	Managing the release of housing land	A1	A1	A1	A1	A1
WCS 6	Rural areas strategy	C2	C2	A4	C2	C2
WCS 7	Effective provision of Infrastructure	A1	A1	A1	A1	A1
WCS 8	Affordable Housing	A1	A1	A1	A1	A1
WCS 9	Rural exception affordable housing	C4	C4	A4	C4	C4
WCS 10	The Travelling Community - Provision for Gypsies, Travellers and Travelling Showpeople	C4	C4	A4	C4	C4
WCS 11	The Travelling Community- Provision for Gypsies, Travellers and Travelling Showpeople: Site Criteria	A1	A1	A1	A1	A1
WCS 12	Biodiversity	A2	A2	A2	A2	A2
WCS 13	Green infrastructure	A3	A3	A3	A3	A3

Assessment Key	
Category A: No negative effect	
A1	Options / policies that will not themselves lead to development e.g. because they relate to design or other qualitative criteria for development, or they are not a land use planning policy.
A2	Options / policies intended to protect the natural environment, including biodiversity.
A3	Options / policies intended to conserve or enhance the natural, built or historic environment, where enhancement measures will not be likely to have any negative effect on a European Site.
A4	Options / policies that positively steer development away from European sites and associated sensitive areas.
A5	Options / policies that would have no effect because development is implemented through later policies in the same plan, which are more specific and therefore more appropriate to assess for their effects on European Sites.
Category B: No significant effect	
B	Options / policies that could have an effect, but the likelihood is there would be no significant negative effect on a European site either alone or in combination with other elements of the same plan, or other plans or projects.
Category C: Likely significant effect alone	
C1	The option, policy or proposal could directly affect a European site because it provides for, or steers, a quantity or type of development onto a European site, or adjacent to it.
C2	The option / policy could indirectly affect a European site e.g. because it provides for, or steers, a quantity or type of development that may be ecologically, hydrologically or physically connected to it or increase disturbance.
C3	Proposals for a magnitude of development that, no matter where it was located, the development would be likely to have a significant effect on a European site.
C4	An option / policy that makes provision for a quantity / type of development but the effects are uncertain because its detailed location is to be selected following consideration of options in a later, more specific plan.
C5	Options / policies for developments or infrastructure projects that could block alternatives for the provision of other development in the future, that may lead to adverse effects on European sites, which would otherwise be avoided.
C6	Options, policies or proposals which are to be implemented in due course - if implemented in one or more particular ways, the proposal could possibly have a significant effect on a European site.
C7	Any other options, policies or proposals that would be vulnerable to failure under the Habitats Regulations at project assessment stage; to include them in the plan would be regarded by the EC as 'faulty planning'.
C8	Any other proposal that may have an adverse effect on a European site, which might try to pass the tests of HRA at project level by arguing that the plan provides IROPI to justify its consent despite a negative assessment.
Category D: Likely significant effects in combination	
D1	The option, policy or proposal alone would not be likely to have significant effects but if its effects are combined with the effects of other policies within the same plan the cumulative effects would be likely to be significant.
D2	Options, policies or proposals that alone would not be likely to have significant effects but if their effects are combined with the effects of other plans or projects, the combined effects would be likely to be significant.
D3	Options or proposals that are, or could be, part of a programme or sequence of development delivered over a period, where the implementation of the later stages could have a significant effect on European sites.

WCS 1 - Provision of homes and jobs 2006-2030

This policy will not affect any European site because the 9,600 dwellings and 57,000 sq. metres of retail floorspace/employment land will be implemented through later policies in the Core Strategy (WCS 2 and WCS 3), which are more specific and therefore more appropriate to assess for their effects on European Sites.

WCS 2 - Distribution of Housing Growth

This policy could directly affect Ashdown Forest SAC and SPA because it provides for a quantity of housing development in close proximity to the sites. New allocations at Crowborough are likely to have multiple urbanisation effects on Ashdown Forest SAC/SPA, including a generally increasing footfall, fly-

tipping and predation from domestic cats. In addition, Ashdown Forest SAC may be affected indirectly in terms of atmospheric pollution due to new local residents (including those in Uckfield) increasing traffic flow on nearby roads. The SPA may be indirectly affected by an increase in numbers of visitors to the site.

The policy could indirectly affect Pevensey Levels Ramsar because it provides for a quantity of housing development in close proximity to the site (Hailsham and Hellingly), which is likely to affect atmospheric pollution due to increased traffic flow. In addition, housing development in the district as a whole will increase both demand for water and production of wastewater, which could indirectly affect the wetland plants and invertebrates due to a lowered water table and a reduction in water quality respectively.

Lewes Downs SAC, though located outside of the district, could be indirectly affected by the policy due to increased traffic flow along the A26 by those moving to the district, causing atmospheric pollution and in turn acid deposition on the calcareous grassland habitat.

WCS 3 - Distribution of Employment (B Class) and Retail (convenience and comparison shopping)

Ashdown Forest SAC may undergo indirect negative effects due to an increase in traffic flow by those travelling south along the A22/A26 to reach new employment and retail sites in Uckfield. The SAC and SPA could also be affected by increased recreational pressure from working in the area.

Pevensey Levels Ramsar is likely to be indirectly affected by the policy as a result of atmospheric pollution caused by an increased traffic flow on the A27 and local roads due to employment and retail provision at Hailsham. Similarly, Lewes Downs SAC could be indirectly affected by air pollution due to increased traffic flow on the A26 by those newly employed or shopping in Wealden District.

WCS 4 - Strategic Development Areas

Strategic Development Areas 1, 8, 9 and 10 could directly affect Ashdown Forest SAC and SPA because of the proximity of new development to the sites resulting in increased urban footfall, fly-tipping and predation from domestic pets. Indirect effects from increased recreational pressure at the SPA and atmospheric pollution from increased traffic flow at the SAC could also be caused by this policy, in particular Strategic Development Areas 1, 8, 9, 10.

Pevensey Levels Ramsar is likely to be indirectly affected by this policy due to the increased water abstraction and production of wastewater associated with development throughout the district lowering the water table and water quality at the site, as well as from increased traffic along the A27, A259 and A271 adding to atmospheric pollution effects on the site's aquatic plants and invertebrates.

Lewes Downs SAC could be indirectly affected by atmospheric pollution as a result of increased traffic flow on the A26 due to an increase in the number of people living and working in the district.

WCS 5 - Managing the release of housing land

This policy concerns the rate at which the dwellings specified in WCS 2 are likely to be built; this is not a land use policy itself.

WCS 6 - Rural areas strategy

The provision of an additional 455 dwellings within the district's rural centres could indirectly affect Ashdown Forest SAC/SPA, Pevensey Levels Ramsar and Lewes Downs SAC as increased traffic flows along the A26 and A27 contribute to atmospheric pollution effects at the sites. Recreational pressure may also increase at Ashdown Forest SPA as a result of the policy, whilst Pevensey Levels Ramsar could potentially be affected by the increased demand for water and production of wastewater associated with the policy.

WCS 7 - Effective provision of Infrastructure

This policy is not a land use planning policy. The Infrastructure Delivery Plan should undergo HRA in due course to ascertain the potential effects of new transport and utility infrastructure on the European Sites in question.

WCS 8 - Affordable Housing

The mix of dwelling size, type and tenure within new housing developments is not a land use planning policy.

WCS 9 - Rural exception affordable housing

This policy states that *"in exceptional circumstances, planning permission may be granted for small scale affordable residential development in rural areas outside development boundaries"*. Due to the uncertainty of any future development associated with this policy, effects on European sites cannot be ascertained; however they are unlikely to be significant.

WCS 10 - The Travelling Community - Provision for Gypsies, Travellers and Travelling Showpeople

The provision of 32 Gypsy and Traveller pitches within the district may contribute to indirect effects on Pevensey Levels Ramsar due to an increased demand for water and production of wastewater, and possibly recreational disturbance at Ashdown Forest SPA and atmospheric pollution at Ashdown Forest SAC, Pevensey Levels Ramsar and Lewes Downs SAC; however the policy is not detailed enough to ascertain the significance of effects with any degree of certainty.

WCS 11 - The Travelling Community- Provision for Gypsies, Travellers and Travelling Showpeople: Site Criteria

This policy concerns criteria for determining the location of Gypsy and Traveller sites; it is not a land use planning policy.

WCS 12 – Biodiversity

This policy seeks to protect biodiversity. In particular, a comprehensive network of habitats will be "maintained, restored and where possible created to achieve a net gain in biodiversity and sustain wildlife in both rural and urban areas", which should have positive effects for the European Sites.

WCS 13 - Green infrastructure

This policy intends to protect, improve and enhance the natural and built environment by ensuring that all new residential development contributes to the district's green infrastructure network by providing new green spaces or improving existing ones. This should have positive effects for the European Sites, allowing species migration as the climate changes, as well as potentially negating the increased recreational pressure on Ashdown Forest SPA.

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Appendix VI: Current Annual Average Daily Traffic Flows

Ashdown Forest 2009 Base Traffic Flow Analysis

LINK	2009 AADT	% increase for plus 1,000 AADT
A22 Forest Row - Wych Cross	14420	6.9
A22 Wych Cross - Nutley	12030	8.3
A22 Nutley - Maresfield	12320	8.1
A26 Crowborough - Crowborough Road (leads to Duddleswell)	15810	6.3
A26 Crowborough Road - Five Ash Down	10410	9.6
B2026 Maresfield - Duddleswell	5020	19.9
B2026 Duddleswell - Hartfield	2620	38.2
B2110 Forest Row - Colemans Hatch	3690	27.1
B2110 Colemans Hatch - Hartfield	3450	29.0
B2188 Duddleswell - Friars Gate	1990	50.3
Kidds Hill, B2026 - Colemans Hatch	1410	70.9
Crowborough Road, east of Duddleswell	5620	17.8
Crowborough Road, west of Duddleswell	3450	29.0
Colemans Hatch Road, Wych Cross - Colemans Hatch	2400	41.7
TOTAL all links	94640	14.8

Lewes Downs 2009 Base Traffic Flow Analysis

LINK	2009 AADT	% increase for plus 1,000 AADT
B2192, Lewes	13,900	7.2
A26, Lewes	10,680	9.4

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Appendix VII: Routeing Options and Assignment Results for Road Network relating to Ashdown Forest and Lewes Downs SACs

Please see following pages.

ASHDOWN FOREST APPROPRIATE ASSESSMENT**ROUTING OPTIONS (BASED ON CENSUS JTW); PLUS NEW AADTs ALLOCATIONS AND COMMITMENTS (657 HH)****CROWBOROUGH****657 HH @ 2.21 'STRATEGIC' VEHICLE TRIPS / HH AADT = 1452 TOTAL**

WORKPLACE (LA AREA)	OUT-COMMUTERS (2001 person trips) (all modes)	ROUTING OPTIONS	TOTAL AADT	% BY EACH ROUTE (persons)	RELEVANT Y/N	ADDITIONAL TRAFFIC (vehicles)
eastbourne	94	A26 to Uckfield, then A22	24	50	Y	12
		<i>via Rotherfield to Mayfield, then A267/A22</i>		50	N	
hastings	21	<i>whole route not within study area</i>	5	100	N	
lewes	157	A26 to Uckfield and Lewes	40	100	Y	40
rother	57	<i>whole route not within study area</i>	15	100	N	
rest of wealden	1084	A26 / Duddleswell / A22 to Forest Row	271	2.5	Y	7
		A26 / Duddleswell / B2026 / Kidds Hill / B2110 to Forest Row		2.5	Y	7
		A26 to Uckfield		20	Y	54
		<i>minor routes to Hartfield etc not within study area</i>		5	N	
		A26 to Uckfield, then A22 etc beyond		35	Y	95
		<i>via Rotherfield to Mayfield, then A267/A22 etc beyond</i>		35	N	
brighton and hove	66	A26 to Uckfield, Lewes and beyond	17	100	Y	17
sevenoaks	252	<i>whole route not within study area</i>	63	100	N	
tonbridge and malling	251	<i>whole route not within study area</i>	63	100	N	
tunbridge wells	1795	<i>whole route not within study area</i>	449	100	N	
rest of kent	93	<i>whole route not within study area</i>	23	100	N	
adur	6	A26 to Uckfield, Lewes and beyond	1	100	Y	1
crawley	203	A26 / Duddleswell / Kidds Hill / B2110 / A22 / A264	51	50	Y	25
		A26 / Duddleswell / A22 / A264		50	Y	25
horsham	21	A26 to Maresfield, then A272 / A24	5	50	Y	2
		A26 / Duddleswell / A22 to Wych Cross, then via Turners Hill		50	Y	3
mid sussex	445	A26 to Maresfield, then A272 to Haywards Heath / Burgess Hill etc	110	66	Y	73
		A26 / Duddleswell / A22 to East Grinstead		17	Y	19
		A26 / Duddleswell / B2026 / Kidds Hill / B2110 to East Grinstead		17	Y	19
worthing	12	A26 to Uckfield, Lewes and beyond	3	100	Y	3
rest of west sussex	0	A26 to Uckfield, then various to beyond	0	100	Y	0
inner/central london	556	<i>all public transport</i>	139	100	N	
outer london	243	<i>50% public transport or A 26</i>	61	75	N	
		<i>50% public transport. Minor routes to Hartfield etc and onwards not within study area</i>		25	N	
surrey	240	A26 / Duddleswell / A22 and onwards	61	37.5	Y	23
		A26 / Duddleswell / B2026 / Kidds Hill / B2110 / A22 and onwards		37.5	Y	23
		<i>minor routes to Hartfield etc not within study area</i>		25	N	
elsewhere in UK	183	<i>all public transport</i>	46	100	N	
outside UK	27	<i>all public transport</i>	6	100	N	
TOTAL	5779		1452			448

Unless otherwise stated, traffic increases assume 100% by car (i.e. no public transport use)

ASHDOWN FOREST APPROPRIATE ASSESSMENT**ROUTING OPTIONS (BASED ON CENSUS JTW); PLUS NEW AADTs ALLOCATIONS AND COMMITMENTS (1609 HH)****UCKFIELD****1609 HH @ 2.21 'STRATEGIC' VEHICLE TRIPS / HH AADT = 3555 TOTAL**

WORKPLACE (LA AREA)	OUT-COMMUTERS (2001 person trips) (all modes)	ROUTING OPTIONS	TOTAL AADT	% BY EACH ROUTE (persons)	RELEVANT Y/N	ADDITIONAL TRAFFIC (vehicles AADT)
eastbourne	91	whole route not within study area	76	100	N	
hastings	21	whole route not within study area	18	100	N	
lewes	544	whole route not within study area	452	100	N	
rother	45	whole route not within study area	38	100	N	
rest of wealden	1177	A22 to Forest Row	980	5	Y	49
		A26 to Crowborough & Eridge		20	Y	196
		B2026 to Hartfield		5	Y	49
		A272 E/W, A22/A26 south, whole route not in study area		70	N	
brighton and hove	238	whole route not within study area	198	100	N	
sevenoaks	58	A26 To Crowborough and Tonbridge	48	100	Y	48
tonbridge and malling	63	A26 To Crowborough and Tonbridge	52	100	Y	52
tunbridge wells	218	A26 To Crowborough and Tunbridge Wells	182	100	Y	182
rest of kent	51	whole route not within study area	43	100	N	
adur	30	whole route not within study area	25	100	N	
crawley	332	A22/A264	276	50	Y	138
		A272/A23		50	N	
horsham	39	A272	32	100	N	
mid sussex	536	A272 to Haywards Heath / Burgess Hill etc	446	67	N	
		A22 to East Grinstead		33	Y	147
worthing	24	whole route not within study area	20	100	N	
rest of west sussex	18	whole route not within study area	15	100	N	
inner/central london	292	all public transport	243	100	N	
outer london	188	50% public transport - A22 via East Grinstead	156	38	Y	59
		50% public transport - B2026 via Hartfield towards Edenbridge		12	Y	19
surrey	180	A22 via East Grinstead	150	75	Y	112
		B2026 via Hartfield towards Edenbridge		25	Y	38
elsewhere in UK	117	all public transport	97	100	N	
outside UK	10	all public transport	8	100	N	
TOTAL	4272		3555			1089

Unless otherwise stated, traffic increases assume 100% by car (i.e. no public transport use)

LEWES DOWNS SAC APPROPRIATE ASSESSMENT**ROUTING OPTIONS (BASED ON CENSUS JTW): PLUS NEW AADTs ALLOCATIONS AND COMMITMENTS (657 HH)****CROWBOROUGH****657 HH @ 2.21 'STRATEGIC' VEHICLE TRIPS / HH AADT = 1452 TOTAL**

WORKPLACE (LA AREA)	OUT-COMMUTERS (2001 person trips) (all modes)	ROUTING OPTIONS	TOTAL AADT	% BY EACH ROUTE (persons)	RELEVANT Y/N	ADDITIONAL TRAFFIC (vehicles)
eastbourne	94	A26 to Uckfield, then A22	24	50	N	
		<i>via Rotherfield to Mayfield, then A267/A22</i>		50	N	
hastings	21	<i>whole route not within study area</i>	5	100	N	
lewes	157	A26 to Uckfield and Lewes	40	100	Y	40
rother	57	<i>whole route not within study area</i>	15	100	N	
rest of wealden	1084	A26 / Duddleswell / A22 to Forest Row	271	2.5	N	
		A26 / Duddleswell / B2026 / Kidds Hill / B2110 to Forest Row		2.5	N	
		A26 to Uckfield		20	N	
		<i>minor routes to Hartfield etc not within study area</i>		5	N	
		A26 to Uckfield, then A22 etc beyond		35	N	
		<i>via Rotherfield to Mayfield, then A267/A22 etc beyond</i>		35	N	
brighton and hove	66	A26 to Uckfield, Lewes and beyond	17	100	Y	17
sevenoaks	252	<i>whole route not within study area</i>	63	100	N	
tonbridge and malling	251	<i>whole route not within study area</i>	63	100	N	
tunbridge wells	1795	<i>whole route not within study area</i>	449	100	N	
rest of kent	93	<i>whole route not within study area</i>	23	100	N	
adur	6	A26 to Uckfield, Lewes and beyond	1	100	Y	1
crawley	203	A26 / Duddleswell / Kidds Hill / B2110 / A22 / A264	51	50	N	
		A26 / Duddleswell / A22 / A264		50	N	
horsham	21	A26 to Maresfield, then A272 / A24	5	50	N	
		A26 / Duddleswell / A22 to Wych Cross, then via Turners Hill		50	N	
mid sussex	445	A26 to Maresfield, then A272 to Haywards Heath / Burgess Hill etc	110	66	N	
		A26 / Duddleswell / A22 to East Grinstead		17	N	
		A26 / Duddleswell / B2026 / Kidds Hill / B2110 to East Grinstead		17	N	
worthing	12	A26 to Uckfield, Lewes and beyond	3	100	Y	3
rest of west sussex	0	A26 to Uckfield, then various to beyond	0	100	Y	0
inner/central london	556	<i>all public transport</i>	139	100	N	
outer london	243	<i>50% public transport or A 26</i>	61	75	N	
		<i>50% public transport. Minor routes to Hartfield etc and onwards not within study area</i>		25	N	
surrey	240	A26 / Duddleswell / A22 and onwards	61	37.5	N	
		A26 / Duddleswell / B2026 / Kidds Hill / B2110 / A22 and onwards		37.5	N	
		<i>minor routes to Hartfield etc not within study area</i>		25	N	
elsewhere in UK	183	<i>all public transport</i>	46	100	N	
outside UK	27	<i>all public transport</i>	6	100	N	
TOTAL	5779		1452			61

Unless otherwise stated, traffic increases assume 100% by car (i.e. no public transport use)

LEWES DOWNS SAC APPROPRIATE ASSESSMENT**ROUTING OPTIONS (BASED ON CENSUS JTW); PLUS NEW AADTs ALLOCATIONS AND COMMITMENTS (1609 HH)****UCKFIELD****1609 HH @ 2.21 'STRATEGIC' VEHICLE TRIPS / HH AADT = 3555 TOTAL**

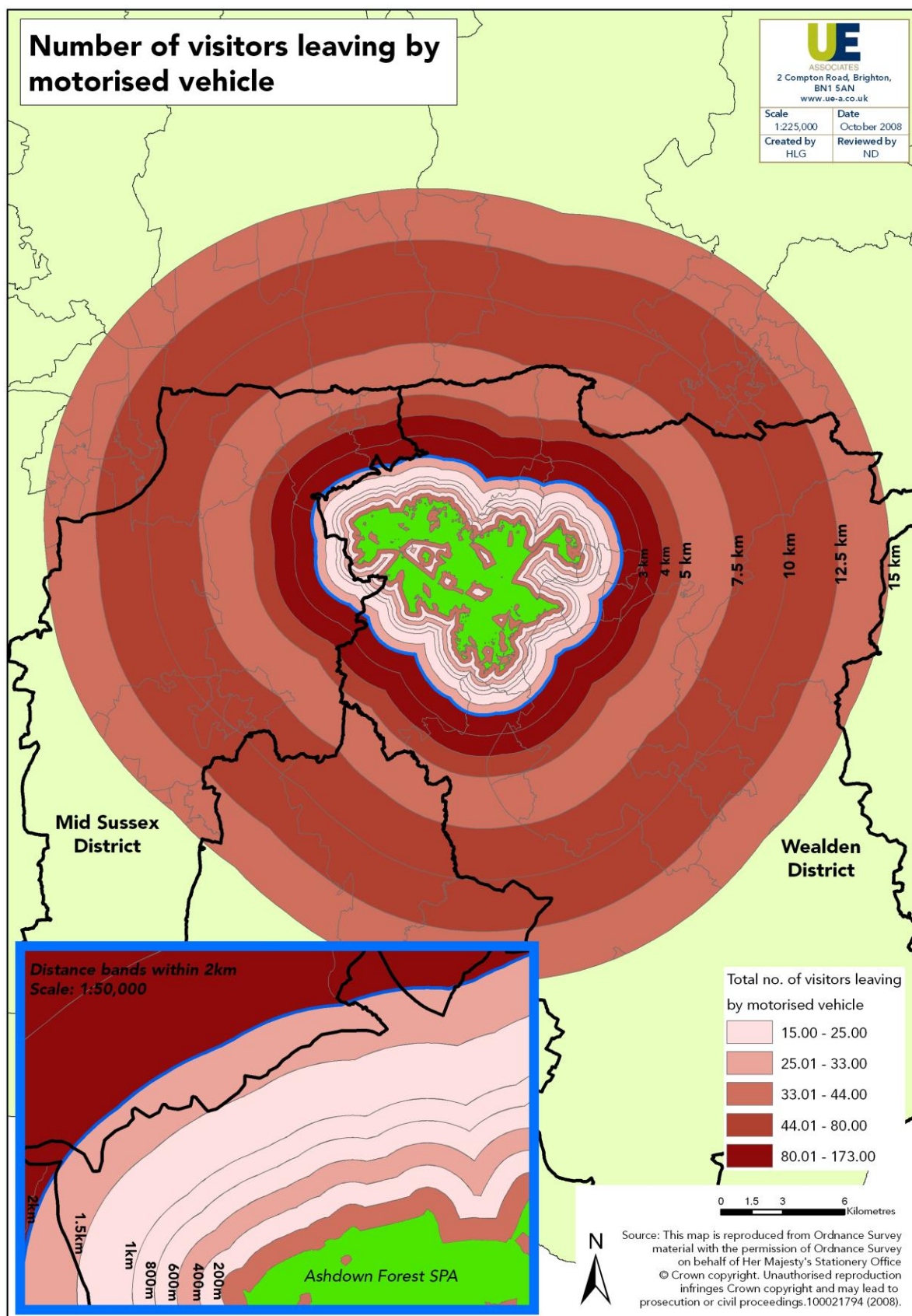
WORKPLACE (LA AREA)	OUT-COMMUTERS (2001 person trips) (all modes)	ROUTING OPTIONS	TOTAL AADT	% BY EACH ROUTE (persons)	RELEVANT Y/N	ADDITIONAL TRAFFIC (vehicles AADT)
eastbourne	91	A22 to Eastbourne	76	100	N	
hastings	21	A22 to Eastbourne and beyond	18	100	N	
lewes	544	A26 to Lewes	452	100	Y	452
rother	45	A22 to Eastbourne and beyond	38	100	N	
rest of wealden	1177	A22 to Forest Row	980	5	N	
		A26 to Crowborough & Eridge		20	N	
		B2026 to Hartfield		5	N	
		A272 E/W, A22/A26 south, whole route not in study area		70	N	
brighton and hove	238	A26 to Lewes and beyond	198	100	Y	198
sevenoaks	58	A26 To Crowborough and Tonbridge	48	100	N	
tonbridge and malling	63	A26 To Crowborough and Tonbridge	52	100	N	
tunbridge wells	218	A26 To Crowborough and Tunbridge Wells	182	100	N	
rest of kent	51	whole route not within study area	43	100	N	
adur	30	A26 to Lewes and beyond	25	100	Y	25
crawley	332	A22/A264	276	50	N	
		A272/A23		50	N	
horsham	39	A272	32	100	N	
mid sussex	536	A272 to Haywards Heath / Burgess Hill etc	446	67	N	
		A22 to East Grinstead		33	N	
worthing	24	A26 to Lewes and beyond	20	100	Y	20
rest of west sussex	18	A26 to Lewes and beyond	15	100	Y	15
inner/central london	292	all public transport	243	100	N	
outer london	188	50% public transport - A22 via East Grinstead	156	38	N	
		50% public transport - B2026 via Hartfield towards Edenbridge		12	N	
surrey	180	A22 via East Grinstead	150	75	N	
		B2026 via Hartfield towards Edenbridge		25	N	
elsewhere in UK	117	all public transport	97	100	N	
outside UK	10	all public transport	8	100	N	
TOTAL	4272		3555			710

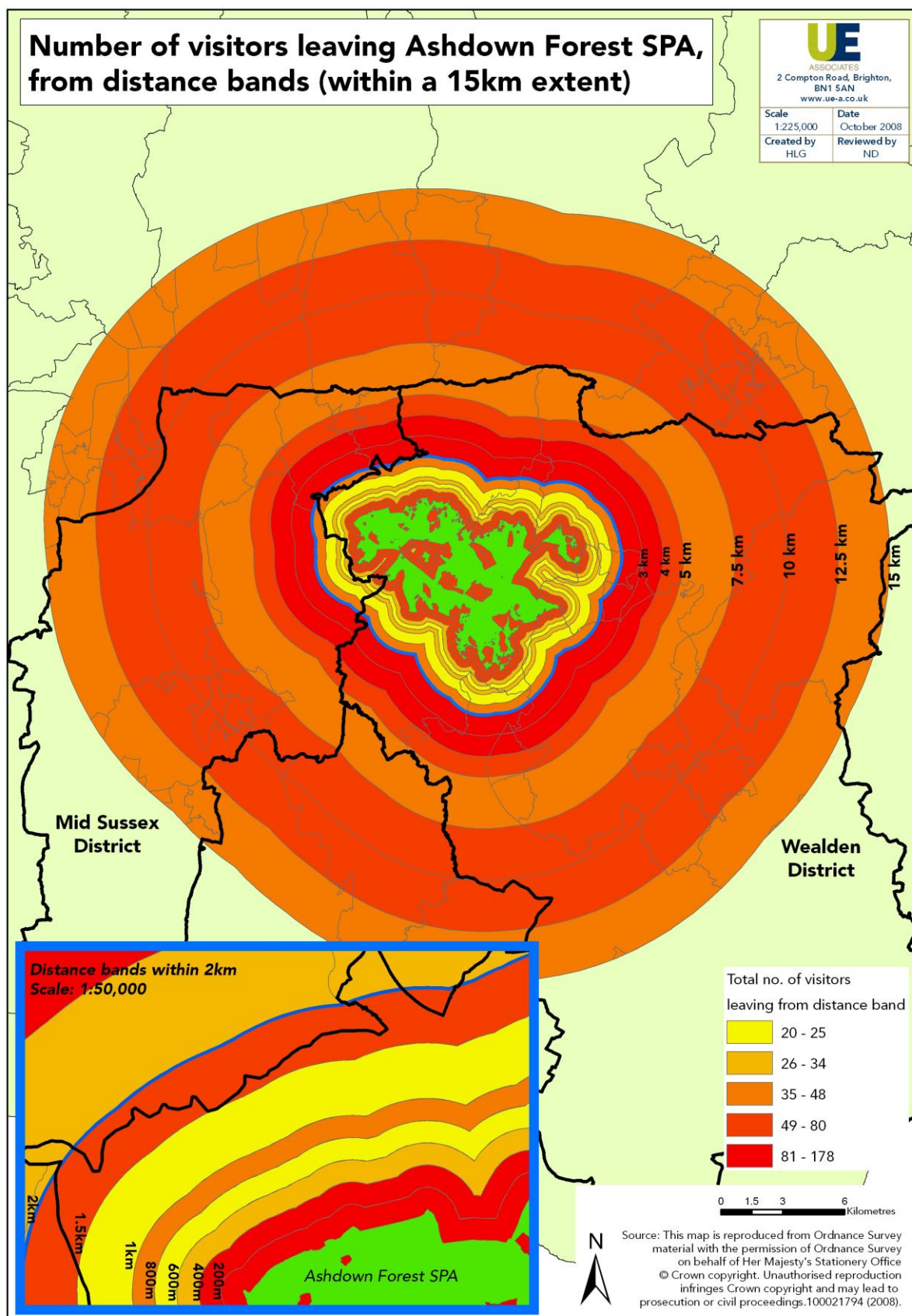
Unless otherwise stated, traffic increases assume 100% by car (i.e. no public transport use)

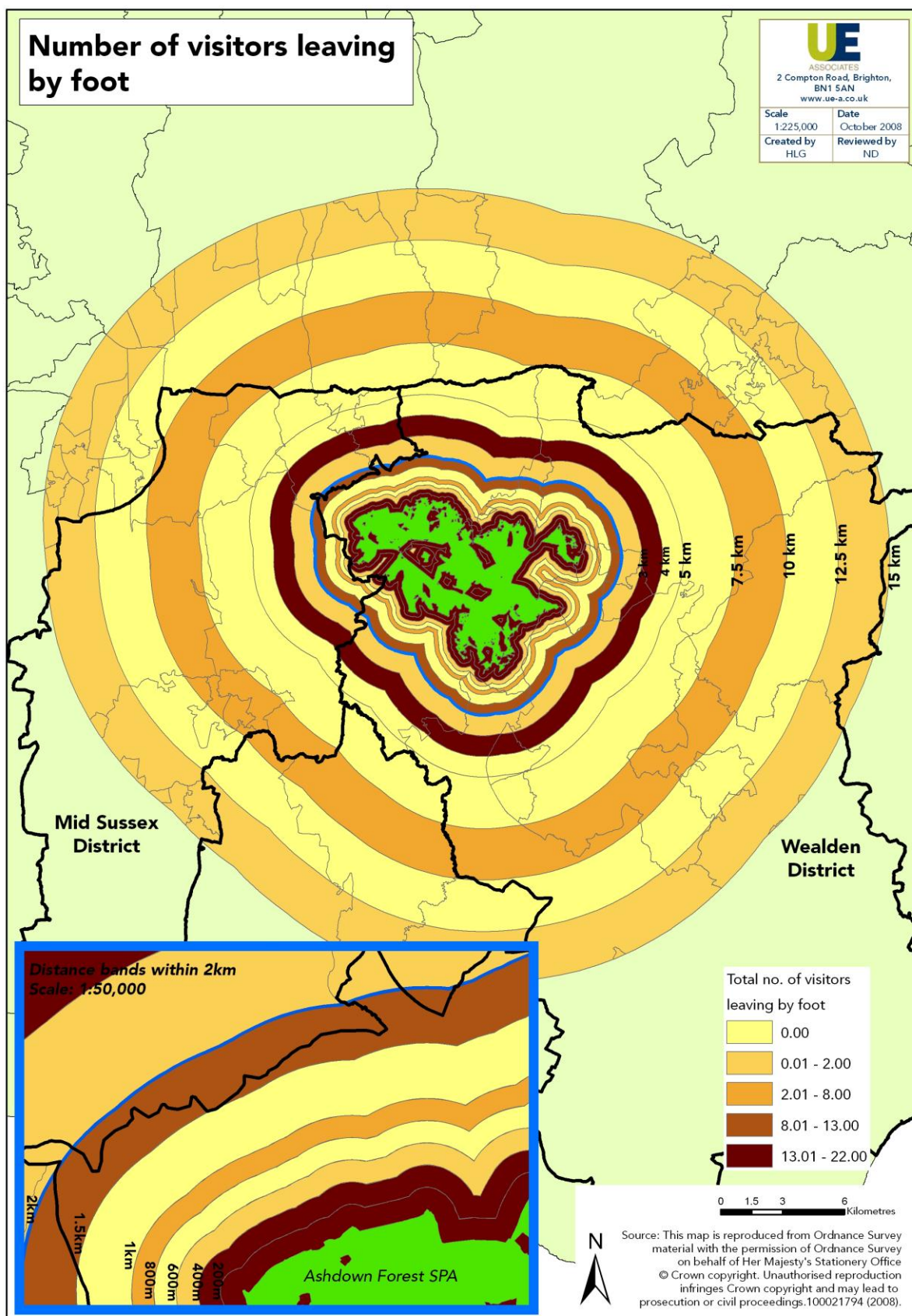
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Appendix VIII: Recreation Pressure Source Maps

Please see following pages.







Appendix IX: Design Requirements for Suitable Alternative Natural Greenspaces

A11.1 SANG Design Guidance

The findings of the Ashdown Forest visitor survey (UE Associates & University of Brighton, 2009) indicate preliminary terms of reference for the design of SANGs which should be further explored, expanded and added to. These early recommendations include:

- Proximity to new and existing development;
- Feasibility to recreate a sense of the wide open countryside;
- The presence of attractive views;
- Nature conservation interest to provide the opportunity for people to feel in touch with the natural world, and which could include nature trails and other forms of interpretation;
- A sense of security, particularly for dog-walkers who are most likely to visit alone and at either extremity of the day;
- Varied and interesting terrain that is both easily accessible and offers a short walk in some places, while also providing more challenging routes and longer distances, possibly linking between a network of sites and other areas; and
- Accessibility and ample parking.

Natural England's draft (2008) guidelines and checklist for the creation of SANGs should also be used as a basis for SANGs provision. Items on the checklist include:

- Parking on all sites larger than 4ha (unless the site is intended for use within 400m only);
- Circular walks of 2.3-2.5km;
- Car parks easily and safely accessible by car and clearly sign posted;
- Access points appropriate for particular visitor use the SANG is intended to cater for;
- Safe access route on foot from nearest car park and/or footpath;
- Circular walk which starts and finishes at the car park;
- Perceived as safe – no tree and scrub cover along part of walking routes;
- Paths easily used and well maintained but mostly unsurfaced;

- Perceived as semi-natural with little intrusion of artificial structures;
- If larger than 12 ha then a range of habitats should be present;
- Access unrestricted – plenty of space for dogs to exercise freely and safely off the lead;
- No unpleasant intrusions (e.g. sewage treatment smells etc);
- Clearly signposted or advertised in some way;
- Leaflets or website advertising their location to potential users (distributed to homes and made available at entrance points and car parks);
- Provision for dog owners take dogs from the car park to the SANG safely off the lead;
- Gently undulating topography;
- Access points with signage outlining the layout of the SANG and routes available to visitors;
- Naturalistic space with areas of open (non-wooded) countryside and areas of dense and scattered trees and shrubs;
- Provision of open water (desirable); and
- Focal point such as a view point or monument within the SANG.

A11.2 Visitor Access Management Planning for European Sites

The findings of the Ashdown Forest visitor survey (UE Associates & University of Brighton, 2009) indicate preliminary terms of reference for the management of visitors to the Forest which should be further explored, expanded and added to in cooperation with the Conservators. These early recommendations include:

- The introduction of bye-laws and/or signage to notify people that they must keep their dogs on a lead at all times (a requirement of the CRoW Act during the breeding season in any case). If successful, this would not only reduce the prevalence of a key cause of disturbance events (dogs being encouraged to run through the undergrowth) but would also reduce the attractiveness of sites for around a quarter of visitors;
- Strategic planting of gorse species (especially European gorse, but also western gorse), particularly along tracksides and to help screen-off restricted access areas;
- Further developing the use of zoned visitor management whereby certain areas are designated as appropriate for particular activities (including exercise opportunities for people and dogs), while other areas are designated as wilderness or nature conservation areas;

- Decreased parking capacity, the closure of car parks during the breeding season, or introduction of car park charging to limit the numbers visiting;
- Decreased parking capacity on a zoned-management basis, whereby users are encouraged to visit less sensitive areas, allowing other parts to be closed-off or restricted. This could be usefully supplemented by the provision of additional visitor facilities such as WCs or a café; and
- Increased wardening activity (notwithstanding the excellent work already carried out by the Conservators) to help enforce access management measures, possibly coupled with a system of fines for regular users who fail to keep their dogs on a lead during the breeding bird season (as set out in the Countryside and Rights of Way Act 2000).

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