

Habitats Regulations Appropriate Assessment, Site Allocations Development Plan Document Draft Submission

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1 Introduction

1.1 This report is a Habitats Regulations Appropriate Assessment (HRA) undertaken by Bracknell Forest Council (BFC), as the local planning authority and competent body, in respect of the Site Allocations Development Plan Document (SADPD).

1.2 The competent authority can only adopt the plan once it has ascertained that this will not adversely affect the integrity of the Thames Basin Heaths SPA.⁽¹⁾ Once adopted, the planning policies in the SADPD will be used to determine planning applications along with policies in the Core Strategy DPD and saved policies in the Local Plan (2002).

1.3 Thames Basin Heaths Special Protection Area (SPA) mitigation and avoidance measures comply with current standards:

- BFC Core Strategy DPD (February 2008) Policy CS14: Thames Basin Heaths Special Protection Area
- The evidence base in support of the South East Plan (May 2009) Policy NRM6: Thames Basin Heaths Special Protection Area
- Thames Basin Heaths SPA Delivery Framework (February 2009) endorsed by the Thames Basin Heaths Joint Strategic Partnership Board
- BFC Thames Basin Heaths SPA Technical Background Document to the Core Strategy DPD (June 2007)
- BFC Limiting the Impact of Development SPD (July 2007)
- Other evidence and emerging guidance

1.4 The Appropriate Assessment (AA) has been prepared on the basis of information currently available on the nature of the plan in relation to the Thames Basin Heaths SPA. Professional judgement has been applied to interpret this information within the context of current guidance.

1.5 This document is an Appropriate Assessment of the housing and employment policies in the SADPD. For the three major locations for growth that were in agreed in principle through the Core Strategy DPD (Core Strategy policies CS3 (Bracknell Town Centre), CS4 (Land at Amen Corner) and CS5 (Land at Land North of Whitegrove and Quelm Park - now known as Warfield)) - Site Allocations DPD policies SA11, SA8 and SA9 respectively) - separate Habitats Regulations Assessments have been undertaken⁽²⁾ and are not included in this document.

1.6 Further HRA may be required at later stages in the planning process, for example, at the planning application stage. This will ensure that any potential effects on the SPA that cannot be assessed in detail at plan level, can be taken into account more fully.

Site Allocations DPD

1.7 The SADPD is intended to identify sites to meet the Borough's development needs to 2026. In particular, the SADPD:

¹ The ODPM / Defra Circular (ODPM 06/2005, Defra 01/2005) relating to Planning Policy Statement 9 (Biodiversity and Geological Conservation) (ODPM, August 2005) defines the site integrity as: ".... 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."

² See Thames Basin Heaths SPA Technical Background Document to the Core Strategy DPD (June 2007), Habitats Regulations Appropriate Assessment Bracknell Town Centre (June 2010), Final Sustainability Appraisal Report Amen Corner SPD: Appendix 2 Appropriate Assessment and Habitats Regulations Appropriate Assessment Warfield SPD (Draft) (November 2010).

- Identifies sites for future housing development in the Borough;
- Ensures that appropriate infrastructure is identified alongside new development; and,
- Revises the boundaries of certain designations shown on the Proposals Map e.g. defined employment areas.

1.8 The Draft Submission document identifies that sites for 3,896 homes are to be found to 2026.

1.9 Stage one of the options consultation on the DPD sought views on the potential locations for future development in the borough. It commenced on 26th February 2010 and ran for seven weeks. The consultation attracted just over 7,000 individual written comments from over 1,300 individuals and organisations.

1.10 A second stage of consultation during May 2010 comprised a series of four local events which between them considered all the eight potential new development areas in more detail with invited representatives from local residents associations and amenity groups along with Parish and Borough Councillors.

1.11 In light of the changes in national planning policy, and in order to maintain progress on the SADPD, it was agreed to defer the next stage of the process (the preferred options consultation) to autumn 2010. This took place between November 2010 and January 2011. A statutory consultation on the Draft Submission document regarding the tests of soundness is expected to take place in January and February 2012, with submission to Government in June 2012.

1.12 Information relating to the Site Allocations DPD can be found on the Bracknell Forest Council website at http://www.bracknell-forest.gov.uk/sadpd

Habitats Regulations and Appropriate Assessment

1.13 The Conservation of Habitats and Species Regulations (2010), referred to as the "Habitats Regulations" implement in Great Britain the requirements of the EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, referred to as the "Habitats Directive" (Council Directive 92/43/EEC) and protect areas classified under the EC Wild Birds Directive (Council Directive 79/409/EEC). The Regulations aim to protect a network of sites in the UK that have rare or important habitats and species in order to safeguard biodiversity.

1.14 Under the EC Birds Directive, Member States are required to take special measures to conserve the habitats of certain rare species of birds (listed in Annex I of the Directive) and regularly occurring migratory birds. In particular each Member State is required to classify the most suitable areas of such habitats as Special Protection Areas (SPAs). This is designed to protect wild birds, and to provide sufficient diversity of habitats for all species so as to maintain populations at an ecologically sound level. All Bird Directive SPAs will also be part of the Natura 2000 network under article 3(1) of the Habitats Directive.

1.15 According to the Conservation of Habitats and Species Regulations (2010) Regulation 102 (4), the plan making authority must give effect to the land use plan only after having ascertained that it will not adversely affect the integrity of the European site.

1.16 Extract from the Conservation of Habitats and Species Regulations (2010).

Assessment of implications for European sites and European offshore marine sites Regulation102 (1). Where a land use plan—

(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of the site,

the plan-making authority for that plan must, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site's conservation objectives.

(2) The plan-making authority must for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority specify.

(3) They must also, if they consider it appropriate, take the opinion of the general public, and if they do so, they must take such steps for that purpose as they consider appropriate.

(4) In the light of the conclusions of the assessment, and subject to regulation 103 (considerations of overriding public interest), the plan-making authority or, in the case of a regional strategy, the Secretary of State must give effect to the land use plan only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).

Screening

1.17 Screening is required to examine the likely effects of a project or plan, either alone or in-combination with other projects or plans, upon a Natura 2000 site. The screening considers whether it can be objectively concluded that the effects will not be significant and fulfils the requirements of Regulation 102 (1).

1.18 In 2007, Bracknell Forest Council undertook a Habitats Regulations Screening Exercise⁽³⁾ to examine the likely effects of the Core Strategy and the (former) Site Allocations DPDs on the Thames Basin Heaths SPA and the Windsor Forest and Great Park Special Area of Conservation (SAC).

1.19 The screening opinion concluded that the DPDs were likely to have a significant effect on the Thames Basin Heaths SPA. No significant effect was identified on the integrity of the Windsor Forest and Great Park SAC or any other Natura 2000 sites.

1.20 An Appropriate Assessment is therefore deemed necessary, focusing on the effects of the SADPD on the integrity of the Thames Basin Heaths SPA. This view has been confirmed by responses received to the consultation on the SADPD: Participation Document (March 2010) from Natural England, BBOWT and the RSPB. See Appendix 1 for a summary of these responses.

Steps in Appropriate Assessment

1.21 The following Appropriate Assessment consists of five steps as outlined below:

³ See Thames Basin Heaths SPA Technical Background Document to the Core Strategy DPD (June 2007).

Table 1.1 Steps in Appropriate Assessment

Steps	Task	
1	Collect adequate information to complete the assessment – to include a description of the plan and the baseline conditions of the Natura 2000 site.	
2	Predict the likely effects of the plan.	
3	Assess whether the predicted effects will have adverse effects on the integrity of the site, as defined by the conservation objectives.	
4	Propose and assess impact avoidance measures to cancel or minimise the potential adverse effects, including a timescale and mechanisms through which the measures will be secured, implemented and monitored.	
5	Consult the relevant nature conservation bodies and the public.	

2 Step 1: Collection of Adequate Information to Identify Adverse Effects

Characteristics Which May Affect the Site

2.1 The SADPD could potentially give rise to an adverse impact on the Thames Basin Heaths SPA. New residential development between 400m and 5km of the Thames Basin Heaths SPA will lead to an increased population surrounding the SPA which could increase the impact of urbanisation and recreation. Development in close proximity to the SPA could also give rise to adverse effects on the integrity of the SPA as a result of hydrology, air pollution, noise and lighting.

In Combination Effect

2.2 The Appropriate Assessment must be considered both alone and in-combination with other plans or projects because a series of individually modest impacts may in-combination result in a significant impact. Article 6(3) of the Habitats Directive addresses this by requiring AA to take into account the combination of effects from other plans or projects. The intention of this combination provision is to take account of cumulative impacts, and these will often only occur over time.

2.3 Guidance from the EC⁽⁴⁾ indicates that the in-combination assessment should only include completed development proposals and development plans if their impacts on the site lead to a continuing loss of integrity.

2.4 The screening exercise identified that the relevant plans with the potential to affect the SPA are those which provide residential dwellings, which in turn increase the population surrounding the SPA and potentially increase recreation on the heathland. The (proposed) plans, that are considered likely to affect the SPA, are:

- The Bracknell Forest Core Strategy Development Plan Document (February 2008)
- The Bracknell Forest Amen Corner Supplementary Planning Document (March 2010)
- The Bracknell Forest Warfield Supplementary Planning Document Consultation Draft (November 2010)
- Other Thames Basin Heaths affected local authority's Local Development Frameworks

2.5 It is important to note that the evidence base in support of the South East Plan (2009) policy NRM6: Thames Basin Heaths SPA is still relevant and a material consideration in policy development and when considering applications.

2.6 Bracknell Forest Council is involved in partnership working through the Thames Basin Heaths Joint Strategic Partnership. A Delivery Framework has been produced by the Joint Strategic Partnership Board (JSPB) to guide planning authorities in the local implementation of avoidance and mitigation measures, and ensure a consistent approach to mitigation across the affected area.

Core Strategy DPD

2.7 Bracknell Forest Council's adopted Core Strategy DPD includes the following policies:

4 See http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

- CS3: Bracknell Town Centre (a mixed use development on contribute to the vision and function of Bracknell Town Centre)
- CS4: Land at Amen Corner (land identified for a mixed use development)
- CS5: Land North of Whitegrove and Quelm Park (now known as Warfield) (land identified for a mixed use development)
- Policy CS14: Thames Basin Heaths Special Protection Area, which states:

Core Policy CS14: Thames Basin Heaths Special Protection Area

The Council will carry out an assessment of the effects of a development proposal on the conservation objectives of the Thames Basin Heaths Special Protection Area (SPA) where there is a risk of the proposal having a significant impact on the integrity of the site, either alone or in-combination with other proposals. Proposals leading to a net increase in residential dwellings within a straight-line distance of 5 kilometres from the SPA boundary are likely to have a significant effect. The Council will not permit development which, either alone or in-combination with other development, has an adverse effect upon the integrity of the SPA.

Development outside of the 400 metre zone will be permitted where it can be demonstrated that it can remove any adverse effect by contributing towards avoidance and mitigation measures in line with the SPA Technical Background Document.

The effective avoidance and/or mitigation of any identified adverse effects must be demonstrated and secured prior to the approval of the development.

2.8 The Thames Basin Heaths SPA Technical Background Document to the Core Strategy (June 2007) contains the Appropriate Assessment of the Core Strategy and the Avoidance and Mitigation Strategy,⁽⁵⁾ designed to ensure that residential development between 400 metres and 5 kilometres can go ahead without an adverse effect on the integrity of the SPA. The consideration of bespoke solutions is also addressed within the Avoidance and Mitigation Strategy. Natural England has agreed that they will have no cause to object to applications for residential development where they are in conformity with the Avoidance and Mitigation Strategy.

Amen Corner Supplementary Planning Document (SPD)

2.9 The Amen Corner SPD was adopted in March 2010. An Appropriate Assessment⁽⁶⁾ of the SPD was undertaken and consulted on with the result that the SPD now contains the Development Principle AC7: Thames Basin Heaths Special Protection Area. Avoidance and mitigation measures have been agreed which allows the local authority to conclude that the development will not give rise to an adverse effect on the integrity of the SPA.

⁵ See also BFC Limiting the Impact of Development Supplementary Planning Document (July 2007) as amended on 5 July 2011. This SPA Avoidance and Mitigation Strategy is in the process of being updated through a Thames Basin Heaths SPA Avoidance and Mitigation SPD

⁶ Final Sustainability Appraisal Report Amen Corner SPD Appendix 2: Appropriate Assessment (March 2010)

Warfield Supplementary Planning Document (SPD)

2.10 Work on the Warfield SPD is now underway. Core Strategy Policy CS5: Land North of Whitegrove and Quelm Park (Parish of Warfield), specifically requires measures to avoid and mitigate the impact of development on the Thames Basin Heaths SPA. From November 2010 to January 2011 a consultation was undertaken on the Draft SPD and accompanying Habitats Regulations Appropriate Assessment.⁽⁷⁾

Bracknell Town Centre

2.11 In summer 2010, the Council received an extension of time application with respect to Bracknell Town Centre. A further HRA was undertaken, approved by Natural England and published in June 2010.⁽⁸⁾ Avoidance and mitigation measures have been agreed which allows the local authority to conclude that the development will not give rise to an adverse effect on the integrity of the SPA.

Other Thames Basin Heaths affected Local Authority's Local Development Frameworks.

2.12 Each of the affected local authorities has or is in the process of producing a Core Strategy DPD, which will be accompanied by an Appropriate Assessment identifying potential adverse impacts and, where possible, avoiding or removing these.

2.13 If all of the LDF policies and appropriate assessments can conclude no adverse effect, each local authority has addressed its own effects arising from an increased population.

Characteristics and Description of the Thames Basin Heaths SPA

2.14 The Thames Basin Heaths SPA was proposed in October 2000, and full SPA status was approved on 9 March 2005. It is an example of a heathland landscape based within a highly active economy. It consists of a composite site covering an area of some 8,274 hectares, consisting of 13 Sites of Special Scientific Interest (SSSI) scattered from Hampshire in the west, to Berkshire in the north, through to Surrey.

2.15 The habitat consists of both dry and wet heathland, mire, oak, birch acid woodland, gorse scrub and acid grassland with areas of rotational conifer plantation.

Conservation Objectives

2.16 The Directive requires Appropriate Assessment to be undertaken *'in view of the site's nature conservation objectives*' and the European Commission states that the purpose of the Natura 2000 network, which includes the Thames Basin Heaths SPA, is *"to preserve biodiversity by maintaining or restoring natural habitats of Community importance"*.

2.17 Conservation objectives are a statement of measures which are related to the maintenance or restoration of the individual site, and its contribution towards the favourable conservation status of the natural habitats and/or populations of species of wild fauna and flora for which the site has been selected. The conservation status of a species is defined as favourable when the population range and natural habitats of the species are stable or increasing and population dynamics indicate the species is able to maintain itself on a long-term basis as a viable component of its natural habitat. Similarly, the conservation status of a habitat is

⁷ Habitat Regulations Appropriate Assessment Warfield SPD (Draft) (November 2010).

⁸ See Habitats Regulations Appropriate Assessment Bracknell Town Centre Redevelopment (June 2010).

favourable when the range, structure and function, and typical species, thereof, are stable or increasing, i.e. there is sufficient geographical extent of the habitat area to sustain the selected species.

2.18 Favourable Conservation Status is a trend-based assessment based on the population as a whole across Europe and not specifically on the Thames Basin Heaths SPA.

2.19 Condition assessment is a concept applied to SSSIs rather than SPAs. A condition assessment is an expert judgement of the condition of a site (that is, a site unit) at a moment in time, based upon available information on defined attributes (which may be biological, chemical or physical), for the notified features on the unit at the date of assessment.

2.20 This is relevant when carrying out an AA which explores the impact of a plan or project on site integrity. For example, this can conclude that where existing pressures do not have a current, readily-measurable impact on condition, but the appropriate assessment has nevertheless identified the risk of such effects becoming manifest in the future, the existing pressure is threatening the ability of the site to 'maintain' favourable condition in the long term and a conclusion of 'no adverse effect on integrity' cannot be recorded. In these cases, the condition assessment may currently be recorded as favourable.

Qualifying Species

2.21 This site qualifies under Article 4.1 of the Birds Directive as it is used by 1% or more of the Great Britain population of species of European Importance listed in Annex I of the Directive. During the breeding season this includes:

- Dartford warbler (Sylvia undata)
- Nightjar (*Caprimulgus europaeus*)
- Woodlark (*Lullula arborea*)

2.22 The SPA supports the second largest concentration of Dartford warbler in Great Britain, the third largest number of woodlark, and the fourth largest population of breeding nightjars.

2.23 The conservation objective for the Thames Basin Heaths SPA is "*Subject to natural change, to maintain, in favourable condition, the habitats for the populations of Annex 1 bird species of European importance, with particular reference to lowland heathland and rotationally managed plantation."*

2.24 The above conservation objective can be broken down into its separate components to assist with the Appropriate Assessment and impact prediction:

- To maintain, in favourable condition, lowland heathland and rotationally managed plantation to provide habitats for Annex I breeding bird populations of woodlark, nightjar and Dartford warbler.
- To maintain the geographical extent of the habitat area.
- To sustain and improve population numbers of woodlark, nightjar and Dartford warbler.

Non Qualifying Species of Interest

2.25 Hen harrier (Circus cyaneus), merlin (Falco columbarius), short-eared owl (Asio flammeus) and kingfisher (Alcedo atthis) (all Annex I species) occur in non-breeding numbers of less than 1% of the GB population.

Seasonality

2.26 The breeding season of the protected bird species occurs predominantly in April, May, June and July, but an extended season can occur between February and August, therefore this is when the ground-nesting species are most vulnerable to disturbance. The breeding season for nightjar occurs from mid-May through to August, with a peak in June; woodlark nest from March until July, but commence territorial activity from early February; the Dartford warbler generally breeds between April and August. Territorial activity may begin as early as February and, as yet, there is no indication of how climate change might affect the breeding season.

SSSI Condition

2.27 The two areas of the Thames Basin Heaths SPA that lie within Bracknell Borough are the Broadmoor to Bagshot Heaths SSSI and the Sandhurst to Owlsmoor Bogs and Heaths (also known as Wildmoor Heath) SSSI. The condition of these SSSIs is shown below.

Table 2.1 Condition of Broadmoor to Bagshot Wood and Heaths SSSI (September 2011)

Condition	% of Area
Favourable	65.61%
Unfavourable recovering	34.39%
Unfavourable no change	0%
Unfavourable declining	0%
Destroyed / part destroyed	0%

Table 2.2 Condition of Sandhurst to Owlsmoor Bogs and Heaths (also known as Wildmoor Heath) SSSI (September 2011)

Condition	% of Area
Favourable	0%
Unfavourable recovering	100%
Unfavourable no change	0%
Unfavourable declining	0%
Destroyed / part destroyed	0%

Ecological Requirements of the Qualifying Species

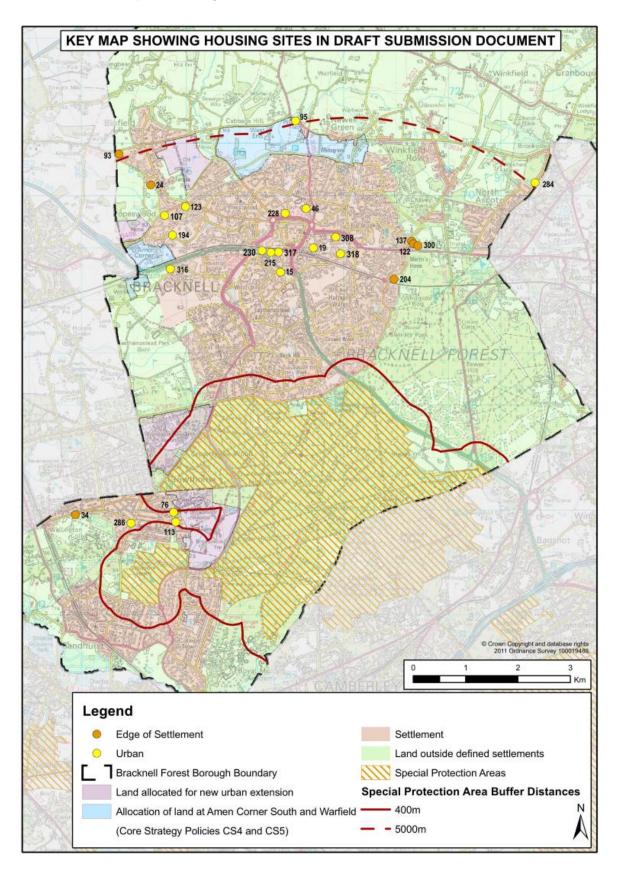
• **Dartford warbler** - Large unbroken dwarf-shrub layer of heather with scattered gorse; abundance of shrub layer invertebrates; mix of heather trees and gorse amongst heathland vegetation; reduction in displacement of birds; extent and distribution of habitat area.

- **Nightjar** Abundance of night flying insects; open ground with predominantly low vegetation bare patches and sparse woodland/scrub cover; reduction in displacement of birds; extent and distribution of habitat area.
- **Woodlark** Abundance of ground surface invertebrates; mix of shrub/tree cover, short-medium vegetation and bare ground; reduction in displacement of birds; extent and distribution of habitat area.

Relationship Between the SADPD and the SPA

2.28 The Thames Basin Heaths SPA covers 12.2% of the Borough of Bracknell Forest, a total of 1,333 hectares. This is 15.9% of the entire Thames Basin Heaths SPA and consists of heathland and mixed plantation (1,247 hectares of which lies within Bracknell Forest Borough) and a smaller, unconnected area (86 hectares).

2.29 Part of the Royal Military Academy site (SA10) lies within 400m of the SPA. The map below also shows the Submission sites for future growth and the distance between these areas and the Thames Basin Heaths SPA. Parts of the Land at Transport Research Laboratory, Crowthorne and the Land at Broadmoor urban extensions lie within 400m of the SPA. The remainder of these sites lie within the 5km SPA buffer zone. The urban extension at Amen Corner, North lies wholly within the 5km SPA buffer zone. The majority of the Land at Blue Mountain, Binfield, lies within the 5km SPA buffer zone, although the new housing is likely to be located towards the south of this site, which falls within the 5km buffer zone.



Map 1 Housing Sites and the Thames Basin Heaths SPA

3 Step 2: Predict the Likely Effects of the SADPD

Site Integrity

3.1 Article 6(3) of the Habitats Directive states that: "In the light of the conclusions of the [appropriate] assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned."

3.2 A commonly used definition of site integrity is given in DCLG circular 06/2005 (para. 20) and the European guidance⁽⁹⁾ on the provisions of Article 6 of the 'Habitats Directive'. This defines site integrity as: *"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."*

3.3 The European guidance goes on to describe the integrity of a site as involving its ecological functions, and the decision as to whether it is adversely affected should focus on, and be limited to, the site's conservation objectives.

3.4 As discussed in the previous section, the concept of favourable conservation status and the conservation objectives both provide parameters within which an assessment can be made. It is therefore necessary to use this information to predict or forecast what would happen to the SPA habitats and bird populations if the SADPD were to be adopted.

Description of Potential Adverse Effects on Site Integrity

3.5 Previous consultation responses from Natural England on Habitats Regulations Appropriate Assessments undertaken in Bracknell Forest have helped to identify the following potential adverse effects on the integrity of the SPA:

- Vandalism (including fire)
- Enrichment
- Predation
- Fragmentation within heathland
- Fragmentation between heathland
- Disturbance
- Trampling
- Supporting Habitats (loss of foraging habitats)
- Hydrology (run off from the development)
- Noise
- Lighting
- Air pollution from vehicle emissions
- 9 See http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

Plan Characteristics Which Could Lead to Adverse Effects

3.6 Additional residential development within the proximity of the SPA has the potential to increase the population surrounding the site, which could in turn lead to an increase in recreational and urbanisation impacts. Various visitor surveys⁽¹⁰⁾ have indicated people will travel relatively long distances to use such sites for recreational purposes. As a result, the impacts from developments up to several kilometres away from the site must also be considered. Natural England's advice based upon the results of visitor surveys on the Thames Basin Heaths SPA is there will be a significant impact arising from new residential development which falls within a 5km straight line distance from the boundary of the SPA.

3.7 Employment development which lies close to the SPA could also lead to adverse effects on the SPA, for example, the Royal Military Academy, Sandhurst.

Projected Population Arising from the Site Allocations DPD

3.8 Average household size for the plan period has been calculated at 2.31 persons.⁽¹¹⁾ Therefore, with an estimated net increase of **3,896**⁽¹²⁾ **new dwellings** arising from the SADPD, the projected population arising from the DPD is **9,000 persons.** However, for the purposes of SPA mitigation, three of the development sites⁽¹³⁾ (containing an estimated 48 net increase in dwellings) lie outside the 5km SPA buffer zone.⁽¹⁴⁾ The total number of dwellings located between 400m and 5km of the SPA is therefore calculated to be **3,848**.⁽¹⁵⁾ Therefore, the estimated increase in population resulting from developments within 400m and 5km of the SPA is **8,889**.⁽¹⁶⁾

Calculation of Additional Visitors Resulting from this Increased Population

3.9 As a general rule, the number of walkers, riders, cyclists and motor cyclists using a heathland will increase with an increase in local population, which would indicate a relationship between housing development and recreational disturbance.

3.10 In reality this is not likely to be a linear relationship due to the effect of other complex factors, such as the accessibility of the SPA, education, information available and access to other areas of open space. However, it is necessary to quantify the impact arising from the new residents; therefore a linear correlation has been assumed for the purposes of this assessment.

3.11 The Appropriate Assessment of the Core Strategy calculated that, on average each resident of Bracknell Forest **visits the SPA 7.81 times a year**. If this is extrapolated forward, and it is assumed this rate of visits will remain the same or decline because no plans or projects are currently being approved which would increase this level, the number of visits arising from the new population within 5km of the SPA can be calculated. This amount of new visits per

- 10 The most relevant being Liley, Jackson & Underhill-Day (2005)
- 11 See BFC Thames Basin Heaths SPA Technical Background Document to the Core Strategy DPD (June 2007).
- 12 This does not include the developments covered by Core Strategy policies CS3, CS4 and CS5 which have already undergone Appropriate Assessment. These are SADPD policies SA8 (Land at Amen Corner (South), Binfield) and SA9 (Land at Warfield) and SA11 Bracknell Town Centre
- 13 Land at Battle Bridge House, and Garage, Forest Road, Warfield; 152 New Road, Ascot and; Land at Junction of Forest Road and Foxley Lane, Binfield.
- 14 These developments are well under 50 dwellings and will therefore not require an Appropriate Assessment. This in in line with the Thames Basin Heaths SPA Delivery Framework (2009) which states that the South East Plan Technical Assessor proposed that for developments between 5km and 7km of the SPA, residential developments of over 50 houses should be assessed and may be required to provide appropriate mitigation.
- 15 This includes 150 windfall sites which may or may not lie between 400m and 5km of the SPA.
- 16 Including windfall sites.

annum works out to **an estimated 69,424 visits**. To give a degree of scale to this number, this impact is approximately **1.3%** of the total number of current visits to the SPA.⁽¹⁷⁾ See table below.

¹⁷ An estimated scale of use of the Thames Basin Heaths SPA has been calculated at 5.3655 million visits per annum (Liley, Jackson & Underhill-Day 2005).

Table 3.1 Estimated Capacity, Increase in Population and Visits to the SPA (Figures have been rounded up)

Location	Estimated Residential Capacity (net)	Number of Developments Located Between 400m and 5km of the SPA ⁽¹⁾	Estimated Increase in Population Resulting from Developments within 400m and 5km of the SPA ⁽²⁾	Estimated Increase in Visits to the SPA per Annum ⁽³⁾
Urban Extensions				
Land at Broadmoor, Crowthorne	270 ⁽⁴⁾	270	624	4,874
Land at Transport Research Laboratory, Crowthorne	1,000	1,000	2,310	18,042
Amen Corner North, Binfield	400	400	924	7,217
Land at Blue Mountain, Binfield	400	400	924	7,217
Sites in Urban Areas		I	I	1
Previously developed land in defined settlements	983	973 ⁽⁵⁾	2,248	17,557
Other land within defined settlements	495 ⁽⁶⁾	483 ⁽⁷⁾	1,116	8,716
Edge of Settlement	I		I	
Edge of settlement locations	198	172 ⁽⁸⁾	398	3,109
Windfall				
Small windfall sites (30 dwellings per year for the last 5 years of the plan period)	150	unknown	unknown	unknown
Total	3,896	3,698 ⁽⁹⁾	8,544 ⁽¹⁰⁾	66,732 ⁽¹¹⁾

- 1. Three of the development sites (containing an estimated 48 net increase in dwellings) lie outside the 5km SPA buffer zone and will therefore not require SPA mitigation. Developments within 400m of the SPA have been excluded early in the Site Allocations process.
- 2. @ an average of 2.31 persons per household.
- 3. @ at an average of 7.81 visits per resident per annum.
- 4. This excludes 100 (net) increase in dwellings at Cricket Field Grove, Crowthorne.
- 5. The Land at Battle Bridge House, Warfield House and Garage, Forest Road, Warfield lies outside the 5km buffer zone.
- 6. This includes 100 (net) increase in dwellings at Cricket Field Grove, Crowthorne.
- 7. The site 152 New Road, Ascot lies outside the 5km buffer zone.
- 8. Land at the junction of Forest Road and Foxley Lane, Binfield lies outside the 5km buffer zone.
- 9. Not including windfall sites.
- 10. Not including windfall sites. If all windfall sites were to lie within 5km of the SPA, this figure would be 8,889.
- 11. Not including windfall sites. If all windfall sites were to lie within 5km of the SPA, this figure would be 69,424 SPA visits per annum.

4 Step 3: Assessment of Site Integrity

Impacts Arising from the Site Allocations DPD

4.1 Once the effects of the SADPD have been identified and predicted, it is necessary to assess whether any of these will lead to adverse effects on the integrity of the site as defined by the conservation objectives.

4.2 Therefore the impacts arising from the DPD, shown in the table below,⁽¹⁸⁾ have been viewed in the context of their impacts on the conservation objectives of the site, as described above. A precautionary approach has been taken, and adverse effects must be assumed where it cannot be objectively demonstrated, with supporting evidence, that the integrity of the site would not be compromised.

Table 4.1 Potential Effects on the Integrity of the SPA arising from the SADPD

Potential adverse effects	Impact on conservation objectives		
PLAN CHARACTERISTIC: Increased population in close proximity to the SPA (not including recreational impacts)			
Vandalism (including fire) – this could potentially increase if population increases in close proximity to the SPA boundary. It is understood that most vandalism occurs by young people who have foot access to the heaths from their homes (English Nature, 26 May 2006).	Nesting birds can be killed by fires, but also heathland fire can damage the habitat of nesting birds such as Dartford warbler. Conversely fire can have a positive effect by encouraging suitable habitat for the other Annex I species, woodlark and nightjar.		
Enrichment – dumping of household garden waste from houses abutting the heaths can lead to localised nutrient enrichment.	Enrichment can cause nutrient-loving plant species to out-compete heathland species, and fly-tipping of garden waste can introduce non-native species.		
Public hostility – an increase in the number of local residents who feel a sense of 'ownership' of the SPA may increase hostility between users. In addition, nearby residents or users may resist management on the site. Where this has a direct effect on the ability of site managers to maintain or restore favourable condition, this may have an adverse effect on the integrity of the SPA.	The plan policies do not propose habitat management measures, therefore will not have an effect on public hostility.		
Predation – the RSPB (2002) state that cat predation can be a problem where housing is next to scarce habitats such as heathland, and could potentially be most damaging to vulnerable species, such as the Dartford	Predation of chicks or eggs by domestic dogs and cats resulting in a reduction in species density, which can be as a result of reduced breeding success and reduced nest/territory density.		

18 This is based on Table 10 in the Technical Background Document to the Core Strategy DPD (June 2007) and has been updated accordingly where new information has become available.

Potential adverse effects	Impact on conservation objectives
warbler, which is dependant on a fragmented habitat. Cats will catch prey even if they are not hungry. Cats from developments as far as 1 kilometre from the SPA could travel to the SPA, albeit with diminishing levels with distance from the source. Natural England considers that developments within 400 metres from the SPA lead to a significant level of cat predation whereas the level of cats travelling from over 400 metres is a minority.	
PLAN CHARACTERISTIC: Increased recrea	ational activity
Fragmentation within heathland – the proliferation of footpaths and widening of existing tracks may cause isolation of plants and animals.	The paths within the areas of the SPA most visited by residents of the borough are wide and well-defined and the surrounding habitat is often dense, containing gorse, in many places. Research by Clarke <i>et al</i> (2005) in Dorset found that the majority of people (82%) visiting the SPA stayed on the paths. Therefore, fragmentation within the heathland is not likely to have a significant impact affecting the condition of the heathland or plantations, and is for that reason, unlikely to impact on the populations of protected birds.
Predation – dogs could potentially have an effect on predation. There may be a direct effect arising from dogs predating the birds, their eggs or chicks, but also an indirect effect as the dogs scare ground nesting birds from their nests, leaving the eggs and chicks vulnerable to other types of predation.	Predation of chicks or eggs by either domestic dogs or cats, or other wild animals as a result of the nests being temporarily abandoned can result in a reduction in species density.
Enrichment – dogs could potentially contribute to enrichment of the soil.	Enrichment can cause nutrient-loving plant species to out-compete heathland species, changing the birds' habitat.
Disturbance – car-borne visitors, dog walkers and cyclists travel over 5km to visit the site. These activities have been shown to cause disturbance of the protected bird species, for example dogs, particularly off lead and off the paths, can scare birds off the nests which leaves the eggs or chicks vulnerable to chilling or predation from other sources.	 Increased nest predation by natural predators when adult birds are flushed from the nest or deterred from returning to it by the presence of people or dogs, resulting in a reduction in species density. Chicks or eggs dying of exposure because adults are kept away from the nest, resulting in a reduction in species density.

Potential adverse effects	Impact on conservation objectives	
	 Reduced nest/territory density, delayed territory establishment and/or delayed egg laying (i.e. fewer broods in a season). Increasing stress levels in adult birds resulting in an associated reduction in breeding success and therefore population density. These factors can all lead to adverse effect on population and less resilience of population to natural factors, such as climatic variations. 	
Trampling - an increase in track use and proliferation of tracks could cause habitat erosion and trampling of eggs.	The tracks at the part of the SPA most used by residents of Bracknell Forest (the two relevant SSSI components) are very well defined and maintained, with clear way-marking. Also, research has shown (Clarke <i>et al</i> 2005) that visitors stick mainly to the defined routes, so erosion off track is unlikely. However, research at Bourley and Long Valley SSSI (part of the SPA) indicated that 42% of visitors left the main track. Accidental trampling of eggs by people, given that the woodlark and nightjar are ground nesting, will affect bird populations. This is not likely to affect the site to a great degree due to the small numbers, but could not be said to have a <i>de minimus</i> impact. Some parts of the SPA may be more sensitive and prone to trampling.	
PLAN CHARACTERISTIC: Increased urban area		
Fragmentation between heathland – development on areas which are already considered to be fragmenting the SPA could potentially compound the impacts of fragmentation and diminish the heathlands as a single area of functional heathland.	Although territory size depends upon the quality of habitats, as a general rule Dartford warblers have an average territory size of 2.5 hectares although a larger contiguous area of heathland can support higher densities; the minimum territory size required by woodlarks in forestry clearfells in Suffolk is 5ha, although in optimum habitats, territories may be only 1.5 –2ha. Therefore loss of habitat outside SPA but within these territories could lead to a reduction in species number.	

Potential adverse effects	Impact on conservation objectives
	In addition, grazing is crucial to maintain the SPA habitat in favourable condition. The existence of 'lay-back' land provides accessible areas of grazing livestock, which is required to facilitate grazing persistence when the presence of livestock on the SPA is likely to cause damage.
Supporting habitats - a loss of foraging habitat, particularly woodland, outside the breeding area for nightjars (i.e. the SPA), has been shown to have a negative effect on nightjar densities. Liley & Clarke (2002) found that the amount of woodland (the preferred foraging habitat) surrounding each patch was a significant predictor of nightjar numbers. Further research from radio tracking studies of birds on the Dorset heaths has shown that nightjars can range up to 6km from their nest territory, with an average range distance of 3.1km from the nesting territory (Alexander and Cresswell, 1990). This is to feed on insect rich, semi-natural habitats.	Development on semi-natural areas up to 6km from the SPA boundary, which are found to be rich in invertebrates, may lead to a loss of foraging habitat. A loss of foraging habitat has been shown to have a negative effect on nightjar population densities. Following consultation with the RSPB and Wildlife Trust it was felt that a zone of 400 metres, consistent with the zone to protect against recreational users and cats, would have a significant effect on the protection of foraging habitat, whilst giving more clarity in the planning process.
Hydrology – run-off from the urban area could be an issue if sites are within close proximity to the boundary. Due to the strategic level of the plan further detailed analysis is not possible, but hydrological assessments may be required for planning application level development to determine whether it would result in an alteration of the hydrological regime to the wet areas of the SPA. Development within the catchment area of a water course which enters the SPA could lead to flooding or pollution. In addition, groundwater may be impacted upon by development.	Changes to any water supply entering the SPA, by watercourse or groundwater, may affect the bird species. Nightjars require well drained soils which have the ability to absorb and release solar warmth.
Noise - due to the strategic nature of the plan, further detailed analysis is not possible at this stage. Noise assessments may be required at the planning application stage in order to determine whether the development would result in levels of noise that would deter birds from breeding.	Breeding birds can be deterred by traffic noise.

Potential adverse effects	Impact on conservation objectives
Lighting- due to the strategic nature of the plan, further detailed analysis is not possible at this stage. Lighting assessments may be required at the planning application stage in order to determine whether the development would result in levels of lighting which would have a adverse effect on the nocturnal feeding of the nightjar.	Lights can have an adverse effect on the nocturnal feeding of nightjar.
Air pollution - the development within the SADPD is likely to result in increased car use.	Emissions from road vehicles have the potential to impact on air quality thereby affecting the sensitive habitats on the SPA on which the Annex 1 birds depend. See below.

Air Pollution

4.3 Development within the SADPD is likely to result in increased car use. The Thames Basin Heaths heathland habitat is known to be susceptible to adverse effects of nitrogen deposition and traffic will contribute towards that. Any resulting deterioration in the vegetation on which the Annex 1 birds depend could adversely affect them.

4.4 Modelling results (see Appendix 3) suggest that the SPA is currently experiencing deposition rates of key pollutants that exceed the critical loads for nitrogen deposition. Information on actual deposition rates of key pollutants at the site, along with evidence that the site is suffering as a consequence of air pollution, are not available but the UK Air Pollution Information System (APIS) data is considered to provide a reasonable approximation.

4.5 Several major roads pass close to the SPA and pollutants from traffic may have a limited effect on parts of the SPA; road-generated pollutants rarely extend beyond 200m, with most being deposited closer to the road especially within denser habitats. A map of the possible areas of the SPA which could be adversely affected by vehicle emissions in the borough (those within 200m of a road) is shown on the map in Appendix 3.

4.6 It is unlikely that any increases in traffic flows on other major roads in the borough resulting from development proposed in the SADPD within Bracknell Forest would have a significant effect upon the qualifying interest of the SPA as a consequence of air pollution.

4.7 The Design Manual for Roads and Bridges⁽¹⁹⁾ states '*As a general guide, consideration should be given to any European Sites within 2km of the route corridor or project boundary*'. This leads the Council to therefore conclude that both the Land at Broadmoor (SA4) and the Land at TRL (SA5) urban extensions have the potential to lead to air pollution effects which could adversely affect the integrity of the SPA.

4.8 In their EIA Scoping Opinion Consultation for the Broadmoor Hospital Redevelopment, Natural England indicated that they would expect an assessment of air quality, as a result of this proposed development, considered in terms of potential environmental/ecological impact to the surrounding area, especially with regard to any likely impacts to protected areas. This should be in addition to assessments relating to human health. They cited the Air Pollution

¹⁹ Design Manual for Roads and Bridges: Volume 11 Environmental Assessment Section 3 Part 1 - Assessment of Implications (of Highways and/or Roads Projects) on European Sites (Including Appropriate Assessment).

Information System <u>http://www.apis.ac.uk</u>. This database has information on all the background levels of pollutants by Ordnance Survey grid square. The process contribution from the development, plus the background levels from APIS will then dictate what the Predicted Environmental Concentration for the development is. Natural England were particularly interested to understand the effects of air quality upon any designated sites that fall within two hundred metres of any new or improved road infrastructure.

4.9 The Environmental Statement submitted as part of a full planning application for a replacement hospital and new access road identifies that the proposed development will have an adverse air quality impact on the SPA. In particular this adverse impact would occur around the new proposed roundabout and along the roadside of Forester's Way, within 200m of the road itself. Natural England consider any adverse impact significant and thus appropriate avoidance, mitigation or compensation should be provided. The land owners are in the process of investigating appropriate avoidance and mitigation measures to tackle these effects in conjunction with Natural England. Subsequent planning applications for further elements of the plan will need to address air quality impacts on the SPA and propose acceptable avoidance, mitigation or compensation measures in agreement with Natural England and the Council.

Conclusion

4.10 This stage of the HRA has identified those aspects of the SADPD where a likely affect on the SPA is confirmed or uncertain. The next stage of the process is to propose appropriate avoidance and mitigation measures to cancel or minimise the potential adverse effects.

5 Step 4: Propose and Assess Avoidance and Mitigation Measures

5.1 The table above identifies ways in which the SADPD could have an adverse effect on the integrity of the SPA. Therefore it is necessary to devise measures to avoid and mitigate, where possible, the identified adverse effects.

5.2 The following five sections outline the proposed avoidance and mitigation measures to safeguard the SPA from development in the SADPD. The first three sections are measures that are set out in the Thames Basin Heaths Delivery Framework (2009).

- a) Habitat Management
- b) On-Site Access Management
- c) Suitable Alternative Natural Greenspaces (SANGs)
- d) Air pollution avoidance and mitigation measures
- e) Noise, hydrology and lighting avoidance and mitigation measures

a) Habitat Management

5.3 This is a duty of SPA landowners which falls outside the development control system.

b) On-Site Access Management

5.4 On-site access management (on the SPA) aims to avoid the impacts of current and predicted future users of the SPA. South East Plan policy NRM6 states that access management measures will be provided strategically to ensure that adverse impact on the SPA are avoided and that SANG functions effectively.

5.5 The Thames Basin Heaths SPA comprises multiple SSSI sites, owned and managed by many different organisations and some private individuals. In order to ensure that access management implemented in one area does not simply displace visitors onto another part of the SPA, it is necessary to take a strategic approach to visitor access management.

5.6 On 17 July 2011, Bracknell Forest Council, Natural England and 11 other local authorities in the sub-region affected by SPA issues, signed the Strategic Access Management and Monitoring (SAMM) agreement. The SAMM Project aims to:

- Promote SANGS as new recreational opportunities for local people and particularly encourage their use during the breeding bird season.
- Provide on-the-ground wardening service to supplement existing wardening efforts.
- Provide an SPA-wide education programme.
- Create new volunteering opportunities.
- Demonstrate best practice for strategic access management of visitors and visitor infrastructure where the supply of greenspace is heavily dependent on protected areas.
- Monitor visitor usage of SANGs and SPA.
- Monitor Annex 1 birds on SPA sites.

5.7 A SAMM contribution will be required from developers for each net additional dwelling on all the residential development sites as outlined in the DPD. The contributions are calculated on a 'per bedroom' basis as follows:

Size of Dwelling (bedrooms)	SAMM Contribution
1	£399
2	£526
3	£711
4	£807
5+	£1,052

5.8 The level of these contributions may change over time. Reference should be made to the Council's Avoidance and Mitigation Strategy.

c) Suitable Alternative Natural Greenspaces (SANGs)

5.9 The provision of alternative recreational land to attract new residents away from the SPA is a key part of the avoidance and mitigation strategy. Such land is commonly known as SANGs - Suitable Alternative Natural Greenspaces.

5.10 SANG provision should be funded by developer contributions or may be provided by developers for individual developments (bespoke SANG). To meet the requirements of the Habitats Regulations, SANG must be provided and managed in perpetuity. Sufficient SANG should be provided in advance of occupation of a dwelling to ensure there is no likely significant effect on the SPA.

5.11 SANGs must be provided at a minimum of 8ha per 1000 new residents, as set out in the Thames Basin Heaths SPA Delivery Framework (2009). This standard of SANGs provision is necessary, in addition to normal open space requirements,⁽²⁰⁾ in order that the Council can have certainty that the Avoidance and Mitigation Strategy will prevent an adverse impact on the integrity of the SPA.

5.12 Where a SANG is provided on existing public open space, these areas will have a level of existing visitor use this will need to be discounted to protect current access. When new land or existing public open space is proposed as SANG, any existing nature conservation interests must be taken into account and potentially discounted.

5.13 Development covered by policies SA1 - SA3 and windfall sites that have less than 109 dwellings, the Council will accept a payment contribution for existing/strategic SANGs in line with its adopted SPA Avoidance and Mitigation Strategy. Under the current SPA Avoidance and Mitigation Strategy this contribution is set at £1,279 per net increase in dwelling. This strategy is currently under review and this figure is likely to increase and be applied on a 'per bedroom' basis.

²⁰ See Thames Basin Heaths SPA Technical Background Document to the Core Strategy DPD. Bracknell Forest Council (June 2007)

5.14 Due to the size of the following developments, a bespoke SANG will be provided for each location.⁽²¹⁾

- Land at Broadmoor, Crowthorne (SA4)
- Land at Transport Research Laboratory, Crowthorne (SA5)
- Amen Corner North, Binfield (SA6)
- Land at Blue Mountain, Binfield (SA7)
- Other developments in excess of 108 dwellings will also be required to provide bespoke SANGs these are
 - The Depot (Commercial Centre), Bracknell Lane West, Bracknell (SA1)
 - Land North of Eastern Road Bracknell (SA1)
 - Land at Old Bracknell Lane West, Bracknell (SA1)
 - Land at Cricket Field Grove (SA2)
 - Land North of Peacock Lane, Bracknell (SA2)

5.15 The standard provision of strategic SANGs (an average open space standard of 8ha per 1000 new population) is not directly transferable to bespoke solutions where compliance with a general standard may not be sufficient to demonstrate that the requirements of the Habitats Regulations are met.

5.16 The quality of new SANG land should agreed with the Council and Natural England.⁽²²⁾

d) Air Quality Avoidance and Mitigation Measures

5.17 As stated in section 4, air pollution effects on the vegetation of the SPA resulting from vehicle emissions at the new urban extensions at Broadmoor and TRL have the potential to have a significant effect on the integrity of the SPA. Any such effects could impact on the Annex 1 Birds which depend on this habitat.

5.18 A document prepared for The West London Alliance Air Quality Cluster Group⁽²³⁾ was brought to the Council's attention. The report identifies four broad types of mitigation measures:

- Behavioural measures and modal shift reducing the amount of traffic overall;
- Traffic management modifying traffic behaviour to control where emissions are generated;
- Emissions reduction at source reducing the emissions level per vehicle; and
- Roadside barriers reducing the impact on the public of emissions.

5.19 The policies in the Submission SADPD cover all these categories except for the fourth one (roadside barriers) which is not within the remit of local planning policy.

- **Policies SA1 SA3** (Previously developed land within settlements, other land within defined settlements and edge of settlement locations). For these sites Transport Assessments are required to assess the impact of the proposals upon the local road network and junctions.
- Policies SA4 SA9 (new urban extensions and land covered by the Core Strategy Policies CS4 and CS5). The infrastructure required to support these developments includes a
- 21 109 dwellings is the number necessary (at an average of 2.31 people per dwelling and 8ha per 1000 population SANG requirement) to generate a requirement for a 2ha SANG (which is the smallest SANG by area which would be acceptable).
- See Guidelines for the Creation of Suitable Accessible Natural Green Space (SANGs). Natural England. (June 2008)
 Best Practice Guide for Assessment of Traffic and Air Quality Impacts Prepared for the West London Alliance Air Quality
- Cluster Group by Transport Travel Research Ltd (August 2005)

comprehensive package of on- and off-site transport measures to mitigate the development's impact on roads and encourage sustainable modes of transport.

• **Employment and Retail Policies.**⁽²⁴⁾ For the Royal Military Academy, Sandhurst (Policy SA10), any development must not have any adverse impacts on the integrity of the SPA.

5.20 Policies in the Bracknell Forest Council Core Strategy DPD (February 2008) already cover all the categories of mitigation measures except for the fourth one (roadside barriers) which is not within the remit of local planning policy.

- Policy CS23: Transport 'The Council will use its planning and transport powers to: i. reduce the need to travel; ii. increase the safety of travel; iii. maintain and where possible improve the local road network; iv. provide improved access to key services and facilities; v. promote alternative modes of travel; vi. secure the reliable movement of goods through the Borough; vii. enhance sub-regional connectivity to and from the Borough; viii. promote travel planning; ix. make representations and bids for funding major transport infrastructure to help deliver the Core Strategy and Local Transport Plan schemes.'
- **Policy CS24: 'Transport and New Development** Development will be permitted where mitigation against the transport impacts which may arise from that development or cumulatively with other proposals is provided. This shall be achieved through the submission of a transport assessment or transport statement,⁽²⁵⁾ and where appropriate: i. contributions towards local public transport and strategic transport improvements; ii. contributions to transport modelling work; iii. the implementation of works to the highway; iv. the provision of new and the improvement of existing pedestrian and cycle routes; v. the provision of travel plans to promote sustainable travel patterns for work related trips; and vi. the entering into of freight or bus quality partnerships with the local authority and/or third parties.'

5.21 For sustainable transport measures delivered at the strategic planning level, it is not possible to predict in advance the precise amount of improvement that can be delivered by a given mitigation measure. Changes in vegetation are also difficult to identify and it is difficult to separate the effects of reducing the impact of transport emissions from one development from those arising from other sources.

5.22 It is therefore important that where air quality problems are identified there is also a mechanism established to monitor the effectiveness of the measures adopted and amend them as required. A separate framework to undertake air quality monitoring should be explored with other relevant local authorities (e.g. the other Thames Basin Heaths authorities and strategic highway authorities). This would include monitoring of the air quality in the Thames Basin Heaths before and for a number of years after introduction of sustainable transport measures, such that further measures can be devised if air quality does not improve. In making these assessments the critical load for the relevant habitat should be used as the target for assessment. In Bracknell Forest, polices to take account of this could be explored through the review of the Core Strategy DPD as set out in the Council's Local Development Scheme (LDS).

5.23 Measures taken at plan level to avoid and mitigate the likely effects of air pollution on the SPA as described above, leads the Council to conclude that the SADPD will not cause an adverse effect on the integrity of the SPA as a result of air pollution. However, further work will need to be carried out at the planning application stage. Therefore, the larger developments

²⁴ A separate Bracknell Town Centre Habitats Regulations Assessment has been undertaken and Policy SA11 is therefore not included in this HRA. This is because it was agreed in principle through the Core Strategy DPD (Core Strategy policy CS3 (Bracknell Town Centre). See Thames Basin Heaths SPA Technical Background Document to the Core Strategy DPD (June 2007) and Habitats Regulations Appropriate Assessment Bracknell Town Centre (June 2010).

²⁵ Threshold criteria definition contained in the 'Guidance on Transport Assessments (March 2007) DCLG/DfT.

close to the SPA (Land at Transport Research Laboratory and Land at Broadmoor, Crowthrorne) will need to undertake a further air quality assessment as part of a HRA at the planning application stage as explained in Section 4. Some preliminary work has been carried out in Appendix 3 to facilitate this process.

5.24 There are three further mitigation methods that can be agreed at the planning application stage if adverse effects on the integrity of the SPA are found.⁽²⁶⁾These are

- The use of a shelterbelt of trees planted alongside a road to prevent the transport of pollutants away from the area on the SPA to be protected
- The use of a buffer zone of vegetation located between the road and the protected SPA habitat. This means that the area affected by the pollution is within the buffer zone.
- Compensatory habitat creation. The loss of habitat due to adverse effect on the SPA vegetation as a result of air pollution might be compensated for by the creation of the same habitat at a nearby location.

5.25 Some avoidance and mitigation measures for adverse air pollution effects related to the construction stage of the developments could also be tackled through a Code of Construction Practice.

5.26 A Habitats Regulations Assessment at the planning application stage would need to consider existing local air quality conditions, an assessment of the construction phase impacts and the impacts during operation of the development. Any mitigation measures would need to be agreed with the Council and Natural England.

e) Noise, Hydrology and Lighting

5.27 The effects on site noise and lighting are localised. Policy CS14 in the Core Strategy states that all development within 400 metres of the SPA will be assessed on its own merits with regards to the Habitats Directive. The project-level Appropriate Assessment will therefore require an assessment for each development within 400 metres to determine whether it would result in noise effects on breeding birds and / or lighting effects on the nocturnal feeding of nightjars. Any avoidance and mitigation measures would need to be agreed with the Council and Natural England.

SPA Avoidance and Mitigation Measures Required for Policies SA1-SA3

5.28 The proposed number of additional dwellings on these sites (not including windfall sites) which require SPA mitigation is estimated to be 1,628. Developments with 108 dwellings or less fall under the threshold for the need to provide a bespoke solution and therefore are considered in the template (standard) Appropriate Assessment. The Council will require these developments to make a payment contribution towards existing / strategic SANGs. Sites with 109 dwellings or more will be required to provide a bespoke SANG. All developments, where there is a net increase in dwellings, will be required to make a payment contribution towards a strategic access management and monitoring. In summary, to avoid an adverse impact on the integrity of the SPA these developments will be required to contribute to the Council's Avoidance and Mitigation Strategy as follows:

²⁶ See The Ecological Effects of Diffuse Air Pollution from Road Transport. English Nature Research Report 580 at http://naturalengland.etraderstores.com/NaturalEnglandShop/R580

SPA Avoidance and Mitigation Requirements	Explanation
For sites of 108 dwellings or less within 400m to 5km of the SPA, a payment contribution towards existing Suitable Alternative Natural Greenspace (SANG) in line with the adopted BFC Avoidance and Mitigation Strategy	A contribution of £1,279/net dwelling to be paid to the Council on commencement of the development towards the cost of works and measures to avoid and mitigate against the effect upon the Thames Basin Heaths SPA, as set out in the Council's adopted Avoidance and Mitigation Strategy. Please note that there may be potential changes to the calculation as detailed in paragraph 5.31.
	Occupancy will be restricted until the works and measures are in place. The Council will use all reasonable endeavours to apply the sum within 9 months of receipt.
For sites of 108 dwellings or more within 400m to 5km of the SPA, a bespoke SANG must be provided in perpetuity in accordance with the adopted BFC Avoidance and	A bespoke SANG to be provided and managed in perpetuity of a least 8 ha per 1,000 new population. The SANG must meet Natural England's Quality Guidance.
Mitigation Strategy and in agreement with the Council and Natural England	Levels of existing visitor use on the SANG will need to be discounted to protect current access. Any existing nature conservation interests must also be taken into account and potentially discounted.
	Occupancy will be restricted until the works and measures are in place so as to ensure provision of functional SANGs prior to occupation of residential development.
For all developments within 400m to 5km of the SPA, a payment contribution towards Strategic Access	Where there is a net increase in residential dwellings: 1 bedroom dwelling = \pounds 399
Management and Monitoring	2 bedroom dwelling = $\pounds526$ 3 bedroom dwelling = $\pounds711$ 4 bedroom dwelling = $\pounds807$ 5+ bedroom dwelling = $\pounds1,052$

Table 5.2 SPA Avoidance and Mitigation Measures Required for Policies SA1-SA3

5.29 In order to demonstrate that the Council has sufficient SANG to be able to conclude no adverse impact on the integrity of the SPA as a result of these developments, a provisional SANG has been allocated to each of the development sites. See Appendix 4. New bespoke SANGs provisionally agreed with Natural England are set out in Appendix 5.

5.30 In the coming months the SANG payment contribution of £1,279/net dwelling is likely to increase as the Council is in the process of developing a new Thames Basin Heaths SPA Avoidance and Mitigation Supplementary Planning Document (SPD). Please note the Consultation Draft SPD (September 2011) Table 1 proposes that the SANG contribution will be on a per bedroom basis as follows:

- 1 bedroom dwelling = £1,570
- 2 bedroom dwelling = £2,070
- 3 bedroom dwelling = £2,800
- 4 bedroom dwelling = £3,190
- 5+ bedroom dwelling = £4,150

SPA Avoidance and Mitigation Measures for Windfall Sites

5.31 The Council has estimated that 150 dwellings will come forward on windfall sites during the plan period. Location of these sites is of course unknown. A flexible strategy is therefore necessary to deal with SPA mitigation necessary in order to comply with Habitats Regulations. If it is located within 400m to 5km of the SPA, windfall development will be subject to template (standard) Appropriate Assessments as and when it comes forward. Any net increase in residential development will be required to make a payment contribution towards existing SANG as well as a SAMM contribution. The Council anticipates that the BFC Avoidance and Mitigation Strategy will be able to provide the appropriate mitigation for these developments, especially as the strategy is flexible in its approach for developments under 10 dwellings (in line with the Thames Basin Heaths Delivery Framework (2009)) and there is SANG capacity in the south of the borough.

SPA Avoidance and Mitigation Requirements	Explanation
For windfall sites located within 400m to 5km of the SPA, a payment contribution towards existing Suitable Alternative Natural Greenspace (SANG) in line with the adopted BFC Avoidance and Mitigation Strategy	A contribution of £1,279/net dwelling to be paid to the Council on commencement of the development towards the cost of works and measures to avoid and mitigate against the effect upon the Thames Basin Heaths SPA, as set out in the Council's adopted Avoidance and Mitigation Strategy. Please note that there may be potential changes to the calculation as detailed in paragraph 5.31. Occupancy will be restricted until the works and measures are in place. The Council will use all reasonable endeavours to apply the sum within 9 months of receipt.
For all windfall developments within 400m to 5km of the SPA, a payment contribution towards Strategic Access Management and Monitoring	Where there is a net increase in residential dwellings: 1 bedroom dwelling = £399 2 bedroom dwelling = £526 3 bedroom dwelling = £711 4 bedroom dwelling = £807 5+ bedroom dwelling = £1,052

Table 5.3 SPA Avoidance and Mitigation Measures Required for Windfall Sites

SPA Avoidance and Mitigation Requirements	Explanation
C2 Nursing Homes	 These developments will be dealt with on a case by case basis at the planning application stage. Certain avoidance and mitigation measures may need to be put in place in order to reach a conclusion of no adverse effect on the integrity of the SPA. For example, these could include the following: A workable pet covenant enforceable by the accommodation management company / organisation which precludes the keeping of cat and dogs on the premises; with the exception of assisted living dogs That the use class of the property is limited to that of C2, and the occupants will only be of limited mobility and thus will not access the Thames Basin Heaths SPA Measures are put in place to ensure that the car park cannot be made available to the general public

5.32 During the Core Strategy period (up to 2026) the Council has the option to review its Avoidance and Mitigation Strategy at any time to accommodate necessary growth.

SPA Avoidance and Mitigation Measures Required for the Land at Broadmoor, Crowthorne (Policy SA4)

5.33 The proposed number of additional dwellings on this site is 270 dwellings at Lower Broadmoor Road and 145 dwellings at Cricket Field Grove. This is a total net increase of 415 dwellings.⁽²⁷⁾ To avoid an adverse impact on the integrity of the SPA the following mitigation measures must be applied.

Table 5.4 SPA Avoidance and Mitigation Measures Required for the Land at Broadmoor,
Crowthorne

SPA Avoidance and Mitigation Requirements	Explanation
Within 400m	No net increase in residential development within a 400m straight line distance of the boundary of the SPA.
SANG Provision and Quality	A new SANG should be secured of a size and quality which will enable a conclusion of no adverse impact on the integrity of the SPA and should be provided and maintained in perpetuity in agreement with the Council and Natural England.
	It is expected that the area of this bespoke SANG will significantly exceed the standard requirement (which is estimated to be 415×2.31 average persons per household / $1000 \times 8 = 7.67$ ha) because the site abuts the SPA.

27 This does not include School Hill. The School Hill development is a separate application and the Council will accept a payment contribution for strategic avoidance and mitigation measures in line with its Avoidance and Mitigation Strategy.

SPA Avoidance and Mitigation Requirements	Explanation
	Enhancement of the SANG will be carried out by the developer and must meet Natural England's Quality Guidance.
	Levels of existing visitor use on the SANG will need to be discounted to protect current access. Any existing nature conservation interests must also be taken into account and potentially discounted.
	Ownership of the SANG will be transferred to BFC (or an alternative acceptable ownership solution) and a contribution will be sought towards management of the SANG in perpetuity.
	Works will be completed in a timely manner, early in the development, so as to ensure provision of functional SANGs prior to occupation of residential development.
Strategic Access Management and Monitoring contribution	A Strategic Access Management and Monitoring contribution will be required for each net additional dwelling in accordance with the Council's Avoidance and Mitigation Strategy.
	1 bedroom dwelling = £399 2 bedroom dwelling = £526 3 bedroom dwelling = £711 4 bedroom dwelling = £807 5+ bedroom dwelling = £1,052
C2 Nursing Homes	These developments will be dealt with on a case by case basis at the planning application stage. Certain avoidance and mitigation measures may need to be put in place in order to reach a conclusion of no adverse effect on the integrity of the SPA. For example, these could include the following:
	 A workable pet covenant enforceable by the accommodation management company / organisation which precludes the keeping of cat and dogs on the premises; with the exception of assisted living dogs
	• That the use class of the property is limited to that of C2, and the occupants will only be of limited mobility and thus will not access the Thames Basin Heaths SPA
	 Measures are put in place to ensure that the car park cannot be made available to the general public
Other	Further Habitats Regulations Appropriate Assessment will be required at the planning application stage to include an assessment of potential adverse effects on the integrity of the SPA as a result of, for example, air pollution, hydrology, noise and lighting. Any mitigation measures must be agreed with the Council and Natural England.

5.34 The bespoke avoidance and mitigation package in the form of a Broadmoor Avoidance and Mitigation Strategy will be required prior to the approval of a comprehensive planning application, which will fully detail issues such as:

- The provision of a new SANG, to meet Natural England SANGs Quality Guidance.
- Its management in perpetuity.
- The provision of dedicated parking, signage, footpaths and other necessary measures.
- Strategic Access Management and Monitoring provision.
- Any relevant avoidance and mitigation measures relating to C2 nursing accommodation.
- Measures to avoid or mitigate potential noise, hydrological, lighting and air pollution effects.

5.35 In this way, the development will bring forward a bespoke mitigation solution, based on the principles outlined in the Avoidance and Mitigation Strategy. It will be assessed on its merits and in agreement with Natural England, taking account the views of other nature conservation bodies.

5.36 The developers of the site can put forward their own avoidance and mitigation solution subject to the measures passing an Appropriate Assessment and in agreement with Natural England. Please refer to the concept map in the SADPD Draft Submission document which shows the approximate location of the SANG.

SPA Avoidance and Mitigation Measures Required for Land at Transport Research Laboratory, Crowthorne (Policy SA5)

5.37 The proposed number of net additional dwellings on this site is 1,000. To avoid an adverse impact on the integrity of the SPA the following mitigation measures must be applied.

Table 5.5 SPA Avoidance and Mitigation Measures Required for the Land at TransportResearch Laboratory, Crowthorne

SPA Avoidance and Mitigation Requirements	Explanation
Within 400m	No net increase in residential development within a 400m straight line distance of the boundary of the SPA.
SANG Provision and Quality	A new SANG should be secured of a size and quality which will enable a conclusion of no adverse impact on the integrity of the SPA and should be provided and maintained in perpetuity in agreement with the Council and Natural England.
	It is expected that the area of this bespoke SANG will significantly exceed the standard requirement (which is estimated to be 1,000 x 2.31 / 1000 x $8 = 18.48$ ha) because the site abuts the SPA.
	Enhancement of the SANG will be carried out by the developer and must meet Natural England's Quality Guidance.

SPA Avoidance and Mitigation Requirements	Explanation
	There may need to be an ecological discount on the SANG if it has features that could be adversely affected by an increase in recreational disturbance. Any existing nature conservation interests must also be taken into account and potentially discounted.
	Ownership of the SANG will be transferred to BFC (or an alternative acceptable ownership solution) and a contribution will be sought towards management of the SANG in perpetuity.
	Works will be completed in a timely manner, early in the development, so as to ensure provision of functional SANGs prior to occupation of residential development.
Strategic Access Management and Monitoring contribution	A Strategic Access Management and Monitoring contribution will be required for each net additional dwelling in accordance with the Council's Avoidance and Mitigation Strategy. Where there is a net increase in residential dwellings:
	1 bedroom dwelling = £399 2 bedroom dwelling = £526
	3 bedroom dwelling = £711 4 bedroom dwelling = £807
	5+ bedroom dwelling = \pounds 1,052
C2 Nursing Homes	 These developments will be dealt with on a case by case basis at the planning application stage. Certain avoidance and mitigation measures may need to be put in place in order to reach a conclusion of no adverse effect on the integrity of the SPA. For example, these could include the following: A workable pet covenant enforceable by the accommodation management company / organisation which precludes the keeping of cat and dogs on the premises; with the exception of assisted living
	 dogs That the use class of the property is limited to that of C2, and the occupants will only be of limited mobility and thus will not access the Thames Basin Heaths SPA
	 Measures are put in place to ensure that the car park cannot be made available to the general public
Other	Further Habitats Regulations Appropriate Assessment will be required at the planning application stage to include an assessment of potential adverse effects on the integrity of the SPA as a result of, for example, air pollution, hydrology, noise and lighting. Any mitigation measures must be agreed with the Council and Natural England.

5.38 The bespoke avoidance and mitigation package in the form of a Land at Transport Research Laboratory, Crowthorne Avoidance and Mitigation Strategy will be required prior to the application affecting the residential element on the site, which will fully detail issues such as :

- The provision of a new SANG, to meet Natural England SANGs Quality Guidance.
- Its management in perpetuity.
- The provision of dedicated parking, signage, footpaths and other necessary measures.
- Strategic Access Management and Monitoring provision.
- Any relevant avoidance and mitigation measures relating to C2 nursing accommodation.
- Measures to avoid or mitigate potential noise, hydrological, lighting and air pollution effects.

5.39 In this way, the development will bring forward a bespoke mitigation solution, based on the principles outlined in the Avoidance and Mitigation Strategy. It will be assessed on its merits and in agreement with Natural England, taking account the views of other nature conservation bodies.

5.40 The developers of the site can put forward their own avoidance and mitigation solution subject to the measures passing an Appropriate Assessment and in agreement with Natural England. Please refer to the concept map in the SADPD Draft Submission document which shows the approximate location of the SANG.

SPA Avoidance and Mitigation Measures Required for Amen Corner North, Binfield (Policy SA6)

5.41 The proposed number of net additional dwellings on this site is 400. To avoid an adverse impact on the integrity of the SPA the following mitigation measures must be applied.

Table 5.6 SPA Avoidance and Mitigation Measures Required for Amen Corner North,Binfield

SPA Avoidance and Mitigation Requirements	Explanation
SANG Provision and Quality	A new SANG should be secured of a size and quality which will enable a conclusion of no adverse impact on the integrity of the SPA and should be provided and maintained in perpetuity. Preference will be given to an on site SANG, however, and alternative will be acceptable subject to passing Appropriate Assessment and in agreement with the Council and Natural England.
	It is expected that the area of this bespoke SANG will need to be at least the standard requirement (which would be $400 \times 2.31 / 1000 \times 8 = 7.39$ ha).
	Enhancement of the SANG will be carried out by the developer and must meet Natural England's Quality Guidance.

SPA Avoidance and Mitigation Requirements	Explanation
	Levels of existing visitor use on the SANG will need to be discounted to protect current access, where relevant. Any existing nature conservation interests must also be taken into account and potentially discounted.
	Ownership of the SANG will be transferred to BFC (or an alternative acceptable ownership solution) and a contribution will be sought towards management of the SANG in perpetuity.
	Works will be completed in a timely manner, early in the development, so as to ensure provision of functional SANGs prior to occupation of residential development.
Strategic Access Management and Monitoring contribution	A Strategic Access Management and Monitoring contribution will be required for each net additional dwelling in accordance with the Council's Avoidance and Mitigation Strategy.
	1 bedroom dwelling = \pounds 399
	2 bedroom dwelling = $\pounds 526$
	3 bedroom dwelling = £711 4 bedroom dwelling = £807
	5+ bedroom dwelling = $\pounds 1,052$

5.42 The bespoke avoidance and mitigation package in the form of a Amen Corner North Avoidance and Mitigation Strategy will be required prior to the approval of a comprehensive planning application, which will fully detail issues such as:

- The provision of a new SANG, to meet Natural England SANGs Quality Guidance.
- Its management in perpetuity.
- The provision of dedicated parking, signage, footpaths and other necessary measures.
- Strategic Access Management and Monitoring provision.

5.43 Early consultation with Natural England is advisable.

5.44 In this way, the development will bring forward a bespoke mitigation solution, based on the principles outlined in the Avoidance and Mitigation Strategy. It will be assessed on its merits and in agreement with Natural England, taking account the views of other nature conservation bodies.

5.45 The developers of the site can put forward their own avoidance and mitigation solution subject to the measures passing an Appropriate Assessment and in agreement with the Council and Natural England. Please refer to the concept map in the SADPD Draft Submission document which shows the approximate location of the SANG.

SPA Avoidance and Mitigation Measures Required for the Land at Blue Mountain, Binfield (Policy SA7)

5.46 The proposed number of additional dwellings on this site is 400. To avoid an adverse impact on the integrity of the SPA the following mitigation measures must be applied. See table below:

SPA Avoidance and Mitigation Requirements	Explanation
SANG Provision and Quality	A new SANG should be secured of a size and quality which will enable a conclusion of no adverse impact on the integrity of the SPA and should be provided and maintained in perpetuity. Preference will be given to an on site SANG, however, and alternative will be acceptable subject to passing Appropriate Assessment and in agreement with the Council and Natural England.
	It is expected that the area of this bespoke SANG will need to be at least the standard requirement (which would be $400 \times 2.31 / 1000 \times 8 = 7.39$ ha).
	Enhancement of the SANG will be carried out by the developer and must meet Natural England's Quality Guidance.
	Levels of existing visitor use on the SANG will need to be discounted to protect current access, where relevant. Any existing nature conservation interests must also be taken into account and potentially discounted.
	Ownership of the SANG will be transferred to BFC (or an alternative acceptable ownership solution) and a contribution will be sought towards management of the SANG in perpetuity.
	Works will be completed in a timely manner, early in the development, so as to ensure provision of functional SANGs prior to occupation of residential development.
Strategic Access Management and Monitoring contribution	A Strategic Access Management and Monitoring contribution will be required for each net additional dwelling in accordance with the Council's Avoidance and Mitigation Strategy.
	1 bedroom dwelling = £399 2 bedroom dwelling = £526 3 bedroom dwelling = £711 4 bedroom dwelling = £807 5+ bedroom dwelling = £1,052

Table 5.7 SPA Avoidance and Mitigation Measures Required at Land at Wood Lane,Binfield Parish

5.47 The bespoke avoidance and mitigation package in the form of a Land at Blue Mountain, Avoidance and Mitigation Strategy will be required prior to the approval of a comprehensive planning application, which will fully detail issues such as :

- The provision of a new SANG, to meet Natural England SANGs Quality Guidance.
- Its management in perpetuity.
- The provision of dedicated parking, signage, footpaths and other necessary measures.
- Strategic Access Management and Monitoring provision.

5.48 Early consultation with Natural England is advisable.

5.49 In this way, the development will bring forward a bespoke mitigation solution, based on the principles outlined in the Avoidance and Mitigation Strategy. It will be assessed on its merits and in agreement with the Council and Natural England, taking account the views of other nature conservation bodies.

5.50 The developers of the site can put forward their own avoidance and mitigation solution subject to the measures passing an Appropriate Assessment and in agreement with Natural England. Please refer to the concept map in the Site Allocations DPD Draft Submission document which shows the approximate location of the SANG.

SPA Avoidance and Mitigation Measures Required for Royal Military Academy, Sandhurst (Policy SA10)

5.51 Part of this site lies within 400m of the SPA. The Core Strategy DPD policy CS14 states that development within 400m of the SPA will be assessed on its own merits with regard to the Habitats Directive. An Appropriate Assessment will be required at the planning application stage in order to ensure that any development does not have any adverse effects on the integrity of the Thames Basin Heaths SPA. Table 4.1 should be used as a guide. Any necessary avoidance and mitigation measures will be agreed with the Council and Natural England.

5.52 Development will only be permitted where it is demonstrated that there are no adverse effects on the integrity of the SPA.

Summary of Avoidance and Mitigation Measures

Effects	Proposed Measures	
Increased pop	Increased population in close proximity to the SPA (not including recreational impacts)	
Vandalism (including fire)	 All potential housing development sites within 400m of the SPA were excluded early in the SADPD process. This may reduce the potential for opportunistic vandalism to the SPA from new local residents, and will help avoid vandalism specifically arising from proximity to the SPA, e.g. flytipping over back garden fences. The Strategic Access Management and Monitoring (SAMM) Project will help inform people of the sensitive nature of the SPA and wardens can help reduce the level illegal activity. 	

 Table 5.8 Summary of Avoidance and Mitigation Measures

Effects	Proposed Measures
Enrichment	 All potential housing development sites within 400m of the SPA were excluded early in the SADPD process. This will avoid the potential for flytipping over back garden fences. C2 nursing homes will be dealt with on a case by case basis at the planning application stage and may need to put in place avoidance and mitigation measures such as a workable pet covenant enforceable by the accommodation management company / organisation which precludes the keeping of cat and dogs on the premises; with the exception of assisted living dogs
Predation	 All potential housing development sites within 400m of the SPA were excluded early in the SADPD process. This will ensure that no development is permitted with the potential to increase the number of pets in the vicinity, in particular cats, which could predate eggs and chicks. C2 nursing homes will be dealt with on a case by case basis at the planning application stage and may need to put in place avoidance and mitigation measures such as a workable pet covenant enforceable by the accommodation management company / organisation which precludes the keeping of cat and dogs on the premises; with the exception of assisted living dogs
Increased recr	eational activity
Predation	 The Strategic Access Management and Monitoring (SAMM) Project aims to avoid impacts arising from predation from dogs belonging to current and future dog-walkers. This could include the implementation of a policy of keeping dogs on leads during the breeding season and enforcing this using wardens. Education can encourage visitors to act in a more responsible and less harmful way. C2 nursing homes will be dealt with on a case by case basis at the planning application stage and may need to put in place avoidance and mitigation measures such as; a workable pet covenant enforceable by the accommodation management company / organisation which precludes the keeping of cat and dogs on the premises, with the exception of assisted living dogs; that the use class of the property is limited to that of C2, and the occupants will only be of limited mobility and thus will not access the Thames Basin Heaths SPA; and measures are put in place to ensure that the car park cannot be made available to the general public.
Enrichment	 The Strategic Access Management and Monitoring (SAMM) Project will provide on-site visitor access management measures such as wardens and the provision of dog fouling bins. This can reduce enrichment by encouraging and enforcing responsible dog ownership. C2 nursing homes will be dealt with on a case by case basis at the planning application stage and may need to put in place avoidance and mitigation measures such as; a workable pet covenant enforceable by

Effects	Proposed Measures	
	the accommodation management company / organisation which precludes the keeping of cat and dogs on the premises, with the exception of assisted living dogs; that the use class of the property is limited to that of C2, and the occupants will only be of limited mobility and thus will not access the Thames Basin Heaths SPA; and measures are put in place to ensure that the car park cannot be made available to the general public.	
Disturbance	 The provision of SANGs for new residents to visit for recreational purposes will keep the levels of visitors to the SPA at the current baseline level. All potential housing development sites within 400m of the SPA were excluded early in the SADPD process. This will avoid increased recreational activity within this very easy walking distance distance. C2 nursing homes will be dealt with on a case by case basis at the planning application stage and may need to put in place avoidance and mitigation measures such as; a workable pet covenant enforceable by the accommodation management company / organisation which precludes the keeping of cat and dogs on the premises, with the exception of assisted living dogs; that the use class of the property is limited to that of C2, and the occupants will only be of limited mobility and thus will not access the Thames Basin Heaths SPA; and measures are put in place to ensure that the car park cannot be made available to the general public. 	
Trampling	 The Strategic Access Management and Monitoring (SAMM) Project aims to encourage visitors to act in a more responsible and less harmful way. C2 nursing homes will be dealt with on a case by case basis at the planning application stage and may need to put in place avoidance and mitigation measures such as; a workable pet covenant enforceable by the accommodation management company / organisation which precludes the keeping of cat and dogs on the premises, with the exception of assisted living dogs; that the use class of the property is limited to that of C2, and the occupants will only be of limited mobility and thus will not access the Thames Basin Heaths SPA; and measures are put in place to ensure that the car park cannot be made available to the general public. 	
Increased urban area		
Fragmentation between heathland	• All potential housing development sites within 400m of the SPA were excluded early in the SADPD process.	
Supporting habitats	• All potential housing development sites within 400m of the SPA were excluded early in the SADPD process. This will help prevent the loss of foraging habitat.	

Effects	Proposed Measures
	 Any employment development proposed within 400 metres of the SPA boundary will be assessed on a case by case basis. Developers will be required to carry out a HRA to determine whether that the site may contain suitable feeding habitats for the designated bird species or provide 'lay-back' land for cattle. Existing nature conservation interests must be taken into account on newly proposed SANGs and potentially discounted.
Hydrology	• The effects on site hydrology are localised. Policy CS14 in the Core Strategy states that all development within 400 metres of the SPA will be assessed on its own merits with regards to the Habitats Directive. The project-level Appropriate Assessment will therefore require an assessment for each development within 400 metres to determine whether it would result in an effect on Annex 1 birds, their supporting habitats and/or alteration of the hydrological regime to the wet areas of the SPA. No proposal which has a risk of affecting the integrity of the site by hydrological impacts would be approved. Where further avoidance and mitigation measures are found to be required at the planning application stage, these are to be agreed with the Council and Natural England.
Air pollution effects on the vegetation on the SPA	 Ensure that the SADPD policies cover the mitigation measures using best practise as set out in the West London Alliance Report (see the section on air quality avoidance and mitigation measures). These include behavioural measures and modal shift, traffic management and emissions reduction at source. The urban extensions close to the SPA (Land at Broadmoor and Land at Transport Research Laboratory) must undertake further Habitats Regulations Assessment at the planning application stage to include an assessment of air pollution effects on the SPA. Where further avoidance and mitigation measures are found to be required at the planning application stage, these are to be agreed with the Council and Natural England.
Noise and Lighting	The effects on site noise and lighting are localised. Policy CS14 in the Core Strategy states that all development within 400 metres of the SPA will be assessed on its own merits with regards to the Habitats Directive. The project-level Appropriate Assessment will therefore require an assessment for each development within 400 metres to determine whether it would result in noise effects on breeding birds and / or lighting effects on the nocturnal feeding of nightjars. Where further avoidance and mitigation measures are found to be required at the planning application stage, these are to be agreed with the Council and Natural England.

6 Step 5: Consultation

6.1 Natural England, the Royal Society for the Protection of Birds (RSPB) and the Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT) have been invited to comment on the Habitat Regulations Appropriate Assessment alongside the Site Allocations DPD at each stage of consultation. This document has also been available on the Council's website for everyone to view and make comments at each stage of the Site Allocations DPD consultations. Appendices 1 and 2 summarise comments made during the consultations and the Council's responses.

6.2 There will be a further and statutory period of consultation on the soundness of the DPD during January and February 2012 before the SADPD is submitted to Government in June 2012.

7 Conclusions

- 7.1 This Habitats Regulations Appropriate Assessment has made the following conclusions;
- Avoidance and mitigation measures have been proposed which has lead the Council to conclude that there will be no significant adverse effects upon the integrity of the Thames Basin Heaths SPA as a result of the developments within the SADPD.
- These avoidance and mitigation measures are summarised in Table 5.8 and include:
 - No net increase in residential development permitted within 400m of the SPA. Residential developments within 400m of the SPA were excluded early in the SADPD process. Non residential development (e.g. Royal Military Academy, Sandhurst and nursing homes) are to be considered on a case by case basis. Where avoidance and mitigation measures are found to be required, these must be agreed with the Council and Natural England.
 - All net increase in residential development between 400m and 5km of the SPA is required to make a contribution towards Strategic Access Management and Monitoring (SAMM).
 - Where there is a net increase in residential development of less than 109 dwellings, a contribution must be made towards the Council's existing / strategic SANGs, as set out in Appendix 4.
 - Where there is a net increase in residential development of 109 dwellings or above, a bespoke SANG must be provided. These sites have been identified and named within this document. See Appendices 4 and 5. Any changes to these areas will need to be in accordance with the Habitats Regulations and Council policy and agreed with Natural England.
 - SANGs must be provided in advance of occupation of the development, managed in perpetuity and meet Natural England's Quality Guidance.
 - A policy framework in the SADPD and Core Strategy DPD to deliver measures to avoid or mitigate the potential adverse effects of air pollution from increased vehicle emissions on the integrity of the SPA.
 - For the Land at TRL and Land at Broadmoor an air quality assessment must be carried out as part of an HRA at the planning application stage. Any measures proposed to avoid or mitigate the effects of air pollution on the SPA must be agreed with the Council and Natural England and satisfy the Habitats Regulations.
 - A HRA will be required for all development within 400 metres of the SPA to determine whether it could result in noise effects on breeding birds and / or lighting effects on the nocturnal feeding of nightjars. No proposal which has the potential to affect the integrity of the SPA due to noise or lighting impacts will be approved. Where avoidance and mitigation measures are found to be required, these must be agreed with the Council and Natural England.
 - A HRA will be required for all development within 400 metres of the SPA to determine whether it would result in an adverse effect or alteration of the hydrological regime to the wet areas of the SPA. No proposal which has the potential to affect the integrity of the SPA due to hydrological impacts will be approved. Where avoidance and mitigation measures are found to be required, these must be agreed with the Council and Natural England.

7.2 The Council will continue to work with Natural England and other stakeholders to ensure that a package of measures is secured which ensures no adverse effect on the integrity of the Thames Basin Heaths SPA. These mitigation measures will be implemented through:

- The determination and monitoring of planning applications.
- Conditions, Section 106 Agreements or other agreements unless other legal measures to secure contributions or works are put in place.

8 Glossary

Table 8.1 Glossary

Term	Description
Appropriate Assessment	An assessment, required under the Habitats Directive, if a plan or project is judged as likely to have a significant effect on a Natura 2000 site.
Biodiversity	Biological Diversity - the variation and total number of all biological life.
Competent Authority	The decision maker under the Conservation of Habitats and Species Regulations 2010: often the local authority, but could be a planning inspector or other body responsible for assessing a plan or project.
Delivery Framework	Sub-regional guidance on Thames Basin Heaths SPA avoidance and mitigation methods, produced and endorsed by the Thames Basin Heaths Joint Strategic Partnership Board.
Development Plan Document	A Local Development Document which forms part of the statutory development plan, examples include the Core Strategy, Proposals Map and Area Action Plans.
Local Development Framework	The portfolio of Local Development Documents which sets out the planning policy framework for the borough.
Natura 2000 sites	An ecological network of sites such as Special Protection Areas (SPAs) and Special Areas of Conservation SACs established under the Habitats Directive to provide a strong protection for Europe's wildlife areas.
Precautionary Principle	Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation (Principle 15 of the Rio Declaration on Environment and Development).
Significant Effect	Any reasonably predictable effect of a plan or project on the conservation objectives of the designated site features but excluding de minimis or inconsequential effects.
Special Protection Area (SPA)	A nature conservation site designated for its bird interest under the Birds Directive, but subject to the assessment procedure set out in the Habitats Directive.
Strategic Access Management and Monitoring Project (SAMM)	Overseen by Natural England. Implements standard messages, additional wardening and education across the Thames Basin Heaths SPA.

Term	Description
Supplementary Planning Document	An Local Development Document which does not form part of the statutory development plan, but is part of the Local Development Framework. Supplementary Planning Documents (SPDs) elaborate upon policies and proposals in a Development Plan Document.
Suitable Alternative Natural Greenspace (SANG)	Open space, meeting guidelines on quantity and quality, for the purpose of providing recreational alternatives to the SPA.
Technical Background Document	Accompanied the Core Strategy to Examination and includes the Appropriate Assessment of the Core Strategy and the original Avoidance and Mitigation Strategy.
Thames Basin Heaths Joint Strategic Partnership	Partnership of Thames Basin Heaths SPA-affected local authorities and key stakeholders, which form and oversee the implementation of sub-regional guidance, for example the Delivery Framework.
UK Biodiversity Action Plan (BAP)	A nationwide Action Plan to conserve and enhance the UK's biodiversity, following the Biodiversity Convention of 1992.

9 Abbreviations

Table 9.1 Abbreviations

Abbreviation	Explanation
AA	Appropriate Assessment
BBOWT	Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust
BFC	Bracknell Forest Council
CE	Crown Estate
DCLG	Department of Communities and Local Government
DPD	Development Plan Document
FC	Forestry Commission
JNCC	Joint Nature Conservation Committee
JSP	Joint Strategic Partnership
LDD	Local Development Document
LDF	Local Development Framework
NE	Natural England
RSPB	Royal Society for the Protection of Birds
SAMM	Strategic Access Management and Monitoring
SANGs	Suitable Alternative Natural Greenspaces
SPA	Special Protection Area
SPD	Supplementary Planning Document

10 References

References	
Best Practise Guide for Assessment of Traffic and Air Quality Impacts	Prepared for the West London Alliance Air Quality Cluster Group by Transport and Travel Research Ltd (August 2005)
Bracknell Forest Journey Time Report	Bracknell Forest Council (October 2011)
Local Development Framework Sustainability Appraisal Scoping Report Appendix B	Bracknell Forest Council (January 2010)
Rushmoor Draft Submission Core Strategy DPD Habitats Regulations Assessment	Prepared for Rusmoor Borough Council by Scott Wilson (October 2010)

Appendix 1 Summary HRA Responses to SA DPD Participation Document

A Summary of HRA Responses to the Participation Document

The following organisations provided responses to the Site Allocations DPD Participation Document which went out to consultation in February - April 2010. The summary responses help to confirm that a Habitats Regulations Appropriate Assessment needs to be carried out for the DPD and that, without appropriate avoidance and mitigation measures, significant adverse effects on the integrity of the Thames Basin Heaths SPA are likely to arise as a result of this plan.

Organisation	Summary Response
BBOWT	The Site Allocations DPD must comply with the Conservation of Habitats and Species Regulations 2010. There should be a separate consultation on the results of the Habitats Regulations Assessment and results should feed into the DPD. The assessment will need to pay particular attention to; avoidance and mitigation measures to be delivered in relation to Broad Areas 2 and 3; major development (over 50 dwellings) located between 5 and 7km of the SPA; and the additional dwellings to be included in the DPD that were not assessed as part of the Habitats Regulations Assessment. Prefer that development is located further away from the SPA where recreational pressures and impacts on important species are likely to be lower.
Natural England	Any developments within the vicinity of the Windsor Forest and Great Park Special Area of Conservation (SAC) will need to be considered under the Habitat Regulations, to confirm that they will not cause likely significant effect upon integrity of the features it was designated for.
	Thames Basin Heaths SPA mitigation standards will need to match what has already been agreed within the Thames Basin Heaths Delivery Framework (2009) and the adopted Bracknell Forest Core Strategy.
	SPA mitigation, in particular Suitable Alternative Natural Greenspaces (SANGs), should be given high priority.
RSPB	In order for the Site Allocations DPD to pass the tests of the Habitats Regulations, the Council must be able to clearly demonstrate that appropriate measures can be secured to avoid and/or effectively mitigate the likely impacts of development on the SPA. We welcome the commitment to undertake a

Table .1 A Summary of HRA-Related Responses to the Participation Document

Organisation	Summary Response
	Habitat Regulations Assessment and welcome the opportunity to comment further on this issue once the Habitat Regulations Assessment has been prepared.
	SANGs will be required to avoid and mitigate the impact of new development on the integrity of the Thames Basin Heaths SPA.
	The majority of potential development sites fall within the Thames Basin Heaths 5km 'zone of influence'. Additional housing within this zone could result in an increase in visitor numbers to the Thames Basin Heaths SPA, resulting in increased recreational disturbance.
	The RSPB has serious concerns about Broad Area 2 (Broadmoor) and Broad Area 3 (North East Crowthorne). Both these sites are partly within the Thames Basin Heaths 400m 'exclusion zone' and entirely within the 5km 'zone of influence'. Significant housing in these areas could result in a large increase in visitor numbers to the Thames Basin Heaths SPA and other potential urban impacts, such as cat predation, fire and fly tipping.

Appendix 2 Summary Responses to the Habitats Regulations Appropriate Assessment Site Allocations DPD Preferred Options

The table below sets out the comments received and the Council's responses to the Draft Habitats Regulations Appropriate Assessment for the Site Allocations DPD Preferred Options consultation.

Table .1 Developer Responses to 'Habitat Regulations Appropriate Assessment'

Paragraph Number, Section or Table	Developer responses: Summary of main issues raised	Response
	Several non-strategic sites proposed for allocation at Binfield under Policies SA1-3 are identified as having their SANG requirement met at the existing 'Cut Cluster'. There is no reason why land identified in SA9 at Warfield should not also make use of such SANG 'on its doorstep' (in the form of dual use informal open space within the 'Cut Cluster').	It is Council policy for developments in excess of 108 dwellings to provide a bespoke SANG. This would therefore apply to the Land at Warfield. For developments of 108 dwellings or less, the Council will accept a payment contribution of strategic avoidance and mitigation measures in line with its adopted Avoidance and Mitigation Strategy.
West Londo	on Mental Health Trust	
5.10 and 5.13	Paragraph 5.13 requires that sufficient SANG should be provided in advance of new dwelling occupation to ensure that there is no likely significant effect on the SPA. The requirement at para. 5.10 for a programme of visitor access management measures to mitigate impacts arising from new development is redundant as such impacts will have been mitigated under para. 5.13	SPA avoidance and mitigation measures are based on a combination of access management and monitoring and the provision of suitable alternative natural greenspace (SANG). This is clearly set out in the South East Plan (2009) policy NRM6, the Thames Basin Heaths SPA Delivery Framework

Paragraph Number, Section or Table	Developer responses: Summary of main issues raised	Response
		(2009) and the BFC Avoidance and Mitigation Strategy.
5.17 and 5.18	Where bespoke SANG is required this should be designed in accordance with the guidance provided by Natural England. Para. 5.18 should be amended to read, "In assessing the required quality of new SANG land the guidance published by Natural England should be followed".	Paragraph 5.18 states' " <i>In</i> assessing the required quality for new SANG land regard should be had to the guidance published by Natural England". This is consistent with para. 5.14 in the Thames Basin Heaths SPA Delivery Framework (2009). No changes necessary.
Table 5.2	Reference to ownership of SANG to be amended to read "(or an alternative acceptable ownership solution such as retained ownership by the Trust)". Reason - to add clarity in the light of current Trust intentions.	Retention of ownership of the land by the Trust may be one solution. However, in the interest of not compromising future discussions, the Council believes that the relevant wording in Table 5.2 should remain.
5.21	Having regard to our comments under para. 5.10 and 5.13 above, the fourth bullet point to para. 5.21 should be deleted.	This bullet point is valid as access management and monitoring measures must be applied. SPA avoidance and mitigation measures are based on a combination of access management and the provision of suitable alternative natural greenspace (SANG). This is clearly set out in the South East Plan (2009) policy NRM6, the Thames Basin Heaths SPA Delivery Framework (2009) and the BFC Avoidance and Mitigation Strategy.

Paragraph Number, Section or Table	Developer responses: Summary of main issues raised	Response
5.21	The third bullet point, the word 'dedicated' should be replaced by "appropriate" as there will be potential for shared provision and an overall parking reduction.	Further discussions may indicate that there is potential for shared car park provision. However, given the size of the SANG, it is envisaged that dedicated parking will be required to help attract visitors to the SANG and away from the SPA.
7.3	We support this statement.	Noted.
Appendix 2	The current status of the Dartford Warbler is inaccurate. The last two cold winters have decimated the population and we believe that there were no confirmed successful breeding pairs in 2010.	The Council has been unable to obtain more reliable up to date information on the Annex 1 birds specifically on the Thames Basin Heaths SPA.

Table .2 Adjacent County, District/Borough and Parish Council responses to 'Habitat Regulations Appropriate Assessment'

Paragraph Number, Section or Table	Adjoining Authorities' responses: Summary of main issues raised	Response
Wokingham B	orough Council	
	BFC needs to ensure that adequate SANG is proposed to match the distribution of development proposed, and consider potential implications of large scale developments beyond 5km of the SPA.	Adequate SANGs to meet the distribution of development is set out in Appendix 3 of the Draft Habitat Regulations Appropriate Assessment Site Allocations DPD. This has been agreed with NE. There are no large scale developments beyond 5km of the SPA.

Table .3 Other Statutory Consultee Responses to 'Habitat Regulations Appropriate Assessment'

Paragraph Number, Section or Table							
Natural England	Natural England						
	Natural England have no comment to make on this document.	Noted.					

Table .4 Non-Statutory Consultee Responses to 'Habitat Regulations Appropriate Assessment'

Paragraph Number, Section or Table	Non-Statutory Consultee Responses: Summary of main issues raised	Response					
Berkshire, E	Berkshire, Buckinghamshire & Oxfordshire Wildlife Trust (BBOWT)						
Tables 4.1 and 5.1, Paragraphs 3.5 and 2.2	Given the close proximity of large developments allocated in the Site Allocations DPD to the Thames Basin Heaths SPA, we do not consider it sufficient to only address those potential impacts in these paragraphs. Other impacts that should be included (as identified in Table 10 of the Core Strategy Appropriate Assessment) are: urban effects (including vandalism, fire, motorbikes, BMX and other anti-social activities), enrichment from fly-tipping garden waste, predation by cats, reduction in quantity or quality of supporting habitats e.g. for foraging nightjar, hydrology, and noise, light and air pollution. Many of these were identified in Allison Hulbert's Proof of Evidence dated October 2008 for the Council at the TRL appeal (paragraph 8.3) and are also issues that need to be addressed at the BroadmoorHospital site.	The Site Allocations DPD Appropriate Assessment is a strategic assessment which specifically considers impact on the SPA as a result of the increased housing numbers set out in the DPD. If these sites come forward for development, a more detailed Appropriate Assessment will be carried out at the planning application stage, where appropriate, and in consultation with Natural England. These more detailed Appropriate Assessments will need to consider other potential impacts such as those listed in Table 10 of the Core Strategy Technical Background Document (2007). Action: The potential requirement for a further more detailed Appropriate Assessment at the planning application stage has been added.					

Paragraph Number, Section or Table	Non-Statutory Consultee Responses: Summary of main issues raised	Response
Table 3.1 and Paragraph 3.10	The estimated increase in population from developments within 400m and 5km should be 7152 people (3096 x 2.31 = 7152 (rounded up)). An estimate of developments within 5km, population and visits should be made for the windfall sites as it is not reasonable to assume that all 480 dwellings over the plan period will be outside the 5km zone. The estimated increase in visits to the SPA should then be recalculated.	he Council has taken account of windfall sites as outlined at the end of Section 5. These are developments of less than 10 dwellings and even if they all fall within 5km of the SPA, they will be able to be allocated to SANGs in the south of the Borough where the Council has spare capacity. In the Submission SADPD the figure for windfall sites is much lower than in the Preferred Options document. Action: The figures in Table 3.1 and para. 3.10 and 3.13 have been recalculated.
Paragraph 5.14	This should make clear that there may need to be discounts as a result of nature conservation interests too such as nightjar foraging areas.	Agree that any existing nature conservation interests must also be taken into account as stated in the Thames Basin Heaths Delivery Framework (2009). Action: This wording has been added.
Table 5.2	Given this site supports foraging nightjar, the fourth point in this table should be reworded to read "Levels of existing visitor use and Annex I bird use on the SANG will need to be discounted to protect current access and use."	Agree that any existing nature conservation interests must also be taken into account as stated in the Thames Basin Heaths Delivery Framework (2009). Action: This wording has been added.
Paragraph 1.3	Reference to the Delivery Plan should be the Delivery Framework.	Action: Paragraph 1.3 has been noted and amended.
Paragraph 1.8	There is no reference to national planning policy "described above".	Action: This has been deleted.
Paragraphs 1.10, 1.14, Table 8.1	"Competent Authority": Reference should be to the Conservation of Habitats and Species Regulations 2010.	Action: Noted and amended.

Paragraph Number, Section or Table	Non-Statutory Consultee Responses: Summary of main issues raised	Response	
Paragraphs 1.12, 1.14 and 1.15	These should refer to the relevant subsections in Regulation 102 which deals with land use plans. References to projects should be removed except when considering in combination effects.	Action: Noted and amended.	
Paragraph 1.13	Where does the term "reasonably foreseeable" originate? We cannot locate this in PPS 9 Circular or the EC Managing Natura 2000 Sites guidance.	Action: This wording has been deleted and replaced by reference to paragraph 102 (4) of the Conservation of Species and Habitats Regulations 2010.	
Paragraph 2.6	This now needs updating in light of the Cala Homes decision though it is probably worth referring to the situation both with and without the South East Plan to 'future proof' the assessment.	Action: Noted and amended.	
Table 2.1	There is new condition assessment information on the Natural England website which slightly updates this information as at 1 November 2010.	Action: Noted and amended.	
RSPB			
	Policy SA11 - the Royal Military Academy, Sandhurst. We note that the site boundary is situated within immediate proximity of the Thames Basin Heaths SPA. Depending on the nature, scale and design of employment development at this site, impacts on the SPA could arise. This allocation must be fully appraised in the Appropriate Assessment before completion of the Site Allocations DPD in order for the DPD to be legally compliant and to ensure that potentially damaging development does not come forward in this location.	As stated in SA11, development on this site will be suitable if it does not have an adverse impact on the integrity of the Thames Basin Heaths SPA. Development on this site may require a detailed Appropriate Assessment at the planning application stage, in agreement with Natural England. This more detailed Appropriate Assessment may need to consider other potential impacts such as those listed in Table 10 of the Core Strategy Technical Background Document (2007). Action: A paragraph of explanation has been added to section 5. The scope of this AA has been made clear in the Introduction in Section 1.	

Appendix 3 Potential Air Pollution Effects on the Thames Basin Heaths SPA

Introduction

At the time when the Appropriate Assessment for the Core Strategy DPD (2008)⁽²⁸⁾ was undertaken, air pollution was not recognised as a potential adverse effect on the integrity of the Thames Basin Heaths SPA arising from core policies. More recently, new information has emerged which has lead the Council to include an air quality assessment within this HRA.

Chapter 5 of this HRA sets out measures being taken at plan level to avoid and mitigate potential significant air pollution effects on the SPA as a result of the development in the SADPD. The Council is however still uncertain about whether two urban extensions in the SADPD, Land at Broadmoor, Crowthorne (SA4) and Land at Transport Research Laboratory, Crowthorne (SA5), will lead to a likely significant effect upon the integrity of the Thames Basin Heaths SPA or not. For these developments, further air quality assessments will need to be undertaken at the planning application stage in consultation with the Council and Natural England. Any avoidance and mitigation measures deemed necessary must be agreed with the Council and Natural England. This appendix sets out an initial assessment of potential air pollution impacts on the Thames Basin Heaths SPA as a result of the developments set out in the SA DPD and is provided to assist with further planning applications level assessments.

Air Pollutants

The main pollutants of concern for European sites are nitrogen oxides (NOx), ammonia (NH3) and sulphur dioxide (SO2). NOx can have a direct toxic effect upon vegetation. In addition, greater NOx or ammonia concentrations within the atmosphere will lead to greater rates of nitrogen deposition to soils. An increase in the deposition of nitrogen from the atmosphere to soils is generally regarded to lead to an increase in soil fertility, which can have an adverse effect on the quality of semi-natural, nitrogen-limited terrestrial habitats.

Sulphur dioxide emissions are overwhelmingly influenced by the output of power stations and industrial processes that require the combustion of coal and oil. Ammonia emissions are dominated by agriculture, with some chemical processes also making notable contributions. As such, it is unlikely that material increases in SO2 or NH3 emissions will be associated with Local Development Frameworks. NOx emissions, however, are dominated by the output of vehicle exhausts (more than half of all emissions). Within a typical housing development, by far the largest contribution to NOx (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison.⁽²⁹⁾ Emissions of NOx could therefore be reasonably expected to increase as a result of greater vehicle use as an indirect effect of the SADPD.

According to the World Health Organisation, the critical NOx concentration (critical threshold) for the protection of vegetation is 30 μ gm-3; the threshold for sulphur dioxide is 20 μ gm-3. In addition, ecological studies have determined critical loads⁽³⁰⁾ of atmospheric nitrogen deposition

²⁸ See Thames Basin Heaths SPA Technical Background Document to the Core Strategy DPD (June 2007).

²⁹ Proportions calculated based upon data presented in Dore CJ et al. 2005. UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. <u>http://www.airquality.co.uk/archive/index.php</u>

³⁰ The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur.

(that is, NOx combined with ammonia NH3) for key habitats within the Thames Basin Heaths SPA (see table below). This site currently exceeds its critical load for nitrogen deposition although it also has NOx concentrations below the critical level.

Table .1 Critical nitrogen loads, actual rates of nitrogen deposition and NOx concentrations for the Thames Basin Heaths SPA (APIS data correct as of 24/10/11). Figures in bold indicate exceedence.

Site	Key Habitats	Minimum critical loads (Kg N/ha/yr)	Indication of Exceedance	Actual nitrogen deposition (Kg N/ha/yr) (5km resolution)	Actual NOx concentration (µgm ⁻ 3) (5km resolution)	Sensitivity of Annex 1 birds
Thames Basin Heaths SPA	Wet heaths	10	Transition from heather to grass dominance	Part of Foresters Way (A3095)	Part of Foresters Way (A3095) Grid ref: 857650 =	The Dartford Warbler is sensitive to
	Dry heath	10	Transition from heather to grass dominance, decline in lichens, changes in plant biochemistry, increased sensitivity to abiotic stress.	Grid ref: 857650 = 14.7 Part of Rackstraw Road (A3095) Grid ref: 859633 = 14.3 Part of Nine Mile Ride (B3430) Grid ref: 866660 = 14.7 Small part of Bracknell Road (B3348) Grid ref: 850650 = 14.7 Small part Bagshot Road	24.6 Part of Rackstraw Road (A3095) Grid ref: 859633 = 23.0 Part of Nine Mile Ride (B3430) Grid ref: 866660 = 24.6	nitrogen impacts (not acidity impacts) due to impacts on the species' broad habitat. The Wood lark is sensitive to
	Coniferous woodland	10	Changes in soil processes, nutrient imbalance, altered composition mycorrhiza and ground vegetation		Small part of Bracknell Road (B3348) Grid ref: 850650 = 24.6 Small part Bagshot Road (A322) Grid ref: 886660 = 24.6	nitrogen impacts (not acidity impacts) due to impacts on the species' broad habitat. The
	Raised bog and blanket bog	5	Increase in vascular plants, altered growth and species			European Nightjar is not sensitive to nitrogen or acidity

Site	Key Habitats	Minimum critical loads (Kg N/ha/yr)	Indication of Exceedance	Actual nitrogen deposition (Kg N/ha/yr) (5km resolution)	Actual NOx concentration (µgm ⁻ 3) (5km resolution)	Sensitivity of Annex 1 birds
			composition of bryophytes, increased N in peat and peat water	(A322) Grid ref: 886660 = 14.7		impacts due to impacts on the species' broad habitat.

The deposition of nitrogen compounds can lead to both soil and freshwater acidification. In addition, NOx can cause eutrophication of soils and water. This alters the species composition of plant communities and can eliminate sensitive species.

The National Expert Group on Transboundary Air Pollution (2001)⁽³¹⁾ concluded that:

- By 2010, deposited nitrogen was expected to be the major contributor to acidification, replacing the reductions in SO2.
- Current nitrogen deposition is probably already changing species composition in many nutrient-poor habitats, and these changes may not readily be reversed.
- The effects of nitrogen deposition are likely to remain significant beyond 2010.
- Reduced inputs of acidity and nitrogen from the atmosphere may provide the conditions in which chemical and biological recovery from previous air pollution impacts can begin, but the timescales of these processes are very long relative to the timescales of reductions in emissions.

3.4.6 Grice et al⁽³²⁾⁽³³⁾ do however suggest that air quality in the UK will improve significantly over the next 15 years due primarily to reduced emissions from road transport and power stations.

Local Air Pollution

According to the Department of Transport s Transport Analysis Guidance, 'Beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant'.

This is therefore the distance that has been used in this HRA in order to determine whether the Thames Basin Heaths SPA is likely to be significantly affected by development in the SADPD. Given that the Thames Basin Heaths SPA does lie within 200m of major roads that may be

³¹ National Expert Group on Transboundary Air Pollution (2001) Transboundary Air Pollution: Acidification, Eutrophication and Ground-Level Ozone in the UK.

³² Grice, S., T. Bush, J. Stedman, K. Vincent, A. Kent, J. Targa and M. Hobson (2006) Baseline Projections of Air Quality in the UK for the 2006 Review of the Air Quality Strategy, report to the Department for Environment, Food and Rural Affairs, Welsh Assembly Government, the Scottish Executive and the Department of the Environment for Northern Ireland.

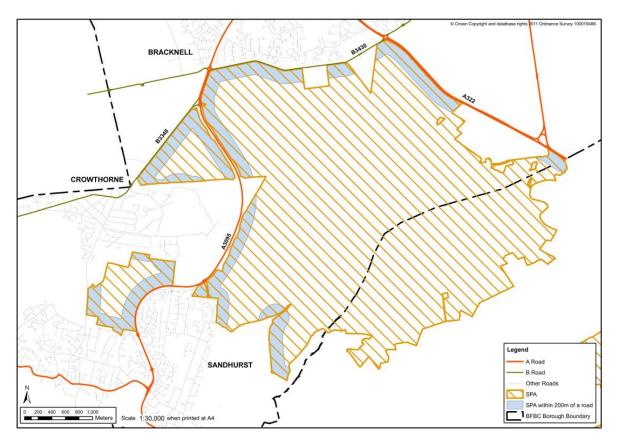
³³ Updated Projections of Air Quality in the UK for Base Case and Additional Measures for the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007, report to the Department for Environment, Food and Rural Affairs, Welsh Assembly Government, the Scotlish Executive and the Department of the Environment for Northern Ireland.

regularly used by vehicle journeys arising from the developments in the SADPD as a result of the increased population, it was concluded that air quality should be included within the scope of this assessment.

The areas of the SPA that lies within 200m of roads within Bracknell Forest are shown on the map below. This shows that the roads that lie within 200m of the SPA are the following:

- Part of Foresters Way (A3095)
- Part of Rackstraw Road (A3095)
- Part of Nine Mile Ride (B3430)
- Small part of Bracknell Road (B3348)
- Small part Bagshot Road (A322)

Figure 1 Areas of the Thames Basin Heaths SPA within 200m of a Road



Air Quality Management Area - Crowthorne

One Air Quality Management Area (AQMA) recently declared within Bracknell Forest in relation to nitrogen dioxide, where the annual mean objective for nitrogen dioxide (NO2), has not been achieved is at Bracknell Road (B3348) and Crowthorne High Street, Crowthorne (currently at 40 μ m/m3). These areas are within 200 metres of the Thames Basin Heaths Special Protection Area. According to the Air Pollution Information System (APIS), the critical level of Nitrogen Oxides that would lead to likely significant effect on these sites is 30 μ m/m3. The background level here is already higher than that.

Journey Times

The Bracknell Forest Journey Time Report (October 2011) provides an effective methodology for demonstrating how the local transport network performs given alternative levels of development and mitigation. This may be helpful in assessing the levels of air pollution with and without the SADPD and its associated mitigation measures. The report highlights where traffic flows are expected to change as a result of the Core Strategy DPD and SADPD proposals. It compares journey times in the base year of 2007 with two scenarios in 2026 as follows:

- 1. **Core Forecast**. This represents the Core Strategy Development Plan Document (DPD) and includes all known developments (committed and proposed), including the proposed SADPD sites in Bracknell. It also incorporates proposed development in Wokingham, including their Strategic Development Location sites.
- 2. **Reference Case.** This includes only committed development and thus removes the following developments from the Core Forecast to form the Reference Case:
- Amen Corner development
- Warfield (northern fringe).
- SADPD sites and infrastructure.

(The growth associated with these sites is still included in the Reference Case model, but only as part of the general growth in background traffic, rather than concentrated in these specific locations.)

Seven different routes are modelled (four of these run past the SPA). The conclusions shows the following overall journey time comparisons:

- AM Peak Final Forecast journey times are 19% lower than in Reference Case
- AM Peak Final Forecast journey times are 9% lower than in Core Forecast
- PM Peak Final Forecast journey times are 14% lower than in Reference Case
- PM Peak Final Forecast journey times are 10% lower than in Core Forecast

It should be noted that adaptive signal control systems such as MOVA and SCOOT are currently delivering proven benefits across many junctions in the UK and can potentially improve the efficiency of junction operation in Bracknell Forest, over and above the modelled results which are based on fixed signal operation. An improvement in delays of around 12% - 27% (over good fixed time plans) could be achieved which would reduce journey times across the Borough further.

To summarise, the analysis of journey times on key routes across Bracknell Forest in 2026 demonstrates an overall improvement in the AM peak and PM peak, with the developments and initial mitigation measures (Final Forecast scenario) compared to the Reference Case. There is an average reduction in journey time, across the fourteen assessed routes, of 19% in the AM peak and 14% in the PM peak.

Furthermore, the modelled scenarios represent a 'worst-case' situation for 2026, as traffic demand levels are generated by the demand model which uses National (NTS) trip rates. The trip rates generated for development sites therefore do not account for any impact from Smarter Choices or Travel Plans, or indeed the improved bus services planned for the north of the Town Centre. Such improvements are likely to reduce the number of car trips generated by the proposed developments, yielding further improvements to journey times and reducing delays

on the highway network. It should be noted that traffic volumes on the highway network across the Borough and beyond are predicted to be substantially higher in 2026 than in 2007, even before any proposed development is incorporated. Journey times will therefore inevitably increase.

Significance Thresholds

Natural England would advise, based on current guidance⁽³⁴⁾that if, additional traffic movements cause the concentration within the emission footprint in any part of the European site(s) to increase by less than 1% of the relevant long-term benchmark (Environmental Assessment Level, Critical Level or Critical Load), the emission is not likely to have a significant effect alone or in combination irrespective of the background levels. Where the predicted contribution from the industrial process is greater than 1% consideration needs also to be given to the predicted environmental contribution (PEC). Where the PEC (background + process contribution) is less than 70% of the critical load/level then a conclusion of no likely significant effect can be reached, even if the process contribution is greater than 1%. However, this guidance on 'likely significant effect' thresholds is currently under review.

Diffuse Air Pollution

In addition to the contribution to local air quality issues, development can also contribute cumulatively to an overall deterioration in background air quality across an entire region. In July 2006, when this issue was raised by Runnymede Borough Council, Natural England advised that their Local Development Framework can only be concerned with locally emitted and short range locally acting pollutants as this is the only scale which falls within a local authority remit.

In the light of this, it is considered reasonable to conclude that diffuse pan-authority air quality impacts are the responsibility of higher tier strategies or national government, both since they relate to the overall quantum of development within a region and since this issue is best addressed at the highest pan-authority level. Diffuse air quality issues will not therefore be considered further within this HRA.

³⁴ Design Manual for Roads and Bridges: Volume 11 Environmental Assessment Section 3 Part 1 - Assessment of Implications (of Highways and/or Roads Projects) on European Sites (Including Appropriate Assessment).

Appendix 4 Provisional Allocation of SANGs to Residential Development Sites

Previously Developed Land in Defined Settlements (SA1)

Table .1 Provisional SANGs Allocation for Residential Development Sites on PreviouslyDeveloped Land in Defined Settlements (SA1)

SHLAA Ref	Site Address	Distance from SPA (km)	Estimated Capacity (net)	Provisional SANG ⁽¹⁾⁽²⁾⁽³⁾	Notes
S H L A A Site 15	Adastron House, Crowthorne Road, Bracknell	2.45	18	Englemere Pond	Englemere Pond has capacity.
S H L A A Site 46	Garth Hill School, Sandy Lane, Bracknell	3.6	100	Englemere Pond	Englemere Pond has capacity.
S H L A A Site 95	Land at Battle Bridge House and Garage, Forest Road, Warfield	5.07	10	N/A	Site is beyond 5km - no mitigation required.
S H L A A Site 113	Land at School Hill	0.42	20	Ambarrow Court/Hill	Ambarrow Court/Hill has capacity.
S H L A A Site 123	Farley Hall, London Road, Binfield	3.8	65	The Cut Countryside Corridor	The Cut Countryside Corridor has capacity.
S H L A A Site 215	The Depot (Commercial Centre), Bracknell Lane West, Bracknell	2.79	115	Longhill Park/ Bill Hill / Popeswood Meadow / Mill Pond East	Bespoke SANG required as site has more than 108 dwellings.
S H L A A Site 228	Albert Road Car Park, Bracknell	3.52	40	Englemere Pond	Englemere Pond has capacity.
S H L A A Site 286	The Iron Duke, Waterloo Place, Old Bakehouse Court, High Street, Crowthorne	0.5	16	Ambarrow Court/Hill	Ambarrow Court/Hill has capacity.

SHLAA Ref	Site Address	Distance from SPA (km)	Estimated Capacity (net)	Provisional SANG ⁽¹⁾⁽²⁾⁽³⁾	Notes
S H L A A Site 308	Land North of Eastern Road Bracknell	2.66	325	Longhill Park/ Bill Hill / Popeswood Meadow / Mill Pond East	Bespoke SANG required as site has more than 108 dwellings.
S H L A A Sites 230 & 317	Land at Old Bracknell Lane West, Bracknell	2.75	203	Longhill Park/ Bill Hill / Popeswood Meadow / Mill Pond East	Bespoke SANG required as site has more than 108 dwellings.
S H L A A Site 318	Chiltern House and the Redwood Building, Broad Lane, Bracknell	2.45	71	Englemere Pond	Englemere Pond has capacity.

Emerging guidance shows that the Council has sufficient SANGs capacity. See Thames Basin Heaths SPA Avoidance and Mitigation Supplementary Planning Document Consultation Draft September 2011 1.

2. The Council propose to use residual SANGs capacity at Long Hill Park for large developments close to the town centre. 3. See Appendix 5.

Other Land within Defined Settlements (SA2)

Table .2 Provisional SANGs Allocation for Residential Development Sites on Other Land within Defined Settlements (SA2)

SHLAA Ref	Site Address	Distance from SPA (km)	Estimated Capacity (net)	Provisional SANG ⁽¹⁾	Notes
S H L A A Site 19	The Football G r o u n d , Larges Lane, Bracknell	2.64	102	Englemere Pond	Englemere Pond has capacity.
SHLAA Site 76	Land at Cricket Field Grove	0.41	145	Assessed under the bespoke solution for Land at Broadmoor urban extension (SA4). If this site comes forward separately a bespoke solution is still required which will be on-site as in	Bespoke SANG required as site has more than 108 dwellings.

SHLAA Ref	Site Address	Distance from SPA (km)	Estimated Capacity (net)	Provisional SANG ⁽¹⁾	Notes
				Policy SA4 but consideration may be commensurate with reduced housing numbers.	
S H L A A Site 107	Popeswood G a r a g e , Hillcrest and S u n d i a l C o t t a g e , London Road, Bracknell	3.79	14	The Cut Countryside Corridor	The Cut Countryside Corridor has capacity.
S H L A A Site 194	Land North of Cain Road, Binfield	3.28	75	Englemere Pond	Englemere Pond has capacity.
S H L A A Site 284	152 New Road Ascot (Winkfield Parish)	5.11	12	N/A	Site is beyond 5km - no mitigation required.
S H L A A Site 316	Land north of Peacock Lane, Bracknell (Binfield Parish)	2.79	147	Jennet's Park Country Park	Bespoke SANG required as site has more than 108 dwellings.

1. Emerging guidance shows that the Council has sufficient SANGs capacity. See Thames Basin Heaths SPA Avoidance and Mitigation Supplementary Planning Document Consultation Draft September 2011

Edge of Settlements Sites (SA3)

Table .3 Provisional SANGs Allocation for Edge of Settlement Locations (SA3)

SHLAA Ref	Site Address	Distance from SPA (km)		Provisional SANG ⁽¹⁾	Notes
SHLAA site 34	White Cairn, Dukes Ride, Crowthorne	1.36	16	Ambarrow Court/Hill	Ambarrow Court/Hill has capacity.

SHLAA Ref	Site Address	Distance from SPA (km)	Estimated Capacity (net)	Provisional SANG ⁽¹⁾	Notes
SHLAA site 24	Land East of Murrell Hill Lane, South of Foxley Lane and North of September Cottage, Binfield	4.54	67	The Cut Countryside Corridor	The Cut Countryside Corridor has capacity.
SHLAA site 93	Land at junction of Forest Road and Foxley Lane, Binfield	5.05	26	N/A	Site is beyond 5km - no mitigation required
S H L A A sites 122 & 300 & 137	Road and Dolyhir,	2.71	49	Englemere Pond	Englemere Pond has capacity.
S H L A A site 204	Land at Bog Lane, Bracknell (Winkfield Parish)	2.01	40	Englemere Pond	Englemere Pond has capacity.

1. Emerging guidance shows that the Council has sufficient SANGs capacity. See Thames Basin Heaths SPA Avoidance and Mitigation Supplementary Planning Document Consultation Draft September 2011

Appendix 5 New Bespoke SANGs Provisionally Agreed with Natural England

The development set out in policies SA1 and SA2 which consists of more than 108 dwellings has provisionally been allocated bespoke SANGs in Appendix 4 in order to demonstrate that the Council has identified sufficient SANGs. The Council recently investigated new bespoke SANGs with Natural England to ensure that sufficient SANGs capacity is available for the developments in the SADPD.

Popeswood Meadow, Bill Hill and Mill Pond have been visited with Natural England and are considered to be the sites with the greatest potential to provide SANG solutions for these developments. The Council is constantly reviewing SANGs in the borough. Therefore, should more appropriate SANG solutions be identified and agreed with Natural England, these will be put forward as alternative open space for these developments.

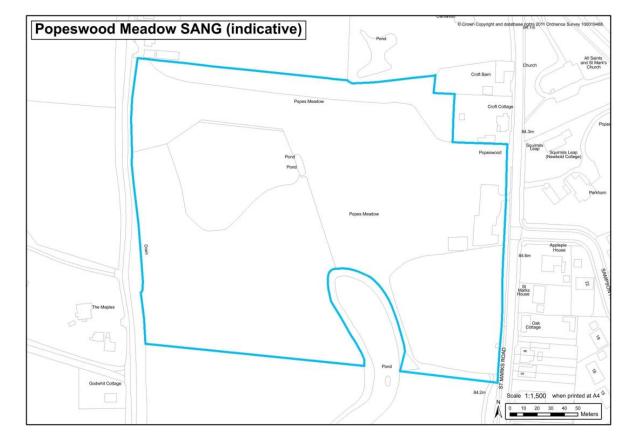


Figure 2 Popeswood Meadow Provisional SANG (approx. 5.2ha)

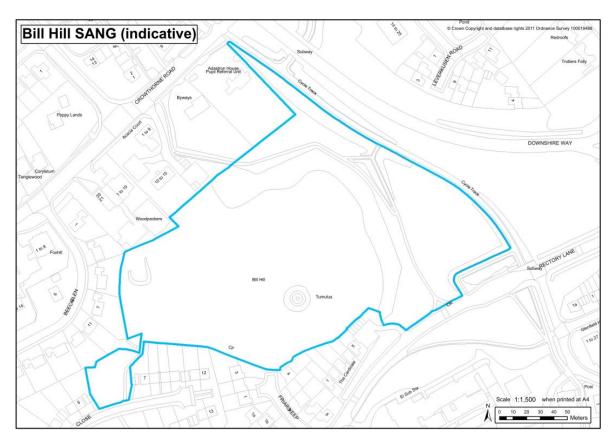


Figure 3 Bill Hill Provisional SANG (approx. 3.5ha)

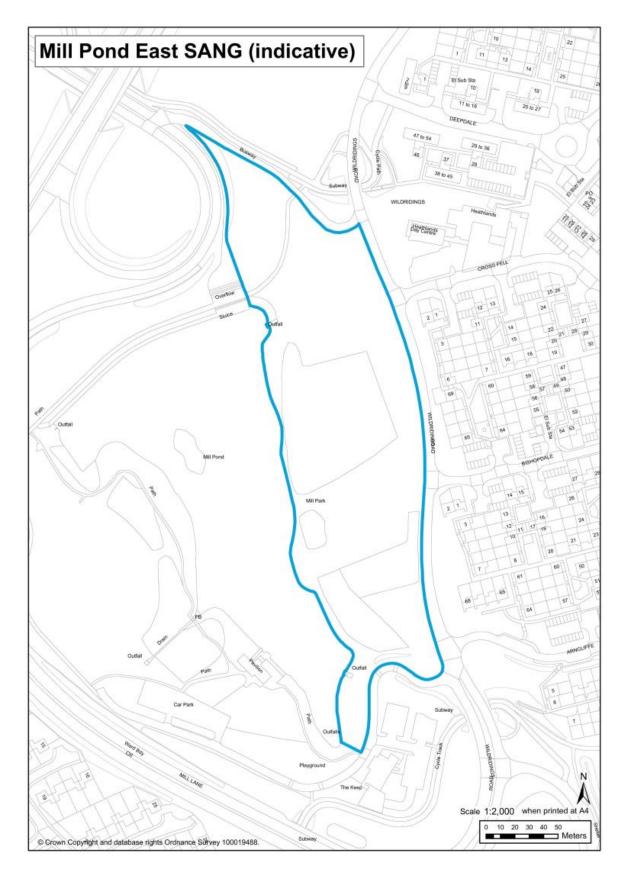


Figure 4 Mill Pond East Provisional SANG (approx. 3.1ha)

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Nepali

यस प्रचारको सक्षेपं वा सार निचोड चाहिं दिइने छ ठूलो अक्क्षरमा, ब्रेल वा क्यासेट सून्नको लागी । अरु भाषाको नक्कल पनि हासिल गर्न सकिने छ । कृपया सम्पर्क गनुहोला ०१३४४ ३४२००० ।

Tagalog

Mga buod/ mga hango ng dokumentong ito ay makukuha sa malaking letra, limbag ng mga bulag o audio kasette. Mga kopya sa ibat-ibang wika ay inyo ring makakamtan. Makipag-alam sa 01344 352000

Urdu

اس دستاویز کے خلاصے یا مختصر متن جلی حروف ، بریل لکھائی یا پھر آڈیو کیسٹ پر ریکارڈ شدہ صورت میں فراہم کئے جا سکتے ہیں۔ دیگر زبانوں میں اس کی کاپی بھی حاصل کی جا سکتی ہے۔ اس کے لیے براہِ مہربانی ٹیلیفون نمبر 352000 ہا 01344 پر رابطہ کریں۔

Polish

Streszczenia lub fragmenty tego dokumentu mogą być dostępne w wersji napisanej dużym drukiem, pismem Brajla lub na kasecie audio. Można również otrzymać kopie w innych językach. Proszę skontaktować się z numerem 01344 352000.

Portuguese

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Development Plan Team Planning and Transport Policy Environment, Culture and Communities Bracknell Forest Council Time Square Market Street Bracknell RG12 1JD

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