Appropriate Assessment Report Pursuant to the Conservation of Habitats and Species Regulations 2017 on the Likely Significant Effects and Adverse Effects on Integrity of Runnymede Borough Council's Local Plan

April 2018

HRA Screening and Appropriate Assessment Report

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Abbreviations

AAP	Area Action Plan
AMR	Annual Monitoring Report
BAP	Biodiversity Action Plan
BREEAM	Building Research Establishment Environmental Assessment Method
CA	Competent Authority
CEH	Centre for Ecology and Hydrology
CIL	Community Infrastructure Levy
CPRE	Council for the Protection of Rural England
CS	Core Strategy
CSH	Code for Sustainable Homes
DCLG	Department of Communities and Local Government
DEFRA	Department for Environment, Food and Rural Affairs
DERA	Defence Evaluation research Agency
DfT	Department for Transport DPD- Development Plan Document
DPD	Development Plan Document
DPH	Dwellings per Hectare
EA	Environment Agency
EH	English Heritage
ELR	Employment Land Review
ER	Environmental Report
ES	Environmental Statement
GI	Green Infrastructure
GOSE	Government Office for the South East
GTAA	Gypsy Traveller Accommodation Assessment
HA	Highways Agency
HRA	Habitats Regulations Assessment
IP	Impact Pathway
IRF	Integrated Regional Framework
LDD	Local Development Document
LDF	Local Development Framework
LDS	Local Development Scheme
LF	London Fringe
LNR	Local Nature Reserve
LP	Local Plan
LPA	Local Planning Authority
Local Plan	Runnymede Borough Council's Local Plan 2030
LSP	Local Strategic Partnership
LTP	Local Transport Plan
MDS	Major developed Site
MGB	Metropolitan Green Belt
MoD	Ministry of Defence
NE	Natural England
NERC	Natural Environment Research Council
NPPF	National Planning Policy Framework
ODPM	Office of the Deputy Prime Minister
PDL	Previously developed Land
PINS	Planning Inspectorate
PPG	Planning Policy Guidance
PPP	Plans, Policies and Programmes
PPS	Planning Policy Statements
PSA	Public Service Agreement
RBC	Runnymede Borough Council
RE	Regional Economy
RSF	Regional Sustainability Framework
SA	Sustainability Appraisal
SAC	Special Area of Conservation
SANG	Suitable Alternative Natural Green Space
SAP	Standard Assessment Procedure
SCC	Surrey County Council
SCI	Statement of Community Involvement
SEA	Strategic Environmental Assessment
SFRA/FRA	Strategic Flood Risk Assessment
SLAA site	Strategic Land Availability Assessment
SHMA	Strategic Housing Market Assessment
SNCI	Site of Nature Conservation Importance
SPA	Special Protection Area
SPD	Supplementary Planning Document
SRN	Strategic Road Network
SSSI	Site of Special Scientific Interest
SuDS	Sustainable (urban) Drainage System
SWLW SPA	South West London Waterbodies SPA and Ramsar Site
TAP&C SAC	Thursley, Ash, Pirbright and Chobham SAC
TBH SPA	Thames Basin Heath SPA
TC	Town Centre
WF&GP	Windsor Forest and Great Park SAC

Glossary of terms

TERM	DESCRIPTION
Baseline Data	The data is used as a reference with which to compare future observations or results
Biodiversity	The richness and variety of living things (i.e. plants and animals), which exist in a given area, and the habitats that support them
DCLG	Department of Communities and Local Government
Development Plan	Consists of the Regional Spatial Strategy and Development Plan Documents contained within the Council's Local Development Framework. Until the LDF is fully in place it will also include 'saved' policies from the Council's Local Plan
Development Plan Document (DPD)	A spatial planning document within the Council's Local Development Framework which set out policies for development and the use of land. Together with the Regional Spatial Strategy they form the development plan for an area. They are subject to independent examination
Habitats Directive	Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora
Habitats Regulations	The Conservation of Habitats and Species Regulations 2010
Habitats Directive Assessment (Appropriate Assessment)	An assessment made of the implication of plan, programme or strategy will have on a Natura 2000 site
Habitats Regulations Assessment (HRA) (Appropriate Assessment)	An assessment made of the implication of plan, programme or strategy will have on a European site / Natura 2000 site pursuant to Regulation 102 and 103 of the Habitats Regulations
Indicator	Measure of variables over time, often used to measure achievement of objectives
Local Development Framework	Consists of a number of documents which together form the spatial strategy for development and the use of land
Local Plan	A borough-wide planning document setting out policies for development and the use of land. It will be replaced by the local development framework
Local Planning Authority (LPA)	Local Authorities that have planning functions
National Planning Policy Framework (NPPF)	The National Planning Policy Framework was published on 27 March 2012. This is a key part of the Governments reforms designed to make the planning system less complex and more accessible, to protect the environment and to promote sustainable growth. It largely replaces all PPGs and PPSs
Natural England	From October 2006 English Nature, the environment activities of the Rural Development Service and the Countryside Agency's Landscape, Access and Recreation division were united in a single body called Natural England
Objective	A statement of what is intended, specifying the desired direction of change in trends
Planning Policy Guidance Note (PPG)	A series of planning notes issued by the Government, setting out policy guidance on different aspects of planning (largely superseded by the NPPF)
Planning Policy Statement (PPS)	A series of notes issued by the Government, setting out policy guidance on different aspects of planning. They will replace Planning Policy Guidance Notes (largely superseded by the NPPF)
PPPs	Plans, Policies and Programmes
Regional Planning Guidance (RPG)	Planning Guidance produced at a regional level to tackle issues of strategic importance that can be best dealt with over a larger area (largely superseded by the NPPF)

TERM	DESCRIPTION
Scoping	The process of deciding the scope and level of detail of a SA, including sustainability effects and alternatives which need to be considered, the assessment methods to be used, and the structure and contents of the SA report
SEA Directive	European Directive 2001/42/EC 'On the assessment of the effects of certain plans and programmes on the environment'
SEA Regulations	The Environmental Assessment of Plans and Programmes Regulations 2004
Strategic Environmental Assessment	A tool for integrating environmental considerations into decision making by ensuring that significant environmental effects of the decision are taken into account
Sustainability Appraisal	Appraisal of plans, strategies, and proposals to test them against broad sustainability objectives
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland 1987)
Target	The overall aim of the objective
Trajectory	The process of charting the objective over time in relation to the target
Trend	Provides a guide to the speed and direction in which indicators should move to achieve objectives

1. Introduction

1.1 AECOM was appointed by Runnymede Borough Council ("the Council" or the "Borough Council") to assist in undertaking a Habitats Regulations Assessment (HRA) of the potential effects of Runnymede Borough Council's Local Plan 2030 Issues, Options and Preferred Approaches Document (Jun 2016) ("Local Plan") on the Natura 2000 network and Ramsar sites. The HRA report presented here makes key updates to the HRA of the Runnymede Borough Council Local Plan 2035 Issues, Options and Preferred Approaches Document (May 2016) ("Local Plan").

1.2 The 2016 HRA was consulted upon and several comments received, including from Natural England. In Spring 2017 additional sites were identified for allocation (residential sites 156, 231 and employment site 51), three residential sites were expanded (site 60) or amended (sites 254 and 263) and several town centre sites or Opportunity Areas were identified for inclusion in the Local Plan (Addlestone Two, Addlestone Three, Chertsey Opportunity Area, Egham Gateway One, Egham Gateway Two, Egham Library & Car Park, Egham High Street North Opportunity Area and Strodes College Lane Opportunity Area). The HRA was updated to include those sites and was also subject to consultation and a further Natural England response.

1.3 The late 2017 (Regulation 19) version of the Local Plan did not make substantive changes to site allocations when compared to the Spring 2017 version, although some details such as site boundaries changed. The main difference from an HRA point of view was that the Local Plan period is being reduced from 2015 to 2035 (20 years) to 2015 to 2030 (15 years) and includes changes to the wording of the policies assessed in the 2016 HRA. However the overall quantum of growth remains unchanged from that assessed in Spring 2017. Consequently the HRA undertaken in Spring 2017 was therefore been updated to take account of these changes. Transport and air quality assessment has also been undertaken and is reported in this HRA. Following some amendments to the Local Plan in early 2018 (mainly changes to some development site quanta) and consultee responses on the Local Plan and HRA, the HRA report has been updated once more.

1.4 The HRA is required to evaluate the Likely Significant Effects (LSE) of the Local Plan on internationally important wildlife sites within the zone of influence, and determine if there is a relevant connecting pathway.

1.5 The objective of this assessment is to:

- Identify any aspects of the Local Plan that would cause likely significant effects on Natura 2000 sites, otherwise known as European sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and, as a matter of Government policy, Ramsar sites), either in isolation or in-combination with other plans and projects; and,
- To advise on appropriate policy mechanisms for delivering mitigation where such effects are identified.
- If any of the Local Plan allocations or policies cannot be screened out as being unlikely to lead to significant effects, then an Appropriate Assessment (AA) is required in order to devise measures that can be incorporated into the Local Plan Preferred approaches and Issues Document which will enable the Council in their role as 'competent authority' to conclude that no adverse effect on the integrity of internationally important wildlife sites will result.

Legal Basis for Habitats Regulations Assessment

1.6 The Conservation of Habitats and Species Regulations 2017 are commonly referred to as the "Habitats Regulations". The Habitats Regulations define "European sites" as candidate Special Areas of Conservation (cSACs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs), and Sites of Community Importance (SCIs)

1.7 The Habitats Regulations do not provide statutory protection for potential Special Protection Areas (pSPA), possible/proposed Special Areas of Conservation (pSACs) or listed or proposed Ramsar sites (Ramsar sites are an international designation under the Ramsar Convention on Wetlands of International Importance 1971). For the purposes of considering development

proposals and their likely impacts on such sites, government policy in England is that the aforementioned sites 'should be given the same protection' as statutory European sites.

Requirements of the Conservation of Habitats and Species Regulations

1.8 The Regulations state that '*A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which—*

(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 that site and must make an appropriate assessment of the implications for that site in view of that site's conservation objectives'

1.9 They further state that '*In the light of the conclusions of the assessment, and subject to considerations of overriding public interest, the competent authority may agree to the plan or project 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)'.*

1.10 The application of the Habitats Regulations involves the precautionary principle; that is that plans and projects can only be permitted having ascertained no adverse effect on the integrity of the site. Plans and projects may still, however, be permitted if there are no alternatives, and there are imperative reasons of overriding public interest as to why they should go ahead. In such cases compensatory measures will be necessary to ensure the overall integrity of network of sites.

2. Identification of European Sites

2.1 As part of the process, the HRA identifies the European sites that should be considered in the assessment. The European sites under consideration are all located immediately adjacent to or within Runnymede.

2.2 The potential for impact pathways to exist between the Runnymede Borough Council's Local Plan and designated sites at greater distance was also considered. However, the next nearest European sites are 12km from the borough boundary and do not lie on any routes that are likely to constitute significant journey to work routes for residents of the borough.

2.3 The four European sites included in the assessment are listed below:

- Thames Basin Heaths SPA – adjacent to the south-west boundary of Runnymede;
- Thursley, Ash, Pirbright and Chobham SAC adjacent to the south-west boundary of Runnymede;
- Windsor Forest and Great Park SAC- adjacent to the north-west boundary of Runnymede;
- South West London Waterbodies SPA- one unit (Thorpe Park Gravel Pit No. 1) is located within Runnymede; and
- South West London Waterbodies Ramsar- one unit (Thorpe Park Gravel Pit No. 1) is located within Runnymede.

2.4 In addition to the designated components of the South West London Waterbodies there are also a number of non-designated waterbodies that have nonetheless been considered to be supporting habitat for that SPA and Ramsar site and are located in Runnymede Borough (A320 Gravel Pit/Manor Lake, Cemex HQ and Longside Lake). These have also been considered within this HRA.

2.5 In order to inform the assessment, details of the European sites are required for each stage of the Habitats Regulations Assessment. Table 1 below lists the qualifying features, conservation objectives, threats and vulnerabilities for each European site.

Table 1 Details of European Sites

Site Name	Designation	Qualifying Features	Favourable Conservation Status (common monitoring standards)	Condition of Features (local level)	Threats to Site Integrity
Thames Basin Heaths	SPA	The site qualifies under article 4.1 of the Directive (79/409/EEC) as it is used regularly by 1% or more of the Great Britain populations of the following species listed in Annex I in any season: ▪ Caprimulgus europaeus; European nightjar (Breeding) ▪ Lullula arborea; Woodlark (Breeding) ▪ Sylvia undata; Dartford warbler (Breeding)	76% of SPA breeding birds reported are in favourable condition	**Chobham Common SSSI** There are 26 units within this SSSI. 70.27% are classed as unfavourable-recovering whilst the reaming 29.73% are classed as favourable. Habitats within the SSSI comprise mainly dwarf heath, fen, marsh and swamp, with some broadleaved woodland with yew wooland, and neutral grassland.	Lack of grazing or other management allowing the encroachment of scrub. Formal and informal recreation activities that are a potential threat to the breeding success of the Annex 1 birds Uncontrolled fires. Predation of Annex 1 birds by household pets. Light and noise pollution through new housing developments adjacent to this ES. Provision of new roads as part of housing developments leading to potential light impacts from car headlights. Increased disturbance by use by MoD.
Thursley, Ash, Pirbright and Chobham	SAC	**Annex I habitats that are a primary reason for selection of this site** ▪ Northern Atlantic wet heaths with *Erica tetralix* This site represents lowland northern Atlantic wet heaths in south-east England. The wet heath at Thursley is NVC type M16 *Erica tetralix – Sphagnum compactum* and contains several rare plants, including great sundew *Drosera anglica*, bog hair-grass *Deschampsia setacea*, bog	Only a fifth (21%) of lowland raised bogs reported are in favourable condition. Overall, 18% of lowland heathland features reported are in	**Chobham Common SSSI** There are 26 units within this SSSI. 70.27% are classed as unfavourable-recovering whilst the reaming 29.73% are classed as favourable. Habitats within the SSSI comprise mainly dwarf heath, fen, marsh and swamp, with some	Insufficient grazing or other traditional practices, including bracken control and scrub clearance. Therefore a serious potential threat lowering of water table which could cause loss or damage to wet heath and mire communities. Air quality issues that can lead to (NOx) directly toxic effects upon vegetation found in heathland habitats and through nitrogen deposition to soils leading to an increase in soil fertility and therefore changing the quality of the habitats, The indirect effects of neighbouring housing developments pose a potential long-term problem, but can probably be addressed through the planning system. Recreational pressures, including disturbance to wildlife, damage or loss of

Site Name	Designation	Qualifying Features	Favourable Conservation Status (common monitoring standards)	Condition of Features (local level)	Threats to Site Integrity
		orchid *Hammarbya paludosa* and brown beak-sedge *Rhynchospora fusca*. There are transitions to valley bog and dry heath. Thursley Common is an important site for invertebrates, including the nationally rare white-faced darter *Leuccorhinia dubia*. ▪ European dry heaths This south-east England site contains a series of large fragments of once-continuous heathland. It is selected as a key representative of NVC type H2 *Calluna vulgaris – Ulex minor* dry heathland. This heath type has a marked south-eastern and southern distribution. There are transitions to wet heath and valley mire, scrub, woodland and acid grassland, including types rich in annual plants. The European dry heaths support an important assemblage of animal species, including numerous rare and local invertebrate species, European nightjar *Caprimulgus europaeus*, Dartford warbler *Sylvia undata*, sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca*. ▪ Depressions on peat substrates of the *Rhynchosporion*	favourable condition	broadleaved woodland with yew woodland, and neutral grassland.	habitats, and fires resulting from arson, which may pose a serious risk to Annexe 1 habitats and some species.

Site Name	Designation	Qualifying Features	Favourable Conservation Status (common monitoring standards)	Condition of Features (local level)	Threats to Site Integrity
		This site contains examples of Depressions on peat substrates of the *Rhynchosporion* in south-east England, where it occurs as part of a mosaic associated with valley bog and wet heath. The vegetation is found in natural bog pools of patterned valley mire and in disturbed peat of trackways and former peat-cuttings.			
Windsor Forest and Great Park	SAC	**Annex I habitats that are a primary reason for selection of this site** ▪ Atlantic *acidophilous* beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion). (Beech forests on acid soils) ▪ Old acidophilous oak woods with *Quercus robur* on sandy plains. (Dry oak-dominated woodland) **Qualifying species:** The site is designated under **article 4(4)** of the Directive (92/43/EEC) as it hosts the following species listed in Annex II: ▪ Violet click beetle *Limoniscus violaceus* ▪ *Stag beetle Lucanas cervus*	43% of broadleaved woodland features reported are in favourable condition. 12% of other invertebrates are in a favourable condition	Windsor Forest and Great Park SSSI There are 22 units including Broadleaved mixed and yew woodland (which ranges from favourable to unfavourable- recovering), one unit of coniferous woodland(unfavourable – recovering), one unit of standing open water and canal (favourable), and one unit of acid grassland (favourable condition).	Lack of management leading to loss of trees. Loss of trees through forestry management, game management, recreational disturbance leading to damage, burning (through arson), natural events and air pollution/quality
South West	SPA	The site qualifies under article 4.2 of the Directive (79/409/EEC) as it is	84% of assemblages of	Thorpe Park Gravel Pitts1	Unmanaged recreational activities including use of motor boats and fishing

Site Name	Designation	Qualifying Features	Favourable Conservation Status (common monitoring standards)	Condition of Features (local level)	Threats to Site Integrity
London Waters (one unit Thorpe Park Gravel Pit No. 1)		used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed on Annex 1), in any season: Gadwall *Anas strepera* 2.4 % NW Europe Shoveler *Anas clypeata* 2.1 % NW/Central Europe	non breeding birds within SPA are in favorable condition	SSSI. Standing open water and canals- favorable condition.	causing disturbance to Annex 1 birds. Water pollution (run off), algal blooms, water abstraction
South West London Waters (one unit Thorpe Park Gravel Pit No. 1)	Ramsar	This site is designated under Ramsar Criterion 6. Species with peak counts in autumn Northern shoveler , *Anas clypeata*, NW & C Europe 397 individuals, representing an average of 2.6%of the GB population (5 year peak mean 1998/9-2002/3) **Species with peak counts in winter:** Gadwall , *Anas strepera strepera*, NW Europe 487 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9- 2002/3)	88% of assemblages of non breeding birds within SPA are in favorable condition	Thorpe Park Gravel Pit 1 SSSI. Standing open water and canals- favorable condition	Unmanaged recreational activities including use of motor boats and fishing leading to the potential disturbance of bird species for which this site is designated. Water pollution (run off), algal blooms, water abstraction.

Conservation Objectives

2.6 The Habitats Directive requires that Member States maintain or where appropriate restore habitats and species populations of European importance to favourable conservation status. The conservation objectives for the SPA and SAC sites form the basis against which to assess the likely impacts of the proposed scheme alone and in-combination.

2.7 Conservation objectives are closely linked to the qualifying features for which each of the European sites was given its designation. The overarching conservation objectives defined by Natural England for SPA, Ramsar and SAC are as follows: With regard to the natural habitats and/or species for which each of the SPAs/SACs has been designated (i.e. the Qualifying Features) the broad conservation objectives as defined by Natural England (2012a) are to:

"Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features." Subject to natural change, to maintain or restore:

a. The extent and distribution of qualifying natural habitats and habitats of qualifying species;

b. The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species;

c. The supporting processes on which qualifying natural habitats and habitats of qualifying species rely;

d. The populations of qualifying species;

e. The distribution of qualifying species within the site.''

2.8 For the SPA species (i.e. populations of birds) favourable condition status can be defined by reference to Article 1(i), and for the habitats within the SACs by reference to Article 1(e).

2.9 The qualifying features information has been obtained from JNCC, the conservation objectives have been obtained from Natural England, the favourable conservation status has been obtained from the Common Standards Monitoring for Designated Sites First Six Years Report, and the conditions of features information has been obtained through review of the condition of the Sites of Special Scientific Interest (SSSIs) which are generally spatially coincident with the European sites. The condition of the relevant parts of the following SSSIs are described;

- Chobham Common SSSI
- Windsor Forest and Great Park SSSI
- Thorpe Park Gravel Pits SSSI

2.10 Each of the SSSI units has been assessed within the last three years or less and the assessment of their condition is considered to be relevant to the present assessment.

2.11 European sites located in the vicinity of Runnymede District are shown in Figure 1. Citations for the European sites can be found in Annex 1.

3. Methodology

3.1 The Habitats Regulations describe a procedure that provides for a systematic set of stages for the transparent consideration of the likely effects a plan or project could have on a European site.

3.2 Guidance states that there are four tasks in producing an assessment of a plan:

- Stage One: Screening - the process which identifies whether the plan is required for the management of European site(s) and if not whether there are likely to be any effects upon a European site as a result of the plan, either alone or in combination with other projects or plans, and considers whether these effects are likely to be significant;
- Stage Two: Appropriate Assessment - the consideration of the impact on the integrity of the European site of the plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where adverse effects on site integrity exist, an assessment of the effectiveness of potential mitigation of those impacts will be made;
- Stage Three: Assessment of alternative solutions - the process which examines alternative ways of achieving the objectives of the plan that avoid significant effects on the integrity of the European site identified at Stage Two;
- Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain — an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the plan should proceed.

3.3 Each stage determines whether a further stage in the process is required. If, for example, the conclusions at the end of Stage One are that there are no likely significant effects on the European sites, there is no requirement to proceed further.

Detailed Methodology

Stage One- Screening

3.4 The screening methodology uses sources, pathways and receptors. Each of these elements is considered, and used to screen out/in sources/pathways and receptors.

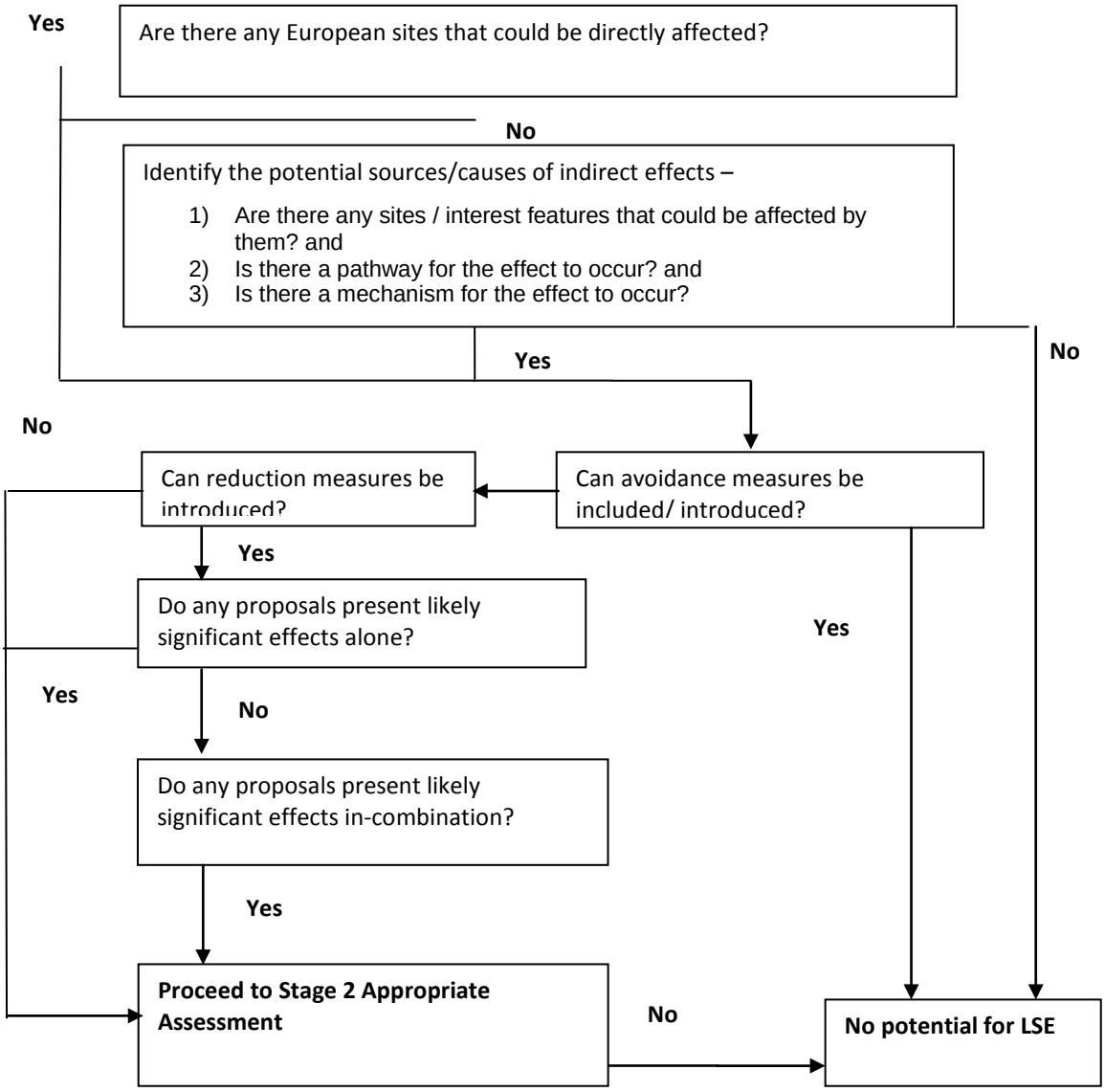
3.5 When screening in / out sites and qualifying features of those sites (i.e. their reasons for European importance) it needs to be established whether there is a potential pathway between possible causes of effects and the features of the European site. Where there are no sources or pathways to affect a European site this site / interest feature is considered no further.

3.6 Whilst screening constitutes stage 1 of the overall HRA, screening has been broken down, as illustrated in Flowchart 1 into a series of sub stages to clearly demonstrate how conclusions have been reached.

3.7 There has been a very recent decision by the European Court of Justice[1], which appears to conclude that measures intended to avoid or reduce the harmful effects of a proposed project on a European site, but which are not an integral part of the project or plan, may no longer be taken into account by competent authorities at the Likely Significant Effects or 'screening' stage of HRA. This contradicts many years of UK court rulings that concluded mitigation *could* be taken into account at 'screening'. The implications of the ECJ ruling are structural and semantic rather than substantive, essentially meaning that the role of avoidance and measures should be discussed in the subsequent 'appropriate assessment' stage instead. In any event, this HRA includes an appropriate assessment and it is there that mitigation measures are taken into consideration. Therefore, the ruling does not affect the presentation or structure of this HRA.

[1] People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

Flowchart 1 Screening Methodology



Stage 2 Appropriate Assessment Methodology

3.8 Policies or allocations which have been identified as having the potential to result in LSE proceed to the Appropriate Assessment (AA) which will consider the effects of the proposals on European sites in relation to their conservation objectives and whether they have the potential to have adverse effects on site integrity (AEOSI) as a whole.

3.9 The AA should consider the favourable conservation status (FCS) of the qualifying features in the site and current site conditions. Should the citations of the European sites include any threats or vulnerabilities these will be considered in the assessment.

3.10 The AA will utilise information that is freely available in the public domain and in light of best scientific knowledge in the field.

Consultation with Statutory Bodies

3.11 Natural England was consulted on a number of occasions in relation to HRA on the previous (now withdrawn) version of the Runnymede Local Plan and was able to confirm that they agreed with the HRA as it related to that version of the Local Plan (email from Julia Coneybeer, Natural England, dated 7th March 2014).

3.12 Feedback from previous consultation with Natural England has been taken into account in this HRA where appropriate. Natural England was consulted upon the 2016 version of this HRA, on the Spring 2017 and on the December 2017 iteration. Their comments have been taken into account in this updated report.

3.13 Statutory consultation is required in respect of the appropriate assessment by virtue of the Habitats Regulations which state:

> ***"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 may specify."***

4. Impact Pathways (IP)/Mechanisms for Effect (MfE)

Introduction

4.1 It is considered that there are five potential IPs/MfEs: Land take; Air Quality (that includes atmospheric pollution; nutrient enrichment); Water Quality; Species Disturbance; and, Water Quantity, in the context of the European sites. This is identical to the pathways identified in the 2013/2014 and 2016 HRA process.

Land Take

4.2 European sites are particularly vulnerable to land take. The land on which European sites depend is a finite resource. Loss is often permanent and often irreversible (Commission & others 1992). Therefore, any reduction in the physical quantity or fragmentation of a European site as a consequence of land take and would be considered to result in a likely significant effect (LSE). The scale and extent of any adverse effects would depend on the location, maintenance, and use of the new development and the nature conservation characteristics and value of the area affected.

Air Quality

4.3 The continued use and development of the transport network and reliance on carbon based energy provision inevitably gives rise to atmospheric emissions. These emissions contribute to air pollution at the local and regional scales leading to continued deterioration in air quality.

4.4 The main pollutants of concern for European sites are outlined in Table 2 below. Of particular concern are oxides of nitrogen (NOx), ammonia (NH_3) and sulphur dioxide (SO_2). NOx can have a directly toxic effect upon vegetation found on heathland at extreme concentrations, but its most significant role is through its contribution to nitrogen deposition to soils leading to an increase in soil fertility, which can have a serious effect on the quality of semi-natural, nitrogen-limited habitats.

Table 2 - Main Atmospheric Pollutants of Concern

Pollutants [critical levels][2]	Source	Exceedance effects on ecosystems[3]
Nitrogen (N) deposition	The pollutants that contribute to nitrogen deposition derive mainly from NO_X and NH_3 emissions.	**Terrestrial Impacts** • Changes in species composition especially in nutrient poor ecosystems with a shift towards species associated with higher nitrogen availability (e.g. dominance of tall grasses) • Reduction in species richness • Increases in plant production • Decrease or loss of sensitive lichens and bryophytes. • Increases in nitrate leaching **Freshwater Impacts** • There is a potential in N-limited systems for N deposition to change algal productivity and nutrient regimes in upland lakes. • Increase rate of succession.
Acid deposition	SO_2, NO_x and ammonia all contribute to acid deposition. Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, it is likely that increased N emissions may cancel out any gains produced by reduced S levels.	**Terrestrial Impacts** • Leaching will cause a decrease in soil base saturation, increasing the availability of Al^{3+} ions, mobilisation of Al^{3+} may cause toxicity to plants and mycorrhiza, and have a direct effect on lower plants (bryophytes and lichens). **Freshwater Impacts** • Increase Al^{3+} concentration associated with freshwater acidification, impact on invertebrate populations, toxicity to fish.

2 Levels are taken from the EU ambient air quality directive (2008/50/EC) obligations that have been translated into UK law by the Air Quality Standard Regulations 2010 http://www.legislation.gov.uk/uksi/2010/1001/schedule/3/made

3 Source: http://www.apis.ac.uk/overview/issues/overview_Cloadslevels.htm#_Toc279788050

Pollutants [critical levels][2]	Source	Exceedance effects on ecosystems[3]
Ammonia (NH_3)	Ammonia is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but levels have increased considerably with expansion in numbers of agricultural livestock. Ammonia reacts with acid pollutants such as the products of SO_2 and NO_X emissions to produce fine ammonium (NH_4^+) containing aerosol, which may be transferred much longer distances.	• Direct damage to sensitive species, for example, leaf discoloration, bleaching, observed in Sphagnum species at high concentrations. • Increase in algal growth over Sphagnum. • Suppression of root uptake of cations such as Ca, Mg and K leading to nutrient imbalances. • Changes in species composition of groundflora, bryophyte, and lichen communities.
Sulphur Dioxide (SO_2)	Main sources of SO_2 emissions are electricity generation, industry, and domestic fuel combustion. May also arise from shipping and increased atmospheric concentrations in busy ports. Total SO_2 emissions in the UK have decreased substantially since the 1980s.	• Visible symptoms, for example, leaf discoloration. • Stimulated growth at low concentrations of S potentially changing community composition. • The vulnerability to direct damage of mosses, liverworts and lichens which are often sensitive to lower concentrations than those causing injury to higher plants.
Nitrogen oxides (NO_x)	Nitrogen oxides are mostly produced in combustion processes. About one quarter of the UK's emissions are from power stations, one-half from motor vehicles, and the rest from other industrial and domestic combustion processes.	• Visible symptoms for example, leaf discoloration. • The vulnerability to direct damage of mosses, liverworts and lichens which receive their nutrients largely from the atmosphere. • Changes in species composition

4.5 Currently, more than half of all NO_x emissions derive from vehicle use. Therefore it is reasonable to expect an increase in NO_x emissions to accompany greater vehicle use as an indirect effect of the Council's Local Plan policies that promote increased housing and commercial developments.

4.6 Ammonia (NH_3) emissions tend to be dominated by agriculture. As Runnymede is not a major agriculture location (none of the Local Plan policies are proposing to promote a strategy which seeks to increase the amount of agricultural land in the Borough or intensify the use of existing agricultural land), it is unlikely that it will result in a material increase in either SO_2 or NH_3 emissions.

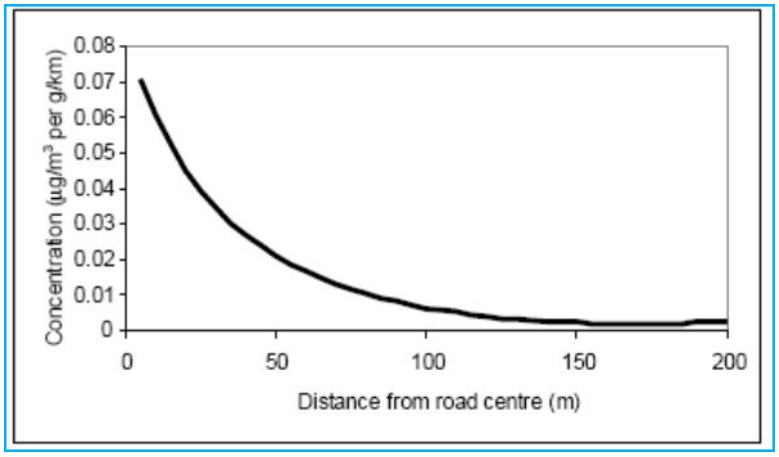
4.7 SO_2 emissions primarily originate from power stations and industrial processes that require the combustion of coal and oil. In addition, SO_2 levels can be influenced locally by shipping. The National Expert Group on Transboundary Air Pollution (Fowler et al. 2001) concluded that reductions in SO_2 concentrations virtually eliminated its direct impacts on vegetation.

4.8 The same group (ibid) concluded that the then current ozone concentrations threaten crops and forest production nationally and suggesting that the effects of ozone deposition are likely to remain significant beyond 2010. As this secondary pollutant is generated by photochemical reactions from NO_x and VOCs it is possible that the Local Plan could contribute to increased emissions of both NO_x and VOCs as a result of greater vehicle use as an indirect effect of its policies that promote increased housing and commercial developments.

4.9 Traffic modelling and air quality impact assessment was undertaken in line with the standard Design Manual for Roads and Bridges (DMRB) methodology[4]. As a general rule, vehicle exhaust emissions are considered to only have a local effect within a narrow band along the roadside; typically within 200m of the centreline of the road. Beyond 200m, emissions should generally have dispersed sufficiently that atmospheric concentrations are essentially background levels. The rate of decline is steeply curved rather than linear. In other words concentrations will decline rapidly as one begins to move away from the roadside, slackening to a more gradual decline over the rest of the distance up to 200m.

[4] Design Manual for Roads and Bridges, Volume 11, Section 3 Part 1 (HA207/07) and subsequent Interim Advice Notes

Figure 1: Traffic contribution to concentrations of pollutants at different distances from a road



4.10 There are two measures of particular relevance regarding air quality impacts from vehicle exhausts. The first is the concentration of oxides of nitrogen (known as NOx) in the atmosphere. The main importance is as a source of nitrogen, which is then deposited on adjacent habitats (including directly onto the plants themselves) either directly (known as dry deposition) or washed out in rainfall (known as wet deposition). The deposited nitrogen can then have a range of effects, primarily growth stimulation or inhibition[5], but also biochemical and physiological effects such as changes to chlorophyll content. NOx may also have some effects which are un-related to its role in total nitrogen intake (such as the acidity of the gas potentially affecting lipid biosynthesis) but the evidence for these effects is limited and they do not appear to occur until high annual concentrations of NOx are reached. The guideline atmospheric concentration of NOx advocated by Government for the protection of vegetation is 30 micrograms per cubic metre (μgm^{-3}), known as the Critical Level. This is driven by the role of NOx in nitrogen deposition and in particular in growth stimulation and inhibition. If the total NOx concentration in a given area is below the critical level, it is unlikely that nitrogen deposition will be an issue unless there are other sources of nitrogen (e.g. ammonia). If it is above the critical level then local nitrogen deposition from NOx could be an issue and should be investigated.

4.11 The second important metric is a direct determination of the rate of the resulting nitrogen deposition. Calculating nitrogen deposition rates rather than relying purely on scrutiny of NOx concentrations has the advantage of being habitat specific (the critical level for NOx is entirely generic; in reality different habitats have varying tolerance to nitrogen) and, for many habitats, of being directly relatable to measurable effects on the ground through scrutiny of published dose-response relationships that do not exist for NOx. Unlike NOx, the nitrogen deposition rate below which current evidence suggests that effects should not arise is different for each habitat. The rate (known as the Critical Load) is provided on the UK Air Pollution Information System website (www.apis.ac.uk) and is expressed as a quantity (kilograms) of nitrogen over a given area (hectare) per year ($kgNha^{-1}yr^{-1}$). More recently, there has also been research compiled[6] which investigates nitrogen dose-response relationships in a range of habitats.

4.12 For completeness, rates of acid deposition were also calculated. Acid deposition derives from both sulphur and nitrogen. It is expressed in terms of kiloequivalents (keq) per hectare per year. The thresholds against which acid deposition is assessed are referred to as the Critical Load Function. The principle is similar to that for a nitrogen deposition Critical Load but it is calculated very differently.

[5] The addition of nitrogen is a form of fertilization, which can have a negative effect on habitats over time by encouraging more competitive plant species that can force out the less competitive species that are more characteristic of such habitats.

[6] Compiled and analysed in Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., S Power, S., Sheppard, L. & Stevens, C. 2016. Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210.

4.13 In April 2017 a High Court judgment[7] (colloquially known as the Ashdown Forest judgment) partially quashed the Lewes District and South Downs National Park Joint Core Strategy. This was on the basis that the HRA supporting the Joint Core Strategy only considered its own contribution to changes in traffic flows (specifically whether such flows would exceed 1000 Annual Average Daily Traffic) in determining whether there would be a likely significant air quality effect on Ashdown Forest SPA. The judge ruled that the HRA had thus explicitly failed to undertake any form of assessment 'in combination' with growth in other authorities that would affect the same road links and that this was in contravention of the Conservation of Habitats and Species Regulations 2010 (now replaced by the consolidated 2017 regulations).

4.14 The air quality modelling undertaken for this exercise avoided the problems that led to the successful Ashdown Forest Judicial Review for two reasons:

- Even when the change in flows due to the Local Plan was forecast to be below 1,000 AADT air quality modelling was still undertaken; and
- The air quality modelling is in accordance with standard methodology in Volume 11 of the Design Manual for Roads and Bridges. This method inherently involves modelling growth in surrounding authorities (such as Surrey Heath and Windsor & Maidenhead) to generate a forecast of future flows known as the 'Do Minimum' scenario. Local Plan growth was then factored into the Do Minimum scenario to create the 'Do Something' scenario. Therefore, the Do Something scenario reported in the appendices represents the forecast total flows expected by 2036 based on the traffic modelling available, irrespective of source.

4.15 The Do Minimum scenario draws upon a government database tool called the 'National Trip End Model Presentation Programme'. This contains data for each local authority district in England regarding expected changes in population, households, workforce and employment (in addition to data such as car ownership). The traffic modellers used this to forecast the change in traffic flows that would occur due to growth other than the Local Plan over the period to 2036. The result was the Do Minimum scenario. Growth in the Local Plan was then modelled by manually distributing trips on the network (taking account of census journey to work routes) and the results were factored into the Do Minimum scenario to create the Do Something scenario. Comparing the Do Something scenario with the Base case therefore enables one to see the effect of all forecast traffic growth on the roads in question 'in combination', within the context of forecast improvement in vehicle emission factors and background nitrogen deposition rates over the same timescale.

4.16 Using the generated traffic scenarios and information on average vehicle speeds and percentage heavy duty vehicles (both of which influence the emissions profile), air quality specialists calculated expected NOx concentrations, nitrogen deposition rates and acid deposition rates for those road links where traffic flows were forecast to increase. For some road sections multiple transects were modelled to account for the influence of the predominant wind direction.

4.17 The predictions of nitrogen deposition and annual mean NO_X concentrations are based on the assessment methodology presented in Annex F of the Design Manual for Roads and Bridges (DMRB), Volume 11, Section 3, Part 1 (HA207/07)[8] for the assessment of impacts on sensitive designated ecosystems due to highways works. Background data for the predictions for 2036 were sourced from the Department of Environment, Food and Rural Affairs (Defra) background maps. Background nitrogen deposition rates were sourced from the Air Pollution Information System (APIS) website[9].

4.18 Given that the assessment year (2036) is a considerable distance into the future, it is important that the air quality calculations take account of improvements in background air quality and vehicle emissions that are expected nationally over the plan period. Making an allowance for a realistic improvement in background concentrations and deposition rates is in line with the

[7] http://www.bailii.org/ew/cases/EWHC/Admin/2017/351.html [accessed 26/10/2017]

[8] Design Manual for Roads and Bridges, HA207/07, Highways Agency

[9] Air Pollution Information System (APIS) www.apis.ac.uk

Institute of Air Quality Management (IAQM) position[10], as well as that of central government[11]. Although in recent years improvements have not kept pace with predictions, the general long-term trend for NOx has been one of improvement (particularly since 1990) despite an increase in vehicles on the roads[12], while rates of oxidised nitrogen deposition have also declined. Guidance note HA207/07 advises that background rates are reduced by 2% per year to allow for an improvement in background air quality over the project/plan period as a result of ongoing (inter)national initiatives to improve emissions and the expected improvement in vehicle emissions over that period. However, due to the uncertainty in the rate with which projected future vehicle emission rates and background pollution concentrations are improving, the assumption was made in this modelling that conditions in 2023 (the approximate midpoint between the base year and the years of assessment) are representative of conditions in 2036 (the years of assessment). This approach is widely used within the professional air quality community and accounts for known recent improvements in vehicle technologies (new standard Euro 6/VI vehicles), whilst excluding the more distant and therefore more uncertain projections on the future evolution of the vehicle fleet. AECOMs professional judgment is that such an approach provides a more realistic impression of conditions in 2036 than assuming no improvement in emission rates or background concentrations, but still remains conservative and defensible.

4.19 Annual mean concentrations of NOx were calculated at two 200m transects modelled back from all links. Predictions were made using the latest version of ADMS-Roads using emission rates derived from the Defra Emission Factor Toolkit which utilises traffic data in the form of 24-hour Annual Average Daily Traffic (AADT), detailed vehicle fleet composition and average speed. The end of the Local Plan period (2036 at the time the modelling was undertaken) was selected for the future scenario as this is the point at which the total emissions due to plan traffic will be at their greatest.

4.20 Once the air quality calculations were complete, they were subject to ecological interpretation. Traditionally, the implications of the 'in combination' scenario would only have been discussed if the forecast change in flows due to the Local Plan exceeded either 1,000 AADT or 1% of the critical level (for NOx) or load (for nitrogen and acid deposition). In the light of the Ashdown Forest case, AECOM began the examination of the air quality modelling with a discussion of the 'in combination' scenario. However, in their response to the December 2017 iteration of this HRA Natural England indicated that they wished the report to be updated such that it was possible to see whether development 'in combination' would result in an increase in NOx concentrations exceeding 1% of the critical level, before account was taken of the improvement in baseline concentrations due to improved vehicle emission factors. That amendment has been made for this iteration of the HRA and constitutes the determination of 'likely significant effects'.

4.21 The subsequent detailed analysis then considers whether there would be a net reduction or improvement in NOx concentrations and nitrogen deposition rates (taking into account improvements in emission factors applied to all traffic using the roads in question). This is the 'appropriate assessment' part of the analysis. This considered factors such as whether the critical level or critical load is currently exceeded, or is forecast to be exceeded 'in combination', and whether improvements in background rates and emission factors are expected to offset the 'in combination' increase in pollution to a large extent. The ecological interpretation of any deterioration (or retardation of improvement) due to the Local Plan considers the presence of SAC/SPA features within the affected area (or the potential for them to be present in the future), the extent of the affected area as a proportion of the entire European site, and the degree of deterioration/retardation forecast, within the context of experimentally derived

[10] http://www.iaqm.co.uk/text/position_statements/vehicle_NOx_emission_factors.pdf

[11] For example, The UK Government's recent national Air Quality Plan also shows expected improvements over the relevant time period (up to 2031) https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017

[12] Emissions of nitrogen oxides fell by 69% between 1970 and 2015. Source: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/579200/Emissions_airpollutants_statisticalrelease_2016_final.pdf [accessed 08/06/17]

nitrogen dose-response relationships that have now been established for a variety of habitats. This includes consideration of existing background nitrogen deposition rates, as it has been established that many habitats become less sensitive to additional nitrogen inputs the higher the background deposition rate (and thus the more nitrogen is already present in excess).

4.22 The following Scenarios were modelled for each link and each designated site:

- Base Case
- 2036 Do Minimum (i.e. all expected growth *without* the Local Plan)
- 2036 Do Something (i.e. all expected growth *including* the Local Plan)

4.23 Since the traffic modelling was undertaken, the decision has been taken by the Council to bring forward the end date of the Local Plan to 2030, while keeping the housing/employment growth the same. This means that overall 'in combination' air quality at the end of the plan period should be better than is shown in the forecasts reported in this HRA as background traffic growth from 2030-2036 (i.e. six years of further growth due to other Local Plans) would be removed. The contribution of the Runnymede Local Plan (represented in the model by the difference between Do Something and Do Minimum) would remain the same because lowering Do Minimum flows to remove 6 years of background growth would lower Do Something flows to the same degree.

Water Quality

4.24 The quality of the water that feeds European sites is an important determinant of the nature of their habitats and the species they support. Rivers, streams and aquatic environments supporting these sites can be adversely affected by increased numbers of housing and business development. Sewage treatment can contribute to increased nutrients entering these habitats leading to unfavourable conditions. In addition, diffuse pollution, partly from urban hard-standing run-off, has been identified as being a major factor in causing the unfavourable condition of relevant European sites. It is reasonably foreseeable that the Local Plan will result in or contribute to this IP/MfE and will therefore be considered as part of this HRA.

4.25 Poor water quality can have a range of environmental impacts:

- At high levels, toxic chemicals and metals can result in the immediate death of aquatic life. At lower levels, detrimental effects can also be experienced, including increased vulnerability to disease and changes in wildlife behaviour.
- Eutrophication, the enrichment of plant nutrients in water, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In the marine environment, nitrogen is the limiting plant nutrient and so eutrophication is associated with discharges containing available nitrogen; in the freshwater environment, phosphorus is usually a principal cause of eutrophication;
- Some pesticides, industrial chemicals, and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life, and subsequently bird life that feed on them.

Species Disturbance

4.26 The impacts of increasing recreational disturbance as a result of new residents and an increasingly mobile ageing population with more leisure time have been a key concern of Natural England for some time. Its particular concern which is relevant to the Local Plan is with reference to the likely significant effect that recreational disturbance can have on the European sites. Since May 2006 Natural England has sought to encourage the local authorities surrounding such sites as Thames Basin Heath SPA (TBH SPA) to adopt an approach as set out in its then Draft Delivery Plan (DDP) when dealing with new residential development within 5 kilometres of TBH SPA. Runnymede is part of the Joint Strategic Partnership Board which plans for the long term protection of the SPA with other affected authorities.

4.27 Natural England's premise is that increased recreational pressure, particularly dog walking, has a detrimental impact on the populations of ground nesting birds. It contended, during 7 days of technical meetings in support of the South East Plan EIP[13], that further residential developments within 5 kilometres of the edge of TBH SPA would exacerbate such pressures either in their own right or in combination. A Draft Delivery Plan once adopted by Local Authorities removed Natural England's holding objection to relevant residential development. This has now been replaced with the Delivery Framework (DF).

4.28 The DF continues to restrict all new residential development within an area some 400 metres from the boundary of the TBH SPA and also advocates a number of mitigation measures for development within the 400 metres to 5 kilometres boundary area. The primary measure is the provision of Suitable Alternative Natural Green Space (SANG). The DF sets down specific thresholds for the provision of such SANG space as well as guidance on the nature and breakdown of this space.

4.29 The net effect of compliance with the requirements of the DF is that Natural England will continue to not object to planning applications that are not supported by an appropriate assessment as they believe that compliance with the DF avoids the need to carry out an appropriate assessment. All affected local authorities have in some way published and rely on SANG Planning Guidance Notes – the Council published its Supplementary Planning Guidance in 2008 (Revised 2009).

Water Quantity – Water resources management

4.30 Runnymede is located within an area of particular water stress. Over the next 30 years water resources are expected to experience an increase in pressures from the rising population and associated development (Environment Agency 2008). These development pressures will be amplified by the impacts of climate change. It is therefore reasonable to conclude that European sites with features that are dependent upon adequate water resource levels and sensitive to changes to this level could suffer considerable significant impacts.

Other potential IP/MfE – Trampling, Dog Fouling, Pet Predation, Garden Waste Dumping, and Malicious Fire Setting

4.31 This impact is closely related to recreational pressure, in that they both result from increased populations within close proximity to sensitive sites. Urbanisation is considered separately as the detail of the impacts is distinct from the trampling, disturbance and dog-fouling that results specifically from recreational activity. The list of urbanisation impacts can be extensive, but core impacts can be singled out:

- Increased fly-tipping - Rubbish tipping is unsightly but the principle adverse ecological effect of tipping is the introduction of invasive alien species with garden waste. Garden waste results in the introduction of invasive aliens precisely because it is the 'troublesome and over-exuberant' garden plants that are typically thrown out[14]. Alien species may also be introduced deliberately or may be bird-sown from local gardens.

- Cat predation - A survey performed in 1997 indicated that nine million British cats brought home 92 million prey items over a five-month period[15]. A large proportion of domestic cats are found in urban situations, and increasing urbanisation is likely to lead to increased cat predation.

4.32 The most detailed consideration of the link between relative proximity of development to European sites and damage to interest features has been carried out with regard to the Thames Basin Heaths SPA.

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13 These meeting took place between 21 December 2006 and 2 February 2007 under Inspector Peter Burley appointed as Assessor for the South East Plan considering implications of the Thames Basin Heaths SPA for future housing development in the London Fringe and Western Corridor and Blackwater Valley sub-regions.

[14] Gilbert, O. & Bevan, D. 1997. The effect of urbanisation on ancient woodlands. British Wildlife 8: 213-218.

[15] Woods, M. et al. 2003. Predation of wildlife by domestic cats *Felis catus* in Great Britain. Mammal Review 33, 2 174-188

4.33 After extensive research, Natural England and its partners produced a 'Delivery Plan' which made recommendations for accommodating development while also protecting the interest features of the European site. This included the recommendation of implementing a series of zones within which varying constraints would be placed upon development. While the zones relating to recreational pressure expanded to 5km (as this was determined from visitor surveys to be the principal recreational catchment for this European site), that concerning other aspects of urbanisation (particularly predation of the chicks of ground-nesting birds by domestic cats, but also including recreational pressure, fly tipping, increased incidence of fires and general urbanisation) was determined at 400m from the SPA boundary. The delivery plan concluded that the adverse effects of any development located within 400m of the SPA boundary could not be mitigated, in part because this was the range within cats could be expected to roam as a matter of routine and there was no realistic way of restricting their movements. Therefore no new housing should be located within this zone.

5. Stage 1- Screening

Introduction

5.1 This section provides a summary of the results of the HRA Screening assessment of the Runnymede Borough Council's Local Plan for both the Alone and In-combination assessments. Table 3 and Appendix 1 contain the preferred approaches and the detailed screening assessment including reasoning for Likely Significant Effects (alone). Appendix 2 presents the results of the site allocations screening. Figure 2 provides the locations of the SLAA sites in relation to the European sites.

5.2 The Local Plan was assessed for the potential to cause likely significant effects on European sites namely, Thames Basin Heath SPA, Thursley, Ash, Pirbright and Chobham SAC, Windsor Forest and Great Park SPA, South West London Waterbodies SPA- South West London Waterbodies Ramsar site.

Screening Results- 'Alone'

5.3 Table 3 below provides a summary of the detailed Screening assessment found in Appendices 1 and 2.

No Likely Significant Effects	**No Likely Significant Effects**	**Likely Significant Effects possible but can be mitigated though policy wording**[16]	**Likely Significant Effects and to be taken forward to Appropriate Assessment before conclusion of no adverse effects can be drawn**[17]
Development	SD1,SD4,SD5,SD6,SD7,SD 8,SD9		SD2, SD3, SD10
Supporting Local People	SL1,SL19,SL20,SL21,SL22, SL23,SL24,SL25,SL26,SL28	SL27	SL2,SL3,SL4,SL5,SL6, SL7,SL8,SL9,SL10,SL11,SL1 2,SL13,SL14,SL15,SL16,SL 17,SL18
Enhancing the Environment	EE1,EE2,EE3,EE4,EE5,EE6, EE9,EE10,EE11,EE12,EE13 EE15,EE17,EE19	EE7,EE8,EE14,EE16,EE18	
Improving our economy	IE2,IE3,IE4,IE5,IE6,IE12,IE 13		IE1,IE7,IE8,IE9,IE10,IE11

[16] Policies included in this column cannot be assessed further as they do not provide quantum and/or location specifics in relation to development. However, the potential impacts will be able to be addressed by devising a policy that expressly provides protection to European sites and specifically to Thames Basin Heaths SPA. Refer to Section 6 below for further detail.

[17] These policies govern the quantum and location of development and provide details regarding that quantum and location. They are therefore assessed in more detail in later chapters.

Preferred Strategic Land Availability Assessment Sites (SLAA site)*	SLAA sites 14, 17, 48, 51, 60, 97, 99, 156, 231, 254 (plot b), 258, 261, 263- SWLW and GF&GP SLAA sites 51, 256 and 257- TBH, TPAC, SWLW and WGFP		SLAA sites 14, 17, 48, 60, 156, 231, 254 (plot b), 255, 258, 261, 263 TBH SLAA sites 97 and 99 TBH and TPAC

5.4

Table 3: HRA Screening Results

Thames Basin Heaths SPA/Thursley, Ash, Pirbright & Chobham SAC

5.5 The screening assessment 'alone' found no likely significant effects to any European sites for 58 of the Local Plan policies as these are either non-development policies, or where development is required it is to take place in already urbanised areas e.g. town centres.

5.6 Six policies were found to have potential for likely significant effects on all European sites due to lack of information relating to locations of e.g. retail facilities, equestrian centres etc.

5.7 Nine policies (SD2, SD3, SD10, IE1 and IE7-IE11) are all considered to have potential for likely significant effects on European sites since they facilitate development. They are therefore taken forward for Appropriate Assessment later in the report. Details regarding these policies are provided below.

5.8 Policy SD3 refers to provision of site allocations for residential dwellings and employment floorspace. The majority of residential, employment and retail growth will be expected to be delivered within the main urban settlements of Addlestone, Chertsey and Egham and their suburbs along with a number of urban extensions. Of the allocated sites (included within policies SL2-SL19) only two (SLAA site 256 and SLAA site 257) are over 5km from the Thames Basin Heath SPA and thus do not require the provision of SANG. The remaining 17 are within 5km of the Thames Basin Heath SPA and would need to be subject to SANG provision to avoid likely significant effects. Dependant on the distance from the allocated site to the TBH SPA, the potential pathways include air quality, species disturbance, and water quality.

5.9 Policy SD10 refers to the provision of the Longcross Garden Village, which is adjacent to the TBH SPA and Thursley, Ash, Pirbright and Chobham SAC as these two European sites have one area in common – Chobham Common. Potential pathways to cause likely significant effects on TAPC SAC include air quality and water quality.

5.10 Policy IE1 relates to the provision of employment allocations, namely SLAA site 51: Byfleet Road but employment sites do not contribute materially to recreational pressure.

5.11 In accordance with the methodology detailed in the DTA HRA handbook (for example), an in combination assessment is not required for policies which proceed straight to the AA stage of the HRA process because likely significant effects will arise 'alone'. Therefore as policies SD2, SD3, SD10, IE1 and IE7-IE11 (including SLAA sites) are to be assessed at the AA stage an in-combination assessment has not been carried out on these policies at this point in the report.

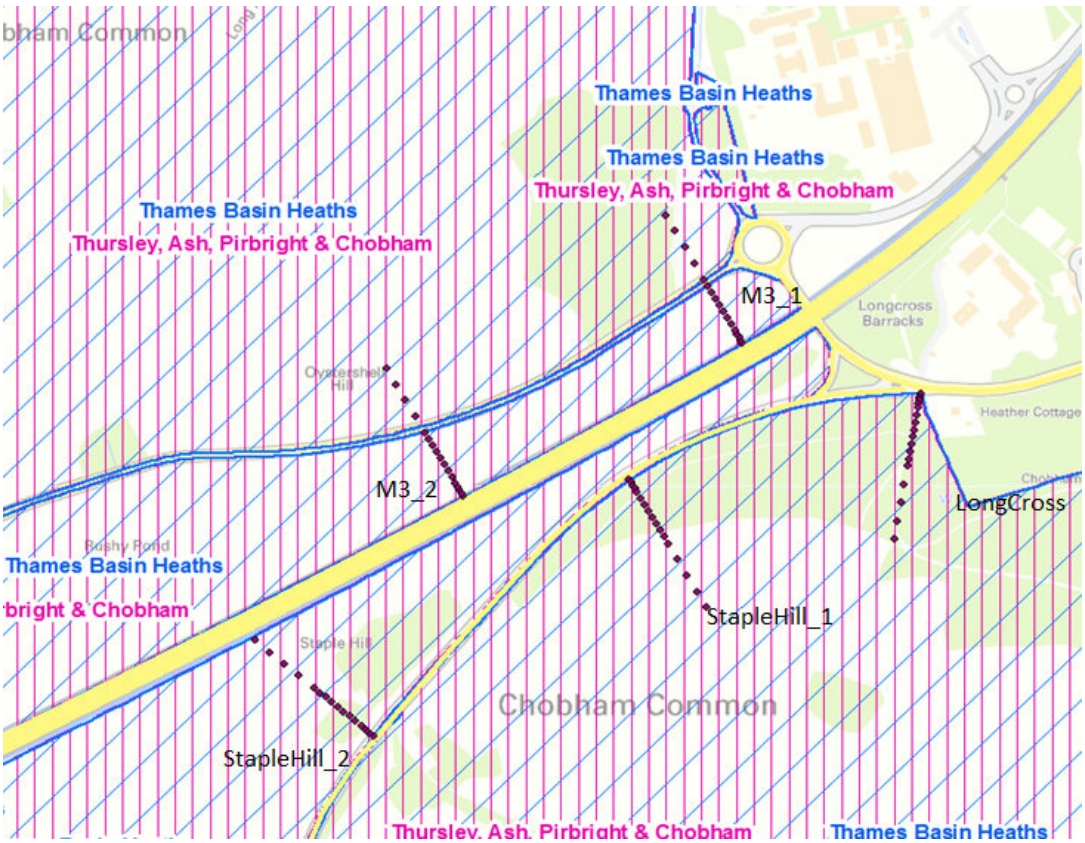
Air quality

5.12 Chobham Common lies adjacent to a number of roads within or immediately outside the boundary of Runnymede Borough, including the B386 Chertsey Road, B383 Chobham Road, B383 Windsor Road, the M3 and Staple Hill. There is therefore the potential for Longcross Garden Village to operate in combination with other development around Runnymede and further afield with regard to increasing nitrogen deposition within the SPA.

5.13 The preferred approach in the Local Plan is 7,480 dwellings over the plan period, along with associated employment development. The totality of net new housing and employment

development in Runnymede Borough must be considered for its potential to result in a cumulative air quality effect.

5.14 Transport modelling undertaken to support the Local Plan was used to undertake these calculations. A series of links around the Longcross area were modelled. These are shown in the map below where each line of points represents a modelled 200m air quality transect (labelled as Staple Hill 1 and 2, M3 1 and 2 and Longcross). Traffic on the B386 Chertsey Road (running parallel to the M3 to the north) was factored into transects M3_1 and M3_2. For most transects NOx concentrations and nitrogen deposition rates decline with distance from the road. The exception is Staple Hill_2, where the influence of the M3 becomes obvious in the modelling at 50m from Staple Hill in that concentrations and deposition rates decline to 50m from the road and then increase considerably as the transect approaches the M3.



5.15 For completeness, the A320 Chertsey Road north of Woking was also modelled, as this is a relatively direct route linking Addlestone to Woking and lies within 200m of the Thames Basin Heaths SPA in Woking borough.

5.16 Appendix 3 shows that NOx concentrations on all six transects are currently at or above the critical level throughout the modelled distance. The actual concentrations vary based on the scale of use of the road and the influence of the M3. Unsurprisingly, by far the highest concentrations are immediately adjacent to the M3 where baseline NOx concentrations are modelled to be c. 200 μm^{-3}. Concentrations decline rapidly with distance from the M3 (more than halving between 0m and 20m from the road) and then decline more gradually up to 200m.

5.17 In this version of Appendix 3, the column 'DS-ProjBL' shows the contribution of all expected additional traffic growth 'in combination' (i.e. not just the Runnymede Local Plan but growth in surrounding authorities) *without* taking account of the improving baseline. It can be seen that for all six transects the 'in combination' emissions are forecast to exceed 1% of the critical level for NOx (0.3 μgm^{-3}) throughout the modelled transect. Therefore likely significant effects 'in combination' cannot be dismissed and effects on Thames Basin Heaths SPA and Thursley, Ash, Pirbright & Chobham SAC are discussed further in the appropriate assessment section of this report.

South West London Waterbodies SPA/Ramsar site and Windsor Forest & Great Park SAC

5.18 The only part of the South West London Waterbodies SPA/Ramsar site within Runnymede is Thorpe Park No. 1 Gravel Pit. In their response to the 2016 Local Plan Natural England commented that '*The village of Thorpe is situated in very close proximity to South West London Waterbodies Special Protection (SPA), and Thorpe No 1 Gravel Pits Site of Special Scientific Interest (SSSI). The SSSI does not currently have general public access, but there is a level of current disturbance from water sports on the site. If through these allocations in Thorpe, the site does become open to the public, or there is an increase in water sports on the site, then this should be covered within the Habitats Regulations Assessment. It should be flagged as a potential risk to the over wintering birds and safeguards such as zoning of access or sanctuary areas should be considered*'.

5.19 There are no proposals in the Local Plan to provide general public access to Thorpe No. 1 Gravel Pit. Thorpe Park No. 1 Gravel Pit is used for waterskiing. Waterskiing can be a highly disturbing activity and a spatial and temporal zoning system is in operation at that site which is intended to prevent any waterskiing in the primary over-wintering gadwall feeding areas (gadwall being the main SPA bird that uses the site) during the period 1st October to 31st March. The nature of water-skiing sites is that only a certain number of skiers are permitted on the water at any time. Therefore, unless an application was submitted to increase the extent of water-skiing on the site, there is no direct link between a change in the local population and a change in the amount of water-skiing activity at any time. Since the Local Plan does not contain any proposal to change usage of the gravel pit, it is possible to conclude that the Local Plan will not lead to any likely significant effects on Thorpe Park Gravel Pit No. 1.

5.20 The following waterbodies (in accordance to the Briggs PhD thesis (2007))[18] have been investigated in the past for their ability to constitute important supporting habitat for the SPA/Ramsar site:

- A320 Gravel Pit;
- Longside Lake; and
- Cemex HQ.

A320 Gravel Pit

5.21 The 'A320 Gravel Pit' is situated just east of Thorpe Amusements and is used by the Runnymede Angling Society, although the number of anglers in winter is relatively small. Both dogwalkers and joggers use the site fairly frequently, but disturbance levels are described in the Briggs work as being low at the time the survey was undertaken. The only uncontrolled access to this lake appears to be an unofficial entrance off Mixnams Lane to the north, which is in the opposite direction to Chertsey (the nearest significant settlement within Runnymede borough) and there is no parking provision, so only pedestrians are likely to visit. The nearest allocated housing sites without planning permission are Site 60 (1.1km to the south on the opposite side of the M3) and Sites 256/257 (2.7km to the north). These are by far the closest allocated housing sites. Given the small number of sites, the relatively convoluted method for residents of those sites to reach the gravel pit and the fact that visitor activity will be highest in summer when waterfowl numbers are lowest, it is considered that the development planned for Runnymede associated with sites specifically allocated under policies SD2, SD3, SD10, IE1 and IE7-IE11 would not result in a disturbance-related likely significant effect. Site 51 (the only allocated employment site) is over 6km away from the gravel pit at its closest and will not result in a likely significant effect.

Longside Lake

5.22 Longside Lake is a large gravel pit to the west of Thorpe Gravel Pit No. 1, situated alongside the M25. It has been noted to hold large numbers of gadwall. At the time of the Briggs work it was used only occasionally by dogwalkers and fishermen, and was relatively undisturbed. In 2011 there were reports of occasional anti-social behaviour (specifically quad bikes) around this lake but the site owners installed kissing gates to restrict this activity. There is no parking at Longside Lake, such that only pedestrians are likely to visit the site. The lake is 1.5km (allowing for the

[18] Based on Natural England's advice, Runnymede Council intends to update the Briggs winter survey work, as it relates to waterbodies in Runnymede.

need to cross the M25) from sites 256/257. These are by far the nearest allocated sites and the only ones that might be expected to contribute some visitors. Given this relative inaccessibility, coupled with the fact that water-based recreation (which does not take place at Longside Lake) is far more disruptive to use of inland waterbodies by non-breeding waterfowl than shore-based recreation[19] and that recreational activity will be at its highest in the summer when the gadwall and shoveler populations are naturally at their lowest, it is considered that the development planned for Runnymede associated with sites specifically allocated under policies SD2, SD3 and SD10 would not result in a disturbance-related likely significant effect. Site 51 (the only allocated employment site) is over 6km away from the lake at its closest and will not result in a likely significant effect.

Cemex HQ

5.23 Cemex HQ gravel pit, also called Manor Lake, is recorded in the Briggs thesis as attracting rarely more than a 'handful' of Gadwall and Shoveler. The site was recorded as being relatively undisturbed at the time the study was undertaken, the low bird numbers being due to the very low macrophyte (large aquatic plant) cover and fairly low zooplankton (microscopic animal) levels which make it a poor food resource for both species. Although the Briggs work was conducted some years ago, it is understood that the low macrophyte and zooplankton levels at this gravel pit persist. The nearest allocated housing sites without planning permission are Site 60 (1.3km to the south on the opposite side of the M3) and Sites 256/257 (1.6 km to the north). These are by far the closest allocated housing sites. Given the small number of sites, the relatively convoluted method for residents of those sites to reach Cemex HQ/Manor Lake, the low bird numbers the lake supports and the fact that visitor activity will be highest in summer when waterfowl numbers are lowest, it is considered that the development planned for Runnymede associated with sites specifically allocated under policies SD2, SD3, SD10, IE1 and IE7-IE11 would not result in a disturbance-related likely significant effect. Site 51 (the only allocated employment site) is over 5.4km away from the lake at its closest and will not result in a likely significant effect.

5.24 Several of these gravel pits lie adjacent to major roads (such as the M25 and M3). However, there are no critical loads for the habitat - open standing water - that is relied upon by the bird species for which the South West London Waterbodies are designated. The APIS website states that *'No Critical Load has been assigned … for meso/eutrophic systems. These systems are often phosphorus limited; therefore decisions should be taken at a site specific level*'. In this case, no likely significant effects are anticipated since the South West London Waterbodies, like most freshwater environments, are essentially phosphate limited rather than nitrogen limited, meaning that it is phosphate availability that controls the growth of macrophytes and algae. Traffic associated with Local Plan development will not affect phosphate availability within any component waterbodies.

5.25 Given the preceding analysis, these lakes/gravel pits are not discussed further in this report.

5.26 No likely significant effects are expected from any of the preferred SLAA site sites to Windsor Forest & Great Park SAC. The nearest allocated site to Windsor Forest & Great Park is Site 156, which is 1.7km from the SAC and (just) within walkable distance. However, the Site Improvement Plan for the SAC does not identify recreational pressure as a particular concern for this site given its interest features. Site 51 (the only allocated employment site) is over 10km away from the SAC at its closest and will not result in a likely significant effect. It is therefore considered that the development planned for Runnymede associated with sites specifically allocated under policies SD2, SD3, SD10, IE1 and IE7-IE11 would not result in a likely significant effect.

Screening Results- 'In combination'

[19] Briggs thesis discusses other parts of the South West London Waterbodies and supporting lakes (such as Bedfont Lakes) where land-based recreational activity is extensive but which also support significant populations of gadwall and shoveler and comments that the birds appear to be habituated to this form of activity. This supports personal observations on other waterbodies (such as Stoke Newington Reservoirs in the London Borough of Hackney) which also support high numbers of gadwall and shoveler and where the birds are habituated to adjacent land-based activities and are generally only disturbed and displaced by water-based activities.

5.27 The following land use plans were used to assess the in-combination effects with Local Plan to determine likely significant effects to European sites. These land use plans are of Local Authorities adjacent to Runnymede:

- Spelthorne Core Strategy 2009
- Woking Core Strategy 2012 (now accompanied with a Site Allocations Plan)
- Elmbridge Core Strategy 2011
- Surrey Heath Core Strategy 2012
- Windsor & Maidenhead Local Plan 2017

5.28 In combination assessment was carried out on the following policies: SL27, EE7, EE8, EE14, EE16 and EE18 as all were found to have likely significant effects on all ES due to lack of information relating to locations of e.g. retail facilities, equestrian centres etc. and, as such, mitigation to avoid LSE is required.

5.29 The nature of the road network linking Runnymede Borough with Windsor & Maidenhead Borough (and the pattern of development in Runnymede) is that there are few roads that run within 200m of Windsor Forest & Great Park SAC that are likely to constitute journey to work routes for residents of Runnymede. However, as a precaution the A329 (Blacknest Road) was modelled for this HRA. This is by far the most likely road within 200m of the SAC to constitute a relevant journey to work route. Appendix 3 presents the results of the modelling.

5.30 In this version of Appendix 3, the column 'DS-ProjBL' shows the contribution of all expected additional traffic growth 'in combination' (i.e. not just the Runnymede Local Plan but growth in surrounding authorities) *without* taking account of the improving baseline. It can be seen that the 'in combination' emissions are forecast to exceed 1% of the critical level for NOx (0.3 μgm^{-3}) up to 125m from the roadside. Therefore likely significant effects on Windsor Forest & Great Park SAC 'in combination' cannot be dismissed and are discussed further in the appropriate assessment section of this report.

6. General Policy Measures to Avoid Likely Significant Effects to European Sites

6.1 The detailed screening process found six policies SL27, EE7, EE8, EE14, EE16 and EE18 that have the theoretical potential to lead to likely significant effects through a number of potential pathways, including disturbance, air quality and water quality as these policies relate to development but lack information relating to quantum and locations. Since they lack spatial or quantum specificity they cannot be assessed further in this document. However, Policies EE9 and EE10 on protection of biodiversity and the Thames Basin Heaths SPA provide the policy framework to ensure that project level HRAs are undertaken and (for example) no net new housing is delivered within 400m of the SPA. For preferred approaches that do not possess a locational element this will ensure that applications which do come forward will be subject to an analysis of their impacts on European sites and associated avoidance or mitigation measures. As such the plan will not result in LSE due to these policies.

7. Policies and European Sites Screened out at Stage 1 and Policies and European Sites to be taken forward to Stage 2 Appropriate Assessment

Policies Screened Out at Stage 1

7.1 The following policies (refer to Table 4) have been screened out as they will not lead to likely significant effects to any European sites, once the general policy measures outlined in section 6 above are taken into consideration:

Table 4: Policies which have been screened out

Category	Policy
Development	SD1,SD4,SD5,SD6,SD7,SD8,SD9

Supporting Local People	SL1, SL19,SL20,SL21,SL22,SL23,SL24,SL25,SL26, SL28
Enhancing the Environment	EE1,EE2,EE3,EE4,EE5,EE6,EE9,EE10,EE11,EE12,EE13EE15,EE17,EE19
Improving our economy	IE2,IE3,IE4,IE5,IE6,IE12,IE13

7.2 Although preferred approach IE1 includes for the delivery of employment site SLAA site 51, this site is located in the far south-east of the borough more than 2.8km from the nearest European site (a part of the Thames Basin Heaths SPA in Guildford) and over 5km from all others. Given this, and the employment nature of the site, it can be screened out as being unlikely to cause significant effects.

European Sites Screened Out at Stage 1

7.3 None of the polices or SLAA sites were considered to cause likely significant effects to the following European sites and as such these sites have been screened out from further assessment:

- South West London Waterbodies SPA/Ramsar (one unit Thorpe No. 1 Gravel Pits and supporting habitats).

Policies to be taken forward to Stage 2 Appropriate Assessment

7.4 Policies SD2, SD3 and SD10 are to be taken forward to Stage 2 Appropriate Assessment.

7.5 The SLAA sites (referred to in Policies SL2 – SL19) to be taken forward to Stage 2 AA are 14,17, 48, 60, , 99, 156, 231, 254 (plot b), 255, 258, 261 and 263 due to their likely significant effect to Thames Basin Heaths SPA and Thursley, Ash, Pirbright and Chobham SAC.

European Sites to be taken forward to Stage 2 Appropriate Assessment

7.6 Due to the likely significant effects from the aforementioned SLAA sites on the Thames Basin Heath SPA and Thursley, Ash, Pirbright and Chobham SAC, these two European sites are to be taken forward to Stage 2 AA. Windsor Forest & Great Park SAC is also taken forward to Stage 2 AA purely on the basis of air quality.

8. Stage 2 - Appropriate Assessment

Introduction

8.1 This section provides detailed assessment of those policies within the Council's Local Plan which have likely significant effects upon Windsor Forest & Great Park SAC, Thames Basin Heath SPA (TBHSPA) and Thursley, Ash, Pirbright and Chobham SAC (TAPC SAC).

8.2 The favourable conservation status (FCS) of the qualifying features of the European sites, current site conditions and any threats or vulnerabilities have been taken into considered when assessing the effects. This information can be found in Table 1 in Section 2.

Windsor Forest & Great Park SAC

8.3 Since the 'in combination' contribution of expected traffic growth on Blacknest Road to NOx emissions was forecast to exceed 1% of the critical level, this site was taken forward for appropriate assessment. This includes factoring in expected improvements in baseline NOx concentrations to 2036 and converting the NOx concentrations into nitrogen deposition.

8.4 Appendix 3 shows that NOx concentrations along the measured transect are currently (column BL) at or below the critical level (30 μgm^{-3}), only marginally exceeding the critical level within 5m of the road itself. It also shows that, when improvements in emission factors are applied to baseline traffic flows as well as traffic growth, they are forecast to remain below the critical level by 2036 (column DS) even with traffic growth. In contrast, nitrogen deposition rates throughout the transect are high at approximately 22 kgN/ha/yr. Deposition rates at 200m from the roadside are only 3% lower than those at the roadside. The relatively constant nature of deposition rates across the transect coupled with the relatively low NOx concentrations strongly suggests that NOx from the local road is not a major source of nitrogen in this area.

8.5 Comparison of the Do Something scenario with the Baseline scenario shows that a net improvement in nitrogen deposition rates and NOx concentrations is forecast over the plan period (a maximum of 4.16 kgN/ha/yr at the closest point to the road). This is due to improvements in vehicle emissions factors more than offsetting the increase in emissions caused by increased traffic flows on the road, notwithstanding the fact that the allowances for those improvements in the model are considerably more cautious than those in guidance. Comparison of the Do Something scenario with the Do Minimum scenario shows the influence of the Runnymede Local Plan on NOx concentrations and nitrogen deposition rates. The Local Plan is forecast to retard the expected improvement in NOx concentrations to a very small degree (equivalent to a maximum 1.6% of the critical level immediately at the roadside) and this is reflected in an even smaller retardation of improvement in nitrogen deposition (as only some of the emitted NOx is deposited locally). At the most affected point (at the roadside) the Local Plan is forecast to retard the improvement in deposition rates that would otherwise occur by 0.03kgN/ha/yr compared to a forecast net improvement of 4kgN/ha/yr. This is the difference between a forecast deposition rate of 18.14 kgN/ha/yr and a rate of 18.17 kgN/ha/yr, which in ecological terms is the same rate. No habitat studied to date has revealed itself to be responsive to such very small incremental changes in deposition.

8.6 Therefore it is possible to conclude that there will be no adverse effect of the Runnymede Local Plan on the integrity of Windsor Forest & Great Park SAC in combination with other plans and projects.

Thames Basin Heaths SPA

Overview

8.7 Thames Basin Heaths SPA (refer to Table 1 in Section 2 and the citation in Annex 1) is a composite site located across the southern English counties of Surrey, Hampshire, and Berkshire and covers an area of some 8,274.72ha. It consists of 13 Sites of Special Scientific Interest (SSSI) that provide support for breeding populations of a number of birds of lowland heathland, especially the Nightjar (*Caprimulgus europaeus*); hosting the fourth largest breeding population in Great Britain. In addition, the site hosts the third largest population of Woodlark (*Lullula arborea*). Both the Nightjar and Woodlark nest on the ground, often at the woodland/heathland edge. The TBHSPA also supports Dartford Warbler (*Sylvia undata*), which often nests in gorse (*Ulex* sp)

8.8 The site qualifies under article 4.1 of the Directive (79/409/EEC) as it is used regularly by 1% or more of the Great Britain populations (breeding) nightjar, woodlark and Dartford warbler.

8.9 The SPA consists of both dry and wet heathland, mire, oak, birch acid woodland, gorse scrub and acid grassland with areas of rotational conifer plantation. Three of the Surrey SPA sites are also included in an internationally protected heathland complex called Thursley, Ash, Pirbright and Chobham Special Area of Conservation (SAC).

8.10 The open heathland habitats overlie sand and gravel sediments which give rise to sandy or peaty acidic soils, supporting dry healthy vegetation on well-drained slopes, wet heath on low-lying shallow slopes and bogs in valleys. The site consists of tracts of heathland, scrub, and woodland, once almost continuous, but now fragmented into separate blocks by roads, urban development, and farmland. Less open habitats of scrub, acidic woodland, and conifer plantations dominate, within which are scattered areas of open heath and mire.

8.11 The current condition of the site is considered to be unfavourable-recovering and is vulnerable to a number of threats including*:*

- Scrub encroachment due to poor management coupled with the continued accumulations of defuse atmospheric pollution (nutrient deposition, acidification and dust) will cause the loss of certain nutrient poor species.
- Disturbance and potential threat to the breeding success of Annex 1 birds through formal and informal recreation, noise and visual disturbance.
- Effects of pollution through groundwater and surface run-off as well as the disruption of the water table causing loss or damage to the wet heath and mire communities.
- Natural England considers the threat of development pressure of particular importance for this site in their potential to disturb bird feeding and breeding behaviour. This particularly relates to housing on neighbouring land resulting in increased recreational use of the sensitive heathlands and the qualifying bird species.

8.12 The site is considered to be in an overall Unfavourable recovering condition. Natural England consider the condition of specific components such as:

• Chobham Common: of which 65% is unfavourable but recovering, 15% favourable and 15% unfavourable and declining.

Summary of Local Plan policies that require further assessment due to Likely Significant Effects on the TBH SPA

8.13 Table 5 below presents the conclusions of the Screening HRA (refer to Section 5) on those preferred polices or SLAA sites that are considered to result in a likely significant effect on the supporting habitat and species of the Thames Basin Heaths SPA.

Table 5: Local Plan preferred approaches on TBH SPA

No.		Likely Policy Interaction				
Policies and preferred housing sites (SLAA sites)		Land Take	Air Quality	Water Quality	Species Disturbance	Water Quantity
SD2 and SD3	**The Local Plan will make provision for a minimum of 7551 net additional dwellings over the plan period along with 66,000sqm net employment floorspace and a minimum of 6000sqm net retail floorspace.**	X	✓	✓	✓	X
SD10	The garden village must offer a wide range of housing types and tenures	X	✓	✓	✓	X
SLAA sites	**SLAA sites 14,17, 48, 60, , 254 (plot b), 255, 258, 261, and 263 are within 5km of TBH**	X	X	X	✓	X
KEY: X = No Likely Interaction | ✓ = Yes Likely Interaction | ? = Unsure of Likely Interaction						

Appropriate Assessment of Pathway– Disturbance

Recreational disturbance/proximity of development

8.14 The Thames Basin Heaths SPA is considered sensitive to the effects of recreational disturbance. Natural England considers that the threat of development pressure particularly housing on neighbouring land and preferred sites within 5km, results in increased recreational use of this site and has potential to disturb bird feeding and breeding behaviour.

8.15 Table 6 below provides the preferred SLAA sites identities and the numbers of dwellings per site (as of 01/05/18).

Table 6: Allocated Residential Sites and Indicative Minimum Housing Capacity

SLAA site Ref	Site	Indicative Minimum Capacity
14	Brox End Nursery, Ottershaw	40
17	Coombelands Lane, Row Town	40
48	Hanworth Lane, Chertsey	340 (In addition 130 units are currently under construction)
60	Pyrcroft Road, Chertsey	275 plus five gypsy/traveller pitches
99 (parcel 221 is also included but cannot accommodate housing; parcel 97 is also included but already has planning permission)	Longcross Garden Village	1,700 plus ten gypsy/traveller pitches and a 60 unit extra care facility.
254	Parcel B, Veterinary Laboratory Site, Rowtown	150 plus two gypsy/traveller pitches
255	Chertsey Bittams Parcel A, St Peter's Way, Chertsey[20]	175 plus five gypsy/traveller pitches
255	Chertsey Bittams Parcel B, St Peter's Way, Chertsey	120 plus two gypsy/traveller pitches
255	Chertsey Bittams Parcel C, St Peter's Way, Chertsey	35 plus two gypsy/traveller pitches
255	Chertsey Bittams Parcel D, St	125-200 net units and a 93 bedroom

[20] This has now been divided into five sites to reflect locality and ownership but is still discussed as a single site for the purposes of this HRA since the conclusions regarding one parcel relate to all parcels.

	Peter's Way, Chertsey	care home
255	Chertsey Bittams Parcel E, St Peter's Way, Chertsey	75-105
256	Thorpe Lea Road North	90 plus two gypsy/traveller pitches
257	Thorpe Lea Road, West	250 plus three gypsy/traveller pitches
258	Virginia Water North	120
261	Virginia Water South	140 plus two gypsy/traveller pitches
263	Ottershaw East	200, plus two gypsy/traveller pitches
156	Blay's House, Englefield Green	100
231	St. Peter's Hospital	400
Town centre allocation or opportunity area	Addlestone East	70
Town centre allocation or opportunity area	Addlestone West	70
Town centre allocation or opportunity area	Chertsey	Redevelopment of supermarket and parking area to provide between 34 and 128
Town centre allocation or opportunity area	Egham Gateway West	60, plus 77 student bedspaces
Town centre allocation or opportunity area	Egham Gateway East	45
Town centre allocation or opportunity area	Egham Library & Car Park	40
Town centre allocation or opportunity area	Egham High Street North	50
Town centre allocation or opportunity area	Strodes College Lane, Egham	14
Total		**Minimum of 4,957, including 35 gypsy/traveller pitches, 77 student bedspaces, 93 bed care home and a 60 unit extra care facility.**

8.16 The effects of recreational pressure on European sites within Runnymede were highlighted in the original HRA report (January 2014) for Runnymede Borough Council's (withdrawn) previous Local Plan – in particular polices LP01, LP02, and LP08. These effects remain for the new Local Plan.

8.17 Increasing recreational pressure is thought (Lilley 2003, Underhill-Day 2005 etc.) to increase the exposure of Annex 1 birds to disturbance, whilst increased damage to habitats may occur through trampling, soil compaction, erosion and nutrient enrichment. Other human-induced impacts frequently associated with sites at or close to the urban edge, the frequency of which may also increase through urbanisation as a result of developments of the SLAA sites, include fly-tipping, wildfire and arson, invasive species, use of off-road vehicles and cat predation.

8.18 The following preferred SLAA sites are within 5km buffer of the Thames Basin Heaths SPA: 14, 17, 48, 60, 99, 156, 231, 254, 255, 258, 261, and 263. Only two SLAA sites (256 Thorpe Lea Road North and 257 Thorpe Lea Road, West) are outside of the 5km buffer zone.

Current SANG Capacity

8.19 Longcross Garden Village is the single largest development in the Local Plan and the site boundary of Longcross South is within 300m of the SPA. Part of the Garden Village (Longcross North) already has planning permission while proposals to develop the remainder of the site are progressing. The latest publically available masterplan for the development[21] contains a bespoke SANG known as Chertsey Common. Some Regulation 19 consultation responses have expressed concern that the provision of SANG associated with Longcross Garden Village may prove to be inadequate either due to amount of SANG provided, details of design, or inappropriate location for the bulk of Longcross South, although it should be noted that the SANG would have served its purpose if it achieved no *net* increase in visitors to the SPA even if some residents of the Longcross South development itself did still visit the SPA. It is important to note that there is a distinction between an allocation in a Local Plan and a planning application for a development. The Local Plan HRA is concerned with a) whether development could be delivered 'in principle' on an allocated site without an adverse effect on integrity, and b) whether the Local Plan policies would adequately protect the SPA/SAC by preventing development that would have an adverse effect on integrity.

8.20 It is not the purpose of a Local Plan HRA to evaluate the details of any particular developer's detailed proposals or specific masterplan. That is the role of the HRA for the specific planning application. To require the full details of an applicant's masterplan and mitigation strategy to be devised and agreed before the site could be included in a Local Plan would be to effectively require planning consent to be granted before the site could be deemed suitable for development in principle. Advocate General Kokott has commented on this in a previous case: '*It would … hardly be proper to require a greater level of detail in preceding plans* [than in later ones or planning applications] *or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure to the extent possible* <u>*on the basis of the precision of the plan*</u> [emphasis added]. *This assessment is to be updated with increasing specificity in subsequent stages of the procedure'*[22].

8.21 The principle of the intended scale of development at Longcross South is achievable provided the quantum, location and other details of SANG and SAMM provision are in line with Local Plan policy. It is also noted that in their responses to the Local Plan consultations Natural England have not expressed concern over the principle of development at the intended scale at Longcross South. Local Plan policies EE10 and SD10 will both manage the development at Longcross Garden Village to ensure that no adverse effect on the SPA arises. Policy SD10 specifically states that the Longcross Garden Village development will not be permitted if it would lead to adverse effects on the SPA. Policy EE10 sets out a general restriction on net new housing development within 5km of the SPA without the delivery of necessary mitigation measures, including a total prohibition on net new residential development within 400m of the SPA and the requirement for all net new residential development between 400m and 5km of the SPA to deliver SANG at a minimum rate of 8ha per 1000 population and to make SAMM contributions. This will apply to Longcross Garden Village as to any other development that meets the criteria in Policy SD10. If, at the planning application stage, the SANG details proposed for Longcross Garden Village (Longcross South) are deemed to be inadequate for whatever reason, then Longcross South could therefore not be consented without revision as it would not otherwise comply with Policies EE10 and SD10 of the Local Plan.

8.22 In Runnymede Borough, there are five broad strategic SANGs, which currently have capacity to mitigate the impacts of new residential development. There is a further site at Chertsey Meads, which has been agreed in principle with Natural England to be designated as SANG, subject to the completion of a satisfactory SANG Management Plan. There are also bespoke SANGs provided by new development in the borough that have been agreed as part of a package of mitigation for larger developments. The Council will rely on the Borough's existing SANGs, the

[21] Available at http://www.longcrossvillage.info/masterplan.html; accessed 18/04/18

[22] 9th June 2005, Case C-6/04. Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland, paragraph 49

emerging SANG at Chertsey Meads, bespoke SANG solutions which are to be delivered on some of the proposed strategic allocations (see the policies map and site allocation policies of the Local Plan for more information), and other, currently unidentified areas of land which the Council could look to allocate in the latter period of the Plan if necessary. The Council will continue to explore delivery options, including with its neighbouring local authorities throughout the lifetime of this Plan to deliver new homes and secure necessary SANG mitigation.

8.23 Whilst there is SANG provision for much of the plan period, there is currently a shortfall of SANG provision for the later parts of the plan period. The Council acknowledges this fact in their Local Plan and recognises the need to secure additional SANG later in the plan period to ensure that their total housing requirement can be met.

8.24 Technically speaking, there would be no risk of an adverse effect on the SPA if SANG were not secured for the remaining dwellings to be achieved during the plan period, since the policy developed under Policy EE10 would require the Council to either meet the SANG provision from alternative strategic SANG, meet the shortfall by releasing development sites that can provide their own SANG, or review the Local Plan.

Noise and lighting

8.25 Given the proximity of the SLAA site 99 and SLAA site 221 (Longcross Garden Village) to Chobham Common, noise and lighting disturbance impacts are a possibility during construction and operation of the sites.

8.26 Noise modelling at Chobham Common undertaken as part of the DERA North (SLAA site 97, now permitted) hybrid application confirmed that noise levels due to construction are expected to be inaudible above background levels except immediately adjacent to the roadside at Burma Road and during the short period associated with demolition of buildings on the Surrey Heath Borough Council part of the site. Even here the levels experienced would remain below those that these species are known to tolerate in other parts of the SPA. Noise levels are expected to be monitored via a Construction Environment Management Plan condition. Since DERA South (SLAA site 99) is situated further from Chobham Common than DERA North (SLAA site 97), it follows that noise impacts from similar activities will be lower than for DERA North (SLAA site 97) and no likely significant effect will result. However, it is appropriate that the same analysis of noise impacts undertaken for DERA North (SLAA site 97) is undertaken for the DERA South (SLAA site 99) planning application in addition to a commitment to monitoring via a Construction Environment Management Plan condition.

8.27 Lighting analysis for Chobham Common undertaken as part of the DERA North (SLAA site 97) application confirmed that no construction lighting will be situated in such a position as to increase illumination of Chobham Common. As a result of operation/occupation of DERA North, a number of existing buildings that are situated adjacent to Chobham Common and currently result in illumination of that site will be demolished and not replaced. Therefore, lighting effects on Chobham Common will be reduced due to the DERA North (SLAA site 97) development. To further avoid lighting impacts on Chobham Common (and other sensitive ecological receptors) from DERA, North (SLAA site 97) High Pressure Sodium lighting will be used for residential roads and car parks, while in ecologically sensitive areas LED luminaires are proposed. Since DERA South (SLAA site 99) is situated further from Chobham Common than DERA North, it is likely that lighting impacts will also be avoidable for this site and no likely significant effect will result. However, it is appropriate that the same analysis of lighting impacts undertaken for DERA North (SLAA site 97) is undertaken for the DERA South (SLAA site 99) application, with similar lighting controls to reduce incidental illumination.

8.28 Longcross Garden Village is the only proposed allocation that lies close enough to Chobham Common to potentially lead to noise or lighting effects on Chobham Common. Therefore no further 'in combination' assessment of this pathway is required.

Appropriate Assessment of Pathway: Air Quality

8.29 The OAN for the HMA is for approximately 15451 net additional dwellings (of which 7,507 is generated from growth in Runnymede over the Plan period 2015 – 2030), along with associated employment development. This development poses the potential for air quality impacts on

Thames Basin Heaths SPA and Thursley, Ash, Pirbright and Chobham SAC. Longcross Garden Village has the greatest potential to contribute to any air quality impact since it will deliver up to 1,700 dwellings in very close proximity to the SPA/SAC.

8.30 There are a number of building structures and areas of hardstanding that will require demolition and removal prior to construction of the proposed development on SLAA site 99 which can potentially result in dust deposition within the SPA.

8.31 The northern part of the former DERA site (SLAA site 97) has already been granted permission for employment development and 200 dwellings. As part of this application, detailed work to inform a Habitat Regulations Assessment was undertaken by the applicant. This assessment is drawn upon in the section on dust below.

Dust

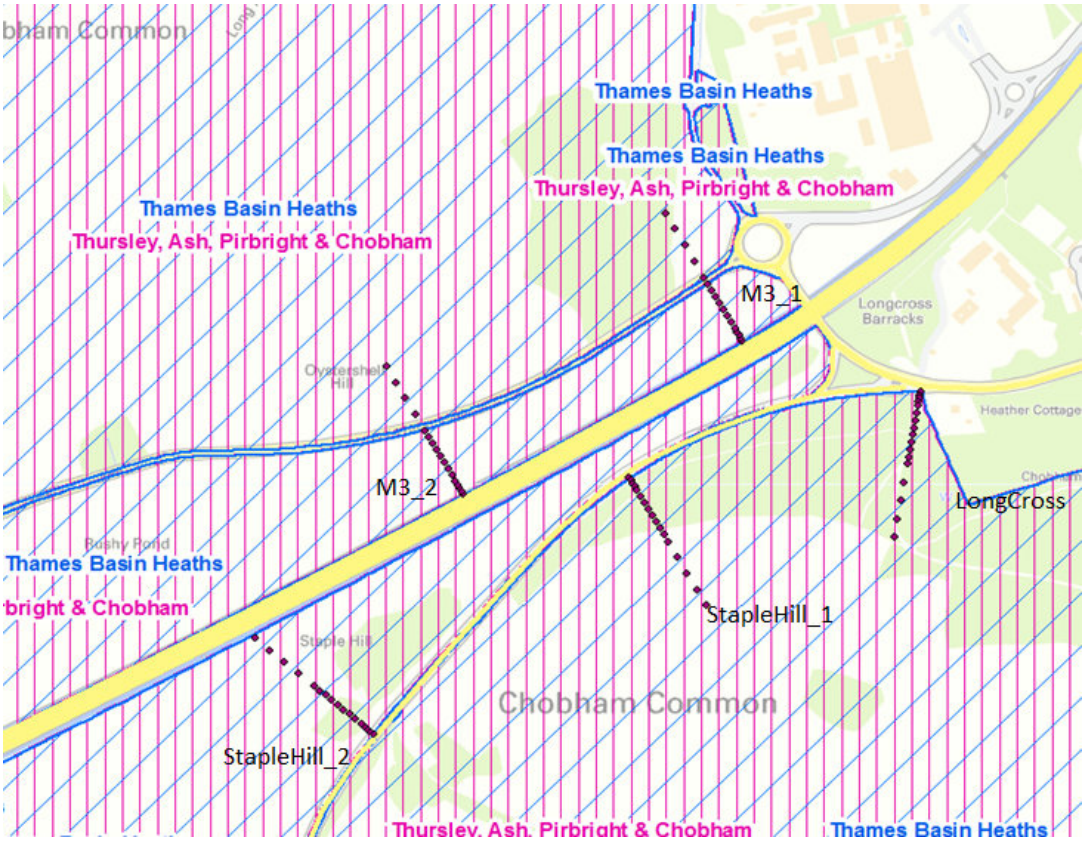
8.32 The analysis of dust generation at Chobham Common undertaken as part of the DERA North (SLAA site 97) application confirmed that dust deposition at Chobham Common will be insignificant due to the proposed use of a range of standard dust control practices during site works including sheeting of stockpiles and HGVs, wetting of stockpiles and dust generating activities as necessary, appropriate surfacing of construction routes and speed limits to reduce dust generation from haul routes, which would be incorporated into an agreed Construction Environmental Management Plan. These measures are universally used and are known to be effective. There is also a commitment to undertake real-time dust deposition monitoring at Chobham Common in order to trigger any necessary amendments to control measures during construction. Natural England has been regularly consulted on the HRA work undertaken for the DERA North application and, subject to these controls, their most recent response is that an adverse effect on the integrity of the Thames Basin Heaths SPA would not arise from delivery of the Longcross Garden Village development[23].

8.33 The DERA North (SLAA site 97) site is associated with the delivery of employment development and 200 dwellings etc. north of the M3 motorway (although the effects in combination with DERA South have also been considered). The majority of the 1,700 dwellings associated with Policy SD10 will be located at DERA South (SLAA site 99). This site is considerably further from a planning application being submitted and therefore effects had not been analysed to the same level of detail as for DERA North at the time the DERA North application was submitted. However, the DERA South (SLAA site 99) site is approximately 280m from the TBH SPA at its closest. As such, the Report to Inform an Appropriate Assessment for DERA North (SLAA site 97) confirmed that it is outside the zone within which potentially significant dust or air quality impacts from the site itself can be expected to result in effects on the SPA. We would concur with that analysis, even in the unlikely event that development was situated immediately adjacent to the western boundary of DERA South (SLAA site 99). Nonetheless, it is appropriate that the same precautions to control and monitor dust generation proposed for DERA North (SLAA site 97) are also required for DERA South (SLAA site 99).

Exhaust emissions

8.34 As a reminder, transport modelling undertaken to support the Local Plan was used to undertake these calculations. A series of links around the Longcross area were modelled. These are shown in the map below where each line of points represents a modelled 200m air quality transect (labelled as Staple Hill 1 and 2, M3 1 and 2 and Longcross). Traffic on the B386 Chertsey Road (running parallel to the M3 to the north) was factored into transects M3_1 and M3_2. For most transects NOx concentrations and nitrogen deposition rates decline with distance from the road. The exception is Staple Hill_2, where the influence of the M3 becomes obvious in the modelling at 50m from Staple Hill in that concentrations and deposition rates decline to 50m from the road and then increase considerably as the transect approaches the M3.

[23] Letter from Julia Coneybeer. Natural England, to Tim Jones, Crest Nicholson, dated 28/10/13



8.35 Since the 'in combination' contribution of expected traffic growth to NOx emissions on all modelled links was forecast to exceed 1% of the critical level, the SPA was taken forward for appropriate assessment. This includes factoring in expected improvements in baseline NOx concentrations to 2036 and converting the NOx concentrations into nitrogen deposition.

8.36 Examination of the Do Something columns indicates that 'in combination' NOx concentrations are forecast to improve considerably by the modelled future year, even allowing for increased volumes of traffic. This is attributable to the expected improvements in vehicle emission factors over the plan period due to national and international initiatives, such as the further deployment of Euro6 standard vehicles which are expected to result in a further continuation of existing reducing trends in both NOx and nitrogen deposition. This improvement is forecast despite the fact that the model makes a considerably more conservative allowance for improvement than is advocated in Department for Transport guidance.

8.37 The role of growth in the Local Plan in retarding the improvement that would otherwise occur is shown by comparing Do Something with Do Minimum. On both Staple Hill transects the forecast retardation is very small, being negligible at the closest point to the road[24]. The contribution of the Local Plan rises slightly at further distances along each transect, but that reflects the influence of the M3. On the Longcross transect the retardation of improvement in NOx is higher but is still small being 0.9 μm^{-3} at the roadside[25] and falling to 0.3 μm^{-3} at 30m from the roadside. The retardation is similar for the M3 (0.9 μm^{-3} to 1 μm^{-3}) although the relative role it plays is much smaller than for the Longcross transect since overall NOx concentrations are much higher along the M3. Having modelled NOx concentrations it is necessary to examine nitrogen deposition rates in order to determine what botanical effect would result.[26]

[24] This does not literally mean zero emissions but that the contribution of the Local Plan is so small it only affects the second decimal place or beyond.

[25] The Design Manual for Roads and Bridges Interim Advice Note 174/12 Updated advice for evaluating significant local air quality effects for users of DMRB Volume 11, Section 3, Part 1 'Air Quality (HA207/07) defines a change equivalent to less than 5% of the critical level as 'small'

[26] The critical level for NOx is entirely generic. Therefore, while it can be used as a broad guide to any likely issues, nitrogen deposition rates need to be calculated to get a true picture of the resulting ecological effect, because different habitats have different susceptibility to additional nitrogen in practice, and only a proportion of NOx is deposited as nitrogen within 200m of the roadside.

8.38 In all cases, the 'in combination' nitrogen deposition rate for the modelled future year is considerably lower than the 2017 base rates for the same reasons as for NOx. Unsurprisingly, the patterns for NOx are reflected in nitrogen deposition but since most NOx does not deposit locally the retardation due to the Local Plan is smaller than for NOx. Even for the most affected transects (Longcross and the two M3 transects), the forecast retardation of improvement at the roadside is a maximum of 0.03 kgN/ha/yr, or a further 3 milligrams of nitrogen per square metre over the course of a year[27]. For the most affected point along the M3, this would make the difference between a deposition rate of 15.49 kgN/ha/yr and one of 15.53 kgN/ha/yr, which in ecological terms is essentially the same rate since studies of nitrogen dose-response relationships in heathland have shown that at the forecast deposition rates a contribution of 1.3 kgN/ha/yr would be required to reduce species richness[28], i.e. a change in deposition rate 40 times greater than the retardation forecast due to the Local Plan.[29]

8.39 Moreover, the modelling does not take account of the fact that most of Chobham Common in the transect locations either side of the M3 is closely mown as a firebreak up to a distance of c. 50-75m from the roadside, which essentially removes the ability of that zone to support SPA birds or to function as heathland.

8.40 For completeness, the A320 Chertsey Road north of Woking was also modelled, as this is a relatively direct route linking Addlestone to Woking and lies within 200m of the Thames Basin Heaths SPA in Woking borough. A similar pattern was identified as for the other modelled main roads. The 'in combination' total NOx concentrations by the assessment year (when improvements in emission factors are applied to all traffic) are forecast to have fallen substantially, although they are still expected to be above the critical level at the roadside. The same pattern is observed for nitrogen deposition rates. The contribution of the Local Plan to retarding the forecast improvement in deposition rates is forecast to be very small and ecologically negligible, being a worst-case 0.04 kgN/ha/yr.

8.41 Overall therefore it is considered that a conclusion of no adverse effect on integrity alone or in combination with other plans and projects is reasonable.

8.42 Notwithstanding the results of any air quality assessment, background NOx concentrations and nitrogen deposition rates will remain elevated on most links and it is appropriate for the local authority to take steps to improve air quality.

8.43 In consultation on Core Strategies and Local Plans for surrounding Thames Basin Heaths local authorities four broad types of mitigation measure have been identified:

- 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.

8.44 Measures have been developed for the Local Plan to cover the first two of these categories (the third and fourth being outside the remit of local planning policy). The measures are as follows:

- Policy SD4: Active and Sustainable Travel includes a range of measures that should reduce use of the private car:
    - Supporting and implementing the objectives and strategies of the Surrey Local Transport Plan, strategies and projects prepared by TfSE or agreed under the Duty to

[27] For ease of comparison, a teaspoon of salt typically weighs 5000-6000 milligrams and a pinch of salt (c. 1/16th of a teaspoon) weighs roughly 300 milligrams

[28] This is a good indicator of the effect of nitrogen deposition on vegetation as it arises at low background deposition rates, is easily detectable and occurs across different habitats. Note that 'reduction in species richness' only means that fewer species are recorded in a randomly placed 2m x 2m quadrat. Therefore, it does not mean species are 'lost' from the affected area; it simply means that at least one species occurs at a reduced frequency; it is therefore a relatively subtle metric.

[29] Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., S Power, S., Sheppard, L. & Stevens, C. 2016. Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210.

Cooperate, and schemes which help to alleviate existing transport and highway problems in Runnymede or the wider area as identified through further partnership working;

- Supporting developments, including sites allocated in this Plan, which integrate with or provide new accessible, safe and attractive active and sustainable travel networks and routes to service and employment centres and rail interchanges;
- Requiring development proposals, including sites allocated in this Plan, which generate significant traffic movements to submit and implement Travel Plans demonstrating how active and sustainable travel options have been considered and how they will be delivered as well as the remedial actions to be taken should monitoring reveal that Travel Plan targets have been missed;
- Securing improvements to or contributions towards improving the capacity of cycle parking at the Borough's rail stations;
- Safeguarding land as identified on the adopted Policies Map for transport related infrastructure;
- Securing funding from a range of sources including developer contributions to deliver projects set out within the Runnymede Infrastructure Delivery Plan for transport schemes and highway improvements;

- Policy SD5 Highway Design Considerations states that '*Development proposals which generate significant traffic movements must be accompanied by a Transport Assessment or Transport Statement which considers the impact of the proposal on the highway network and identifies the measures to mitigate impacts to acceptable levels. Development proposals will be supported where the mitigation measures identified in Transport Assessments and Transport Statements can be secured and implemented'*.
- Policy SD8 Sustainable Design includes requirements for development to:
  - Incorporate measures for the secure storage of cycles;
  - Subject to feasibility, incorporate active electrical vehicle charging points in accordance with guidance issued by Surrey County Council.
- Policy SD10 specifically requires Longcross Garden Village to include '*A range of sustainable transport choices which facilitate connections within the village and to other neighbouring settlements and which maximise opportunities for modal shift by optimising connectivity within the site by walking/cycling with a suite of improvements to the local road network to mitigate significant impacts*' and then lists the applicable measures.
- Policy EE2 Environmental Protection states regarding air quality that '*Development proposals which may give rise to adverse impacts on air quality including sources of odour or fumes or which may place sensitive receptors in areas exceeding adopted air quality standards, or in close proximity to existing sources of odour, will be expected to be accompanied by an air quality assessment or odour impact study. Where the air quality assessment or odour impact study shows that proposed development, either individually or cumulatively, will have an adverse impact on air quality, sensitive receptors, the natural environment or amenity, planning permission will only be granted where abatement or mitigation measures to reduce impacts to acceptable levels can be secured and implemented'*.
- Policy EE10 (Thames Basin Heath Special Protection Area) will not permit development that would be likely to have a significant adverse effect on the Thames Basin Heaths SPA.

8.45 These are in line with similar policies that other Thames Basin Heaths local authorities have included in their Local Plans and Core Strategies and which have enabled a conclusion of no

adverse effect on integrity stemming from those authorities adopted Local Plans and Core Strategies.

8.46 It is important that there is also a mechanism established to monitor the effectiveness of the measures adopted and adjust them as required.

8.47 **The Council should therefore commit to working with other local authorities, land managers, and strategic highway authorities to develop a framework by which forecast improvements in roadside air quality in the Thames Basin Heaths SPA can be monitored, both in order to confirm that forecast improvements are occurring as predicted and to facilitate introduction of supplementary measures[30] if required. This is in line with the approach to the same issue being undertaken by other Thames Basin Heaths authorities in their Core Strategies and Local Plans.**

8.48 Monitoring is an essential factor when dealing with an issue such as air quality, since it will enable the effectiveness of air quality improvement measures to be evaluated and amended over the Local Plan period.

Appropriate Assessment for Pathway– Water Quality and Water Quantity

8.49 Policy SD2, SD3 and SD10 promote the redevelopment of the former DERA site (Longcross Garden Village) for a mixed-use development that includes 1,700 new homes adjacent to the Thames Basin Heaths SPA. Parcel 221 (Longcross Barracks) would form part of this development but would not accommodate housing, only employment development and/or a care home or similar.

8.50 Thames Basin Heaths SPA is considered to be sensitive to the effects of pollution (through groundwater and surface run-off sources on water quality). Thames Basin Heaths SPA is also considered to be sensitive to the effects of maintenance of the water table to ensure essential water levels where reduction/lowering could cause loss or damage to the wet heath and mire communities and thus the habitats on with the protected bird species depend.

8.51 Water resource and quality studies undertaken as part of the DERA North application have confirmed that there is no surface or groundwater connection between the part of the DERA North site to be developed (i.e. the area within Runnymede) and Chobham Common or other parts of the Thames Basin Heaths SPA/Thursley, Ash, Pirbright and Chobham SAC.

8.52 Nonetheless, a small residual risk of increased runoff due to traffic using Burma Road has been identified through consultation over the DERA North planning application; this is to be addressed by measures in the CEMP for the permitted site.

8.53 The study confirms that the SLAA site 99 (DERA South) site is also hydrologically independent from Chobham Common or other parts of the SPA/SAC. It has also been confirmed by Affinity Water that water is available for the DERA development and will not involve abstraction from the Bagshot Formation which underlies the SPA/SAC.

8.54 Longcross Garden Village is the only proposed site that lies close enough to Chobham Common to potentially lead to water quality effects on Chobham Common. Therefore no further 'in combination' assessment of this pathway is required.

In-combination Assessment

8.55 An in-combination assessment has been undertaken relating to disturbance and air quality at Thames Basin Heaths SPA. The 'in combination' air quality results have already been reported. For disturbance it was found that with mitigation (adhering to Policy EE10 regarding SANG and SAMM provision) it can be concluded that there are no in-combination effects as adequate SANG and SAMM provision will address the issue for Runnymede and all other Thames Basin Heaths authorities have similar policies.

Conclusion

8.56 It is concluded that there will be no direct or indirect adverse effects on the integrity of Thames Basin Heaths SPA.

8.57 The following specific recommendations are made to take into account in plan development going forward:

- In relation to SANG provision, it is considered that there would be no risk of an adverse effect on the integrity of the Thames Basin Heaths SPA since the policy developed under Policy EE10 would require the Council to either meet the SANG provision from alternative strategic SANG, meet the shortfall by releasing development sites that can provide their own SANG, or review the Local Plan. However, it is recommended that the potential for further bespoke or strategic SANG later in the plan period is explored by the Council in time for Examination in Public.
- The Council should commit to working with other local authorities, land managers, and strategic highway authorities to develop a framework by which forecast improvements in roadside air quality in the Thames Basin Heaths SPA can be monitored, both in order to confirm that forecast improvements are occurring as predicted and to facilitate introduction of supplementary measures if required. This is in line with the approach to the same issue being undertaken by other Thames Basin Heaths authorities in their Core Strategies and Local Plans.

8.58 It is considered that these measures would enable a conclusion of no adverse effect on integrity alone or in combination.

Thursley, Ash, Pirbright & Chobham SAC

Overview

8.59 The Thursley, Ash, Pirbright & Chobham SAC is located in the counties of Surrey, Hampshire and Berkshire and is composed of four SSSIs. The total area covered by the constituent SSSIs is approximately 4,955.20 hectares (12,239.34 acres) as stated on SSSI citations and 5,241.38 hectares (12,946.20 acres) according to the SSSI condition surveys:

- Ash to Brookwood Heaths SSSI
- Colony Bog & Bagshot Heath SSSI
- Chobham Common SSSI
- Thursley, Hankley & Frensham Commons SSSI

8.60 The site has been designated under the EU Habitats Directive for the presence of habitats listed in Annex I of the Directive (refer to Section 2 and Annex 1 citation) which are:

- H4010 Northern Atlantic wet heaths with *Erica tetralix*
- H4030 European dry heaths
- H7150 Depressions on substrates of the *Rhynchosporion***.**

8.61 The current conditions at the site is unfavourable- recovering and is vulnerable to a number of threats including:

- The mosaic of habitats across this large and varied site is largely dependent on active heathland management. The spread of non-native / invasive species and scrub encroachment as a result of poor site management practices coupled with the continued accumulations of defuse atmospheric pollution (nutrient deposition, acidification and dust causes a loss of certain nutrient poor species. Insufficient grazing or other traditional practices, including bracken control and scrub clearance, is considered to be a serious potential threat to this European site. Grazing trials have been established on several parts of the site with great success, but currently extensive grazing is absent from much of the site.
- The site is sensitive to the effects of pollution through groundwater and surface run-off sources on water quality that can result in the loss of sensitive species.

- Maintenance of the water table at essential water levels (WRM3) where reduction/lowering is required could cause the permanent and irreversible loss or damage to sensitive wet heath and mire communities.
- The indirect effects of neighbouring developments pose potential long-term problems, however these are not well documented. Measures could be required to address recreational pressures, including erosion, fires resulting from arson, and fly-tipping which may pose a serious risk to sensitive habitats species.

Summary of Local Plan policies that require further assessment due to Likely Significant Effects on the TPAC SAC

8.62 Table 8 below presents the conclusions of the Screening HRA (refer to Section 5) on those polices and SLAA sites that are considered to result in a likely significant effect on the supporting habitat and species of the Thursley, Ash, Pirbright & Chobham SAC.

Table 7 –Local Plan preferred approaches on TPAC SAC

No.		Likely Policy Interaction				
Preferred approaches, preferred housing sites (SLAA sites)		Land Take	Air Quality	Water Quality	Species Disturbance	Water Quantity
SD2, SD3	**The Local Plan will make provision for a minimum of 7551 net additional dwellings over the plan period along with 66,000sqm net employment floorspace and a minimum of 6000sqm net retail floorspace.**	X	✓	✓	X	X
SLAA sites	**Longcross Garden Village (Policy SD10)is immediately adjacent to TPAC SAC**	X	✓	✓	X	?

KEY: X = No Likely Interaction | ✓ = Yes Likely Interaction | ? = Unsure of Likely Interaction

Appropriate Assessment for – Air Quality

8.63 The parts of the SAC of interest to this Appropriate Assessment are coincident with the Thames Basin Heaths SPA, principally Chobham Common. Since air quality effects on the habitats of importance to the interest features of the SPA (i.e. the heathland) have already been assessed in the preceding chapter, the conclusions of that assessment will apply equally to the SAC.

Appropriate Assessment for Pathway – Water Quality and Water Quantity

8.64 Policy SD10 promotes the redevelopment of the former DERA site Longcross Garden Village for a mixed-use development that includes 1,700 new homes adjacent to the SAC. Parcel 221 (Longcross Barracks) would form part of this development but would not accommodate housing, only employment development and/or a care home or similar. Water resource and quality studies undertaken as part of the DERA North application have confirmed that there is no surface or groundwater connection between the part of the DERA North site to be developed and Chobham Common or other parts of the Thursley, Ash, Pirbright and Chobham SAC.

8.65 Nonetheless, a small residual risk of increased runoff due to traffic using Burma Road has been identified through consultation over the DERA North (SLAA Site 97) planning application and this is to be addressed by measures in the CEMP for the permitted site.

8.66 The study confirms that the SLAA site 99 (DERA South) site is also hydrologically independent from Chobham Common or other parts of the SAC. It has also been confirmed by Affinity Water that water is available for the DERA development and will not involve abstraction from the Bagshot Formation which underlies the SAC.

8.67 Longcross Garden Village is the only proposed allocation that lies close enough to Chobham Common to potentially lead to water quality effects on Chobham Common and therefore no further 'in combination' assessment of this pathway is required.

In-combination Assessment

8.68 An in-combination assessment relating to air quality at Thursley, Ash, Pirbright & Chobham SAC of the Local Plan and other plans has been undertaken and reported. It was found that it can be included that there are no in-combination effects.

Conclusion: TAPC SAC

8.69 It is concluded that there will be no direct or indirect adverse effects on integrity of Thursley, Ash, Pirbright & Chobham SAC as a result of implementation of the Local Plan.

8.70 It is considered appropriate for the Council to commit to working with other local authorities, land managers, and strategic highway authorities to develop a framework by which air quality measures can be linked to monitoring of the air quality in the European site before and for a number of years after introduction of the measures, such that further measures can be devised if the air quality does not improve. In making these assessments the critical load for the relevant habitat should be used as the target for assessment.

9. Overall HRA Conclusion

9.1 It can be concluded that there will be no adverse effects on the integrity of Thursley, Ash, Pirbright & Chobham SAC.

9.2 In relation to the Thames Basin Heaths SPA and SANG provision it is considered that there would be no risk of an adverse effect on the integrity of Thames Basin Heaths SPA since the policy developed under Preferred Approach EE10 would require the Council to either meet the SANG provision from alternative strategic SANG, meet the shortfall by releasing development sites that can provide their own SANG, or review the Local Plan. Therefore it can be concluded that there will be no adverse effects on the integrity of Thames Basin Heaths SPA.

9.3 However, it is recommended that the potential for further bespoke or strategic SANG later in the plan period is explored by the Council in time for Examination in Public.

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Appendix 1: DETAILED POLICIES SCREENING ASSESSMENT INCLUDING REASONING FOR LIKELY SIGNIFICANT EFFECTS (ALONE)

Policy	Name	Likely Significant Effect- LSE (alone) plus reasoning
SD1	**Presumption in favour of sustainable development**	By definition a policy promoting and requiring sustainable development will not pose LSE for ES
SD2	**Spatial Development Strategy**	Since policy allows for site allocations likely significant effects on ES could arise depending on the location and nature of those allocated sites.
SD3	**Site Allocations**	Since policy allows for site allocations likely significant effects on ES could arise depending on the location and nature of those allocated sites.
SD4	**Active & Sustainable Travel**	Policy relates to promotions in the reduction of the need to travel and promotion of sustainable travel. No LSE resulting in this policy
SD5	**Highway Design Considerations**	The policy aims to maintain or enhance the efficient and safe operation of the highway network Considered no LSE
SD6	**Infrastructure Provision & Timing**	This policy relates to timely and phased development for infrastructure projects and it is considered no LSE.
SD7	**Retention of Social & Community Infrastructure**	This policy relates to the retention of existing social and community infrastructure. Considered no LSE.
SD8	**Sustainable Design**	Policy relates to design criteria and therefore no LSE resulting from this policy
SD9	**Renewable & Low Carbon Energy**	Policy relates to obtaining renewable energy & low carbon sources for a percentage of all developments no LSE resulting from this policy
SD10	**Longcross Garden Village**	Since policy allows for site allocations likely significant effects on ES could arise depending on the location and nature of those allocated sites.
SL1	**Health and Wellbeing**	A policy promoting health and wellbeing will not pose LSE for ES
SL19	**Housing Mix and Size Requirements**	This policy does not lead to development but relates to the design of development, therefore no likely significant effects to ES a

Policy	Name	Likely Significant Effect- LSE (alone) plus reasoning
		result of this policy
SL20	**Affordable Housing**	This policy does not lead to development- it is a design tool to increase the amount of affordable housing within existing developments, therefore no likely significant effects to ES a result of this policy
SL21	**Presumption against loss of residential**	Policy relates to protection of existing residential dwellings therefore no likely significant effects to ES a result of this policy
SL22	**Meeting the Needs Gypsies and Travellers**	Policy relates to the provision of gypsy and traveller sites within the allocated sites in the plan therefore no likely significant effects to ES a result of this policy
SL23	**Accommodating Older Persons and Students**	This policy does not lead to development- it is a design tool related to accommodation requirements for older people and students , therefore no likely significant effects to ES a result of this policy
SL24	**Self & Custom Build Housing**	Policy related to the provision of dwelling plots for custom builders within the sites allocated previously within the Plan. Does not allocate addition sites so no likely significant effects to ES a result of this policy
SL25	**Existing open space**	Policy relates to enhancing existing open space and is therefore no LSE as a result of this policy
SL26	**New open space**	The policy relates to the provision of a number of recreational facilities across the Borough. The locals of which are undetermined and as such there are LSE to ES
SL27	**Local Green Space**	Policy relates to protection of Local Green Space in relation to development so no likely significant effects as a result of this policy
SL28	**Playing pitches**	Policy relates to protection of playing pitches so no likely significant effects as a result of this policy
EE1	**Townscape and landscape quality**	This policy relates to townscape enhancement and density guidelines and is not considered to cause any impacts to ES and so can be taken forward without any LSE

Policy	Name	Likely Significant Effect- LSE (alone) plus reasoning
EE2	**Environmental Protection**	This policy aims to protect the environment from pollution and therefore considered no LSE
EE3	**Strategic Heritage Policy**	This policy relates to the conservation of the historic environment and therefore considered no LSE
EE4	**Listed buildings**	This policy relates to the conservation of Listed Buildings and therefore considered no LSE
EE5	**Conservation Areas**	This policy relates to the protection of Conservation Areas and therefore considered no LSE
EE6	**Parks and Gardens of Special Historic Interest**	This policy relates to the protection of parks and gardens of special historic interest and therefore considered no LSE
EE7	**Scheduled Monuments, County Sites of Archaeological Interest (CSAIs) and Areas of High Archaeological Potential (AHAPs)**	This policy relates to the conservation of scheduled monuments but also Policy refers to encourage archaeological assessment of new and un-investigated areas. As the locations are unknown it is considered LSE on ES.
EE8	**Locally listed and other non-designated heritage assets**	Policy refers to encourage assessment of new and un-investigated areas. As the locations are unknown it is considered LSE on ES.
EE9	**Biodiversity, Geodiversity and Nature Conservation**	This policy supports the natural environment as it safeguards current nature conservation sites and will provide Local Green Spaces to avoid habitat fragmentation. No Likely significant effects to ES as a result of this policy.
EE10	**Thames Basin Heaths Special Protection Area**	Policy relates to the protection of Thames Basin Heaths SPA through the provision of SANGs. No LSE to this or other as a result of this policy. This preferred approach is slightly different from that assessed in 2016 in that it makes explicit reference to encouragement of bespoke SANG. Bespoke SANG are an accepted part of the Thames Basin Heaths mitigation solution and there is thus no change to the conclusion regarding this policy in the 2016 HRA.
EE11	**Green Infrastructure**	This policy sets out to protect and enhance the green infrastructure in the Borough. It is considered no LSE to any ES as

Policy	Name	Likely Significant Effect- LSE (alone) plus reasoning
		a result of this policy
EE12	**Blue infrastructure**	This policy sets out to protect and enhance the blue infrastructure in the Borough. It is considered no LSE to any ES as a result of this policy
EE13	**Managing Flood Risk**	Relates to strategic level flood risk alleviation. No LSE as a results of this policy.
EE14	**Extensions and alterations to and replacement of buildings in the Green Belt**	The policy or policies will allow extension and or replacement of buildings in green belt. The location of these re-developments are not defined by the policy in by the policy and so thus has the for LSE on all ES
EE15	**Re-use of buildings in the Green Belt**	The policy relates to re-use of buildings in the green belt and so no LSE as a result of this policy.
EE16	**Outdoor Sport and Recreation in the Green Belt**	The policy relates to the provision outdoor recreation including equestrian based development in the green belt but the locality of such sites is not stated. Therefore this policy has the potential to impact upon all European Sites.
EE17	**Infilling or Redevelopment on Previously Developed Land in the Green Belt**	The policy relates to redevelopment on previously developed sites in the green belt and so no LSE as a result of this policy.
EE18	**Engineering Operations in the Green Belt**	The policy relates to engineering operations in the green belt but the locality of such sites is not stated. Therefore this policy has the potential to impact upon all European Sites.
EE19	**Change of Use of Land in the Green Belt**	The policy relates to change of land use on existing development in the green belt and so no LSE as a result of this policy.
IE1	**Employment allocations**	As part of the amended preferred approach SLAA site site 51: Byfleet Road, New Haw will be allocated for B8 (storage and distribution) use to help meet identified needs. Since this policy involves allocating a site, likely significant effects cannot be ruled out. Moreover, the allocation of this site will however not meet the totality of the Council's identified needs for B8 floorspace. As such it is considered that discussions under the DtC will need to

Policy	Name	Likely Significant Effect- LSE (alone) plus reasoning
		continue with partners to see if there are other locations in the FEA, closer to Heathrow Airport where the provision of additional industrial can be provided to meet identified needs. Since all employment areas will not be allocated in the Local Plan there could be likely significant effects on the, South West London Waterbodies and supporting lakes, if located very close to the SPA i.e. within 400m. It may therefore be appropriate to have a rider with this (and E3, E6 and R7) requiring proximity to European sites to be a consideration in determining applications for new employment, particularly if those employment sites lie within 400m of an SPA. Given that such sites would need to be closer to Heathrow than allocated site 51, it can be assumed that they will be a considerable distance from Thames Basin Heaths SPA.
IE2	**Strategic Employment Areas**	The policy relates to protection of Strategic Employment Areas and so no LSE as a result of this policy.
IE3	**Catering for modern business needs**	The policy relates to local business and so no LSE as a result of this policy.
IE4	**The visitor economy**	The policy relates to tourist attractions as does not allocate sites and so no LSE as a result of this policy.
IE5	**Centre hierarchy, sequential and impacts**	The policy relates to enhancing the function of town centres and so no LSE as a result of this policy.
IE6	**Town centre development**	The policy relates to enhancing the function of town centres and so no LSE as a result of this policy.
IE7	**Addlestone East Allocation**	Since this policy involves allocating sites, likely significant effects cannot be ruled out.
IE8	**Addlestone West allocation**	Since this policy involves allocating sites, likely significant effects cannot be ruled out.
IE9	**Egham Gateway East allocation**	Since this policy involves allocating sites, likely significant effects

Policy	Name	Likely Significant Effect- LSE (alone) plus reasoning
		cannot be ruled out.
IE10	**Egham Gateway West allocation**	Since this policy involves allocating sites, likely significant effects cannot be ruled out.
IE11	**Town Centre Opportunity Areas**	Since this policy involves allocating sites, likely significant effects cannot be ruled out.
IE12	**Local Centres**	The policy relates to providing services for the local community and so no LSE as a result of this policy.
IE13	**Shops and parades outside defined centres**	The policy relates to enhancing the community shops and parades and so no LSE as a result of this policy.

Appendix 2: DETAILED SITE ALLOCATIONS SCREENING ASSESSMENT INCLUDING REASONING FOR LIKELY SIGNIFICANT EFFECTS (ALONE)

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	Thursley, Ash, Pirbright and Chobham SAC	South West London Waterbodies SPA	Windsor Forest and Great Park SAC	
SL2	Brox End Nursery, Ottershaw (SLAA site ref: 14) Will provide 40 residential units.	LSE because SLAA site is within 5 km (2.6 km) of TBH SPA so SANG required.	No LSE due to following: ▪ Distance from SLAA site- over 2.6 km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site.	No LSE due to the following ▪ Distance from SWLW from this SLAA site (over 4.7km) and therefore no land take/loss; ▪ No water quality issues due to the distance from the SLAA site (development); ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance.	No LSE due to the following: ▪ Distance from SLAA site (over 9 km) and therefore no land lost. ▪ AADT flow calculations undertaken at the time of the 2014 Local Plan HRA for Blacknest Road within 200m of the SAC confirmed that there was expected to be a reduction in two-way flows of 427 AADT as a result of the Local Plan due to road and employment improvements in Runnymede which the transport model predicted will result in fewer people using Blacknest Road than would otherwise be the case. This trend is expected to continue. As such there will be no likely significant air quality effect.	Preffered SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required
SL3	Hanworth Lane, Chertsey (SLAA site ref: 48)	LSE because SLAA site is within 5 km (4.8km at the closest point- only half of the site is within the 5 km radius relating to TBH SPA) of TBH	No LSE due to following: ▪ Distance from SLAA site- over 4.8 km and therefore no land take; ▪ No water quality issues	No LSE due to the following ▪ Distance from SWLW from this SLAA site (over 1.5km therefore no land take/loss; and is separated	No LSE due to the following: ▪ Distance from SLAA site (over 7 km) and therefore no land lost. ▪ Air quality refer to	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	Thursley, Ash, Pirbright and Chobham SAC	South West London Waterbodies SPA	Windsor Forest and Great Park SAC	
	Will provide 340 residential dwellings.	SPA so SANG required.	due to the distance from the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site.	by the M25 and M3 ▪ No water quality issues due to the distance and separation from the SLAA site (development); ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance.	explanation in SLAA site 14.	
SL4	Coombelands Lane, Row Town (SLAA site ref: 17) Will provide 43 residential dwellings	LSE because SLAA site is within 5 km (4.6 km) of TBH SPA so SANG required.	No LSE due to following: ▪ Distance from SLAA site- over 4.6 km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site.	No LSE due to the following ▪ Distance from SWLW from this SLAA site (over 4.3km) and therefore no land take/loss; ▪ No water quality issues due to the distance from the SLAA site (development); ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance.	No LSE due to the following: ▪ Distance from SLAA site (over 4.5 km) and therefore no land lost. ▪ Air quality refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required
SL5	Blay's House, Blay's Lane, Englefield Green (SLAA site ref: 156)	LSE because SLAA site is within 5 km of TBH SPA so SANG required	As for SPA	No LSE due to distance (site is 2.5km from nearest part of SPA or supporting waterbodies)	No LSE due to distance (1.7km from SAC) and fact that recreational pressure is not identified as a concern for this	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage.

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	Thursley, Ash, Pirbright and Chobham SAC	South West London Waterbodies SPA	Windsor Forest and Great Park SAC	
	Estimated 100 residential dwellings.				SAC. Air quality refer to explanation in SLAA site 14	No in-combination assessment required
SL6	Pyrcroft Road, Chertsey (SLAA site ref: 60) Will provide 275 residential units.	LSE because SLAA site is within 5 km (4.2 km) of TBH SPA so SANG required.	No LSE due to following: ▪ Distance from SLAA site- over 4.2 km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site.	No LSE due to the following ▪ Distance from SWLW from this SLAA site (less than 1km) and separated from SWLW by the M3 and therefore no land take/loss; ▪ No water quality issues due to the distance and separation from the SLAA site (development); ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance.	No LSE due to the following: ▪ Distance from SLAA site (over 6.7 km) and therefore no land lost. ▪ Air quality refer to explanation in SLAA site 14.4).	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required
SL7	Thorpe Lea Road North (SLAA site ref: 256) Will deliver 90 residential units with 2 traveller pitches.	Approx. 6km from TBH SPA. However, is over 50 dwellings and therefore will require project-level HRA and may well require SANG and SAMM contributions	No LSE due to following: ▪ Distance from SLAA site- approx. 6km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development)	No LSE due to the following: ▪ Distance from SWLW from this SLAA site (2km) and therefore no land take/loss; ▪ No water quality issues due to the distance from the SLAA site (development);	No LSE due to the following: ▪ Distance from SLAA site (over 4km) and therefore no land lost. ▪ Air quality (re refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	**Thursley, Ash, Pirbright and Chobham SAC**	**South West London Waterbodies SPA**	**Windsor Forest and Great Park SAC**	
			▪ No air quality issues, again due to the distance from the SLAA site.	▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiiing at the site is managed to avoid disturbance		
SL8	Thorpe Lea Road West (SLAA site ref: 257) Will provide 250 residential units with 3 traveller pitches.	Is approx. 5.7km from TBH. However, is over 50 dwellings and therefore will require project-level HRA and may well require SANG and SAMM contributions	No LSE due to following: ▪ Distance from SLAA site- over 5.7km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site..	No LSE due to the following: ▪ Distance from SWLW from this SLAA site (1.5km) and therefore no land take/loss; ▪ No water quality issues due to the distance from the SLAA site (development); ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance	No LSE due to the following: ▪ Distance from SLAA site (over 4km) and therefore no land lost. ▪ Air quality (re refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required
SL9	Virginia Water North (SLAA site ref: 258) Will provide 120 residential units.	LSE because SLAA site is approximately 2.8km north-east of the TBH SPA so SANG required if developed.	No LSE due to following: ▪ Distance from SLAA site- over 2.8km and therefore no land take; ▪ No water quality issues due to the distance from	No LSE due to the following ▪ Distance from SWLW from this SLAA site (over 2km), and M25 separates the SWLW and this SLAA site and therefore no land	No LSE due to the following: ▪ Distance from SLAA site (over 3km) and therefore no land lost. ▪ Air quality (re refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	Thursley, Ash, Pirbright and Chobham SAC	South West London Waterbodies SPA	Windsor Forest and Great Park SAC	
			▪ the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site.	take/loss; ▪ No water quality issues due to the distance from the SLAA site (development) and separation via M25; ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance and M25 acting as a barrier		
SL10	Virginia Water South (SLAA site ref: 261) Will provide 140 residential units, 2 traveller pitches and 20 sheltered units.	LSE because SLAA site is s approximately 1.7km east of TB SPA so SANG required if developed.	No LSE due to following: ▪ Distance from SLAA site- over 2.4km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site.	No LSE due to the following ▪ Distance from SWLW from this SLAA site (over 3km), and M25 separates the SWLW and this SLAA site and therefore no land take/loss; ▪ No water quality issues due to the distance from the SLAA site (development) and separation via M25; ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid	No LSE due to the following: ▪ Distance from SLAA site (over 4km) and therefore no land lost. ▪ No changes in air quality (re Blacknest Road traffic flow in relation to population increase) as per the traffic flow calculations in Local Plan HRA Amendment March 2014	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	Thursley, Ash, Pirbright and Chobham SAC	South West London Waterbodies SPA	Windsor Forest and Great Park SAC	
				disturbance and M25 acting as a barrier		
SL11	Parcel B, Veterinary Laboratory site, Addlestone (SLAA site ref: 254) Will provide 150 residential units 2 traveller pitches.	LSE because SLAA site is within 5 km of TBH SPA so SANG required	No LSE due to following: ▪ Distance from SLAA site- over 4km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site.	No LSE due to the following: ▪ Distance from SWLW from this SLAA site (over 4km) and therefore no land take/loss; ▪ No water quality issues due to the distance from the SLAA site (development); ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance.	No LSE due to the following: ▪ Distance from SLAA site (over 10 km) and therefore no land lost. ▪ Air quality (re refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required
SL12	Ottershaw East (SLAA site ref: 263) Will provide 200 residential units, 20 sheltered units and 2 traveller pitches.	LSE because SLAA site is s approximately 2.74km of TB SPA so SANG required if developed.	No LSE due to following: ▪ Distance from SLAA site- over 2.7km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site.	No LSE due to the following: ▪ Distance from SWLW from this SLAA site (over 4.5km), and M25 separates the SWLW and this SLAA site and therefore no land take/loss; ▪ No water quality issues due to the distance from the SLAA site (development) and separation via M25; ▪ No water abstraction from the gravel pits unit of	No LSE due to the following: ▪ Distance from SLAA site (over 8km) and therefore no land lost. ▪ Air quality (re refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	Thursley, Ash, Pirbright and Chobham SAC	South West London Waterbodies SPA	Windsor Forest and Great Park SAC	
				▪ SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance and M25 acting as a barrier		
SL13	St. Peter's Hospital (SLAA site ref: 231) Will provide 420 residential units with a 70 bedroom care home.	LSE because SLAA site is within 5 km of TBH SPA so SANG required	As for SPA	No LSE due to distance (site is 2.2km from nearest part of SPA or supporting waterbodies)	No LSE due to distance (site is 5.8km from SAC at its closest) Air quality refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required
SL14	Chertsey Bittams – Parcel A. Green Lane (SLAA site ref: 255)	LSE because SLAA site is within 5 km of TBH SPA (3.4km) so SANG required If released from green belt	No LSE due to following: ▪ Distance from SLAA site- over 3.4km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site.	No LSE due to the following ▪ Distance from SWLW from this SLAA site (2km), and M25 separates the SWLW and this SLAA site and therefore no land take/loss; ▪ No water quality issues due to the distance from the SLAA site (development) and separation via M25; ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is	No LSE due to the following: ▪ Distance from SLAA site (over 8 km) and therefore no land lost. ▪ Air quality (re refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	Thursley, Ash, Pirbright and Chobham SAC	South West London Waterbodies SPA	Windsor Forest and Great Park SAC	
				managed to avoid disturbance and M25 acting as a barrier		
SL15	Chertsey Bittams – Parcel B. Woodside Farm (SLAA site ref: 255)	LSE because SLAA site is within 5 km of TBH SPA (3.4km) so SANG required If released from green belt	No LSE due to following: ▪ Distance from SLAA site- over 3.4km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site.	No LSE due to the following ▪ Distance from SWLW from this SLAA site (2km), and M25 separates the SWLW and this SLAA site and therefore no land take/loss; ▪ No water quality issues due to the distance from the SLAA site (development) and separation via M25; ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance and M25 acting as a barrier	No LSE due to the following: ▪ Distance from SLAA site (over 8 km) and therefore no land lost. ▪ Air quality (re refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required
SL16	Chertsey Bittams – Parcel C. Last east of Woodside Farm (SLAA site ref: 255)	LSE because SLAA site is within 5 km of TBH SPA (3.4km) so SANG required If released from green belt	No LSE due to following: ▪ Distance from SLAA site- over 3.4km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development)	No LSE due to the following ▪ Distance from SWLW from this SLAA site (2km), and M25 separates the SWLW and this SLAA site and therefore no land take/loss; ▪ No water quality issues due	No LSE due to the following: ▪ Distance from SLAA site (over 8 km) and therefore no land lost. ▪ Air quality (re refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	Thursley, Ash, Pirbright and Chobham SAC	South West London Waterbodies SPA	Windsor Forest and Great Park SAC	
			▪ No air quality issues, again due to the distance from the SLAA site.	to the distance from the SLAA site (development) and separation via M25; ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance and M25 acting as a barrier		
SL17	Chertsey Bittams – Parcel D. Oracle Park (SLAA site ref: 255)	LSE because SLAA site is within 5 km of TBH SPA (3.4km) so SANG required If released from green belt	No LSE due to following: ▪ Distance from SLAA site- over 3.4km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site.	No LSE due to the following ▪ Distance from SWLW from this SLAA site (2km), and M25 separates the SWLW and this SLAA site and therefore no land take/loss; ▪ No water quality issues due to the distance from the SLAA site (development) and separation via M25; ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance and M25	No LSE due to the following: ▪ Distance from SLAA site (over 8 km) and therefore no land lost. ▪ Air quality (re refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	Thursley, Ash, Pirbright and Chobham SAC	South West London Waterbodies SPA	Windsor Forest and Great Park SAC	
				acting as a barrier		
SL18	Chertsey Bittams – Parcel E. Land east of Wheelers Green (SLAA site ref: 255)	LSE because SLAA site is within 5 km of TBH SPA (3.4km) so SANG required If released from green belt	No LSE due to following: ▪ Distance from SLAA site- over 3.4km and therefore no land take; ▪ No water quality issues due to the distance from the SLAA site (development) ▪ No air quality issues, again due to the distance from the SLAA site.	No LSE due to the following ▪ Distance from SWLW from this SLAA site (2km), and M25 separates the SWLW and this SLAA site and therefore no land take/loss; ▪ No water quality issues due to the distance from the SLAA site (development) and separation via M25; ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance and M25 acting as a barrier	No LSE due to the following: ▪ Distance from SLAA site (over 8 km) and therefore no land lost. ▪ Air quality (re refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required
IE1	Byfleet Road, New Haw (SLAA site ref: 51) Employment site	No LSE. Site is 2.8km from the SPA at its closest but employment sites do not contribute materially to recreational pressure	As for SPA	No mechanism for LSE due to combination of distance and allocation being an employment site	No mechanism for LSE due to combination of distance and allocation being an employment site Air quality refer to explanation in SLAA site 14	None, although employment sites will be included in updated transport/air quality assessment for Thames Basin Heaths SPA
IE7	Addlestone East (Town allocation)	Site is 5.4km from the SPA and will deliver 70-90 residential	No LSE due to following: ▪ Distance from site - over	Site lies over 3km from the SPA and is separated by the M3	Site lies over 8.5km from the SAC	Proceeds straight to Appropriate Assessment Stage. No in-

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	Thursley, Ash, Pirbright and Chobham SAC	South West London Waterbodies SPA	Windsor Forest and Great Park SAC	
		units and 400-500 m^2 of commercial floorspace. Between 5 and 7km from the edge of the SPA residential developments of over 50 houses require project-level HRA and may be required to provide mitigation. Therefore Council should ensure that there is sufficient SANG capacity to accommodate this site.	5km and therefore no land take; ▪ No water quality issues due to the distance from the site (development) ▪ No air quality issues, again due to the distance from the site.			combination assessment required
IE8	Addlestone West (Town Allocation)	Site is 5km from the SPA at its closest and will deliver 65-80 residential units in addition to 540 m^2 of A1 floorspace and a health centre. Between 5 and 7km from the edge of the SPA residential developments of over 50 houses require project-level HRA and may be required to provide mitigation. Therefore Council should ensure that there is sufficient SANG capacity to accommodate this site.	No LSE due to following: ▪ Distance from site - over 5km and therefore no land take; ▪ No water quality issues due to the distance from the site (development) ▪ No air quality issues, again due to the distance from the site.	Site lies 3.3km from the SPA and is separated by the M3	Site lies 8.7km from the SAC	Proceeds straight to Appropriate Assessment Stage. No in-combination assessment required
IE9	Egham Gateway East (Town allocation)	Site lies over 6km from SPA and will deliver 45 residential units.	No LSE due to following: ▪ Distance from site - over 6km and therefore no	Site is 2.2km from Longside Lake and 3km from Thorpe Gravel Pit No. 1 and the other key lakes	Site lies 2.9km from the SAC	Proceeds straight to Appropriate Assessment Stage. No in-combination assessment

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	Thursley, Ash, Pirbright and Chobham SAC	South West London Waterbodies SPA	Windsor Forest and Great Park SAC	
			land take; ▪ No water quality issues due to the distance from the site (development) ▪ No air quality issues, again due to the distance from the site.			required
IE10	Egham Gateway West (Town allocation)	Site lies over 6km from SPA and will deliver a theatre with ancillary café and bar offer with a floor area of approximately 2900sqm (GIA), a performing Arts Academy with a floor area of approximately 5600sqm (GIA), a minimum of 500sqm of A1 retail floorspace, the provision of between 180 and 200 student bedspaces with a floor area of approximately 6000sqm (GIA)and the re provision of the Budgens store. Student bedspaces are likely to result in a reduced effect on the SPA compared to conventional dwellings since the average occupancy is lower and students are less likely to possess cars, meaning they are not likely to regularly travel so far for recreation. Nonetheless, between 5 and 7km from the edge of the SPA residential developments of	No LSE due to following: ▪ Distance from site - over 6km and therefore no land take; ▪ No water quality issues due to the distance from the site (development) ▪ No air quality issues, again due to the distance from the site.	Site is 2.1km from Longside Lake and 2.9km from Thorpe Gravel Pit No. 1 and the other key lakes	Site lies 2.8km from the SAC	Proceeds straight to Appropriate Assessment Stage. No in-combination assessment required

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	**Thursley, Ash, Pirbright and Chobham SAC**	**South West London Waterbodies SPA**	**Windsor Forest and Great Park SAC**	
		over 50 houses require project-level HRA and may be required to provide mitigation.				
IE11	Sainsbury's site, Chertsey (Opportunity area)	Site lies 5.1km from SPA at its closest and will deliver 76-170 residential units. Between 5 and 7km from the edge of the SPA residential developments of over 50 houses require project-level HRA and may be required to provide mitigation.	No LSE due to following: ▪ Distance from site – over 5km and therefore no land take; ▪ No water quality issues due to the distance from the site (development) ▪ No air quality issues, again due to the distance from the site.	Site is located 800m from Thorpe Gravel Pit No. 1 and A320 Gravel Pit and 1.6km from Manor Lake but is separated by the M3	Site lies over 5km from SAC	Proceeds straight to Appropriate Assessment Stage. No in-combination assessment required
IE11	Strodes College Lane, Egham (Opportunity area)	Site lies over 6km from SPA and will only deliver 14 residential units (and some commercial floorspace). Therefore no LSE expected.	No LSE due to following: ▪ Distance from site - over 6km and therefore no land take; ▪ No water quality issues due to the distance from the site (development) ▪ No air quality issues, again due to the distance from the site.	Site is 2.3km from Longside Lake and 3km from Thorpe Gravel Pit No. 1 and the other key lakes	Site lies 2.7km from the SAC	This Preferred allocation avoids effect. No further assessment required.
IE11	Egham Library & Car Park (Opportunity area)	Site lies over 6km from SPA and will only deliver 25-40 residential units. Therefore no LSE expected.	No LSE due to following: ▪ Distance from site - over 6km and therefore no land take; ▪ No water quality issues due to the distance from the site (development) ▪ No air quality issues,	Site is 2.5km from Longside Lake and 3.2km from Thorpe Gravel Pit No. 1 and the other key lakes	Site lies 2.6km from the SAC	This Preferred allocation avoids effect. No further assessment required.

Policy	Policy name/ Description	Likely Significant Effect Alone				Likely Significant Effect In-combination
		Thames Basin Heath SPA	**Thursley, Ash, Pirbright and Chobham SAC**	**South West London Waterbodies SPA**	**Windsor Forest and Great Park SAC**	
			again due to the distance from the site.			
IE11	Egham High Street North (Opportunity area)	Site lies over 6km from SPA and will only deliver 25-40 residential units. Therefore no LSE expected.	No LSE due to following: ▪ Distance from site - over 6km and therefore no land take; ▪ No water quality issues due to the distance from the site (development) ▪ No air quality issues, again due to the distance from the site.	Site is 2.3km from Longside Lake and 3km from Thorpe Gravel Pit No. 1 and the other key lakes	Site lies 2.8km from the SAC	This Preferred allocation avoids effect. No further assessment required.
SD10	Longcross Garden Village (SLAA site 99, 97 (already permitted) and 221 (no housing))	LSE as SLAA site adjacent to Thames Basin Heath SPA- potential pathways noise, light air quality, species disturbance, water quality, SANG requirement	Adjacent to TAPC- potential pathways: air quality and water quality	No LSE due to the following: ▪ Distance from SWLW from this SLAA site (over 3.7km) and therefore no land take/loss; ▪ No water quality issues due to the distance from the SLAA site (development); ▪ No water abstraction from the gravel pits unit of SWLW as it is not used for public water supply; ▪ No disturbance to bird species as management of waterskiing at the site is managed to avoid disturbance	No LSE due to the following: ▪ Distance from SLAA site (Over 3.9 km) and therefore no land lost. ▪ Air quality refer to explanation in SLAA site 14	Preferred SLAA site in relation to TBH SPA and TAPC SAC) proceeds straight to Appropriate Assessment Stage. No in-combination assessment required

Appendix 3: AIR QUALITY CALCULATIONS

LongCross

Lookup ID	Road Link	Distance From Road (m)	Annual Mean Nox Conc. (ug/m3)							Annual Mean N Dep (k N/ha/yr)							Annual Mean N Acid Dep (keq/ha/yr)						
			BL	Proj BL	DM	DS		Change		BL	Proj BL	DM	DS		Change		BL	Proj BL	DM	DS		Change	
			Baseline	Proj Baseline	(Base 2036)	(Scn2 2036)	(DS-DM)	(DS-ProjBL)	(DS-BL)	Baseline	Proj Baseline	(Base 2036)	(Scn2 2036)	(DS-DM)	(DS-ProjBL)	(DS-BL)	Baseline	Proj Baseline	(Base 2036)	(Scn2 2036)	(DS-DM)	(DS-ProjBL)	(DS-BL)
1	LongCross_0	0	53.5	29.5	36.9	37.8	0.9	8.3	-15.7	14.44	11.39	11.76	11.80	0.04	0.41	-2.64	1.09	1.02	1.06	1.07	0.00	0.04	-0.02
2	LongCross_5	5	50.7	28.1	34.2	34.8	0.6	6.7	-15.8	14.31	11.32	11.62	11.65	0.03	0.33	-2.65	1.08	1.02	1.05	1.05	0.00	0.03	-0.02
3	LongCross_10	10	49.0	27.4	32.6	33.1	0.5	5.8	-15.9	14.23	11.28	11.55	11.57	0.03	0.29	-2.66	1.07	1.01	1.04	1.04	0.00	0.03	-0.03
4	LongCross_15	15	47.8	26.8	31.6	32.0	0.4	5.2	-15.8	14.17	11.25	11.49	11.52	0.02	0.26	-2.66	1.06	1.01	1.04	1.04	0.00	0.03	-0.03
5	LongCross_20	20	46.9	26.4	30.8	31.2	0.4	4.8	-15.7	14.13	11.23	11.46	11.47	0.02	0.25	-2.65	1.06	1.01	1.03	1.03	0.00	0.03	-0.03
6	LongCross_30	30	45.6	25.8	29.7	30.0	0.3	4.2	-15.5	14.06	11.20	11.40	11.41	0.02	0.22	-2.65	1.05	1.00	1.03	1.03	0.00	0.02	-0.02
7	LongCross_40	40	44.7	25.3	28.9	29.2	0.2	3.8	-15.5	14.02	11.17	11.36	11.37	0.01	0.20	-2.65	1.05	1.00	1.02	1.02	0.00	0.02	-0.02
8	LongCross_50	50	43.8	24.9	28.3	28.5	0.2	3.6	-15.3	13.98	11.15	11.32	11.34	0.01	0.18	-2.64	1.04	1.00	1.02	1.02	0.00	0.02	-0.02
9	LongCross_60	60	43.0	24.6	27.7	27.9	0.2	3.3	-15.1	13.94	11.14	11.30	11.31	0.01	0.17	-2.63	1.04	1.00	1.02	1.02	0.00	0.02	-0.02
10	LongCross_70	70	42.4	24.3	27.2	27.4	0.2	3.1	-15.0	13.91	11.12	11.27	11.28	0.01	0.16	-2.63	1.04	1.00	1.01	1.01	0.00	0.02	-0.02
11	LongCross_80	80	41.8	24.0	26.8	27.0	0.2	3.0	-14.8	13.88	11.11	11.25	11.26	0.01	0.15	-2.62	1.03	1.00	1.01	1.01	0.00	0.02	-0.02
12	LongCross_90	90	41.3	23.8	26.5	26.6	0.1	2.8	-14.7	13.86	11.09	11.23	11.24	0.01	0.15	-2.62	1.03	0.99	1.01	1.01	0.00	0.02	-0.02
13	LongCross_100	100	40.8	23.5	26.1	26.2	0.1	2.7	-14.5	13.83	11.08	11.21	11.22	0.01	0.14	-2.61	1.03	0.99	1.01	1.01	0.00	0.01	-0.02
14	LongCross_125	125	39.7	23.1	25.4	25.5	0.1	2.4	-14.2	13.78	11.06	11.18	11.18	0.00	0.13	-2.60	1.02	0.99	1.00	1.00	0.00	0.01	-0.02
15	LongCross_150	150	38.8	22.6	24.8	24.9	0.1	2.2	-14.0	13.74	11.03	11.15	11.15	0.00	0.12	-2.59	1.02	0.99	1.00	1.00	0.00	0.01	-0.02
16	LongCross_175	175	38.1	22.3	24.3	24.3	0.1	2.1	-13.7	13.70	11.02	11.12	11.12	0.00	0.11	-2.58	1.01	0.99	1.00	1.00	0.00	0.01	-0.02
17	LongCross_200	200	37.4	22.0	23.8	23.9	0.1	1.9	-13.5	13.67	11.00	11.10	11.10	0.00	0.10	-2.57	1.01	0.98	0.99	0.99	0.00	0.01	-0.02

StapleHill_1

Lookup ID	Road Link	Distance From Road (m)	Annual Mean Nox Conc. (ug/m3)							Annual Mean N Dep (k N/ha/yr)							Annual Mean N Acid Dep (keq/ha/yr)						
			BL	Proj BL	DM	DS		Change		BL	Proj BL	DM	DS		Change		BL	Proj BL	DM	DS		Change	
			Baseline	Proj Baseline	(Base 2036)	(Scn2 2036)	(DS-DM)	(DS-ProjBL)	(DS-BL)	Baseline	Proj Baseline	(Base 2036)	(Scn2 2036)	(DS-DM)	(DS-ProjBL)	(DS-BL)	Baseline	Proj Baseline	(Base 2036)	(Scn2 2036)	(DS-DM)	(DS-ProjBL)	(DS-BL)
18	StapleHill_1_0	0	65.8	39.1	48.7	48.5	-0.2	9.4	-17.3	15.33	11.86	12.32	12.31	0.01	0.45	-3.02	1.18	1.07	1.12	1.12	0.00	0.05	-0.06
19	StapleHill_1_5	5	63.0	37.7	46.2	46.2	0.0	8.5	-16.8	15.21	11.79	12.20	12.20	0.00	0.41	-3.01	1.17	1.07	1.11	1.11	0.00	0.04	-0.06
20	StapleHill_1_10	10	60.3	36.5	44.3	44.3	0.0	7.9	-15.9	15.10	11.74	12.11	12.11	0.00	0.38	-2.99	1.16	1.06	1.10	1.10	0.00	0.04	-0.06
21	StapleHill_1_15	15	58.0	35.4	42.7	42.8	0.1	7.3	-15.2	15.00	11.68	12.04	12.04	0.00	0.36	-2.96	1.15	1.05	1.09	1.09	0.00	0.04	-0.06
22	StapleHill_1_20	20	56.1	34.5	41.3	41.3	0.1	6.9	-14.7	14.92	11.64	11.97	11.97	0.00	0.34	-2.95	1.14	1.05	1.08	1.08	0.00	0.03	-0.06
23	StapleHill_1_30	30	52.5	32.8	38.9	39.0	0.1	6.2	-13.4	14.76	11.56	11.85	11.86	0.00	0.30	-2.90	1.12	1.04	1.07	1.07	0.00	0.03	-0.05
24	StapleHill_1_40	40	49.6	31.5	37.0	37.1	0.1	5.6	-12.5	14.63	11.49	11.76	11.77	0.00	0.28	-2.86	1.11	1.03	1.06	1.06	0.00	0.03	-0.05
25	StapleHill_1_50	50	47.2	30.3	35.4	35.5	0.1	5.2	-11.7	14.52	11.43	11.68	11.69	0.01	0.26	-2.83	1.10	1.03	1.05	1.06	0.00	0.03	-0.04
26	StapleHill_1_60	60	45.1	29.4	34.0	34.1	0.1	4.8	-11.0	14.42	11.38	11.61	11.62	0.01	0.24	-2.80	1.09	1.02	1.05	1.05	0.00	0.02	-0.04
27	StapleHill_1_70	70	43.3	28.5	32.8	32.9	0.1	4.4	-10.4	14.34	11.34	11.56	11.56	0.00	0.22	-2.78	1.08	1.02	1.04	1.04	0.00	0.02	-0.04
28	StapleHill_1_80	80	41.8	27.8	31.8	31.9	0.1	4.1	-9.9	14.27	11.30	11.50	11.51	0.00	0.21	-2.76	1.07	1.02	1.04	1.04	0.00	0.02	-0.04
29	StapleHill_1_90	90	40.3	27.1	30.9	31.0	0.1	3.9	-9.3	14.20	11.27	11.46	11.46	0.00	0.20	-2.74	1.07	1.01	1.03	1.03	0.00	0.02	-0.03
30	StapleHill_1_100	100	39.1	26.6	30.1	30.2	0.1	3.6	-8.9	14.14	11.24	11.42	11.42	0.00	0.18	-2.72	1.06	1.01	1.03	1.03	0.00	0.02	-0.03
31	StapleHill_1_125	125	36.6	25.4	28.5	28.6	0.1	3.2	-8.0	14.02	11.18	11.34	11.34	0.00	0.16	-2.68	1.05	1.00	1.02	1.02	0.00	0.02	-0.03
32	StapleHill_1_150	150	34.6	24.5	27.2	27.3	0.1	2.8	-7.3	13.93	11.13	11.27	11.27	0.00	0.15	-2.65	1.04	1.00	1.01	1.01	0.00	0.01	-0.02

33	StapleHill_1_175	175	33.0	23.7	26.1	26.2	0.1	2.5	-6.8	13.85	11.09	11.22	11.22	0.00	0.13	-2.63	1.03	0.99	1.01	1.01	0.00	0.01	-0.02
34	StapleHill_1_200	200	31.7	23.1	25.3	25.3	0.1	2.3	-6.3	13.78	11.06	11.17	11.18	0.00	0.12	-2.61	1.02	0.99	1.00	1.00	0.00	0.01	-0.02

StapleHill_2

			Annual Mean Nox Conc. (ug/m3)							Annual Mean N Dep (k N/ha/yr)							Annual Mean N Acid Dep (keq/ha/yr)						
Lookup ID	Road Link	Distance From Road (m)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	(DS-DM)	Change (DS-ProjBL)	(DS-BL)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	(DS-DM)	Change (DS-ProjBL)	(DS-BL)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	(DS-DM)	Change (DS-ProjBL)	(DS-BL)
35	StapleHill_2_0	0	39.7	22.6	27.1	26.7	-0.4	4.1	-12.9	13.85	11.04	11.27	11.26	-0.02	0.21	-2.59	1.03	0.99	1.01	1.01	0.00	0.02	-0.02
36	StapleHill_2_5	5	40.0	22.8	26.5	26.3	-0.2	3.6	-13.6	13.87	11.05	11.24	11.24	-0.01	0.18	-2.63	1.04	0.99	1.01	1.01	0.00	0.02	-0.03
37	StapleHill_2_10	10	40.3	23.0	26.4	26.4	0.0	3.4	-13.9	13.88	11.06	11.24	11.24	0.00	0.18	-2.64	1.04	0.99	1.01	1.01	0.00	0.02	-0.03
38	StapleHill_2_15	15	40.7	23.1	26.5	26.5	0.0	3.4	-14.2	13.90	11.07	11.25	11.24	0.00	0.18	-2.66	1.04	0.99	1.01	1.01	0.00	0.02	-0.03
39	StapleHill_2_20	20	41.2	23.3	26.7	26.7	0.0	3.4	-14.4	13.92	11.08	11.25	11.25	0.00	0.18	-2.67	1.04	0.99	1.01	1.01	0.00	0.02	-0.03
40	StapleHill_2_30	30	41.9	23.7	27.1	27.2	0.0	3.5	-14.7	13.96	11.10	11.28	11.28	0.00	0.18	-2.68	1.05	1.00	1.01	1.01	0.00	0.02	-0.03
41	StapleHill_2_40	40	43.0	24.2	27.7	27.8	0.1	3.6	-15.2	14.01	11.12	11.31	11.31	0.00	0.19	-2.70	1.05	1.00	1.02	1.02	0.00	0.02	-0.03
42	StapleHill_2_50	50	44.0	24.7	28.3	28.4	0.1	3.7	-15.6	14.06	11.15	11.34	11.34	0.00	0.19	-2.72	1.06	1.00	1.02	1.02	0.00	0.02	-0.03
43	StapleHill_2_60	60	45.1	25.2	29.1	29.1	0.1	3.9	-15.9	14.11	11.18	11.37	11.38	0.01	0.20	-2.73	1.06	1.00	1.02	1.02	0.00	0.02	-0.04
44	StapleHill_2_70	70	46.4	25.8	29.9	30.0	0.1	4.2	-16.4	14.18	11.21	11.42	11.42	0.00	0.21	-2.75	1.07	1.01	1.03	1.03	0.00	0.02	-0.04
45	StapleHill_2_80	80	47.9	26.5	30.8	30.9	0.1	4.4	-17.0	14.25	11.24	11.46	11.47	0.01	0.22	-2.78	1.07	1.01	1.03	1.03	0.00	0.02	-0.04
46	StapleHill_2_90	90	49.6	27.3	31.9	32.0	0.1	4.7	-17.6	14.32	11.28	11.52	11.52	0.01	0.24	-2.80	1.08	1.02	1.04	1.04	0.00	0.02	-0.04
47	StapleHill_2_100	100	51.5	28.2	33.1	33.2	0.1	5.0	-18.3	14.41	11.33	11.58	11.58	0.01	0.25	-2.83	1.09	1.02	1.05	1.05	0.00	0.03	-0.05
48	StapleHill_2_125	125	58.0	31.2	37.2	37.4	0.2	6.2	-20.6	14.71	11.48	11.78	11.79	0.01	0.30	-2.92	1.12	1.04	1.07	1.07	0.00	0.03	-0.06
49	StapleHill_2_150	150	68.3	36.1	43.8	44.0	0.2	8.0	-24.3	15.16	11.72	12.09	12.11	0.01	0.38	-3.05	1.17	1.06	1.10	1.10	0.00	0.04	-0.07
50	StapleHill_2_175	175	87.7	45.1	56.2	56.6	0.3	11.4	-31.1	15.95	12.16	12.66	12.68	0.01	0.52	-3.27	1.25	1.11	1.16	1.16	0.00	0.05	-0.09
51	StapleHill_2_200	200	139.6	69.7	89.7	90.3	0.6	20.6	-49.3	17.81	13.24	14.04	14.06	0.02	0.82	-3.75	1.44	1.22	1.30	1.30	0.00	0.08	-0.14

M3_1

			Annual Mean Nox Conc. (ug/m3)							Annual Mean N Dep (k N/ha/yr)							Annual Mean N Acid Dep (keq/ha/yr)						
Lookup ID	Road Link	Distance From Road (m)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	(DS-DM)	Change (DS-ProjBL)	(DS-BL)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	(DS-DM)	Change (DS-ProjBL)	(DS-BL)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	(DS-DM)	Change (DS-ProjBL)	(DS-BL)
52	M3_1_0	0	197.2	95.0	124.6	125.6	1.0	30.6	-71.6	19.43	14.13	15.18	15.22	0.03	1.09	-4.22	1.61	1.31	1.42	1.42	0.00	0.11	-0.19
53	M3_1_5	5	146.8	71.9	92.9	93.6	0.7	21.7	-53.2	17.86	13.22	14.05	14.08	0.03	0.86	-3.78	1.45	1.21	1.30	1.30	0.00	0.09	-0.14
54	M3_1_10	10	121.6	60.4	77.0	77.6	0.6	17.2	-44.0	17.01	12.73	13.43	13.45	0.02	0.72	-3.56	1.36	1.16	1.24	1.24	0.00	0.07	-0.12
55	M3_1_15	15	105.7	53.1	67.0	67.5	0.5	14.4	-38.2	16.44	12.41	13.01	13.04	0.02	0.63	-3.41	1.30	1.13	1.19	1.20	0.00	0.06	-0.11
56	M3_1_20	20	94.5	47.9	59.9	60.3	0.5	12.4	-34.1	16.02	12.17	12.71	12.73	0.02	0.56	-3.29	1.26	1.11	1.16	1.16	0.00	0.06	-0.09
57	M3_1_30	30	79.9	41.3	50.7	51.1	0.4	9.8	-28.8	15.45	11.86	12.30	12.31	0.02	0.46	-3.13	1.20	1.07	1.12	1.12	0.00	0.05	-0.08
58	M3_1_40	40	70.6	37.0	44.8	45.2	0.4	8.1	-25.4	15.06	11.65	12.02	12.04	0.02	0.39	-3.02	1.16	1.05	1.09	1.09	0.00	0.04	-0.07
59	M3_1_50	50	64.2	34.1	40.8	41.1	0.3	7.0	-23.0	14.78	11.51	11.83	11.85	0.02	0.34	-2.93	1.13	1.04	1.07	1.07	0.00	0.04	-0.06
60	M3_1_60	60	59.5	32.0	37.9	38.2	0.3	6.2	-21.3	14.57	11.40	11.69	11.71	0.01	0.30	-2.87	1.11	1.03	1.06	1.06	0.00	0.03	-0.05
61	M3_1_70	70	55.9	30.4	35.6	35.9	0.3	5.5	-20.0	14.41	11.32	11.58	11.59	0.01	0.28	-2.82	1.09	1.02	1.05	1.05	0.00	0.03	-0.04
62	M3_1_80	80	53.1	29.0	33.8	34.0	0.3	5.0	-19.0	14.28	11.25	11.49	11.50	0.01	0.25	-2.78	1.08	1.01	1.04	1.04	0.00	0.03	-0.04
63	M3_1_90	90	50.7	28.0	32.3	32.5	0.3	4.6	-18.1	14.17	11.20	11.41	11.43	0.01	0.23	-2.74	1.07	1.01	1.03	1.03	0.00	0.02	-0.04
64	M3_1_100	100	48.6	27.0	31.0	31.2	0.2	4.2	-17.3	14.07	11.15	11.35	11.36	0.01	0.21	-2.71	1.06	1.00	1.02	1.02	0.00	0.02	-0.03
65	M3_1_125	125	44.7	25.3	28.4	28.6	0.2	3.4	-16.0	13.88	11.06	11.22	11.23	0.01	0.17	-2.65	1.04	0.99	1.01	1.01	0.00	0.02	-0.03
66	M3_1_150	150	41.9	24.0	26.6	26.7	0.1	2.8	-15.1	13.75	10.99	11.13	11.14	0.01	0.14	-2.61	1.02	0.99	1.00	1.00	0.00	0.01	-0.02
67	M3_1_175	175	39.8	23.0	25.3	25.4	0.1	2.3	-14.4	13.65	10.94	11.06	11.06	0.01	0.12	-2.58	1.01	0.98	0.99	0.99	0.00	0.01	-0.02

68	M3_1_200	200	38.2	22.3	24.3	24.4	0.1	2.0	-13.9	13.57	10.91	11.01	11.01	0.01	0.11	-2.56	1.01	0.98	0.99	0.99	0.00	0.01	-0.02

M3_2

			Annual Mean Nox Conc. (ug/m3)							Annual Mean N Dep (k N/ha/yr)							Annual Mean N Acid Dep (keq/ha/yr)						
Lookup ID	Road Link	Distance From Road (m)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	(DS-DM)	Change (DS-ProjBL)	(DS-BL)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	(DS-DM)	Change (DS-ProjBL)	(DS-BL)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	(DS-DM)	Change (DS-ProjBL)	(DS-BL)
69	M3_2_0	0	206.6	99.0	130.8	131.7	0.9	32.7	-74.9	19.89	14.39	15.49	15.53	0.03	1.14	-4.37	1.66	1.33	1.45	1.45	0.00	0.12	-0.20
70	M3_2_5	5	148.3	72.1	93.9	94.5	0.6	22.4	-53.7	18.09	13.34	14.20	14.22	0.03	0.88	-3.87	1.47	1.23	1.31	1.32	0.00	0.09	-0.15
71	M3_2_10	10	120.5	59.4	76.3	76.8	0.5	17.4	-43.7	17.16	12.80	13.51	13.53	0.02	0.73	-3.63	1.37	1.17	1.24	1.25	0.00	0.08	-0.13
72	M3_2_15	15	103.1	51.4	65.3	65.7	0.4	14.3	-37.4	16.54	12.44	13.05	13.07	0.02	0.63	-3.47	1.31	1.13	1.20	1.20	0.00	0.06	-0.11
73	M3_2_20	20	91.3	46.0	57.8	58.1	0.4	12.2	-33.1	16.09	12.20	12.73	12.75	0.02	0.55	-3.34	1.26	1.11	1.16	1.17	0.00	0.06	-0.10
74	M3_2_30	30	75.8	38.9	48.1	48.3	0.3	9.4	-27.5	15.47	11.86	12.29	12.31	0.01	0.44	-3.17	1.20	1.07	1.12	1.12	0.00	0.05	-0.08
75	M3_2_40	40	66.2	34.6	42.0	42.2	0.2	7.7	-24.0	15.07	11.65	12.01	12.02	0.01	0.37	-3.05	1.16	1.05	1.09	1.09	0.00	0.04	-0.07
76	M3_2_50	50	59.5	31.5	37.8	38.0	0.2	6.5	-21.4	14.77	11.50	11.81	11.82	0.01	0.32	-2.96	1.13	1.04	1.07	1.07	0.00	0.03	-0.06
77	M3_2_60	60	54.7	29.3	34.8	34.9	0.2	5.6	-19.7	14.56	11.39	11.66	11.67	0.01	0.28	-2.89	1.11	1.03	1.05	1.05	0.00	0.03	-0.05
78	M3_2_70	70	50.9	27.6	32.4	32.6	0.1	4.9	-18.3	14.39	11.30	11.54	11.55	0.01	0.25	-2.83	1.09	1.02	1.04	1.04	0.00	0.03	-0.05
79	M3_2_80	80	48.1	26.3	30.6	30.7	0.1	4.4	-17.3	14.25	11.23	11.45	11.46	0.01	0.22	-2.79	1.08	1.01	1.03	1.03	0.00	0.02	-0.04
80	M3_2_90	90	45.7	25.2	29.1	29.2	0.1	4.0	-16.4	14.14	11.18	11.38	11.38	0.01	0.20	-2.76	1.06	1.00	1.02	1.03	0.00	0.02	-0.04
81	M3_2_100	100	43.7	24.4	27.9	28.0	0.1	3.6	-15.7	14.05	11.13	11.31	11.32	0.01	0.19	-2.73	1.05	1.00	1.02	1.02	0.00	0.02	-0.04
82	M3_2_125	125	40.0	22.7	25.6	25.7	0.1	3.0	-14.3	13.87	11.05	11.20	11.20	0.00	0.15	-2.66	1.04	0.99	1.01	1.01	0.00	0.02	-0.03
83	M3_2_150	150	37.4	21.5	24.0	24.0	0.1	2.5	-13.4	13.74	10.99	11.11	11.12	0.00	0.13	-2.62	1.02	0.98	1.00	1.00	0.00	0.01	-0.02
84	M3_2_175	175	35.5	20.7	22.8	22.8	0.1	2.2	-12.7	13.65	10.94	11.05	11.05	0.00	0.11	-2.59	1.01	0.98	0.99	0.99	0.00	0.01	-0.02
85	M3_2_200	200	34.1	20.0	21.8	21.9	0.1	1.9	-12.2	13.57	10.91	11.00	11.01	0.00	0.10	-2.57	1.01	0.98	0.99	0.99	0.00	0.01	-0.02

Blacknest Rd_1

			Annual Mean Nox Conc. (ug/m3)							Annual Mean N Dep (k N/ha/yr)							Annual Mean N Acid Dep (keq/ha/yr)						
Lookup ID	Road Link	Distance From Road (m)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	(DS-DM)	Change (DS-ProjBL)	(DS-BL)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	(DS-DM)	Change (DS-ProjBL)	(DS-BL)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	(DS-DM)	Change (DS-ProjBL)	(DS-BL)
86	BlacknestRd_1_0	0	34.1	20.0	23.1	23.6	0.5	3.6	-10.5	22.32	17.98	18.14	18.17	0.03	0.19	-4.16	1.65	1.61	1.63	1.63	0.00	0.02	-0.02
87	BlacknestRd_1_5	5	29.4	17.8	19.9	20.3	0.3	2.5	-9.1	22.09	17.86	17.98	17.99	0.02	0.13	-4.09	1.63	1.60	1.61	1.61	0.00	0.01	-0.02
88	BlacknestRd_1_10	10	27.0	16.7	18.3	18.6	0.3	1.9	-8.4	21.96	17.80	17.89	17.90	0.01	0.10	-4.06	1.61	1.59	1.60	1.60	0.00	0.01	-0.01
89	BlacknestRd_1_15	15	25.5	16.0	17.3	17.5	0.2	1.5	-7.9	21.89	17.77	17.84	17.85	0.01	0.08	-4.04	1.61	1.59	1.59	1.60	0.00	0.01	-0.01
90	BlacknestRd_1_20	20	24.4	15.5	16.6	16.8	0.2	1.3	-7.7	21.83	17.74	17.80	17.81	0.01	0.07	-4.02	1.60	1.58	1.59	1.59	0.00	0.01	-0.01
91	BlacknestRd_1_30	30	23.1	14.9	15.7	15.9	0.1	1.0	-7.3	21.76	17.71	17.75	17.76	0.01	0.05	-4.00	1.59	1.58	1.59	1.59	0.00	0.01	-0.01
92	BlacknestRd_1_40	40	22.3	14.5	15.2	15.3	0.1	0.8	-7.0	21.72	17.69	17.72	17.73	0.01	0.04	-3.99	1.59	1.58	1.58	1.58	0.00	0.00	-0.01
93	BlacknestRd_1_50	50	21.8	14.2	14.8	14.9	0.1	0.7	-6.9	21.69	17.67	17.71	17.71	0.00	0.04	-3.98	1.59	1.58	1.58	1.58	0.00	0.00	0.00
94	BlacknestRd_1_60	60	21.4	14.1	14.6	14.7	0.1	0.6	-6.8	21.67	17.66	17.69	17.70	0.00	0.03	-3.98	1.58	1.58	1.58	1.58	0.00	0.00	0.00
95	BlacknestRd_1_70	70	21.1	13.9	14.4	14.4	0.1	0.5	-6.7	21.66	17.66	17.68	17.68	0.00	0.03	-3.97	1.58	1.58	1.58	1.58	0.00	0.00	0.00
96	BlacknestRd_1_80	80	20.9	13.8	14.2	14.3	0.1	0.5	-6.6	21.65	17.65	17.67	17.68	0.00	0.02	-3.97	1.58	1.58	1.58	1.58	0.00	0.00	0.00
97	BlacknestRd_1_90	90	20.7	13.7	14.1	14.2	0.1	0.4	-6.5	21.64	17.65	17.67	17.67	0.00	0.02	-3.97	1.58	1.57	1.58	1.58	0.00	0.00	0.00
98	BlacknestRd_1_100	100	20.6	13.7	14.0	14.1	0.0	0.4	-6.5	21.63	17.64	17.66	17.66	0.00	0.02	-3.97	1.58	1.57	1.58	1.58	0.00	0.00	0.00
99	BlacknestRd_1_125	125	20.3	13.5	13.8	13.9	0.0	0.3	-6.4	21.61	17.64	17.65	17.65	0.00	0.02	-3.96	1.58	1.57	1.58	1.58	0.00	0.00	0.00
100	BlacknestRd_1_150	150	20.1	13.5	13.7	13.7	0.0	0.3	-6.4	21.60	17.63	17.64	17.64	0.00	0.01	-3.96	1.58	1.57	1.57	1.57	0.00	0.00	0.00
101	BlacknestRd_1_175	175	19.9	13.4	13.6	13.6	0.0	0.2	-6.3	21.60	17.63	17.64	17.64	0.00	0.01	-3.96	1.58	1.57	1.57	1.57	0.00	0.00	0.00
102	BlacknestRd_1_200	200	19.8	13.3	13.5	13.5	0.0	0.2	-6.3	21.59	17.62	17.63	17.64	0.00	0.01	-3.96	1.58	1.57	1.57	1.57	0.00	0.00	0.00

Blacknest Rd_2

Lookup ID	Road Link	Distance From Road (m)	Annual Mean Nox Conc. (ug/m3)							Annual Mean N Dep (k N/ha/yr)							Annual Mean N Acid Dep (keq/ha/yr)						
			BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	Change (DS-DM)	Change (DS-ProjBL)	Change (DS-BL)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	Change (DS-DM)	Change (DS-ProjBL)	Change (DS-BL)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	Change (DS-DM)	Change (DS-ProjBL)	Change (DS-BL)
103	BlacknestRd_2_0	0	30.7	18.2	20.8	21.2	0.4	3.0	-9.5	22.20	17.92	18.05	18.08	0.02	0.16	-4.13	1.64	1.60	1.62	1.62	0.00	0.02	-0.02
104	BlacknestRd_2_5	5	27.0	16.5	18.3	18.6	0.3	2.1	-8.4	22.01	17.83	17.92	17.94	0.02	0.11	-4.07	1.62	1.59	1.60	1.60	0.00	0.01	-0.01
105	BlacknestRd_2_10	10	25.0	15.6	17.0	17.2	0.2	1.7	-7.8	21.91	17.78	17.85	17.87	0.01	0.09	-4.05	1.61	1.59	1.60	1.60	0.00	0.01	-0.01
106	BlacknestRd_2_15	15	23.8	15.0	16.2	16.3	0.2	1.4	-7.4	21.85	17.75	17.81	17.82	0.01	0.07	-4.03	1.60	1.58	1.59	1.59	0.00	0.01	-0.01
107	BlacknestRd_2_20	20	22.9	14.6	15.6	15.7	0.2	1.2	-7.2	21.80	17.72	17.78	17.79	0.01	0.06	-4.01	1.60	1.58	1.59	1.59	0.00	0.01	-0.01
108	BlacknestRd_2_30	30	21.8	14.1	14.8	14.9	0.1	0.9	-6.8	21.74	17.70	17.74	17.74	0.01	0.05	-4.00	1.59	1.58	1.58	1.58	0.00	0.00	-0.01
109	BlacknestRd_2_40	40	21.1	13.7	14.4	14.5	0.1	0.7	-6.6	21.70	17.68	17.71	17.72	0.01	0.04	-3.99	1.59	1.58	1.58	1.58	0.00	0.00	0.00
110	BlacknestRd_2_50	50	20.6	13.5	14.0	14.1	0.1	0.6	-6.5	21.68	17.67	17.70	17.70	0.00	0.03	-3.98	1.58	1.58	1.58	1.58	0.00	0.00	0.00
111	BlacknestRd_2_60	60	20.3	13.4	13.8	13.9	0.1	0.5	-6.4	21.66	17.66	17.68	17.69	0.00	0.03	-3.98	1.58	1.58	1.58	1.58	0.00	0.00	0.00
112	BlacknestRd_2_70	70	20.0	13.2	13.7	13.7	0.1	0.5	-6.3	21.65	17.65	17.67	17.68	0.00	0.03	-3.97	1.58	1.58	1.58	1.58	0.00	0.00	0.00
113	BlacknestRd_2_80	80	19.8	13.2	13.5	13.6	0.1	0.4	-6.3	21.64	17.65	17.67	17.67	0.00	0.02	-3.97	1.58	1.57	1.58	1.58	0.00	0.00	0.00
114	BlacknestRd_2_90	90	19.7	13.1	13.4	13.5	0.0	0.4	-6.2	21.63	17.64	17.66	17.66	0.00	0.02	-3.97	1.58	1.57	1.58	1.58	0.00	0.00	0.00
115	BlacknestRd_2_100	100	19.5	13.0	13.3	13.4	0.0	0.4	-6.2	21.62	17.64	17.66	17.66	0.00	0.02	-3.96	1.58	1.57	1.58	1.58	0.00	0.00	0.00
116	BlacknestRd_2_125	125	19.3	12.9	13.2	13.2	0.0	0.3	-6.1	21.61	17.63	17.65	17.65	0.00	0.02	-3.96	1.58	1.57	1.57	1.58	0.00	0.00	0.00
117	BlacknestRd_2_150	150	19.1	12.8	13.0	13.1	0.0	0.3	-6.0	21.60	17.63	17.64	17.64	0.00	0.01	-3.96	1.58	1.57	1.57	1.57	0.00	0.00	0.00
118	BlacknestRd_2_175	175	19.0	12.8	13.0	13.0	0.0	0.2	-6.0	21.59	17.63	17.64	17.64	0.00	0.01	-3.96	1.58	1.57	1.57	1.57	0.00	0.00	0.00
119	BlacknestRd_2_200	200	18.9	12.7	12.9	12.9	0.0	0.2	-6.0	21.59	17.62	17.63	17.63	0.00	0.01	-3.95	1.57	1.57	1.57	1.57	0.00	0.00	0.00

Chertsey Rd

Lookup ID	Road Link	Distance From Road (m)	Annual Mean Nox Conc. (ug/m3)							Annual Mean N Dep (k N/ha/yr)							Annual Mean N Acid Dep (keq/ha/yr)						
			BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	Change (DS-DM)	Change (DS-ProjBL)	Change (DS-BL)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	Change (DS-DM)	Change (DS-ProjBL)	Change (DS-BL)	BL Baseline	Proj BL Proj Baseline	DM (Base 2036)	DS (Scn2 2036)	Change (DS-DM)	Change (DS-ProjBL)	Change (DS-BL)
120	ChertseyRd_0	0	68.0	36.8	35.5	36.4	0.9	-0.4	-31.5	15.53	11.99	11.93	11.97	0.04	-0.02	-3.56	1.20	1.09	1.08	1.08	0.00	0.00	-0.12
121	ChertseyRd_5	5	43.8	24.9	24.2	24.7	0.5	-0.2	-19.1	14.45	11.40	11.37	11.39	0.02	-0.01	-3.05	1.09	1.03	1.02	1.02	0.00	0.00	-0.07
122	ChertseyRd_10	10	36.2	21.1	20.6	21.0	0.3	-0.1	-15.2	14.08	11.21	11.19	11.20	0.02	-0.01	-2.87	1.05	1.01	1.00	1.01	0.00	0.00	-0.05
123	ChertseyRd_15	15	31.9	19.0	18.7	19.0	0.2	-0.1	-13.0	13.87	11.10	11.09	11.10	0.01	0.00	-2.77	1.03	1.00	0.99	0.99	0.00	0.00	-0.04
124	ChertseyRd_20	20	29.4	17.8	17.6	17.8	0.2	-0.1	-11.7	13.74	11.04	11.03	11.04	0.01	0.00	-2.70	1.02	0.99	0.99	0.99	0.00	0.00	-0.03
125	ChertseyRd_30	30	26.4	16.4	16.2	16.3	0.1	0.0	-10.1	13.58	10.96	10.95	10.96	0.01	0.00	-2.62	1.00	0.98	0.98	0.98	0.00	0.00	-0.02
126	ChertseyRd_40	40	24.7	15.5	15.4	15.5	0.1	0.0	-9.2	13.49	10.92	10.91	10.92	0.01	0.00	-2.58	0.99	0.98	0.98	0.98	0.00	0.00	-0.02
127	ChertseyRd_50	50	23.6	15.0	14.9	15.0	0.1	0.0	-8.6	13.44	10.89	10.89	10.89	0.00	0.00	-2.55	0.99	0.97	0.97	0.97	0.00	0.00	-0.01
128	ChertseyRd_60	60	22.8	14.6	14.6	14.6	0.1	0.0	-8.2	13.40	10.87	10.87	10.87	0.00	0.00	-2.53	0.98	0.97	0.97	0.97	0.00	0.00	-0.01
129	ChertseyRd_70	70	22.3	14.4	14.3	14.4	0.1	0.0	-7.9	13.37	10.86	10.85	10.86	0.00	0.00	-2.51	0.98	0.97	0.97	0.97	0.00	0.00	-0.01
130	ChertseyRd_80	80	21.8	14.1	14.1	14.2	0.1	0.0	-7.7	13.34	10.84	10.84	10.84	0.00	0.00	-2.50	0.98	0.97	0.97	0.97	0.00	0.00	-0.01
131	ChertseyRd_90	90	21.5	14.0	13.9	14.0	0.0	0.0	-7.5	13.32	10.84	10.83	10.84	0.00	0.00	-2.49	0.98	0.97	0.97	0.97	0.00	0.00	-0.01
132	ChertseyRd_100	100	21.2	13.8	13.8	13.9	0.0	0.0	-7.3	13.31	10.83	10.83	10.83	0.00	0.00	-2.48	0.97	0.97	0.97	0.97	0.00	0.00	-0.01
133	ChertseyRd_125	125	20.7	13.6	13.6	13.6	0.0	0.0	-7.0	13.28	10.81	10.81	10.82	0.00	0.00	-2.47	0.97	0.97	0.97	0.97	0.00	0.00	-0.01
134	ChertseyRd_150	150	20.3	13.4	13.4	13.4	0.0	0.0	-6.9	13.26	10.81	10.80	10.81	0.00	0.00	-2.46	0.97	0.96	0.96	0.96	0.00	0.00	0.00
135	ChertseyRd_175	175	20.1	13.3	13.3	13.3	0.0	0.0	-6.7	13.25	10.80	10.80	10.80	0.00	0.00	-2.45	0.97	0.96	0.96	0.96	0.00	0.00	0.00
136	ChertseyRd_200	200	19.9	13.2	13.2	13.2	0.0	0.0	-6.6	13.24	10.79	10.79	10.80	0.00	0.00	-2.44	0.97	0.96	0.96	0.96	0.00	0.00	0.00

Annex 1 Thames Basin Heaths SPA European Site Citation

UK SPA data form

NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type J **1.2 Site code** UK9012141

1.3 Compilation date 200503 **1.4 Update**

1.5 Relationship with other Natura 2000 sites

U	K	0	0	1	2	7	9	3

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Thames Basin Heaths**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	
date confirmed as SCI	
date site classified as SPA	200503
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	**latitude**
00 44 18 W	51 22 18 N

2.2 Site area (ha) 8274.72 **2.3 Site length (km)**

2.5 Administrative region

NUTS code	Region name	% cover
UK521	Berkshire	16.10%
UK561	Hampshire	30.65%
UK532	Surrey	53.25%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment

3.2 Annex I birds and regularly occurring migratory birds not listed on Annex I

		Population				Site assessment		
		Resident	Migratory					
Code	Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global
A224	*Caprimulgus europaeus*		264 M			B		C	
A246	*Lullula arborea*		149 P			B		C	
A302	*Sylvia undata*		445 P			A		C	

4. Site description:

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	
Salt marshes. Salt pastures. Salt steppes	
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	0.6
Bogs. Marshes. Water fringed vegetation. Fens	4.9
Heath. Scrub. Maquis and garrigue. Phygrana	44.0
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	7.0
Coniferous woodland	34.2
Evergreen woodland	
Mixed woodland	3.6
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	5.7
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Acidic, Alluvium, Clay, Nutrient-poor, Sand, Sedimentary

Geomorphology & landscape:

Lowland

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC)

During the breeding season the area regularly supports:

Caprimulgus europaeus	7.8% of the GB breeding population Count mean (RSPB 1998-99)
Lullula arborea	9.9% of the GB breeding population Count as at 1997 (Wotton & Gillings 2000)
Sylvia undata	27.8% of the GB breeding population Count as at 1999 (RSPB)

ARTICLE 4.2 QUALIFICATION (79/409/EEC)

4.3 Vulnerability

The mosaic of habitats which form the internationally important lowland heathland are dependent on active heathland management. Lack of grazing and other traditional management practices therefore pose a threat. Traditional management is being implemented through schemes such as Countryside Stewardship and Wildlife Enhancement Scheme. Development pressure on neighbouring land and the cumulative and indirect effects of neighbouring developments also pose a potential long-term problem. Housing developments are particularly relevant in this part of south-east England. This has been addressed through English Nature commenting on planning applications and providing input to structural and local plans. A strategic approach to accommodating development whilst ensuring compatibility with the Habitats Regulations is being addressed through the Thames Basin Heaths Area Based Delivery Project.

Tenure is a mixture of public bodies, private landowners, local authorities and non-governmental organisations. The Ministry of Defence are significant landowners/managers. At present the MoD land is used principally for firing ranges and military exercises (predominantly on foot). A significant proportion of the site is local authority-owned land. The local authority land is often designated as Public Open Space and is heavily used for informal recreation. For the smaller private ownerships, conservation management has been addressed through the Site Management Statement process.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK01 (NNR)	6.5
UK04 (SSSI/ASSI)	100.0

Annex 2 Thursley, Ash, Pirbright and Chobham SAC European Site Citation

UK SAC data form

NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type I **1.2 Site code** UK0012793

1.3 Compilation date 199601 **1.4 Update** 200101

1.5 Relationship with other Natura 2000 sites

U	K	9	0	1	2	1	3	1
U	K	9	0	1	2	1	4	1

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Thursley, Ash, Pirbright and Chobham**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	199601
date confirmed as SCI	200412
date site classified as SPA	
date site designated as SAC	200504

2. Site location:

2.1 Site centre location

longitude	**latitude**
00 41 35 W	51 09 42 N

2.2 Site area (ha) 5138 **2.3 Site length (km)**

2.5 Administrative region

NUTS code	Region name	% cover
UK532	Surrey	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment
Northern Atlantic wet heaths with *Erica tetralix*	10	A	C	A	**B**

European dry heaths	70	A	C	A	**B**
Depressions on peat substrates of the *Rhynchosporion*	0.1	B	C	A	**A**
Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*)	1	D			
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)	1	D			

3.2 Annex II species

	Population				Site assessment			
	Resident	Migratory						
Species name		**Breed**	**Winter**	**Stage**	**Population**	**Conservation**	**Isolation**	**Global**
Triturus cristatus	Present	-	-	-	D			

4. Site description

4.1 General site character

Habitat classes	**% cover**
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	
Salt marshes. Salt pastures. Salt steppes	
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	5.0
Bogs. Marshes. Water fringed vegetation. Fens	10.0
Heath. Scrub. Maquis and garrigue. Phygrana	75.0
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	10.0
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Acidic, Nutrient-poor, Peat, Sand

Geomorphology & landscape:

Lowland

4.2 Quality and importance

Northern Atlantic wet heaths with *Erica tetralix*

- for which this is considered to be one of the best areas in the United Kingdom.

European dry heaths

- for which this is considered to be one of the best areas in the United Kingdom.

Depressions on peat substrates of the *Rhynchosporion*

Annex 3 South West London Waterbodies SPA and Ramsar Citations

EC Directive 79/409 on the Conservation of Wild Birds: Special Protection Area (SPA)

Name: South West London Waterbodies

Unitary Authority/County: London Borough of Hounslow, Royal Borough of Windsor & Maidenhead and Surrey.

Consultation proposal: Kempton Park Reservoirs Site of Special Scientific Interest (SSSI), Knight & Bessborough Reservoirs SSSI, Thorpe Park No. 1 Gravel Pit SSSI, Wraysbury No. 1 Gravel Pit SSSI, Wraysbury Reservoir SSSI, and parts of Staines Moor SSSI and Wraysbury & Hythe End Gravel Pits SSSI have been recommended as a Special Protection Area because of the site's European ornithological interest.

The South West London Waterbodies SPA comprises a series of embanked water supply reservoirs and former gravel pits that support a range of man-made and semi-natural open-water habitats.

Boundary of SPA: The SPA boundary is coincident with Kempton Park Reservoirs SSSI, Knight & Bessborough Reservoirs SSSI, Thorpe Park No. 1 Gravel Pit SSSI, Wraysbury No. 1 Gravel Pit SSSI , Wraysbury Reservoir SSSI, and includes parts of Staines Moor SSSI and Wraysbury & Hythe End Gravel Pits SSSI. See SPA map for further detail.

Size of SPA: The SPA covers an area of 828.14 ha.

European ornithological interest of SPA
South West London Waterbodies SPA is of European importance because:

a) the site qualifies under **article 4.2** of the Directive (79/409/EEC) as it is used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed on Annex 1), in any season:

Migratory species	5 year peak mean 1993/94 - 1997/98	% of population
Gadwall *Anas strepera*	710 individuals - wintering	2.4 % NW Europe
Shoveler *Anas clypeata*	853 individuals - wintering	2.1 % NW/Central Europe

Bird figures from WeBS database.

Non-qualifying species of interest
In addition, the site supports nationally important numbers of cormorant *Phalacrocorax carbo*, great crested grebe *Podiceps cristatus*, tufted duck *Aythya fuligula*, pochard *Aythya ferina* and coot *Fulica atra*.

Status of SPA
South West London Waterbodies was classified as a Special Protection Area on 22 September 2000.

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.

DD MM YY — Designation date

Site Reference Number

Joint Nature Conservation Committee
Monkstone House City Road Peterborough
Cambridgeshire PE1 1JY UK

Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:

Designated: 22 September 2000

3. Country:

UK (England)

4. Name of the Ramsar site:

South West London Waterbodies

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* -or- *no* ;
ii**) an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* -or-
no ;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude)**:**

51 23 59 N 00 23 26 E

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city:
London

The site is comprised of a series of discrete waterbodies in the Thames Valley between Windsor and Ham pton Court .

Administrative region: Berkshire; Greater London; Surrey; Windsor and Maidenhead

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10. Elevation (average and/or max. & min.) (metres)**:** **11. Area** (hectares)**:** 828.14

Min. 12
Max. 21
Mean 18

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12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The South West London Waterbodies site comprises a series of reservoirs and former gravel pits that support internationally important numbers of wintering *Anas strepera* and *Anas clypeata*.

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13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

6

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14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 6 – species/populations

occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):
Species with peak counts in spring/autumn:

Northern shoveler , *Anas clypeata*, NW & C Europe	397 individuals, representing an average of 2.6% of the GB population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Gadwall , *Anas strepera strepera*, NW Europe	487 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation)**:**

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	alluvium, clay, gravel, mud, neutral
Geomorphology and landscape	floodplain, lowland, valley
Nutrient status	eutrophic, mesotrophic
pH	circumneutral
Salinity	fresh
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Wisley, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/wisley.html) Max. daily temperature: 14.6° C Min. daily temperature: 6.1° C Days of air frost: 47.4 Rainfall: 647.1 mm Hrs. of sunshine: 1534.7

General description of the Physical Features:

The site comprises a series of embanked water supply reservoirs and former gravel pits that support a range of man-made and semi-natural open-water habitats.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate
(including climate type).

The site comprises a series of embanked water supply reservoirs and former gravel pits that support a range of man-made and semi-natural open-water habitats.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Other

19. Wetland types:

Human-made wetland, Inland wetland

Code	Name	% Area
6	Reservoirs / barrages / dams	80
7	Gravel / brick / clay pits	20

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Open water, plus associated wetland habitats including grassland and woodland supporting a number of wetland plant and animal species including internationally important numbers of wintering wildfowl.

Ecosystem services

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21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

None reported

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance: Species with peak counts in spring/autumn:

Great crested grebe , *Podiceps cristatus cristatus*, NW Europe — 318 individuals, representing an average of 2% of the GB population (5 year peak mean 1998/9-2002/3)

Great cormorant , *Phalacrocorax carbo carbo*, NW Europe — 318 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3)

Tufted duck , *Aythya fuligula*, NW Europe — 2731 individuals, representing an average of 3% of the GB population (5 year peak mean 1998/9 2002/3)

Species with peak counts in winter:

Black-necked grebe , *Podiceps nigricollis nigricollis*, Europe, N Africa — 2 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3)

Smew , *Mergellus albellus*, NW & C Europe — 29 individuals, representing an average of 7.8% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

None reported

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23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Non-consumptive recreation
Scientific research
Sport fishing

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

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24. Land tenure/ownership:

Ownership category	On-site	Off-site
Local authority, municipality etc.	+	+
Private	+	+
Other	+	+

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25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Tourism	+	+
Recreation	+	+
Current scientific research	+	+
Fishing: recreational/sport	+	+
Freshwater aquaculture		+
Grazing (unspecified)		+

Industry		+
Mineral exploration (excl. hydrocarbons)	+	+
Transport route		+
Domestic water supply	+	+
Urban development		+
Non-urbanised settlements		+

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26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.

2. Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
No factors reported	NA				

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these facto

Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	+
Special Protection Area (SPA)	+	
Site management statement/plan implemented	+	

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc. Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

None reported

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Angling :fishing season only.
Sailing: all year round on gravel pits - club areas and slipways. Birdwatching: all year round - no facilities.

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32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

Site-relevant references

Batten, LA, Bibby, CJ, Clement, P, Elliot, GD & Porter, RF (1990) *Red Data Birds in Britain. Action for rare, threatened and important species*. Poyser, London, for Nature Conservancy Council and Royal Society for the Protection of Birds

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Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999–2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge. www.wwt.org.uk/publications/default.asp?PubID=14

Rose, PM & Scott, DA (1997) *Waterfowl population estimates*. 2nd edn. Wetlands International, Wageningen (Wetlands International Publication, No. 44) www.wetlands.org/IWC/wpe2/WPE2-toc.htm

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Annex 4: Great Windsor Forest and Park SAC Citation

EC Directive 92/43 on the Conservation of Natural Habitats and of Wild Fauna and Flora

Citation for Special Area of Conservation (SAC)

Name:	Windsor Forest and Great Park
Unitary Authority/County:	Windsor and Maidenhead, Bracknell Forest, Surrey
SAC status:	Designated on 1 April 2005
Grid reference:	SU926743
SAC EU code:	UK0012586
Area (ha):	1687.26
Component SSSI:	Windsor Forest and Great Park SSSI

Site description:
Windsor Forest contains dry oak-dominated woodland. Relicts of the primary forest still survive as ancient oak pollards scattered throughout the Park and Forest. Veteran trees occur with a mosaic of unimproved and semi-improved grassland and grass-heath. It has the largest number of ancient oaks *Quercus* spp. in Britain (and probably in Europe), a consequence of its management as wood-pasture. Many of these trees are over 500 years old and some reputed to be up to 800 years. Of equal importance, although not reaching such a great age, are numerous over-mature beech trees *Fagus sylvatica*.

Being partially hollow and decayed, the oaks and beech afford habitats for a number of extremely rare and specialised insects. The site is of importance for its range and diversity of saproxylic (dead wood) invertebrates, including many rare species (e.g. the violet click beetle *Limoniscus violaceus*), and has recently been recognised as having rich fungal assemblages.

Qualifying habitats: The site is designated under **article 4(4)** of the Directive (92/43/EEC) as it hosts the following habitats listed in Annex I:

- Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*). (Beech forests on acid soils)
- Old acidophilous oak woods with *Quercus robur* on sandy plains. (Dry oak-dominated woodland)

Qualifying species: The site is designated under **article 4(4)** of the Directive (92/43/EEC) as it hosts the following species listed in Annex II:

- Violet click beetle *Limoniscus violaceus*

This citation relates to a site entered in the Register of European Sites for Great Britain.
Register reference number: UK0012586
Date of registration: 14 June 2005
Signed: Trevor Salmon
On behalf of the Secretary of State for Environment, Food and Rural Affairs