EASTERLY ALTERNATION INFRASTRUCTURE PROJECT

Environmental Impact Assessment
Environmental Statement, Volume III
Appendix 12.2: HRA Screening Report

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EASTERLY ALTERNATION INFRASTRUCTURE PROJECT

HABITAT REGULATIONS ASSESSMENT SCREENING REPORT

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1. INTRODUCTION

1.1 Overview of the Proposed Development

1.1.1 Heathrow Airport Limited (referred to as "Heathrow") is seeking planning permission for development of infrastructure that will facilitate full runway alternation when Heathrow Airport ("the Airport") is operating in an easterly direction ("the Proposed Development"). This will mean departures and arrivals in an easterly direction can alternate between the northern and southern runways, as they currently do on westerly operations. Runway alternation in an easterly direction has not occurred at the Airport routinely because it was prevented by a historic agreement known as the Cranford Agreement. The Cranford Agreement was ended by the Government in January 2009, and the Proposed Development will provide the infrastructure required to enable full alternation of the runways during easterly operations. Further information on the Proposed Development is set out in **Section 2**.

1.1.2 Full runway alternation will more fairly and equitably share the noise impacts of operation at Heathrow amongst Heathrow's communities, enabling all communities to achieve periods of respite.

1.1.3 This Habitats Regulations Assessment (HRA) Screening Report has been prepared on behalf of Heathrow ("the Applicant") by Logika Group (hereafter referred to as Logika). This report has been submitted along with the Environmental Impact Assessment (EIA) Scoping Report that has been prepared by Logika and WSP Environment & Infrastructure Solutions UK Ltd.

1.2 Purpose of the HRA Screening Report

1.2.1 This HRA Screening Report has been produced for the purpose of providing the Competent Authority (the London Borough of Hillingdon) with the information necessary to enable compliance with duties under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the "Habitats Regulations"). This HRA Screening Report relates to the Proposed Development and provides:

1) the methodology used to define the scope of the assessment and identify potential effects on European sites associated with the Proposed Development;
2) a list of European sites (and their designated features) that may be subject to potential effects due to the Proposed Development, either alone or in combination with other plans or projects; and
3) an assessment of the potential effects to determine which are Likely Significant Effects (LSE) requiring further consideration at Stage 2 of the HRA process (known as Appropriate Assessment).

1.3 Structure of this Screening Report

1.3.1 The remainder of this Screening Report is structured as follows:

- **Section 2** provides a description of the Proposed Development.
- **Section 3** provides an overview of the Habitats Regulations Assessment.
- **Section 4** explains the methodology and approach that has been taken to the HRA screening assessment.

2. THE PROPOSED DEVELOPMENT

2.1 A description of the Proposed Development

2.1.1 The extent of the new airfield infrastructure works is relatively limited, although the exact requirements are still being determined as part of an ongoing design process. Infrastructure works are likely to comprise the construction of the following components:

- Taxiways and links to comprise a hold area(s) at the western end of Runway 09L.
- New Runway Access Taxiway(s) (RATs) on Runway 09L.
- Other associated airfield works, e.g. new connector taxiways or crossing points.
- Areas of additional pavement may also be developed to enable aircraft to access and exit the runways.
- Changes to layout of aircraft stands (501 – 505) to the north of Terminal 5.

2.1.2 In addition to the infrastructure proposed above, the Applicant may need to break out existing areas of redundant pavement on the existing airfield. This is to prevent a net increase in the proportion of paved areas across the Airport which could lead to increased run-off and flood volumes.

2.1.3 The need for an acoustic barrier to the south of the village of Longford is uncertain at this early stage and will be dependent on the results of ground noise modelling, landscape and visual assessment and stakeholder engagement.

Site location

2.1.4 Heathrow Airport is located approximately 15 miles west of Central London and lies within the administrative boundary of London Borough of Hillingdon (LBH). The Airport also borders the London Borough of Hounslow and Borough of Spelthorne. The Airport is situated on approximately 1,227 hectares (ha) of land and operates two parallel runways (Northern Runway 09L/27R and Southern Runway 09R/27L) with four operational terminals (Terminal 2 Terminal 3, Terminal 4, and Terminal 5).

2.1.5 Please refer to **Figure 2.1** and **Figure 2.2** for the location of the Proposed Development in relation to the wider context of the Airport and the surroundings.

Surroundings

2.1.6 The Airport is broadly bounded to the north by the A4, to the west by the A3044, to the east by the A30 and to the south by the Duke of Northumberland's River, as well as smaller connecting roads. Approximately 600m from the western perimeter of Heathrow lies the M25, with a direct link to Terminal 5 (T5) and the perimeter road from Junction 14a. The M4 provides an additional direct link to the Airport's central terminal area and the perimeter road from Junction 4 via a 'spur'.

2.1.7 The Airport sits in two main river catchments, namely the catchment of the River Colne in the west and of the River Crane to the east. It is bounded by a number of associated

watercourses west of the Airport – these include the River Colne, the Colne Brook and the Wraysbury River. In addition, the Duke of Northumberland's River and the Longford River flow around the Airport's western and southern boundaries. To the west and south of the Airport are a series of drinking water reservoirs supplying London, these being namely the Queen Mother, Wraysbury, King George VI and Staines Reservoirs.

2.1.8 The Airport lies within a semi-urban area with several settlements bordering the perimeter. Longford, Harmondsworth, Harlington and Sipson villages lie to the north, Poyle and Colnbrook to the west, while Stanwell Moor, Stanwell, Hatton and East Bedfont lie to the south[1] (see **Figure 2.1**). Cranford village and Hounslow are situated to the east. Despite the largely urban nature of its immediate surrounds, to the north-west, south-west and west, the Airport surroundings become much less developed and are more rural in nature. The wards surrounding the Airport include Longford, Cranford, Harlington, Stanwell and Poyle.

2.1.9 The topography of the Airport and surrounding areas is one that is relatively flat ranging from around 19m in elevation to the west, to 26m in the east.

Existing Infrastructure

2.1.10 The land on the Airport is largely comprised of hardstanding in the form of runways, terminal buildings, taxiways, aprons, and auxiliary buildings, as well as 'airfield' grassland that is heavily managed to avoid attracting birds and other wildlife. Further details on this infrastructure are set out below.

Runways:

- Heathrow has two runways: the northern runway (09L/27R) being 3,902m long and the southern runway (09R/27L) being 3,660m long. Both are oriented east to west.

Terminals:

- Heathrow operates four terminals, referred to as T2, T3, T4 and T5, where passengers arrive at and depart from the Airport. Terminal 1 is no longer in use for passenger and aircraft operations. Specifically: T2 and T3 form a cluster of terminal buildings known as the Central Terminal Area (CTA), which is situated in the central part of the Airport between the northern and southern runways. T5 is in the west of the Airport, with T4 being found in the southeast.

Taxiways:

- Heathrow has a taxiway network to circulate aircraft between the terminals and the runways under the guidance of air traffic control. The taxiway network comprises four parallel taxiways (two serving each of the runways), which are linked by cross field taxiways. There are also taxiways south of the southern runway, including one parallel taxiway, connecting T4 and the cargo area to the rest of the Airport. Runway links, including exit taxiways and Runway Access Taxiways (RATs), connect the parallel taxiways to the runways and are used by aircraft entering and exiting the runways. More minor taxiway links and cul-de-sac taxi lanes connect all the taxiways to the aircraft stands.

[1] https://maps.london.gov.uk/map/?ldd

Aprons:

- Aprons are a designated space on an airfield for the parking of aircraft, refuelling, and the loading and unloading of passengers and freight. Each terminal building at Heathrow has its own aprons. Additionally, there is a cargo apron in the south of the Airport for designated freight aircraft and maintenance aprons in the east of the Airport.
- The aprons provide parking space for a wide range of passenger and cargo aircraft, from the smaller turboprop ATR72 or Boeing 737 up to large aircraft such as the Airbus A380 or Boeing 747.

Ancillary facilities:

- Ancillary facilities support the operation and maintenance of the Airport. They include maintenance and repair facilities, warehousing and cargo storage facilities and other airport operational land (such as surface water pollution control, balancing ponds, construction compounds for ongoing work, in–flight catering facilities, air traffic control, baggage and parking for service equipment. These are located throughout the Airport.

3. HABITAT REGULATIONS ASSESSMENT

3.1.1 Council Directive 92/43/EEC on the conservation of wild fauna and flora (known as the Habitats Directive) was transposed into UK legislation through the Conservation of Habitats and Species Regulations 2017 (as amended). These regulations provide a framework for the protection of European sites.

3.1.2 The Habitats Regulations define the approach for the assessment of the implications for European sites of the implementation of plans and projects. This process is known as Habitats Regulations Assessment (HRA). There are a number of guidance documents provided by the UK Government that describe the process. The most relevant are:

- Habitats regulations assessment: protecting a European site (2021)[2].
- Appropriate assessment – Guidance on the use of Habitats Regulations Assessment (2019)[3].

3.1.3 In determining whether or not a plan or project can be adopted or consented, the competent authority must comply with *Regulation 63* of the Habitat Regulations as set out below:

"63(1) 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 and projects); and

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

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

3.1.4 Should a negative effect on the integrity of a European site be identified under Regulation 63, further consideration is required with regard *Regulation 64 and Regulation 68*.

"64(1) If the competent authority is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest (which, subject to paragraph (2), may be of a social or economic nature), it may agree to the plan or project notwithstanding a negative assessment of the implications for the European site or the European offshore marine site (as the case may be)."

"68 Where in accordance with regulation 64 –

(a) a plan or project is agreed to, notwithstanding a negative assessment of the implications for a European site or a European offshore marine site, or

[2] Gov.uk., (2021), 'Habitats regulations assessments: protecting a European site' (online), Available at: https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site (Accessed: 24/04/23)
[3] Gov.uk., (2019) 'Appropriate assessment' (online) Available at: https://www.gov.uk/guidance/appropriate-assessment (Accessed: 24/04/23)

(b) a decision, or a consent, permission or other authorisation, is affirmed on review, notwithstanding such an assessment,

The appropriate authority must secure that any necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000[4] is protected."

3.1.5 In order to undertake an assessment that accords with legislation, a staged process has developed over time that has been shaped by guidance and case law. This case law is derived from both the UK courts and the Court of Justice of the European Union (CJEU)[5].

3.1.6 There are three recognised stages of the HRA process. These are:

- Stage 1 – Screening. This stage identifies LSE that cannot be ruled out due to the implementation of a plan or project alone or in-combination with other plans and projects. If LSE are identified assessment at Stage two is required; where no LSE are identified Stage two is not necessary;
- Stage 2 – Appropriate assessment. This stage focuses on establishing, beyond reasonable scientific doubt, whether any of the LSE may negatively affect the integrity of a European site in light of its conservation objectives;
- Stage 3 – Derogation. This stage includes three tests: assessment of alternative solutions; consideration of Imperative Reasons of Overriding Public Importance (IROPI) and securing of compensatory measures. Where a negative effect on site integrity is concluded, it is necessary to determine whether there are alternatives to the proposed plan or project that would avoid or lessen the effects on a European site(s); whether there is a need for the plan or project with respect to the type and scale of the public benefit and whether sufficient compensatory measures can be secured to ensure the integrity of the National Site Network.

3.1.7 This report covers the Stage 1-screening process only.

[4] Following the Conservation of Habitats and Species (Amendments) (EU Exit) Regulations 2019, the term 'Natura 2000 network', is replaced by the 'National site network'.

[5] Following Brexit, The Supreme Court and the Court of Appeal are not bound by retained EU case law and can depart from it. However, these Courts will generally continue to follow retained EU case law and will only depart from it where satisfied that it appears right to do so. The lower courts remain bound to determine any questions as to the meaning, validity, or effect of the Habitats Regulations in accordance with retained EU case law (unless it is changed by Parliament or the Supreme Court or the Court of Appeal departs from it).

4. HRA SCREENING METHODOLOGY

4.1 Background

4.1.1 As explained in the previous section, under regulation 63(1) of the Habitats Direction, it is first necessary to consider whether the Proposed Development (a) is likely to have a significant effect on a European 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. This stage is generally referred to as 'screening'. If the screening threshold is passed, then it is necessary to carry out an appropriate assessment of the implications of the Proposed Development for the European site in view of that site's conservation objectives.

4.1.2 The Proposed Development is not directly connected to the conservation management of a European site. Therefore, the Proposed Development must be assessed in terms of whether it is likely to have a significant effect on a European site either alone or in combination with other proposals.

4.1.3 Case law has established that, for the purposes of HRA, a project is likely to have a significant effect on a European site where there is "a probability or risk" of such an effect In particular, in the light of the precautionary principle, such a risk is considered to exist if it cannot be excluded on the basis of objective information (see, for example, case *C-127/02* of the *CJEU*, known as the 'Waddenzee decision)[6], Consideration of Stage 2 – Appropriate Assessment is only required if a LSE is identified for one or more European sites at the screening stage. Those potential effects discounted must be done so on the basis that there is no identifiable effect pathway or there is objective information available that supports exclusion.

4.1.4 Proposed or potential mitigation measures cannot be considered during the screening stage in accordance with the judgement made in *Case C-323/177* (known as 'People over Wind') in 2018. Therefore, the screening assessment below does not take into account any mitigation measures that may be proposed within a future Stage 2 appropriate assessment that are specifically intended to avoid or reduce harmful effects on a European site(s), its designated features or the habitats and species that support a European sites conservation objectives.

4.2 Approach

4.2.1 To identify potential effects on European sites it is necessary to understand what effects the Proposed Development (during construction and operational phases) could have on designated features and the habitats and species that support them both within the European site(s) and outside the boundary of the European site(s) (i.e. on functionally linked land) as per *Case C-461/17*[8] (known as Holohan and Others)). The potential effects

6 European Court Reports 2004 1-07405 available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:62002CJ0127
7 European Court of Justice proceedings, available at: EUR-Lex - 62017CJ0323 - EN - EUR-Lex (europa.eu)
8 European Court of Justice proceedings, available at: EUR-Lex - 62017CJ0461 - EN - EUR-Lex (europa.eu)

associated with aircraft operation are well known and have been considered in a range of plan and project level HRA screening assessments, such as:

- Airports National Policy Statement Habitats Regulations Assessment: Statement to Inform Appropriate Assessment (Department for Transport, 2018).
- Noise Abatement Objective and regulatory Decision relating to Aircraft Noise Management at Dublin Airport: Appropriate Assessment – Nature Impact Statement (Aircraft Noise Competent Authority, 2022).
- Heathrow Airport Expansion – Habitat Regulations Assessment Screening Report (Heathrow Airport, 2019).
- Manston Airport Development Consent Order – Report to Inform Appropriate Assessment (Riveroak Investments, 2018).
- Gatwick Airport Northern Runway – Environmental Impact Assessment Scoping Report (GAL, 2019).

4.2.2 In order to ascertain the European sites that may be affected by the Proposed Development, Zones of Influence (ZoI) for each potential effect must be set.

4.2.3 *The Chartered Institute of Ecology and Environmental Management (CIEEM)* define the *ZoI in their Ecological Impact Assessment guidelines (2018)* as:

"The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities[9]*".*

4.2.4 The ZoI used within this screening assessment have been derived from peer-reviewed scientific literature (see Appendices A to C) and systematically collected and verified data (for example bird strike reporting records to the Civil Aviation Authority (CAA)). The potential significant effects considered and the ZoI defined for each are presented in **Table** 4.1. Appendices A to C provide a literature review associated with each potential effect.

[9] Chartered Institute of Ecology and Environmental management., (2018)., 'Guidelines for Ecological Impact Assessment in the UK and Ireland'., (online) Available at: https://cieem.net/wp-content/uploads/2019/02/Combined-EclA-guidelines-2018-compressed.pdf (Accessed: 24/04/23).

Table 4.1 Potential effects and related Zones of Influence

Impact	Potential effect	Zone of Influence (measured as a linear distance at ground level)	Justification
Construction Phase			
Construction dust: Deposition of dust in areas neighbouring the construction site.	Degradation of habitats supporting designated features of European sites	500m	European sites within 500m of the boundary of the construction site. This search parameter is based on the Institute of Air Quality Management (IAQM) "Guidance on the assessment of dust from demolition and construction" (2014)[10].
Construction activity: Production of aural and visual stimuli due to noise and vibration and movement of construction vehicles and engineers	Disturbance / displacement of designated features (or fauna supporting designated features) resulting in a reduction in the fitness of individuals and local population.	1km	European sites and functionally linked habitats within 1km of the boundary from the construction area of the Proposed Development that are designated for ornithological features. This is a precautionary distance based on information reported on disturbance literature (for example Cutts, Phelps & Burdon, 2009, Ruddock & Whitfield, 2007).[11] Within this distance all regular noise levels in excess of 70dB (A) at the bird, or irregular noise levels in excess of 55 dB(A) (Cutts, Hemmingway & Spencer, 2013[12]) at the bird will be 0accounted for.
Loss of pollutants or fine material from the construction site due to surface water flows during rainfall events.	The introduction of toxic pollutants or sediments resulting in loss of or damage to terrestrial or freshwater environments leading to effects on designated	100m	European sites supporting terrestrial habitats or species using terrestrial habitats within 100m of the boundary of any area required by the proposed Development for construction purposes. This search parameter is based on professional judgement following a review of the Environment Agency Pollution Prevention Guidance five13 (which suggests control of impacts can be managed within a distance of 50m), alongside experience of the extent of

[10] Institute of Air Quality Management, (2014)., 'Guidance on the assessment of dust from demolition and construction'., (online), Available at: https://iaqm.co.uk/text/guidance/construction-dust-2014.pdf (Accessed: 20/04/2023.

[11] Cutts, N., Phelps, A. and Burdon, D., (2009). Construction and waterfowl: Defining sensitivity, response, impacts and guidance. *Report to Humber INCA by the Institute of Estuarine and Coastal Studies, University of Hull. EN (2003) The Humber Estuary European Marine Site: English Nature's advice given under Regulation*, *33*(2).

[12] Cutts, N., Hemingway, K. and Spencer, J., (2013). Waterbird disturbance mitigation toolkit. *Tide toolbox, Interreg IVB North Sea Region Programme*.

13 Guidance: Environment Agency Pollution Prevention Guidelines 5 (PPG5). Online guidance located at: pmho1107bnkg-e-e.pdf (publishing.service.gov.uk) (accessed 26.04.2023)

Impact	Potential effect	Zone of Influence (measured as a linear distance at ground level)	Justification
	features of SPAs or SACs.		sediment deposition and pollutant escapes from construction projects. European sites supporting aquatic habitats or species downstream (and within the catchment area) of any watercourse or drainage channel within 100m of the boundary of the construction site or at any greater distance where a direct linkage is identified. This search parameter, for pollutants entering watercourses / drainage systems is the Environment Agency Pollution Prevention Guidance and the potential for mobile pollutants to then disperse downstream.
Operational Phase			
Increases in the atmospheric concentration and deposition of nitrogen	Direct toxicity to flora and fauna and changes in habitat composition including reduction in floristic diversity; resulting in degradation of designated habitats and species. Degradation of habitats supporting designated features of European sites.	18km from airfield boundary	All aircraft, whether departing or arriving, will be at altitudes greater than 3,000ft when more than 18km from an airfield. This is a precautionary ZoI with UK's Air Quality Expert Review Group suggesting that ground level effects are unlikely to be detectable once an aircraft is above 1,000ft, but with assessment typically being undertaken out to 3,000ft.
Aircraft collision with wildlife (birds and bats)	Death or injury to individual animals reducing the fitness of the local population	13km from airfield boundary	Civil Aviation Authority (CAA) data shows that between 2012 and 2016 ~97% of bird strikes reported in the UK or Channel Islands occurred under 1,500ft (215 of 7,101 recorded incidences across a four-year period were recorded above this altitude).[14] However, there is a 13km safeguarding area for wildlife hazard management specified by the CAA. Therefore, this is considered to be

[14] CAA, (n.d)., 'Reported Birdstrikes 2012 – 2016', (online) Available at: https://www.caa.co.uk/media/ynyhgvh0/20170316-reported-birdstrikes-2012-2016.pdf (Accessed: 04/05/2023)

Impact	Potential effect	Zone of Influence (measured as a linear distance at ground level)	Justification
			an appropriate distance for HRA screening purposes. Birds flying at high altitude on migration are not accounted for within the ZoI as data from the International Civil Aviation Organisation[15] clearly shows that collisions at altitude enroute are rare occurrences.
Disturbance of birds due to aircraft movements resulting in a reduction in the fitness of individual birds.	Disturbance of designated features (or fauna supporting designated features) resulting in a reduction in the fitness of individuals and local population	18km from airfield boundary	All aircraft, whether departing or arriving, will be at altitudes greater than 3,000ft when more than 18km from an airfield. This is precautionary based on the upper range of recorded disturbance to birds within the scientific literature and does not take account of lateral distances from individual flightlines.

Screening Assessment

4.2.5 As outlined in **Table 4.1**, this European site screening assessment has adopted a precautionary 18km radius from the Airport boundary (see **Figure 2.2**). In this instance a precautionary approach has been applied whereby the distance from the airport to European sites is measured from the boundary not the runway end or aircraft take off / landing point. This is a precautionary ZoI based on peer-reviewed scientific literature (see Appendix A) and verified bird strike data (see Appendix C).

4.2.6 Using data from Multi-Agency Geographic Information for the Countryside (MAGIC), European sites within the ZoI of Heathrow that may be affected by the Proposed Development are listed in **Table 4.2**, with distances from Heathrow boundary given as the closest part of the airport to the European site, qualifying features, and the most up-to-date information available on existing threats and pressures. These draw on a range of documents produced and held by Natural England and the Joint Nature Conservation Committee (JNCC):

- European Site citations;
- Natura 2000 Standard Data Forms;
- Information Sheet on Ramsar Wetlands (RIS); and

[15] The International Civil Aviation Organisation (ICAO) gather statistics globally on bird strikes. The data show that the majority (91%) of recorded incidents take place during the landing and take-off cycle. Only 4% of bird strikes are recorded as occurring en-route (i.e. flights above 3,000ft), with the remaining 5% being unknown (ICAO), 2017). 2008 - 2015 wildlife strike analyses (ibis) - en.pdf (icao.int)

- Site Improvement Plans.

Table 4.2 European sites within the Zone(s) of Influence (ZoI)

European site	Distance from Airport	Summary of Qualifying feature	Existing threats and pressures
Burnham Beeches SAC16	12.5km from Heathrow Airport Boundary	Annex I Habitats: 9120 Atlantic acidophilous beech forests with *ilex* and sometimes also *Taxus* in the shrublayer *Quercion robori-petraeae* or *Ilici-Fagenion*	Air Pollution: Risk of threat not yet determined; atmospheric nitrogen deposition Public access/ disturbance Habitat fragmentation Deer Species decline Invasive Non-Native Species (INNS)
Richmond Park SAC17	9km from Heathrow Boundary	Annex II species: 1083_stag beetle *Lucanus cervus*	No factors recorded.
South-West London Waterbodies Ramsar18	0.7km from Heathrow Boundary	Criterion 6 Gadwall *Anas strepera* Shoveler *Anas clypeata*	No factors recorded.
South-West London Waterbodies SPA	0.7km from Heathrow Boundary	Criterion 6 Gadwall *Anas strepera* Shoveler *Anas clypeata*	Public access / disturbance Changes in species distributions INNS Natural changes to site conditions Fisheries: fish stocking Inappropriate weed control
Thames Basin Heaths SPA19	12km from Heathrow Boundary	Article 4.2 species: Annex II migratory: European nightjar *Caprimulgus europaeus* Woodlark *Lullula arborea* Native: Dartford warbler *Sylvia undata*	Public access / disturbance Undergrazing Forestry and woodland management Hydrological changes Inappropriate scrub control INNS Wildfire / arson Air pollution: Impact of atmospheric nitrogen decomposition Feature location/ extent / condition unknown

16 Burnham Beeches - Special Areas of Conservation (jncc.gov.uk)
17 Richmond Park - Special Areas of Conservation (jncc.gov.uk)
18 South West London Waterbodies RAMSAR designation: GB1038RIS.pdf (ramsar.org))
19 European Site Conservation Objectives for Thames Basin Heaths SPA - UK9012141 (naturalengland.org.uk)

European site	Distance from Airport	Summary of Qualifying feature	Existing threats and pressures
			Military use Habitat fragmentation
Thursley, Ash, Pirbright & Chobham SAC20	11.6km from Heathrow Boundary	Annex I Habitats: 4010 Northern Atlantic wet heaths with *Erica tetralix* 4030 European dry heaths 7150 Depressions on peat substrates of the Rhynchosporion	Public access/ disturbance Undergrasing Forestry and woodland management Hydrological changes Inappropriate scrub control INNS Wildfire/ arson Air pollution: impact of atmospheric nitrogen decomposition Feature location/ extent/ condition unknown Military use Habitat fragmentation
Wimbledon Common SAC21	12km from Heathrow Boundary	Annex I Habitats: 4010 Northern Atlantic wet heaths with *Erica tetralix* 4030 European dry heaths Annex II species: 1083 Stag beetle *Lucanus cervus*	Forest and Plantation management & use Air pollution, air-borne pollutants INNS Other ecosystem modifications
Windsor Forest & Great Park SAC22	6.8km from Heathrow Boundary	Annex I Habitats: 9190 Old acidophilous oak woods with *Quercus robur* on sandy plains Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: 9120 Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (*Quercion robori-*	INNS Air pollution, air-borne pollutants Interspecific floral relations Forest and Plantation management & use

20 Thursley, Ash, Pirbright and Chobham - Special Areas of Conservation (jncc.gov.uk)
21 Wimbledon Common - Special Areas of Conservation (jncc.gov.uk)
22 Windsor Forest and Great Park - Special Areas of Conservation (jncc.gov.uk)

European site	Distance from Airport	Summary of Qualifying feature	Existing threats and pressures
		petraeae or *Ilici-Fagenion*) Annex II species: 1079 Violet click beetle *Limoniscus violaceus*	

4.2.7 Following this exercise, risk of LSE on designated features have been predicted for the following eight European sites. It is notable that due to overlapping designations, these represent six geographical locations:

- South West London Waterbodies Special Protection Area (SPA);
- South West London Waterbodies Ramsar site;
- Windsor Forest and Great Park Special Area of Conservation (SAC);
- Richmond Park SAC;
- Wimbledon Common SAC;
- Burnham Beeches SAC;
- Thursley, Ash, Pirbright and Chobham SAC and
- Thames Basin Heaths SPA.

4.2.8 Considerations from this assessment are shown in **Table 4.3.**

Table 4.3 Consideration of the Likely Significant Effect for the Easterly Alternative Infrastructure Project

Site Name	Distance (km)	Designated Features[23]	Potential effects of the Proposed Development	LSE for the Proposed Development alone	LSE of the Proposed Development considered in combination with other plans and projects
Construction Phase					
South West London Waterbodies SPA / Ramsar site	0.7km	SPA - Wintering populations of gadwall and shoveler Ramsar site – A wintering population of gadwall and a spring/autumn peaking population of shoveler	Construction Phase: Disturbance and displacement of birds due to construction works resulting in a reduction of energy intake and/or an increase in energy expenditure leading to a reduction in survival or productivity rates.	No LSE predicted – All European sites (and functionally linked land) are at distances >1km from this potential effect. Therefore, there is no pathway to effect.	No LSE is predicted for the Proposed Development in combination with other plans and projects. This is because the potential magnitude of the effect for the Proposed Development alone is negligible within the ZoI only, and if experienced would be limited temporally and spatially (i.e. there are no chronic effects).
South West London Waterbodies SPA / Ramsar site	0.7km	SPA - Wintering populations of gadwall and shoveler Ramsar site – A wintering population of gadwall and a spring/autumn peaking population of shoveler	Construction Phase: The introduction of toxic pollutants (e.g. hydrocarbons) or sediments resulting in loss of or damage to terrestrial or freshwater environments leading to direct or indirect effects on designated features.	No LSE predicted – the SPA / Ramsar site and associated functional habitat downstream of the construction area are either at distances where degradation, dilution and dispersion would make any ecological consequences of pollutant loss	No LSE is predicted for the Proposed Development in combination with other plans and projects. This is because the potential magnitude of the effect for the Proposed Development alone is negligible and if experienced would be limited temporally

[23] European site description including designated features are described in **Appendix D.**

Site Name	Distance (km)	Designated Features[23]	Potential effects of the Proposed Development	LSE for the Proposed Development alone	LSE of the Proposed Development considered in combination with other plans and projects
				undetectable or are isolated from the surrounds by their physical nature (for example the reservoir banking and control structures).	and spatially (in other words they are not chronic effects).
South West London Waterbodies SPA / Ramsar site	0.7km	SPA - Wintering populations of gadwall and shoveler Ramsar site – A wintering population of gadwall and a spring/autumn peaking population of shoveler	Construction Phase: Deposition of dust resulting in changes in baseline conditions resulting in direct or indirect effects on the designated features.	No LSE predicted – The volume of water present in the waterbodies ensure that the dilution of any dust deposited would be such that no detectable effects are predicted.	No LSE is predicted for the Proposed Development in combination with other plans and projects. This is because the potential magnitude of effect for the Proposed Development alone is negligible and if experienced would be limited temporally and spatially (in other words it is not chronic effects).
Operational Phase					
South West London Waterbodies SPA / Ramsar site	0.7km	SPA - Wintering populations of gadwall and shoveler Ramsar site – A wintering population of gadwall and a	Operational Phase: Increases in the atmospheric concentration and deposition of nitrogen.	Risk of LSE predicted - the Proposed Development will see the positioning of concentrations, and depositions of oxides change within the ZoI identified. Changes in deposition rates could impact habitats or	In combination LSE will be assessed within Stage 2 of the HRA process.

Site Name	Distance (km)	Designated Features[23]	Potential effects of the Proposed Development	LSE for the Proposed Development alone	LSE of the Proposed Development considered in combination with other plans and projects
		spring/autumn peaking population of shoveler		designated features of South West London Waterbodies SPA / Ramsar site.	
South West London Waterbodies SPA / Ramsar site	0.7km	SPA - Wintering populations of gadwall and shoveler Ramsar site – A wintering population of gadwall and a spring/autumn peaking population of shoveler	Operational Phase: Disturbance of birds due to aircraft movements resulting in a reduction in the fitness of individual birds.	Risk of LSE predicted – waterbodies within the SPA and associated functionally linked habitat are within the area when aircraft are at altitudes below 500m.	No LSE is predicted for the Proposed Development in combination with other plans and projects. This is because no other aircraft other than those originating from / landing at Heathrow are likely to disturb birds within the SWLW SPA / Ramsar site due to the presence of controlled airspace.
South-west London Waterbodies SPA / Ramsar site	0.7km	SPA – Wintering populations of gadwall and shoveler Ramsar site – A wintering population of gadwall and a spring/autumn peaking population of shoveler	Operational Phase: Aircraft collision with wildlife (birds and bats).	No LSE predicted – neither gadwall or shoveler have been recorded as colliding with aircraft using Heathrow (data available between October 2006 and August 2018). This is despite the location of the Wraysbury and Staines Reservoirs in close proximity to the existing southern runway. The	No LSE predicted – as the risk of collision with aircraft is so low, the potential for a marked increase due to aircraft taking off / landing at a different frequency on the southern runway can be discounted. Therefore, in combination effects can be discounted.

Site Name	Distance (km)	Designated Features[23]	Potential effects of the Proposed Development	LSE for the Proposed Development alone	LSE of the Proposed Development considered in combination with other plans and projects
				species are considered to be of such low risk to current airport operations that they are not explicitly considered within the yearly wildlife strike risk assessment process.	
Thames Basin Heaths SPA	12.0km	Populations of breeding woodlark, nightjar and Dartford warbler	Operational Phase: Aircraft collision with wildlife (birds and bats).	No LSE predicted – Neither woodlark, nightjar or Dartford warbler have been recorded as colliding with aircraft using Heathrow (data available between October 2006 and 2018). The Thames Basin Heaths is also at a distance where species are generally flying at low altitudes (such as the designated features) are not at any risk of collision.	No LSE predicted – this is as the risk of collision with aircraft is so low, the potential for a marked increase due to alterations to easterly operations occur at a considerable distance from the SPA and therefore can be discounted. Therefore, in combination effects need not be considered further.
Thames Basin Heaths SPA	12.0km	Populations of breeding woodlark, nightjar and Dartford warbler	Operational Phase: Increases in the atmospheric concentration and deposition of nitrogen.	Risk of LSE predicted – the Proposed Development will see the positioning of concentrations, and depositions of oxides	In combination LSE will be determined within Stage 2 of the HRA process.

Site Name	Distance (km)	Designated Features[23]	Potential effects of the Proposed Development	LSE for the Proposed Development alone	LSE of the Proposed Development considered in combination with other plans and projects
				change within the ZoI identified. Changes in deposition rates could impact the habitats on which designated features of the Thames Basin Heaths SPA rely.	
Windsor Forest and Great Park SAC	6.8km	Old acidophilous oak woods with *Quercus robur* on sandy soils. Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrub layer (*Quercion robori-petraeae or Ilici-Fagenion*) A population of violet click beetle	Operational Phase: Increases in the atmospheric concentration and deposition of nitrogen.	Risk of LSE predicted– the Proposed Development will see the positioning of concentrations, and depositions of oxides change within the ZoI identified. Changes in deposition rates could impact designated features of Windsor Forest and Great Park SAC.	In combination LSE will be determined within Stage 2 of the HRA process.
Wimbledon Common SAC	12.0km	Northern Atlantic wet heaths with *Erica tetralix* European dry heaths A population of stag beetle	Operational Phase: Increases in the atmospheric concentration and deposition of nitrogen.	Risk of LSE predicted– the Proposed Development will see the positioning of concentrations, and depositions of oxides change within the ZoI identified. Changes in	In combination LSE will be determined within Stage 2 of the HRA process.

Site Name	Distance (km)	Designated Features[23]	Potential effects of the Proposed Development	LSE for the Proposed Development alone	LSE of the Proposed Development considered in combination with other plans and projects
				deposition rates could impact designated features of Wimbledon Common SAC.	
Richmond Park SAC	9.0km	A population of stag beetle	Operational Phase: Increases in the atmospheric concentration and deposition of nitrogen.	Risk of LSE predicted– the Proposed Development will see the positioning of concentrations, and depositions of oxides change within the ZoI identified. Changes in deposition rates could impact habitats or designated features of Richmond Park SAC.	In combination LSE will be determined within Stage 2 of the HRA process.
Burnham Beeches SAC	12.5km	Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrub layer (*Quercion robori-petraeae or Ilici-Fagenion*)	Operational Phase: Increases in the atmospheric concentration and deposition of nitrogen.	Risk of LSE predicted– the Proposed Development will see the positioning of concentrations, and depositions of oxides change within the ZoI identified. Changes in deposition rates could impact designated features at Burnham Beeches SAC.	In combination LSE will be determined within Stage 2 of the HRA process.

Site Name	Distance (km)	Designated Features[23]	Potential effects of the Proposed Development	LSE for the Proposed Development alone	LSE of the Proposed Development considered in combination with other plans and projects
Thursley, Ash, Pirbright and Chobham SAC	11.6km	Northern Atlantic wet heaths with *Erica tetralix* European dry heaths Depressions on peat substrates of the *Rhynchosporion*	Operational Phase: Increases in the atmospheric concentration and deposition of nitrogen.	Risk of LSE predicted– the Proposed Development will see the positioning of concentrations, and depositions of oxides change within the ZoI identified. Changes in deposition rates could impact designated features at Thursley, Ash, Pirbright and Chobham SAC.	In combination LSE will be determined within Stage 2 of the HRA process.

Screening Assessment and Conclusion

4.2.9 The Proposed Development has the potential to result in likely significant effects on a number of designated features located within the general vicinity of the airport. Likely significant effects have been identified for eight European sites:

- South-west London Waterbodies SPA;
- South-west London Waterbodies Ramsar site;
- Windsor Forest and Great Park SAC;
- Richmond Park SAC;
- Wimbledon Common SAC;
- Burnham Beeches SAC;
- Thursley, Ash, Pirbright and Chobham SAC; and
- Thames Basin Heaths SPA.

4.2.10 As it has not been possible to screen out any European site at Stage 1, the assessment needs to proceed to Stage 2 (refer to Appendices A and B for how the findings of the literature review will be used to inform Stage 2).

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APPENDICES

Appendix A – Literature Review – Disturbance due to aircraft overflight

Disturbance

European sites identified within the ZoI for alterations to easterly operations at Heathrow support designated features (birds) that have the potential to be disturbed by aircraft overflight. Below is a review of scientific literature and other information relating to disturbance of birds by aircraft overflight. In addition, guidance is given as to how this information will be used to refine Zones of Influence (ZoI) for use within the Report to Inform the Appropriate Assessment stages.

Birds

Birds can be both disturbed and displaced by airport operations, as well as attracted to the habitats that aerodromes support (i.e. extensive grassland). The Civil Aviation Authority (CAA) list the most common species that can pose a hazard to airport operations by aggregating on airfields (See CAA, 2017). The range of bird species that are attracted to airfields include:

- Gulls (common, black-headed, herring, lesser black-backed and great black-backed);
- Waders (lapwing, golden plover, oystercatcher and curlew);
- Corvids (rooks, carrion crow, hooded crow and jackdaw);
- Waterfowl (swans, geese and duck – largely associated with flightlines across airfields, as opposed to grazing on airfield grassland);
- Pigeons (woodpigeon, feral pigeon, stock dove);
- Small birds (starlings, swifts, swallows, martins, skylarks, meadow pipits, fieldfares, redwings); and
- Raptors (kestrel, buzzard, red kite).

None of the species listed are designated features at European sites within the ZoI.

The birds that frequent airfields tend to do so at certain times of year only, mainly using the airfield grassland as a foraging resource, with few species breeding within the boundary (noting that skylarks and meadow pipits can breed in relatively high density in comparison to surrounding areas due to lack of predators and disturbance from dog walkers etc.). Their presence demonstrates a degree of tolerance to the noise and human presence associated with airfield operation. It is therefore, important to note in any ornithological assessment whether or not the species in question is known as a frequent visitor of airfields or not (i.e. they are choosing to tolerate the disturbance).

There have been a number of studies focused on recording behavioural and physiological effects of aircraft overflight on birds. These research efforts tend to focus on birds using habitats close to airfields (such as mudflats and other coastal habitats) and include studies looking for behavioural responses (e.g. escape flights) and physiological differences (e.g. increases in stress hormones).

Aircraft overflight can disturb birds through both visual (i.e. the plane or its shadow) and aural (i.e. noise) stimuli, although most research undertaken is not capable of disentangling these different stimuli. The research is also inherently variable in output as it concentrates on a range of different forms of flight including helicopters, military jets, commercial airlines, microlights, small planes and drones and in different areas (including remote bird colonies unused to human presence on uninhabited islands or in the Arctic and Antarctic). Augmenting this scientific literature are the publicly available results of surveys that have been carried out in support of recent planning applications for busy commercial airports in the UK and Ireland, namely Heathrow Airport and Dublin Airport (both considering the effects of overflight on SPAs supporting waterbirds).

Outlined below is a review of literature associated with bird disturbance and aircraft overflight, with a recommendation of an appropriate zone of influence (expressed as an aircraft altitude) that can be used within Stage 2 of the Habitats Regulations Assessment for Easterly Alternation Infrastructure at Heathrow Airport. The review of data considers birds both within and outside of the breeding season (during winter and migration).

Breeding Birds

Breeding birds may exhibit responses to disturbance of aircraft overflight by altering behaviour to attract mates (e.g. altering the timing of main singing periods), showing elevated levels of stress hormones with assumed reductions in fitness and in overall falls in productivity (including through nest abandonment).

For example, Gil et al. 2015 presented advancement in the time of the dawn chorus by birds near airports (70 – 75 decibels (db) day-evening-night noise level (L_{den}) – with point recordings in excess of 110 db), responding in advance to the time when aircraft activity began increase. This result has been repeated for European blackbirds (closest runway approximately 200m from forest edge, 65 – 75 L_{den}) close to Madrid Airport which sang for longer, advanced the time at which the dawn chorus began and altered song design in response to aircraft noise (Sierro et al., 2017), whilst five species of passerine, near Tegel Airport, Berlin (between 430 and 1,190m from the runway), European robins, blackbirds, blue tits, great tits and chaffinches, sang significantly earlier as daytime noise levels increased, with chaffinches also pausing singing during aircraft take-offs when noise levels increased beyond 78 db(A) (range 70 to 87 dB(A)) (Dominoni et al. 2016). Similarly, in the US, wood thrush sang more frequently when closer (distances between 450m and 1,350m and sound levels 67.3 dB(A) and 73.8 dB(A)) to an airport boundary (Injaian, et al. 2021). These changes in song activity could lead to increased energy expenditure thereby reducing fitness of individuals and reducing the rate of reproduction. It should be noted that the behaviour of birds does differ dependent on situation, for example chiffchaffs at Manchester Airport reduced song frequency, changed song design (more lower frequency syllables) and acted more aggressively to simulated intruders with increasing sound levels (measured between 180m and 2,100m from the runway) (Wolfenden et al. 2019), which was different to the results reported by Dominoni et al. (2016). This suggests that the effect of aircraft noise will differ between species, distance from the runway, habitat structure and flight schedule.

The sound levels associated with behavioural response of breeding birds differ, with Brown (1990) reporting behavioural responses in crested terns between 65 db(A) and 95 db(A), but with strong responses (preparedness to fly or flying off) restricted to exposures over 85 db(A), with those quoted above noting responses in similar bounds. Harlequin ducks began to show behavioural changes when noise levels exceeded 80 dB(A) from military jets flying between 30 to 100m (~100

to 330ft) above ground level (Goudie & Jones, 2004). The birds disturbed by overflight typically looked up or changed position on the nest but did not leave the nest in response to aircraft. There was no difference in nesting success attributable to differential levels of aircraft overflight.

There are examples of research focusing on the sensitivity of breeding birds to the altitude of overflight. Black et al. (1984) recorded limited or no response to flights of military jets below 500 ft by a range of wading birds breeding in Florida at sound levels between 55 and 100 dB(A). However, Bunnel et al. (1981) recorded low flying aircraft (averaging 2 aircraft per day above 610m) as a significant factor in the decline of a white pelican colony. Conversely, Dunnet (1977) noted no apparent effects of fixed wing aircraft flying at 100m above cliff top on seabird colonies including herring gulls and shags, whilst Grubb (1979) noted no visible response to nesting herons that were deliberately overflow at 50m (note both Dunnet, 1977 and Grubb, 1979 are reported from Jurick, 1985). More recently Hillman et al. (2015) reported no response in nesting behaviours of least terns, common terns, gull-billed terns and black-skimmers despite frequent military aircraft activity below 3,000ft (~915m). Other recent research on unmanned aerial vehicles used to survey colonial waterbirds has shown that few colony-wide effects with drones flown at a maximum altitude of 122m (250m lateral distance maintained), with laughing gull showing most propensity for disturbance when altitude was lowered to 91m (Barr et al. 2020).

Wintering and Migratory Birds

Wintering and migratory birds may be disturbed by aircraft overflight causing a reduction in foraging time and increased energy expenditure. There have been a number of research efforts recording responses of wintering and migratory birds (mainly wildfowl and waders) to aircraft overflight, with a number of literature reviews drawing together this information. The literature tends to report findings of disturbance with regards to sound levels or aircraft altitude, or both.

The Federal Highway Association review (Kaseloo and Tyson, 2004) details a review of studies on the effect, in terms of behavioural and physiological responses, of aircraft noise on wildlife including migratory wildfowl and dabbling ducks. Migratory waterfowl were noted as making brief flights in response to aircraft overflights. However, in the majority of cases described wildfowl and waders showed limited or no responses to sound levels ranging from between 55 to 100 dB(A)[1]. Conomy et al. (1998) found no significant change to the time-activity budgets of black ducks, American wigeon, gadwall and green-winged teal, and other dabbling ducks at a mean sound level of 85dB(A) when exposed to low-flying military aircraft (Leq [average level of noise across a period] 24 hr. = 63 dB(A)) This study concluded that across all species observed, ≤1.4% of their time was spent reacting to aircraft, and that only 2% of the birds surveyed were disturbed at all.

Owens (1977) recorded the response of brent geese to human disturbance around Southend-on-Sea, the Dengie Peninsular and Foulness (Essex, UK). One of the sources of disturbance was aircraft overflight (presumably, given the location, by both commercial and military aircraft). Flights below 500m (~1,640ft) and up to 1.5km away (lateral measurement) often elicited flight responses from brent geese, with low, slow flying aircraft and helicopters being reacted to most frequently. Owens documents brent geese becoming tolerant to overflight, although this tolerance was relatively slow to develop. During ~167 hours of field survey 49 disturbance events caused by aircraft were recorded; of these events 35 were due to small propeller-driven aircraft, 11 by transport aircraft, 1 by a jet aircraft and 2 by helicopter. The suggestion that small, slow and low flying aircraft are responsible for greater levels of disturbance than other types of over-flight is also backed up by a synthesis of data presented by Smit & Visser (1993), Davidson & Rothwell (1993),

Kempf & Hüppop (1996)[2] and Hoang (2013). Van der Kolk et al. (2020) provide analysis of data for oystercatcher in the Wadden Sea which supports the general tenet of slow and low flying aircraft being the most disturbing but note that large military transport aircraft elicited the greatest response in their study. The greatest levels of disturbance are likely to be associated with responses to noise (i.e. lower flying aircraft are noisier at ground level) and visual cues (i.e. slow, low flying aircraft elicit a similar response as that made with regards aerial predators).

Hoang (2013) presents a collation of results from various studies that quote the altitudes and lateral distances over which birds have been recorded as reacting to fixed wing aircraft and helicopters. The majority of examples provided show that responses are rarely noted when aircraft are above 500m (~1,640ft), which accords with observations made by Evans (1994) who registered no response by pink-footed geese by microlights at altitudes of ~150m/500ft or above and Komenda-Zehnder et al. (2003) who conclude disturbance is reduced significantly if fixed wing aircraft are at altitudes greater than 300m (~1,000ft) and helicopters above 450m (~1,500ft). Ward et al. (1999) did record responses by brent geese at altitudes beyond 1,000m (~3,300ft), although noting that the greatest level of response was recorded between 305 and 760m (1,000 to 2,500ft) for helicopters and noisy, relatively small aircraft (not commercial airlines). Van der Kolk et al. (2020) support the legal minimum flight height in parts of the Wadden Sea of 450m as being appropriate, although with some reservations for large, slow moving transport planes that operate infrequently.

The field survey data gathered within the last 6 years at Heathrow and Dublin Airport's provides similar conclusions to those described in the scientific literature. At Heathrow Airport the Southwest London Waterbodies SPA is located approximately 1km from the Airport boundary (at the closest point) and is directly overflown hundreds of times per day (dependent on wind direction). Over the course of two winters 9,240 overflights of waterbodies (making up the SPA and other associated functionally linked waterbodies) located between 1 and 5km from the airfield were monitored. Of these only 82 elicited disturbance responses from wildfowl despite noise levels reaching 88 dB and aircraft (including large Code F models such as Boeing 747-800 and Airbus A-380) being at altitudes of between 300 and 900m (~1,000 and 3,000ft) (Heathrow Airport Ltd, 2019). These disturbances were caused mainly by unusual low-level manoeuvring by large aircraft. It is also notable that the vast majority of bird disturbance in the area around Heathrow was due to other types of human activity (e.g. dog walking, jogging etc.). The field survey reported for Dublin Airport (AECOM, 2021) demonstrates that across 228 hours of recording (between July 2016 and December 2017 and between April and May 2018) in Rogerstown Estuary SPA and Balydoyle Bay SPA at different times of day, different tidal states and different weather conditions, no disturbance events associated with the operation of Dublin Airport were recorded. Within this recording period 184 disturbance events from other sources were recorded (mainly walkers/dog walkers) with only a single event related to an aircraft (a low flying coast guard helicopter). This suggests that the birds present within the closest SPAs to Dublin Airport are tolerant of the noise and visual disturbance associated with aircraft overflight. This is likely, in part, due to the distance between the airfield and the designated sites meaning that all (or at least the vast majority) of aircraft arriving or departing the airport will be at heights well in excess of 500m (~1,640ft) when overflying any of the SPAs. These contemporary field studies focusing on the effects of overflight from busy commercial airfields suggest that there is a high level of tolerance for aircraft over-flight.

There is no standard recommendation of a minimum altitude at which breeding colonies or aggregations of wintering birds should be overflown to avoid / minimise disturbance, although it is

generally accepted that limiting minimum flight altitude above sensitive areas is an effective way to reduce disturbance. The US Federal administration sets minimum altitude at 610m (2,000ft) over land administered by the US National Parks Service, Fish and Wildlife Service and Bureau of Land Management (reported in Harris, 2005), whilst many of the authors referenced above note that 500m (~1,640ft) is an appropriate level, with the range given between 150m (~500ft) to 750m (~2,500ft) (Kempf & Hüppop 1996). Most also note that birds regularly over-flown build up tolerance to aircraft. It is also of interest that authors considering various sources of disturbance tend to conclude that other human disturbance agents (e.g. dog walking, road traffic etc.) tend to elicit greater responses from aircraft overflight. This is of particular interest with respect to a study by Rees et al. (2005) who identified this relationship with disturbance for whooper swan in habitats adjacent to and within 2km of Glasgow Airport, a result reflected in the data collected on behalf of both Heathrow and Dublin Airports.

Use of information at Stage 2

The Report to Inform the Appropriate Assessment of the Alterations to Easterly Operations will use the information described above to provide a robust assessment of disturbance of based on the best available objective and scientific information to enable a decision to be made on whether or not there will be adverse effects on integrity on one or more European sites. The following will be used as the basis for the assessment:

- The list of European sites identified within the HRA screening exercise will be narrowed to include those that are in areas where aircraft may operate below 610m (2,000ft).
- Further narrowing of the list of European sites will then take place (if necessary) based on whether or not they will be overflown (with each flight line representing a centre line of a width of 3.2km) following the proposed alterations to easterly operations / airspace changes (based on information available at the time) and are currently regularly overflown.

Assessment of individual European sites (as relevant) will then consider the likely altitude of overflight (e.g. above or below 500m), whether the pattern of overflight will alter (i.e. some European sites are overflown when approach and departures are flying in line with the runway and are unable to deviate) and the type of species present.

[1] Sound levels used in this report are expressed in units as dB(A), LA_{max} and L_{max}. Different units of measurement are used by different authors and have been expressed in the same terms in this report. LA_{max} is the maximum a-weighted sound level of an event and is the same as an expression of dB(A). Both of these units are A weighted meaning the level is adjusted to correspond to human hearing range. Lmax is not adjusted in this way (when L_{max} is converted to LA_{max} the quoted number reduces).
[2] Reviewed document is an update and translation of a Dutch publication of 1998. The date of publication of the updated translation is not provided.

Appendix B – Literature Review – Defining a Zone of Influence for air quality effects of aircraft overflight on European sites

Emissions released from aircraft during the landing and take-off cycle, including nitrogen, can result in the acidification and nutrification of sensitive habitats causing changes in the floral community through altering the competitiveness of different plants, through direct toxicity or eutrophication of the water environment.

The UK's Air Quality Expert Review Group (DEFRA, 2004) state that 'A*round a third of all NOx emissions from the aircraft (including ground-level emissions from auxiliary power units, engine testing etc, as well as take-off and landing) occur below 100 m in height. The remaining two-thirds occur between 100 and 1000 m and contribute little to ground-level concentrations*'. It is generally understood that emissions from aircraft become negligible, in terms of their effect on ground-level air quality, once aircraft are more than approximately 350-650 ft (100-200m) above the ground on departure, and when greater than approximately 160-350 ft (50-100m) on arrival. Typically, air quality assessments for airport expansion activities (not associated with road traffic) where additional ATMs are expected extend up to 15km (e.g. Manston Airport and Gatwick Airport Northern Runway) from the centre of the airport, with modelling undertaken for individual European sites.

At low altitudes, either on approach or departure, aircraft are typically flying in line with the runway they are to land on or have just departed from. Standard rules dictate that approaching aircraft must be stabilised from a minimum of 3 nautical miles (~5.6km) out from the end of the runway at a 1000ft altitude (so called "3:1" ratio). This ratio translates into the standard 3° glideslope for the approach. Exceptions to this rule do apply at a single UK airport (London City) where there are obstructions means that steeper approaches are operated, however this ensures aircraft are at greater altitudes for longer. On departure aircraft are typically allowed a 15° offset trajectory from the end of the runway to a distance of approximately 1 nautical mile (~1.9km) at which point they have the freedom to turn; at Heathrow there is no turning/vectoring until an altitude of 4,000ft is reached. The climb-gradient is normally determined by factors such as aircraft type, loading, prevailing weather, other proximate departure/arrival tracks, and any typography/obstacles in the vicinity of the airport.

Use of information at Stage 2

On final approaches and initial take-off pathways alterations to easterly operations proposals will not alter changes in air quality as no increase in ATMs are expected. Therefore, any European sites lying within ~1.9km of the runway ends (that doesn't extend outside of this area) can therefore be discounted as no change above baseline will occur (other than a general reduction in emissions as the aircraft fleet modernises). Those lying between 2 and 18km away may experience changes in air quality from aircraft overflight should the pattern of flights reduce or increase the number of flights across them (I.e. up to 3,000ft) and will be assessed at Stage 2.

Appendix C – Literature Review – Wildlife strike and European sites

Wildlife strike (mostly associated with birds but can also apply to bats and terrestrial mammals that can access runways) presents a risk to aircraft that can prove catastrophic (El-Sayed, 2019). Due to the potential for wildlife strikes to cause damage to aircraft the CAA ensure that airport operators manage the risk actively through the implementation of CAP 772: Wildlife Hazard Management at Aerodromes (CAA, 2017). CAP 772 provides advice on how to effectively manage habitats and deter birds on airfield and within 13km of its boundary. The risk reduction programmes associated with commercial airports are self-evidently effective in reducing the number of collisions given the low strike rate recorded in the UK.

The International Civil Aviation Organisation (ICAO) gather statistics globally on bird strikes. The data show that the majority (91%) of recorded incidents take place during the landing and take-off cycle. Only 4% of bird strikes are recorded as occurring en-route (i.e. flights above 3,000ft), with the remaining 5% being unknown (ICAO), 2017). In the UK, between 2012 and 2016, 12,971 bird strikes were recorded (noting that there is a mandatory requirement to report incidents to the CAA). Of the 7,101 recorded strikes where a location and phase of flight was recorded 85% occurred under 500ft (~150m), with a further 12% occurring between 500ft and 1,500ft (~460m), meaning that strikes are mainly occurring on airfield or in the very near vicinity (CAA, 2017).

The bird groups that collide most frequently are gulls (~1,350 between 2012 and 2016), swallows and martins (~1,000), pigeons and doves (~800), swifts (~450), larks (~450) and falcons and allies (~380).

Neither gadwall or shoveler have been recorded as colliding with aircraft using Heathrow (data available between October 2006 and August 2018). This is despite the location of the Wraysbury and Staines Reservoirs in close proximity to the existing runways. The species are considered to be of such low risk to current airport operations that they are not explicitly considered within the yearly wildlife strike risk assessment process.

Appendix D – European site designations

South West London Waterbodies SPA

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.

South West London Ramsar site

RAMSAR INFORMATION SHEET

FOR WETLANDS OF INTERNATIONAL IMPORTANCE

Site reference number 7UK148

1 Compilation date September 2000
2 Country UK (England)
3 Name of wetland South West London Waterbodies
4 Site centre location: Latitude: 51 23 59 N Longitude: 00 23 26 E
5 Altitude 5-25 m
6 Area (ha) 828.14

7 Overview
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*.

8 Wetland type Inland wetland, Man-made wetland

Code	Name	% Area
6	Reservoirs / barrages / dams	45
7	Gravel / brick / clay pits	25
Other	Other	30

9 Ramsar Criteria 6
10 Map of the site √
11 Compiler Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax : +44(0) 1733 562626 / +44(0) 1733 555948

12 Justification of criteria
Ramsar criterion 6
Over winter the site regularly supports internationally important populations of: Gadwall *Anas strepera*, Shoveler *Anas clypeata*

13 General location
The site is comprised of a series of discrete waterbodies in the Thames Valley between Windsor and Hampton Court.

Administrative Region: Greater London, Berkshire, Surrey

14 Physical Features

Soil & Geology	alluvium, clay, gravel, mud, neutral
Geomorphology and Landscape	floodplain, lowland, valley
Nutrient status	no information
PH	circumneutral
Salinity	fresh
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Rainy, temperate climate with a mild winter and periodic frost. Mean minimum temperature approximately 7.8°C. Mean

	maximum temperature approximately 14.7°C. Mean annual precipitation approximately 548.7mm, with a winter maximum.

15 Hydrological values
Public water supply

16 Ecological features
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.

17 Noteworthy flora
None

18 Noteworthy fauna

Birds

Species occurring at levels of international importance (as identified at designation):

Over winter the area regularly supports:

Gadwall, *Anas strepera* (Northwestern Europe)	710 individuals, representing an average of 2.4% of the population (Five year peak mean for 1993/94 to 1997/98)
Shoveler, *Anas clypeata* (Northwestern/Central Europe)	853 individuals, representing an average of 2.1% of the population (Five year peak mean for 1993/94 to 1997/98)

Nationally important species occuring on the site
Phalacrocorax carbo, Podiceps cristatus, Aythya ferina, Aythya fuligula, Fulica atra

19 Social and Cultural Values
Aesthetic
Current scientific research
Non-consumptive recreation
Sport fishing

20 Land tenure/ownership

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

21 Current land use

Activity	On-Site	Off-Site	Scale
Nature conservation	+	+	Large-Scale
Tourism	+	+	Large-Scale
Recreation	+	+	Large-Scale
Research	+	+	Large-Scale
Fishing: recreational/sport	+	+	Large-Scale
Freshwater aquaculture		+	Large-Scale
Grazing (unspecified)		+	Large-Scale
Industry		+	Large-Scale
Mineral exploration	+	+	Large-Scale

Transport route		+	Large-Scale
Domestic water supply	+	+	Large-Scale
Urban development		+	Large-Scale
Non-urbanised settlements		+	Large-Scale

22 Adverse factors affecting the ecological character of the site

Activity	On-Site	Off-Site	Scale
Vegetation succession	+	+	Large-Scale
Water diversion for irrigation/domestic/industrial use	+		Large-Scale
Recreational/tourism disturbance (unspecified)	+	+	Large-Scale
General disturbance from human activities	+	+	Large-Scale
Mining exploitation/exploration	+		Large-Scale
Transport infrastructure development		+	Large-Scale
Unspecified development: industry		+	Large-Scale
Unspecified development: urban use		+	Large-Scale
Other factor	+	+	Large-Scale

23 Conservation measures taken

Conservation measure	On-site	Off-site
SSSI	+	+
SPA	+	

24 Conservation measures proposed but not yet implemented
see below

Site vulnerability and management statement
There is an issue surrounding the potential future decommissioning of reservoirs once they are no longer required for the purposes of water supply; as well as the potential impacts of maintenance works, which may require winter draw-down of reservoirs. Discussions will be required with the current owners and occupiers regarding the future management, maintenance and decommissioning of the larger reservoirs, in order to maintain the site's interest.
The threat from potential development pressures in this urbanised and urban-fringe area is largely covered by the relevant provisions of the Conservation Regulations (1994).
Issues such as arresting (or locally reversing) vegetation succession will be addressed via management plans.
Levels of disturbance from recreational activities on one part of the site will be monitored in the winter months to determine their effects on the interest of the site.

25 Current scientific research/survey/monitoring and facilities
Wetland Birds Survey Counts

26 Current conservation education
None

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

28 Functional jurisdiction
Department of the Environment, Transport and the Regions

29 Management authority

English Nature
Harbour House
Hythe Quay
Colchester
Essex
CO2 8JF
UK
Tel: 01206 796666
Fax: 01206 794466

30 Bibliography

Batten, L.A., Bibby, C.J., Clement, P., Elliott. G.D., & Porter. R.F. 1990. Red Data Birds in Britain. Poyser, London.

Cranswick, P.A., Walters, R.J., Musgrove, A.J., Pollitt, M.S. 1997. The Wetland Bird Survey 1995-96: Wildfowl and Waders Counts. BTO/WWT/RSPB/JNCC, Slimbridge.

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Stone, B.H, Sears, J., Cranswick, P.a., Gregory, R.D., Gibbons, D.W, Rehfisch, M.M., Aebischer, N.J & Reid, J.B. 1997. Population estimates of birds in Britain and in the United Kingdom. British Birds 90: 1-22.

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Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat

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 Ramsar site because of the site's international importance for waterbirds.

The South West London Waterbodies Ramsar 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.

Boundary of Ramsar site: The Ramsar site 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 Ramsar site map for further detail.

Size of Ramsar site: The Ramsar site covers an area of 828.14 ha.

International importance of Ramsar site: The Ramsar site is a Wetland of International Importance because:

a) the site qualifies under **criterion 6** because it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird:

Waterbird 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 Ramsar site
South West London Waterbodies was designated as a Ramsar site on 22 September 2000.

Windsor Forest and Great Park SAC

NATURA 2000 - STANDARD DATA FORM

**For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)**

SITE **UK0012586**

SITENAME **Windsor Forest and Great Park**

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- 1. SITE IDENTIFICATION
- 2. SITE LOCATION
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- 4. SITE DESCRIPTION
- 5. SITE PROTECTION STATUS AND RELATION WITH CORINE BIOTOPES
- 6. SITE MANAGEMENT

1. SITE IDENTIFICATION

1.1 Type	1.2 Site code Back to top
B	UK0012586

1.3 Site name

Windsor Forest and Great Park

1.4 First Compilation date	1.5 Update date
1995-06	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

Date site proposed as SCI:	1995-06
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-04
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.623333333	51.43555556

2.2 Area [ha]:

1680.18

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKJ2	Surrey, East and West Sussex
UKJ1	Berkshire, Buckinghamshire and Oxfordshire

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
9120			272.69	0	G	C	B	A	C
9190			621.67	0	G	A	B	A	A

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species	Population in the site	Site assessment

G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
I	1079	Limoniscus violaceus			p				P	DD	A	A	A	A
I	1083	Lucanus cervus			p				P	DD	D			

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N09	4.5
N19	95.0
N06	0.5
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: acidic,clay,neutral,sand 2 Terrestrial: Geomorphology and landscape: lowland

4.2 Quality and importance

Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion) for which the area is considered to support a significant presence. Old acidophilous oak woods with Quercus robur on sandy plains for which this is one of only four known outstanding localities in the United Kingdom. Limoniscus violaceus for which this is one of only three known outstanding localities in the United Kingdom. which is known from 15 or fewer 10 x 10 km squares in the United Kingdom.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	I01		B
H	H04		B

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	A06		I
H	B02		I
H	A02		I

H	K04		I	H	A04		I
H	B02		I				

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0				

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE SPECIAL AREA OF CONSERVATION (SAC) AND SPECIAL PROTECTION AREA (SPA) STANDARD DATA FORMS

The codes in the table below generally follow those explained in the official European Union guidelines for the Standard Data Form (also referencing the relevant page number).

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	SPA (classified Special Protection Area)	53
B	cSAC, SCI or SAC (candidate Special Area of Conservation, Site of Community Importance, designated Special Area of Conservation)	53
C	SPA area/boundary is the same as the cSAC/SCI/SAC i.e. a co-classified/designated site (Note: this situation only occurs in Gibraltar)	53

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha• rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

3.1 Habitat representativity (abbreviated to 'Representativity' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent representatively	57
B	Good representatively	57
C	Significant representatively	57
D	Non-significant presence representatively	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	58
B	> 2%-15%	58
C	≤ 2%	58

3.1 Degree of conservation (abbreviated to 'Conservation' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global assessment (abbreviated to 'Global' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	62
B	> 2%-15%	62
C	≤ 2%	62
D	Non-significant population	62

3.2 Degree of conservation (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Other species – essentially covers bird assemblage types

CODE	DESCRIPTION	PAGE NO
WATR	Non-breeding waterbird assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK04	Site of Special Scientific Interest (GB)	67
UK05	Marine Conservation Zone	67
UK06	Nature Conservation Marine Protected Area	67
UK86	Special Area (Channel Islands)	67
UK98	Area of Special Scientific Interest (NI)	67
IN00	Ramsar Convention site	67
IN08	Special Protection Area	67
IN09	Special Area of Conservation	67

Richmond Park SAC

NATURA 2000 - STANDARD DATA FORM

**For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)**

SITE **UK0030246**

SITENAME **Richmond Park**

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- 4. SITE DESCRIPTION
- 5. SITE PROTECTION STATUS AND RELATION WITH CORINE BIOTOPES
- 6. SITE MANAGEMENT

1. SITE IDENTIFICATION

1.1 Type	1.2 Site code Back to top
B	UK0030246

1.3 Site name

Richmond Park

1.4 First Compilation date	1.5 Update date
2001-01	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

Date site proposed as SCI:	2001-01
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-04
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.274444444	51.44083333

2.2 Area [ha]:

846.27

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKI2	Outer London

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
I	1083	Lucanus cervus			p				C	DD	C	A	C	B

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

4.1 General site character

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Habitat class	% Cover
N06	1.5
N07	0.5
N08	25.0
N19	5.0
N14	20.0
N10	5.0
N16	25.0
N09	18.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: alluvium,neutral,clay,sand,acidic 2 Terrestrial: Geomorphology and landscape: lowland

4.2 Quality and importance

Lucanus cervus for which this is one of only four known outstanding localities in the United Kingdom.

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK01	100.0	UK04	100.0		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

[X] Yes Name: Richmond Park: The Richmond Park National Nature Reserve (NNR) Management

Plan provides management information related to this site. This is available from Natural England.
Link: .

☐ No, but in preparation

☐ No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

Wimbledon Common SAC

NATURA 2000 - STANDARD DATA FORM

**For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)**

SITE **UK0030301**

SITENAME **Wimbledon Common**

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- 6. SITE MANAGEMENT

1. SITE IDENTIFICATION

1.1 Type	1.2 Site code Back to top
B	UK0030301

1.3 Site name

Wimbledon Common

1.4 First Compilation date	1.5 Update date
2001-01	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

Date site proposed as SCI:	2001-01
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-04
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.234444444	51.43222222

2.2 Area [ha]:

351.38

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKI2	Outer London

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
4010			70.28	0	M	C	C	C	C
4030			105.41	0	M	C	C	B	C

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site					Site assessment	
		Scientific									

G	Code	Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
I	1083	Lucanus cervus			p				C	DD	C	B	C	B

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N07	0.5
N08	5.0
N09	45.0
N06	1.0
N16	45.0
N14	3.5
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: sand,acidic,clay 2 Terrestrial: Geomorphology and landscape: lowland

4.2 Quality and importance

Northern Atlantic wet heaths with Erica tetralix for which the area is considered to support a significant presence. European dry heaths for which the area is considered to support a significant presence. Lucanus cervus for which this is one of only four known outstanding localities in the United Kingdom.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	B02		I
H	H04		B
H	I01		B
H	J03		B

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	A02		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification, T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0				

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

☐	Yes
☐	No, but in preparation
☒	No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

Burnham Beeches SAC

NATURA 2000 - STANDARD DATA FORM

**For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)**

SITE **UK0030034**

SITENAME **Burnham Beeches**

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- 6. SITE MANAGEMENT

1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
B	UK0030034

1.3 Site name

Burnham Beeches

1.4 First Compilation date	1.5 Update date
1998-06	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

Date site proposed as SCI:	1998-06
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-04
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.630833333	51.56

2.2 Area [ha]:

383.71

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKJ1	Berkshire, Buckinghamshire and Oxfordshire

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
9120			345.34	0	M	A	B	A	A

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N16	90.0

N17	5.0
N08	5.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: acidic,nutrient-poor,alluvium 2 Terrestrial: Geomorphology and landscape: lowland

4.2 Quality and importance

Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion) for which this is considered to be one of the best areas in the United Kingdom.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	I02		B
H	G01		I
H	M02		B
H	H04		B
H	J03		B

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	A04		I
H	B02		I
H	A02		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification, T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK01	52.8	UK04	100.0		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

☐	Yes
☐	No, but in preparation
☒	No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

Thursley, Ash, Pirbright and Chobham SAC

NATURA 2000 - STANDARD DATA FORM

**For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)**

SITE **UK0012793**

SITENAME **Thursley, Ash, Pirbright and Chobham**

TABLE OF CONTENTS

- 1. SITE IDENTIFICATION
- 2. SITE LOCATION
- 3. ECOLOGICAL INFORMATION
- 4. SITE DESCRIPTION
- 5. SITE PROTECTION STATUS AND RELATION WITH CORINE BIOTOPES
- 6. SITE MANAGEMENT

1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
B	UK0012793

1.3 Site name

Thursley, Ash, Pirbright and Chobham

1.4 First Compilation date	1.5 Update date
1996-01	2015-12

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee

Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY

Email:

Date site proposed as SCI:	1996-01
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-04
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.693055556	51.16166667

2.2 Area [ha]:

5154.5

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKJ2	Surrey, East and West Sussex

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
4010			515.45	0	M	A	C	A	B
4030			3608.15	0	M	A	C	A	B
7150			5.15	0	G	B	C	A	A
9120			51.55	0	M	D			
91E0	X		51.55	0	M	D			

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
A	1166	Triturus cristatus			p				P	DD	D			

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N06	5.0
N08	75.0
N07	10.0
N17	10.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: peat,acidic,sand,nutrient-poor 2 Terrestrial: Geomorphology and 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 for which this is considered to be one of the best areas in the United Kingdom.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
	Threats and	Pollution (optional)	inside/outside

Positive Impacts			
Rank	Activities, management	Pollution (optional)	inside/outside

Rank	pressures [code]	[code]	[i|o|b]
H	J02		B
H	A04		I
H	K02		I
H	H04		B
H	G05		I

	[code]	[code]	[i|o|b]
H	A04		I
H	A02		I
H	B02		I
H	D05		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

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http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0	UK01	16.0		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

Thames Basin Heaths SPA

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

Name: Thames Basin Heaths

Unitary Authority/County: Bracknell Forest; Hampshire; Surrey; Windsor and Maidenhead.

Site description: The Thames Basin Heaths SPA is a composite site that is located across the counties of Surrey, Hampshire and Berkshire in southern England. It encompasses all or parts of Ash to Brookwood Heaths Site of Special Scientific Interest (SSSI), Bourley and Long Valley SSSI, Bramshill SSSI, Broadmoor to Bagshot Woods and Heaths SSSI, Castle Bottom to Yateley and Hawley Commons SSSI, Chobham Common SSSI, Colony Bog and Bagshot Heaths SSSI, Eelmoor Marsh SSSI, Hazeley Heath SSSI, Horsell Common SSSI, Ockham and Wisley Commons SSSI, Sandhurst to Owlsmoor Bogs and Heaths SSSI and Whitmoor Common SSSI.

The open heathland habitats overlie sand and gravel sediments which give rise to sandy or peaty acidic soils, supporting dry heathy 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. The site supports important breeding populations of a number of birds of lowland heathland, especially nightjar *Caprimulgus europaeus* and woodlark *Lullula arborea*, both of which nest on the ground, often at the woodland/heathland edge, and Dartford warbler *Sylvia undata*, which often nests in gorse *Ulex* sp. Scattered trees and scrub are used for roosting.

Together with the nearby Ashdown Forest and Wealden Heaths SPAs, the Thames Basin Heaths form part of a complex of heathlands in southern England that support important breeding bird populations.

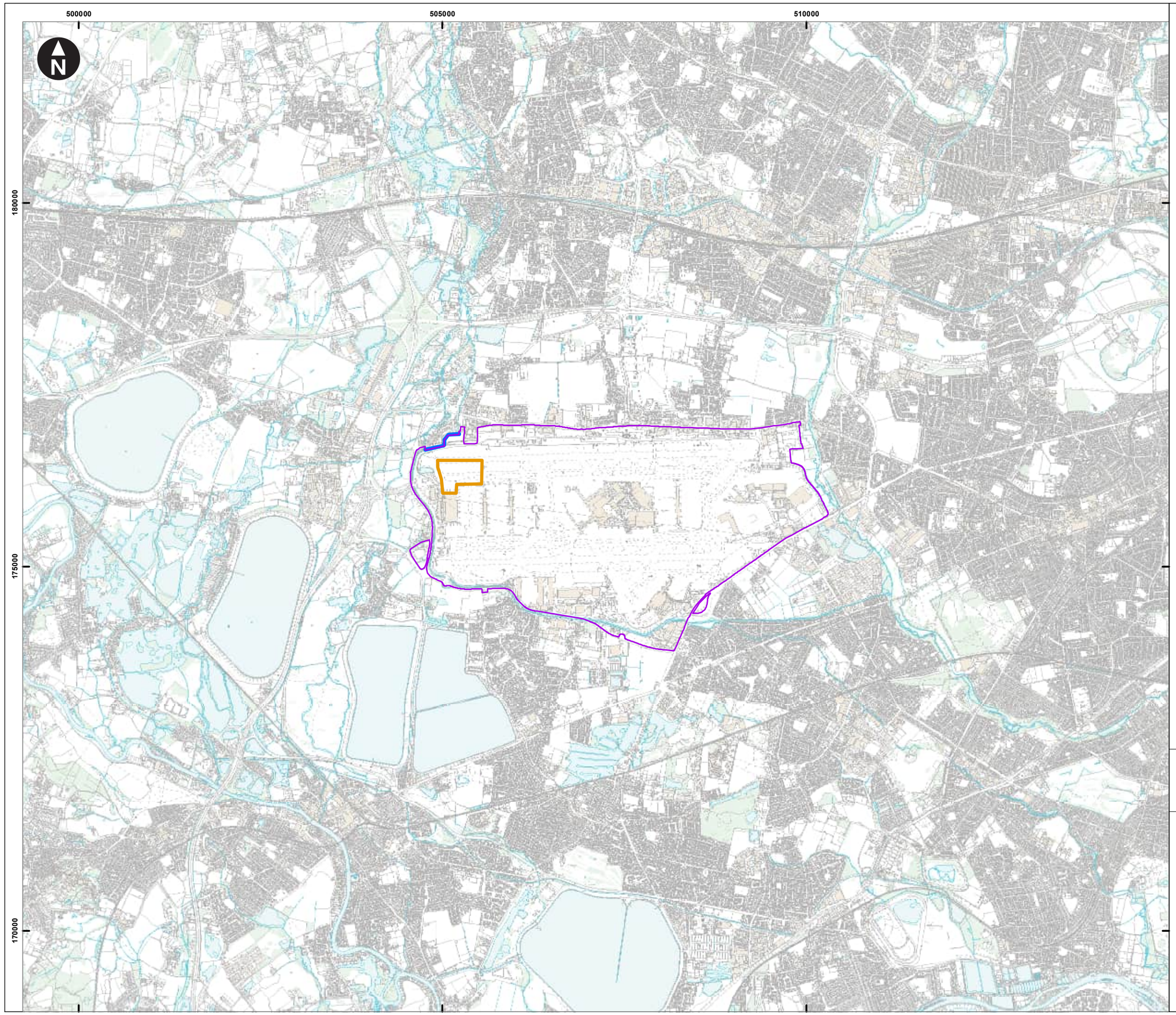
Size of SPA: The SPA covers an area of 8274.72 ha.

Qualifying species:
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:

Annex 1 species	Count and season	Period	% of GB population
Nightjar *Caprimulgus europaeus*	264 churring males – breeding	1998/99	7.8%
Woodlark *Lullula arborea*	149 pairs – breeding	1997	9.9%
Dartford warbler *Sylvia undata*	445 pairs – breeding	1999	27.8%

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

Status of SPA:
Thames Basin Heaths was classified as a Special Protection Area on 9 March 2005.



Key

- Heathrow boundary
- Indicative area for new Runway Access Taxiway(s), Connector Taxiways and changes to aircraft stands
- Indicative footprint of potential acoustic barrier

0 500 1,000 1,500 2,000 2,500 m

Scale at A3: 1:50,000

Heathrow

Heathrow Easterly Alternation Infrastructure Project
HRA Screening Report

Figure 2.1
Site location plan

October 2023

853399-WSPE-XX-XX-FG-MD-00003_S2_P02

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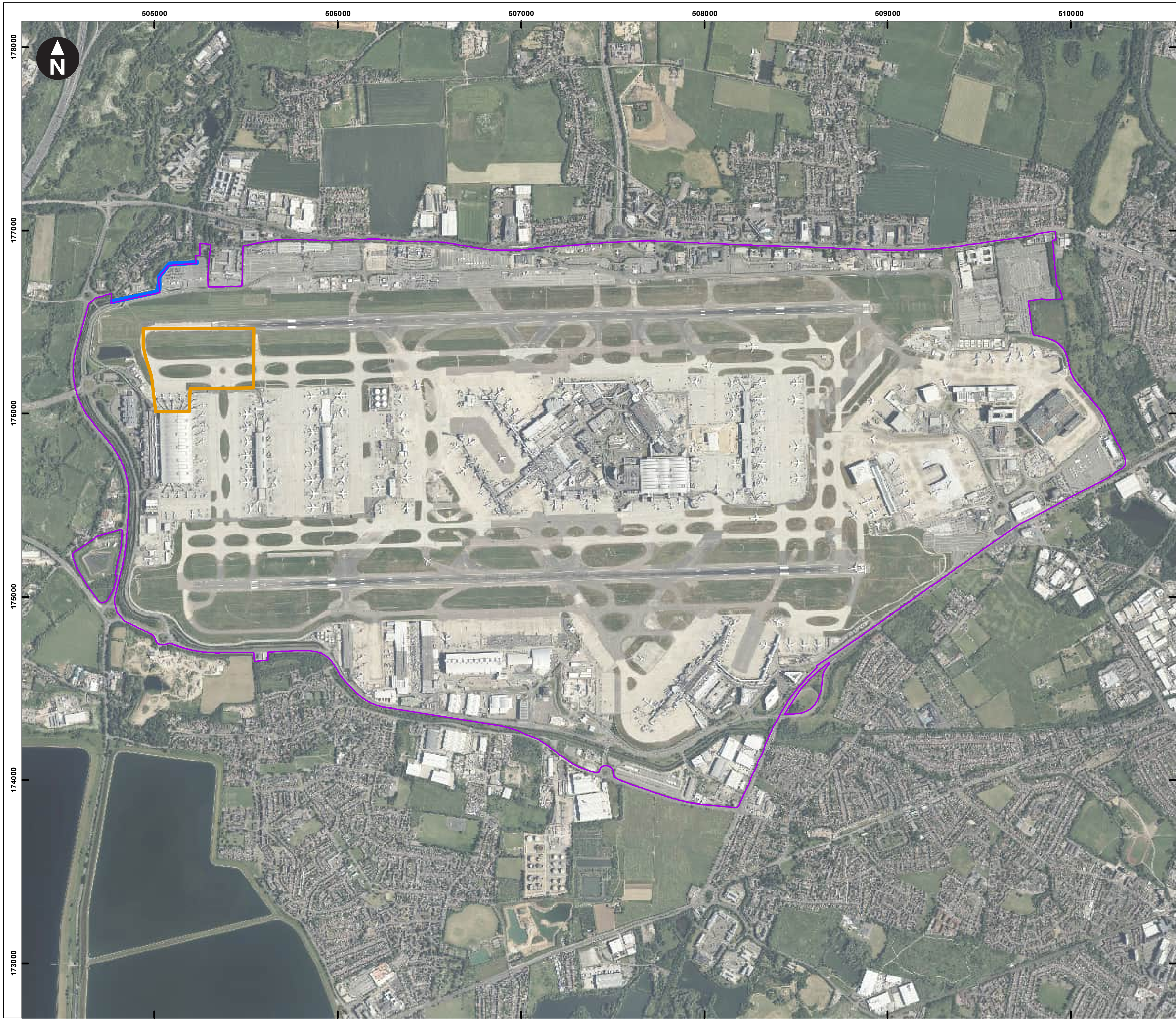
\\att5-FS7.global.amec.com\ATT5-FS7-Shared2\Projects\853399 EC EA TRA Heathrow Airport_Easterly Alteration Project\Deliver Stage\D Design_Technical\Drawings\GIS\853399-WSPE-XX-XX-FG-MD-00004_S2_P02.mxd



Key

- Heathrow boundary
- Indicative area for new Runway Access Taxiway(s), Connector Taxiways and changes to aircraft stands
- Indicative footprint of potential acoustic barrier

0 250 500 750 1,000 m

Scale at A3: 1:20,000

Aerial image supplied by Heathrow Airport

Heathrow

Heathrow Easterly Alternation Infrastructure Project
HRA Screening Report

Figure 2.2
Location of Proposed Development within Heathrow Airports boundary

Logika GROUP

wsp

October 2023

853399-WSPE-XX-XX-FG-MD-00004_S2_P02