Heathrow

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Chapter 12: Biodiversity

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12. Biodiversity

12.1 Introduction

12.1.1 As indicated within **Chapter 1: Setting the scene for consultation – environmental information**, 'biodiversity' is an environmental aspect for which environmental information is presented for 2026 Public Consultation.

12.1.2 This chapter is supported by **Figure 12A.1**, **Figure 12A.2**, **Figure 12A.3**, **Figure 12A.4**, **Figure 12A.5**, **Figure 12A.6**, **Figure 12A.7**, **Figure 12A.8**, **Figure 12A.9** and a glossary of terms.

12.2 What do we mean by 'biodiversity'?

12.2.1 Within the context of the Project, biodiversity refers to all the habitats, plants and animals and associated ecosystems that could be affected by changes brought about by construction and operation of the Project.

12.2.2 The area surrounding the existing airport supports a variety of areas designated for nature conservation, including European sites (internationally important protected areas for wildlife and habitats), Sites of Special Scientific Interest (SSSI), local nature reserves and local wildlife sites[1]. These designated sites provide areas to support biodiversity. However, there are also a wide variety of habitats in the vicinity of the existing airport. These include watercourses within the Colne and Crane catchments, a variety of waterbodies including reservoirs, lakes and ponds, as well as woodland, grassland and arable land. These habitats support a range of legally protected and notable species including bats, birds, otters, badgers, European eels and great crested newts.

12.2.3 The range of biodiversity present within the surrounds of the existing airport has partly adapted to this highly urban and fragmented landscape. Species, including bats and otters, are known through repeated field surveys to regularly move under, over and alongside the M4, M25 and A4, and around the existing airport perimeter fence. The area has also shown its ability to support large, good quality habitats for biodiversity that have been created over a relatively short time through changes in land management. Examples include Harmondsworth Moor, which was created from gravel pits and former landfill and opened in 2000, and Heathrow Colne Valley Biodiversity Site, which was created in 2007 after the development of Terminal 5.

12.3 Why biodiversity might change

12.3.1 The construction and operation of the Project, and the delivery of new and enhanced habitats (as set out in the **Blue and Green Infrastructure (B&GI) Environmental Measures Topic Paper**), would result in large-scale changes to the way in which plants and animals will interact with the environment.

[1] Local wildlife sites include Sites of Importance for Nature Conservation (SINC) and Sites of Nature Conservation Importance (SNCI)

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12.3.2 The clearance of land for new infrastructure would remove habitats and potentially degrade those that are adjacent. Wildlife using these habitats would be displaced or moved into the surrounding areas. Once built, the infrastructure may also stop species from returning to these areas and may prevent certain species from moving between different patches of habitat. Some habitats at the edges of infrastructure may also become less suitable for wildlife due to artificial light, noise and increased human activity, especially for more sensitive species. The main changes to biodiversity associated with the development are:

- Loss of land or changes to land cover, which can damage or remove habitats and harm wildlife.
- Fragmentation of habitats, which can make it harder for wildlife to move between areas.
- Increased noise and vibration, which can disturb wildlife or cause it to move away.
- Changes to water levels and flows, including groundwater, surface water, rivers and lakes which can affect habitats.
- Pollution, such as dust, sediments or chemicals, which can damage habitats or harm wildlife.
- Air emissions, including more nitrogen in the environment, which can damage habitats.
- Changes in how people use the area for recreation, which can disturb wildlife and damage habitats.
- More collisions between wildlife and aircraft or road traffic, which can injure or kill animals.
- Introduction or spread of Invasive Non-Native Species (INNS), which can damage habitats.

12.3.3 The proposed B&GI would provide a network of high-quality habitats near the expanded airport. These habitats, delivered as part of the environmental measures, would help mitigate the effects of the Project and connect with other areas of open space in the wider area. Measures would also be put in place across the wider area to support affected species and deliver Biodiversity Net Gain (BNG). This would help habitats and local populations of protected and important species continue to thrive alongside the Project and, wherever possible, reflect known conservation priorities described within relevant local nature recovery strategies.

12.3.4 Technical engagement with Natural England, the Environment Agency, Local Planning Authorities and other bodies focused on nature conservation has been and will continue to be undertaken to shape the approach to mitigation, compensation, enhancement and BNG.

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12.4 Legislation, policy and guidance

12.4.1 In the UK, there is legislation, policy and guidance in relation to biodiversity, which has been taken into account when carrying out this assessment.

12.4.2 Key legislation that provides a framework for the protection of specific habitats, species and ecosystems within sites designated for nature conservation and in the wider environment includes the Wildlife and Countryside Act 1981 (as amended) [1] and the Conservation of Habitats and Species Regulations 2017 (as amended) [1]. The Natural Environment and Rural Communities Act 2006 (as amended) [1] places duties on public bodies to consider biodiversity when making decisions. The Environment Act 2021 [1] provides the basis for the delivery of mandatory biodiversity net gain (BNG) for Nationally Significant Infrastructure Projects, which will apply to the Project. The assessment of biodiversity within the Development Consent Order (DCO) application will comprise an Ecological Impact Assessment (EcIA) contained within the biodiversity chapter of the Environmental Statement (ES), a Report to Inform Appropriate Assessment (RIAA) and a BNG Assessment. These assessments will demonstrate that all relevant legislative requirements have been met.

12.4.3 Planning policy relevant to the assessment of biodiversity includes that set by the Airports National Policy Statement (ANPS) [5]. The National Planning Policy Framework (NPPF) [6] and the local plans of the local planning authorities within which the draft Order Limits are located also provide supporting context. The ANPS identifies the Government's aim to halt overall biodiversity loss and support healthy, well-functioning ecosystems. It states that the Project proposals should address the mitigation hierarchy, as set out in the NPPF. This means that, throughout design, planning and delivery, effects should first be avoided. If that is not possible, they should be reduced and managed. Any remaining effects should then be compensated for. Planning policy also expects projects to improve biodiversity and deliver BNG.

12.4.4 The Chartered Institute of Ecology and Environmental Management (CIEEM) [7] provides guidance on EcIA. This guidance is important because it helps make sure the biodiversity assessment for the application is clear, well organised and properly explained.

12.4.5 A range of other guidance has also been used to inform data collection and survey methodology, including guidance published by regulators and non-governmental organisations. This guidance has informed approaches to surveys, which have been agreed with Natural England and, where relevant, the Environment Agency as part of ongoing technical engagement.

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12.5 Assessment summary

12.5.1 The following section comprises an overview of the baseline and a description of the assessment approach, which explains the approach to the biodiversity assessment presented in this chapter and how conclusions have been drawn. A baseline section is presented first because an understanding of this is integral to the assessment approach undertaken. The baseline describes designated sites, terrestrial habitats, freshwater habitats and fauna, and other protected and notable species.

Environmental measures

12.5.2 The Project incorporates a range of environmental measures, including those described in the **B&GI Environmental Measures Topic Paper**. These measures form an integral part of the Project and have therefore been considered as 'embedded' within the assessment.

12.5.3 The assessment presented in this chapter assumes the implementation of these embedded measures, including habitat creation and enhancement, retention of habitats, species or ecosystems where practicable, and the incorporation of measures to support ecological connectivity.

12.6 Baseline

12.6.1 The baseline has been informed by desk study information collated in 2026 and field survey data gathered between 2014 and 2019. Additional desk and field survey data gathered in 2026 and 2027 will be used to inform the assessment that will be reported in the Environmental Statement (ES) which will accompany the Development Consent Order (DCO) application.

Designated sites

12.6.2 Designated sites are specific areas that have been legally protected due to their importance for wildlife, habitats, geology or heritage. These sites are designated at international, national or local level to help conserve features of particular environmental or cultural value. There are ten international/European statutory designated sites in the area around the existing airport (defined by the Heathrow Highway Assignment Model (HHASAM[2]) (**Figure 12A.1** in **Appendix 12A**). The sites that are closest to the draft Order Limits are the South West London Waterbodies Special Protection Area (SPA), Windsor Forest and Great Park Special Area of Conservation (SAC), Richmond Park SAC and Burnham Beeches SAC.

[2] The Heathrow Highway Assignment Model (HHASAM) covers the existing airport and a large area around it. This is the area within which road traffic numbers are expected to increase due to the construction and/or operation of the Project. This large area is of note as road traffic can result in effects on European sites due to aerial emissions as described in **Section 12.3: Why biodiversity might change.**

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12.6.3 There are 120 Sites of Special Scientific Interest (SSSI) in the area defined by the HHASAM (**Figure 12A.2** in **Appendix 12A**). Some of these make up parts of the statutory designated sites referred to in this section. One of these SSSIs, Staines Moor SSSI, lies within the draft Order Limits[3]. There are also four Local Nature Reserves (LNRs) within or next to the draft Order Limits.

12.6.4 There are 99 non-statutory sites (Local Wildlife Sites (LWS), Sites of Importance for Nature Conservation (SINC), Sites of Nature Conservation Importance (SNCI), Biological Notification Sites (BNS) and Conservation Road Verges (CRV) within two kilometres (km) of the draft Order Limits. Forty-one of these are located within or adjacent to the draft Order Limits (**Figure 12A.3** in **Appendix 12A**).

Terrestrial habitats

12.6.5 The study area[4] includes many different features of biodiversity interest. These include buildings and roads, farmland, semi-natural habitats, several rivers and watercourses, reservoirs, and recreational areas such as sports pitches, golf courses and parks. Semi-natural habitats in the area are broken up by motorways, A-roads, the existing airport and other development. Rivers provide the main links for wildlife to move between these areas, including where they pass under major roads and around the existing airport.

12.6.6 The open land within the study area is used and managed in different ways, from intensive farming and commercial uses to unmanaged land. Some large areas are managed to support wildlife and amenity to local communities including Harmondsworth Moor, Cranford Park and land owned and managed by Heathrow such as Robb's Nursery and Oaks Road Biodiversity Site.

12.6.7 The habitats of greatest interest to wildlife in the area include woodland of various types and origins, veteran trees (noted as an irreplaceable habitat), hedgerows, grasslands, scrub, ponds, lakes and watercourses. Some of these habitats meet the definitions of habitats of principal importance, also known as priority habitats. This includes some areas of woodland, native hedgerows, rivers and lakes.

12.6.8 Between 2016 and 2019, extensive surveys of habitats were undertaken with over 3,340 hectares of land surveyed. Habitat mapping is shown on **Figure 12A.4** in **Appendix 12A**.

[3] The 2-kilometre search area for non-statutory sites has been defined in line with standard ecology practice and in line with the EIA Scoping Report Addendum (HAL, 2025). Outside of this area indirect effects of the Project would not be expected.
[4] The study area is the area over which biodiversity surveys/data collection have been undertaken or are ongoing. This is typically (and unless otherwise stated in the text) the draft order limits plus a buffer zone of 50 metres.

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Freshwater habitats and fauna

12.6.9 The study area is crossed by a range of rivers, streams and wet ditches that are situated within the Colne Operational Catchment and the Crane Rivers and Lakes Operational Catchment. A number of watercourses are present including Horton Brook, Colne Brook, River Colne, Wraysbury River, Fray's River, Longford River, Duke of Northumberland's River, Poyle Channel, River Crane, the Staines Moor Stream and the Bigley, Holme Lodge and Bonehead ditches. There are also drinking water reservoirs, lakes (mostly old gravel pits) and ponds.

12.6.10 Most of the watercourses have been changed by straightening, over-deepening and strengthening their banks. Even so, they still provide important habitats for plants and animals, including fish such as European eel, barbel and bullhead, birds such as kingfishers, and aquatic insects. They also contain some Invasive Non-Native Species (INNS) including floating pennywort, Himalayan balsam, demon shrimp and American mink. As well as supporting wildlife, these watercourses help animals such as otters, bats and grass snakes move through the landscape, including under major roads like the M4, M25 and Colnbrook Bypass.

12.6.11 The drinking water reservoirs are large managed areas of water that support a range of wintering birds. The more natural lakes formed from old gravel pits are usually bordered with scrub and areas of vegetation such as common reed. They support fish and aquatic plants such as stonewort, while providing feeding areas for wildlife such as Daubenton's bat.

12.6.12 Surveys undertaken between 2017 and 2019 covered 27.9 kilometres of watercourse and eight of the twelve lakes that may experience change. Surveys undertaken have included River Habitat Surveys, River Corridor Surveys, macrophyte surveys (macrophytes are large aquatic plants), fish surveys and aquatic invertebrate surveys.

Badgers

12.6.13 Badgers are present in areas close to the existing airport, although they are not considered to be regular visitors to the airfield. There are three well defined clans that have been identified through surveys undertaken between 2016 and 2019. These clans are located to the west of the existing airport and east of the M25 motorway, north of the A4 and west of the M25, and to the east of Harmondsworth. Badger activity has been recorded elsewhere within the study area, although largely in areas where built infrastructure associated with the Project is not currently proposed.

12.6.14 Badgers are partly cut off by roads such as the M25, M4 and A4, which make it harder for them to move through the landscape. Badger activity is shown on **Figure 12A.5** in **Appendix 12A** (note that locations of their dens, known as setts, are not included for welfare reasons).

12.6.15 Badgers are protected via law in the UK, making it essential that this species is accounted for appropriately.

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Otters

12.6.16 Signs of otter activity were recorded widely during surveys in 2017 and 2019. Otters use most of the rivers, streams and lakes within the draft Order Limits. This includes the Colne Brook, Poyle Channel, Wraysbury River, River Colne, River Crane, Grand Union Canal, the County Ditch, Bonehead Ditch and Bigley Ditch. Evidence suggests they regularly move along these watercourses, including under major roads, so the road network does not appear to block their movement. Spot checks within a wider study area (5 kilometres from the draft Order Limits) showed activity both upstream and downstream of the existing airport. Otter activity is shown on **Figure 12A.6** in **Appendix 12A**.

12.6.17 The otter is a species of principal importance and is also protected via legislation.

Bats

12.6.18 Across the study area (the draft Order Limits plus up to 10 kilometres[5]), 11 species of bats were recorded between 2017 and 2019, with soprano pipistrelle, common pipistrelle, Daubenton's bat and brown long-eared bat most frequently encountered during surveys. Bats were most active in areas around ponds, lakes, watercourses and woodland. Some otherwise suitable habitats had less bat activity, probably because of higher levels of artificial light.

12.6.19 In the study area, 166 bat roosts were identified, including maternity roosts of soprano pipistrelle, Daubenton's bat and brown long-eared bat. These roosts were found within buildings and trees including in Longford and Harmondsworth.

12.6.20 Soprano pipistrelle and Daubenton's bats have large breeding populations in the area. They are closely linked to rivers, streams and other open water, and use underpasses beneath the M4 and M25 to move between feeding and roosting areas (see **Figure 12A.7** in **Appendix 12A**).

12.6.21 Soprano pipistrelle, brown long-eared bat and noctule bat are species of principal importance that are present in the area around the existing airport. All bats are protected via legislation.

Great crested newts and other amphibians

12.6.22 Great crested newts were found during surveys between 2017 and 2019 in three locations, namely at Stanwell Place, Poyle Meadow and Harmondsworth Moor (see **Figure 12A.8** in **Appendix 12A**).

12.6.23 Smooth newts, common frogs and common toads were also found within the study area. Smooth newts were found across the area in a range of waterbodies on both sides of the M4 and M25.

12.6.24 Common toads and great crested newts are both species of principal importance. Great crested newts are also protected by law.

[5] The study area was based on the draft order limits plus 10 kilometres for the desk study. The extent of the study area for surveys was fluid based on the distance bats carrying radio-transmitters flew between point of capture within the draft order limits and roost location.

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Reptiles

12.6.25 Grass snakes and slow worms were found in the study area during surveys between 2017 and 2019. Grass snakes were mainly found in low numbers along watercourses and ditches. Slow worms were found in a few isolated patches, often where land has been divided by past quarrying, landfill or road building. Where found, slow worms were present in medium to high numbers. Common lizards and adders were not recorded in the surveys, although existing records show they have been found nearby in the past, including adders on Hounslow Heath.

12.6.26 All native reptiles in the UK are listed as species of principal importance and receive legal protection.

Breeding birds

12.6.27 A total of 65 breeding species were recorded within the study area between 2017 and 2019, including hobby falcon, kingfisher, little ringed plover and Cetti's warbler. Other species of interest included cuckoo, grey wagtail and lapwing.

12.6.28 Habitats with the greatest diversity of bird species, and which support species of higher conservation concern, included scattered and dense scrub, especially near rivers.

12.6.29 Some species found during the breeding season, but not thought to be breeding in the study area (i.e. no signs of nesting, but did forage or commute through the area), included barn owl, black redstart, red kite and peregrine falcon.

12.6.30 Some birds that were recorded breeding in the area are named on the red and amber lists of the Birds of Conservation Concern. All breeding birds receive legal protection.

Wintering birds

12.6.31 Large numbers of waterbirds spend the winter on the flooded gravel pits and reservoirs in the area. These include species such as gadwall, shoveler, tufted duck, pochard, cormorant and black-necked grebe. Surveys undertaken from 2014 to 2020 and 2023 to 2025 indicated that Staines Reservoir and King George VI Reservoir tended to hold the largest numbers of birds, although there was a wide distribution.

12.6.32 Within terrestrial habitats, wintering birds were mostly flocks of songbirds such as redwing, fieldfare and skylark. Wading birds were seen less often, but included lapwing, golden plover and ringed plover.

12.6.33 Some of the birds recorded wintering in the area are named on the red and amber lists of the Birds of Conservation Concern.

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Fish

12.6.34 Fish surveys undertaken between 2017 and 2019 found a range of fish including bleak, barbel, chub, pike, European eel, bullhead, roach and perch. Different watercourses and different areas within watercourses held different numbers of fish, with the Duke of Northumberland and Longford Rivers supporting the greatest numbers.

12.6.35 Some of the fish, such as European eel, recorded in the watercourses and lakes in the area receive legal protection and are listed as species of principal importance.

Terrestrial invertebrates

12.6.36 A total of 2,118 species were recorded across 37 sites within the study area during surveys undertaken from 2017 to 2019. Of these, 194 were species of conservation importance. These included:

- Nine Species of Principal Importance listed in Section 41 of the Natural Environment and Rural Communities (NERC) Act (1).
- 14 species listed as Near Threatened or above (eight Near Threatened, four Vulnerable, two Endangered).
- 35 Nationally Rare or Red Data Book (RDB) species.
- 143 Nationally Scarce/Notable species.
- Seven Data Deficient species.

12.6.37 The study area has a diversity of habitats which are good for invertebrates, often with a good nectar resource from abundant flowering plants.

Aquatic invertebrates

12.6.38 Samples of aquatic invertebrates were taken from 40 river locations, and 17 from lakes, during surveys undertaken from 2017 to 2019. The results were used to calculate scores to understand the nature conservation interest of the aquatic invertebrate community at each location. One of these scores, the Community Conservation Index (CCI) evaluates how valuable freshwater habitats are for macroinvertebrates. The results showed conservation values ranging from low to moderate in rivers, and from low to very high in lakes. The highest values were usually found where river channels and banks provided the best habitats.

12.6.39 Sampling of macroinvertebrates (invertebrates that can be seen without a microscope) also identified INNS including New Zealand mud snail, bladder snail and a range of non-native worms and amphipod crustaceans.

Other notable species

12.6.40 The study area also supports a range of other species of conservation concern including hedgehog and harvest mouse. These are species of principal importance.

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Species not detected

12.6.41 Surveys were undertaken for water vole, hazel dormouse and white-clawed crayfish between 2017 and 2019. None of these species were found during the survey programme.

12.7 Assessment approach

12.7.1 The assessment and conclusions drawn within this chapter follows guidance on Ecological Impact Assessment (EcIA) published by the Chartered Institute of Ecology and Environmental Management (CIEEM).

12.7.2 Firstly, the assessment determines the importance of the wildlife found in the baseline (the area within which the Project would be built) based on a mix of legislation, policy and the geographical context in which the wildlife occurs. Then the assessment sets out when and where the Project may affect these, and what those effects might be. This information is then used to determine which habitats, species and ecosystems must be considered in detail (i.e. those where a likely significant effect could occur).

12.7.3 The habitats, species and ecosystems identified for closer consideration are assessed in light of the environmental measures within the Project. We then evaluate the likely significance of the effects the Project may have on these species, drawing on CIEEM guidance that describes a significant effect as one 'that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general.'

12.7.4 When assessing likely significant effects on biodiversity, the following characteristics are considered:

- Extent – the spatial or geographical area over which the environmental change may occur.
- Magnitude – the size, amount, intensity or volume of the environmental change.
- Duration – the length of time over which the environmental change may occur.
- Frequency – the number of times an environmental change may occur.
- Timing – the periods of the day/year/season during which an environmental change may occur.
- Reversibility – whether the environmental change can be reversed through restoration actions or regeneration.

12.7.5 The scale of change is then considered (defined as high, medium, low, very low and negligible) before concluding the significance of the effect.

12.7.6 The Project involves both construction and operational activities occurring at the same time. Different habitats, species and ecosystems can be affected in different ways at the same time. For example, one may be disturbed by construction work, while another, at the same time, is only affected by noise from overflying aircraft. Others

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may also be affected by more than one effect at the same time. For example, an animal species may be affected by noise created during construction while also having its home range reduced in size due to habitat loss.

12.7.7 For each likely significant effect included in the assessment, we have considered either a worst-case scenario or the effect across representative assessment years, depending on what best captures the nature and significance of that effect. The outcome for each plant, animal or habitat is a description of the effects and whether these will be significant or not significant. Likely significant effects can either be negative or positive.

12.7.8 Likely significant effects have been reported in **Table 12.1** on a precautionary basis. This is because further information on the habitats, species and ecosystems present is currently being gathered and the design of the Project and associated environmental measures is still evolving.

Environmental measures

12.7.9 The Project will create a range of benefits for biodiversity in the short, medium and long term. The aim in the longer term is to create and manage a large, varied and well-connected network of B&GI within the draft Order Limits. More detail on this is provided in the **B&GI Environmental Measures Topic Paper**.

12.7.10 The Project will also need to provide biodiversity net gain (BNG), which requires assessment of the biodiversity losses and gains associated with the Project in line with the methodology provided by the Department for Environment, Food and Rural Affairs (Defra). Overall, a BNG of at least 10% will be required to meet statutory requirements. This will be delivered partly onsite within the B&GI, as well as offsite. The options for this are currently being considered.

12.7.11 Outside of the draft Order Limits, opportunities are being explored to improve habitats and support wildlife in the wider area by working with organisations that own or manage existing green spaces. Possible measures include controlling Invasive Non-Native Species (INNS), creating and improving habitats so animals can move easily to forage, and providing shelters such as bat boxes, artificial otter holts, kingfisher banks and reptile hibernation sites. Better connections between habitats will also help wildlife colonise a range of habitats both on- and off-site in the future.

12.7.12 Other environmental measures will be implemented through the draft **Code of Construction Practice (CoCP)** which will control potential effects associated with the construction activities. An Outline Landscape and Ecology Management Plan will also be developed to describe the habitats that would be created and enhanced, as well as how these would be secured, established and managed in the long term.

12.7.13 The environmental measures described are considered in the assessment in **Section 12.8**. These measures form an integral part of the Project and have therefore been considered as ‘embedded’ within the assessment. The design of the Project and the associated environmental measures reflect the mitigation hierarchy, as described in **Section 12.4**.

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12.7.14 Given the scale of the Project and the restrictions placed upon the location of the Northwest Runway due to the location of the existing airfield, it has not been possible to avoid all habitats, species and ecosystems of importance. However, avoidance through design has been considered throughout the scheme development process. For example, Old Wood and the associated Horton Brook corridor have been retained due to the intrinsic value of the habitat and its importance in providing a strong corridor to a variety of species for foraging, commuting and shelter.

12.7.15 Minimisation of losses in areas of importance for biodiversity has also been considered throughout the scheme development process. For example, land would be taken from Harmondsworth Moor (part of the Lower Colne Site of Importance for Nature Conservation) to build the Northwest Runway and diverted A4. However, we have minimised the amount of land we would take to ensure that some of the habitat, which has become well established over the last 25 to 20 years, can continue to provide opportunities to a range of plants and animals.

12.7.16 A range of mitigation is integral to the Project's design. Some of these environmental measures are designed within the infrastructure – for example, including mammal ledges within the covered river corridor and limiting artificial lighting in the vicinity of semi-natural habitats. Others are associated with the draft **CoCP**, such as scheduling the removal of vegetation outside of the bird breeding season and implementing working practices to protect herptiles (reptiles and amphibians) during site clearance.

12.7.17 The **B&GI Environmental Measures Topic** Paper sets out proposals for compensation and enhancement to biodiversity, while the delivery of BNG provides an opportunity to contribute to further biodiversity improvements outside the draft Order Limits.

12.8 Assessment results by habitat, species and ecosystem

12.8.1 This assessment has found that a wide range of designated sites, habitats and species are likely to be significantly affected by the construction and operation of the Project, despite the implementation of embedded environmental measures.

12.8.2 The likely significant effects are described in **Table 12.1**, alongside the rationale supporting the conclusions.

12.8.3 There are also a number of habitats, species and ecosystems that will not be significantly affected by the Project. This could be because the Project does not interact with them in a way that could cause an effect, because any effects would be too small to be significant, or due to the mitigation provided by environmental measures such as those delivered through the **B&GI Environmental Measures Topic Paper**. The conclusions in relation to such effects are not provided in **Table 12.1**.

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Table 12.1: Assessment of significance

Ecological feature	Effect	Summary rationale
South West London Waterbodies SPA/Ramsar site	Emission events (changes in concentrations and deposition rates of nitrogen, resulting in habitat degradation).	Increases in the concentrations of nitrogen oxides (NOx), ammonia (NH3) and the deposition of nitrogen could result in harmful effects on the designated features through habitat degradation and damage to edible plants within the water bodies used for foraging. Potential effects could arise from construction and operational road traffic, overflight and ground-based activities within the airfield boundary. Further traffic and air quality modelling is required to quantify effects. Therefore, a likely **significant** effect has been assumed at this stage on a precautionary basis. This conclusion will be reviewed following completion of modelling work and reported in the Environmental Statement (ES).
Other European sites (excluding the South West London Waterbodies SPA/Ramsar site)	Emission events (changes in concentrations and deposition rates of nitrogen, resulting in habitat degradation)	There are several other European sites located close to roads used by vehicular traffic accessing/leaving the existing airport. Vehicular emissions resulting from the Project will lead to increases in the concentrations of NO_x, NH_3 and the deposition of nitrogen, which could result in harmful effects on the designated features through habitat degradation. Potential effects could arise from construction and operational road traffic. Further traffic and air quality modelling is required to quantify effects. Therefore, a likely **significant** effect has been assumed at this stage on a precautionary basis. This conclusion will be reviewed following completion of modelling work and reported in the ES.
Staines Moor Site of Special Scientific Interest (SSSI)	Land take and land cover change (resulting in habitat loss or degradation)	Proposed works to alter junction 14 of the M25 will result in partial losses of Poyle Meadow, which forms a unit of Staines Moor SSSI. Although, as the **Blue and Green Infrastructure (B&GI) Environmental Measures Topic Paper** notes, environmental measures are being developed through engagement with Natural England, this loss will nonetheless reduce the extent of the SSSI and is considered to result in a likely **significant** effect.
Staines Moor SSSI	Emission events (changes in concentrations and deposition rates of nitrogen, resulting in habitat degradation)	Staines Moor SSSI is located close to roads used by vehicular traffic accessing/leaving the existing airport. Vehicular emissions will lead to increases in the concentrations of NOx, NH3 and deposition of nitrogen that could result in harmful effects on the designated features through habitat degradation. Potential effects could arise from construction and operational road traffic, overflight and ground-based activities within the airfield boundary. Further traffic and air quality modelling is required to quantify effects. Therefore, a likely **significant** effect has been assumed at this stage on a precautionary basis. This conclusion will be reviewed following completion of modelling work and reported in the ES.

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Ecological feature	Effect	Summary rationale
Wraysbury Reservoir SSSI/Wraysbury No 1 Gravel Pit SSSI/Wraysbury and Hythe End Gravel Pits SSSI	Emission events (changes in concentrations and deposition rates of nitrogen, resulting in habitat degradation)	These SSSIs are located close to roads used by vehicular traffic accessing/leaving the existing airport. These vehicles will lead to increases in the concentrations of NOx, NH3 and deposition of nitrogen that could result in harmful effects on the designated features through habitat degradation. Potential effects could arise from construction and operational road traffic, overflight and ground-based activities within the airfield boundary. Further traffic and air quality modelling is required to quantify effects. Therefore, a likely **significant** effect has been assumed at this stage on a precautionary basis. This conclusion will be reviewed following completion of modelling work and reported in the ES.
All other identified SSSIs (see **Section 12.6**)	Emission events (changes in concentrations and deposition rates of nitrogen; resulting in habitat degradation)	There are several other SSSIs located close to roads used by vehicular traffic accessing/leaving the existing airport. Vehicular emissions will lead to increases in the concentrations of NO_x, NH_3 and nitrogen deposition that could result in harmful effects on the designated features through habitat degradation. Potential effects could arise from construction and operational road traffic. Further traffic and air quality modelling is required to quantify effects. Therefore, a likely **significant** effect has been assumed at this stage on a precautionary basis. This conclusion will be reviewed following completion of modelling work and reported in the ES.
Local Wildlife Sites (LWS)	Land take and land cover change (resulting in habitat loss or degradation)	There are 18 LWS fully or partially within the draft Order Limits. These are: • Cains Lane Site of Importance for Nature Conservation (SINC); • Colne Brook LWS; • Crane Corridor SINC; • Cranford Country Park SINC; • Cranford Lane Gravel Workings SINC; • Duke of Northumberland's River at Bedfont SINC; • East of Poyle Meadows SINC; • Greenhams Fishing Pond SINC; • Longford River at Feltham SINC; • Lower Colne SINC; • Mayfield Farm and Water Treatment Works SINC;

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Ecological feature	Effect	Summary rationale
		• Old Slade Lake LWS; • River Colne; • County Boundary to Staines Moor SNCI; • Stanwell II SNCI; • Stockley Road Rough SINC; • Wall Garden Farm and Sand Heaps SINC; • West of Poyle Meadows SNC; and • Wraysbury Reservoir SNCI. Many of these LWS will be subject to habitat loss, while others will be subject to habitat enhancement measures. Although the **B&GI Environmental Measures Topic Paper** notes that lost habitats will be re-provided, these habitats will take time to establish and reach functional maturity. Overall, there will be a reduction in the number and extent of LWS within the draft Order Limits and a likely **significant** effect is predicted.
Veteran trees	Land take and land cover change (resulting in habitat loss or degradation)	The desk study information suggests that the occurrence of veteran trees in the vicinity of the draft Order Limits is low. However, the loss of even a small number of veteran trees is likely to result in a likely significant effect due to their status as irreplaceable habitat. Further information is required to determine whether there will be a loss of any veteran trees. On a precautionary basis, a likely **significant** effect has been assumed at this stage.
Woodland (all types)	Land take/land cover change (resulting in habitat loss or degradation)	The delivery of airport infrastructure will result in the loss of woodland, including larger areas located around the Old Slade Lake complex and multiple small stands of woodland across the Site. Although the **B&GI Environmental Measures Topic P**aper would see the provision of new woodlands, these will take a considerable amount of time to establish and mature. Based on the area of habitat lost and the time taken for replacement habitat to become established, a likely **significant** effect has been predicted.
Woodland (all types)	Changes in hydrology (groundwater levels, surface water run-off rates, river flows and lake levels; resulting in habitat change)	Wet woodland is a groundwater-dependent terrestrial ecosystem which may potentially be affected by changes in the groundwater level. Further groundwater modelling outputs are required to quantify the magnitude of change and confirm the extent of effects. On a precautionary basis, a likely **significant** effect has been concluded at this stage.

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Ecological feature	Effect	Summary rationale
Standing water (lakes)	Land take and land cover change (resulting in habitat loss or degradation)	The Project would cause the loss of, and permanent changes to, lake habitats. Full replacement of lakes within the draft Order Limits is not feasible due to constraints including historic and licensed landfills and the need to manage wildlife hazard risk associated with the operational airfield. Therefore, a likely **significant** effect has been predicted. Likely **significant** effects have also been concluded for individual plant species (such as pointed stonewort) present within some of the lakes present at this stage.
Standing water (lakes)	Changes in hydrology (groundwater levels, surface water run-off rates, river flows and lake levels, resulting in habitat change)	Drainage and infilling of lakes will result in changes to the local hydrological regime, which would result in changes to habitats. Further hydrological modelling outputs will be required to quantify these effects; however, on a precautionary basis, a likely **significant** effect has been concluded at this stage. Likely **significant** effects have also been concluded for individual plant species (such as pointed stonewort) present within some of the lakes present at this stage.
Rivers	Land take and land cover change (resulting in habitat loss or degradation)	There will be loss and realignment of existing river corridors. Although the **B&GI Environmental Measures Topic Paper** describes the provision of new river habitats, these will take time to establish and reach functional maturity. Given the time for new river corridors and associated habitats to become established, likely **significant** effects are predicted.
Rivers	Changes in hydrology (groundwater levels, surface water run-off rates, river flows and lake levels, resulting in habitat change)	Localised changes to groundwater levels and the water table may affect river habitats. Although flows upstream are not expected to change, alterations to local hydrological conditions may affect habitat structure and function. As a result, likely **significant** effects are predicted.
European eel, European bullhead, Barbel, fish assemblage	Land take and land cover change (resulting in habitat loss or degradation)	There will be loss or modification of watercourses that support these species and fish assemblages. Although the **B&GI Environmental Measures Topic Paper** describes the provision of new habitat, these will take time to establish and reach functional maturity. The scale of habitat loss, together with the time taken for these to establish and function, is likely to have a negative effect on the populations of these fish. A likely **significant** effect is therefore predicted.
European eel, European bullhead, Barbel, fish assemblage	Fragmentation of habitats (reduction of connectivity)	Changes to the river and ditch network, including diversion and culverting, may reduce connectivity for these species and assemblages by creating barriers to movement. This may restrict movement preventing these fish species from reaching upstream habitats. A likely **significant** effect is therefore predicted at this stage.

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Ecological feature	Effect	Summary rationale
European eel, European bullhead, Barbel, fish assemblage	Increased noise and vibration (resulting in disturbance and displacement)	Noise and vibration generated during construction have the potential to disturb and displace these species and assemblages (groups). This could result in temporary reduction in passage to habitats up or down stream of the construction area. Given the spatial extent and duration of the construction works on or near rivers supporting these species, a likely **significant** effect has been predicted.
European eel, European bullhead, Barbel, fish assemblage	Changes in hydrology (groundwater levels, surface water run-off rates, river flows and lake levels, resulting in habitat change)	Predicted local changes to the water table may affect several rivers. Although flows are not expected to change upstream and downstream of the site, local changes to river habitats may affect their suitability for these species and assemblages. A likely **significant** effect is predicted at this stage.
European eel	Increased light intensity (resulting in disturbance/displacement)	European eel is a photophobic species, which means it is sensitive to light. Increased light intensity could therefore reduce movement up or downstream. A likely **significant** effect is predicted at this stage.
Brown long-eared bats, Daubenton's bat, Soprano pipistrelle, Common pipistrelle	Land take and land cover change (resulting in habitat loss or degradation)	Although the **B&GI Environmental Measures Topic Paper** describes the provision of new habitat, this will take time to mature and reach functional maturity. Loss of the existing habitat could reduce the number and distribution of these bat colonies. This may compromise the favourable conservation status of the affected colonies. In addition, one of three known colonies of brown long-eared bats is predicted to be lost due to the delivery of the Northwest Runway across parts of Harmondsworth Moor. Likely **significant** effects are therefore predicted.
Brown long-eared bats, Daubenton's bat, Soprano pipistrelle, common pipistrelle	Changes in hydrology (groundwater levels, surface water run-off rates, river flows and lake levels, resulting in habitat change)	The Project would alter habitats that are dependent on groundwater (water held underground) due to changing the water table level – the level at which the rock and soil underground become saturated with water. This could reduce the suitability of some bat habitats in or near the draft Order Limits. Therefore, likely **significant** effects have been predicted at this stage.
Brown long-eared bats, Daubenton's bat	Increased light levels (resulting in disturbance/displacement)	Brown long-eared bats and Daubenton's bats are light-sensitive species. As such, they are particularly susceptible to the negative effects of light disturbance. likely **significant** effects are therefore predicted to those colonies that would be near the expanded airfield.
Soprano pipistrelle, common pipistrelle	Increased light intensity (resulting in disturbance/displacement)	Soprano pipistrelle and common pipistrelle are light-tolerant species, so are less sensitive to the negative effects of light disturbance. Despite this, likely **significant** effects are predicted at this stage, as detailed lighting proposals are still being developed.

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Ecological feature	Effect	Summary rationale
Otter	Land take and land cover change (resulting in habitat loss or degradation)	There will be loss of habitat supporting otter, including rivers, streams, ditches, lakes and ponds, resulting in the loss of foraging opportunities as well as resting places. Although the **B&GI Environmental Measures Topic Paper** describes the provision of new habitat, this will take time to mature and reach functional maturity. Likely significant effects are therefore predicted.
Otter	Fragmentation of habitats (reduction of connectivity)	The re-routing of rivers may result in a barrier to movement. Fragmentation of habitats for otters in this location could reduce the viability of the territories within the area. Likely **significant** effects are therefore predicted at this stage.
Otter	Changes in hydrology (groundwater levels, surface water run-off rates, river flows and lake levels, resulting in habitat change)	Changes in groundwater dependent habitats due to an alteration of the water table level could result in the suitability of some habitats in or near the draft Order Limits being reduced for otters, most notably standing water, river, wet woodland and swamp habitats. Likely **significant** effects are therefore predicted at this stage.
Barn owl	Land take and land cover change (resulting in habitat loss or degradation)	Barn owls are known to be faithful to their home ranges. Although the **B&GI Environmental Measures Topic Paper** describes the provision of new habitat, given the Project will directly affect several potential barn owl ranges along with the high degree of fidelity exhibited by this species, likely **significant** effects are therefore predicted.
Barn owl	Fragmentation of habitats (reduction of connectivity)	The loss of foraging, nesting and roosting habitat would increase levels of fragmentation and lead to further stress within various barn owl home ranges. Likely **significant** effects are therefore predicted at this stage.
Barn owl	Increased noise and vibration (resulting in disturbance/displacement)	Noise and vibration caused by construction could potentially disturb barn owls. It is likely that construction activities will take place close to barn owl roosting locations, and likely **significant** effects are therefore predicted at this stage.
Barn owl	Wildlife collision rates with aircraft or road traffic (resulting in death or injury of individual animals)	Collisions between barn owls and vehicles and aircrafts occur currently and are likely to continue in the future. Therefore, likely **significant** effects are predicted.
Kingfisher	Fragmentation of habitats (reduction of connectivity)	Disruption to existing river corridors could affect up to four kingfisher territories within the study area. Although the **B&GI Environmental Measures Topic Paper** includes the provision of nesting banks, the disruption of established territories along with the sensitivity of kingfishers to disturbance means that likely **significant** effects are predicted.

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Ecological feature	Effect	Summary rationale
Kingfisher	Increased light levels (resulting in disturbance/displacement)	Disturbance associated with increased levels of lighting cannot be ruled out at this stage, as detailed lighting proposals are still be developed. Therefore, likely **significant** effects are predicted.
Breeding bird assemblage – notable species on a borough level	Increased light levels (resulting in disturbance/displacement)	Disturbance associated with increased levels of lighting cannot be ruled out at this stage as detailed lighting proposals are still be developed. Therefore, likely **significant** effects are predicted.
Terrestrial wintering bird assemblage – notable species on a county level	Increased light levels (resulting in disturbance/displacement)	Disturbance associated with increased levels of lighting cannot be ruled out at this stage as detailed lighting proposals are still be developed. Therefore, likely **significant** effects are therefore predicted at this stage on a precautionary basis.

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12.9 Summary of likely significant biodiversity effects

12.9.1 In summary, there are 34 likely **significant** effects predicted as a result of the Project. These include adverse effects on designated sites, habitats and species including bats, fish and otter.

12.9.2 The scale of the Project means that likely significant effects on a variety of ecological features are unavoidable. As the design of the Project, including the B&GI continues to evolve, opportunities to reduce the extent of effects will continue to be explored.

12.10 Next steps and preparation of the Environmental Statement (ES)

12.10.1 Further baseline data collection, design and assessment work will be undertaken to support the biodiversity assessment that will be reported within the ES. This includes:

- Further updating the biodiversity baseline information to ensure it is up to date and reflective of current land use patterns.
- Refining the B&GI design to include localised environmental measures in appropriate places.
- Calculation of BNG and development of a strategy to deliver the mandatory requirement.

12.10.2 The ES produced for the Development Consent Order (DCO) application will be accompanied by the following documents:

- Report to Inform Appropriate Assessment (RIAA)
- Outline Biodiversity Gain Plan
- Outline Landscape and Ecology Management Plan (OLEMP)
- Draft **Code of Construction Practice (CoCP)**

12.10.3 Further technical engagement will be undertaken to inform the assessment and accompanying documents that will be presented. This will include engagement with Natural England, Environment Agency, Local Authorities, Catchment Partnerships and a range of organisations focused on nature conservation in the local area to:

- Describe the baseline in detail
- Refine the B&GI strategy in line with local conservation priorities
- Identify opportunities for benefits outside of the draft Order Limits

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12.11 Glossary of terms

Term/Acronym	Definition
Air quality	The term we use to describe the level of pollution in the air we breathe.
Airports National Policy Statement (ANPS)	The ANPS sets out the Government's policy on the need for new airport capacity in the South East of England, the Government's preferred location and scheme to deliver new capacity, and particular considerations relevant to a development consent application to which the ANPS relates. Currently being consulted on.
Aquatic	Anything relating to, living in, or occurring within water environments.
Assessment year	A future year used as a basis for assessing operational effects.
Baseline	The existing environmental state against which future changes and effects are assessed.
Biodiversity	All the habitats, plants, animals and associated ecosystems that could be affected by the construction and operation phases of development either negatively or positively.
Biodiversity Net Gain (BNG)	Biodiversity Net Gain is an approach to development. It makes sure that habitats for wildlife are left in a measurably better state than they were before the development. Biodiversity value is measured using a metric developed by the Department of Environment, Food and Rural Affairs.
Blue and Green Infrastructure (B&GI)	A network of multi-functional green and blue spaces and other natural features, urban and rural, which is capable of delivering a wide range of environmental, economic, health and wellbeing benefits for nature, climate, local and wider communities and prosperity.
Catchment	The area of land from which rainfall and surface water drain into a particular water feature, such as a river, stream, lake, reservoir or other waterbody, via surface runoff, groundwater flow and drainage networks.
Chartered Institute of Ecology and Environmental Management (CIEEM)	The professional body representing ecologists and environmental managers, setting standards for professional practice and competence.
Code of Construction Practice (CoCP)	Code which sets out the standards and procedures to which developers and contractors must adhere to when undertaking construction of major projects. This will assist with managing the environmental impacts and will identify the main responsibilities and requirements of developers and contractors in constructing their projects.
Community Conservation Index	The CCI classifies groups of freshwater invertebrates according to scarcity and nature conservation value in England.
Compensation	Measures provided to offset residual adverse effects that cannot be avoided or mitigated.
Connectivity	The degree to which habitats are linked, allowing movement of species between them.

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Term/Acronym	Definition
Conservation	The process of maintaining and managing change to a heritage asset in a way that sustains and, where appropriate, enhances its significance.
Consultation	Refers to the presentation of environmental information to members of the public, at a set point in time, to request and facilitate an informed response that can influence Project outcomes.
Covered river corridor	The structure that carries rivers in channels beneath the Northwest Runway, allowing them to keep flowing where the runway crosses their route.
Ditches	Linear cuts in the ground, often used as boundaries, drainage features, or enclosures.
Draft Order Limits	The boundary for planning purposes showing the horizontal limits of the works for the Project.
Drainage	The system by which water is collected, conveyed, and discharged from an area. This can refer to both surface water runoff and foul (waste) water flows.
Ecological Feature	An Ecological Feature is a habitat, species or ecosystem. An important Ecological Feature is one that requires specific assessment due to the potential for likely significant effects to be realised.
Ecological Impact Assessment (EcIA)	A process that identifies, predicts, and evaluates the effects of a proposal on ecological features, including habitats and species.
Ecosystem	An ecosystem is a biological community of interacting organisms and their physical environment
Effect	Term used to express the consequence of an impact (expressed as the 'significance of effect'), which is determined by correlating the magnitude of the impact to the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria. For example, land clearing during construction results in habitat loss (impact), the effect of which is the significance of the habitat loss on the ecological resource.
Emissions	Release of pollutants into the atmosphere.
Engagement	Refers to targeted, continuous interactions with key stakeholders that are focused on specific environmental technical issues and can result in such stakeholders actively participating in directing Project outcomes.
Enhancement	Measures that provide a net benefit to biodiversity beyond mitigation or compensation.
Environment Agency (EA)	The Environment Agency is a non-departmental public body in the UK, established in 1996, responsible for protecting and enhancing the environment and promoting sustainable development, operating under the Environment Act 1995.
Environmental measures	Environmental measures proposed in an EIA are designed to limit or remove any significant adverse environmental effects of a development.

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Term/Acronym	Definition
Environmental Statement (ES)	The written output presenting the full findings of the Environmental Impact Assessment.
European Site	A site designated under the Habitats or Birds Directives (e.g. SAC, SPA, Ramsar site).
Evaluation	A systematic review of environmental information, constraints, and alternatives used to guide how a project is designed and developed.
Existing airport	Heathrow Airport at present day i.e. 2026 baseline.
Favourable Conservation Status (FCS)	A status where a species population is stable or increasing and its habitat is sufficient to maintain it in the long term.
Fragmentation of habitats	Breaking up of continuous habitat into smaller, isolated patches.
Green Space	Land that is predominantly vegetated, such as parks, gardens, playing fields, woodlands and natural areas, providing recreational, amenity and environmental benefits.
Groundwater	Water that is stored beneath the ground surface in the pores and fractures of soil, sand and rock formations.
Groundwater modelling	A collection of mathematical calculations that give a simple representation of reality. They can be used to estimate groundwater flow and levels.
Habitat	The place or environment in which a plant or animal naturally or normally lives.
Habitats of principal importance	Types of habitats identified in law as especially important for wildlife in England, such as wet woodland, lowland meadows and ponds.
Heathrow Airport Strategic Surface Access Model (HHASAM)	The area within which road traffic during construction and operation has been predicted over time in a transport model.
Hazard	A source of potential harm to people or the environment.
Hydrology	The study of the movement, distribution, and quality of water in the natural environment, including surface water and groundwater.
Invasive Non-Native Species (INNS)	Non-native species that have been introduced outside of their natural range due to human activity and have negative impact on the environment.
Land take	The amount of land permanently or temporarily occupied or removed from its existing use by a development.
Land use	The main way land is used, such as residential, industrial, agricultural or commercial.
Landscape	The combination of natural and built elements that make up the character of an area. It includes landform, vegetation, rivers and waterbodies, settlement pattern, roads, infrastructure and open spaces.
Local Nature Reserve (LNR)	A designation made by local authorities to conserve wildlife, habitats and geological features while providing opportunities for public enjoyment and education.

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Term/Acronym	Definition
Local Wildlife Site (LWS)	A non-statutory local designation identifying sites of substantive biodiversity value, protected through local planning policy rather than legislation.
Mitigation	Measures designed to avoid, reduce or manage the impacts of a project. These may include measures identified through the Environmental Impact Assessment (EIA), as well as measures required through statutory obligations, planning requirements or other project commitments.
Mitigation hierarchy	A structured approach to managing effects: in the following hierarchy: avoid, minimise, mitigate, compensate.
National Planning Policy Framework (NPPF)	The NPPF sets out the Government's planning policies for England and how these are expected to be applied. It provides a framework within which local plans can be developed which reflect the community's needs. The NPPF noise aims widely reflect those in the Noise Policy Statement for England (NPSE). It asks that planning policies and decisions should avoid noise which could give rise to significant adverse impacts of health and quality of life because of a new development and mitigate and minimise other adverse impacts on health and quality of life. It also aims to identify and protect areas of tranquillity. Of note, the NPPF sets out that both new and existing development should be protected from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability. It also asks to ensure that new development is appropriate for its location. At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development.
Nationally Significant Infrastructure Projects (NSIPs)	Nationally Significant Infrastructure Projects are major infrastructure developments in England and Wales that are consented via the Planning Act 2008. These include proposals for power plants, large renewable energy projects, new airports and airport extensions, among others The Project is defined under the terms of Section 22 (for works to the M25) and Section 23 (for the increased capability facilitated by the Northwest Runway and terminals) of the Planning Act 2008.
Natural England	The government advisor for the natural environment in England.
Nature Reserves	Areas protected and managed for wildlife, habitats and geological features. These may include National Nature Reserves (NNRs) or Local Nature Reserves (LNRs).
Nitrogen Oxides (NOx)	Exhaust gases from aircraft engines that contribute to air pollution and add to global warming.
Noise	Noise is generally defined as unwanted, unpleasant or disruptive sound. Noise can interfere with activities, affect health, and detract from the character and enjoyment of places.
Notable species	A species that is ecologically significant in terms of conservation or policy.
Otter Holt	A sheltered resting or breeding place for otters, on a riverbank.
Overflight	A metric defined to capture whether an individual perceives that an aircraft is overflying them. Defined in CAP1498.

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Term/Acronym	Definition
Pathway	The route by which the source can reach the receptor. Definition provided by ISEP guidance.
Ramsar Site	A wetland of international importance, protected under an international agreement, usually for the birds and other wildlife it supports.
Reservoir	A man-made surface waterbody designed to store water, typically created by constructing a dam or embankment across a river or valley, or by excavating and lining a basin.
Residual	Residual effect is the environmental effect that remains after mitigation measures have been applied.
Risk	The likelihood of an event occurring and resulting in a given consequence.
River Flow	The movement of water within a river channel, typically expressed as a rate of discharge over time.
Scheme	The structured approach, mechanism, or framework through which the Project's aims will be delivered.
Scrub	Land covered with shrubs, bushes and small trees, which provides cover and food for wildlife.
Sensitivity	The vulnerability or value of an environmental receptor, which in combination with magnitude, determines whether an environmental effect is significant.
Significant Effect	An environmental effect that will be considered by the Government when coming to a decision on whether the Project should be granted consent. It can be positive or negative and is determined by considering the combination of the sensitivity of an environmental receptor, and the magnitude of change it would experience because of the Project.
Site of Importance for Nature Conservation (SINC)	Non-statutory locally designated sites recognised for their biodiversity value and protected through local planning policy.
Site of Special Scientific Interest (SSSI)	A nationally designated site protected for its ecological or geological importance.
Special Area of Conservation (SAC)	A site designated for habitats and/or species of European importance under the Habitats Directive.
Special Protection Area (SPA)	A site classified for the protection of rare and migratory birds under the Birds Directive.
Species of Conservation Importance	A general term describing species that are provided a status in legislation (for example those listed as Species of Principal Importance via the NERC Act 2006 (as amended)) or through scientific consideration. This includes species listed due to significant declines or threats (e.g. those listed as Birds of Conservation Concern or in red Data Books (RDB)).
Species of Principal Importance	Species of Principal Importance (also known as Priority species) are listed via Section 41 of the natural Environment and Rural Communities Act 20026 (as amended). Public authorities must consider what they can do to conserve and enhance biodiversity in England. This

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Term/Acronym	Definition
	'biodiversity duty' is informed by the list of Species of Principal Importance.
Surface Water	Water that is present on the Earth's surface, either flowing or standing, and includes rivers, streams, ditches, lakes, ponds, reservoirs, canals and drainage systems.
The Project	The overarching Heathrow expansion. A structured, timebound programme of work designed to deliver specific planned improvements to Heathrow's capacity, infrastructure, and operational capability.
Veteran Tree	A tree of significant age, size or condition that has high ecological, cultural or historical value, often supporting rare habitats and species.
Vibration	Vibration is defined as a repetitive oscillatory motion. Vibration can be transmitted to the human body through the supporting surfaces; the feet of a standing person, the buttocks, back and feet of a seated person or the supporting area of a recumbent person. In most situations, entry into the human body will be through the supporting ground or through the supporting floors of a building. Vibration is often complex, containing many frequencies, occurring in many directions and changing over time. Experience shows that disturbance or annoyance from vibration in residential situations is likely to arise when the magnitude of vibration is only slightly in excess of the threshold of perception.
Waterbodies	Areas of water such as lakes, ponds and reservoirs.
Watercourses	Natural and man-made channel through which water flows. It includes features such as rivers, streams, brooks, canals, ditches and similar channels, whether they are dry for part of the year or continuously flowing.
Wet Woodland	Woodland growing on wet or waterlogged ground, a habitat of particular value for wildlife.

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12.12 References

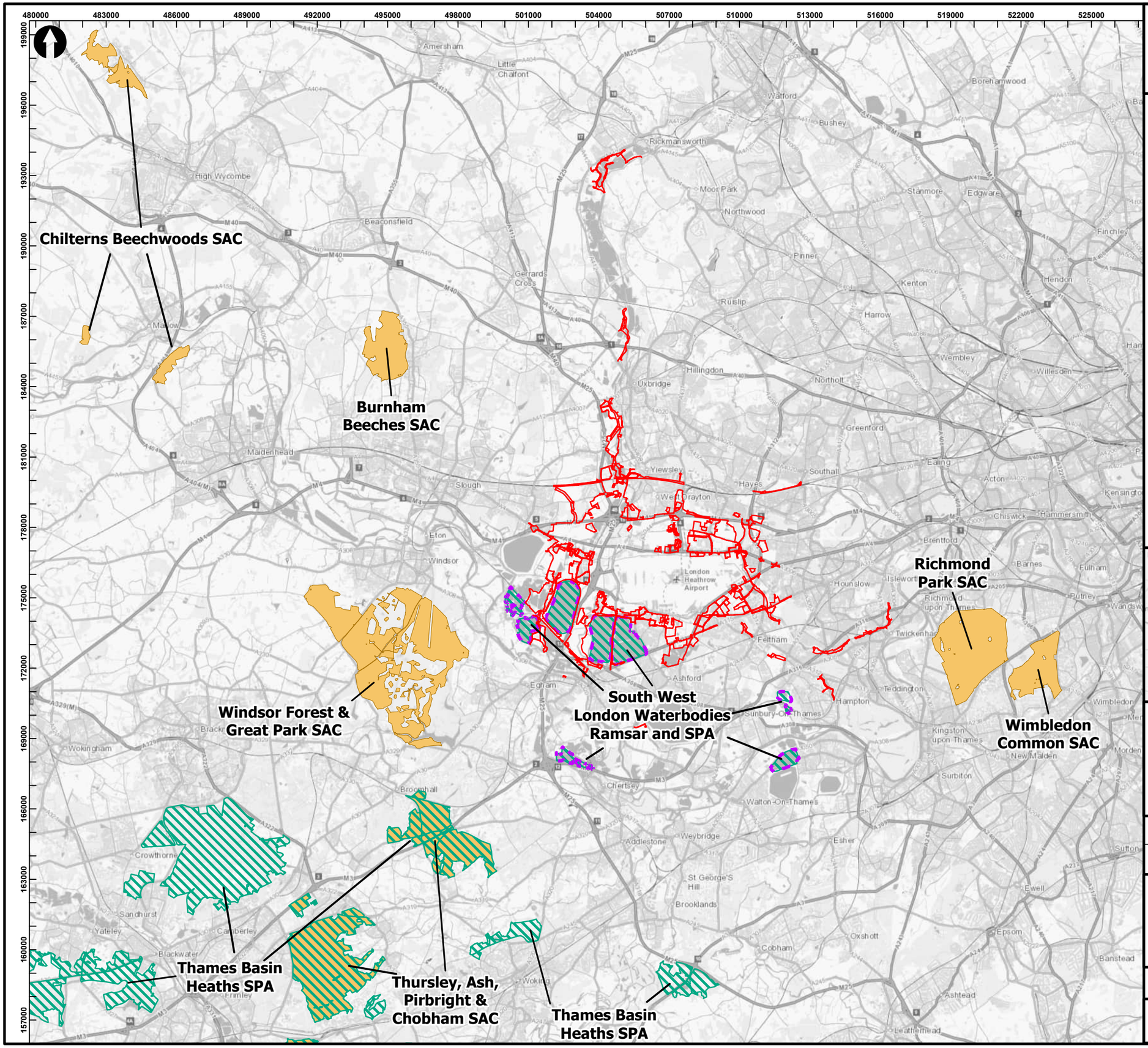
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Appendix 12A Figures

Figure 12A.1: European statutory designated sites

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- Draft DCO Order Limits
- Ramsar
- Special Areas of Conservation (SAC)
- Special Protection Area (SPA)

0 1,000 2,000 4,000 6,000 8,000 Metres

Scale 1:160,000

Heathrow

© Heathrow Airport Limited	Scale 1:160,000
Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.1: European statutory designated sites

Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	LT	UD	12/06/2026	FINAL

Location-Level-Sub Series/System-Identifier: 3R000-XX-GA-XXX-100009

Version: 1.0

Source file: EH-WSP-EICR-018

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Figure 12A.2: Sites of Special Scientific Interest

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Draft DCO Order Limits

HASSAM traffic modelled boundary

Sites of Special Scientific Interest (SSSI)

0 1,250 2,500 5,000 7,500 10,000 12,500 15,000
Metres

Scale 1:270,000



Heathrow

© Heathrow Airport Limited	Scale 1:270,000
Project Name Heathrow Expansion Project	Heathrow Project No. 3R000

Title

Figure 12A.2: Sites of Special Scientific Interest

Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	AS	UD	12/06/2026	FINAL

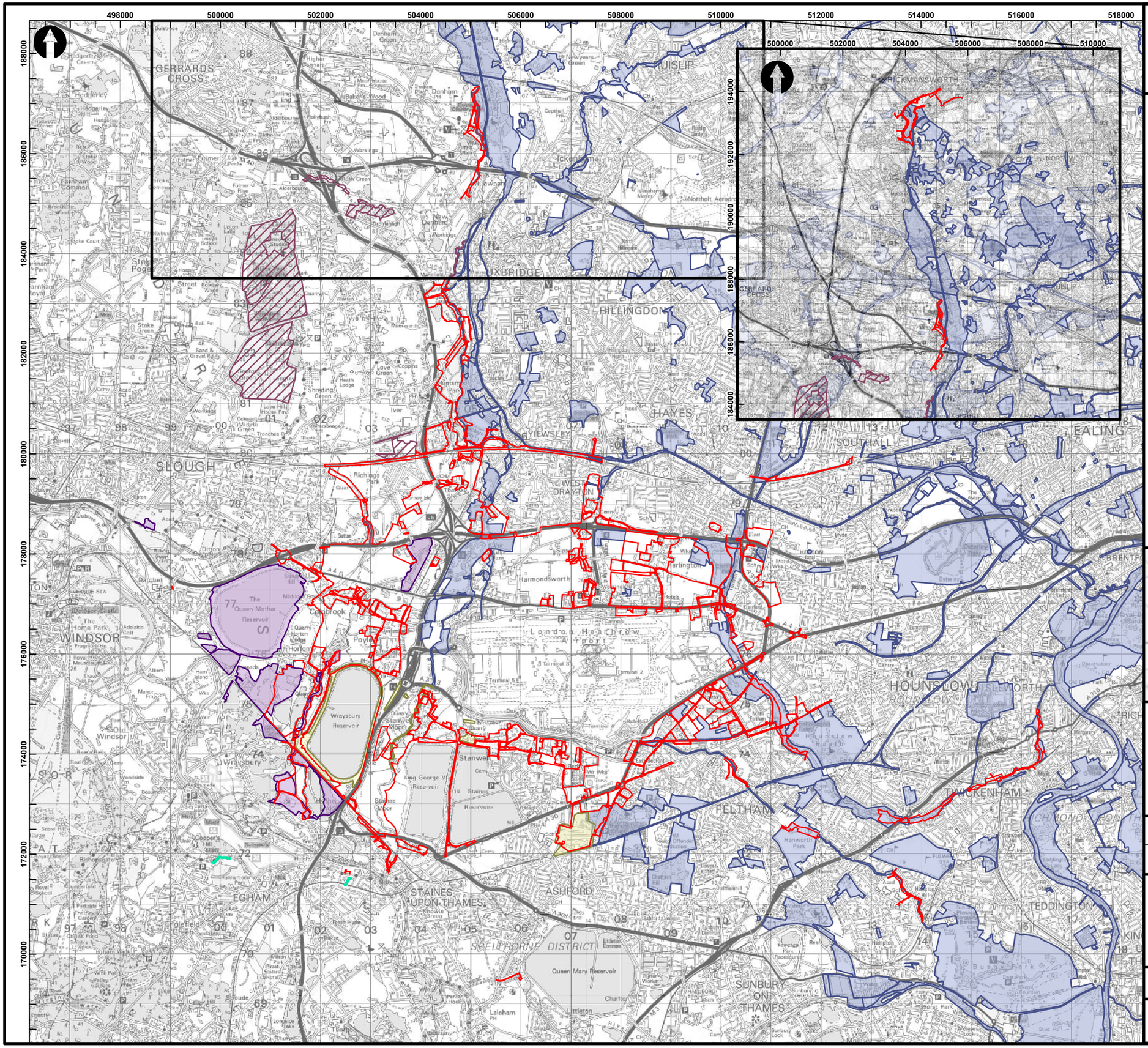
Location-Level-Sub Series/System-Identifier	Version
3R000-XX-GA-XXX-100010	1.0

Source file: EH-WSP-EICR-019

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Figure 12A.3: Non-Statutory Sites

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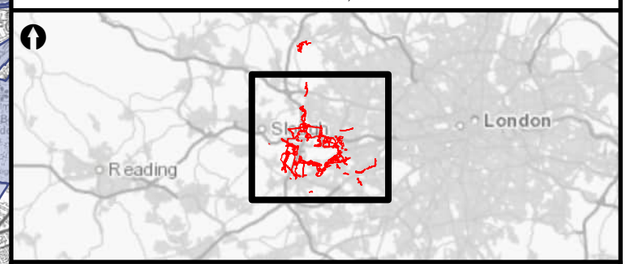


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- Draft DCO Order Limits
- Conservation Road Verges (CRV)
- Biological Notification Site (BNS)
- Local Wildlife Sites (LWS)
- Sites of Nature Conservation Importance (SNCI)
- Sites of Importance for Nature Conservation (SINC)

0 375 750 1,500 2,250 3,000 3,750 4,500 Metres

Scale 1:75,000



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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.3: Non-Statutory Sites

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WSP	LT	UD	15/06/2026	FINAL

Location-Level-Sub Series/System-Identifier: 3R000-XX-GA-XXX-100011

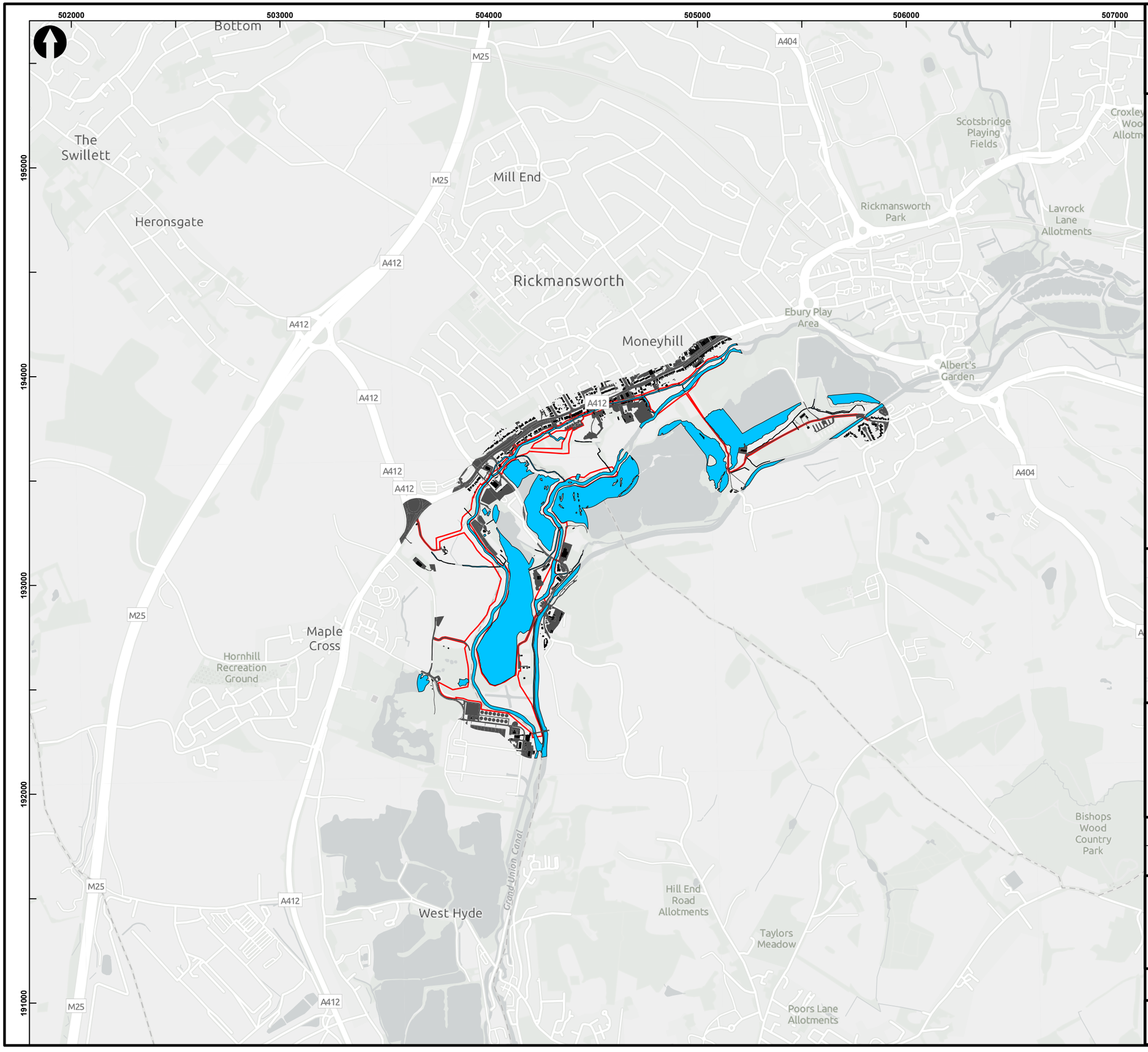
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Figure 12A.4: Habitat Mapping of Terrestrial Habitats

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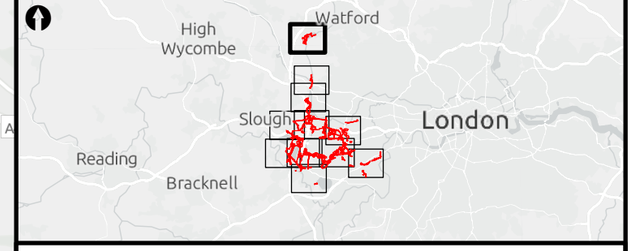
Draft DCO Order Limits

Phase 1 Mapping

- G1: Standing water
- G2 - Running water
- J3.6: Buildings
- Hardstanding

0 125 250 500 750 1,000 Metres

Scale 1:18,000



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Scale	Project Name	Heathrow Project No.
1:18,000	Heathrow Expansion Project	3R000

Title

Figure 12A.4: Habitat Mapping of Terrestrial Habitats

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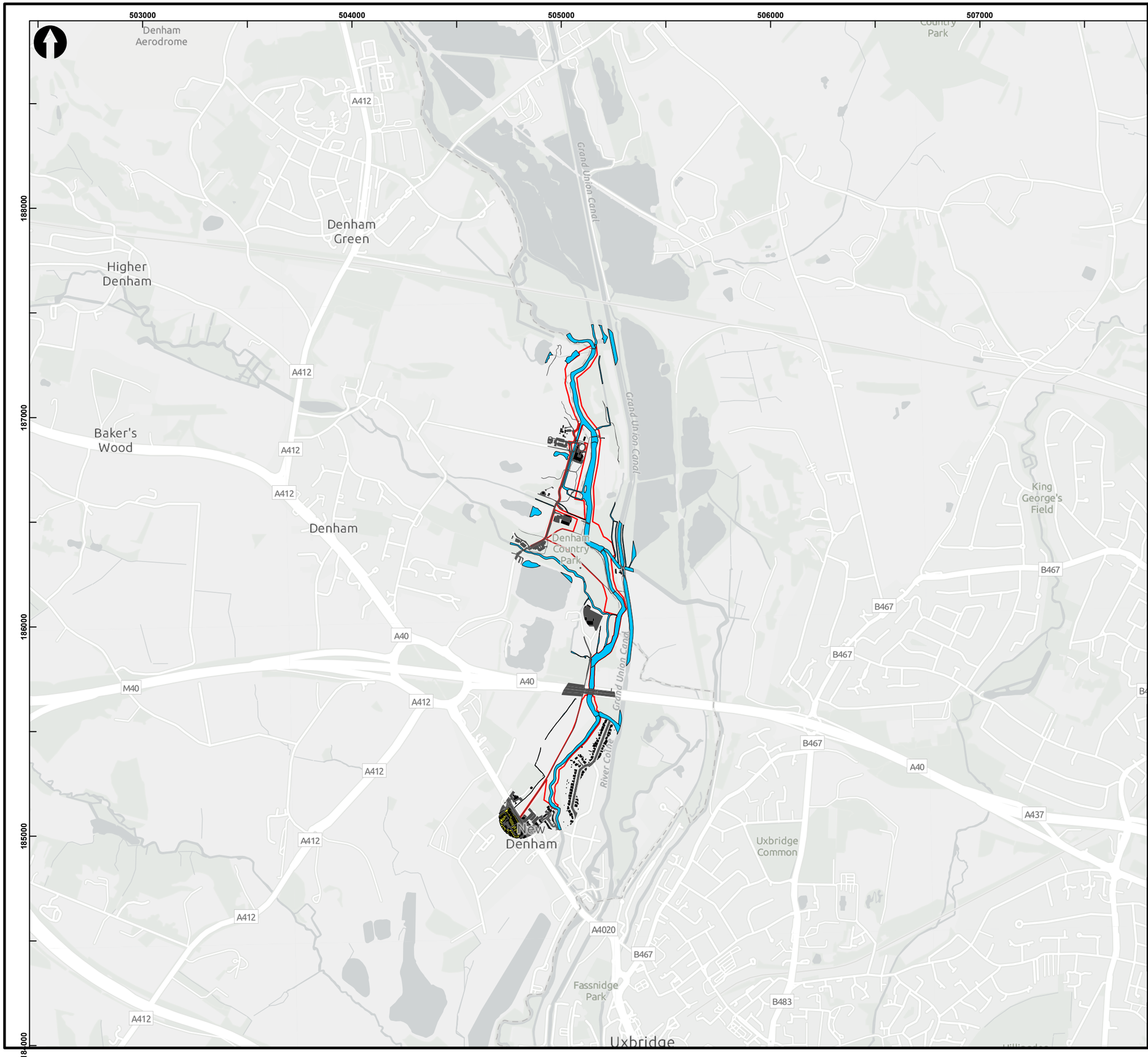
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WSP	LT	UD	15/06/2026	FINAL

Location-Level-Sub Series/System-Identifier	Version
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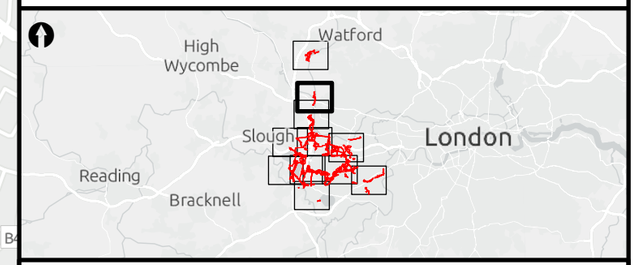
Draft DCO Order Limits

Phase 1 Mapping

- G1: Standing water
- G2 - Running water
- J1.2: Amenity grassland
- J3.6: Buildings
- Hardstanding

0 125 250 500 750 1,000 Metres

Scale 1:18,000



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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.4: Habitat Mapping of Terrestrial Habitats

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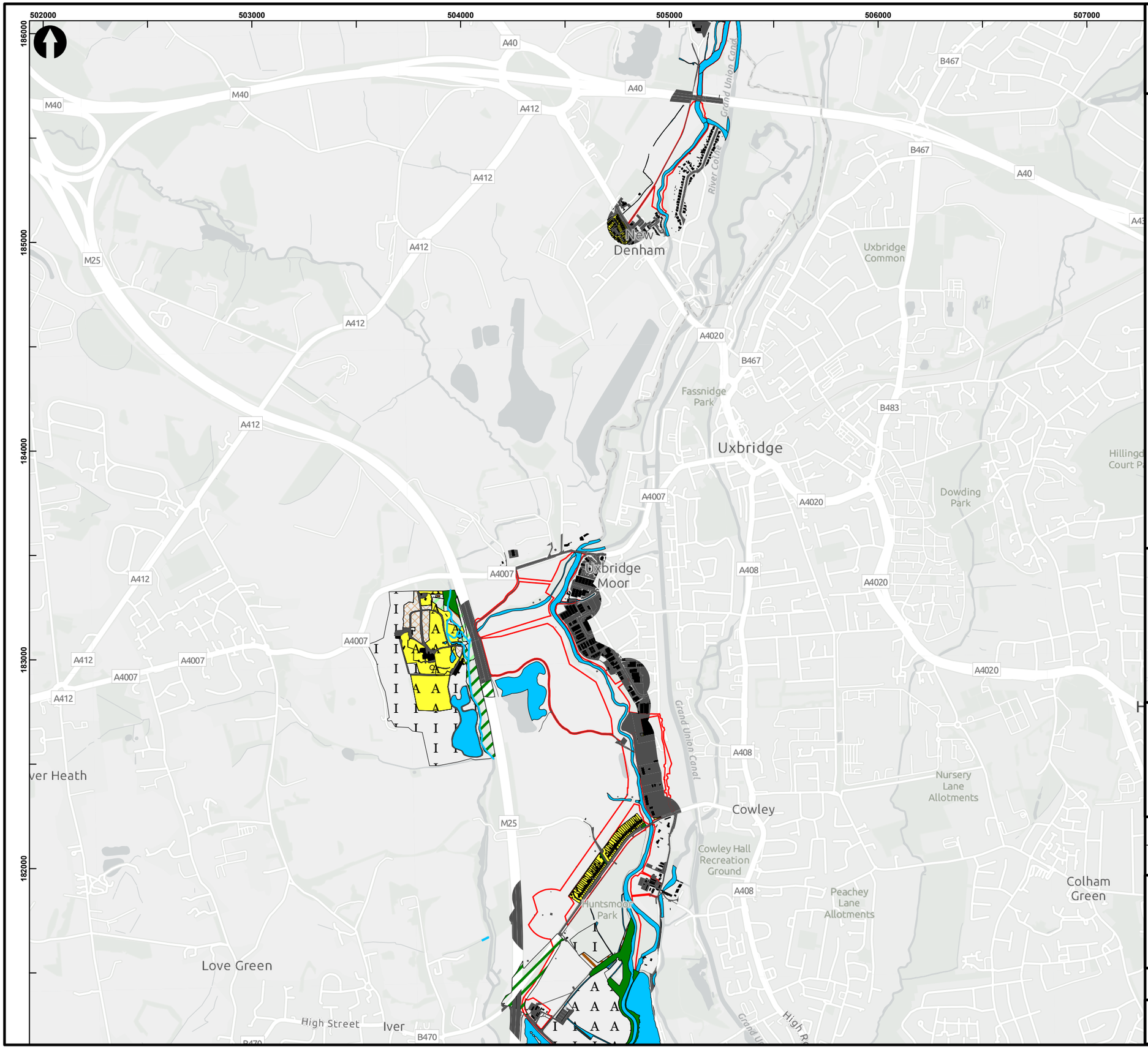
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WSP	LT	UD	15/06/2026	FINAL

Location-Level-Sub Series/System-Identifier	Version
3R000-XX-GA-XXX-100012	1.0

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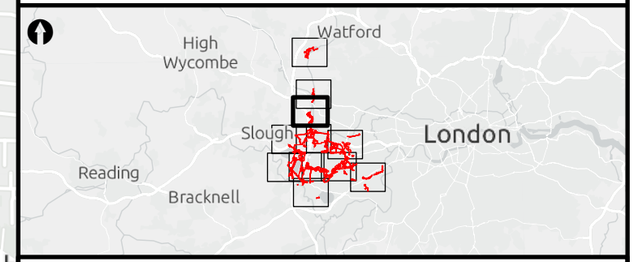
- Draft DCO Order Limits

Phase 1 Mapping

- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A1.2.2: Coniferous woodland - plantation
- A2.1: Scrub- Dense/Continous
- B4: Improved grassland
- C3.1: Tall ruderal
- G1: Standing water
- G2 - Running water
- J1.1 - Cultivated/disturbed land - arable
- J1.2: Amenity grassland
- J1.4: Introduced shrub
- J3.6: Buildings
- J4: Bare ground
- Hardstanding

0 125 250 500 750 1,000 Metres

Scale 1:18,000



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Project Name Heathrow Expansion Project	Heathrow Project No. 3R000

Title

Figure 12A.4: Habitat Mapping of Terrestrial Habitats

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Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	LT	UD	15/06/2026	FINAL

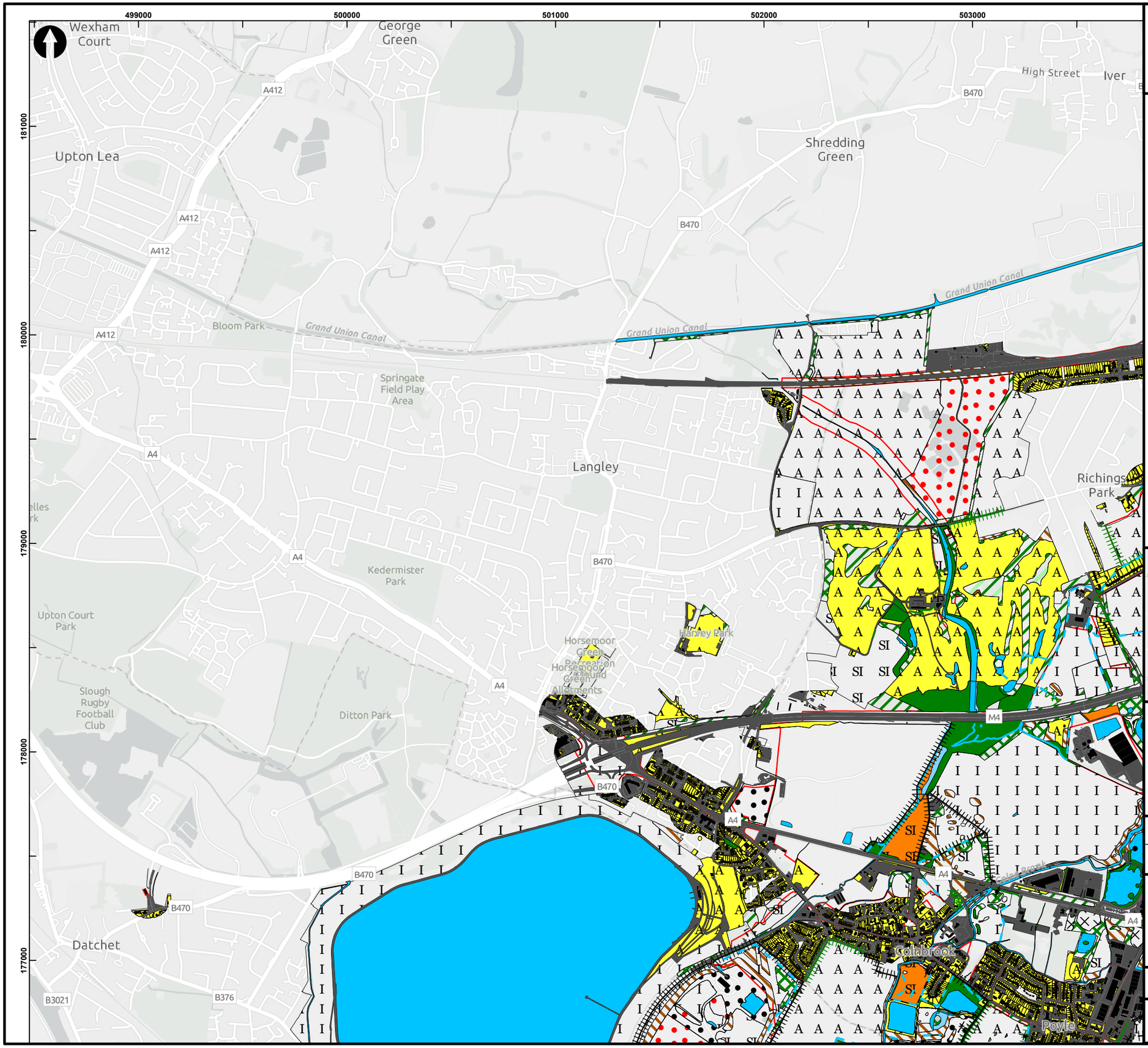
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Version: 1.0

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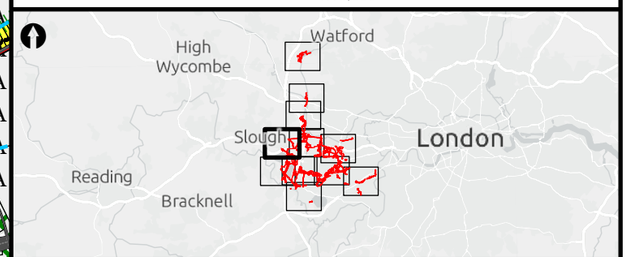
Draft DCO Order Limits

Phase 1 Mapping

- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A1.2.1: Coniferous woodland - semi-natural
- A1.3.2: Mixed woodland - plantation
- A2.1: Scrub- Dense/Continous
- B2.2: Neutral grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland
- B6: Poor semi-improved grassland
- C1.1: Continous Bracken
- C3.1: Tall ruderal
- F1: Swamp; F1 - Swamp
- F2.2: Inundation vegetation
- G1: Standing water
- G2 - Running water
- I1.2.1: Scree - acid/neutral
- J1.1 - Cultivated/disturbed land - arable
- J1.2: Amenity grassland
- J1.3: Ephemeral/short perennial
- J1.4: Introduced shrub
- J3.6: Buildings
- J4: Bare ground
- Hardstanding

0 125 250 500 750 1,000 Metres

Scale 1:18,000



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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.4: Habitat Mapping of Terrestrial Habitats

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Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	LT	UD	15/06/2026	FINAL

Location-Level-Sub Series/System-Identifier	Version
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- Draft DCO Order Limits

Phase 1 Mapping

- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A1.2.1: Coniferous woodland - semi-natural
- A1.3.2: Mixed woodland - plantation
- A2.1: Scrub- Dense/Continous
- B2.2: Neutral grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland
- B6: Poor semi-improved grassland
- C1.1: Continous Bracken
- C3.1: Tall ruderal
- F1: Swamp; F1 - Swamp
- F2.2: Inundation vegetation
- G1: Standing water
- G2 - Running water
- I1.2.1: Scree - acid/neutral
- I1.2.2: Scree - basic
- I1.3: Limestone pavement; I2.4 -
- J1.1 - Cultivated/disturbed land - arable
- J1.2: Amenity grassland
- J1.3: Ephemeral/short perennial
- J1.4: Introduced shrub
- J3.6: Buildings
- J4: Bare ground
- Hardstanding

0 125 250 500 750 1,000 Metres

Scale 1:18,000



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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.4: Habitat Mapping of Terrestrial Habitats

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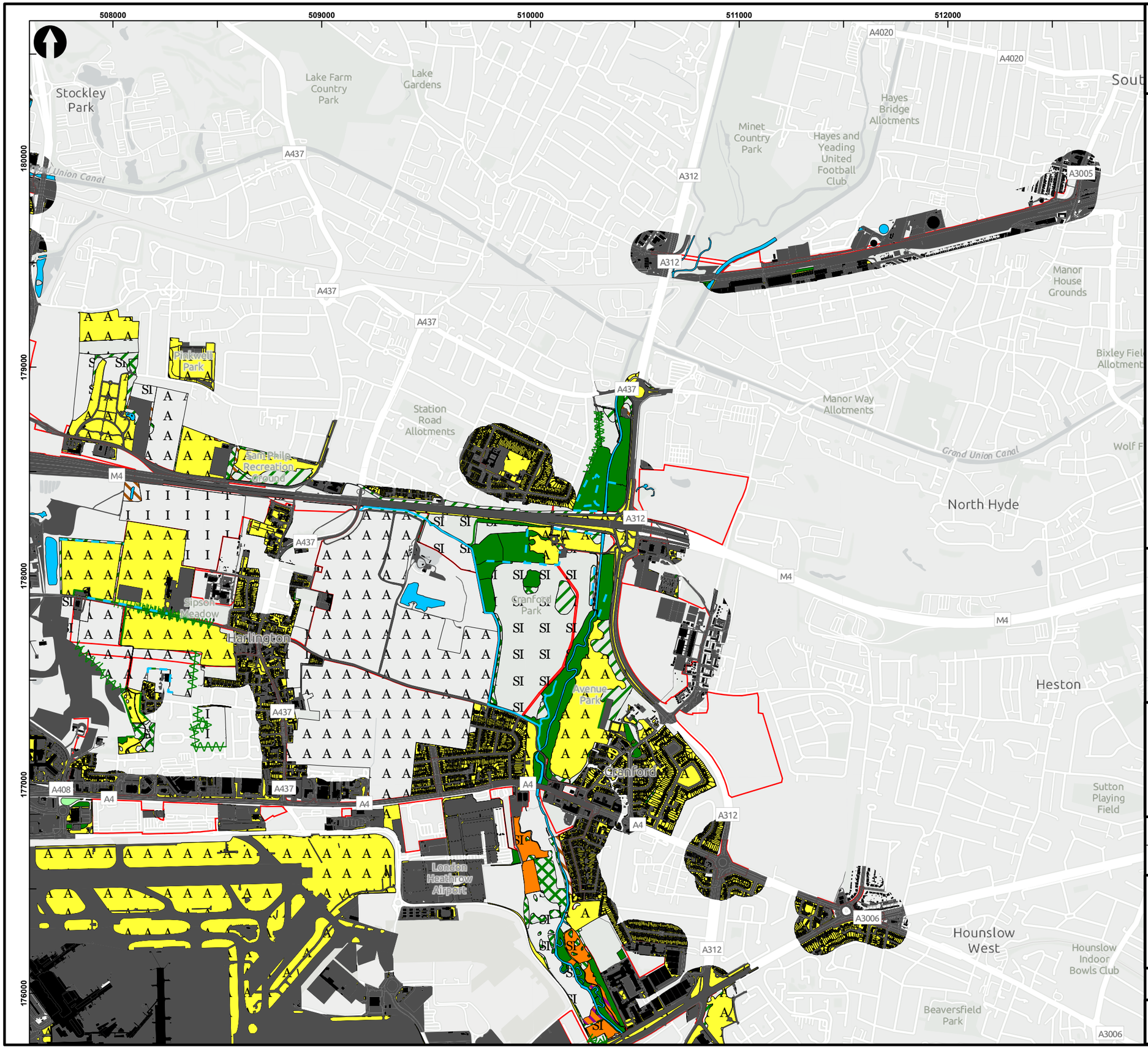
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Location-Level-Sub Series/System-Identifier	Version
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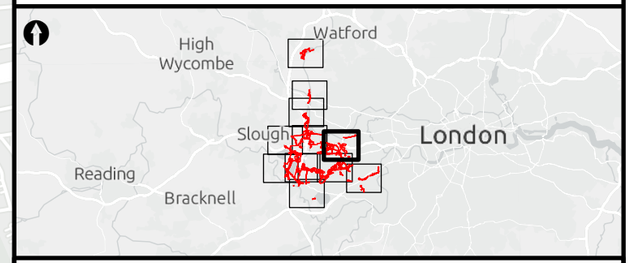
- Draft DCO Order Limits

Phase 1 Mapping

- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A1.2.1: Coniferous woodland - semi-natural
- A2.1: Scrub- Dense/Continous
- B2.2: Neutral grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland
- B6: Poor semi-improved grassland
- C3.1: Tall ruderal
- G1: Standing water
- G2 - Running water
- J1.1 - Cultivated/disturbed land - arable
- J1.2: Amenity grassland
- J3.6: Buildings
- J4: Bare ground
- Hardstanding

0 125 250 500 750 1,000 Metres

Scale 1:18,000



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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.4: Habitat Mapping of Terrestrial Habitats

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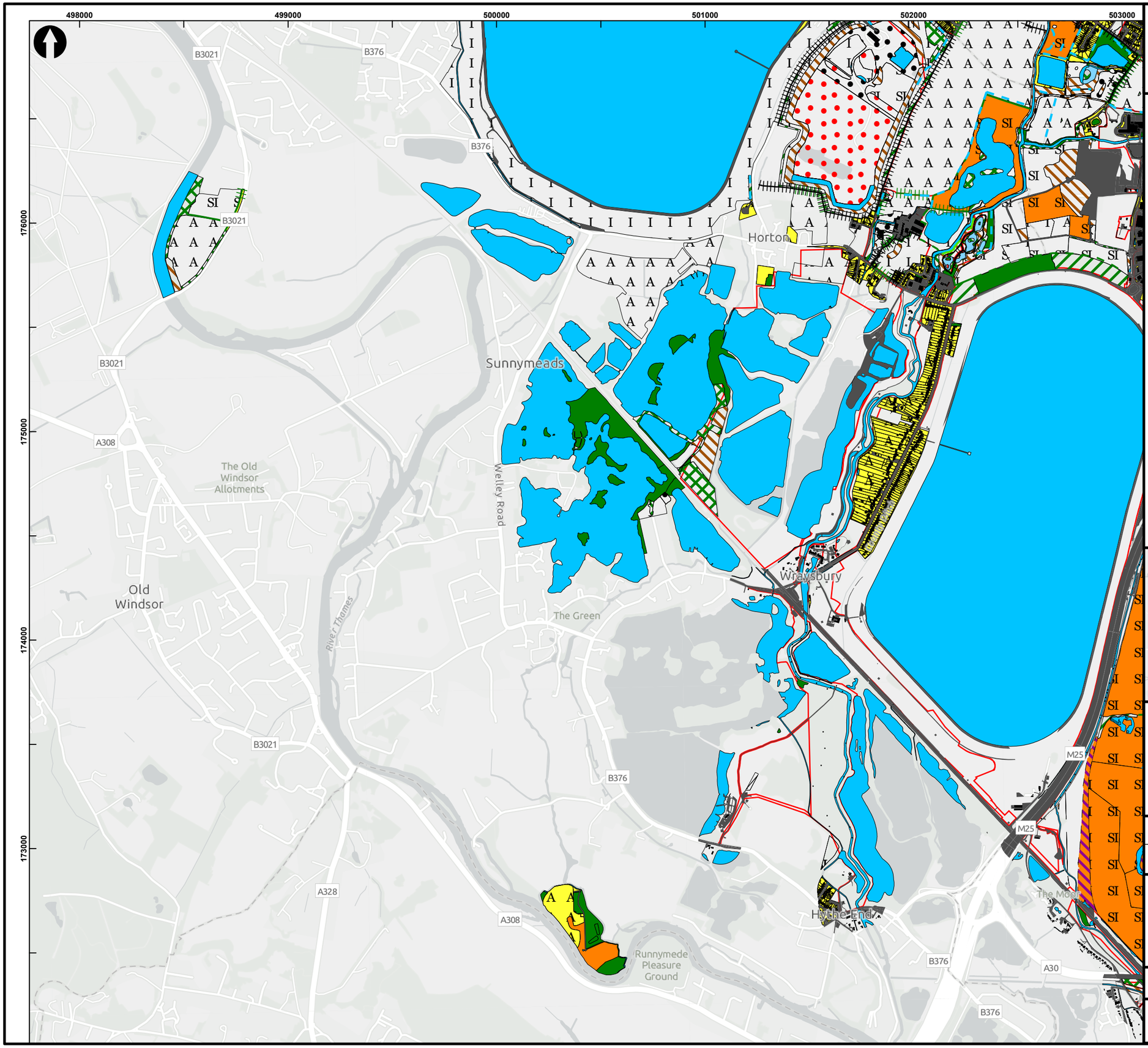
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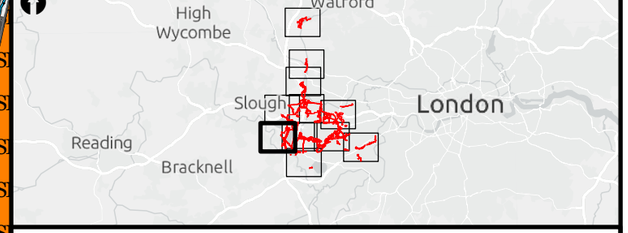
- Draft DCO Order Limits

Phase 1 Mapping

- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A1.3.2: Mixed woodland - plantation
- A2.1: Scrub- Dense/Continous
- B1.1: Acid grassland - unimproved
- B2.1: Neutral grassland - unimproved
- B2.2: Neutral grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland
- B6: Poor semi-improved grassland
- C3.1: Tall ruderal
- F1: Swamp; F1 - Swamp
- F2.2: Inundation vegetation
- G1: Standing water
- G2 - Running water
- I1.2.1: Scree - acid/neutral
- I1.3: Limestone pavement; I2.4 - Refuse-tip
- J1.1 - Cultivated/disturbed land - arable
- J1.2: Amenity grassland
- J1.3: Ephemeral/short perennial
- J3.6: Buildings
- J4: Bare ground
- Hardstanding

0 125 250 500 750 1,000 Metres

Scale 1:18,000



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Project Name Heathrow Expansion Project	Heathrow Project No. 3R000

Title

Figure 12A.4: Habitat Mapping of Terrestrial Habitats

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Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	LT	UD	15/06/2026	FINAL

Location-Level-Sub Series/System-Identifier	Version
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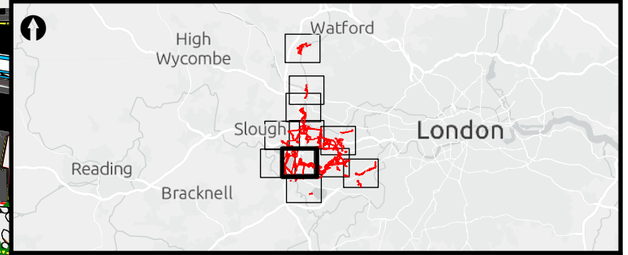
- Draft DCO Order Limits

Phase 1 Mapping

- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A1.2.1: Coniferous woodland - semi-natural
- A1.3.2: Mixed woodland - plantation
- A2.1: Scrub- Dense/Continous
- A3.1: Parkland and scattered trees- broad-leaved
- B1.1: Acid grassland - unimproved
- B2.1: Neutral grassland - unimproved
- B2.2: Neutral grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland
- B6: Poor semi-improved grassland
- C3.1: Tall ruderal
- F1: Swamp; F1 - Swamp
- F2.2: Inundation vegetation
- G1: Standing water
- G1.1: Standing water - eutrophic
- G2 - Running water
- I1.2.1: Scree - acid/neutral
- I1.3: Limestone pavement; I2.4 -
- J1.1 - Cultivated/disturbed land - arable
- J1.2: Amenity grassland
- J1.3: Ephemeral/short perennial
- J1.4: Introduced shrub
- J3.6: Buildings
- J4: Bare ground
- J5: Other habitat
- Hardstanding

0 125 250 500 750 1,000 Metres

Scale 1:18,000



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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.4: Habitat Mapping of Terrestrial Habitats

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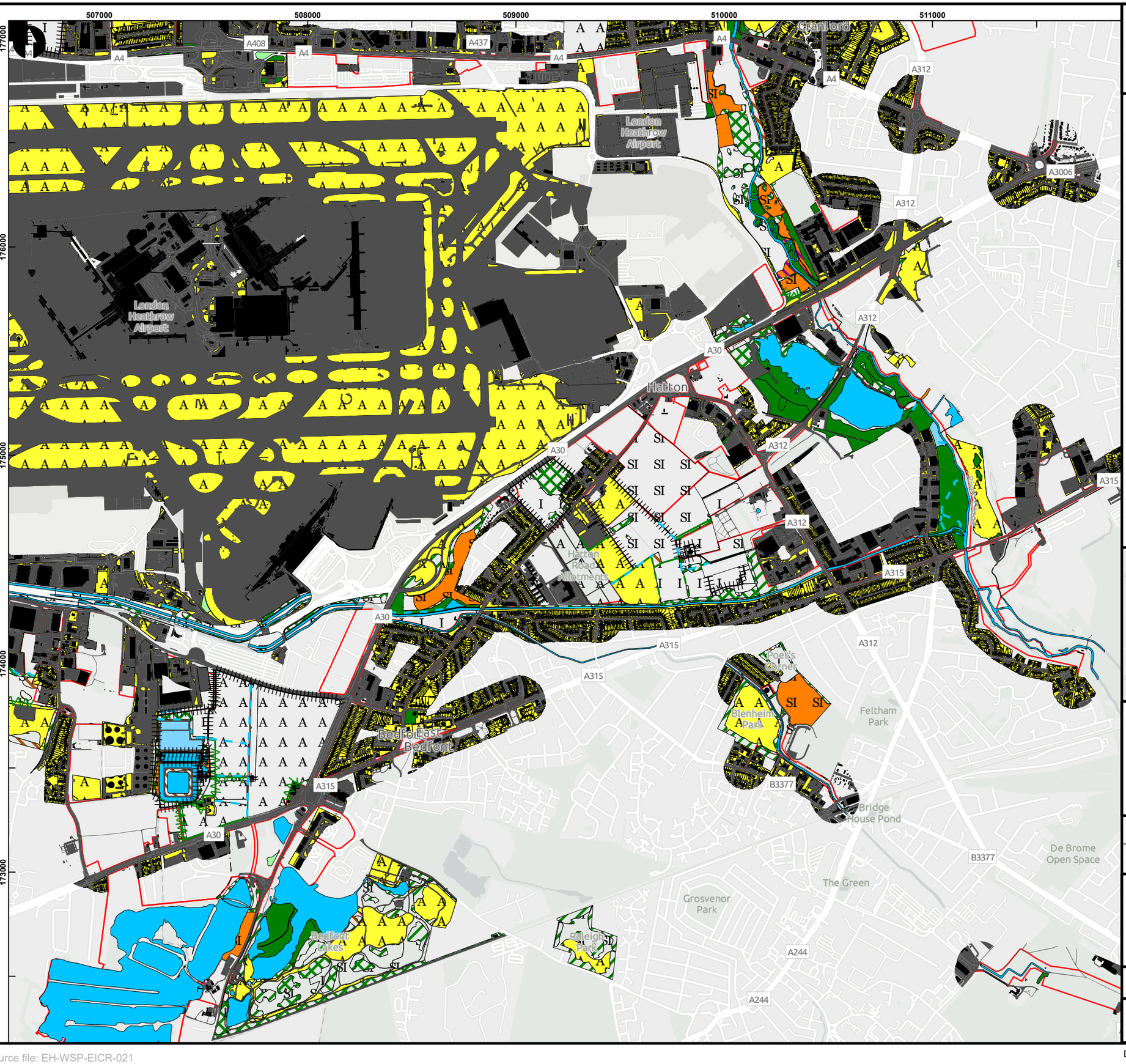
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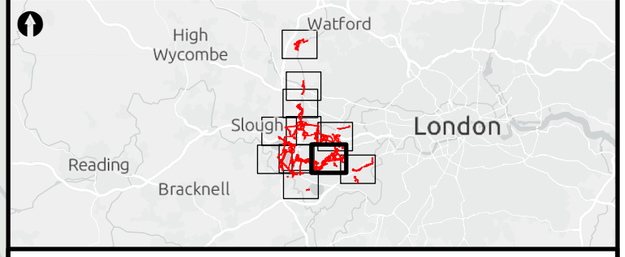
Draft DCO Order Limits

Phase 1 Mapping

- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A1.2.1: Coniferous woodland - semi-natural
- A2.1: Scrub- Dense/Continous
- B2.1: Neutral grassland - unimproved
- B2.2: Neutral grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland
- B6: Poor semi-improved grassland
- C3.1: Tall ruderal
- F1: Swamp; F1 - Swamp
- F2.2: Inundation vegetation
- G1: Standing water
- G1.1: Standing water - eutrophic
- G2 - Running water
- J1.1 - Cultivated/disturbed land - arable
- J1.2: Amenity grassland
- J1.3: Ephemeral/short perennial
- J1.4: Introduced shrub
- J3.6: Buildings
- J4: Bare ground
- Hardstanding

0 125 250 500 750 1,000 Metres

Scale 1:18,000



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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.4: Habitat Mapping of Terrestrial Habitats

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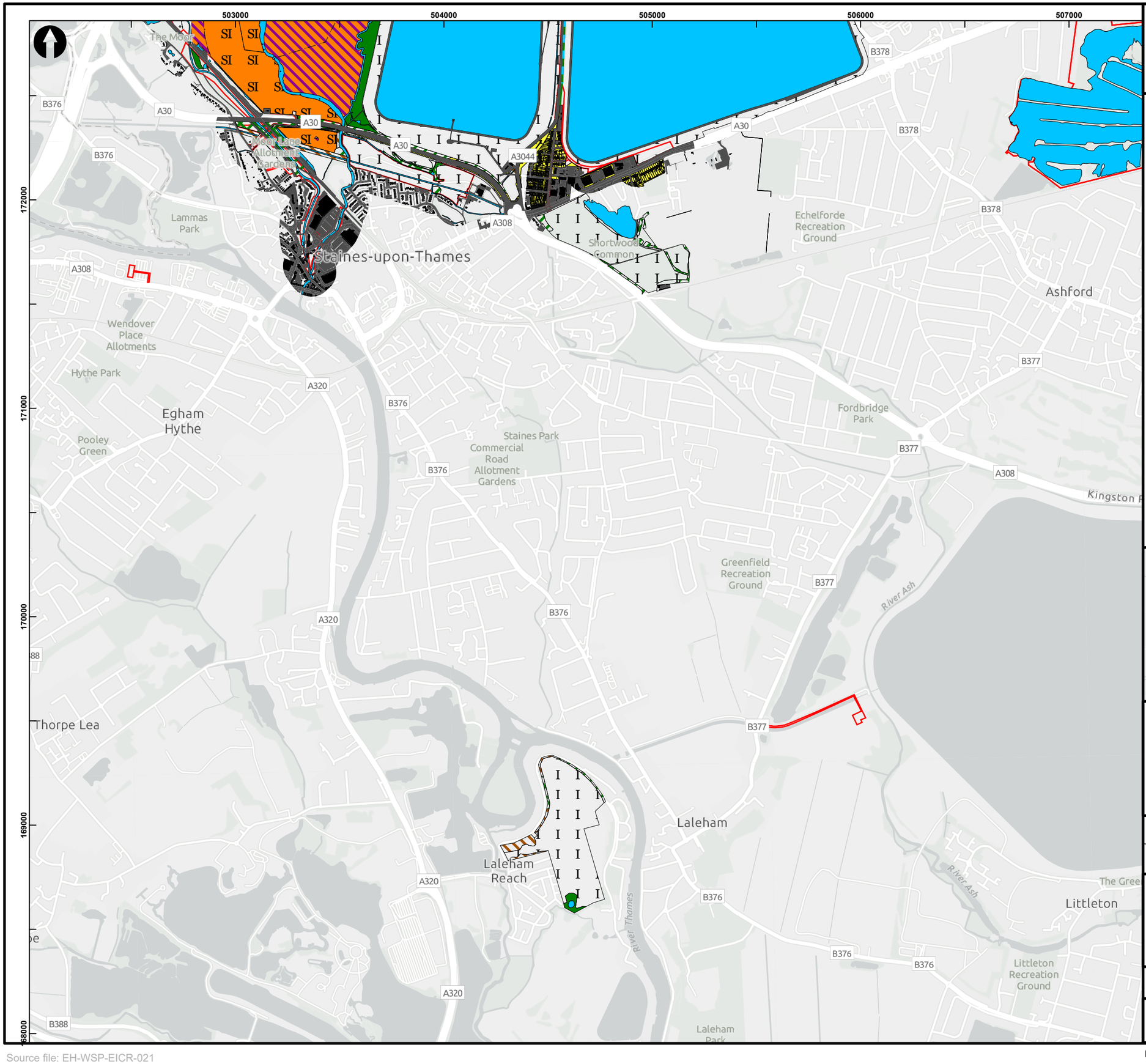
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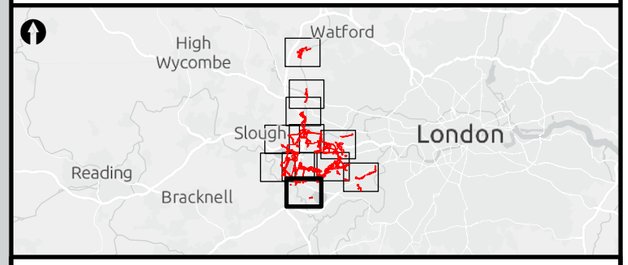
- Draft DCO Order Limits

Phase 1 Mapping

- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A2.1: Scrub- Dense/Continous
- B1.1: Acid grassland - unimproved
- B2.2: Neutral grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland
- B6: Poor semi-improved grassland
- C3.1: Tall ruderal
- F2.2: Inundation vegetation
- G1: Standing water
- G1.1: Standing water - eutrophic
- G2 - Running water
- J1.2: Amenity grassland
- J3.6: Buildings
- Hardstanding

0 125 250 500 750 1,000 Metres

Scale 1:18,000



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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.4: Habitat Mapping of Terrestrial Habitats

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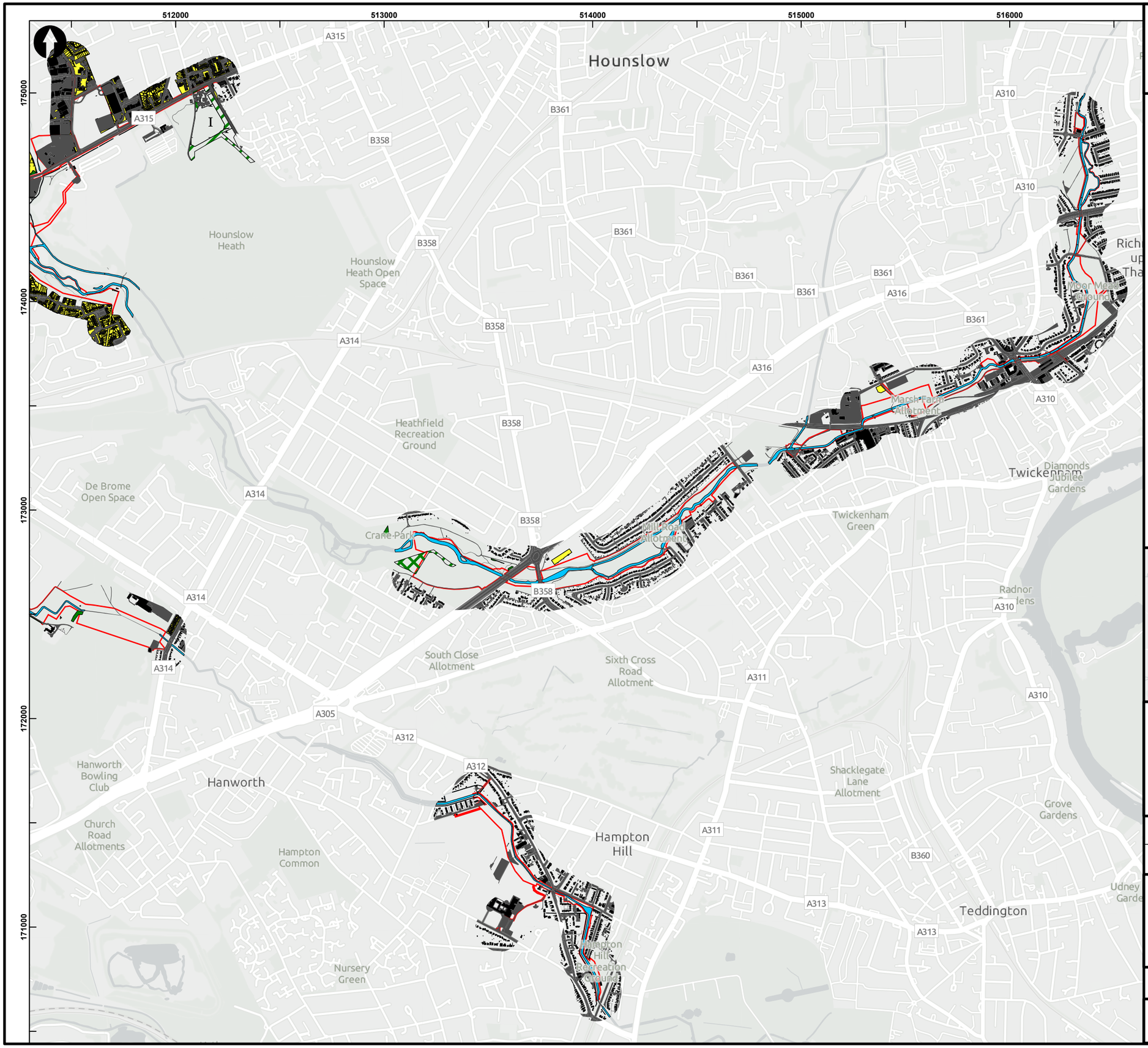
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Location-Level-Sub Series/System-Identifier	Version
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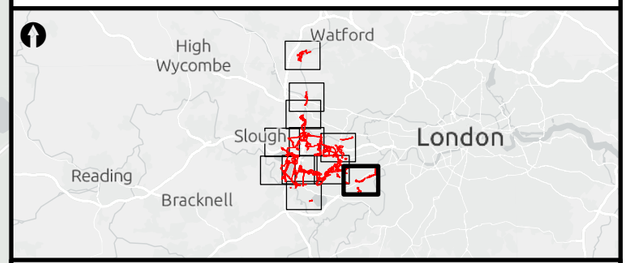
Draft DCO Order Limits

Phase 1 Mapping

- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A2.1: Scrub- Dense/Continous
- B4: Improved grassland
- B6: Poor semi-improved grassland
- G1: Standing water
- G1.6: Standing water - brackish
- G2 - Running water
- J1.2: Amenity grassland
- J3.6: Buildings
- Hardstanding

0 125 250 500 750 1,000 Metres

Scale 1:18,000



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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.4: Habitat Mapping of Terrestrial Habitats

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Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	LT	UD	15/06/2026	FINAL

Location-Level-Sub Series/System-Identifier	Version
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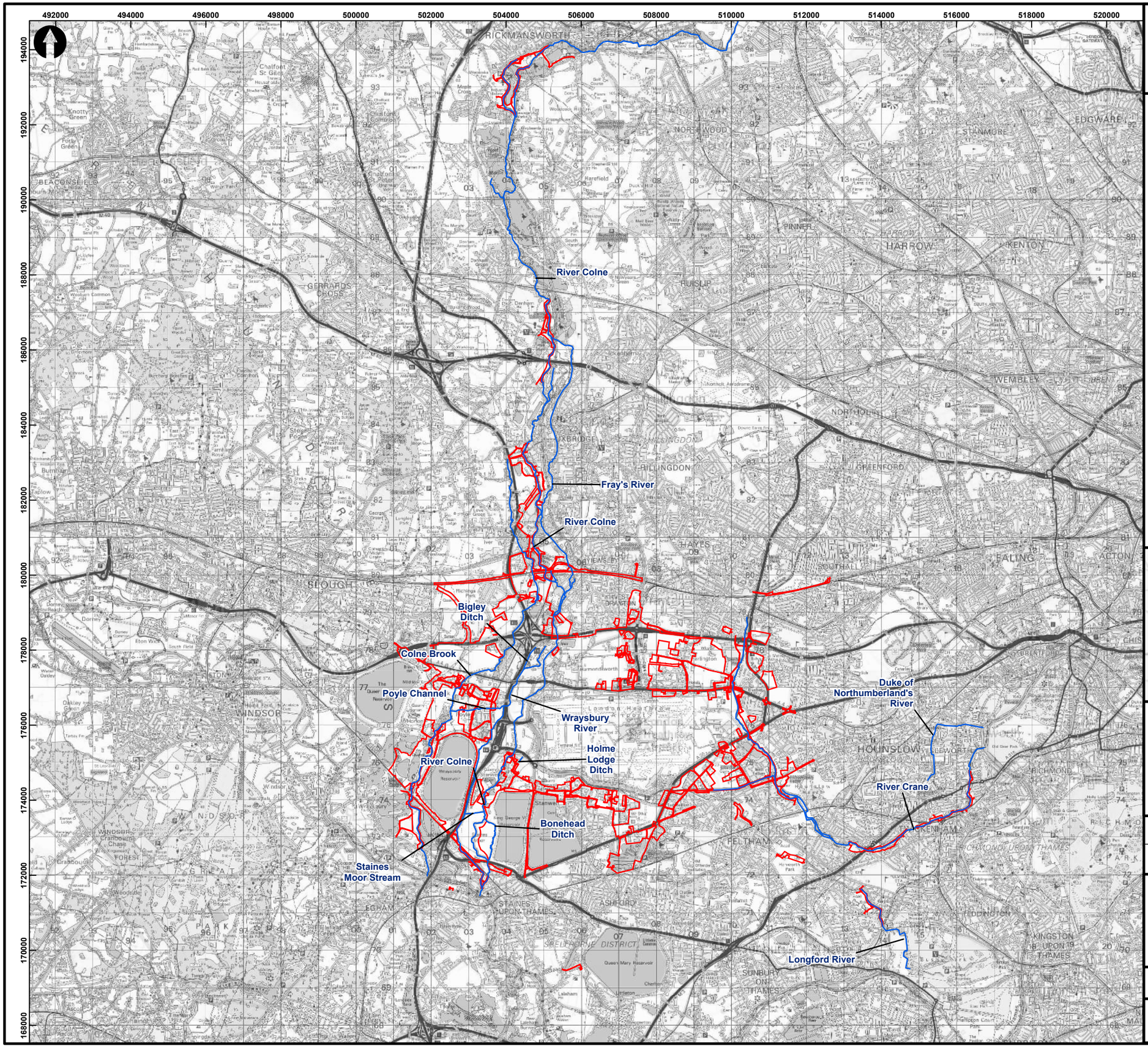
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Figure 12A.5: Watercourses within the draft Order Limits

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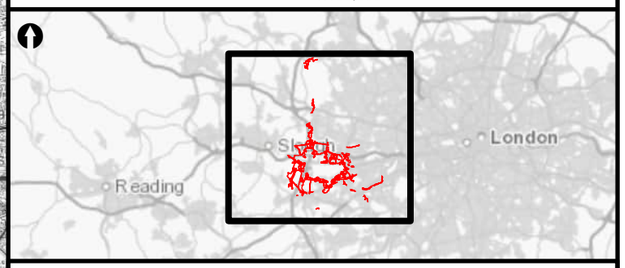
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Draft DCO Order Limits

Watercourses

0 500 1,000 2,000 3,000 4,000 5,000 6,000
Metres

Scale 1:100,000



Heathrow

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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.5: Watercourses within the DCO Order Limits

Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	LT	UD	15/06/2026	FINAL

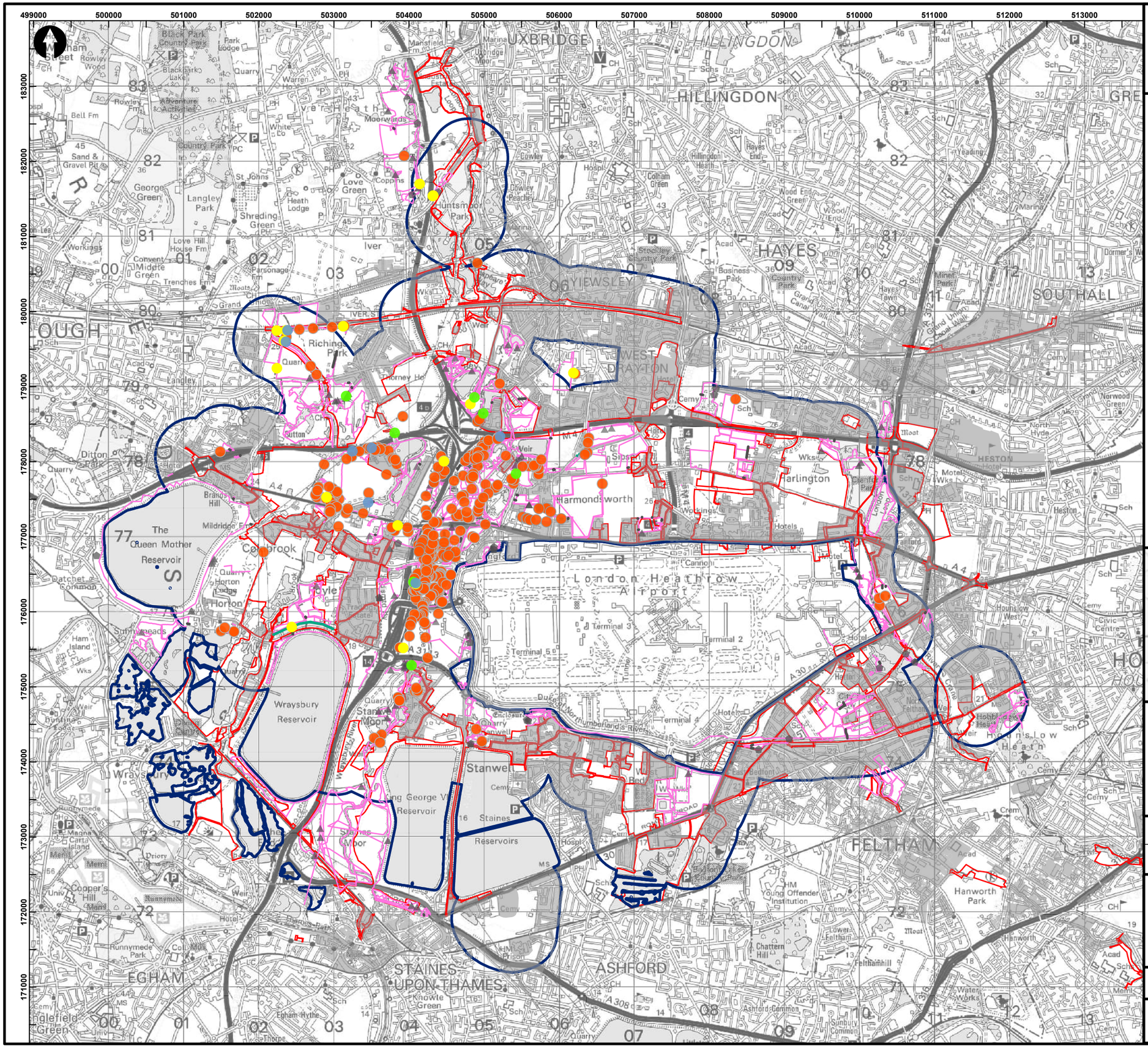
Location-Level-Sub Series/System-Identifier	Version
3R000-XX-GA-XXX-100013	1.0

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Figure 12A.6: Badger activity

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- Draft DCO Order Limits
- Survey area
- Survey route

Badgers

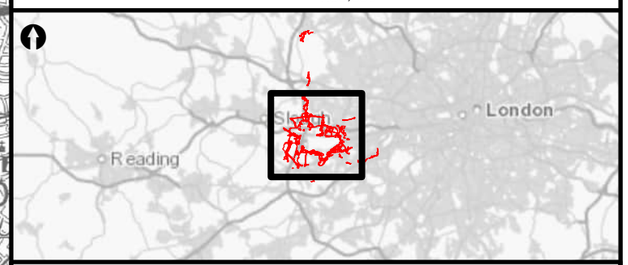
- Badger footprints
- Badger hairs
- Foraging signs
- Latrines
- Evidence of fox activity
- Evidence of rabbit activity
- Badger paths
- Mammal path, possibly badger

Land parcel access

- Scoped out for badger surveys

0 250 500 1,000 1,500 2,000 2,500 3,000 Metres

Scale 1:50,000



Heathrow

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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.6: Badger Activity

Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	LT	UD	15/06/2026	FINAL

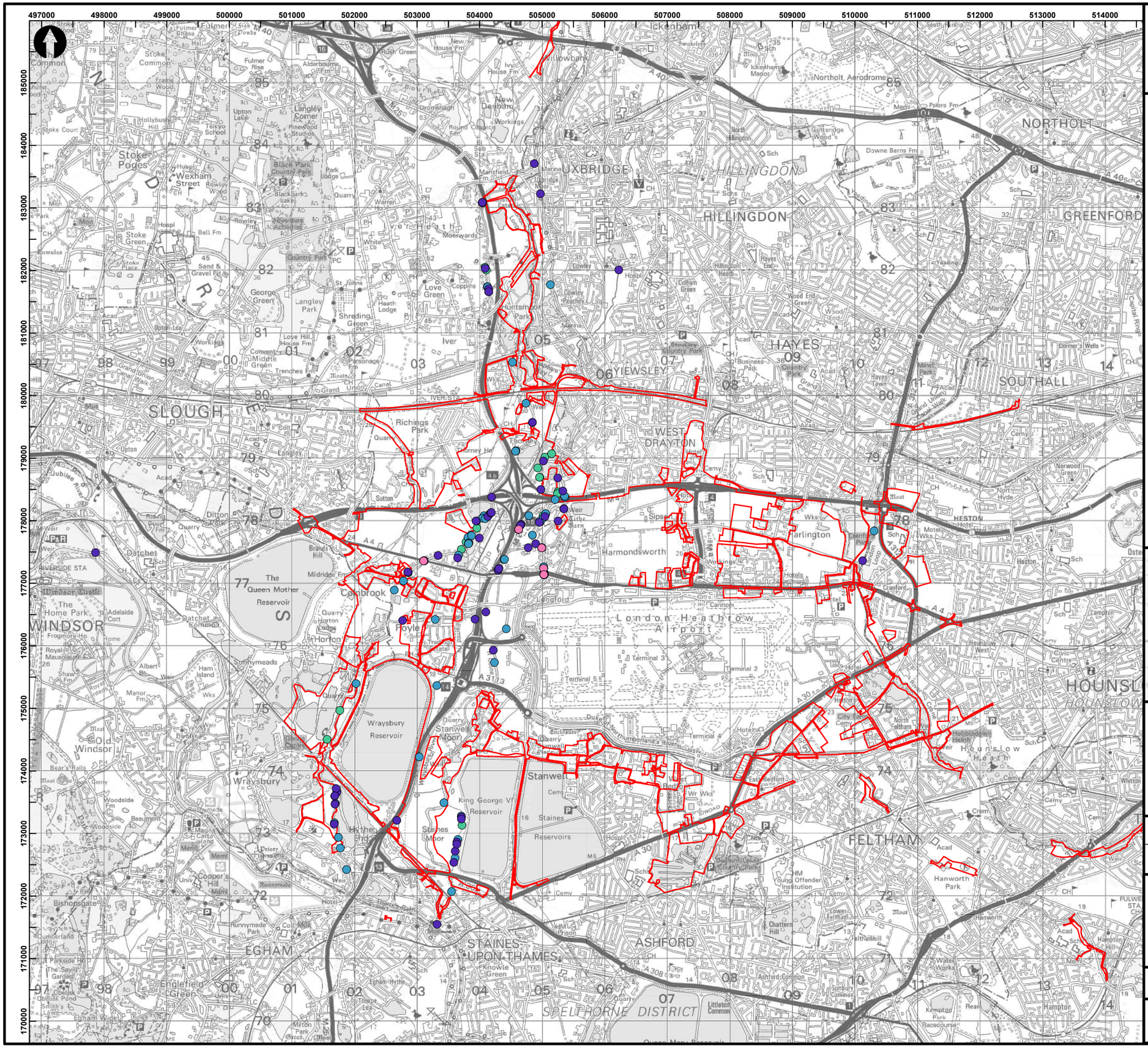
Location-Level-Sub Series/System-Identifier	Version
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Figure 12A.7: Otter activity

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Otter Spraint

- Old
- Collected
- Recent
- Fresh

0 500 1,000 2,000 3,000 Metres

Scale 1:60,000

Heathrow

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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.7: Otter

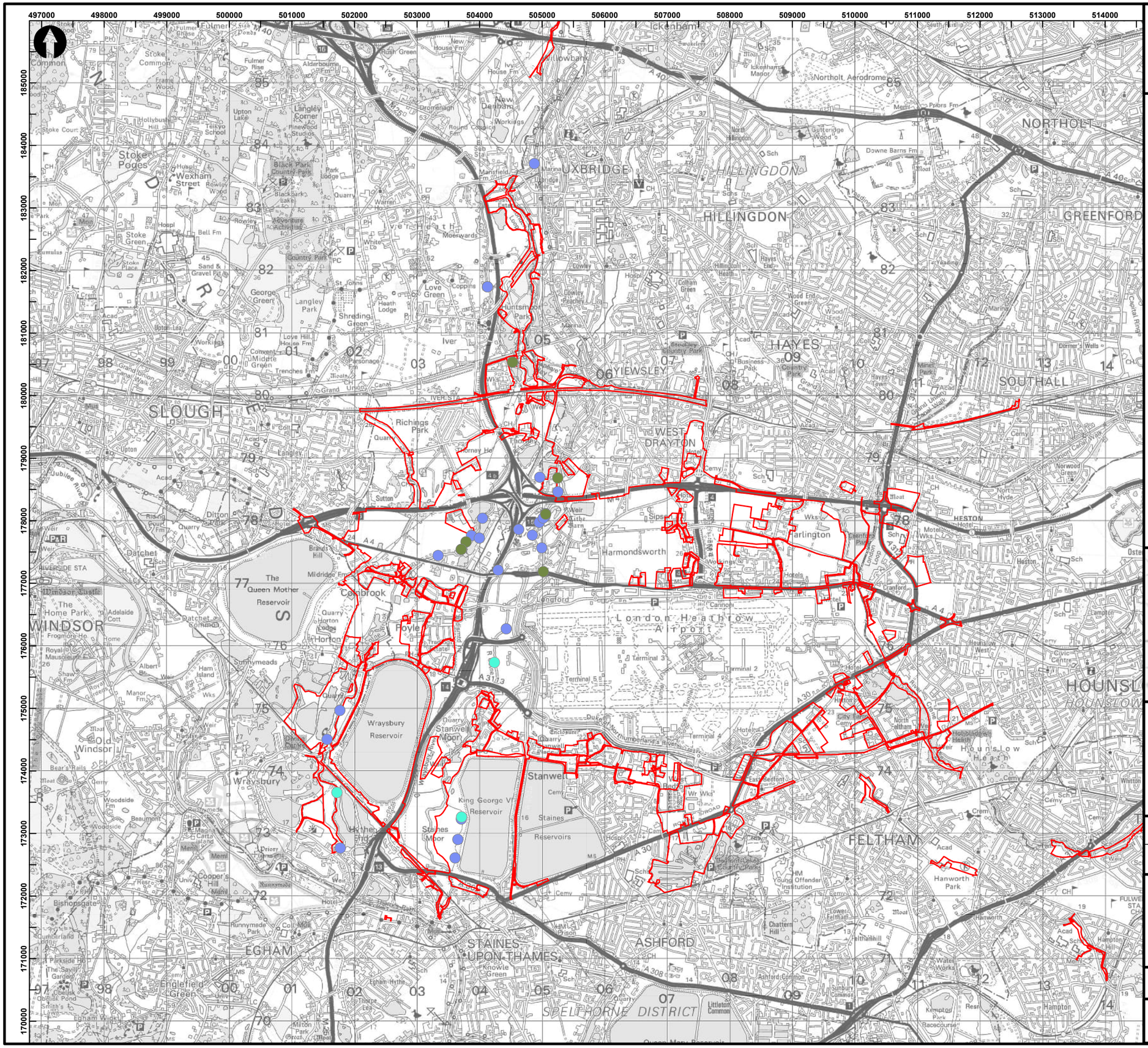
Activity Page 1 of 3

Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	LT	UD	15/06/2026	FINAL

Location-Level-Sub Series/System-Identifier	Version
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Draft DCO Order Limits

Otter Activity

- Lying up site present
- Couches present
- Holt present

0 500 1,000 2,000 3,000 Metres

Scale 1:60,000

Heathrow

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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

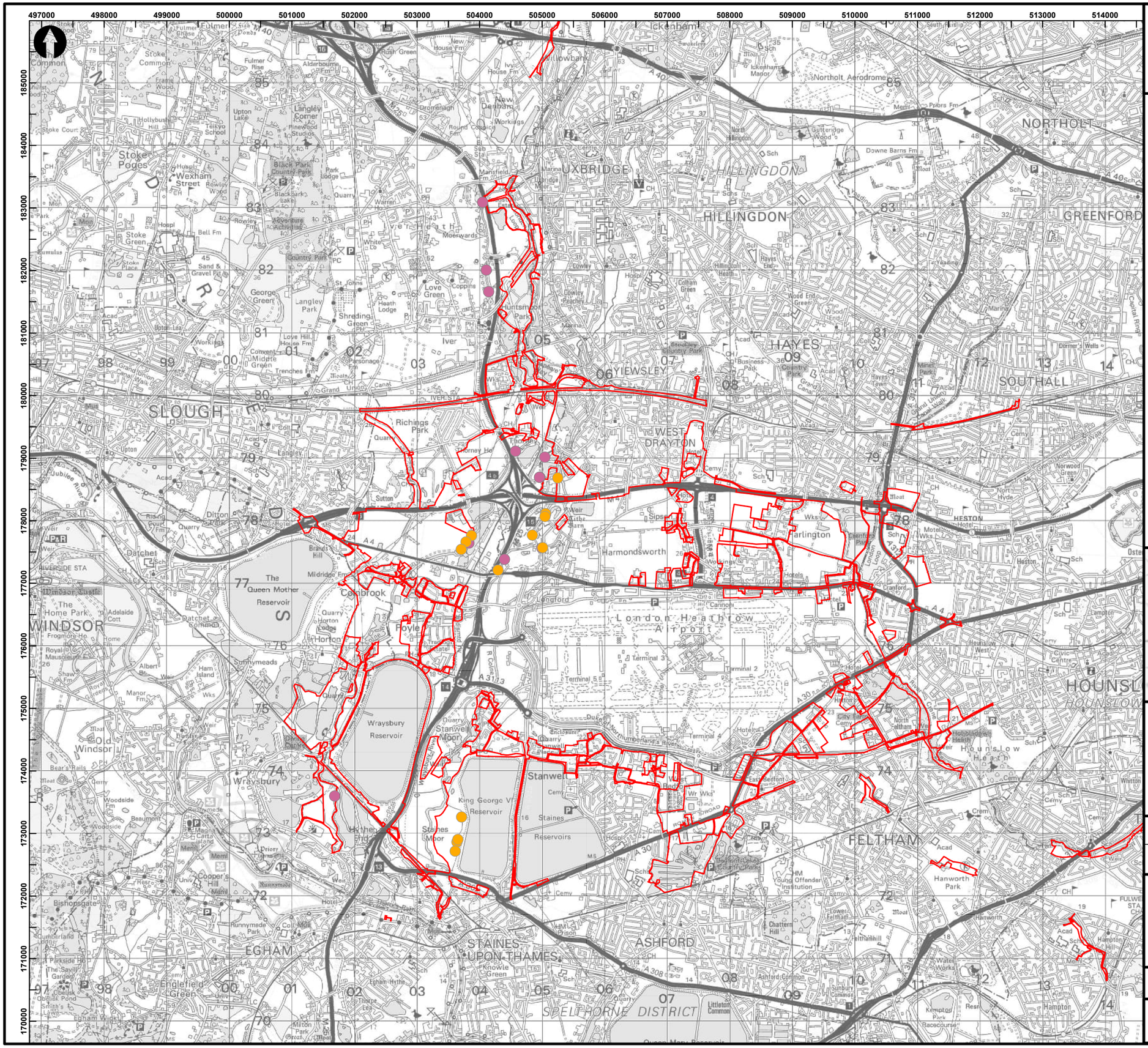
Figure 12A.7: Otter

Activity Page 2 of 3

Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	LT	UD	15/06/2026	FINAL

Location-Level-Sub Series/System-Identifier	Version
3R000-XX-GA-XXX-100015	1.0

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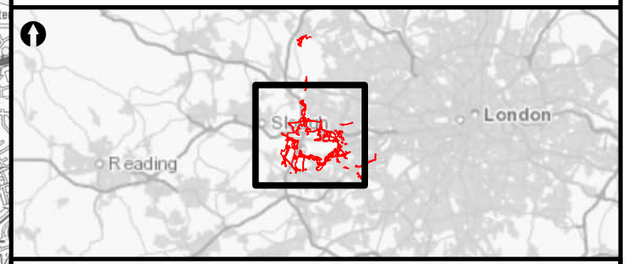
Draft DCO Order Limits

Otter Activity

- Anal jelly present
- Slides present

0 500 1,000 2,000 3,000 Metres

Scale 1:60,000



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Title

Figure 12A.7: Otter

Activity Page 3 of 3

Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	LT	UD	15/06/2026	FINAL

Location-Level-Sub Series/System-Identifier	Version
3R000-XX-GA-XXX-100015	1.0

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Figure 12A.8: Bat activity

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Draft DCO Order Limits

Bat survey area

Bat species

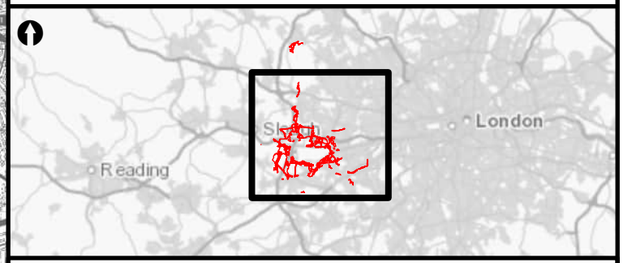
- Unidentified Bat species
- Long-eared bat
- Myotis species
- Daubenton's
- Noctule
- Serotine
- Leisler's
- Nocture/Serotine//Leisler
- Nyctalus species
- Common pipistrelle
- Soprano pipistrelle
- Nathusius' pipistrelle
- Common/Soprano pipistrelle
- Common/Nathusius' pipistrelle

Bat density

- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1
- 1 - 1.4
- 1.4 - 2

0 500 1,000 2,000 3,000 4,000 Metres

Scale 1:75,000



Heathrow

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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.8: Bat Activity

Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	LT	UD	15/06/2026	FINAL

Location-Level-Sub Series/System-Identifier: 3R000-XX-GA-XXX-100016

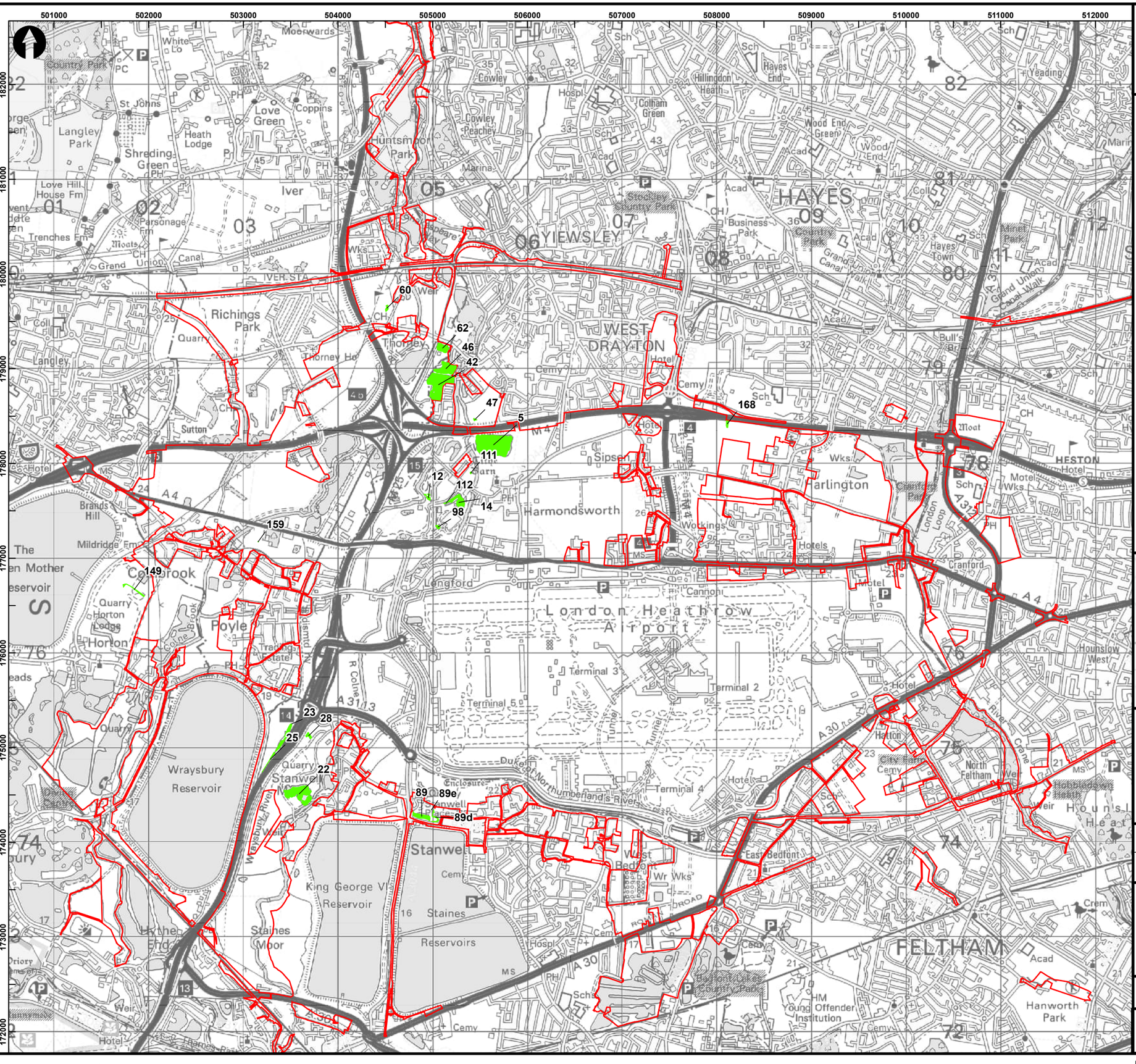
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Figure 12A.9: Great Crested Newt Activity

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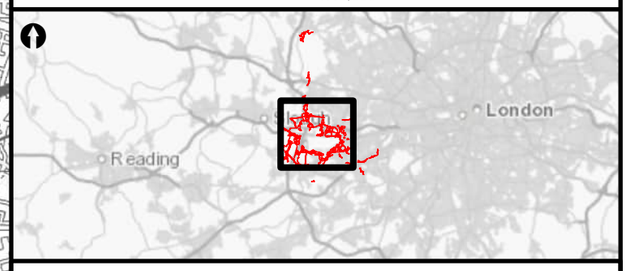
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Positive eDNA and Metabarcoding Result

0 250 500 1,000 1,500 2,000 Metres

Scale 1:40,000



Heathrow

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Project Name: Heathrow Expansion Project	Heathrow Project No.: 3R000

Title

Figure 12A.9: Great Crested Newt Activity

Company	Drawn By	Chk/Approved	Drawn Date	Status
WSP	LT	UD	15/06/2026	FINAL

Location-Level-Sub Series/System-Identifier	Version
3R000-XX-GA-XXX-100017	1.0

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