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ECOLOGY LTD

Preliminary Ecological Appraisal

Iver to Egham

V02

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Executive Summary

Objective	The purpose of this report is to assess the potential ecological impact on the proposed water main route from Egham to Iver and provide mitigation, compensation and enhancement measures as required.
Surveys	A UK Habitat Classification survey of the site was undertaken in September and October 2024.
Findings	The site was a linear route, approximately 12km in length. The route ran from the Affinity Water Egham site to the Affinity Water Iver site. The route passed over multiple rivers, streams and ditches, railway corridors, road networks, residential areas, through hedgerows and woodlands, over ponds as well as across arable land and grasslands. The southern part of the route went through Staines Moor Site of Special Scientific Interest (SSSI), a lowland meadow. A SSSI, multiple Sites of Nature Conservation Interest (SNCIs), ancient woodland and priority habitats were all within a 60m buffer of the route. South West London Waterbodies SPA and Ramsar were within 200m of the route. The habitats along both routes were potentially suitable for: • Invertebrates; • Fish (Bullhead); • Amphibians; • Reptiles; • Nesting, ground nesting and wintering birds including Schedule 1 species of the Wildlife and Countryside Act 1981 (as amended); • Bats including commuting and foraging bats; • Hazel Dormouse; • Badger; • Water Vole; • Otter; • Hedgehog; • Harvest Mouse; • Brown Hare; • Fox and Rabbit. Japanese Knotweed, Virgina Creeper and Himalayan Balsam, invasive non-native species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were present within the urban areas and river corridors along the route.
Potential impacts	In the absence of mitigation, works could damage and destroy habitats associated with designated sites, including internationally designated sites and priority habitats as well as mature trees along the route. The proposed works could kill and/or injure the afore mentioned species or damage the habitats they rest/hibernate or breed in.

Avoidance measures	Staines Moor SSSI should be avoided and alternative route options reconsidered. Where possible Horizontal Directional Drilling (HDD) should be undertaken in sensitive areas such as under river, rail and road corridors, under protected habitats such as the SSSI and SNCIs and priority habitats: lowland meadow, pond, river, woodland and hedgerows. Tree root protection zones should be implemented to avoid trees and their roots. The route should avoid removal of hedgerows and other priority habitats (such as river, woodland and lowland meadow), where possible and use pre-existing gaps in hedgerows or gateways to minimise impact to habitats and species. The implementation of a Precautionary Working Method Statement(s) (PWMS) and ecological supervision in priority habitat areas (lowland meadow, pond, hedgerows, woodland, river), scrub and in tussocky grassland will further reduce the impact to biodiversity. The PWMS will include timing of works to avoid sensitive periods such as nesting bird season. An invasive species management plan should be implemented to avoid encroachment and spread.
Further surveys	The final scope and extent of the further surveys recommended are subject to a review of impacts based on the final detailed design of the works, and subject to agreement with statutory consultees: • Walkover of areas of dense habitat with specific routes cut within dense vegetation to aid visibility where the survey was limited. • National Vegetation Classification (NVC) botanical survey of Staines Moor SSSI if it cannot be avoided or rerouted. • Invertebrate surveys within Staines Moor SSSI if it cannot be avoided or rerouted. • Habitat Suitability Index (HSI) assessment and eDNA surveys of ponds for Great Crested Newts. • Wintering and breeding bird surveys. • Gound Level Tree Assessments of all trees to be removed or impacted by the works. Further emergence or tree climbing surveys may be required. • Bat activity surveys, as necessary, within areas of suitable habitat. • Hazel Dormouse surveys of hedgerows and connected woodland. • An updated Badger walkover will be required ahead of commencement of works. • Hedgerow surveys to inform a hedgerow removal licence, if works are not subject to planning permission.

Biodiversity enhancement	Due to the temporary nature of the works and the recommended replanting/sods removal and careful reinstatement, there will be no habitat permanently impacted however upon agreement with landowners, opportunities should be sought to enhance the habitats along the route such as replanting with native species, the inclusion of wildflower seed in reseeded areas and the provision of wood piles enhancing the area for invertebrates, reptiles and amphibians.

1. Introduction

1.1 Background

Joanna Graham Ecology Ltd was commissioned by Dalcour Maclaren on behalf of their client to carry out a Preliminary Ecological Appraisal (PEA) along a linear route from Egham to Iver. The route started at Egham to the south (grid reference TQ 02256 71730) and finished at Iver, located to the north (grid reference TQ 02275 71754).

The works include the installation of a new water main between the pumping stations at Egham and Iver, see Section 8, Figure 1 for the location map.

1.2 Purpose of Report

This report is designed to inform the client and any stakeholders as to any ecological constraints to the proposed works and to ensure that biodiversity is not impacted by the works. The report outlines recommendations to follow the mitigation hierarchy to avoid, mitigate, compensate and enhance the site. The project will be subject to an Environmental Impact Assessment (EIA) screening to determine if an EIA and therefore a planning application is required. This report will provide early stage baseline data on the potential ecological impacts from the project.

1.3 Site Description

The route was split into five sections that allowed for a more detailed breakdown on habitats and species and their associated constraints within each section:

Section 1: Egham (South)

Section 2: Brett Aggregates quarry

Section 3: Heathrow Colne Valley Biodiversity Site

Section 4: Colnbrook

Section 5: Iver (North)

Section 1 of the route started at the Affinity Water site at Egham Water Treatment Works (WTW), and followed the existing network of roads through the treatment works to the River Thames. The route crossed the river, through broadleaved woodland into Lammas Recreation Ground, an area of amenity ground. The route then followed Wraysbury Road to the A30/M25 underpass where it then ran along a private track. The route passed through both abandoned grassland with large areas of dense scrub as well as horse grazed pasture. The route then crossed Moor Lane, broadleaved woodland, a railway corridor and river into Staines Moor SSSI. The route crossed Staines Moor SSSI which comprised lowland meadow and pockets of Bramble (*Rubus fruticosus* agg.) scrub as well as large areas of waterlogged ground and permanent ponds. A woodland strip formed the boundary between the SSSI and the adjacent quarry.

Section 2 crossed Brett Aggregates quarry which although was no longer a working quarry was still an active industrial site. The route crossed over reclaimed and restored land where some areas had been resown and replanted with trees and some areas were still being constructed with bare topsoil present. The majority of the route in the quarry was through abandoned overgrown grassland dominated by ruderal species. A hedgerow, scrub and footpath formed the boundary between the M25 to the west and the quarry to the east, within the northern section a bund formed a barrier between the quarry to the east and the abandoned grassland fields. A pond and woodland strip formed the boundary between section 2 and section 3.

Section 3 crossed a grassland grazed by sheep which was the limit of the Brett Aggregates land. The route crossed over multiple roads, amenity grassland and broadleaved woodland before entering Heathrow Colne Valley Biodiversity Site. This area was publicly accessible and was likely actively managed for nature conservation This area included grassland with pockets of young trees. The route crossed under the M25 slip road into a second biodiversity area. The biodiversity area had public access tracks within the grassland. The route then bisected an area of broadleaved woodland to Bath Road. The route crossed Bath Road, through a strip of woodland and scrub into an unmanaged abandoned grassland.

Section 4 of the route crossed over a strip of woodland which bound the M25 into an abandoned area of grassland dominated by ruderals and dense scrub. The route then crossed over a railway, and through areas of grassland, wet woodland, broadleaved woodland and land associated with commercial properties. To the south of the Colnbrook Bypass was an area of dense scrub adjacent to a river. The route crossed the river and Colnbrook Bypass into a large grass field where it went north towards a sewage treatment works (STW). Here the route crossed woodland and ditches to Old Slade Lane and the M4. The route crossed the road network into an arable field.

Section 5 of the route crossed multiple arable fields which were separated by hedgerows and woodland. The route then passed through strips of woodland bounding both sides of Thorney Mill Road before crossing a grass field. The route crossed the railway corridor and woodland that bound both sides into an unmanaged grassland. The route crossed through woodland and a hedgerow before joining Court Lane and following pre-existing roads into Iver Water Treatment Works.

See Section 8, Figure 1 for a location map of the site.

The area was very urban with the route crossing over the M25 and M4 as well as many rivers and railway corridors. Heathrow airport was to the east of the route and Slough was to the west. Large waterbodies were present in the local area, notably Wraysbury Reservoir was to the west and King George VI Reservoir was to the east.

1.4 Proposed Development/Works

The proposal is at the early feasibility stage and as such there is not a final design or fixed route. However, a proposed methodology for the works has been drafted. The methodology includes the proposed use of pipejack (Horizontal Directional Drilling (HDD)) a trenchless technique to cross key habitats and infrastructure such as roads, railways and rivers. This report will inform the design to allow where possible, the avoidance of sensitive habitats.

1.5 Personnel

The project was led by Joanna Graham BSc(Hons) MCIEEM who has over 13 years' experience in ecological consultancy conducting ecology surveys including habitat and species surveys. Joanna holds bat, Great Crested Newt (*Triturus cristatus*) and Hazel Dormouse (*Muscardinus avellanarius*) personal survey licences. The field work was completed by Joanna Graham and Beth England BSc(Hons). Beth has over five years' experience completing habitat surveys and holds bat and Great Crested Newt personal survey licences.

2. Methodology

2.1 Desk Study

A desk study was carried out to identify:

- Internationally designated sites within 7km of the site (extended to 15km for sites designated for bats due to core sustenance zones);
- Nationally designated sites within 5km of the site;
- Non-statutory sites and priority habitats within 1km of the site; and
- Protected and notable species within 1km of the site.

Biological records within a 1km buffer from the linear search area for sections 1 to 5 were requested. Due to the temporary nature of the works, 1km was deemed sufficient to provide the necessary information to inform the report. A larger search area was applied for statutory designated sites due to the potential for disturbance of these typically more sensitive sites.

The following sources were consulted:

- Defra Magic Map (accessed on 18th November 2024);
- Nature Spaces Impact Risk Zones (accessed on 18th November 2024)
- Buckinghamshire and Milton Keynes Environmental Records Centre (BMERC) (records returned: 27th September 2024);
- Thames Valley Environmental Records Centre (TVERC) (records returned: 27th September 2024);
- Greenspace Information for Greater London (GiGL) (records returned: 11th October 2024);
- Surrey Biodiversity Information Centre (SBIC) (records returned: 9th October 2024);
- South Bucks District Core Strategy planning documents;
- Runnymede Borough Council planning documents; and
- Slough Borough Council planning documents.

2.2 Field Survey

2.2.1 UKHabs

The route was surveyed on 30th September, 1st – 3rd October and 7th October 2024 by experienced ecologists Joanna Graham BSc(Hons) MCIEEM and Beth England BSc(Hons) using standard techniques and methodologies (CIEEM, 2017) and the nomenclature of Stace (2019). A 60m buffer was surveyed along the proposed route to allow for small changes to the route.

A UK Habitat Classification (UKHabs) survey of the route was carried out following the guidance in The UK Habitat Classification V2.0 (UKHab, 2023). During the survey the habitat type was recorded, noting any potential presence of protected species. Any further surveys required are outlined in Section 4, with avoidance, mitigation, compensation and enhancement measures recommended. The importance of the value of the habitats and species on site has been assessed and defined in a geographical context in line with the guidance set out by CIEEM (2018) and adapted to suit the local circumstances of the site; this is included in Appendix 2 and 3.

2.3 Weather

The weather conditions during the survey were recorded.

Table 1: Weather conditions

Conditions	PEA	PEA	PEA	PEA	PEA
Date	30/09/2024	01/10/2024	02/10/2024	03/10/2024	07/10/2024
Time	09.00-15.30	09.00-16.30	09.00-16.30	09.00-13.30	09.00-14.00
Cloud	8/8cc	8/8cc	8/8cc	8/8cc	8/8cc
Rain	Rain	Rain	Light rain showers	Rain	Light rain showers
Temperature	13°C	12°C	13°C	12°C	14°C

2.4 Limitations

The survey was undertaken in late September/early October which is outside the optimal survey time for habitat surveys of mid-April to September. Large areas of the route could not be accessed due to unprecedented rainfall which had caused flooding within grasslands and woodland. This limited the walkover as well as meant there were no obvious differentiations between permanent waterbodies and flooded areas. Within the urban areas there were many parcels of land that were unmanaged and abandoned. Some of these areas were not accessible, and where entry could be gained due to the unmanaged nature of the land meant that habitats such as scrub were too dense and limited a full survey. Furthermore, dense areas of woodland also could not be fully accessed and therefore a full Badger check could not be completed. Limitations where habitat was not accessible have been recorded on a map and for the purpose of this report, the habitat mapped using aerial imagery to provide an approximate habitat classification. Within the report, it has been recommended that these areas are resurveyed or specific NVC surveys carried out to record the complex ecotone within the SSSI habitats.

A 60m wide buffer was surveyed from the route, this was reduced where the surrounding habitat either could not be accessed, rivers demarcated the route boundaries or the route was in an urban area bound by residential properties. Where a drilled arable crop was present, the field was surveyed via field margins and tram lines. Part of the route crossed a quarry and although the extraction part of the quarry site was disused, the quarry land was still active processing imported substrate. The profile and habitat composition of the land within the quarry area was ever changing, with areas being built up with earth over scrub and ruderal vegetation, the habitats recorded during the PEA survey are likely to change as the quarry site evolves. The quarry land manager/ecologist should be consulted on any habitat and species changes in this area.

Due to the sensitive nature of the records, some of the returned records were only accurate to a grid reference of two to four figures. GiGL did not provide grid references for some records, only approximate distance from the route.

The report is not designed, nor is it required to present a complete inventory of flora and fauna or NVC surveys. The survey team comprised suitably qualified ecologist(s) with good plant identification skills, these ecologists were not skilled in bryophyte or fungal identification; therefore, these elements were not included within the survey. The report provides details of a survey carried out in September/October 2024, the ecological interest of a site can change and therefore any delay to the project may require an updated survey.

3. Baseline Ecological Conditions

3.1 Designated Sites

Table 2 below provides details of all internationally designated sites within 7km of the site (extended to 15km for sites designated due to bats), nationally designated sites within 5km of the site, and non-statutory sites within 1km of the site. Priority habitats on site or within the zone of influence have also been identified. The sites have been ordered by importance and then distance from the site, with internationally designated sites first, then statutory sites, followed by non-statutory sites. The sites have been separated by section, with the distance from the closest section of the route.

Table 2: Designated site results

Site Name	Designation	Description	Approximate Location (at the closest point)
Section 1			
South West London Waterbodies	SPA, Ramsar	SPA: The site qualifies under article 4.2 of the Directive (79/409/EEC) as it is used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed on Annex 1), in any season: • Gadwall (*Anas strepera*) 2.4 % NW Europe population • Shoveler (*Anas clypeata*) 2.1 % NW/Central Europe population In addition, the site supports nationally important numbers of: • Cormorant (*Phalacrocorax carbo*) • Great Crested Grebe (*Podiceps cristatus*) • Tufted Duck (*Aythya fuligula*) • Pochard (*Aythya farina*) • Coot (*Fulica atra*) Ramsar: Ramsar criterion 6 – species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: • Northern Shoveler, 397 individuals, representing an average of 2.6% of the GB population. Species with peak counts in winter: • Gadwall, 487 individuals, representing an average of 2.8% of the GB population.	0.2km W, 0.7km E
Windsor Forest and Great Park	SAC, SSSI	SAC: Annex I habitats that are a primary reason for selection of this site: • *9190 Old acidophilous oak woods with Quercus robur on sandy plains* Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • *9120 Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)* Annex II species that are a primary reason for selection of this site: • *1079 Violet Click Beetle (Limoniscus violaceus)* SSSI: Large area of woodland and parkland providing habitat for invertebrates such as Violet Click Beetle,	3.7km W

		Stag Beetle (*Lucanus cervus*) as well as supporting a rich assemblage of beetles and flies.	
Staines Moor	SSSI	A large area of alluvial meadows supporting a rich flora with the River Colne, three adjacent reservoirs and a pond. The reservoirs support nationally important populations of wintering birds, and the pond supports an extremely rare plant. The grassland supports a wide range of flora, including many rare and uncommon species, it also supports Yellow Meadow Ant (*Lasius flavus*) anthills, some of the oldest known anthills in Britain. 130 bird species have been recorded using Staines Moor. Over sixty species of mollusc have been recorded from the meadows and ditches while the areas of open water and fen support several species of dragonfly	Onsite
Wraysbury Reservoir	SSSI	Part of South West London Waterbodies SPA and Ramsar, supporting nationally important numbers of wintering Cormorant, Great Crested Grebe and Shoveler.	0.2km W
Wraysbury and Hythe End Gravel Pits	SSSI	A mosaic of open water, islands, grassland, scrub and woodland which supports nationally important numbers of three species of wintering wildfowl: • Tufted Duck • Gadwall • Goosander As well as an important assemblage of breeding birds, two nationally scarce invertebrates and locally uncommon plants.	0.4km NW
Langham Pond	SSSI	A pond surrounded by alluvial meadows on the Thames flood plain. The pond supports notable aquatic flora as well as uncommon invertebrates.	1.5km W
Thorpe Hay Meadow	SSSI	A hay meadow supporting calcicole plants, surrounded by old hedgerows, and ditches.	1.6km S
Wraysbury No.1 Gravel Pit	SSSI	Part of South West London Waterbodies SPA and Ramsar, the site is of national importance for wintering Gadwall, as well as locally important for Great Crested Grebe, Cormorant, Pochard, Tufted Duck and Coot.	2.4km W
Thorpe Park No.1 Gravel Pit	SSSI	Part of South West London Waterbodies SPA and Ramsar, the site is of national importance for wintering Gadwall.	3.0km S
Riverside Walk, Virginia Water	LNR	Woodland and river supporting 57 species of bird and 250 species of plant.	4.5km SW
Bedfont Lakes	LNR	Habitats include willow (*Salix* sp.) carr, reedbeds, lakes, scrub, neutral grassland/wildflower meadows and bare soil. The site supports a wide variety of birds, plants, invertebrates as well as pipistrelle (*Pipistrellus* sp.) and Daubenton's bat (*Myotis daubentonii*).	4.8km E
River Thames - Runnymede (RU026)	SNCI	The River Thames is in the top 10% of UK waterways on the grounds of numbers of macroinvertebrate species present. The riparian corridor allows for the movement of species along the river, as well as the	Onsite

		river itself providing an important route for migratory fish as well as an important corridor for migratory birds (the SNCI boundary includes the river (to top the top of the bank) and semi-natural habitats associated with the towpath).	
Hilda May Lake (SP002)	SNCI	Wetland Nature Reserve lake with one large vegetated island and two small tree covered islands. The site supports overwintering and breeding birds.	Onsite
Church Lammas (SP028)	SNCI	Lakes, surrounding grassland and woodland. Designated a SNCI due to the species rich grassland, swamp and reedbed habitats (NVC communities S4 & S14).	Adjacent N
Moor Lane Nature Reserve (SP001)	SNCI	Wetland Nature Reserve with two mesotrophic lakes and a pond with an associated ditch. Designated due to its diverse wetland habitat supporting Red Data Book species such as Small Water-pepper (*Persicaria minor*) and Whorled Water-milfoil (*Myriophyllum verticillatum*) as well as the VC17 Scarce Lesser Water Parsnip (*Berula erecta*) and Thread-leaved Crowfoot (*Ranunculus trichophyllus*). The site is also potentially important for wintering wildfowl.	0.1km NW
Chandos Road (CV032)	CV	County population of significance for Common Toad (*Bufo bufo*).	0.25km SE
River Thames - Spelthorne (SP030)	SNCI	Designated as per River Thames - Runnymede (RU026) above.	0.3km E
Runnymede (including Cooper's Hill and Cooper's Hill Slopes) (RU031)	SNCI	Unimproved grassland with small areas of Ancient Semi-natural Woodland.	0.6km W
Wraysbury II Gravel Pits	BLWS	The site is located adjacent to a SSSI that includes eutrophic standing water and wet woodland, priority habitats under Section 41 NERC Act. The site is important for birds and includes lowland woodland indicator species as well as lowland fen indicator species.	0.6km NW
Birch Green by River Ash (SP017)	SNCI	A sheep-grazed, tussocky, wet grassland with ant hills, lying between the River Ash and a water channel.	0.8km SE
Priority habitat – deciduous woodland	S41 NERC	-	Onsite and adjacent
Ancient and semi-natural woodland	Ancient and semi-natural woodland	-	Onsite
Priority habitat – pond	S41 NERC	-	Onsite
Priority habitat – lowland meadow	S41 NERC	-	Onsite

Priority Habitat –good quality semi-improved grassland (non-priority)	S41 NERC	-	Onsite
Section 2			
South West London Waterbodies	SPA, Ramsar	As per the information in section 1.	0.2km W, 0.6km E
Staines Moor	SSSI	As per the information in section 1.	0.2km W
Arthur Jacob Nature Reserve	LNR	A series of derelict sewage sludge lagoons, that are being transformed into important wetland habitats	1.6km NW
Greenham's Fishing Pond (SP022)	SNCI	A fishing lake in the corner of a field used for grazing. The site is selected for its wetland habitat (NVC communities S13, S14 & S19 are present) which compliments the wider mosaic of wetland habitats present in the surrounding M25 corridor area. The SNCI includes the lake and a 10m buffer strip. The lake supports three nationally important water beetle species.	Onsite
Wraysbury Reservoir (SP008)	SNCI	A steep sloping, improved grassland that is grazed by sheep. The grassland surrounds Wraysbury Reservoir SSSI and is an important buffer for the Wraysbury Reservoir SSSI. The reservoir itself is now excluded from the SNCI as it is included in the SSSI designation.	0.2km W
East of Poyle Meadows (SP012)	SNCI	A range of habitats including pond, swamp, grassland and scrub. Selected for its diverse wetland habitat including NVC swamp communities S4, S7 and S12. The site is an important buffer between the M25 and the Staines Moor SSSI.	0.2km W
West of Poyle Meadows (SP011)	SNCI	A natural river channel with good marginal vegetation along the western bank. The site supports diverse macro-invertebrates and scarce aquatic flora. The selected site includes the river and 8m buffer zone to the west.	0.4km W
Stanwell II (SP018)	SNCI	A mosaic of gravel pits and ditches which support a range of marginal vegetation including fen. The fen vegetation is of County Importance. The wetland habitats, including reed beds support Reed Bunting (*Emberiza schoeniclus*).	1.6km E
Colne Valley Gravel Pits and Reservoirs	BOA	This area encompasses the extensive gravel pits near Wraysbury and the large reservoirs in the area including those at Staines in Surrey. Included in the area are the following habitats: standing water, lowland meadow, wet grassland and woodland, fen, wet woodland, rough grassland scrub and tall herb. The River Colne and the Colnbrook flows through the area.	Onsite

Priority habitat – lowland dry acid grassland	S41 NERC	-	Onsite
Section 3			
Lower Colne (M059)	SINC	Metropolitan importance: originating as chalk streams the rivers Colne, Wraysbury and Frays collectively support a diverse aquatic and marginal flora. There are associated wet meadows, flooded gravel pits, ponds, alder-willow woodland and an old orchard are included within the site at several points, and support further botanical interest including London's only native population of the nationally rare and specially-protected Pennyroyal (*Mentha pulegium*). Water Vole (*Arvicola amphibius*) is also present.	Onsite
River Colne (from County Boundary to Staines Moor), Stanwell Moor (SP025)	SNCI	River Colne is a fast-flowing river with good aquatic and marginal vegetation and areas of bare ground, supporting breeding birds (the SNCI boundary includes the river and an 8m buffer corridor on either side).	0.2km E
Priority habitat – deciduous woodland	S41 NERC		Onsite and adjacent
Section 4			
Priority habitat – deciduous woodland	S41 NERC		Onsite and adjacent
Old Slade Lake	BLWS	Flooded gravel pits surrounded by secondary woodland, scrub, Colne Brook and ruderal grassland. The site includes eutrophic standing water, a priority habitat under Section 41 NERC Act, Small Heath (*Coenonympha pamphilus*) a priority species.	0.06km N
Section 5			
Black Park	SSSI, LNR	The site consists of a variety of habitats comprising dry and wet heath, Alder (*Alnus glutinosa*) carr, mixed and coniferous woodland and small areas of acid grassland. The heathland and Alder carr are of particular importance, as both habitats are very rare in Buckinghamshire. They support specialised communities of plants and animals, including many that are rare or uncommon in the county.	4.7km NW
Kingcup Meadows and Oldhouse Woods	SSSI	Variety of habitats adjacent to the River Alderbourne including woodland, unimproved pastures and semi and unimproved grassland.	4.8km N
Little Britain (M043)	SINC	Metropolitan importance: wasteland, woodland and neutral grassland. The Rivers Colne and Frays support a range of marginal habitats, including valuable areas of wet woodland and areas of unimproved floodplain grassland. The lakes support	0.4km E

		various breeding and wintering birds. The site supports Water Vole and likely Otter in the vicinity. The area is also of importance for bats, with Noctule (*Nyctalus noctula*), Daubenton's Bat and Soprano Pipistrelle (*Pipistrellus pygmaeus*) all present.	
London's Canals (M006)	SINC	Metropolitan importance: London's canals support a wide range of aquatic flora, including locally uncommon species. The canals also support an important invertebrate fauna, a diverse fish community, and breeding waterfowl. London's network of canals provide an important function green corridor for nature in an urban area.	1.5km E
Colne Valley	BOA	Wetland and woodlands surrounding watercourses, including the River Colne.	Onsite
Opposite Iver Station	BNS	Former gravel pit, undisturbed grassland that is grazed by horses. Bee Orchid (*Ophrys apifera*) has been recorded.	0.05km W
Grand Union Canal, Slough Branch	BNS	Silted area of canal with rich selection of submerged and emergent plants.	0.4km N
Grand Union Canal, near Iver North	BNS	Short stretch of canal with marginal plants.	0.4km N
Reedbeds	S41 NERC	-	0.12km E
River	S41 NERC	-	0.18km E
Ancient and semi-natural woodland	Ancient and semi-natural woodland	-	0.21km W
Priority habitat – deciduous woodland	S41 NERC	-	Onsite and adjacent
SAC = Special Area of Conservation, SPA = Special Protection Area, Ramsar = Ramsar, SSSI = Site of Special Scientific Interest, LNR = Local Nature Reserve, BNS = Biological Notification Site, S41 NERC = Section 41 of NERC Act, CV = Conservation Verge, SNCI = Sites of Nature Conservation Importance, BLWS = Berkshire Local Wildlife Site, BOA = Biodiversity Opportunity Area			

3.2 Habitats

Habitats within or immediately surrounding the site are included on the habitat maps in Section 8, Figure 2. Photographs of each habitat have been included within Appendix 4. Photographs have been ordered by section rather than habitat type. The habitats recorded along the route included:

- Neutral grassland (g3) 10, 82, 102, 504, 519, 521, 838;
- Lowland meadow (g3a) 10, 14, 101, 124, 128, 504;
- Other neutral grassland (g3c) 10, 103, 128, 504, 521;
- Modified grassland (g4) 32, 107, 822, 847;
- Woodland and forest (w);
- Wet woodland (w1d);
- Lowland mixed deciduous woodland (w1f) 28;
- Other broadleaved woodland (w1g) 33;
- Other woodland mixed (w1h) 201, 838;
- Species rich native hedgerow (h2a5);
- Other native hedgerow (h2a6);
- Non-native and ornamental hedgerow (h2b);
- Aquatic marginal vegetation (f2d);
- Blackthorn scrub (h3a);
- Bramble scrub (h3d) 519;
- Mixed scrub (h3h) 519;
- Cereal crops (c1c) 601;
- Built-up areas and gardens (u1);
- Developed land; sealed surface (u1b) 89;
- Other developed land (u1b6);
- Artificial unvegetated, unsealed surface (u1c);
- Built linear features (u1e);
- Sparsely vegetated land (s) 838;
- Standing open water and canals (r1);
- Other standing water (r1g) 40, 42, 44;
- Other rivers and streams (r2b);

3.2.1 Neutral grassland (g3)

Along the route were areas of neutral grassland, these were classified as neutral grassland as they included some herbs but were not managed in any way and did not support a lush sward as per intensively managed agricultural or amenity grounds usually associated with modified grassland (g4). Due to a combination of lack of management, neglected ground and dominance of ruderal species, the grasslands did not code to a level 4 habitat.

Neutral grassland was recorded in section 2 to the south of the quarry in an area of derelict (secondary code 82), unmanaged (secondary code 521) self-established habitat, likely associated with the quarry, its previous use (secondary code 838) and movement of substrates. The land was dominated by tall ruderal vegetation including Bristly Oxtongue (*Helminthotheca echioides*), Goats Rue (*Galega officinalis*) and Creeping Thistle (*Cirsium arvense*); Alder saplings were also opportunistically growing. The area was waterlogged in patches (secondary code 504). DEFRA Magic Map highlighted a small strip along the SSSI boundary as lowland dry acid grassland, a priority habitat under Section 41 of the NERC Act (Target Note A).

Further north in section 2, the habitat to the west of the quarry was also derelict (secondary code 82), unmanaged (secondary code 521) and abandoned (secondary code 519). A bund was present separating the area with the quarry, the bund was dominated by tall ruderal vegetation and included ruderal species such as Hemlock (*Conium maculatum*), burdock species (*Arctium* sp.), Common Nettle (*Urtica dioica*) and Creeping Thistle. The grassland was also dominated by tall ruderal vegetation and included Goats Rue, Weld (*Reseda luteola*), Common Nettle, Teasel (*Dipsacus fullonum*), willowherb species (*Epilobium* sp.), Ragwort (*Jacobaea vulgaris*), Common Fleabane (*Pulicaria dysenterica*), Bristly Oxtongue, dock species (*Rumex* sp.), Creeping Thistle and Hoary Mustard (*Hirschfeldia incana*). Where grasses were present these included Tall Fescue (*Schedonorus arundinaceus*), Couch (*Elymus repens*) and Creeping Bent (*Agrostis stolonifera*). The dense ruderal vegetation limited the full area being surveyed and paths were created to be able to cross the area and record the habitat. To the north of section 2, there were sheep grazed (secondary code 102) paddocks that could not be accessed and were surveyed from the boundary. Species included bent species (*Agrostis* sp.), False Brome (*Brachypodium sylvaticum*), Soft Rush (*Juncus effusus*), Yorkshire Fog (*Holcus lanatus*) and Creeping Thistle. The fields had been topped to reduce the thistle prevalence. Given the short-grazed grassland and suboptimal time of year, the habitat was coded to g3 only. Bramble scrub encroached into the field from the boundary hedgerow.

Along the A4 in section 4, was an inaccessible field located between the M25 and a railway corridor, which was surveyed from the road. The field was unmanaged (secondary code 521) and abandoned (secondary code 519). The habitat appeared to be dominated by tall ruderal vegetation such as Common Nettle, Teasel, Hemlock and Bristly Oxtongue as well as patches as scattered scrub (secondary code 10) including Bramble and Elder (*Sambucus nigra*).

Further along the A4 were areas of wet, waterlogged (secondary code 504) grassland that included False Fox Sedge (*Carex otrubae*), horsetail species (*Equisetum* sp.), Pendulous Sedge (*Carex pendula*), Soft Rush as well as Selfheal (*Prunella vulgaris*), dock species, Common Nettle, Creeping Cinquefoil (*Potentilla reptans*) and bent species. There was an area of disturbed ground, cleared for an access route/ground investigation works. Here opportunistic vegetation grew such as Shepherd's Purse (*Capsella bursa-pastoris*), Groundsel (*Senecio vulgaris*), mallow species (*Malva* sp.), Deadly Nightshade (*Atropa belladonna*) and Fat Hen (*Chenopodium album*).

To the north of section 3, a field located by the STW was classified as g3, as it did not meet modified grassland (g4) criteria but the species diversity also did not meet other neutral grassland (g3c) criteria. The grassland included abundant False Oatgrass (*Arrhenatherum elatius*), Yorkshire Fog with occasional sedge species (*Carex* sp.), Greater Willowherb (*Epilobium hirsutum*), Teasel, Silverweed (*Potentilla anserina*) and Ground Ivy (*Glechoma hederacea*). Scattered scrub (secondary code 10) was present including Hawthorn (*Crataegus monogyna*), Bramble and rose species (*Rosa* sp.). A bund was located to the north adjacent to the STW.

This habitat was widespread and common and therefore classed as having low local value.

3.2.2 Lowland meadow (g3a)

In section 1, the route crossed through Staines Moor SSSI, a large area of alluvial flood meadow grazed by cattle (secondary code 101). This area was classed as lowland meadow due to the diverse plant communities present, furthermore it was also highlighted on the DEFRA Magic Map Priority Habitat Inventory as 'Lowland Meadow'. During the survey the majority of the site was waterlogged (secondary code 504) and either inaccessible or the floral species were submerged and could not be identified. The area has been mapped as lowland meadow, however other plant communities and habitat classifications such as fen could exist within the inaccessible areas. In the accessible areas, the following forbs were recorded: Ribwort Plantain (*Plantago lanceolata*), stitchwort species (*Rabelera* sp.), ragwort species (*Jacobaea* sp.), Agrimony (*Agrimonia eupatoria*); and the following grasses, sedges and rushes: Red Fescue (*Festuca rubra*), bent species, Crested Dogs-tail (*Cynosurus cristatus*), Yorkshire Fog, Cocksfoot (*Dactylis glomerata*), Hard Rush (*Juncus inflexus*), Tussock grass (*Deschampsia cespitosa*) and Hairy Sedge (*Carex hirta*). Furthermore, the SSSI citation includes "*The plant communities of the alluvial meadows are complex but range from dry grassland dominated by Red Fescue (Festuca rubra), Sweet Vernal-grass (Anthoxanthum odoratum), bent grass (Agrostis capillaris) and Sheep's Sorrel (Rumex acetosella) to wet communities with Marsh Fox-tail (Alopecurus geniculatus), Tussock Grass (Deschampsia cespitosa), Hard Rush (Juncus inflexus) and Floating Sweet-grass (Glyceria fluitans)".* Within the meadow the grassland was tussocky (secondary code 128) with ant hills (secondary code 124) present. Scattered rushes (secondary code 14) were present throughout suggesting the area is frequently wet. Furthermore, anecdotal evidence from a local resident suggested the site is waterlogged to some degree in all month's bar the height of summer. Towards the northern section there were areas of scattered scrub (secondary code 10) dominated by Bramble with Hawthorn present. The majority of the meadow was waterlogged, to the north of the meadow there were deeper pools of water and OS maps show a pond to be present (see section 3.2.25). This area could not be accessed due to the high water levels.

Lowland meadow is a Section 41 priority habitat of the NERC Act, furthermore the site is also designated a SSSI and therefore this habitat is of national value.

3.2.3 Other neutral grassland (g3c)

Within section 1 the route crosses Lammas Recreation Ground which within the modified grassland had an area of grassland managed as a wildflower strip. The grassland was tussocky (secondary code 128) with Wild Carrot (*Daucus carota*), Corn Marigold (*Glebionis segetum*), Common Knapweed (*Centaurea nigra*), Dove's-foot Cranesbill (*Geranium molle*), Salad Burnet (*Sanguisorba minor*), Ribwort Plantain and Bristly Oxtongue present. Within the boundary of Hilda May Lake SNCI and to the south of the lake were areas of unmanaged (secondary code 521) grassland with large areas of scrub (included in section 3.2.14 below). Species within the grassland included Wild Carrot, Agrimony, St John's Wort (*Hypericum perforatum*), vetch species (*Vicia* sp.), Common Knapweed, Ox-eye Daisy (*Leucanthemum vulgare*), Yarrow, Cocksfoot, False Oatgrass and Ribwort Plantain. Ruderal species such as Bristly Oxtongue, Canadian Cudweed (*Pseudognaphalium canescens*), Teasel and Hemlock were also present. Anthills (secondary code 124) were recorded in the grassland as well as fly tipped rubbish (target note 1). The grassland to the east of the SNCI was flooded during the survey and could not be accessed. To the north of the A30 were horse grazed paddocks (secondary code 103) and a basin designed to temporarily hold flood water. At the time of the survey the basin and the surrounding paddocks were flooded. The grassland adjacent to Moor Lane was classified as Priority Habitat –good quality semi-improved grassland (non-priority) on DEFRA Magic Map. Scattered trees (secondary code 32) were present within the grassland which included mature lime (*Tilia* sp.), Oak (*Quercus robur*) and Horse Chestnut (*Aesculus hippocastanum*).

To the north of section 2 the route buffer crossed a horse grazed paddock (secondary code 103) that was flooded. Species included Perennial Ryegrass (*Lolium perenne*), Ragwort, Bristly Oxtongue, Dove's-foot Cranesbill, Ribwort Plantain, meadow grass (*Poa* sp.), Hoary Mustard, Creeping Cinquefoil and Germander Speedwell (*Veronica chamaedrys*). The field was tightly grazed, waterlogged and muddy, to the west of the field there was a bonfire made from household rubbish (target note 1). Scattered trees (willow species and Elder) (secondary code 32) were present in the centre of the field.

Within section 3 the route crossed Heathrow Colne Valley Biodiversity Site, a large area of grassland. The sward was mainly managed as a short grassland but there were tussocky (secondary code 128) areas in places. The northern field was managed as a long sward. Within the grassland the sward comprised abundant Yorkshire Fog, Cocksfoot, with occasional Ribwort Plantain, Common Knapweed, Annual Meadowgrass, foxtail species (*Alopecurus* sp.), Birds Foot Trefoil (*Lotus corniculatus*), Common Fleabane, Bristly Oxtongue and rare Bermuda Grass (*Cynodon dactylon*), White Campion (*Silene latifolia*), Red Campion (*Silene dioica*) and Hard Rush. Pockets of woodland were present and have been included in section 3.2.8 below.

Further north in section 3, to the north of Bath Road was an unmanaged (secondary code 521) field with abundant by False Oatgrass and Tall Fescue, Common Knapweed, Creeping Thistle, Teasel, Ragwort, Ground Ivy, sedge species (*Carex* sp.) and Creeping Cinquefoil. The field was tussocky (secondary code 128) with scattered scrub (secondary code 10) and anthills (secondary code 124) present. To the north the field was waterlogged (secondary code 504), the species diversity increased around the edge and within wetter habitats with St John's Wort, Selfheal, bent species (*Agrostis* sp.), Soft Rush and Goats Rue present.

Within section 4, to the south of the A4, the grasslands were all unmanaged (secondary code 521) and abandoned (secondary code 519). Some areas were waterlogged (secondary code 504) and other parts were free draining. The grassland was forb rich with Common Centaury (*Centaurium erythraea*), Creeping Cinquefoil, and Selfheal present. Other species included ruderal species such as Teasel which dominated the areas as well as willowherb species, Burdock and Hoary Mustard. There was evidence of Rabbit (*Oryctolagus cuniculus*) which kept the sward short (target note 5). The presence of rubble and defined access route suggested that the area to the west of the railway may have been used as a compound in association with nearby works. North of the A4 was a large area of open grassland dominated by Perennial Ryegrass, with frequent Cocksfoot, Yorkshire Fog, Annual Meadowgrass (*Poa annua*) and White Clover with occasional Yarrow, cranesbill species (*Geranium* sp.), Scentless Mayweed and medick (*Medicago* sp.). Across the grassland were patches of burdock species, Common Nettle and Broadleaved Dock (*Rumex obtusifolius*). On all sides of the M4, where Old Slade Lane crosses the motorway were areas of grassland with ruderal vegetation and very young planted trees. These areas are likely to have been recreated in association with bridge maintenance works, as the adjacent trees were relatively young with tree guards present. Opportunistic ruderal species grew on the disturbed ground.

To the south of Court Lane in section 5 was a grass field that had been subject to tree planting but the site had been vandalised. The grassland was unmanaged (secondary code 521) with scattered scrub (secondary code 10) although the sward was short. There was some evidence of Rabbit (target note 5).

This habitat was widespread and common and therefore classed as having low local value.

3.2.4 Modified grassland (g4)

Within Egham WTW there were areas of modified grassland that were managed by mowing and collecting (secondary code 516, 107). The species included Perennial Ryegrass, Yarrow, Dove's-foot Cranesbill, Germander Speedwell, Dandelion (*Taraxacum officinale* agg.), dock species, Yorkshire Fog, Creeping Cinquefoil and Bristly Oxtongue. There was also a green roof used for amenity use and managed as modified grassland. Scattered trees (secondary code 32) were present across the WTW site. Further north, the majority of Lammas Recreation Ground (secondary code 822) was an amenity field which was managed by mowing and collecting (secondary code 516, 107). The modified grassland was species poor with Perennial Ryegrass, Ribwort Plantain, Yarrow, hawkweed species (*Hieracium* sp.) and White Clover present. Scattered lime species (*Tilia* sp.), Indian Bean Tree (*Catalpa bignonioides*) and Ash trees (secondary code 32) were present across along the car park boundary.

North of Wraysbury Road was an area of modified grassland associated with Lammas Water. The grassland was dominated by Perennial Ryegrass, with abundant Dandelion and frequent Cocksfoot; Daisy (*Bellis perennis*), Red Clover (*Trifolium pratense*) and Ribwort Plantain were also present. Further west along Wraysbury Road the route buffer included Queensmead Lake which was used for angling. The grassland surrounding the lake was managed by mowing and collecting (secondary code 516, 107). An area of managed modified grassland was present along Staines Reservoirs Aqueduct, this area was fenced off and not accessible.

To the south of section 2 was a paddock, used for dog walking. The grassland was managed by mowing and collecting (secondary code 516, 107). Perennial Ryegrass dominated the grassland with abundant White Clover and occasional Creping Cinquefoil, Dandelion, Daisy and Creeping Buttercup. Elder scrub was present next to a small hardstanding platform.

Within section 5 the route crossed a large grass field used as a grazed horse paddock, the grassland was species poor with frequent Annual Meadowgrass, Perennial Ryegrass and Cocksfoot, forbs occurred occasionally in the grassland. To the end of the route within Iver WTW there were areas of modified grassland that were actively managed by mowing and collecting (secondary code 516, 107). Species included Perennial Ryegrass, Cocksfoot, Daisy, Dandelion, Creeping Buttercup, Ribwort Plantain and White Clover. Scattered trees (secondary code 32) including Field Maple and Rowan (*Sorbus aucuparia*) as well as introduced shrub (secondary code 847) such as Dogwood (*Cornus sanguinea*), mahonia species (*Mahonia* sp.) and prunus species (*Prunus* sp.) were present across the WTW site.

Modified grassland is a widespread habitat and was of negligible value.

3.2.5 Woodland and forest (w)

Woodland has been recorded where the route or buffer zone encroaches into woodland which includes habitat features of trees that are collectively more than 5m at the base, which may include unmanaged outgrown hedgerows as well as lines of trees (secondary code 33). The woodland has been coded to a level appropriate given visibility and accessibility limitations. Where habitats don't conform to the UKHabs criteria, the classification has been fully explained and justified.

Woodland in the form of a dense line of trees formed a boundary between the quarry and Staines Moor SSSI. The woodland could not be accessed due to waterlogging to accurately determine all species however Ash, Field Maple (*Acer campestre*) and willow species (*Salix* sp.) were recorded with a dense scrub layer of Buddleia (*Buddleja davidii*), Bramble and Hawthorn. To the west of the M25 in section 4, there was a strip of woodland that was inaccessible and could not be viewed sufficiently from on or offsite and therefore has been classified as woodland and forest only, and not further coded to another level.

3.2.6 Wet woodland (w1d)

Within section 4 to the south of the A4 was an area of wet woodland dominated by willow (*Salix* sp.) with poplar species (*Populus* sp.) present.

The woodland was waterlogged with Bulrush (*Typha latifolia*) present, likely a combination of heavy rainfall as well as water draining from the surrounding hardstanding infrastructure.

The woodland habitat is a Section 41 priority habitat of the NERC Act, this habitat is of county value.

3.2.7 Lowland mixed deciduous woodland (w1f)

Areas of established native woodland along the route have been classified as lowland mixed deciduous woodland.

To the north of the River Thames was a section of deciduous woodland which was also classified as ancient and semi-natural woodland (secondary code 28). Species included Alder, Ash, willow species, Sycamore and Horse Chestnut with a managed ground flora of False Brome, Cocksfoot and Ground Ivy. The route crossed Lammas Drive which was bound by deciduous woodland. Tree species within Lammas Drive and along the edge of Lammas Recreation Ground included Oak, Ash, Laburnum (*Laburnum anagyroides*), Elder, Sycamore (*Acer pseudoplatanus*), poplar species and Cherry (*Prunus padus*), a scrub edge was present. Trees were recorded as being Ivy (*Hedera helix*) clad and with broken limbs. Along the railway corridor there was an area of woodland that was bound by the railway and river and could not be accessed.

In section 4, the arable fields were separated by a woodland strip, species included semi-mature elm species (*Ulmus* sp.), Sycamore, Beech, willow species, Field Maple and Ash with an understorey comprising Bramble, Common Nettle, Dogwood and Hawthorn.

In section 5 along the arable fields, the buffer encroached into areas of woodland comprising Ash, Alder, Hawthorn, Blackthorn, Oak, Cherry, poplar species with ground flora comprising Wood Avens (*Geum urbanum*), tree saplings, Cow Parsley (*Anthriscus sylvestris*), Bramble and Ground Ivy. A mammal hole (target note 7) was recorded in this woodland at TQ040787. There was a parcel of woodland south of the railway corridor, which was included in DEFRA Magic Map as deciduous woodland, a priority habitat. The woodland surrounding Thorney Mill Road was also a priority habitat. An outgrown hedgerow classed as woodland was present to the south of section 5, separating two arable fields. To the west of the M25 the woodland was semi-mature, with obvious signs of planting, likely associated with works to the M25. Species included Ash, Field Maple, Hawthorn, Sycamore, willow species and Hazel. The ground flora varied with some areas sparsely vegetated and other areas comprising dense Pendulous Sedge. This area was highlighted on DEFRA Magic Map as deciduous woodland, a priority habitat. Court Lane was bound by woodland; the woodland was all uniform in age and likely planted in association with nearby infrastructure. The woodland to the north of Court Lane was included in DEFRA Magic Map as deciduous woodland, a priority habitat.

The woodland habitat is a Section 41 priority habitat of the NERC Act, this habitat is of county value.

3.2.8 Other broadleaved woodland (w1g)

Areas of woodland along road verges, river and railway corridors have been included in this criteria, where the species diversity and age was uniform and nonnative tree species were more prevalent. These woodland belts are likely to have been planted as part of the linear infrastructure providing both visual and noise barriers within the urban surroundings.

Along the southern bank of the River Thames in section 1 was a line of trees which included Cherry, Ash, Elder, Oak and Sycamore. These grew between the river and the footpath. Lines of trees (secondary code 33) grew along the boundary of Queensmead Lake. Lines of trees with a dry ditch also formed the boundary of the grassland associated with Queensmead Lake. Bird boxes (target note 2) had been installed on trees within the lake area.

Hilda May Lake SNCI was bound by woodland; this area could not be accessed due to the dense scrub and a locked access gate. Trees recorded included large mature poplar species and Ivy clad London Plane (*Platanus x hispanica*). There were notable broken branches on the poplar and dead wood on the ground. Along section 1, the M25 and A30 corridors were bound by woodland. Species were similar throughout with Field Maple, Ash, Oak and Hawthorn present. Where woodland was associated with linear corridors, ditches were usually present at the edge of the woodland.

In section 2 a woodland strip provided a boundary between grazed sheep fields and the neglected quarry land. In section 3, within Heathrow Colne Valley Biodiversity Site there were pockets of trees including Field Maple, Pedunculate Oak, Hawthorn, Hazel and willow species. Along section 3 woodland bound the M25, Bath Road and A3113, species included Ash, Beech, Hazel, Field Maple and willow species, access to these areas were limited due to the dense Bramble understorey. Hazel Dormouse nest tubes (target note 8) were recorded in the woodlands. Ash dieback disease was recorded in trees around the Poyle Interchange. Around the Poyle Interchange, dead wood was present in the woodland as well as further Hazel Dormouse nest tubes. The woodland ground flora was dominated by dense Bramble with Buddleia, Hemlock and Creeping Thistle. The woodland around the north of the A3113 was highlighted on DEFRA Magic Map as deciduous woodland, a priority habitat.

To the east of section 4, the mixed scrub transitioned into woodland with Oak, Field Maple, Sycamore, Ash, Silver Birch (*Betula pendula*) and willow species present. A dry ditch was recorded in the woodland.

Along section 4, woodland bound the south of the A4 which included lines of trees (secondary code 33) and larger areas of woodland included in mixed woodland and wet woodland below. The woodland habitats included Oak, poplar species, with Elder, Hawthorn and Blackthorn. To the north of section 4, the route went along a track through an area of woodland adjacent to the STW. The woodland was dominated by Crack Willow (*Salix fragilis*) and ditches were present throughout the woodland. Access was limited to the woodland due to the dense scrub understorey. To the north of the M4 was a woodland strip which followed the motorway corridor and field margins. Species included semi-mature Crack Willow, Sycamore and Ash with a Bramble and Hawthorn understorey. A ditch was recorded in the woodland along the M4 boundary.

The woodland habitat provided value to the area and therefore has been classed as local value. Woodland designated a Section 41 priority habitat was of county value.

3.2.9 Other woodland mixed (w1h)

Areas of woodland that had been recently established have been included in this classification. Within the quarry area in section 2, the reclaimed land (secondary code 838) had been planted (secondary code 201) with a variety of trees including Hazel, Alder, Hawthorn and Silver Birch. Although this area doesn't meet the current definition of a woodland, the aim of the planting was to establish a woodland so it has been included in this section. The ground flora had been sown with a grassland and wildflower mix which included Birds Foot Trefoil, Yarrow, Wild Carrot, Common Knapweed and Red Fescue with Bristly Oxtongue and Mugwort growing opportunistically. Further north in section 2, a small pocket of woodland had been planted, this was older than the trees on the reclaimed land but tree guards were still present. Species included Oak and Ash.

Growing along the A3113 boundary the woodland included Ivy clad Ash, Elder, Oak and Scots Pine (*Pinus sylvestris*), a fence prevented the ground flora being viewed.

Mixed woodland was present to the west of Heathrow Colne Valley Biodiversity Site within the Cemex land, access was not possible in this area but it was surveyed from the adjacent grassland. Woodland species included willow species, Field Maple, Leylandii and Buddleia with a Bramble understorey.

Within section 4, the larger area of woodland at TQ 03313 77243 was included in DEFRA Magic Map as deciduous woodland, a priority habitat. Although it was classed as deciduous woodland it comprised Yew (*Taxus baccata*), Lawson's Cypress (*Chamaecyparis lawsoniana*), poplar species, willow species and ornamental species. The ground storey was dominated by Common Nettle, however Virginia Creeper (*Parthenocissus quinquefolia*) was present. A line of Leyland Cypress (*Cupressus leylandii*) was present separating the broadleaved woodland with neighbouring properties.

The woodland habitat provided value to the area and therefore has been classed as local value. Woodland designated a Section 41 priority habitat was of county value.

3.2.10 Species rich native hedgerow (h2a5)

The route passed through four species rich hedgerows.

In section 3, Bath Road was bound to the south by a hedgerow (H1) that grew into woodland. The hedgerow comprised Ash, Field Maple, Dogwood, Bramble and rose species.

In section 4 the south of the A4 was bound by a hedgerow (H2) with scattered Field Maple that merged into dense scrub. The hedgerow comprised Wild Privet (*Ligustrum vulgare*), Hazel, Hawthorn, rose species and Elder.

Within the arable land in section 5, two species rich hedgerows divided the arable fields. Hedgerow 3 comprised Hawthorn, Blackthorn, Field Maple, Bramble and rose species with a base comprising Alexanders (*Smyrnium olusatrum*), Cleavers (*Galium aparine*) and Cow Parsley. Hedgerow 4 comprised Field Maple, Blackthorn, Bramble, Hawthorn and Wild Privet.

Hedgerows are a Section 41 priority habitat of the NERC Act; this habitat is of county value.

3.2.11 Other native hedgerow (h2a6)

Across the route were nine other native hedgerows which contained less than five native species within a 30m stretch.

In section 1, a Blackthorn and Dogwood hedgerow (H5) bound north of Wraysbury Road adjacent to Lammas Water. The unmanaged quarry land in section 2 was bound to the west by an unmanaged Hazel and Field Maple hedgerow (H6) separating the site with a footpath. The hedgerow then increased in diversity with Dogwood, Alder and Ash present. Tree guards were still present within the hedgerow specimens.

Within the quarry land opportunistic scrub grew from the hedgerow into the grassland and is included within section 3.2.14 below. The hedgerow that bound the quarry continued to form the boundary of the sheep grazed field comprised an unmanaged hedgerow comprising Hawthorn, Hazel and Rose with Ash, Cherry, Horse Chestnut, willow species and Field Maple trees. Two species poor hedgerows separated the grassland adjacent to the quarry, a Hawthorn hedgerow (H7) with an associated wet ditch and an overgrown Blackthorn hedgerow with Bramble, rose species and semi-mature Oak trees (H8).

To the south of section 3, a managed hedgerow (H9) bound the river corridor and was included within the landscaping of the dog walking area. The hedgerow comprised Hawthorn, Blackthorn and Dogwood. Bath Road to the north of section 3 was bound to the north by a hedgerow (H10) that grew into woodland to the north, although the hedgerow was still managed from the roadside. The hedgerow and woodland edge included Hawthorn, Sycamore, willow species and Field Maple.

In section 4, a species poor hedgerow (H11) formed a curtilage boundary, the hedgerow comprised Hawthorn, Field Maple and Ash.

In section 5 a hedgerow divided the arable fields and was classed as species poor. The hedgerow comprised Hawthorn, Blackthorn and immature Field Maple; a ditch was present on the southern side. Bounding Court Lane on both the north and south sides by a hedgerow (H13/H14) which included Dogwood, a viburnum species (*Viburnum* sp.), Hawthorn and Field Maple.

Hedgerows have been classed as local value.

3.2.12 Non-native and ornamental hedgerow (h2b)

Within section 1, a firethorn species (*Pyracantha* sp.) hedgerow (H15) formed the boundary between Egham WTW and the A308. A well-managed firethorn hedgerow (H16) also grew along Lammas Recreation Ground carpark.

Hedgerows have been classed as local value.

3.2.13 Aquatic marginal vegetation (f2d)

Marginal vegetation bound the River Colne in section 3, the riparian zone comprised frequent Common Reed (*Phragmites australis*) with abundant ruderal and scrub including Hawthorn, Bramble, willow species, Bristly Oxtongue, Hogweed, Burdock, Teasel and Common Nettle.

3.2.14 Blackthorn scrub (h3a)

In section 4 around the STW Blackthorn (*Prunus spinosa*) scrub grew.

Scrub was a widespread common habitat classed as negligible value.

3.2.15 Bramble scrub (h3d)

Dense Bramble scrub with rose species and Hawthorn grew around and within the grassland associated with Hilda May Lake SNCI within section 1. The scrub was dense and inaccessible and the area was classed as abandoned (secondary code 519). Within Staines Moor SSSI, there were pockets of Bramble scrub within the grassland.

Within section 2, the area to the west of the reclaimed quarry area was dominated by scrub, the survey was undertaken from the access track as the loose ground conditions meant it was not possible to access the scrub area.

Within the southern part of section 3 around the sheep grazed paddock was bound by a hedgerow with overgrown Bramble scrub encroaching into the field. Along the river boundary in the Heathrow Colne Valley Biodiversity Site, Bramble grew amongst scattered trees. An area of dense Bramble scrub was recorded adjacent to the M25 which was surrounded by recently cleared woodland/scrub.

In section 4 a large area of inaccessible Bramble scrub was located next to Colne Brook, some parts of the scrub had been removed to allow the storage of skips, other areas the scrub were too dense to access and could only be surveyed from paths used by livestock. Further north around the STW a large area of Bramble scrub was recorded from the track only as it was too dense to enter.

Scrub was a widespread common habitat classed as negligible value.

3.2.16 Mixed scrub (h3h)

Within section 2, an area of mixed scrub bound the footpath between the quarry and the M25. The scrub was part of the land associated with the M25 and therefore couldn't be accessed. Scrub included Bramble, willow species, young Field Maple with a tall ruderal/scrub edge comprising Goats Rue and Bramble.

Within the southern part of section 3 around Horton Road the horse grazed paddock and adjacent dog paddock were bound by overgrown mixed scrub. Species included Blackthorn, Bramble, Elder and Buddleia. These may have been hedgerows but due to the unmanaged nature and opportunistic spread, the habitat has been classed as scrub. A wet ditch was present within the scrub. Recently cleared woodland/scrub was present within Heathrow Colne Valley Biodiversity Site which comprised Hawthorn and immature willow scrub. Remains of Hazel Dormouse nest tubes were recoorded (target note 8).

Within the eastern part of section 4, the grassland field was bound by mixed scrub which comprised Buddleia, Bramble, Teasel and Hoary Mustard. The scrub was not managed and although dense, desire lines were present where the public had crossed into the field. The dense nature of the scrub meant it could only be surveyed from the edges or from paths made within the scrub. To the south of the A4 the land was unmanaged and abandoned (secondary code 519), scrub had colonised within areas of grassland and adjacent to woodland. Species included Bramble, Blackthorn and Common Nettle; reeds were present indicating the area was wet/waterlogged frequently.

Scrub was a widespread common habitat classed as negligible value.

3.2.17 Cereal crops (c1c)

A drilled crop was present across the arable land in section 5.

This habitat was of negligible value.

3.2.18 Built-up areas and gardens (u1)

Where residential properties and associated gardens verges were within the route buffer they were included in built up areas and gardens. Residential areas were not accessible. The habitat has been classed as negligible value.

3.2.19 Developed land, sealed surface (u1b)

The developed areas around Egham and Iver WTW were categorised as developed land, which included the access tracks around the site and the buildings. Other commercially developed land along the route was included in this category. In section 4, an area of cleared ground used for storing skips was present amongst dense Bramble scrub.

This habitat was of negligible value.

3.2.20 Other developed land (u1b6)

Across the route, the route and buffer included large railway corridors and road networks. The route crossed M25, M4, A4, A30, A3113, Wraysbury Road (B376), Thorney Mill Road, Court Lane, Old Slade Lane, Bath Road, Moor Lane and Horton Road. Grass verges were associated with some of these linear corridors. Within the buffer was also land associated with commercial properties. A small stand of Japanese Knotweed (*Fallopia japonica*) (target note 4) was recorded at TQ 02328 72234 within the grass verge on Wraysbury Road. A carpark and skate park associated with Lammas Recreation Ground was recorded south of Wraysbury Road.

This habitat was of negligible value.

3.2.21 Artificial unvegetated, unsealed surface (u1c)

The quarry area and access tracks were used by large machinery to move across the site and reprofile the land. The area was a mix of compressed earth and topsoil. Opportunistic species grew but vegetation was limited by the removal and replacement of soil and substrates.

The habitat has been classed as negligible value.

3.2.22 Built linear features (u1e)

A footpath ran along the bank of the River Thames, the path included opportunistic species growing from the adjacent habitats. Lammas Drive, a private tarmac access track, provided access to residential properties adjacent to the River Thames. A bonfire (target note 3) was located along the private drive. A tarmac access track provided access to Hilda May Lake SNCI and a footpath ran along the edge of the grassland associated with Hilda May Lake SNCI. A railway ran along the south of Staines Moor SSSI.

To the west of the quarry is section 2 was a footpath/bridleway that followed the M25 boundary. The footpath was linked to surrounding footpaths providing public access under the network on roads. Ephemeral opportunistic species grew along the footpath edge which included Common Toadflax (*Linaria vulgaris*), Weld, Ribwort Plantain, Common Evening Primrose (*Oenothera biennis*) and sedge species. A hardcore footpath ran through woodland and into the Heathrow Colne Valley Biodiversity Site (section 3), crossing north over Bath Road and to the A4.

North of the A4 the route buffer in section 4 included the Colne Valley Trail footpath. Further north in section 4 the route followed a track through the woodland adjacent to the STW and Old Slade Lake.

The habitat has been classed as negligible value.

3.2.23 Sparsely vegetated land (s)

Within the disused quarry (secondary code 838) there was a large excavation of unvegetated disturbed ground that was made up of soil. Although the extraction part of the quarry site was disused the quarry land was still active processing imported substrate. The profile and habitat composition of land within the quarry area was ever changing, with areas being built up with earth over scrub and ruderal vegetation.

The habitat has been classed as negligible value due to the active nature of the site.

3.2.24 Standing open water and canals (r1)

Within the route buffer, lakes (secondary code 44) were present. Along section 1, Queensmead Lake was to the south and Lammas Water to the north of Wraysbury Road. Purple Loosestrife (*Lythrum salicaria*), Common Reed and Hemp Agrimony (*Eupatorium cannabinum*) were recorded around Lammas Water. Hilda May Lake (designated a SNCI) was located to the north of Staines Reservoirs Aqueduct. Staines Reservoirs Aqueduct was a fenced off stretch of water surrounded by managed grassland. Along section 4 the route buffer included a lake, this was not surveyed due to health and safety concerns, however it has been included in the map.

The lakes have been classed as local value as they enrich the habitat resource in the local area.

3.2.25 Other standing water (r1g)

A pond (secondary code 40) was located in section 1 within Staines Moor SSSI at TQ 03004 73628. The SSSI was waterlogged and it was not clear where the pond boundaries were and what was attributed to flooding. DEFRA Magic Map shows the pond as a large pond designated as priority habitat. Staines Moor SSSI citation describes "*A pond at the site carries an aquatic flora which is of national importance; this flora includes one plant which is extremely rare in Britain.*" The citation goes on to say: "*A number of uncommon plants occur in the ponds at this site including one of only three known British localities of the brown galingale Cyperus fuscus.*" To the north of section 2 a pond (secondary code 42) was located at TQ 03690 75130, it was designated as Greenham's Fishing Pond (SP022) SNCI. There was limited access to the pond due to dense vegetation. Another pond was located at TQ 03268 74626 within the grassland to the west of the quarry, Bulrushes and Pendulous Sedge were present around the pond.

In section 4 a pond (secondary code 42) was present in woodland to the south of the A4, there was limited aquatic vegetation however sedge was present suggesting the pond may not be a permanent waterbody. Another pond (secondary code 42) was present in the woodland at TQ 03760 78205 adjacent to Old Slade Lane. The pond could not be accessed or fully viewed.

The priority pond habitat has been classed as county value and the other ponds classed as local value as they enrich the habitat resource in the local area.

3.2.26 Other rivers and streams (r2b)

Within section 1, the route crossed the River Thames and channels that flowed into the river. Wraysbury River flowed either side of the railway and woodland corridor that bound the south of Staines Moor SSSI. At the time of the survey Wraysbury River was very fast flowing and some areas were flooded.

In section 3 the River Colne bound the east of the site running along the boundary of Heathrow Colne Valley Biodiversity Site. Within the northern part of section 3, Wraysbury River ran within the woodland to the west. Although not on site, a large area of Japanese Knotweed (target note 4) was recorded on the banks of Wraysbury River. At TQ 04181 76335 there was a stream running within the woodland boundary.

Along section 4, wet ditches were present in the unmanaged grassland and woodland. The route crossed Colne Brook at TQ 03131 77360, the brook was fast flowing. There was little riparian vegetation with the river edge consisting of unmanaged grass species and scattered willow and Sycamore to the north and dense Bramble scrub with scattered Crack Willow, Alder, Elder and Hazel to the south. Water Mint (*Mentha aquatica*) and burr-reed species (*Sparganium* sp.) were visible in the brook. To the north of section 4, a wet ditch was located at TQ 03343 78054 adjacent to the STW.

The river habitat has been classed as county value as in some areas the river is designated a SNCI and it provides an important blue corridor within an urban landscape.

3.3 Species

The information below is based on the desk study information, field survey data and an assessment of the likely value of the habitats for each species present. Biological records are included for the past 10 years for all species bar bats in which all records are discussed, where historic records (over 10 years old) may further inform the project, they have been referenced.

3.3.1 Plants

Within 1km of the site there were records of Bluebell (*Hyacinthoides non-scripta*) a Schedule 8 species of the Wildlife and Countryside Act 1981 (as amended) and the woodlands provided potentially suitable habitat. There were records of Lizard Orchid (*Himantoglossum hircinum*), also as Schedule 8 species, from Huntsmoor Park, east of section 5. The undisturbed grasslands may support Lizard Orchid and other protected flora. Staines Moors SSSI citation includes the presence of uncommon species such as Small Water-pepper (*Polygonum minus*), as well as uncommon species within the county such as Brown Sedge (*Carex disticha*), Southern Marsh Orchid (*Dactylorhiza praetermissa*), Marsh Stitchwort (*Stellaria palustris*), Strawberry Clover (*Trifolium fragiferum*), Marsh Arrowgrass (*Triglochin palustris*), Meadow Rue (*Thalictrum flavum*) and Upright Chickweed (*Moenchia erecta*). Due to the suboptimal time of year and nature of a PEA report a full botanical list was not obtained, however many notable and protected plants are likely to be present in this location. There were records of Hairy Buttercup (*Ranunculus sardous*) a county rare species and Small Flowered Buttercup (*Ranunculus abortivus*), a county scarce species, within the grassland and near the STW where the route passes to the north of A4 in section 4.

Many records for Invasive Non-Native Species (INNS) were returned in the biological records. Japanese Knotweed was recorded along the route with two small stands at TQ 02328 72234 and TQ 04030 75285, and a large area of the riverbank at TQ 042 770 (target note 4). There were records of Japanese Knotweed at TQ 032 743 within the quarry in section 2 from 2011; no INNS were visible at the quarry site although due to the active nature a full walkover was limited. There were also records from 2011 in the Heathrow Colne Valley Biodiversity Site in section 3, however no stands were recorded during the survey.

Himalayan Balsam (*Impatiens glandulifera*) associated with watercourse and waterbodies, was recorded during the survey at TQ 026 724, TQ 024 718 and TQ 032 746 (target note 4). There were also records within Heathrow Colne Valley Biodiversity Site in section 3, however no Himalayan Balsam was recorded in this location during the survey. Rhododendron (*Rhododendron ponitcum*) within recorded within 1km of the route, it was also recorded during the survey lining Lammas Drive at TQ 02597 71889 in section 1, (target note 4). Virginia Creeper was recorded within the woodland south of the A4 in section 4 (target note 4).

Other records included Perfoliate Alexanders (*Smyrnium perfoliatum*), Giant Hogweed (*Heracleum mantegazzianum*) and Floating Pennywort (*Hydrocotyle ranunculoides*) within 1km. Goats Rue, although not a Schedule 9 invasive species it is an undesirable competitive species, was located within the unmanaged land by the quarry in section 2.

3.3.2 Invertebrates

The route passed through woodlands with dead wood as well as through parks and adjacent to hedgerows and gardens which all provided potentially suitable habitat to support Stag Beetles. There were records of Stag Beetles within 1km of the route, locations were not specified by all records centres. The locations of Stag Beetle records included to the south of section 1 in Egham, within gardens in the Colnbrook and Poyle area south of section 4 and within the Richings Park area and around Colne Brook in section 5 of the route.

There were many invertebrate records including notable A and B species along the whole route, however some records were only provided to two figure grid references. Notable A and B species are other rare or scarce species which do not fall within the red data book categories but are uncommon. Notable A species occur in 30 or fewer 10km squares of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties. Whilst Notable B species occur in between 31 and 100 10km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties. Where grid references were not specified, some records gave Wraysbury Island and Hythe End East as locations. Within section 5, there was a selection of notable A and B bee records from surveys conducted in 2018 from 'Opposite Iver Station' BNS. Staines Moor SSSI supports the oldest known anthills of Yellow Meadow Ant (*Lasius flavus*) in Britain as well as over sixty species of mollusc.

A selection of Section 41 NERC moth species locally recorded included Shaded Broadbar (*Scotopteryx chenopodiata*), White Ermine (*Spilosoma lubricipedia*), Cinnabar (*Tyria jacobaeae*) and a selection of Section 41 NERC butterfly species were locally recorded included: Small Heath (*Coenonympha pamphilus* ssp. *pamphilus*) and White-letter Hairstreak (*Satyrium w-album*). There were multiple records from Staines Moor in section 1 including Musk Beetle (*Aromia moschata*), Small Heath and Common Darter. Small Heath was recorded on the eastern edge of the quarry in section 2. There were also dragonfly records associated with lakes within 1km of the route.

The range of habitats across the route such as shaded woodland, wet woodland, unmanaged grassland and scrub, disturbed ground at the quarry, open grassland, hedgerows, ponds, lakes and the river corridor provided suitable habitat for a wide range of invertebrates.

3.3.3 White-clawed Crayfish

The route passes over and adjacent to the River Thames, River Colne, Wraysbury River, Colne Brook and ditches. No records for White-clawed Crayfish (*Austropotamobius pallipes*) were returned in the records search. Although there were also no records of Signal Crayfish (*Pacifastacus leniusculus*), their presence is known locally within the Grand Union Canal north of section 5. Given the known presence of Signal Crayfish, White-clawed Crayfish have not been considered further.

3.3.4 Fish

There were many watercourses along the route that provided habitat for fish. There were recent records of Bullhead (*Cottus gobio*), a nonpriority Annex II species protected under the Habitats and Species Directive, from the River Colne along section 5 and historic records from Wraysbury River.

3.3.5 Amphibians

There were historic records of Common Frog (*Rana temporaria*) and Common Toad, furthermore there was a conservation verge in Egham within 1km of section 1 known for the Common Toad population. The reservoirs and ponds along the route provided suitable habitat for common species of amphibians.

GiGL provided records of Great Crested Newt from 2018 within 1km, however no location was specified. Magic Map showed no licence returns or data from the 2017-2019 pond surveys map layer. There were 35 waterbodies within 250m of the route, however given the suburban nature of the route, many waterbodies were separated from the route by linear features such as the M4, M25 and railways. Furthermore, 17 of the waterbodies were either reservoirs or fishing lakes which due to the presence of both fish and large populations of waterfowl are of limited suitability for Great Crested Newts.

Of the 35 waterbodies, 10 ponds were within the 250m buffer of the route and not separated by significant linear features, and had the potential to support amphibians such as Great Crested Newt. The hedgerow bases, woodland edges, scrub and tussocky grassland across the route provided potentially suitable terrestrial habitat for Great Crested Newt.

Parts of the site fall within the Slough area, which is part of the district licencing scheme managed by Nature Space. The maps are at a very low resolution but it appears that the site falls within the green and white zones for Slough. The green zone is of moderate suitability and Great Crested Newts may be present. No maps were available from either Nature Space or Natural England for the remainder of the route.

3.3.6 Reptiles

The wet woodland, river corridors and associated riparian habitat, scrub, tussocky grassland, woodland edge, arable field margins and hedgerow bases as well as the close proximity to gardens all provided suitable foraging, resting and hibernating habitat for common species of reptile.

There were records of Slow-worm (*Anguis fragilis*) within 1km from the route, the location was not specified, there were also records of Slow-worm from 450m north of Iver WTW in section 5. There were historic records of Slow-worm in Egham, as well as historic records of Adder (*Vipera berus*) around Moor Lane in section 1 and Old Slade Lake in section 4. There were also historic Grass Snake (*Natrix helvetica*) records within 1km from the route.

3.3.7 Birds

Due to the close proximity to multiple rivers, lakes and reservoirs of which most were subject to a statutory designation such as SSSI, LNR, SPA or Ramsar, the biological records returned thousands of bird records. There were large numbers of records for wintering and breeding waterfowl such as Gadwall, Shoveler, Wigeon (*Anas penelope*), Teal (*Anas crecca*), Scaup (*Aythya marila*), Common Tern (*Sterna hirundo*) and Arctic Tern (*Sterna paradisaea*). The nearby waterbodies provided suitable habitat to support these species. Staines Moor also provided suitable habitat for overwintering waders, the SSSI citation describes how it supports over 130 species of bird.

The river corridors and wet woodland and scrub also provided suitable habitat for Cetti's Warbler (*Cettia cetti*) and Kingfisher (*Alcedo atthis*) which were recorded within 1km.

The hedgerows and woodlands, nearby gardens and ornamental planting contained berries which would support overwintering species such as Redwing (*Turdus iliacus*) and Fieldfare (*Turdus pilaris*) which have been recorded locally.

The arable fields within section 5 of the route provided suitable habitat for ground nesting birds such as Skylark (*Alauda arvensis*) which were recorded locally.

Other notable species recorded included Nightingale (*Luscinia megarhynchos*) as well as records of Dartford Warbler (*Curruca undata*) from Colnbrook. The scrub and woodland habitat could provide suitable nesting habitat for a wide range of species.

The woodland and mature trees as well as the open grassland of Staines Moor SSSI provided suitable breeding and foraging habitat for raptors. There were records of Kestrel (*Falco tinnunculus*), Red Kite (*Milvus milvus*), Hobby (*Falco subbuteo*), Marsh Harrier (*Circus aeruginosus*), Merlin (*Falco columbarius*), Hen Harrier (*Circus cyaneus*), Peregrine (*Falco peregrinus*), Short-eared Owl (*Asio flammeus*) and Tawny Owl (*Strix aluco*).

During the survey Green Woodpecker (*Picus viridis*), Magpie (*Pica pica*) and Robin (*Erithacus rubecula*) were recorded in the SSSI and Lapwing (*Vanellus vanellus*) and Green Woodpecker were recorded within the section 2 along the quarry replanted habitat. A Buzzard (*Buteo buteo*) was recorded along section 4. The survey was undertaken in wet conditions, outside breeding season and bird song was limited in general.

3.3.8 Bats

The site offered a variety of commuting and foraging opportunities, such as along wooded road corridors, railway corridors, woodland edges, field boundaries, hedgerows as well as over Staines Moor lowland meadow and along river corridors. There were also mature trees and residential properties along the route which could provide roosting opportunities.

There were records of bats including unknown bat species, pipistrelle species (*Pipistrellus* sp.), Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle, Nathusius' Pipistrelle (*Pipistrellus nathusii*), Serotine (*Eptesicus serotinus*), Noctule, Brown Long-eared Bat (*Plecotus auritus*), Brandt's Bat (*Myotis brandtii*), Daubenton's Bat, myotis species (*Myotis* sp.), Leisler's Bat (*Nyctalus leisleri*), Natterer's Bat (*Myotis nattereri*) and Whiskered Bat (*Myotis mystacinus*). Many historic records were from Old Slade Lake in section 4, as well as associated with roost surveys within nearby properties along the route.

There were six European Protected Species Licences (EPSL) applications within 2km of the site, these have been separated by the section they were closest to, details found below in Table 3. The closest record was EPSL: EPSM2013-5530, located 416m east of section 1 of the route.

Table 3. Detail of any EPSL applications within 2km of the site.

Licence reference	Detail	Date
Section 1		
EPSM2013-5530	Soprano Pipistrelle	Start: 13/06/2013 End: 31/08/2014
EPSM2009-1080	Soprano Pipistrelle, Common Pipistrelle	Start: 06/10/2009 End: 31/08/2011
2017-30586-EPS-BDX	Soprano Pipistrelle	Start: 01/10/2017 End: 31/10/2017
EPSM2013-5923	Common Pipistrelle	Start: 09/07/2013 End: 30/08/2015
Section 4		
2014-5172-EPS-MIT	Brown Long-eared Bat, Soprano Pipistrelle	Start: 10/03/2014 End: 31/08/2017
Section 5		
2020-49770-EPS-MIT	Brown Long-eared Bat, Common Pipistrelle	Start: 04/11/2020 End: 31/12/2026

3.3.9 Hazel Dormouse

The route passed through areas of woodland in sections 1, 3, 4 and 5, dense scrub in sections 1 and 4 and hedgerows in sections 2 and 5. The woodlands are connected to other woodland within the wider area via wooded corridors following railway and road corridors. The hedgerows, woodland edges and scrub provided potentially suitable habitat for Hazel Dormouse (*Muscardinus avellanarius*). Furthermore, Hazel Dormouse nest tubes (target note 8) were found in woodland in section 3, although there were no records of Hazel Dormice within 1km of the route.

3.3.10 Badger

There were historic records of Badger (*Meles meles*) at Old Slade Lake and records from 2014 of a dead Badger around the M25/M4 interchange also close to Old Slade Lake, in section 4. The route was in a suburban area however the woodlands, railway and road wooded corridors and scrub habitat as well as grasslands could provide opportunities for Badger. Across the survey, areas of dense scrub as well as inaccessible woodland edges limited the survey, furthermore waterlogged and flooded ground also prevented a full survey. Therefore, the presence of a Badger sett in dense vegetation cannot be ruled out.

A mammal hole (target note 7) was recorded in the woodland at TQ 040 787, the hole was Badger shaped but there was no sign of activity such as digging, fresh spoil, hair or footprints.

Table 4: Badger sett/activity locations

Section	Map	Grid reference	Description
5	B	TQ 040 787	One entrance sett, not in current use

3.3.11 Water Vole and Otter

The route passed over and adjacent to habitat suitable for Water Vole (*Arvicola amphibius*) and Otter (*Lutra lutra*) which included multiple waterbodies such as the River Thames, River Colne, Wraysbury River, Colne Brook and ditches as well as large reservoirs and lakes.

There were recent Otter records from a 10km grid square with no location specified. There were also historic Otter records from waterbodies near Moor Lane, in Staines Moor and from Hilda May Lake SNCI in section 1. There were also historic records from Old Slade Lake to the east of section 4.

There were recent Water Vole records from 2015 however the location was not specified. There were also historic Water Vole records near Hilda May Lake SNCI, however it was unknown if the records were from the lake to the north of the route or from Staines Reservoirs Aqueduct to the south. Within section 4 there were historic records from an unnamed lake north of A4 and from Old Slade Lake east of section 4. There were also historic records from Grand Union Canal to the north of section 5, as well as along the River Colne to the east of sections 1 and 5.

3.3.12 Other mammals

Along the route were log piles, woodland, hedgerows and scrub which provided potential resting, foraging and hibernating habitat for Hedgehogs (*Erinaceus europaeus*). There were records of Hedgehogs within 1km of the route with the closest record from 100m north from Iver WTW. Rabbit burrows were recorded at TQ 03188 77262 and TQ 039 754 (target note 5).

The arable and grassland fields provided suitable habitat for Brown Hare (*Lepus europaeus*) which have been recorded locally. The were records of Harvest Mouse (*Micromys minutus*) records from 2013, the lowland meadow habitat within Staines Moor as well as the reeds within the river marginal vegetation provided suitable habitat.

The woodland and scrub habitats as well as the urban nature of part of the route provided suitable habitat for Fox (*Vulpes vulpes*). Fox odour was recorded around the scrub and grassland by Hilda May Lake SNCI in section 1 and the grassland to the north of section 3 adjacent to Bath Road. Fox faeces (target note 6) was recorded within the quarry land at TQ 03200 74491.

4. Ecological Constraints and Opportunities

4.1 Key Constraints to Design

The route and immediate surrounding area provided habitat for:

- invertebrates;
- fish;
- Great Crested Newt and other amphibians;
- reptiles
- nesting, ground nesting and wintering birds including Schedule 1 species,
- bats,
- Hazel Dormouse,
- Badger,
- Water Vole,
- Otter,
- Hedgehog,
- Brown Hare; and.
- Harvest Mouse.

Without mitigation and careful design these species could be impacted by the proposals. Furthermore, INNS were recorded within the route buffer. Table 5 below, details how potential impacts of the works could be avoided, minimised or mitigated.

There were numerous designated sites along the route. The proposed route also crosses over Staines Moor SSSI as well as SNCIs, priority habitats and ancient woodland. The route also falls within the impact zones of SPA, SAC and Ramsar sites. The SSSI should be avoided and other route options considered to avoid impacting the SSSI. Other designated sites such as the SNCIs and priority habitats should be avoided, and HDD used or the route altered to avoid any direct or indirect impacts to the habitats. Where HDD cannot be used, the local authority should be consulted and a working methodology should be agreed to minimise any impact and ensure that the habitats are replaced and enhanced as required.

European designate sites including South West London Waterbodies SPA and Ramsar sites are located within close proximity to the route. A Habitats Regulations Assessment (HRA) is recommended to establish if the proposed works will impact any of the habitats or species these sites qualify for. The HRA will recommend further mitigation as appropriate to reduce the impact to ensure there is no effect on these sites and associated species.

The route falls within the Colne Valley and the Colne Valley Gravel Pits and Reservoirs Biodiversity Opportunity Areas (BOAs), which are important areas for biodiversity, representing a targeted landscape-scale approach to conserving biodiversity and the basis for an ecological network. Enhancements have been recommended taking into consideration the BOA targets.

Table 5: Mitigation proposed

Designated Sites	Potential Impact	Recommendation
Multiple designated sites including SSSI, SNCI, priority habitats and ancient woodland fall within the 60m buffer of the route.	Damage to habitats and species within the designated sites.	Avoid sensitive areas and consider alternative route options. If not possible avoid by using HDD with an appropriate buffer for launch pits. Follow a precautionary working method statement (PWMS) to reduce impacts such as accidental pollution, habitat encroachment and damage to species and habitats within the designated sites.
• South West London Waterbodies (SPA) and Ramsar • Windsor Forest and Great Park SAC, SSSI.	Disturbance to species and damage to habitats via potential pollution (air, noise, water) pathways to European sites.	Habitats Regulations Assessment (HRA) required to assess impact to European designated sites.
Habitat	Potential Impact	Recommendation
• Lowland deciduous woodland • Ancient and semi-natural woodland • Lowland meadow • Lowland dry acid grassland • Good quality semi-improved grassland • Pond • Hedgerows	Damage to priority habitats and associated plant species. Potential for pollution impacts and changes to hydrological regime, which could affect the lowland meadow and associated fauna within Staines Moor.	Avoid all priority habitats. Consider HDD in all areas of priority habitat where there isn't a pre-existing access route to follow. Consult with local authority to agree on a working methodology, keeping works to a minimum area. Where destructive work has to be undertaken, to protect the seedbank remove soil/sods in layers to ensure soil is replaced in the correct order to preserve seedbank. A pollution prevention plan should be implemented.
Staines Moor SSSI	Damage and destruction of SSSI and priority habitats and the associated fauna and flora. Potential impact via direct and indirect pollution.	Avoid and consider an alternative route. If not possible, HDD under Staines Moor SSSI due to the site supporting a wide variety of flora associated with meadows, ponds and wetland as well as birds and invertebrates. Where this is not possible a NVC survey of the SSSI should be undertaken to identify species present and highlighted areas to specifically avoid.
Rivers/waterbodies	Pollution of rivers and downstream impacts and potential pathways to designated sites.	Avoid rivers and waterbodies with no encroachment within a minimum of a 8-10m buffer from top of riverbank.

Hedgerows	Removal of hedgerows	Avoid all hedgerows, where this is not possible, hedgerow surveys may be required to provide supplementary information to inform a hedgerow removal notice.
Ponds	Direct and indirect impact via pollution on a waterbody	Avoid ponds, follow a pollution prevention plan to ensure ponds are not impacted by the proposal. HDD under ponds leaving an appropriate buffer to avoid riparian habitat. The buffer will be dependent on Great Crested Newt survey results.
Scattered trees and woodland	Damage to roots or overhanging branches.	Follow NJUG guidelines or seek advice from an arboricultural consultant. Consideration is required if any trees are protected under Tree Preservation Orders (TPOs).
Invasive species	Risk of allowing species to spread.	It is recommended an invasive species management plan is implemented to avoid spreading which details the correct disposal mechanism.
Species	Potential Impact	Recommendation
Invertebrates	Killing or injuring during works, impact to assemblages.	Avoid Staines Moor and consider an alternative route. Where this is not possible, invertebrate surveys are recommended to highlight important areas to avoid in conjunction with the NVC survey.
Fish	Killing or injuring during works.	Avoid river and use HDD, where this is not possible, further surveys and a fish rescue may be required.
Great Crested Newts	Killing or injuring during works and damage and temporary destruction of terrestrial and aquatic habitat along the route.	Avoid ponds along the route. Undertake HSI and eDNA surveys on ponds within 250m, which are not separated by linear barriers to dispersal. eDNA surveys can be completed 15 April – 30 June. Further surveys may be required if results are positive.
Reptiles	Damage to tussocky and/or unmanaged grasslands, riparian zones, hedgerow/scrub/woodland edge habitat.	Limit working area and ensure vegetative habitat remains on site. Cut vegetation to 15cm from centre of site outwards, to allow reptiles to make their own way off site before cutting to ground level. Work under a PWMS with ecologist supervision within all priority habitat areas. Avoid log piles

		during hibernation period (November to March) and carefully deconstruct by hand when reptiles are active. Reptile surveys may be required if the route or any associated compound results in removal of all vegetative habitat in an area.
Wintering and breeding birds	Disturbance to foraging, breeding, overwintering birds both within habitats on site, as well as within European sites in close proximity.	Undertake wintering and breeding bird surveys to establish the importance of the habitats along the route, specifically for species associated with Ramsar and SPA. Bird data will be required to inform the HRA.
Nesting birds (including ground nesting birds)	Damage nests during any vegetation clearance.	Limit vegetation clearance to minimum amount, carry out vegetation clearance outside nesting bird period (March to August inclusive). If this is not possible, a qualified person should complete a nesting bird check immediately before works proceed. Include a check of ground for ground nesting species such as Skylark. If any nests are found a 5m buffer should be implemented until the chicks fledge.
Nesting birds – Schedule 1 species including Cetti's Warbler and other species associated with nearby waterbodies	Damage and disturbance to nests during any vegetation clearance.	As above, however an appropriate buffer must be implemented if any nests are found to avoid disturbing any nesting birds. Sensitive working methodology such as use of acoustic barriers and timing of works may be required depending on results of bird surveys.
Foraging and commuting bats	Lighting disturbance, temporary impact to foraging and commuting habitat.	Undertake bat activity surveys to highlight important areas for roosting, foraging and commuting bats to determine route design. Avoid night work and any additional lighting.
Bats	Damage and disturbance to bats and their roosts, which included mature trees and impacting overhanging branches which may contain features.	Avoid mature trees. Undertake a GLTA on all mature trees that are impacted by the proposal. Emergence surveys or tree climbing inspections may be required.
Hazel Dormouse	Damage and disturbance to Hazel Dormice, including potential killing	Avoid hedgerows and woodland by using pre-existing gateways or gaps in

	or injuring during works and destruction of habitat during any vegetation clearance.	hedgerows or HDD. Where it is not possible conduct Hazel Dormouse surveys across the route including within connecting woodland habitat.
Badger	Damage of Badger setts, killing/injuring Badger.	Due to access limitations, dense areas of woodland and scrub should be resurveyed over winter with an access route cut into the vegetation. A 30m buffer should be implemented from any confirmed Badger setts, an updated Badger walkover conducted ahead of works commencing.
Water Vole	Killing/injuring Water Vole during works.	Use HDD to avoid rivers. Keep at least 8-10m from the top of the watercourse bank, if this is not possible Water Vole surveys are required.
Otter	Killing/injuring Otter during works.	Use HDD to avoid rivers. Keep at least 8-10m from the top of the watercourse bank, if this is not possible Otter surveys are required.
Harvest Mouse, Hedgehog, Brown Hare, Fox, Rabbit	Killing/injuring Harvest Mouse, Hedgehog, Brown Hare leverets during vegetation clearance. Asphyxiation or crushing of Fox and Rabbit.	Work under a PWMS, with ecological supervision checking vegetation ahead of removal. Avoid mammals' holes, where this is not possible, consider humane removal of species such as Rabbit and Fox.
Hedgehog	Killing or injuring during works or placement of materials.	Avoid all log piles and dead wood, especially in woodland habitat, if not possible work under a PWMS with ecological supervision. Avoid clearance over winter when the species is hibernating.
All mammals	Trapping of small mammals in open excavations.	Cover all openings overnight or leave a ramp to allow any trapped species a means of exit.

4.2 Other Mitigation Requirements

Sections of the route and buffer zone pass through locally designated sites. All designated sites should be avoided, and HDD used with launch pits located away from the designated sites, with Heras fencing or equivalent installed to prevent encroachment. A detailed precautionary working method statement (PWMS) should be followed, detailing the working methodology to ensure the habitats within the designated areas are not impacted. A qualified ecologist should supervise the works and provide the site team with a toolbox talk of the biodiversity that may be encountered during the works and the proposed mitigation. Where designated sites cannot be avoided, the local authority should be consulted for work within SNCIs and ancient woodland.

The local records centres and DEFRA Magic Map provided locations of priority habitats (lowland deciduous woodland, ponds, lowland acid grassland, good quality semi-improved grassland, hedgerows, lowland meadow). In these areas it is recommended a PWMS is followed and that the least destructive working method is used. Where any habitat has to be removed, the minimum amount should be removed. During site works, the soil/sods should be removed in layers and stored separately to ensure it is returned in order to protect the seed bank. A method statement may be required to ensure the replaced soil/sods and any tree/scrub/hedgerow/seed planting is adequately managed to allow re-establishment; this may include watering. All materials should be stored either on hardstanding or on pallets raised above the ground.

The proposed works will include excavations as well as the use of large machinery and HDD, the hydrological regimes of nearby waterbodies could be impacted as well as nearby designated sites. Given the location of the designated sites and waterbodies as well as the waterlogged nature of the site, designated sites could be impacted via pollution pathways. A pollution prevention plan is required to avoid any direct or indirect pollution impacts on all designated sites.

To avoid impact on Hedgehog, Harvest Mouse, reptiles, Hedgehog, Brown Hare, Fox and Rabbit a PWMS should be followed. This will include a toolbox talk of the species that may be encountered during specific sections of the route, and the proposed mitigation. The PWMS will also detail the working methodology to include phase cutting for reptiles, small mammals and ecological supervision within sensitive areas.

4.3 Further Surveys Required

4.3.1 Survey limitations

A full survey of the route and buffer was limited by dense scrub and woodland, flooded areas and health and safety issues. It is recommended that these areas are resurveyed when the final route is agreed. Due to the dense vegetation, small areas of vegetation clearance will be required to cut swathes to allow access.

4.3.2 Invertebrate surveys

Staines Moor SSSI citation acknowledges that it has not been well studied for invertebrates however, given the wide variety of habitats within the site, the presence of over 60 species of mollusc, and the oldest known anthills in Britain; there is potential that the site supports important assemblages of invertebrates. If Staines Moor cannot be avoided, it is recommended that invertebrate surveys are undertaken within the SSSI. An appropriate survey design should be created in conjunction with a qualified entomologist to ensure that the assemblages of invertebrates within the SSSI are surveyed.

Notable species of invertebrates have been recorded within 1km of the route and the abandoned nature of the habitats as well as the variety of habitats along the route provided suitable habitat for a range of invertebrates. Across the wider site, it is recommended that habitat clearance is kept to the minimum required and boundary habitats are left in situ to ensure habitat remains for invertebrates. Habitat should be replaced like for like on site including native fruiting and flowering species with the addition of log piles to provide resting and hibernating habitat for a variety of species.

4.3.3 Botanical surveys

If Staines Moor SSSI cannot be avoided, it is recommended that a National Vegetation Classification (NVC) survey is carried out. A NVC survey is a detailed botanical survey technique that provides a more detailed botanical assessment of the habitat and floral species. NVC surveys should be completed between April and September. The optimum period for a NVC survey varies depending on the habitat type under consideration, and therefore it is recommended that a botanist is consulted to provide further advice. The findings of the NVC survey will inform the final alignment and detailed design of the route.

4.3.4 Fish

At the time of reporting, the proposed methodology included the use of HDD to pipejack under river corridors. Where this is not possible, further surveys should be carried out by a specialist aquatic ecologist and a fish rescue may be required.

4.3.5 Great Crested Newt

Approximately ten ponds were recorded within 250m of the route with no barriers to dispersal. Upon the final route design and working methodology, all ponds within 250m of above ground excavations (i.e HDD launch pits and trenching) should be surveyed. It is recommended that Habitat Suitability Index assessments and eDNA surveys are carried out, eDNA surveys can be conducted between 15 April and 30 June. Any ponds that are assessed as positive for Great Crested Newt DNA should be surveyed following traditional methods (i.e. bottle trapping, torching, netting) to determine the population size class. Population surveys can be carried out between mid-March and June, with three out of the six surveys required between mid-April and mid-May.

4.3.6 Breeding and wintering birds

The habitats on site provided suitable opportunities for overwintering species as well as breeding birds (this includes ground nesting species). The route is located in close proximity to multiple large waterbodies, as well as waterbodies that are designated as SPAs and Ramsar sites specifically for the bird species they support. Moreover, the route passes through Staines Moor SSSI which provides further opportunities for birds. Given the close proximity to statutory and non-statutory designated sites, it is recommended that wintering and breeding bird surveys are carried out. The results of these will determine the importance of the route for birds as well as provide detailed information to support the HRA.

Following the methodology in the bird survey guidelines (Bird Survey & Assessment Steering Group (2024)), breeding bird surveys should be carried out from mid-March until early July and include a minimum of six survey visits. Wintering bird surveys should be completed from November to February and include four survey visits. Survey design should be agreed by a suitably experienced ornithologist, considering factors such as proximity of route to designated sites, important and priority species, potential impact on breeding and wintering species.

4.3.7 Bat activity surveys

The route provides good foraging and commuting habitat, and although the works are temporary and all habitats will be reinstated; the works could take up to 12 months in some areas. Long term temporary works could impact bats by severing foraging and commuting habitats, reducing foraging habitats and disturbing bats. It is recommended that the route working methodology and schedule of works are consulted to determine the likely level of impact. If during the EIA screening process, the proposed works are determined to require an EIA it is recommended that a pre-application discussion is carried out with the LPA ecologists and agree a proportionate survey design. Bat activity surveys could include bat transects and/or automated detector surveys, however consideration should be taken to the health and safety aspects of both surveys due to the presence of waterbodies, waterlogged areas, dense vegetation and the urban nature of the area. The route should be divided into key areas where works will be longer term and impact foraging/commuting habitat. If transects are carried out, one survey visit per season should be undertaken with the use of automated/static detectors. Data from automated detectors should be collected for a minimum of five consecutive nights per month from April to October.

Good standard practice when working around suitable bat habitat should be implemented such as no night working and reduction of artificial illumination. If temporary lighting is required during the works, it should be kept to a minimum and follow the industry standard guidance (BCT & ILP, 2023). No lighting should be directed at key habitat features such as the hedgerows, trees and rivers that bound the wider landscape.

4.3.8 Ground Level Tree Assessment

The chosen route should avoid any mature trees, most of these were located within woodland or lining urban areas. Once the route is agreed, any trees which are proposed to be removed or trees which may be impacted such as trees with overhanging branches should be subject to a GLTA. An ecologist with a bat licence should assess the trees from ground level for features suitable for supporting roosting bats.

Any trees that are assessed as having a PRF-M (a tree with a Potential Roost Feature (PRF) which could support multiple bats i.e. a maternity roost) will require further surveys in the form of tree climbing or emergence surveys. GLTA surveys can be undertaken at any time of the year although winter is recommended due to the lack of leaf cover. Emergence/tree climbing surveys should be undertaken from May to August.

4.3.9 Hazel Dormouse

There were no records of Hazel Dormice within 1km of the route, however the woodlands and hedgerows provided potentially suitable habitat. Furthermore, Hazel Dormouse survey tubes were found in woodland along the route. It is recommended that the route uses pre-existing gateways or gaps in hedgerows, avoiding any woodland and scrub. HDD should be used where pre-existing gaps are not present. If HDD is not feasible, it is recommended that Hazel Dormouse surveys are carried out. To survey for Hazel Dormice, nest tubes should be set up across the hedgerows, woodland and other areas of woodland that connect to the habitats along the route. Surveys are based on a point system where tubes are surveyed from March until October, each month is given a value where key months such as August and September are scored highest. Due to the size of the site, it is recommended that hedgerows and woodland are subsampled splitting the route into parcels. Each parcel will require the installation of 50 nest tubes, checked across the season to ensure the tubes are in situ to score a minimum of 20 points. Upon completion of the survey all nest tubes will be collected.

4.3.10 Badger

Large areas of the route comprised dense scrub and woodland, these habitats were potentially suitable for Badger. Dependent on the results of the updated PEA survey on the areas where access was restricted, a Badger survey may be required.

During the PEA a historic single entrance sett was recorded that was classified as not in current use. Badgers are mobile creatures and therefore this sett could become active. It is recommended that once the exact route is confirmed the distance from the sett is established and if less than 30m, this sett is monitored ahead of works commencing. Moreover, six weeks prior to the works commencing it is recommended that a Badger walkover is carried out to ensure no new setts have been established within the route buffer zone.

4.3.11 Water Voles

At the time of the reporting the proposed methodology, although not finalised, included the use of HDD to pipejack under the River Thames, Colne Brook and Wraysbury River. With the route being located over 10m from the riverbanks. It is recommended that this option is used as it avoids the river corridors and associated riparian zones. Launch pits should be located at least 8-10m from the top of the watercourse bank to ensure no burrows are impacted as well as following the guidance within Runnymede 2030 Local Plan's Policy EE12: Blue Infrastructure. Where this is not possible or the proposed methodology changes, Water Vole surveys should be conducted along the river corridors. Two Water Vole survey visits should be carried out, the first between mid-April and June and the second from July to September.

4.3.12 Otter

As per the Water Vole recommendation, HDD should be used to avoid the river and any impact to the riparian zone, with launch pits at least 8-10m from the top of the watercourse bank. Where this is not possible, Otter surveys should be carried out. These can be undertaken alongside Water Vole surveys. Due to the location of multiple river channels, Otter may commute across the site. Precautions for commuting Otter should be included within a PWMS to ensure excavations are covered overnight, waterbodies are not illuminated at night and Heras/security fencing allows for the movement of mammals across the work site.

4.4 Opportunities for Enhancement

Parts of the route included Section 41 NERC habitats and SNCIs. Where these habitats and designated sites cannot be avoided it is recommended that the habitat removal is kept to a minimal and all habitats are replaced and enhanced. Upon agreement with the relevant landowners, enhancement could include:

- the reseeding of a wildflower seed mix within grassland habitats;
- replanting of native hedgerow species to create a species rich hedgerow;
- replanting woodland to include native species of local provenance with an appropriate woodland seed mix to create suitable woodland ground flora; and,
- removal of INNS from the site buffer area.

Furthermore, to enhance the habitats along the route, any remaining wood from vegetation clearance could be left in piles along the field boundaries, hedgerows and woodland edges to provide opportunities for resting and foraging invertebrates including terrestrial stage amphibians and reptiles.

Parts of the proposed route fell within Colne Valley Gravel Pits and Reservoirs BOA and Colne Valley BOA. Colne Valley Gravel Pits and Reservoirs BOA targets the management of gravel pits and reservoirs for birds as well as the management of associated habitats and management of grassland habitats. Colne Valley BOA targets the management and restoration of rivers, streams, eutrophic standing water, orchards and wood pasture and parkland. It further targets the management, restoration and creation of reedbeds, woodlands, lowland meadows, purple moor grass and rush pastures, fens, ponds and hedgerows. Many of these habitat types are found along the route and therefore enhancements such as the restoration and replanting of hedgerow gaps with native planting, seeding of grassland and replanting woodland will contribute to the BOA targets.

5. Conclusions

The site was suitable for a range of wildlife including invertebrates, fish, amphibians, reptiles, nesting, ground nesting and wintering birds, including Schedule 1 species, foraging, commuting and roosting bats, Hazel Dormouse, Badger, riparian mammals and other mammals such as Harvest Mouse and Hedgehog. Furthermore, the proposed route and buffer zone was located in designated sites including Staines Moor SSSI, SNCIs and ancient woodland as well as through priority habitats included in Section 41 of the NERC Act such as the hedgerows, woodland, lowland dry acid grassland, good quality semi-improved grassland, pond(s) and lowland meadow. It is firstly recommended that Staines Moor SSSI is avoided and an alternative route considered, this will avoid the impact to the SSSI as well as avoiding any further future impact when maintaining the pipeline. Secondly, to avoid impact to other statutory and non-statutory designated sites it is recommended that HDD is used. If Staines Moor SSSI cannot be avoided, and if HDD cannot be used, the final alignment of the open cut trench should be informed by the findings of detailed ecological surveys, most notably the botanical survey, and through consultation with Natural England, to find the least impactful route through the SSSI. The local authorities should be consulted regarding works within locally designated sites. Given the close proximity to the SPA, SAC and Ramsar sites, a HRA is recommended to establish the potential impact of the works to these sites and the qualifying features (habitats/species) they support.

It is recommended that once the route is finalised areas of dense habitat which could not previously be surveyed are surveyed to establish the habitat type and if it has the potential to support any protected species including Badger as well as any INNS. Further surveys are recommended for wintering and breeding birds, Great Crested Newt, botanical surveys, invertebrates and bats. The project is due to be screened to determine if an EIA is required, if an EIA and therefore planning is required, it is recommended that given the long term but temporary nature of the works that a pre-application discussion is carried out. As the route falls within the catchment of six separate local authorities, a discussion with the relevant LPA ecologists should be undertaken to agree a proportionate survey design for the aforementioned habitats and species.

A PWMS should be produced to ensure working methodologies do not impact habitats or protected species. All works in statutory and non-statutory designated sites should be supervised by an ecologist. A method statement should be produced to ensure the successful re-establishment of habitats which should include re-seeding and watering requirements. INNS were recorded within the route buffer, an invasive species management plan should be implemented and followed to ensure any invasive species are avoided and not spread. Due to the waterlogged nature of the site, location of designated sites and waterbodies present, there is a risk that the works could cause hydrological changes and impact statutory sites both directly and indirectly. A pollution prevention plan should be implemented following the 'Guidance for Pollution Prevention' (GPPs) documents and Defra's 'Pollution prevention for businesses' guidelines.

Where HDD cannot be used and key habitats/habitat features/species cannot be avoided, further surveys may be required for hedgerows, fish, Ground Level Tree Assessments for bats, Hazel Dormouse, Water Vole and Otter. Furthermore, due to the mobile nature of Badger, an updated site walkover should be undertaken before works commence.

This report will support an EIA screening to determine if an EIA is required and if subsequently planning permission is required or if the works fall under permitted development. Notwithstanding the screening decision, the guidance within South Bucks District Core Strategy, Runnymede 2030 Local Plan and Slough Borough Council's Core Policy should be followed, see Appendix 1. South Bucks District Core Strategy includes biodiversity within Core Policy 9: Natural Environment. Runnymede 2030 Local Plan includes Policy EE9: Biodiversity, Geodiversity and Nature Conservation, EE11 on Green Infrastructure and EE12 on blue infrastructure. Slough Borough Council includes Core Policy 9: Natural and Built Environment. These policies include seeking biodiversity gains through enhancement, not harming nature conservation interests, seeking the conservation, enhancement and net gain in local biodiversity resources within the BOAs as part of development proposals, avoiding habitat fragmentation and maintaining existing corridors which include both green and blue infrastructure. Policies also include the protection of statutory and non-statutory sites, following the mitigation hierarchy to avoid important habitats where possible. These policies should be followed and it is recommended that the Staines Moor SSSI is avoided and the route reconsidered, as well as the avoidance of important habitats by use of HDD. A HRA is recommended to establish impact to internationally important sites as well as further surveys for birds, Great Crested Newt, botany, invertebrates and bats to provide further information to inform the site design and the appropriate options to avoid, mitigate or compensate following the mitigation hierarchy.

The replacement and enhancement of habitat along the route will help contribute towards the conservation and restoration of habitats and species, strengthening the biodiversity corridors, adhering to the policy goals as well as the BOA targets.

6. References

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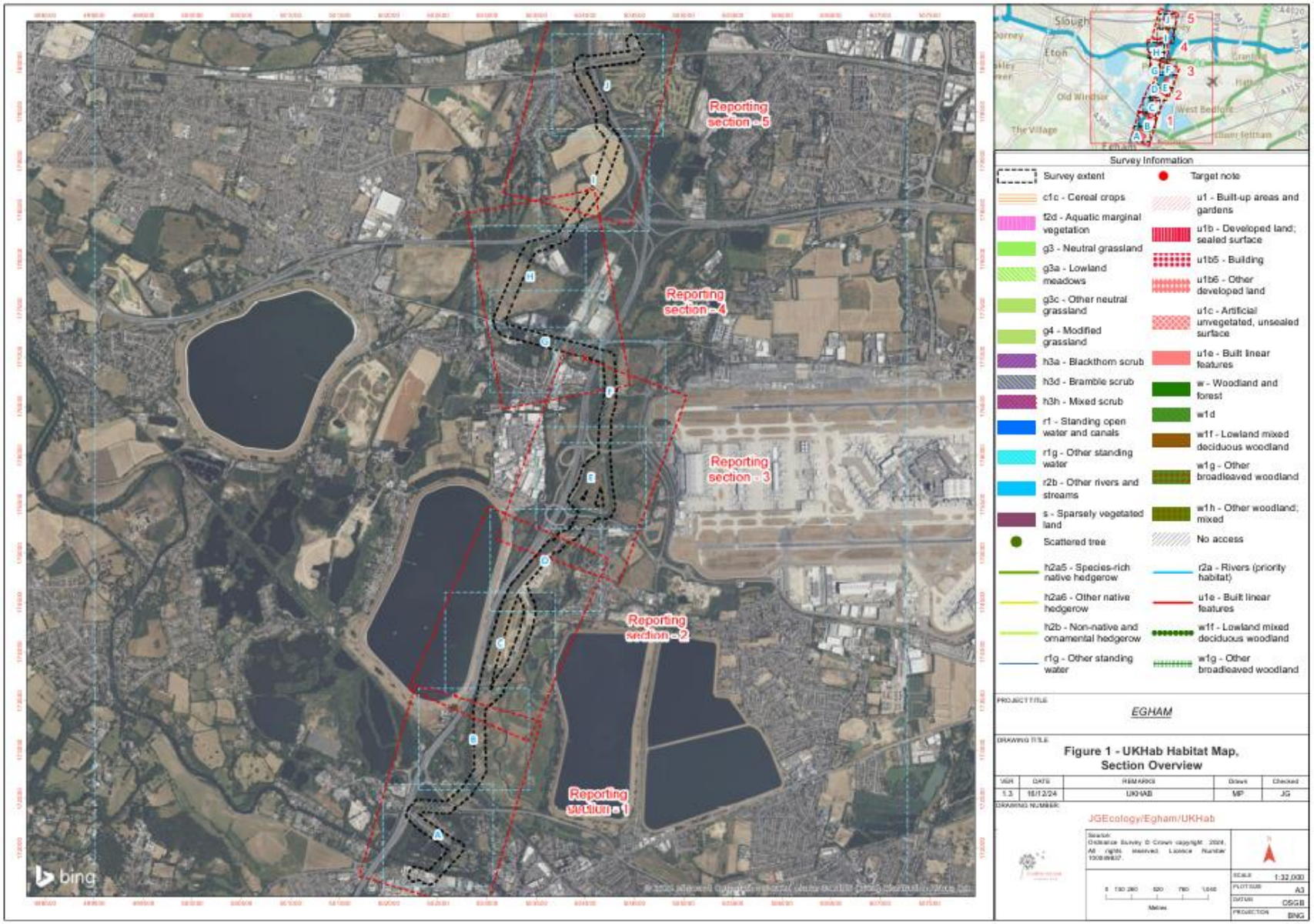
7. Figures

7.1 Location Map

See next page.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t2d - Aquatic marginal vegetation
g3 - Neutral grassland
g3a - Lowland meadows
g3c - Other neutral grassland
g4 - Modified grassland
h3a - Blackthorn scrub
h3d - Bramble scrub
h3h - Mixed scrub
r1 - Standing open water and canals
r1g - Other standing water
r2b - Other rivers and streams
s - Sparsely vegetated land
Scattered tree
h2a5 - Species-rich native hedgerow
h2a6 - Other native hedgerow
h2b - Non-native and ornamental hedgerow
r1g - Other standing water
u1 - Built-up areas and gardens
u1b - Developed land; sealed surface
u1b5 - Building
u1b6 - Other developed land
u1c - Artificial unvegetated, unsealed surface
u1e - Built linear features
w - Woodland and forest
w1d
w1f - Lowland mixed deciduous woodland
w1g - Other broadleaved woodland
w1h - Other woodland; mixed
No access
r2a - Rivers (priority habitat)
u1e - Built linear features
w1f - Lowland mixed deciduous woodland
w1g - Other broadleaved woodland
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Figure 1 - UKHab Habitat Map, Section Overview
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7.2 Habitat Map

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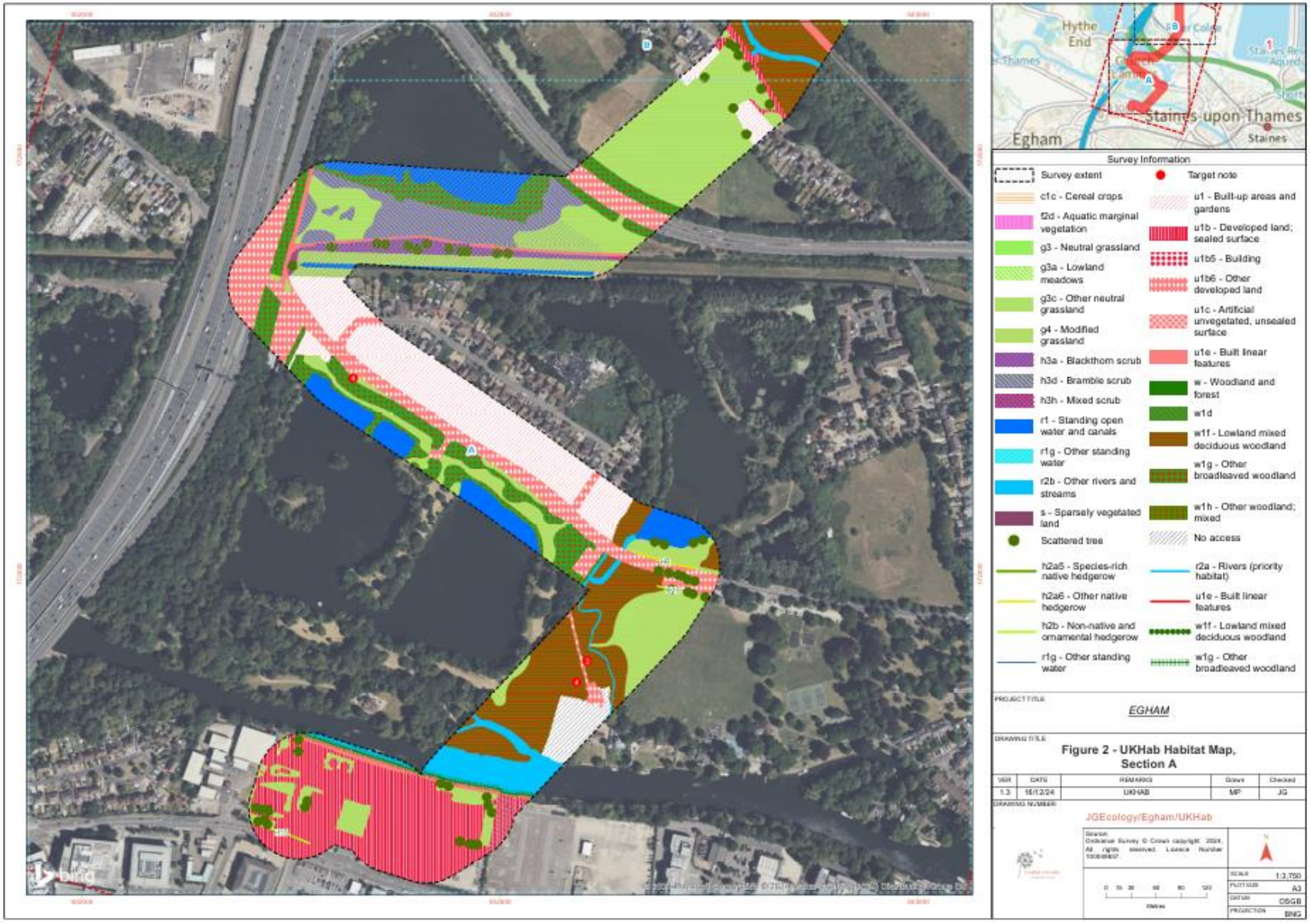
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Egham
Staines
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r2a - Rivers (priority habitat)
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Figure 2 - UKHab Habitat Map, Section A
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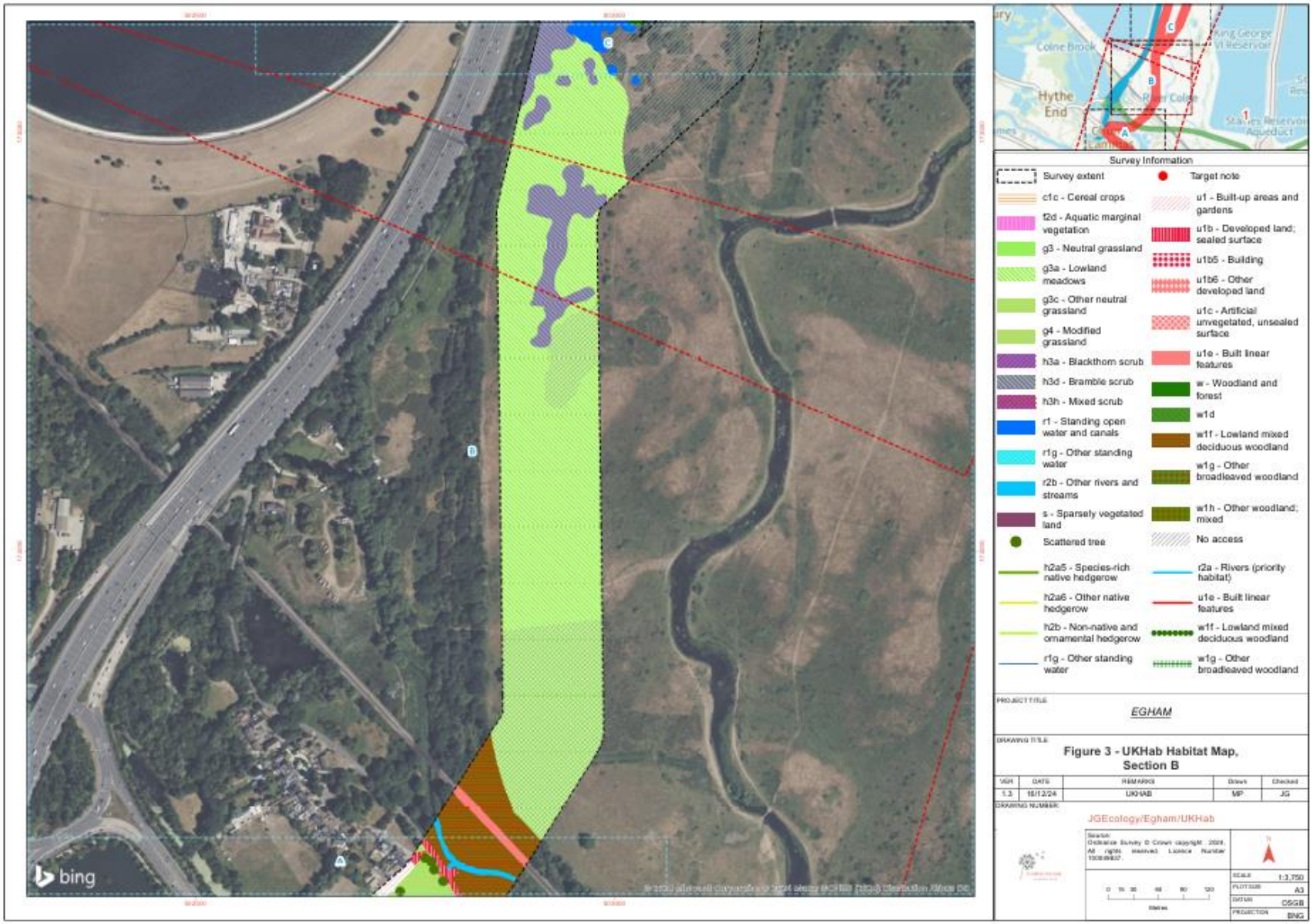
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u1c - Artificial unvegetated, unsealed surface
g4 - Modified grassland
u1e - Built linear features
h3a - Blackthorn scrub
w - Woodland and forest
h3d - Bramble scrub
w1d
h3h - Mixed scrub
w1f - Lowland mixed deciduous woodland
r1 - Standing open water and canals
w1g - Other broadleaved woodland
r1g - Other standing water
w1h - Other woodland; mixed
r2b - Other rivers and streams
No access
s - Sparsely vegetated land
r2a - Rivers (priority habitat)
Scattered tree
u1e - Built linear features
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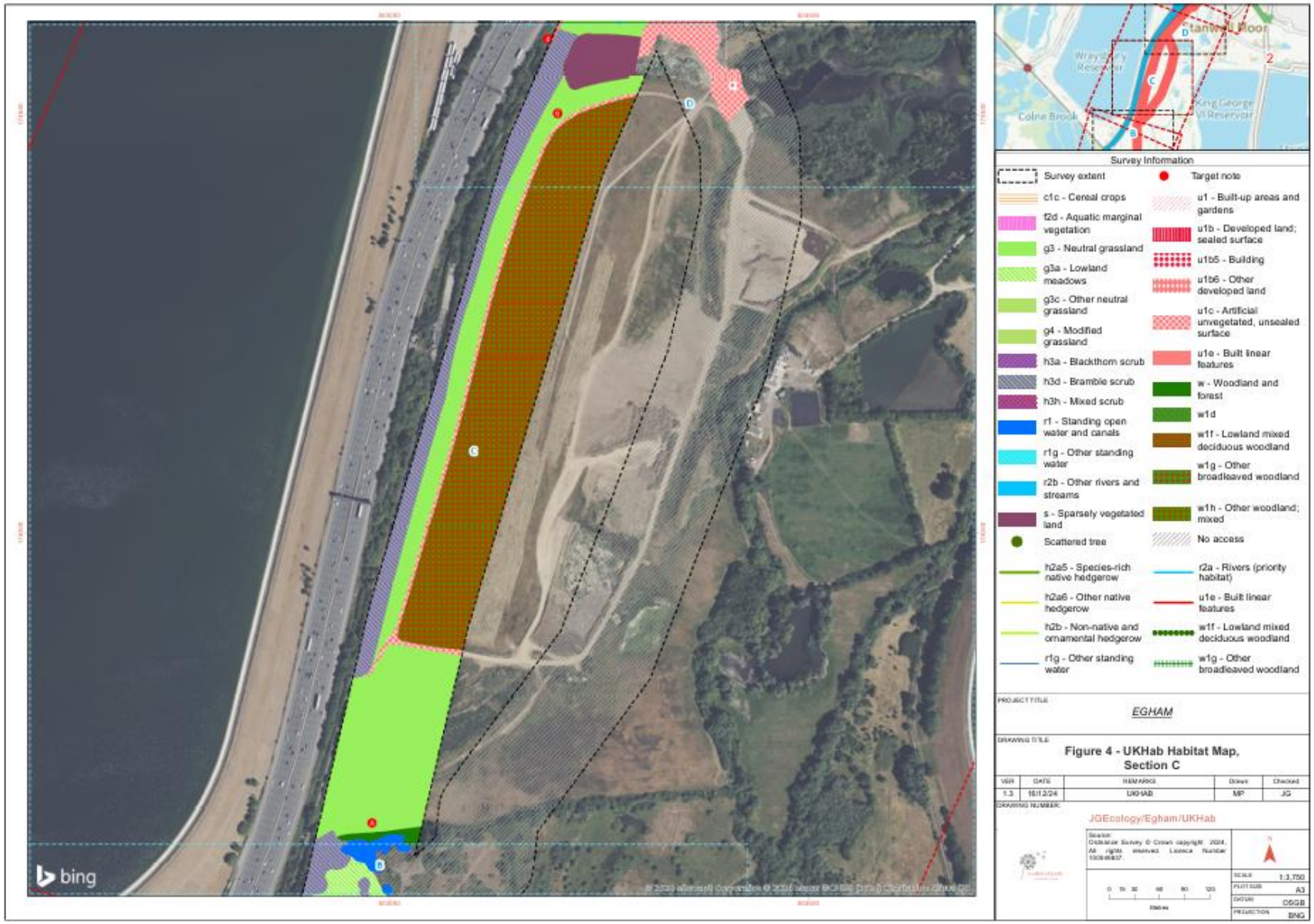
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u1b6 - Other developed land
g3c - Other neutral grassland
u1c - Artificial unvegetated, unsealed surface
g4 - Modified grassland
u1e - Built linear features
h3a - Blackthorn scrub
w - Woodland and forest
h3d - Bramble scrub
w1d
h3h - Mixed scrub
w1f - Lowland mixed deciduous woodland
r1 - Standing open water and canals
w1g - Other broadleaved woodland
r1g - Other standing water
w1h - Other woodland; mixed
r2b - Other rivers and streams
No access
s - Sparsely vegetated land
r2a - Rivers (priority habitat)
Scattered tree
u1e - Built linear features
h2a5 - Species-rich native hedgerow
w1f - Lowland mixed deciduous woodland
h2a6 - Other native hedgerow
w1g - Other broadleaved woodland
h2b - Non-native and ornamental hedgerow
r1g - Other standing water
EGHAM
Figure 4 - UKHab Habitat Map, Section C
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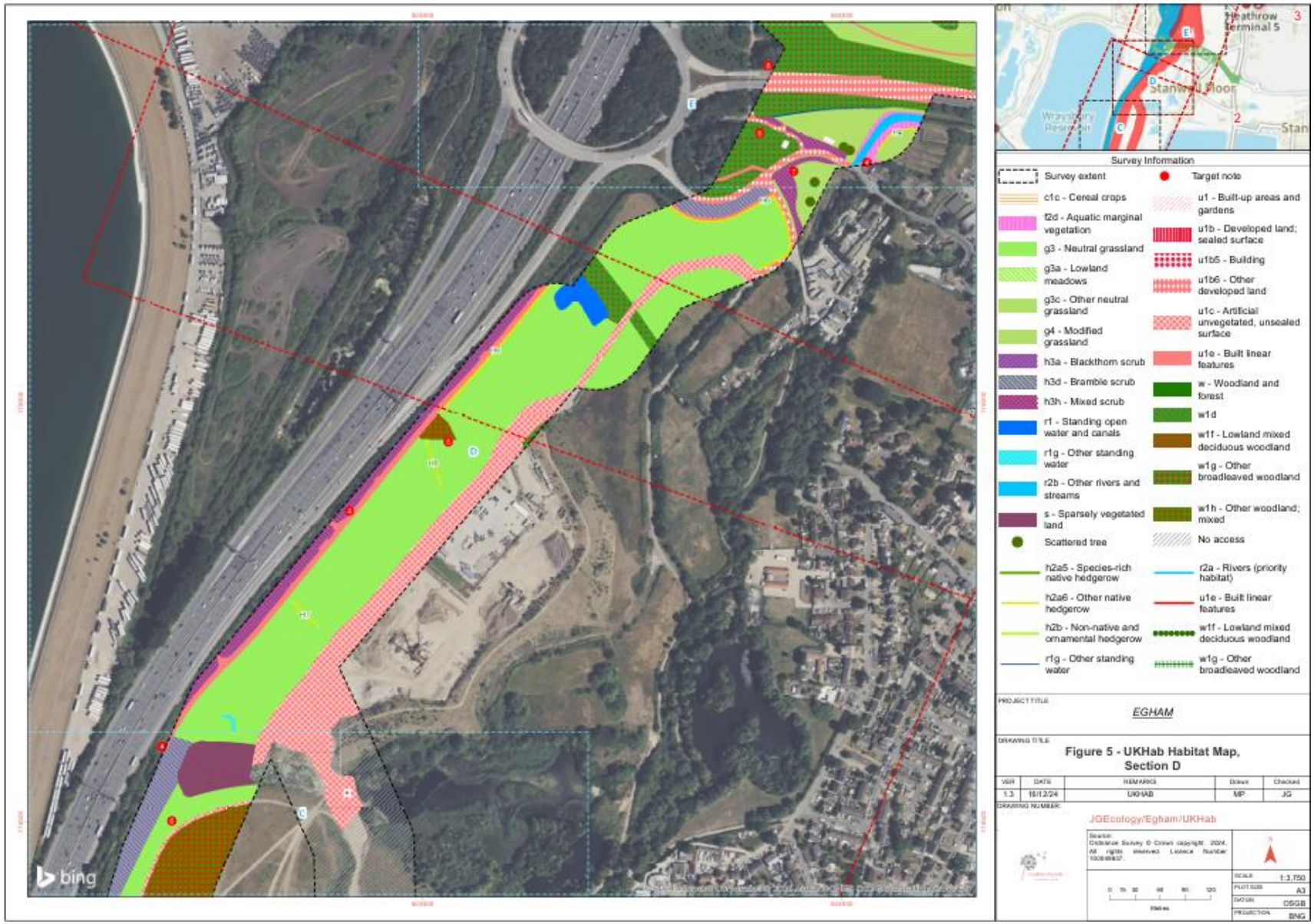
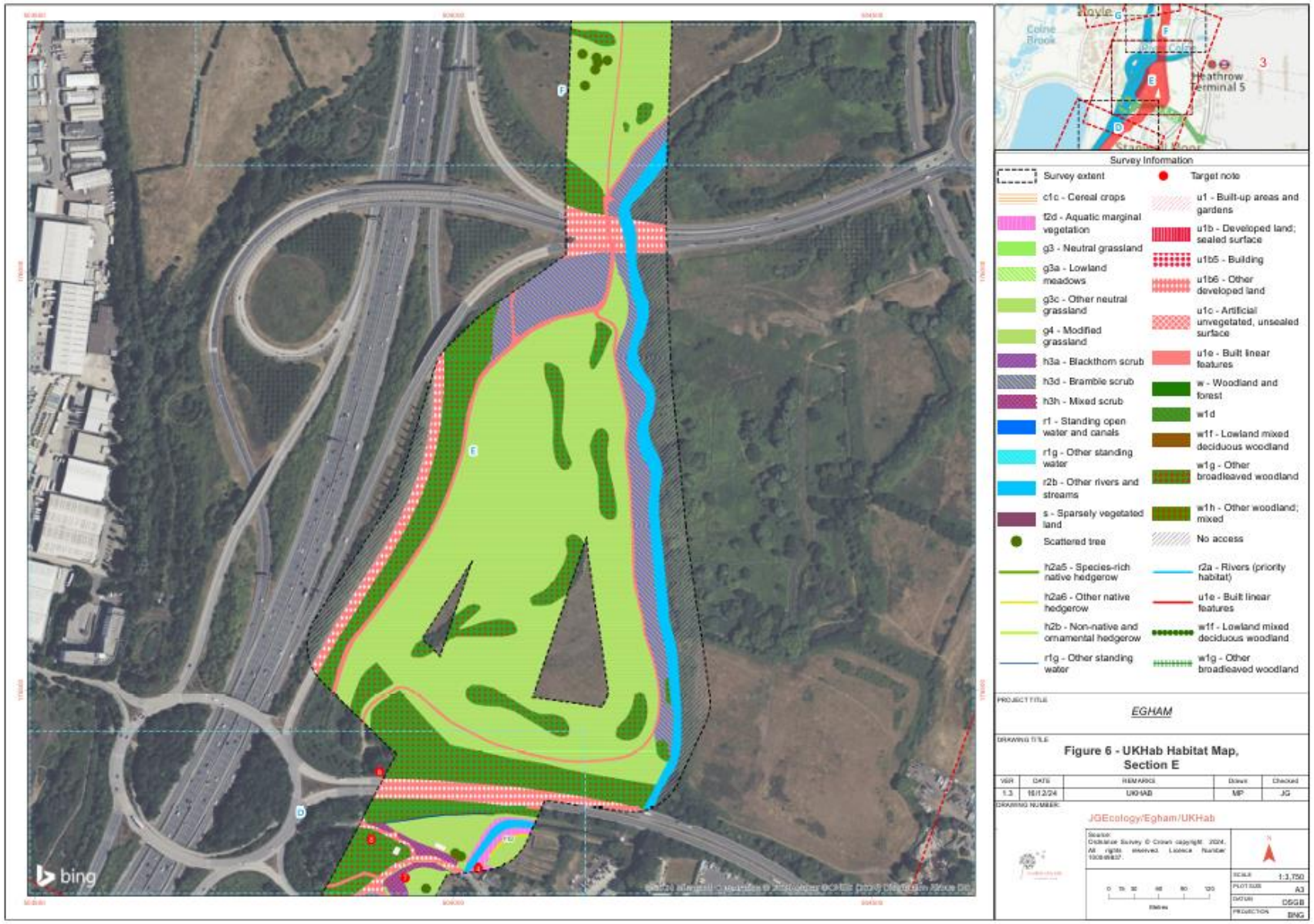
OSGB
BNG


Survey Information
Survey extent
Target note
c1c - Cereal crops
f2d - Aquatic marginal vegetation
g3 - Neutral grassland
g3a - Lowland meadows
g3c - Other neutral grassland
g4 - Modified grassland
h3a - Blackthorn scrub
h3d - Bramble scrub
h3h - Mixed scrub
r1 - Standing open water and canals
r1g - Other standing water
r2b - Other rivers and streams
s - Sparsely vegetated land
Scattered tree
h2a5 - Species-rich native hedgerow
h2a6 - Other native hedgerow
h2b - Non-native and ornamental hedgerow
r1g - Other standing water
u1 - Built-up areas and gardens
u1b - Developed land; sealed surface
u1b5 - Building
u1b6 - Other developed land
u1c - Artificial unvegetated, unsealed surface
u1e - Built linear features
w - Woodland and forest
w1d
w1f - Lowland mixed deciduous woodland
w1g - Other broadleaved woodland
w1h - Other woodland; mixed
No access
r2a - Rivers (priority habitat)
u1e - Built linear features
w1f - Lowland mixed deciduous woodland
w1g - Other broadleaved woodland
EGHAM
Figure 5 - UKHab Habitat Map, Section D
JGEcology/Egham/UKHab
1:3,750
A3
OSGB
BNG
bing


Survey Information
Survey extent
Target note
c1c - Cereal crops
u1 - Built-up areas and gardens
f2d - Aquatic marginal vegetation
u1b - Developed land; sealed surface
g3 - Neutral grassland
u1b5 - Building
g3a - Lowland meadows
u1b6 - Other developed land
g3c - Other neutral grassland
u1c - Artificial unvegetated, unsealed surface
g4 - Modified grassland
u1e - Built linear features
h3a - Blackthorn scrub
w - Woodland and forest
h3d - Bramble scrub
w1d
h3h - Mixed scrub
w1f - Lowland mixed deciduous woodland
r1 - Standing open water and canals
w1g - Other broadleaved woodland
r1g - Other standing water
w1h - Other woodland; mixed
r2b - Other rivers and streams
No access
s - Sparsely vegetated land
r2a - Rivers (priority habitat)
Scattered tree
u1e - Built linear features
h2a5 - Species-rich native hedgerow
w1f - Lowland mixed deciduous woodland
h2a6 - Other native hedgerow
w1g - Other broadleaved woodland
h2b - Non-native and ornamental hedgerow
r1g - Other standing water
PROJECT TITLE
EGHAM
DRAWING TITLE
Figure 6 - UKHab Habitat Map, Section E
VER
DATE
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Checked
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16/12/24
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MP
JG
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DATUM
OSGB
PROJECTION
BNG
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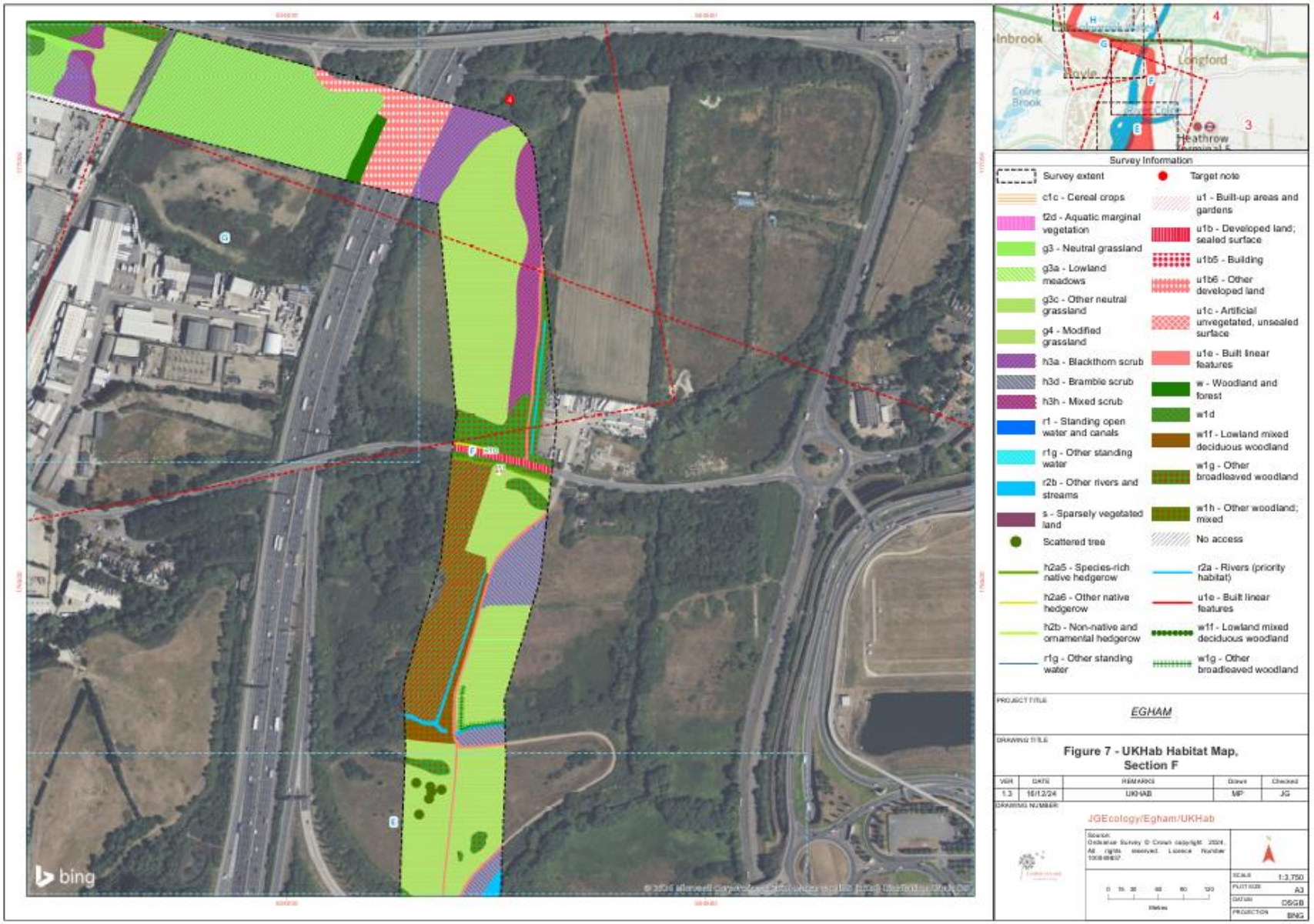
Inbrook
Longford
Heathrow
Survey Information
Survey extent
Target note
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f2d - Aquatic marginal vegetation
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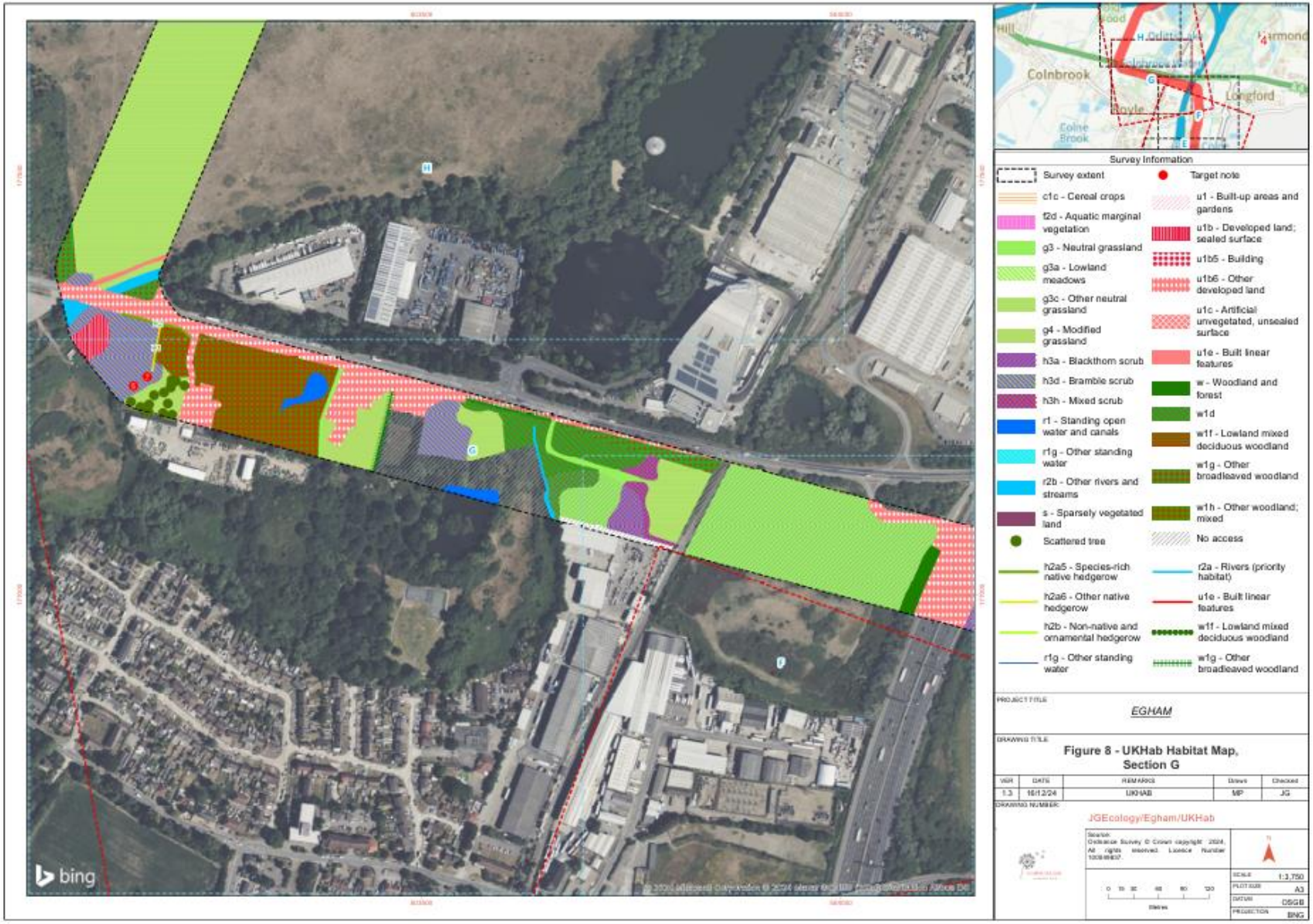
g3a - Lowland meadows
g3c - Other neutral grassland
g4 - Modified grassland
h3a - Blackthorn scrub
h3d - Bramble scrub
h3h - Mixed scrub
r1 - Standing open water and canals
r1g - Other standing water
r2b - Other rivers and streams
s - Sparsely vegetated land
Scattered tree
h2a5 - Species-rich native hedgerow
h2a6 - Other native hedgerow
h2b - Non-native and ornamental hedgerow
r1g - Other standing water
u1 - Built-up areas and gardens
u1b - Developed land; sealed surface
u1b5 - Building
u1b6 - Other developed land
u1c - Artificial unvegetated, unsealed surface
u1e - Built linear features
w - Woodland and forest
w1d
w1f - Lowland mixed deciduous woodland
w1g - Other broadleaved woodland
w1h - Other woodland; mixed
No access
r2a - Rivers (priority habitat)
u1e - Built linear features
w1f - Lowland mixed deciduous woodland
w1g - Other broadleaved woodland
EGHAM
Figure 7 - UKHab Habitat Map, Section F
JGEcology/Egham/UKHab
1:3,750
A3
OSGB
BNG
bing


Colnbrook
Longford
Survey Information
Survey extent
Target note
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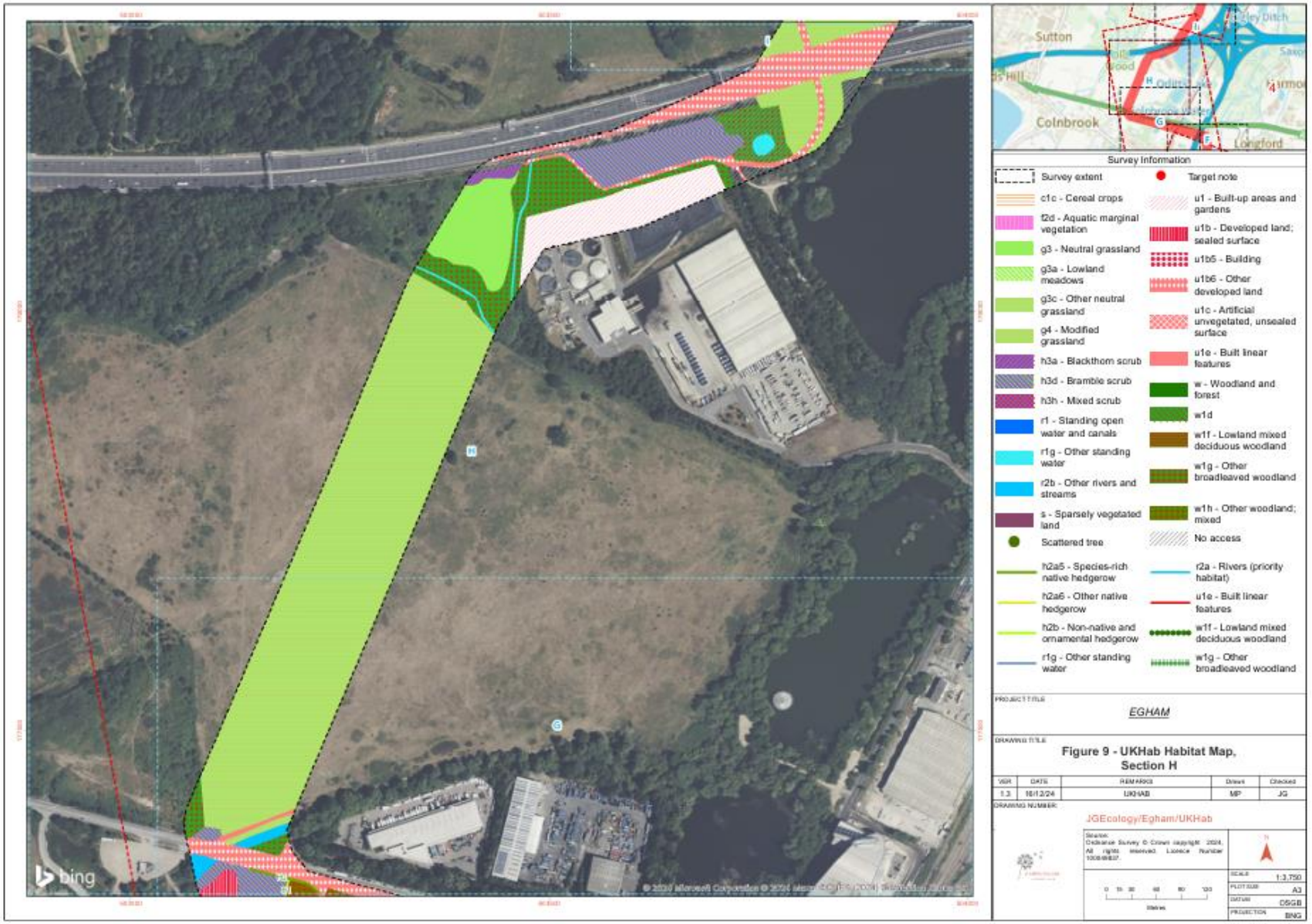
u1 - Built-up areas and gardens
f2d - Aquatic marginal vegetation
u1b - Developed land; sealed surface
g3 - Neutral grassland
u1b5 - Building
g3a - Lowland meadows
u1b6 - Other developed land
g3c - Other neutral grassland
u1c - Artificial unvegetated, unsealed surface
g4 - Modified grassland
u1e - Built linear features
h3a - Blackthorn scrub
w - Woodland and forest
h3d - Bramble scrub
w1d
h3h - Mixed scrub
w1f - Lowland mixed deciduous woodland
r1 - Standing open water and canals
w1g - Other broadleaved woodland
r1g - Other standing water
r2b - Other rivers and streams
w1h - Other woodland; mixed
s - Sparsely vegetated land
No access
Scattered tree
h2a5 - Species-rich native hedgerow
r2a - Rivers (priority habitat)
h2a6 - Other native hedgerow
u1e - Built linear features
h2b - Non-native and ornamental hedgerow
w1f - Lowland mixed deciduous woodland
r1g - Other standing water
w1g - Other broadleaved woodland
EGHAM
Figure 8 - UKHab Habitat Map, Section G
JGEcology/Egham/UKHab
bing


Sutton
Colnbrook
Longford
Survey Information
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Target note
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f2d - Aquatic marginal vegetation
g3 - Neutral grassland
g3a - Lowland meadows
g3c - Other neutral grassland
g4 - Modified grassland
h3a - Blackthorn scrub
h3d - Bramble scrub
h3h - Mixed scrub
r1 - Standing open water and canals
r1g - Other standing water
r2b - Other rivers and streams
s - Sparsely vegetated land
Scattered tree
h2a5 - Species-rich native hedgerow
h2a6 - Other native hedgerow
h2b - Non-native and ornamental hedgerow
r1g - Other standing water
u1 - Built-up areas and gardens
u1b - Developed land; sealed surface
u1b5 - Building
u1b6 - Other developed land
u1c - Artificial unvegetated, unsealed surface
u1e - Built linear features
w - Woodland and forest
w1d
w1f - Lowland mixed deciduous woodland
w1g - Other broadleaved woodland
w1h - Other woodland; mixed
No access
r2a - Rivers (priority habitat)
u1e - Built linear features
w1f - Lowland mixed deciduous woodland
w1g - Other broadleaved woodland
EGHAM
Figure 9 - UKHab Habitat Map, Section H
JGEcology/Egham/UKHab
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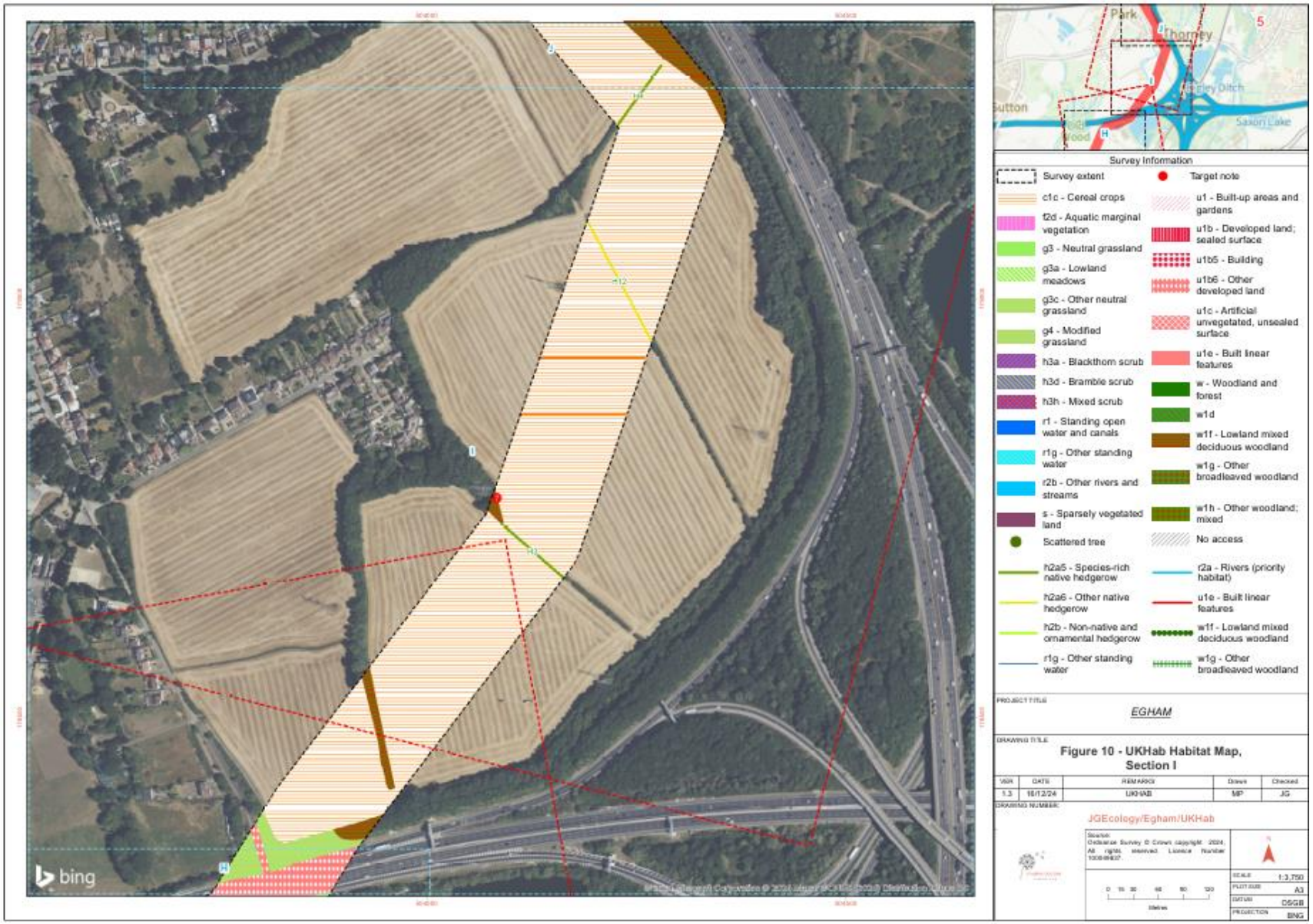
A3
OSGB
BNG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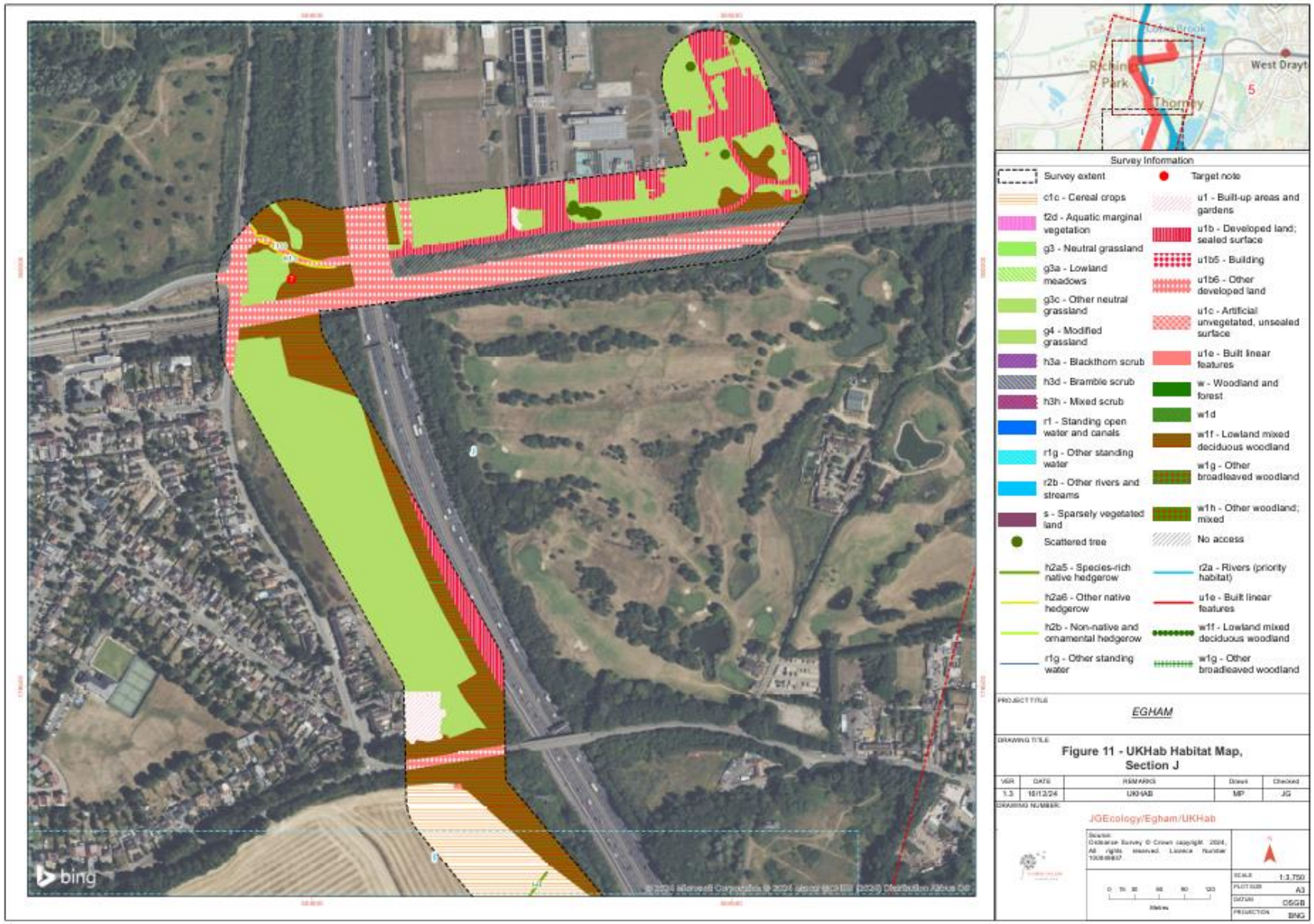
Survey extent
Target note
c1c - Cereal crops
t2d - Aquatic marginal vegetation
g3 - Neutral grassland
g3a - Lowland meadows
g3c - Other neutral grassland
g4 - Modified grassland
h3a - Blackthorn scrub
h3d - Bramble scrub
h3h - Mixed scrub
r1 - Standing open water and canals
r1g - Other standing water
r2b - Other rivers and streams
s - Sparsely vegetated land
Scattered tree
h2a5 - Species-rich native hedgerow
h2a6 - Other native hedgerow
h2b - Non-native and ornamental hedgerow
r1g - Other standing water
u1 - Built-up areas and gardens
u1b - Developed land; sealed surface
u1b5 - Building
u1b6 - Other developed land
u1c - Artificial unvegetated, unsealed surface
u1e - Built linear features
w - Woodland and forest
w1d
w1f - Lowland mixed deciduous woodland
w1g - Other broadleaved woodland
w1h - Other woodland; mixed
No access
r2a - Rivers (priority habitat)
u1e - Built linear features
w1f - Lowland mixed deciduous woodland
w1g - Other broadleaved woodland
EGHAM
Figure 10 - UKHab Habitat Map, Section I
JGEcology/Egham/UKHab
bing


Survey Information
Survey extent
Target note
c1c - Cereal crops
t2d - Aquatic marginal vegetation
g3 - Neutral grassland
g3a - Lowland meadows
g3c - Other neutral grassland
g4 - Modified grassland
h3a - Blackthorn scrub
h3d - Bramble scrub
h3h - Mixed scrub
r1 - Standing open water and canals
r1g - Other standing water
r2b - Other rivers and streams
s - Sparsely vegetated land
Scattered tree
h2a5 - Species-rich native hedgerow
h2a6 - Other native hedgerow
h2b - Non-native and ornamental hedgerow
r1g - Other standing water
u1 - Built-up areas and gardens
u1b - Developed land; sealed surface
u1b5 - Building
u1b6 - Other developed land
u1c - Artificial unvegetated, unsealed surface
u1e - Built linear features
w - Woodland and forest
w1d
w1f - Lowland mixed deciduous woodland
w1g - Other broadleaved woodland
w1h - Other woodland; mixed
No access
r2a - Rivers (priority habitat)
u1e - Built linear features
w1f - Lowland mixed deciduous woodland
w1g - Other broadleaved woodland
PROJECT TITLE
EGHAM
DRAWING TITLE
Figure 11 - UKHab Habitat Map, Section J
VER
DATE
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Checked
1.3
16/12/24
UKHAB
MP
JG
DRAWING NUMBER:
JGEcology/Egham/UKHab
SCALE 1:3,750
PLOT SIZE A3
DATUM OSGB
PROJECTION BNG
bing

Appendices

Appendix 1 Planning Policy and Legislation

National Planning Policy Framework

In England, the National Planning Policy Framework (NPPF), section 15, paragraphs 187 to 201 emphasises the importance of conserving nature and achieving net gains for biodiversity, for full details please see National Planning Policy Framework (publishing.service.gov.uk).

Conserving and Enhancing the Natural Environment:	
Planning policies and decisions should contribute to and enhance the natural and local environment by:	• Protecting and enhancing valued landscapes, sites of biodiversity or geological value, and soils. • Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland. • Maintaining the character of the undeveloped coast, while improving public access to it where appropriate. • Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs. • Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans. • Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate
Planning Approaches:	• Plans should distinguish between the hierarchy of international, national, and locally designated sites. • They should allocate land with the least environmental or amenity value, where consistent with other policies in this Framework. • Take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure. • Plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.
Protected Areas:	• Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads, and National Landscapes which have the highest status of protection in relation to these issues. • The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within all these designated areas should be limited, while development within their setting should be

	sensitively located and designed to avoid or minimise adverse impacts on the designated areas. • When considering applications for development within National Parks, the Broads and National Landscapes, permission should be refused for major development 67 other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of: (a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy; (b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and (c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.
Habitats and Biodiversity:	
To protect and enhance biodiversity and geodiversity, plans should:	• Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation. • Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.
Planning determination:	• If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused. • Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest. • Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons 70 and a suitable compensation strategy exists. • Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.
Protected sites:	• The following should be given the same protection as habitats sites: ○ Potential Special Protection Areas and possible Special Areas of Conservation.

	○ Listed or proposed Ramsar sites. ○ Sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites. • The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

Local Planning Policy

South Bucks District Core Strategy includes biodiversity within Core Policy 9: Natural Environment. Runnymede 2030 Local Plan includes Policy EE9: Biodiversity, Geodiversity and Nature Conservation, EE11 on Green Infrastructure and EE12 on blue infrastructure. Slough Borough Council includes: Core Policy 9: Natural and Built Environment.

Policy	Description
South Bucks: Core Policy 9: Natural Environment	The highest priority will be given to the conservation and enhancement of the natural beauty of the Chilterns Area of Outstanding Natural Beauty, and the integrity of Burnham Beeches Special Area of Conservation. The conservation and enhancement of the Chilterns AONB and its setting will be achieved by ensuring that all development complies with the purposes of the AONB and its Management Plan. The conservation and enhancement of Burnham Beeches SAC, and its surrounding supporting biodiversity resources, will be achieved through restricting the amount of development in close proximity to the site, and ensuring that development causes no adverse effect on the integrity of the SAC. Further details on mechanisms for achieving this will be given in the Development Management DPD. More generally, the landscape characteristics and biodiversity resources within South Bucks will be conserved and enhanced by: • Not permitting new development that would harm landscape character or nature conservation interests, unless the importance of the development outweighs the harm caused, the Council is satisfied that the development cannot reasonably be located on an alternative site that would result in less or no harm and appropriate mitigation or compensation is provided, resulting in a net gain in Biodiversity. • Seeking the conservation, enhancement and net gain in local biodiversity resources within the Biodiversity Opportunity Areas, on other non-designated land, on rivers and their associated habitats, and as part of development proposals. • Maintaining existing ecological corridors and avoiding habitat fragmentation. • Conserving and enhancing landscapes, informed by Green Infrastructure Plans and the District Council's Landscape Character Assessment.

	• Improving the rural/urban fringe by supporting and implementing initiatives in the Colne Valley Park Action Plan. • Seeking biodiversity, recreational, leisure and amenity improvements for the River Thames setting where opportunities arise, for example at Mill Lane (see Core Policy 15). Further guidance on the protection and enhancement of landscape and biodiversity resources will be given in the Development Management DPD.
Runnymede: Policy EE9: Biodiversity, Geodiversity and Nature Conservation	Development on or adjacent to the following hierarchy of important sites in the Borough will need to pay particular attention to the requirements of this policy. 1) Ramsar sites (international). 2) Special Protection Areas and Special Areas of Conservation (European). 3) Sites of Special Scientific Interest and National Nature Reserves (National). 4) Ancient Woodland, ancient or veteran trees; and/or trees and hedgerows protected by a Tree Preservation Order. 5) Sites of Nature Conservation Importance, Local Nature Reserves. 6) Other priority habitats and priority species not identified in 1, 2, 3, 4 or 5 above (Local); designated Local Green Space where richness of wildlife has been identified as a contributing factor in its designation; and any area in Runnymede that may be in future identified as a Nature Improvement Area; trees considered to make a significant contribution to their surroundings, individually or as a group. The Council will seek net gains in biodiversity, through creation/expansion, restoration, enhancement and management of habitats and features to improve the status of priority habitats and species. Development proposals should demonstrate how this will be achieved and should be in accordance with any Supplementary Planning Document the Council prepares. Development proposals not directly related to the management of Ramsar, SPA, SAC as well as SSSI units forming part of these designations will not be permitted unless it can be demonstrated that the impact of proposals, either alone or in combination, will not result in likely significant adverse effects. If significant adverse effects remain even with the implementation of suitable avoidance and/or mitigation, development proposals will need to demonstrate that alternatives to the proposal have been fully explored and that Imperative Reasons of Overriding Public Interest (IROPI) exist. In these exceptional circumstances the Council will only permit development where suitable compensatory measures can be implemented. For development proposals that affect national, regional or locally protected sites not forming part of a Ramsar, SPA or SAC, permission will only be granted where it can be demonstrated that the benefits of the development proposal clearly outweigh the harm to the site and has followed the hierarchy of mitigation so that biodiversity/geodiversity damage from development should first be avoided, then mitigated on-site and finally, as a last resort and where acceptable, offset.

Policy EE11: Green Infrastructure	The Council will seek to avoid further habitat fragmentation of Green Infrastructure by encouraging development proposals which restore, maintain and enhance habitat connectivity, in particular in Biodiversity Opportunity Areas as shown on the policies map. The Council will seek development to contribute towards the delivery of a high quality multi-functional Green Infrastructure network by requiring proposals to provide and make enhancements to onsite Green Infrastructure assets. In exceptional circumstances, if it is not possible to provide on-site Green Infrastructure as it is neither feasible nor viable, a financial contribution towards provision and enhancement of Green Infrastructure and services may be sought. The Council will ensure the effective use of Tree Preservation Orders to protect significant trees and will encourage the proper care and maintenance of trees by requiring owners to submit applications to work on protected trees and ensure that protected trees are replaced if they have to be felled.
Policy EE12: Blue Infrastructure	The local planning authority will require applicants to contribute towards the delivery of a high quality multi-functional Blue Infrastructure network by expecting Blue Infrastructure assets to be provided, protected, maintained and enhanced to deliver multiple benefits and services for biodiversity, recreation and landscape. Therefore, the Council will resist proposals that lead to a decrease in the provision and quality of, and fails to enhance, the status of blue infrastructure, in accordance with the Water Framework Directive. Proposals will be supported that: • Demonstrate how they will support improving the status of failing water bodies, in particular in relation to the requirements of the Thames River Basin Management Plan; • Do not involve the culverting of watercourses; • Do not involve the loss of natural banks; • Make appropriate provision to protect, enhance, improve and maintain accessible networks of Blue Infrastructure, including through de-culverting and re-naturalisation of hard banks if appropriate; • Where appropriate, enable public access to Blue Infrastructure, including through providing undeveloped buffer zones (8m minimum for main rivers and 5m minimum for ordinary water courses). In certain circumstances, these standards could be negotiated to suit the particular ecological and requirements of a site. Any scheme to provide a buffer zone will need to include a working method statement detailing how the buffer zone will be protected during construction and long-term ecological plan. • Include measures to allow for the natural movement of fish within the watercourse where barriers to fish movement (e.g. weirs) are present. Development where inclusion of Sustainable Drainage Systems is necessary should have a management plan in place to demonstrate how wildlife has been taken account of
Slough: Core Policy 9: natural and built environment	Development will not be permitted unless it: • Enhances and protects the historic environment; • Respects the character and distinctiveness of existing buildings, townscapes and landscapes and their local designations; • Protects and enhances the water environment and its margins;

	• Enhances and preserves natural habitats and the biodiversity of the Borough, including corridors between biodiversity rich features.

Legislation

National Legislation

The following legislation is relevant to development within England:

The Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017 is a set of regulations in the UK that address the protection and conservation of natural habitats and species.

These regulations provide provisions for the selection, designation, registration, and notification of sites to be protected under the Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora. The regulations cover the conservation of natural habitats and habitats of species in European sites. These sites include Special Areas of Conservation and Special Protection Areas designated under the EU Directive. The regulations outline procedures for site selection, classification, and management agreements for these sites.

The regulations address the protection of both animals and plants. They define offences related to capturing or killing wild animals and certain wild plants. European protected species of animals and plants are specifically covered.

The regulations also consider nature conservation policy in planning contexts.

The Environment Act 2021

The Environment Act 2021 (the Act) received royal assent and became law on 9 November 2021. This Act sets clear statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water and waste, and includes an important new target to reverse the decline in species abundance by the end of 2030.

The Act (through the Town and Country Planning Act 1990) requires all planning permissions in England (subject to exemptions) to be granted subject to a new general pre-commencement condition that requires approval of a biodiversity gain plan. The planning authority will only approve the biodiversity gain plan if a minimum of 10% net gain is achieved, this is known as the 'biodiversity gain objective'.

The biodiversity plan must set out the steps taken to achieve the 'biodiversity gain objective'. The development should identify the pre and post development onsite biodiversity value, then the biodiversity hierarchy should be followed: firstly, minimise the adverse effects on habitats onsite, before sourcing registered offsite biodiversity units to allocate to the development and finally purchasing biodiversity credits.

Both onsite and offsite enhancements must be maintained for at least 30 years after completion of a development. Onsite enhancements must be secured by planning condition, s106 obligation or a conservation covenant, which is a written agreement that is registrable as a local land charge, between a landowner and a 'responsible body' that binds a landowner and its successors to do/not do something on the land for a conservation purpose. Offsite enhancements must be secured under either a s106 agreement or a conservation covenant and be registered on the biodiversity gain site register.

For full details please see Environment Act 2021 (legislation.gov.uk)

The Wildlife and Countryside Act 1981

This legislation makes it an offence to deliberately take, kill or injure a protected wild animal, or to intentionally, or recklessly, disturb such an animal in its place of shelter, or to damage, destroy or obstruct access to its place of shelter. It is also an offence to be in possession of a protected animal, live or dead.

The act contains four parts and 17 schedules, which cover:

- Part 1: Wildlife (includes protection of birds, animals and plants; and measures to prevent the establishment of non-native species which may be detrimental to native wildlife).
- Part 2: Nature conservation, the countryside and National Parks (including the designation of protected areas).
- Part 3: Public rights of way.
- Part 4: Miscellaneous provisions of the act.

Other legislative Acts affording protection to wildlife and their habitats include:

• Deer Act 1991

• Wild Mammals (Protection) Act 1996

Natural Environment & Rural Communities (NERC) Act 2006

The NERC Act 2006 sets out to protect and enhance the natural environment and rural communities. Section 40 places a duty to conserve biodiversity upon all local authorities in England Section 41 lists habitats and species of principal importance to the conservation of biodiversity. Fifty-six habitats and 943 species of Principal Importance for Conservation are included on the Section 41 list and draws upon the UK BAP List of Priority Species and Habitats.

Species Specific Legislation

Bats

Bats and their roosts are protected by UK legislation.

The Wildlife and Countryside Act (1981) (as amended) makes it an offence to:

- intentionally kill, injure or take a bat;
- possess or control any live or dead specimen or anything derived from a bat;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a bat; and
- intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for that purpose.

Additionally, The Conservation of Habitats and Species Regulations 2017 (as amended) make it an offence to:

- deliberately capture or kill a bat;
- deliberately disturb a bat;
- damage or destroy a breeding site or a resting place of a bat; and

- keep, transport, sell or exchange or offer for sale or exchange a live or dead bat or any part of a bat.

Birds

Breeding wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). Under the Wildlife and Countryside Act, a wild bird is defined as any bird of a species that is resident in or is a visitor to the European Territory of any member state in a wild state. Game birds however are not included in this definition (except for limited parts of the Act). They are covered by the Game Acts, which fully protect them during the closed season.

All birds, their nests and eggs are protected and it is thus an offence, with certain exceptions to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built;
- intentionally take or destroy the egg of any wild bird;
- have in one's possession or control any wild bird, dead or alive, or any part of a wild bird, which has been taken in contravention of the Act or the Protection of Birds Act 1954;
- have in one's possession or control any egg or part of an egg which has been taken in contravention of the Act or the Protection of Birds Act 1954;
- use traps or similar items to kill, injure or take wild birds; and
- have in one's possession or control any bird of a species occurring on Schedule 4 of the Act unless registered, and in most cases ringed, in accordance with the Secretary of State's regulations.

Additionally, for some species listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) it is an offence to intentionally or recklessly disturb the adults while they are in and around their nest or intentionally or recklessly disturb their dependent young.

Reptiles and Amphibians

Slow-worm, Grass Snake, Adder, Common Lizard, Common Frog, Common Toad, Smooth Newt (*Lissotriton vulgaris*) and Palmate Newt (*Lissotriton helveticus*) are protected under the Wildlife and Countryside Act 1981 (as amended). It is an offence to:

- intentionally kill or injure them.

Additionally. The Conservation of Habitats and Species Regulations 2017 (as amended) make it an offence to impact Smooth Snake (*Coronella austriaca*), Sand Lizard (*Lacerta agilis*), Pool Frog (*Pelophylax lessonae*), Natterjack Toad (*Epidalea calamita*) and Great Crested Newt by:

- deliberate capturing, injuring or killing;
- deliberate disturbance; disturbance of animals includes in particular any disturbance which is likely- (i) to impair their ability to survive, to breed or reproduce or to rear or nurture their young; or (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or (iii) to affect significantly the local distribution or abundance of the species to which they belong;
- deliberate taking or destroying the eggs of such an animal;
- damaging or destroying a breeding site or resting place;

- intentionally or recklessly - (i) disturbing an animal while it is occupying a structure or place which it uses for shelter or protection; or (ii) obstructing access to any structure or place which an animal uses for shelter or protection.
- possession, control, transporting, selling or exchanging, or offering for sale or exchange.

Badger

Badger and their setts are protected under The Protection of Badgers Act 1992 (as amended) by making it an offence to:

- kill or injure a Badger;
- disturb Badgers whilst they are using a sett;
- to damage or block a sett.

Water Vole

Water Vole are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- intentionally kill, injure or take (capture) Water Vole;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection;
- intentionally or recklessly disturb Water Vole while they are occupying a structure or place used for shelter or protection.

Otter

Otters are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) where it is an offence to intentionally or recklessly disturb, and intentionally or recklessly obstruct access to any place of shelter or protection.

Additionally, they are also protected under The Conservation of Habitats and Species Regulations 2017 (as amended) which makes it an offence to deliberately kill, injure or capture and to deliberately disturb in such a way as:

- to impair their ability to survive, breed, or reproduce, or to rear or nurture young;
- to impair their ability to hibernate or migrate;
- to affect significantly the local distribution or abundance of the species;
- damage or destruct a breeding site or resting place.

Hazel Dormouse

Hazel Dormice are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) where it is an offence to intentionally or recklessly disturb, and intentionally or recklessly obstruct access to any place of shelter or protection.

Additionally, they are also protected under The Conservation of Habitats and Species Regulations 2017 (as amended) which makes it an offence to deliberately kill, injure or capture and to deliberately disturb in such a way as:

- to impair their ability to survive, breed, or reproduce, or to rear or nurture young;
- to impair their ability to hibernate or migrate;
- to affect significantly the local distribution or abundance of the species;
- damage or destruct a breeding site or resting place.

White-clawed Crayfish

White-clawed Crayfish are protected under the Wildlife and Countryside Act 1981 (as amended). It is offence to:

- intentionally or recklessly kill or injure White-clawed Crayfish;
- sell, offer, advertise or transport for sale a live or dead White-clawed Crayfish.

If a proposed development is likely to have an impact on White-clawed Crayfish then the local statutory nature conservation organisation must be consulted.

Their inclusion on the EC Habitats Directive allows areas to be designated as Special Areas of Conservation (SAC) for the presence of White-clawed Crayfish. Such a designation brings legal protection under the Conservation of Habitats Regulations 2017, this includes how the site is managed and what development can occur on and in proximity to these sites.

Appendix 2 Definitions of Habitat Value Level

Geographical Context	Examples
International and European	Ramsar Sites, Special Protection Areas, Biosphere Reserves, Special Areas of Conservation. Sites supporting populations of internationally important species.
National	SSSIs or non-designated Sites meeting SSSI selection criteria, NNRs, Marine Nature Reserves, NCR Grade 1 Sites. Sites containing viable areas of key habitats identified in the UK Biodiversity Action Plan.
Regional	Sites containing viable areas of threatened habitats listed in a Regional BAP (or some Natural Areas), comfortably exceeding SINC criteria, but not exceeding SSSI criteria.
County / Metropolitan	Sites meeting the criteria for county or metropolitan designation (SINC, CWS, etc.). Ancient semi-natural woodland, LNRs or viable areas of key habitat types listed in county BAPs/Natural Areas.
Local	Undesignated sites or features considered to appreciably enrich the habitat resource in the local area or within a zone of influence.
Negligible	Low grade or widespread habitats.

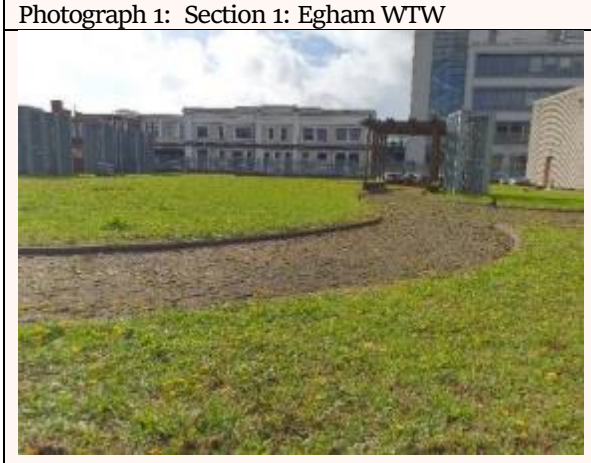
Appendix 3 Definitions of Species Value Level

Geographical Context	Examples
International and European	Any regularly occurring population of an internationally important species, which is threatened or rare in the UK. i.e. it is a UK Red Data Book species or listed as occurring in 15 or fewer 10km squares in the UK (categories 1 and 2 in the UK BAP) or of uncertain conservation status or of global conservation concern in the UK BAP. A regularly occurring, nationally significant population/number of any internationally important species.
National	Any regularly occurring population of a nationally important species which is threatened or rare in the region or county (see local BAP). A regularly occurring, regionally or county significant population/number of any nationally important species.
Regional	Any regularly occurring, locally significant population of a species listed as being nationally scarce which occurs in 16-100 10km squares in the UK or in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation; A regularly occurring, locally significant number of a regionally important species.
County / Metropolitan	Any regularly occurring, locally significant population of a species which is listed in a County/Metropolitan "red data book" or BAP on account of its regional rarity or localisation; A regularly occurring, locally significant number of a County/Metropolitan important species.
Local	A population of a species that is listed in a local BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation; A regularly occurring, locally significant number of a locally important species during a critical phase of its life cycle.
Negligible	Common or widespread species.

Appendix 4 Photographs

Photograph 1: Section 1: Egham WTW

Photograph 2: Section 1: Egham WTW



Photograph 3: Section 1: Egham WTW green roof

Photograph 4: Section 1: footpath by River Thames

Photograph 5: Section 1: River Thames

Photograph 6: Section 1: ancient woodland on River Thames island

	
Photograph 7: Section 1: land adjacent to Lamma Drive properties and woodland	Photograph 8: Section 1: Himalayan Balsam
	
Photograph 9: Section 1: Lammas Drive	Photograph 10: Section 1: River adjacent to Lammas Drive
	
Photograph 11: Section 1: Lammas Recreation Ground	Photograph 12: Section 1: Lammas Water land and hedgerow

Photograph 13: Section 1: Trees with bird boxes within Queensmead Lake land

Photograph 14: Section 1: Queensmead Lake land

Photograph 15: Section 1: Wraysbury Road

Photograph 16: Section 1: Japanese Knotweed next to Wraysbury Road

Photograph 17: Section 1: access to Hilda May Lake SNCI

Photograph 18: Section 1: Hilda May Lake SNCI

Photograph 19: Section 1: Hilda May Lake SNCI

Photograph 20: Section 1: Staines Reservoirs Aqueduct

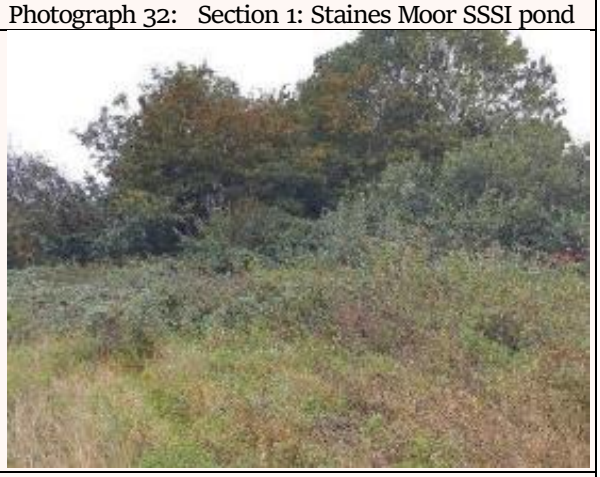
Photograph 21: Section 1: footpath between Hilda May Lake SNCI and Staines Reservoirs Aqueduct

Photograph 22: Section 1: flooded land between Hilda May Lake SNCI and Staines Reservoirs Aqueduct

Photograph 23: Section 1: woodland along A30

Photograph 24: Section 1: flooded grassland within horse paddocks

	
Photograph 25: Section 1: flooded grassland within horse paddocks	Photograph 26: Section 1: grassland by Moor Lane
	
Photograph 27: Section 1: inaccessible woodland north of Moor Lane	Photograph 28: Section 1: Wraysbury River
	
Photograph 29: Section 1: Staines Moor SSSI	Photograph 30: Section 1: Staines Moor SSSI

	
Photograph 31: Section 1: Staines Moor SSSI	Photograph 32: Section 1: Staines Moor SSSI pond
	
Photograph 33: Section 2: woodland boundary between SSSI and quarry	Photograph 34: Section 2: woodland boundary between SSSI and quarry
	
Photograph 35: Section 2: abandoned quarry land	Photograph 36: Section 2: area of g3 recently reprofiled with opportunistic vegetation

	
Photograph 37: Section 2: area of g3 recently reprofiled with fresh spoil	Photograph 38: Section 2: g3 quarry land subject to reprofiling/change
	
Photograph 39: Section 2: Recreated quarry land with planted trees	Photograph 40: Section 2: sparsely vegetated land (deep excavation in quarry)
	
Photograph 41: Section 2: vegetated bund and quarry viewed from safe point	Photograph 42: Section 2: pond in quarry

	
Photograph 43: Section 2: hedgerow separating quarry fields	Photograph 44: Section 2: g3 grassland
	
Photograph 45: Section 2: Bramble scrub and woodland edge	Photograph 46: Section 2: scrub/hedgerow habitat west of quarry
	
Photograph 47: Section 2: bund west of quarry	Photograph 48: Section 2: g3 grassland west of quarry

Photograph 49: Section 2: western hedgerow with tree guards

Photograph 50: Section 2: footpath/bridleway between quarry and M25

Photograph 51: Section 2: Pond SNCI north of quarry

Photograph 52: Section 3: sheep grazed paddock to north of quarry

Photograph 53: Section 3: horse grazed paddock

Photograph 54: Section 3: mixed scrub boundary

Photograph 55: Section 3: Hazel Dormouse nest tube

Photograph 56: Section 3: bridleway/footpath around A3113 and Horton Road

Photograph 57: Section 3: dog walking paddock and woodland bounding motorway

Photograph 58: Section 3: River Colne

Photograph 59: Section 3: Japanese knotweed

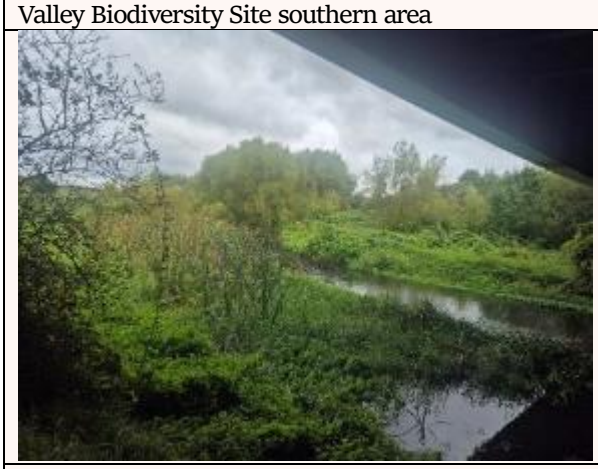
Photograph 60: Section 3: woodland around road infrastructure

Photograph 61: Section 3: woodland around road infrastructure

Photograph 62: Section 3: mammal hole

Photograph 63: Section 3: g3c Heathrow Colne Valley Biodiversity Site southern area

Photograph 64: Section 3: scrub boundary



Photograph 65: Section 3: River Colne under M25

Photograph 66: Section 3: young planted trees

Photograph 67: Section 3: grassland within Heathrow Biodiversity Area

Photograph 68: Section 3: grassland within Heathrow Biodiversity Area

Photograph 69: Section 3: grassland within Heathrow Biodiversity Area

Photograph 70: Section 3: Young planted trees

Photograph 71: Section 3: north of Heathrow Biodiversity Area

Photograph 72: Section 3: Bath Road

Photograph 73: Section 3: footpath along west

Photograph 74: Section 3: g3 grassland

Photograph 75: Section 3: mixed scrub edge to east

Photograph 76: Section 3: mixed scrub edge to west bounding M25

Photograph 77: Section 4: inaccessible land between railway and M25 viewed from A4

Photograph 78: Section 4: railway corridor with scrub viewed from A4

Photograph 79: Section 4: wet woodland south of A4

Photograph 80: Section 4: g3 likely used as access route and wet woodland

Photograph 81: Section 4: abandoned g3 and wet woodland

Photograph 82: Section 4: abandoned g3 grassland

Photograph 83: Section 4: example of tree with bat feature

Photograph 84: Section 4: pub and g3 south of A4

	
Photograph 85: Section 4: pond in woodland south of A4	Photograph 86: Section 4: deciduous woodland south of A4
	
Photograph 71: Section 4: modified grassland with trees south of A4	Photograph 72: Section 4: cleared area in scrub used for skip storage
	
Photograph 87: Section 4: dense Bramble scrub around skip storage	Photograph 88: Section 4: Colne Brook adjacent to Truck stop

Photograph 89: Section 4: A4

Photograph 90: Section 4: Colne Brook flowing under A4

Photograph 91: Section 4: Colne Brook

Photograph 92: Section 4: Colne Valley Way footpath

Photograph 93: Section 4: scrub boundary

Photograph 94: Section 4: g3c north of A4

	
Photograph 95: Section 4: wet ditch in woodland	Photograph 96: Section 4: woodland adjacent to STW
	
Photograph 97: Section 4: Blackthorn scrub	Photograph 98: Section 4: grassland adjacent to STW
	
Photograph 99: Section 4: dense scrub	Photograph 100: Section 4: access track adjacent to STW

	
Photograph 101: Section 4: pond in woodland	Photograph 102: Section 4: newly planted woodland on M4 embankment
	
Photograph 103: Section 5: mammal hole in woodland	Photograph 104: Section 5: arable hedgerow
	
Photograph 105: Section 5: arable hedgerow	Photograph 106: Section 5: drilled arable land

Photograph 107: Section 5: adjacent woodland

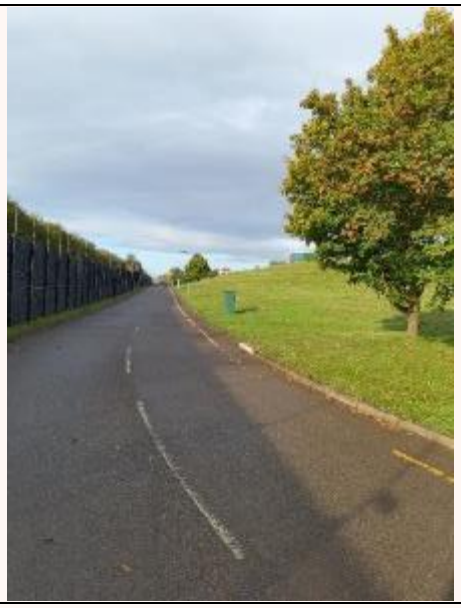
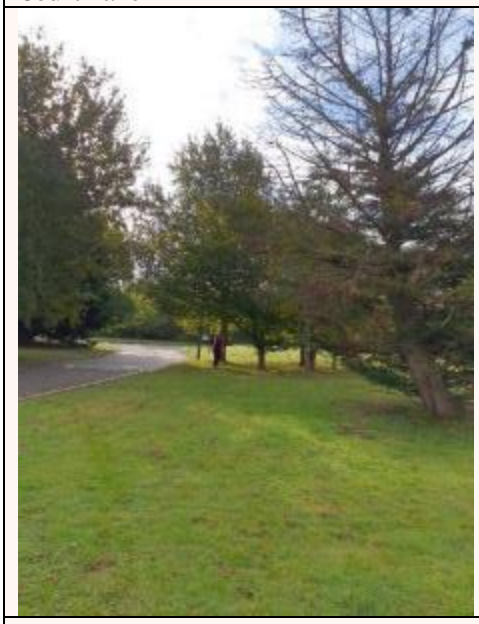
Photograph 108: Section 5: woodland ditch

Photograph 109: Section 5: woodland edge

Photograph 110: Section 5: g4

Photograph 111: Section 5: Thorney Mil Road

Photograph 112: Section 5: g3c south of Court Lane

	
Photograph 113: Section 5: woodland north of Court Lane	Photograph 114: Section 5: access along Iver WTW
	
Photograph 115: Section 5: Iver WTW woodland and g4	Photograph 116: Section 5: Iver WTW