HAMPTON WATER TREATMENT WORKS
ECOLOGICAL APPRAISAL REPORT

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EXECUTIVE SUMMARY

- RPS were commissioned by Waterfall Planning Ltd to undertake an Ecological Appraisal of land at Hampton Waterworks off Upper Sunbury Road, Hampton, TW12 2DS.
- This included an initial Preliminary Ecological Appraisal, comprising a desk study, habitat survey and an ecological scoping survey which assessed the potential of the site to support species of conservation concern or other species which could present a constraint to the development of the site.
- The habitats on site were dominated by hardstanding and buildings with patches of grassland, scrub and early mature and mature trees.
- A Construction Environmental Management Plan will be implemented at the site to ensure no negative impacts to Hampton Waterworks SINC directly adjacent to the southern site boundary.
- A Biodiversity Net Gain assessment (RPS, 2022) and Ecological Enhancement Plan (RPS, 2022) have been produced for the site and should be read in conjunction with this report.
- Butterfly-bush *Budleja davidii* was recorded at the site during the visit. The plant is included in Category 3 on a list of London Invasive Species Initiative (LISI) and should be removed from the site as part of the works and disposed of responsibly.
- Wildflower meadow will be provided in the final landscaping scheme for the site to provide suitable habitat for invertebrates, including butterflies.
- Trees and hedgerows will be planted at the site as part of the post development landscaping scheme. These will provide a more diverse structure of habitats than is currently present on site.
- Suitable nesting habitat for birds including trees, buildings and scrub were identified on site. Where the nesting bird (March to August inclusively) season cannot be avoided, a nesting bird check should be undertaken by a suitably qualified ecologist immediately prior to works to suitable habitats including buildings. Works outside the nesting bird season should still be preceded by a nesting bird check undertaken by the contractor. Where birds are found to be nesting, no works should occur in this area until it has been confirmed by an ecologist all chicks have fledged.
- Following the ecological scoping surveys, nocturnal surveys for bats were undertaken. No bats were recorded emerging from the buildings on site at the time of the surveys. The trees on site had no suitable features for use by roosting bats.
- Bats were observed foraging and commuting around the site. Therefore, suitable lighting should be implemented where night works are required and as part of the final lighting scheme for the site to ensure commuting routes are protected. This should be submitted to an ecologist for review prior to implementation.
- Lighting impacts to the lagoons to the south of the development should not be incurred as a result of the proposals.
- Records for otter were returned within 2 km of the site, with the lagoons to the south of the site considered to offer some limited suitable habitat for this species. Precautionary methods should be implemented throughout construction in order to protect this species should an otter commute across the site. In the unlikely event an otter is noted on site, works should cease immediately, and an ecologist be contacted to provide further advice.
- Mitigation outlined for otter will serve to protect other animals which may cross the site during construction phases.

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1 INTRODUCTION

1.1 Purpose and Scope of this Report

1.1.1 RPS were commissioned by Waterfall Planning Ltd to undertake an Ecological Appraisal of land at Hampton Waterworks off Upper Sunbury Road, Hampton, TW12 2DS.

1.1.2 To undertake an initial assessment of the potential ecological impact of the proposals, a desk study, Phase 1 Habitat Survey, and a preliminary protected species assessment were carried out in accordance with CIEEM (2017). A Preliminary Ecological Appraisal (PEA) was issued in September 2022 (RPS, 2022).

1.1.3 This report aims to:

- undertake a desk-based review of designated sites and records of protected species and other species that could present a constraint to development;
- map and assess the habitats present on site;
- assess the site for potential to support protected species or other species that could present a constraint to development, and make appropriate recommendations for further survey work;
- report on the additional surveys undertaken for bats;
- provide outline options for mitigation measures as appropriate; and
- make recommendations for appropriate biodiversity enhancements in-line with national and local planning policy.

1.1.4 This report pertains to these results only; recommendations included within this report are the professional opinion of an experienced ecologist and therefore the view of RPS. The surveys and desk-based assessments undertaken as part of this review and subsequent report including the Ecological Appraisal Notes are prepared in accordance with the British Standard for Biodiversity Code of Practice for Planning and Development (BS42020:2013).

Previous Reports

1.1.5 Site assessment and surveys were undertaken at the site in 2019-2020 with a PEA report and an Ecological Impact Assessment (EcIA) report issued. These reports should be read in conjunction with this report in order to give a comprehensive overview of the survey work undertaken at the site to date.

1.2 Study Area and Zone of Influence

1.2.1 The site is located at Hampton Waterworks off Upper Sunbury Road, Hampton. The site is approximately 0.6 ha in size. The National Grid coordinates for the centre of the site are TQ 13477 69495.

1.2.2 The site was dominated by buildings and hardstanding, with trees, patches of grassland, mixed scrub and ornamental planting also present. The surrounding area comprises residential development to the north, with the water treatment works and River Thames to the south.

1.2.3 The site location is shown on **Figure 1.1**. Aerial imaging available via Google Earth Pro was also reviewed to assess the site in relation to its context in the wider landscape. The site is surrounded by fencing and pathways and is considered to have limited suitable connectivity to the wider landscape.

1.2.4 The term Zone of Influence is used to describe the geographic extent of potential impacts of a proposed development. The Zone of Influence is determined by the nature of the development and also in relation to designated sites, habitats or species which might be affected by the proposals.

1.2.5 For this site, the Zone of Influence is considered to be land on and immediately adjacent to the site.

1.3 Development Proposals

1.3.1 Proposals comprise the redevelopment of the site to facilitate residential accommodation which will involve the renovation of existing buildings and construction of a variety of new extensions. The work will include renovation to existing roof structures with the addition of new residential gardens, car parking and associated landscaping.

1.4 Legislation and Policy

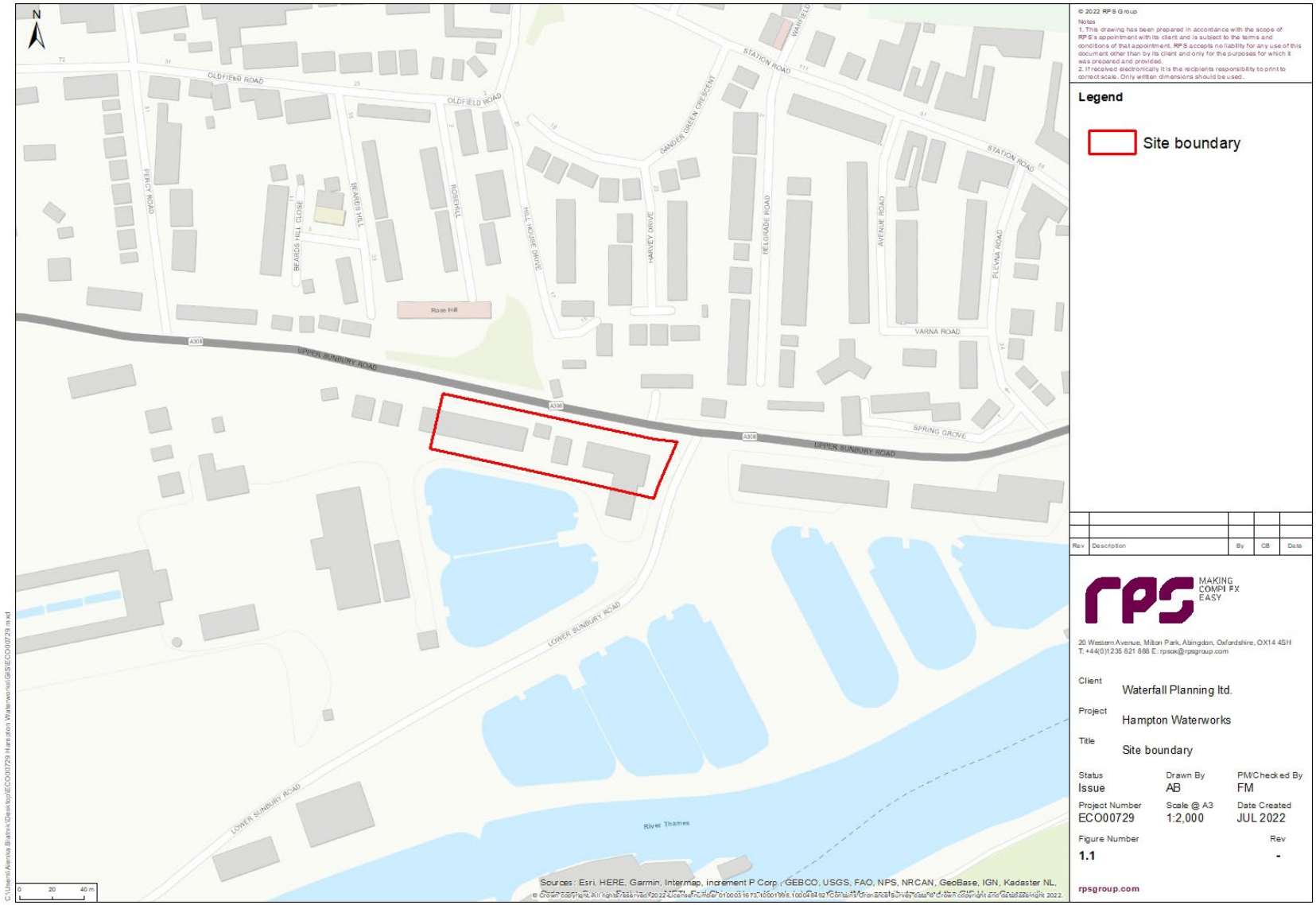
1.4.1 Relevant legislation, policy guidance and both Local and National Biodiversity Action Plans (BAPs) are referred to throughout this report where appropriate. Their context and application are explained in the relevant sections of this report.

1.4.2 The relevant articles of legislation are:

- The National Planning Policy Framework (NPPF, 2023);
- ODPM Circular 06/2005 (retained as Technical Guidance on NPPF 2023);
- Local planning policies (London Borough of Richmond Upon Thames Local Plan (draft June 2023);
- The Conservation of Habitats and Species Regulations 2019 (Amendment) (EU Exit) Regulations 2019 ;
- The Wildlife and Countryside Act 1981 (as amended);
- The Protection of Badgers Act 1992;
- The Countryside and Rights of Way Act 2000;
- The Hedgerow Regulations 1997;
- The Natural Environment and Rural Communities Act 2006; and,
- National / Local Biodiversity Action Plan for London.

1.4.3 A summary of legislation relevant to protected or other species identified as potential constraints in this report is provided in Appendix B.

Figure 1.1: Site Location Plan



2 METHODS

2.1 Desk Study

2.1.1 Ecological records within a 2 km radius of the site were requested from Greenspace Information for Greater London CIC (GiGL). Data requests were limited to records for protected species recorded within the last ten years and sites of nature conservation interest within 2 km of the site. This included a review of existing statutory sites of nature conservation interest, such as Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Area of Conservation (SACs) and National Nature Reserves (NNRs), and non-statutory sites, such as Sites of Importance for Nature Conservation (SINCs) and Local Wildlife Sites (LWSs).

2.1.2 Locations of statutory designated sites were accessed via the government 'MAGIC' website (MagicMap, 2022).

2.1.3 A 1:25,000 OS map was used to identify nearby features such as ponds or green corridors that could provide habitat or connectivity to other areas.

2.2 Ecological Appraisal

2.2.1 The ecological appraisal consisted of two components: a habitat survey and a scoping survey for protected species and other species of conservation concern which could present a constraint to development.

2.2.2 The PEA survey was conducted on Monday 11th of July 2022 by Alenka Blatnik, BSc MSc QCIEEM. The visit was completed using the UK Habitat Classification (UKHab) (Butcher *et. al*., 2020).

2.2.3 A protected species scoping survey was carried out in conjunction with the UK Hab survey. The site was assessed for its suitability to support protected species, in particular great crested newts, water vole, reptiles, birds, badgers *Meles meles*, bats, and other species of conservation importance that could pose a planning constraint.

2.2.4 The surveyor looked for evidence of use including signs such as burrows, droppings, footprints, paths, hairs, refugia and particular habitat types known to be used by certain groups such as ponds. Any mammal paths were also noted down and where possible followed. Fence boundaries were walked to establish any entry points or animals signs such as latrines. Areas of bare earth were inspected for mammal prints. Areas of habitat considered suitable for protected species or those of conservation interest were recorded.

2.3 Bat Surveys

Preliminary Bat Roost Assessment

2.3.1 The buildings and trees on site were assessed for their potential to support roosting bats. These buildings and trees were visually inspected and potentially suitable entry / exit points for bats such as holes and crevices were noted together with any evidence of bat presence such as droppings or feeding remains.

2.3.2 Following standard best practice methodology (Collins, 2016), each building and tree was then classified either as confirmed roost, high, medium, low or negligible potential (see **Table 2.1**), which informs the need for, and survey effort of, any nocturnal surveys required. In the case of a confirmed roost, the survey effort required is as many as is necessary to collect information that is needed for an impact assessment and the design of mitigation strategies on a site-specific basis.

Table 2.1: Guidelines for assessing the potential suitability of proposed development sites for bats

Roost Suitability	Description		Surveys required* - Structures	Surveys required* - Trees
	Roosting Habitats	Commuting and Foraging Habitats		
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.	No further surveys required	No further surveys required
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.	One nocturnal survey between May and August.	No further surveys required. However, precautionary measures may be required if tree is to be pruned or felled.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.	Two nocturnal surveys between May and September, with at least one between May and August.	Two nocturnal surveys between May and September, with at least one between May and August.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, treelined watercourses and grazed parkland. Site is close to and connected to known roosts.	Three nocturnal surveys between May and September, with at least two between May and August.	Three nocturnal surveys between May and September, with at least two between May and August.

*Additional surveys are required of buildings and/or trees which have low, moderate or high suitability in order to assess presence / likely absence of a roost. The number of surveys specified are required to give confidence in a negative result, i.e. where no bats are found, confidence in a result can be taken.

Bat Emergence / Re-entry Surveys

2.3.3 Two buildings were assessed as having feature suitable for roosting bats. B5 was assessed as being of moderate potential for roosting bats with B9 assessed as being of low potential for roosting bats. In line with best practice guidelines, a building assessed as being of moderate potential should be subject to two surveys between May-September with at least one of these surveys being conducted between May and August. For a building assessed as being of low potential for roosting bats, a single survey should be undertaken between May and August.

2.3.4 The surveys commenced 15 minutes prior to sunset and continued for at least 90 minutes after sunset.

2.3.5 The surveys were overseen by bat licensed ecologist Frances Morris (RPS Senior Ecologist) and undertaken by Harriet Miles, Alenka Blanek, Toni Winboune and Samantha Payne.

2.3.6 The surveys were carried out in suitable weather conditions on the 31st August and 20th September 2022. The weather conditions during the survey are shown in **Table 2.2**.

Table 2.2: Bat activity survey dates and weather conditions

Building Number	Date	Weather	Temperature (˚C)	Sunset/Sunrise time	Start time	End time
B5	31/08/2022	Warm, no rain	21	19:49	19:34	21:19
	20/09/2022	Cool, no rain	18	19:04	18:49	20:34
B9	31/08/2022	Warm, no rain	21	19:49	19:34	21:19

2.4 Impact Appraisal

2.4.1 The overall ecological appraisal is based on the standard best practice methodology provided by the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017). The assessment identifies sites, habitats, species and other ecological features that are of value based on factors such as legal protection, statutory or local site designations such as Sites of Special Scientific Interest (SSSI) or Local Wildlife Sites (LWS) or inclusion on Red Data Book Lists or Biodiversity Action Plans.

2.4.2 The assessment also refers to planning policy guidance (e.g. NPPF) where relevant to relate the value of the site and potential impacts of development to the planning process, identifying constraints and opportunities for ecological enhancement in line with both national and local policy.

2.4.3 The methodology for evaluation of the nature conservation value of ecological features affected by development (ecological receptors) is adapted from the current Chartered Institute of Ecology & Environmental Management guidelines for Ecological Impact Assessment (CIEEM, 2018). These guidelines recommend assignment of value (or potential value) to ecological receptors in accordance with the following scale:

1. International;
2. UK;
3. National (i.e. England/Northern Ireland/Scotland/Wales);
4. Regional;
5. County (or Metropolitan - e.g. in London);
6. District (or Unitary Authority, City, or Borough);
7. Local or Parish; and/or
8. within immediate zone of influence only.

2.4.4 Following on from the above, potential constraints to development are identified on that basis, with recommendations for further, more detailed surveys made as appropriate, for example to fully investigate botanical value or to confirm presence / likely absence of a protected species

2.4.5 In appraising any impacts, the review considers the client's site proposals and any subsequent recommendations made are proportionate and appropriate to the site and have considered the Mitigation Hierarchy as identified below:

Avoid: Provide advice on how the development may proceed by avoiding impacts to any species or sites by either consideration of site design or identification of an alternative option.

Mitigate: Where avoidance cannot be implemented mitigation proposals are put forward to minimise impacts to species or sites as a result of the proposals. Mitigation put forward is proportionate to the site.

Compensate: Where avoidance cannot be achieved any mitigation strategy will consider the requirements for site compensatory measures.

Enhance: The assessment refers to planning policy guidance (e.g. NPPF) to relate the ecological value of the site and identify appropriate and proportionate ecological enhancement in line with both national and local policy.

2.4.6 When describing impacts on ecosystem structure and function, reference is made to the following aspects where appropriate:

1. extent;
2. magnitude;
3. duration;
4. reversibility;
5. timing and frequency; and
6. cumulative effects.

2.4.7 Understanding the nature of the impact enables determination of the effect on the ecological integrity of the ecological receptor. This in turn is assessed against the importance of the receptor to determine the significance of the effect on nature conservation interests as being (i) not significant, or (ii) a significant positive or adverse impact.

2.5 Limitations

Desk Based Assessment

2.5.1 The desk study data is third party controlled data, purchased for the purposes of this report only. RPS cannot vouch for its accuracy and cannot be held liable for any error(s) in these data.

General Survey

2.5.2 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation and prediction of the natural environment.

2.5.3 The protected / notable species assessment provides a preliminary view of the likelihood of these species occurring on the site, based on the suitability of the habitat, known distribution of the species in the local area provided in response to our enquiries and any direct evidence on the site. It should not be taken as providing a full and definitive survey of any protected / notable species group.

Preliminary Roost Assessment

2.5.4 Internal access to the buildings was not granted at the time of the Preliminary Bat Roost Assessment due to the buildings being tenanted. This is not considered to be a significant limitation as further bat surveys were conducted at the site and it is considered these surveys would have identified any roosting bats were they present.

Accurate Lifespan of Ecological Data

2.5.5 The majority of ecological data remain valid for only short periods due to the inherently transient nature of the subject. The survey results contained in this report are considered accurate for two years, assuming no significant considerable changes to the site conditions.

3 RESULTS

3.1 Designated Sites

3.1.1 One internationally designated site was identified within 2 km of the site and five statutory designated sites were identified within 2 km of the site. The closest of these were Bushy Park and Home Park SSSI, 750 m northeast of the site. The SSSI is designated for its acid grassland habitat and veteran tree assemblage.

3.1.2 The site falls within the Impact Risk Zone (IRZ) for Bushy Park and Home Park SSSI. All applications except householder within this IRZ require consultation with NE at the planning stages.

3.1.3 There were fifteen designated and one proposed non-statutory sites were identified within the 2 km of the site. The closest of these was Hampton Water Treatment Works SINC, immediately south of the site.

3.1.4 A summary of these sites is provided in **Table 3.1** below and the location of each site is detailed on **Figure 3.1** below.

3.1.5 Multiple priority habitats were identified within 2 km of the site. The closest of these is Open Mosaic on Previously Developed land which is located 20 m east of the site. The priority habitat has not been formally assessed.

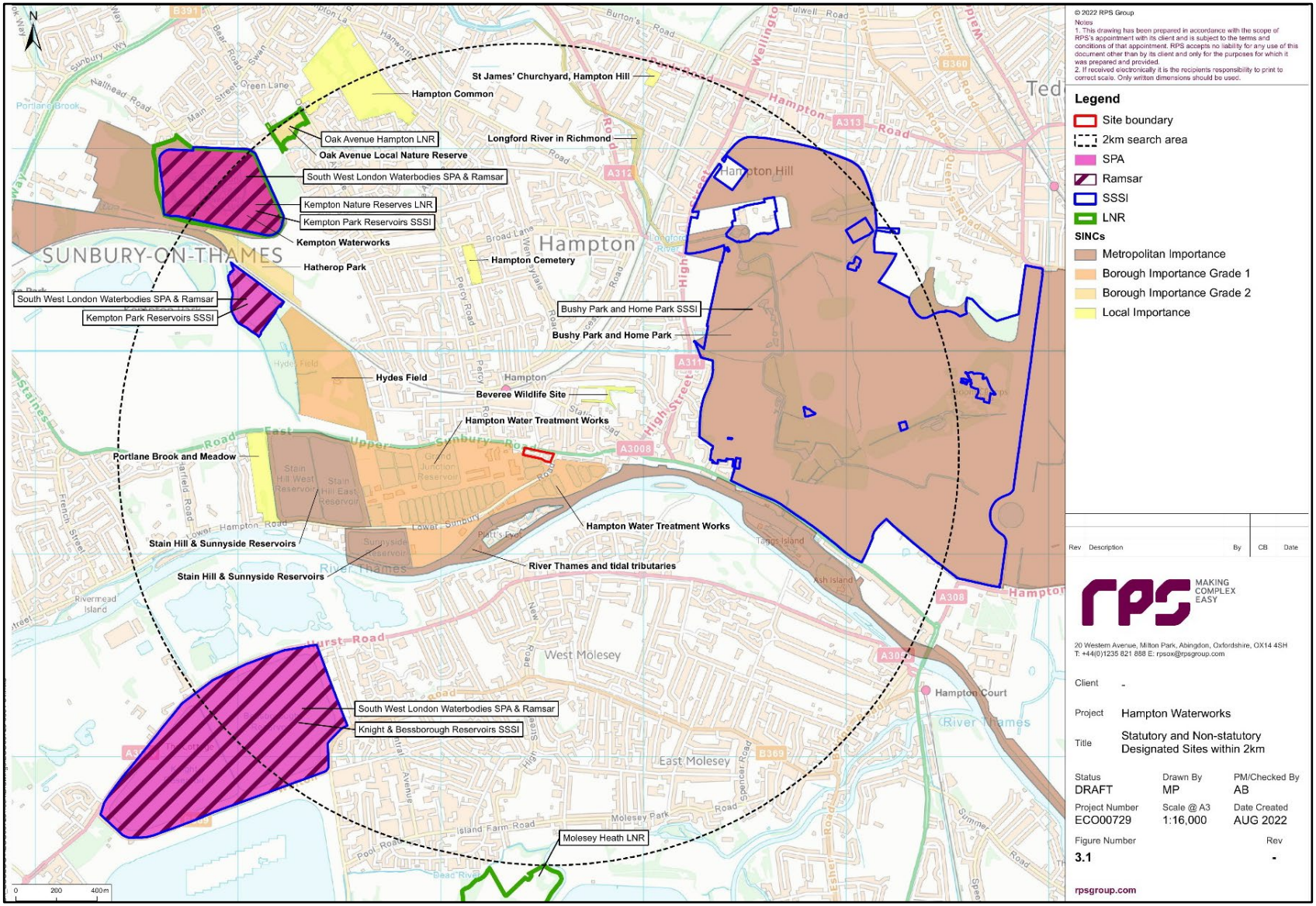
Table 3.1: Designated sites within 2 km of the study area

Site Name	Type	Approx. area (ha)	Interest Feature
Statutory Sites			
Southwest London Waterbodies	SPA, Ramsar	828.14	Kempton Park Reservoirs Site of Special Scientific Interest (SSSI), Knight & Bessborough Reservoirs SSSI, Thorpe Park No. 1 Gravel Pit SSSI, Wraysbury No. 1 Gravel Pit SSSI, Wraysbury Reservoir SSSI, and parts of Staines Moor SSSI and Wraysbury & Hythe End Gravel Pits SSSI have been recommended as a Special Protection Area because of the site's European ornithological interest. The Southwest London Waterbodies SPA comprises a series of embanked water supply reservoirs and former gravel pits that support a range of man-made and semi-natural open-water habitats
Bushy Park and Home Park	SSSI	541.03	Bushy Park and Home Park SSSI is of special interest for its nationally important saproxylic (dead and decaying wood associated) invertebrate assemblage, population of veteran trees and acid grassland communities. These features occur within and are supported by the wider habitat mosaic
Kempton Park Reservoirs	SSSI	25.62	Kempton Park Reservoirs are of national importance for wintering gadwall Anas strepera. Kempton Park Reservoirs comprises two artificially embanked basins to the northeast of Kempton Park Racecourse near Hampton. The site consists of Kempton Park East Reservoir and Red House Reservoir which lie within the operational boundary of Kempton Waterworks. In addition to the nationally important numbers of gadwall, the site also supports significant numbers of wintering shoveler *Anas clypeata*.

Site Name	Type	Approx. area (ha)	Interest Feature
Kempton Nature Reserve	LNR	22.8	The site also forms a key component of the Southwest London Waterbodies complex of sites which is a potential Special Protection Area under the EC Directive 79/409 on the Conservation of Wild Birds, and a possible Ramsar site. Regular breeding waders include lapwing *Vanellus vanellus*, redshank *Tringa totanus*, ringed plover *Charadrius hiaticula* and little ringed plover *Charadrius dubius*. A wide range of passage birds have been recorded in recent years
Oak Avenue, Hampton	LNR	1.85	Oak Avenue comprises of an area of wasteland with developing habitat including a native species hedgerow, woodland, pond with marsh area, a butterfly-attracting glade and ephemeral communities. There is a visitor centre, and the reserve is used by schools and local people who want to help develop the reserve.
Non-statutory Sites			
River Thames and tidal tributaries	SINC	2313.02	The Thames, London's most famous natural feature, is home to many fish and birds, creating a wildlife corridor running across the capital
Kempton Waterworks	SINC	47.88	This green belt site is home to a variety of waterfowl and wading birds, throughout the year
Bushy Park and Home Park	SINC	644.54	This area provides an extensive and varied open space on the edge of London. The parks contain several nationally scarce plants, as well as a variety of wetlands and old trees
Stain Hill & Sunnyside Reservoirs	SINC	24.47	These reservoirs are not only home to many waterfowl, but the dry concrete banks also support the rare tower mustard, a plant once thought to have become extinct in London
Hydes Field	SINC	15.69	A large area of open land with a good range of wildlife habitats
Hampton Water Treatment Works	SINC	41.07	A large water treatment works containing flower-rich grassland and habitats for water birds
Longford River in Richmond	SINC	5.78	A section of the Longford River with a wide range of wetland plants and good fish populations
Oak Avenue Local Nature Reserve	SINC	1.8	A fine educational nature reserve with a good range of wildlife habitats, created on a former derelict site
Hatherop Park	SINC	4.2	An open area with a diverse and colourful range of wildflowers
St James' Churchyard, Hampton Hill	SINC	0.43	A pleasant Victorian churchyard with shady woodland and colourful, flowery grassland
Hampton Court House Grounds	SINC	2.3	An attractive landscaped garden centred on a pond
Beveree Wildlife Site	SINC	0.6	A narrow strip of woodland around the edge of a football ground
Hampton Cemetery	SINC	1.07	A cemetery with flower-rich acid grassland and plenty of trees
Portlane Brook and Meadow	SINC	4.33	A section of brook and adjacent meadow, rich in wildflowers
Hampton Common	SINC	13.15	A park with hedges and trees surviving from a former agricultural landscape

Abbreviations used in Table 3.1: SPA: Special Protection Area, SSSI: Site of Special Scientific Interest, LNR: Local Nature Reserve; SINC: Site of Importance for Nature Conservation.

Figure 3.1: Designated sites within 2 km



3.2 Species

3.2.1 Records of protected species were obtained from the Greenspace Information for Greater London CIC (GiGL). A number of species of conservation importance or otherwise notable were recorded within the 2 km search radius of the site. A summary of these records is provided below in **Table 3.2**.

3.2.2 In order to simplify the results, only records of species from the last 10 years are shown. In addition, only data with a 6-figure grid reference resolution or higher are provided, since locations given at a lower resolution do not allow accurate calculation of distance to the site boundary.

Table 3.2: Species records from the last 10 years within 2 km of the site

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Plants				
Three-cornered Garlic	*Allium triquetrum*	1.0	2017	LISI category 4
Water Fern	*Azolla filiculoides*	1.2	2021	LISI category 2
Butterfly-bush	*Buddleja davidii*	1.0	2017	LISI category 3
Starwort Mouse-ear	*Cerastium cerastoides*	1.2	2014	Nationally Scarce
New Zealand Pigmyweed	*Crassula helmsii*	1.6	2018	LISI category 3
Japanese Knotweed	*Fallopia japonica*	1.2	2018	LISI category 3
Goat's-rue	*Galega officinalis*	1.0	2014	LISI category 4
Bluebell	*Hyacinthoides non-scripta x hispanica = H. x massartiana*	1.0	2017	LISI category 4
Least Duckweed	*Lemna minuta*	1.1	2014	LISI category 4
Green Alkanet	*Pentaglottis sempervirens*	0.9	2017	LISI category 6
Cherry Laurel	*Prunus laurocerasus*	1.2	2018	LISI category 3
Evergreen Oak	*Quercus ilex*	1.0	2017	LISI category 5

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Invertebrates				
Mayfly	*Ephemera lineata*	1.0	2014	RedList_GB-VU
Variable Damselfly	*Coenagrion pulchellum*	1.5	2020	RedList_GB-Lr(NT)
Common Darter	*Sympetrum striolatum*	0.7	2020	RedList_GB-DD
Beetle	*Anaglyptus mysticus*	1.1	2015	Nationally Notable B
Beetle	*Dorcatoma substriata*	1.1	2014	Nationally Notable A
Stag Beetle	*Lucanus cervus*	0.05	2021	HabDir2; NERC Act Section 41; LPS; Nationally Notable B
Tanner Beetle	*Prionus coriarius*	1.3	2021	Nationally Notable A
Black-headed Cardinal Beetle	*Pyrochroa coccinea*	1.3	2020	Nationally Notable B
Small Heath	*Coenonympha pamphilus*	1.0	2020	NERC Act Section 41; LPSL; Local Spp of Cons Conc; RedList_GB-Lr(NT)
White Admiral	*Limenitis camilla*	1.6	2020	NERC Act Section 41; LPSL; Local Spp of Cons Conc; RedList_GB-VU
Small Copper	*Lycaena phlaeas*	0.8	2018	LPS
Butterfly	*Lycaena phlaeas eleus*	0.2	2020	LPS
Large Skipper	*Ochlodes sylvanus*	0.7	2019	LPS

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
White-letter Hairstreak	*Satyrium w-album*	1.6	2018	NERC Act Section 41; LPS; Local Spp of Cons Conc; RedList_GB-EN
Brown Hairstreak	*Thecla betulae*	1.4	2018	NERC Act Section 41; LPS; Local Spp of Cons Conc; RedList_GB-VU
Essex Skipper	*Thymelicus lineola*	0.9	2020	LPS
Small Skipper	*Thymelicus sylvestris*	0.4	2019	LPS
Knot Grass	*Acronicta rumicis*	1.1	2013	NERC Act Section 41
Forester	*Adscita statices*	1.4	2021	NERC Act Section 41; LPS; Local Spp of Cons Conc
Ear Moth	*Amphipoea oculea*	1.1	2013	NERC Act Section 41
Bulrush Veneer	*Calamotropha paludella*	1.1	2013	Local Spp of Cons Conc; Nationally Notable B
Mottled Rustic	*Caradrina morpheus*	1.1	2014	NERC Act Section 41
Broom Moth	*Ceramica pisi*	1.1	2013	NERC Act Section 41
Small Phoenix	*Ecliptopera silaceata*	1.1	2013	NERC Act Section 41
September Thorn	*Ennomos erosaria*	1.1	2014	NERC Act Section 41; LPS; Local Spp of Cons Conc
Oak Processionary	*Thaumetopoea processionea*	1.1	2013	LISI category 2
Jersey Tiger	*Euplagia quadripunctaria*	0.7	2020	HabDir2

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
White-line Dart	*Euxoa tritici*	1.1	2013	NERC Act Section 41; LPS; Local Spp of Cons Conc
Rustic	*Hoplodrina blanda*	0.9	2014	NERC Act Section 41
Rosy Rustic	*Hydraecia micacea*	1.2	2013	NERC Act Section 41
Shoulder-striped Wainscot	*Leucania comma*	1.2	2014	NERC Act Section 41
Rosy Minor	*Litoligia literosa*	1.2	2013	NERC Act Section 41; LPS; Local Spp of Cons Conc
Hollyhock Seed Moth	*Pexicopia malvella*	1.2	2014	Local Spp of Cons Conc; Nationally Notable B
Giant Water-veneer	*Schoenobius gigantella*	1.7	2013	Local Spp of Cons Conc; Nationally Notable B
Buff Ermine	*Spilosoma lutea*	1.2	2014	NERC Act Section 41
Feathered Gothic	*Tholera decimalis*	0.9	2014	NERC Act Section 41
Blood-vein	*Timandra comae*	0.9	2013	NERC Act Section 41
Cinnabar	*Tyria jacobaeae*	0.9	2016	NERC Act Section 41
Oak Hook-tip	*Watsonalla binaria*	0.9	2014	NERC Act Section 41
True Fly	*Atypophthalmus inustus*	1.3	2014	Nationally Notable
True Fly	*Blaesoxipha plumicornis*	1.2	2014	Nationally Notable
True Fly	*Coenosia atra*	1.2	2014	Nationally Notable
True Fly	*Dasiops spatiosus*	1.2	2014	Nationally Notable

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
True Fly	*Fannia clara*	1.2	2014	Nationally Notable
True Fly	*Fannia gotlandica*	1.4	2013	Nationally Notable
True Fly	*Homoneura tesquae*	1.2	2014	Nationally Notable
True Fly	*Leopoldius signatus*	1.2	2014	Nationally Notable
True Fly	*Mycetophila caudata*	1.2	2014	Nationally Scarce
True Fly	*Mycetophila lastovkai*	1.2	2014	Nationally Notable
True Fly	*Mycomya parva*	1.2	2014	Nationally Notable
True Fly	*Neoleria propinqua*	1.6	2014	RedList_GB-Lr(NT); Nationally Notable
True Fly	*Pherbellia griseola*	1.2	2014	Nationally Notable
Variegated Fruit-fly	*Phortica variegata*	1.3	2014	NERC Act Section 41
True Fly	*Sapromyza opaca*	1.2	2014	Nationally Notable
True Fly	*Sarcophaga subulata*	1.5	2014	Nationally Notable
True Fly	*Sceptonia flavipuncta*	1.3	2014	Nationally Scarce
True Fly	*Tipula helvola*	1.3	2014	Nationally Notable
True Fly	*Zophomyia temula*	1.2	2014	Nationally Notable
Ant, Bee, Sawfly or Wasp	*Microdynerus exilis*	1.3	2014	Local Spp of Cons Conc; Nationally Notable B
Chinese Mitten Crab	*Eriocheir sinensis*	1.2	2014	LISI category 4

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Fish				
European Eel	*Anguilla anguilla*	1.3	2016	NERC Act Section 41; LPS; Local Spp of Cons Conc
Amphibians				
Common Toad	*Bufo bufo*	0.2	2019	NERC Act Section 41; LPS; Local Spp of Cons Conc
Common Frog	*Rana temporaria*	0.9	2020	HabDir5; LPS
Great Crested Newt	*Triturus cristatus*	1.5	2019	HabDir2; HabDir4; Cons Regs 2010 Sch2; W&CA Sch5 Sec 9.4b; W&CA Sch5 Sec 9.4c; NERC Act Section 41; LPS; Local Spp of Cons Conc
Reptiles				
Grass Snake	*Natrix helvetica*	1.2	2020	W&CA Sch5 Sec 9.1k/l; NERC Act Section 41; LPS; Local Spp of Cons Conc
Common Lizard	*Zootoca vivipara*	1.6	2021	W&CA Sch5 Sec 9.1k/l; NERC Act Section 41; LPS; Local Spp of Cons Conc
Birds				
Lesser Redpoll	*Acanthis cabaret*	0.6	2021	NERC Act Section 41; LPS; Local Spp of Cons Conc Bird-Red
Common Sandpiper	*Actitis hypoleucos*	0.4	2017	LPS
Skylark	*Alauda arvensis*	0.9	2020	NERC Act Section 41; LPS; Local Spp of Cons Conc Bird-Red

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Kingfisher	*Alcedo atthis*	0.4	2020	Birds Dir Anx 1; W&CA Sch1 Part 1; LPS
Swift	*Apus apus*	0.3	2021	LPS
Short-eared Owl	*Asio flammeus*	1.5	2015	Birds Dir Anx 1
Pochard	*Aythya ferina*	0.4	2017	LPS; Local Spp of Cons Conc; Bird-Red
Scaup	*Aythya marila*	1.3	2017	W&CA Sch1 Part 1; NERC Act Section 41; Local Spp of Cons Conc; Bird-Red
Bittern	*Botaurus stellaris*	1.2	2017	Birds Dir Anx 1; W&CA Sch1 Part 1; NERC Act Section 41; LPS; Local Spp of Cons Conc
Barnacle Goose	*Branta leucopsis*	0.4	2017	Birds Dir Anx 1
Ruff	*Calidris pugnax*	1.0	2017	Birds Dir Anx 1; W&CA Sch1 Part 1; Bird-Red
Temminck's Stint	*Calidris temminckii*	1.3	2017	W&CA Sch1 Part 1
Little Ringed Plover	*Charadrius dubius*	0.4	2016	W&CA Sch1 Part 1; LPS
Ringed Plover	*Charadrius hiaticula*	0.9	2017	LPS; Local Spp of Cons Conc; Bird-Red
Black Tern	*Chlidonias niger*	1.3	2017	Birds Dir Anx 1; W&CA Sch1 Part 1
Marsh Harrier	*Circus aeruginosus*	0.6	2017	Birds Dir Anx 1; W&CA Sch1 Part 1
Hen Harrier	*Circus cyaneus*	1.3	2016	Birds Dir Anx 1; W&CA Sch1 Part 1; NERC Act Section 41; Local Spp of Cons Conc; Bird-Red

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Cuckoo	*Cuculus canorus*	0.6	2020	NERC Act Section 41; LPS; Local Spp of Cons Conc; Bird-Red
Lesser Whitethroat	*Curruca curruca*	1.1	2020	LPS
Whooper Swan	*Cygnus cygnus*	1.3	2016	Birds Dir Anx 1; W&CA Sch1 Part 1
House Martin	*Delichon urbicum*	0.2	2018	LPS
Lesser Spotted Woodpecker	*Dryobates minor*	0.6	2013	LPS; Local Spp of Cons Conc; Bird-Red
Little Egret	*Egretta garzetta*	0.9	2021	Birds Dir Anx 1
Reed Bunting	*Emberiza schoeniclus*	0.9	2019	NERC Act Section 41; Local Spp of Cons Conc
Merlin	*Falco columbarius*	1.3	2013	Birds Dir Anx 1; W&CA Sch1 Part 1; Bird-Red
Pied Flycatcher	*Ficedula hypoleuca*	0.7	2017	Local Spp of Cons Conc; Bird-Red
Brambling	*Fringilla montifringilla*	0.7	2013	W&CA Sch1 Part 1
Great Northern Diver	*Gavia immer*	1.5	2014	Birds Dir Anx 1; W&CA Sch1 Part 1
Black-winged Stilt	*Himantopus himantopus*	1.5	2015	Birds Dir Anx 1; W&CA Sch1 Part 1
Little Gull	*Hydrocoloeus minutus*	0.4	2017	Birds Dir Anx 1; W&CA Sch1 Part 1
Mediterranean Gull	*Ichthyaetus melanocephalus*	0.4	2017	Birds Dir Anx 1; W&CA Sch1 Part 1
Herring Gull	*Larus argentatus*	0.4	2016	Bird-Red

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Lesser Black-backed Gull	*Larus fuscus*	0.4	2017	LPS
Baltic Gull	*Larus fuscus fuscus*	0.4	2017	LPS
Bar-tailed Godwit	*Limosa lapponica*	1.3	2017	Birds Dir Anx 1
Black-tailed Godwit	*Limosa limosa*	1.3	2017	W&CA Sch1 Part 1; LPS; Local Spp of Cons Conc; Bird-Red
Linnet	*Linaria cannabina*	0.4	2020	LPS; Local Spp of Cons Conc; Bird-Red
Gadwall	*Mareca strepera*	0.4	2017	LPS
Smew	*Mergellus albellus*	0.6	2013	Birds Dir Anx 1
Red Kite	*Milvus milvus*	0.2	2020	Birds Dir Anx 1; W&CA Sch1 Part 1
Grey Wagtail	*Motacilla cinerea*	0.3	2021	Local Spp of Cons Conc; Bird-Red
Yellow Wagtail	*Motacilla flava*	1.3	2020	Local Spp of Cons Conc; Bird-Red
Spanish Wagtail	*Motacilla flava iberiae*	1.3	2017	Local Spp of Cons Conc; Bird-Red
Spotted Flycatcher	*Muscicapa striata*	0.6	2020	NERC Act Section 41; LPS; Local Spp of Cons Conc; Bird-Red
Curlew	*Numenius arquata*	1.3	2016	NERC Act Section 41; Local Spp of Cons Conc; Bird-Red
Whimbrel	*Numenius phaeopus*	1.3	2017	W&CA Sch1 Part 1; Bird-Red
House Sparrow	*Passer domesticus*	0.9	2020	NERC Act Section 41; LPS; Local Spp of Cons Conc; Bird-Red

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Black Redstart	*Phoenicurus ochruros*	1.4	2013	W&CA Sch1 Part 1; LPS; Local Spp of Cons Conc; Bird-Red
Slavonian Grebe	*Podiceps auritus*	1.3	2016	Birds Dir Anx 1; W&CA Sch1 Part 1; Bird-Red
Red-necked Grebe	*Podiceps grisegena*	1.4	2015	Local Spp of Cons Conc; Bird-Red
Black-necked Grebe	*Podiceps nigricollis*	1.0	2017	W&CA Sch1 Part 1
Dunnock	*Prunella modularis*	0.4	2020	LPS
Ring-necked Parakeet	*Psittacula krameri*	1.1	2019	LISI category 4
Avocet	*Recurvirostra avosetta*	1.3	2017	Birds Dir Anx 1; W&CA Sch1 Part 1
Firecrest	*Regulus ignicapilla*	0.6	2016	W&CA Sch1 Part 1
Sand Martin	*Riparia riparia*	0.4	2020	LPS
Kittiwake	*Rissa tridactyla*	1.3	2017	Bird-Red
Whinchat	*Saxicola rubetra*	0.9	2017	Local Spp of Cons Conc; Bird-Red
Woodcock	*Scolopax rusticola*	0.6	2018	Local Spp of Cons Conc; Bird-Red
Garganey	*Spatula querquedula*	1.0	2015	W&CA Sch1 Part 1
Common Tern	*Sterna hirundo*	0.3	2017	Birds Dir Anx 1
Arctic Tern	*Sterna paradisaea*	1.3	2017	Birds Dir Anx 1
Little Tern	*Sternula albifrons*	1.3	2016	Birds Dir Anx 1; W&CA Sch1 Part 1
Tawny Owl	*Strix aluco*	0.9	2019	LPS

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Starling	*Sturnus vulgaris*	0.4	2021	LPS; Local Spp of Cons Conc; Bird-Red
Shelduck	*Tadorna tadorna*	0.3	2016	LPS
Sandwich Tern	*Thalasseus sandvicensis*	1.3	2017	Birds Dir Anx 1
Wood Sandpiper	*Tringa glareola*	1.0	2017	Birds Dir Anx 1; W&CA Sch1 Part 1
Greenshank	*Tringa nebularia*	1.0	2017	W&CA Sch1 Part 1
Green Sandpiper	*Tringa ochropus*	0.4	2017	W&CA Sch1 Part 1
Redwing	*Turdus iliacus*	0.4	2020	W&CA Sch1 Part 1; Bird-Red
Song Thrush	*Turdus philomelos*	0.9	2020	LPS; Local Spp of Cons Conc; Bird-Red
Fieldfare	*Turdus pilaris*	0.6	2020	W&CA Sch1 Part 1; Bird-Red
Mistle Thrush	*Turdus viscivorus*	0.4	2020	LPS; Local Spp of Cons Conc; Bird-Red
Lapwing	*Vanellus vanellus*	0.4	2017	NERC Act Section 41; LPS; Local Spp of Cons Conc; Bird-Red
Mammals				
West European Hedgehog	*Erinaceus europaeus*	0.6	2021	NERC Act Section 41; LPS; Local Spp of Cons Conc; RedList_GB-VU
Eurasian Otter	*Lutra lutra*	1.4	2014	HabDir2; HabDir4; Cons Regs 2010 Sch2; W&CA Sch5 Sec 9.4b; W&CA Sch5 Sec 9.4c; NERC Act Section 41; LPS; Local Spp of Cons Conc

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Eurasian Red Squirrel	*Sciurus vulgaris*	1.3	2017	W&CA Sch5 Sec 9.1k/l; W&CA Sch5 Sec 9.1t; W&CA Sch5 Sec 9.4a; W&CA Sch5 Sec 9.4b; W&CA Sch5 Sec 9.4c; NERC Act Section 41; Local Spp of Cons Conc; RedList_GB-EN
Serotine	*Eptesicus serotinus*	0.4	2018	HabDir Anx 4; Cons Regs 2010 Sch2; W&CA Sch5 Sec 9.4b; W&CA Sch5 Sec 9.4c; LPS; Local Spp of Cons Conc; RedList_GB-VU
Daubenton's Bat	*Myotis daubentonii*	0.3	2019	HabDir Anx 4; Cons Regs 2010 Sch2; W&CA Sch5 Sec 9.4b; W&CA Sch5 Sec 9.4c; LPS; Local Spp of Cons Conc
Whiskered Bat	*Myotis mystacinus*	1.9	2017	HabDir Anx 4; Cons Regs 2010 Sch2; W&CA Sch5 Sec 9.4b; W&CA Sch5 Sec 9.4c; Local Spp of Cons Conc; RedList_GB-DD
Natterer's Bat	*Myotis nattereri*	0.4	2014	HabDir Anx 4; Cons Regs 2010 Sch2; W&CA Sch5 Sec 9.4b; W&CA Sch5 Sec 9.4c; LPS; Local Spp of Cons Conc
Lesser Noctule	*Nyctalus leisleri*	1.7	2018	HabDir Anx 4; Cons Regs 2010 Sch2; W&CA Sch5 Sec 9.4b; W&CA Sch5 Sec 9.4c; LPS; Local Spp of Cons Conc; RedList_GB-Lr(NT)
Noctule Bat	*Nyctalus noctula*	0.3	2019	HabDir Anx 4; Cons Regs 2010 Sch2; W&CA Sch5 Sec 9.4b; W&CA Sch5 Sec 9.4c; NERC Act Section 41; LPS; Local Spp of Cons Conc
Nathusius's Pipistrelle	*Pipistrellus nathusii*	0.3	2019	HabDir Anx 4; Cons Regs 2010 Sch2; W&CA Sch5 Sec 9.4b; W&CA Sch5 Sec 9.4c; LPS; Local Spp of Cons Conc; RedList_GB-Lr(NT)

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Pipistrelle	*Pipistrellus pipistrellus*	0.3	2019	HabDir Anx 4; Cons Regs 2010 Sch2; W&CA Sch5 Sec 9.4b; W&CA Sch5 Sec 9.4c; LPS; Local Spp of Cons Conc
Soprano Pipistrelle	*Pipistrellus pygmaeus*	0.3	2020	HabDir Anx 4; Cons Regs 2010 Sch2; W&CA Sch5 Sec 9.4b; W&CA Sch5 Sec 9.4c; NERC Act Section 41; LPS; Local Spp of Cons Conc
Brown Long-eared Bat	*Plecotus auritus*	1.3	2019	HabDir Anx 4; Cons Regs 2010 Sch2; W&CA Sch5 Sec 9.4b;W&CA Sch5 Sec 9.4c; NERC Act Section 41; LPS; Local Spp of Cons Conc

Abbreviations used in Table 3.2: LISI: London Invasive Species Inventory; Nationally Scarce: Rare Plants Register; RedList_GB_Pre94-R : Red List (pre 1994 IUCN guidelines) Rare; RedList_Global_post2001_LC: Global Red list status: Lower risk - least concern; NERC: Natural Environment & Rural Communities Act Species of Principal Importance; UKBAP: UK Biodiversity Action Plan priority species; LPSL: London Priority Species List; Local Spp of Cons Conc: Local species of conservation concern; HabDir2, 4, 5: Habitats Directive Annex 2, 4, 5; NERC: Natural Environment & Rural Communities Act Species of Principal Importance.

3.3 Habitat Survey

3.3.1 The survey results are presented in the form of a map with the habitat types and boundary features marked (**Figure 3.2**). An explanation of target notes from **Figure 3.2** with the proposed site plans in **Appendix B** and site photographs can be found in **Appendix C**.

3.3.2 Descriptions of the habitat types and boundary features are detailed below. Habitat descriptions are defined by broad habitat types (UKHab, 2022).

Modified Grassland

3.3.3 Modified grassland (UKHab code: g4 (16, 67, 72, 78, 109, 203, 310)) was recorded at different areas of the site. Species include perennial rye grass *Lolium perenne*, yarrow *Achillea millefolium*, clover *Trifolium repens* and dandelion *Taraxacum officinale*. Patches of scattered butterfly-bush *Buddleia davidii*, elder *Sambucus nigra* and bramble *Rubus fruticosus agg*. were recorded within the grassland.

Mixed Scrub

3.3.4 Mixed scrub (UKHab code: h3h (11, 48, 57, 67, 330)) was recorded behind a small shed. Within the scrub were occasional field maple *Acer campestre* trees. Scrub mainly comprised butterfly-bush, bramble and nettle *Utica dioica*.

3.3.5 A few patches of ivy *Hedera helix* were growing over the fence on the southern border.

Buildings

3.3.6 Nine buildings (B1 – B9) (UKHab code: u1b5 (10, 48, 78, 90, 91, 108, 109)) were present within the site boundary at the time of the survey. The buildings were used for different services and residential purposes. See **Section 3.4. Bats** for building descriptions.

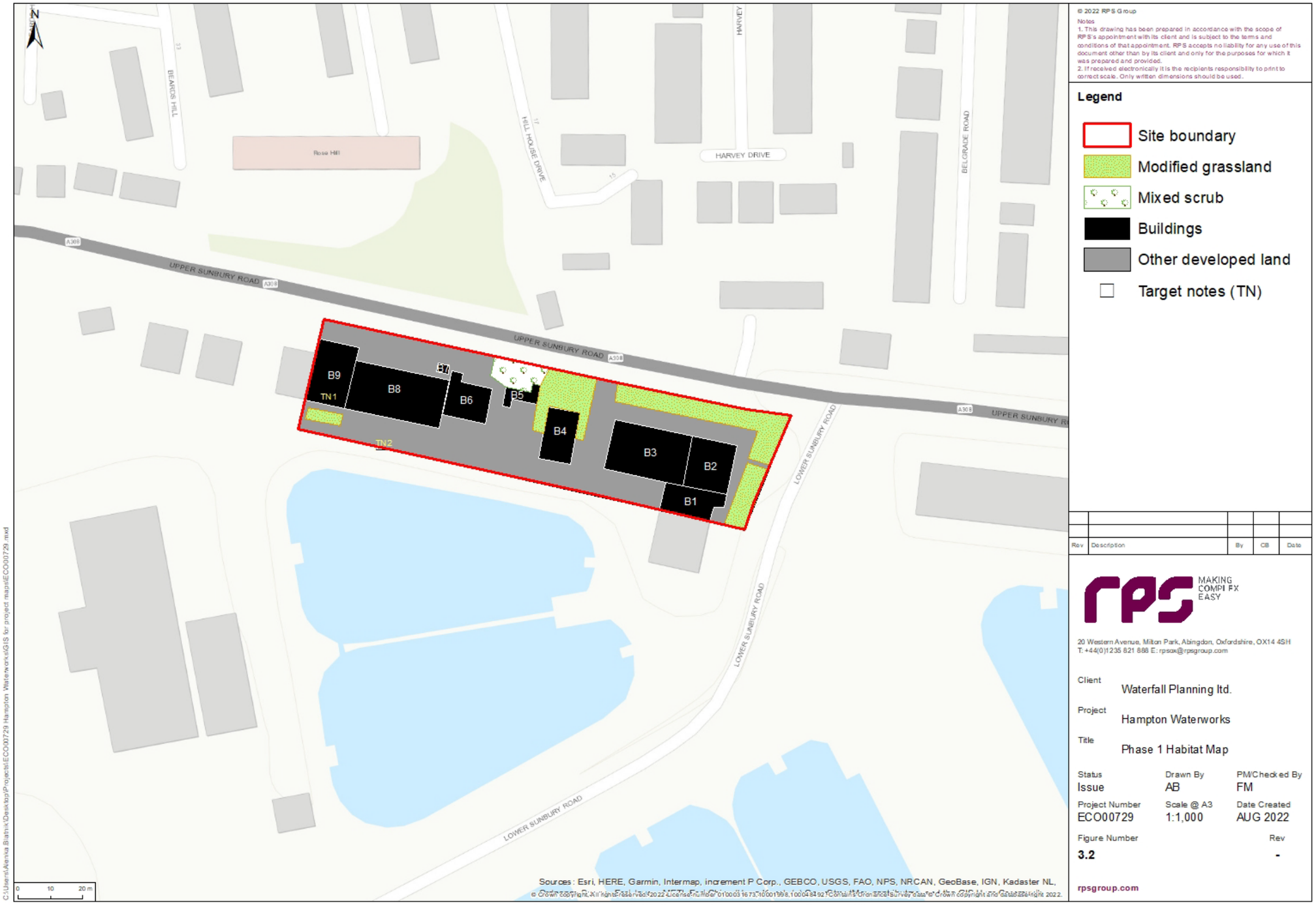
Other Developed Land

3.3.7 An area of hardstanding was present covering the surface around buildings (UKHab code: u1b6 (10, 11, 48, 69, 78)). The areas included scattered butterfly-bush which was established within small cracks (**Figure 3.2, Photograph 6**).

Urban Trees

3.3.8 17 trees were recorded within the site boundary at the time of the survey. The trees were a mix of young, early mature and mature trees comprising sycamore *Acer psuedoplatanus*, ash *Fraxinus excelsior*, Lawson cypress *Chamaecyparis lawsoniana*, bay laurel *Laurel nobilis* and holly *Ilex aquifolium*.

Figure 3.2 Habitat Map



3.4 Ecological Scoping Survey

Plants

3.4.1 No notable or rare plants were recorded on site at the time of the survey with the site considered unlikely to support rare and notable flora due to the managed nature of the site.

Invasive Non-Native Species

3.4.2 Butterfly-bush was scattered around the site. The plant is included in Category 3 on a list of London Invasive Species Initiative (LISI).

Invertebrates

3.4.3 The scrub and grassland areas were considered to provide suitable habitat for invertebrates, with butterfly species recorded on site at the time of the survey.

Great Crested Newts

3.4.4 No suitable aquatic habitat for GCN was recorded on-site at the time of the survey. The hardstanding and buildings were considered to be sub-optimal habitat for GCN due to the lack of suitable refuge, cover and foraging resources. The scrub and grassland offered some limited suitable habitat. The only waterbodies identified within 250m of the site are the lagoons associated with the water treatment works. It is understood that these lagoons are regularly managed as part of the water treatment process. In accordance with academic research, GCN are understood to typically stay within 250m of breeding ponds (Franklin, 1993; Oldham and Nicholson, 1986; Jehle, 2000).

3.4.5 The closest record for GCN was over 1 km from the site, with no license records for GCN within 2 km of the site showing on Magic.

3.4.6 It is considered unlikely that GCN are utilising the site and therefore will not be considered further in this report. In the unlikely event a GCN is encountered during the works, all works on site should immediately cease and an ecologist be contacted.

3.4.7 The habitats on-site were considered sub-optimal for common amphibians with limited scrub and grassland habitats. The desk study returned records for common toad *Bufo bufo* within 200 m of the site. Due to the limited suitability of the site, it is considered unlikely this species occurs within the working area. Common amphibians will not be considered further in this report.

Reptiles

3.4.8 The habitats on site were considered to be of limited value for reptiles due to the lack of suitable connected habitat and limited suitable cover. The site was also considered unlikely to support suitable levels of prey abundance to support common reptiles. The lagoons to the south were considered to be unsuitable for grass snake *Natrix helvetica* due to the regular management as part of the water treatment works.

3.4.9 Records for grass snake and common lizard *Zootoca vivipara* were returned in the desk study. The closest of these was grass snake within 1.2km of the site.

3.4.10 It is considered unlikely that reptiles are utilising the site and therefore will not be considered further in this report.

Birds

3.4.11 Robin *Erithacus rubecula*, house sparrow *Passer domesticus*, blackbird *Turdus merula*, magpie *Pica pica* and domestic pigeon *Columba livia* were recorded on site at the time of the survey.

3.4.12 Due to the size and dominance of hardstanding and buildings on site, the site was considered unlikely to support a large or important assemblage of birds. The scrub, trees and buildings were considered to provide suitable nesting habitats for common bird species associated with the built environment.

3.4.13 The reservoirs adjacent to the site boundary are drained regularly and heavily managed therefore it is unlikely that they are used regularly by large numbers of birds for foraging and / or breeding.

Bats

3.5 Preliminary Bat Roost Assessment

3.5.1 Nine buildings were present on site at the time of the survey. These buildings were subject to Preliminary Bat Roost Assessment. Buildings could only be assessed externally as no internal access was granted at the time of the survey. The results of the are described in **Table 3.3** below.

Table 3.3: Preliminary Bat Roost Assessment

Building reference	Building description	Description of features	Suitability to support roosting bats	Recommendations for further work
B1	Building one consisted of a two-storey brick-built building.	N/A	Negligible	No further work required
B2	Building two consisted of a three-storey brick-built building. Small amounts of vegetation were present growing from cracks within mortar.	N/A	Negligible	No further work required
B3	Building three consisted of a single storey brick-built building. There was a small lean-to extension and a single pitched roof with slate tiles.	N/A	Negligible	No further work required
B4	Building four consisted of a two-storey brick-built concrete house with a slate tiles roof.	N/A	Negligible	No further work required
B5	Building five consisted of a single storey brick-built workshop unit with a pitched roof and wooden facia.	Lifted tiles and gaps between flashing.	Moderate	2 x emergence/ re-entry surveys
B6	Building six comprised a two-storey building. The first storey was constructed from stone and plaster and the second storey was brick-built.	N/A	Negligible	No further work required
B7	Building seven consisted of a single storey portacabin with a flat decayed roof and an open door.	N/A	Negligible	No further work required
B8	Building eight consisted of a single storey brick-built building.	N/A	Negligible	No further work required
B9	Building nine comprised a three-storey brick-built building and a single storey extension with a single pitched roof with slate tiles.	Broken windows at the top floor	Low	1 x emergence/ re-entry survey

3.5.2 The trees on site were subject to a Preliminary Ground Level Roost Assessment. No suitable features for roosting bats such as fissures, woodpecker holes or limb failures were recorded at the time of the survey.

3.6 Bat Emergence Surveys

3.6.1 Two of the buildings on site (B5 and B9) were considered to have features suitable for roosting bats. In line with current guidelines (Collins, 2016) B5 was subject to two emergence surveys whilst B9 was subject to a single emergence survey. The details of the surveys are described below.

31st August 2022: Emergence: B5

3.6.2 The surveys commenced at 19:34 with sunset at 19:49. The first bat was a soprano pipistrelle recorded at 20:20 heard but not seen by the surveyor and the last bat, a common pipistrelle at 21:17. The majority of the activity at the site was attributed to common pipistrelles, with soprano pipistrelles and noctules also recorded. Activity was considered to be low with a total of bat passes.

3.6.3 The surveys ended at 21.19.

3.6.4 No bats were recorded emerging from the building during the survey.

31st August 2022: Emergence: B9

3.6.5 The surveys commenced at 19:34 with sunset at 19:49. The first bat was a soprano pipistrelle *Pipistrellus pygmaeus* recorded at 20:15 heard but not seen by the surveyor and the last bat, a common pipistrelle *Pipistrellus pipistrellus* at 21:18. The majority of the activity at the site was attributed to soprano pipistrelles and noctules *Nyctalus noctula* also recorded. Activity was considered to be low with a total of 34 bat passes.

3.6.6 The surveys ended at 21.19.

3.6.7 No bats were recorded emerging from the building during the survey.

20th September 2022: Emergence: B5

3.6.8 The surveys commenced at 18:49 with sunset at 19:04. The first bat was a noctule at 19:26 with the last bat recorded being a soprano pipistrelle at 20:32. The majority of the activity at the site was attributed to soprano pipistrelles with common pipistrelles and noctules also recorded. Activity was considered to be low with a total of 49 bat passes.

3.6.9 The survey ended at 20.34.

3.6.10 No bats were recorded emerging from either building during the surveys.

3.6.11 Bats were noted foraging and commuting around the site during the nocturnal surveys. The mature trees on site were considered to offer some limited suitable foraging habitat for bats with limited links to the wider environment. Due to the small size of the site, limited suitable features and lack of strong, linear connectivity to the wider environment, the site was not considered likely to be of significant importance to local bat populations.

Otter

3.6.12 Records for otter *Lutra lutra* were returned within 1.6 km of the site, with the River Thames located approximately 180 m south of the site. No suitable habitat for these species was recorded on site at the time of the surveys.

Badger

3.6.13 No evidence of badger *Meles meles* such as setts, latrines, snuffle holes or hairs were recorded on site at the time of the survey with the site being considered suboptimal for this species due to the dominance of hardstanding features and buildings.

3.6.14 No records for badger were returned in the desk study.

Other Mammals

3.6.15 The site is potentially suitable for foraging and commuting hedgehogs *Erinaceus europaeus* and urban fox *Vulpes vulpes*. No further surveys are considered necessary but precautionary measures during construction are recommended.

3.6.16 No other protected or otherwise notable mammal species are considered likely to occur.

4 EVALUATION AND POTENTIAL IMPACTS

4.1 Designated Sites

4.1.1 Hampton Waterworks SINC is located directly adjacent to the south of the site. To reduce the risk of impacts such as noise, dust and vibration from the proposed works to the SINC, a Construction Environment Management Plan (CEMP) will be implemented on the site. This will include dust suppression and noise reduction controls such as damping down work areas. These controls will also prevent impacts to other designated sites within the surrounding area. Further details can be found below in **Section 5**.

4.2 Habitats

4.2.1 The buildings and hardstanding areas were considered to be of limited value to nature conservation. The buildings are considered to be of value to nesting birds only.

4.2.2 The areas of grassland and scrub were considered to be of low value to nature conservation, offering some limited suitable nesting and foraging habitat for birds and hedgehogs. These will be lost to facilitate the development.

4.2.3 The trees on site are considered to be of moderate value to nature conservation offering suitable nesting and foraging habitat for birds and suitable foraging habitat for bats. Seven trees will be lost to facilitate the development.

4.3 Species

Invasive Non-native Species

4.3.1 Buddleia was recorded on site. Buddleia is an invasive plant, although it is not included on Schedule 9 of the Wildlife and Countryside act 1981, the plant outcompetes native flora and can cause damage to buildings and hardstanding surfaces.

Invertebrates

4.3.2 Butterflies were noted on site at the time of the survey. The loss of grassland areas and trees may negatively impact butterfly species in the locality.

4.3.3 Recommendations for invertebrates have been made in **Section 5.**

Breeding Birds

4.3.4 Breeding birds are protected by the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is an offence to intentionally kill, injure or take the birds or their eggs, or to intentionally destroy or disturb a nest, when it is in use or being built.

4.3.5 The trees, buildings and scrub were considered suitable for nesting birds. Works to these habitats may result in damage or destruction of active nests. Further considerations for birds are outlined in **Section 5**.

Bats

4.3.6 No bats were recorded roosting in the buildings on site, and impacts from the works to roosting bats are therefore unlikely.

4.3.7 Three species of bat were recorded utilising the site for foraging and commuting during the emergence surveys. The site was considered to offer some limited suitable foraging and commuting habitat through the mature trees. Seven of the trees will be lost to facilitate the development resulting in a minor temporary impact whilst newly created habitats mature.

4.3.8 Mitigation measures to reduce impacts from lighting on bats foraging and commuting around the site should be implemented. Further details are outlined in **Section 5.**

Badger

4.3.9 It cannot be entirely ruled out that badger may commute across the site periodically and be injured in open excavations. Precautionary mitigation measures are therefore outlined in **Section 5.**

Otter

4.3.10 Although considered unlikely, it cannot be entirely ruled out that otter may cross the site periodically. Precautionary mitigation measures are therefore outlined in **Section 5.**

Other Mammals

4.3.11 No significant impacts on other mammal species of conservation interest are expected, however, precautionary measures during construction are recommended to prevent harm are outlined in **Section 5**.

5 MITIGATION AND ENHANCEMENT

5.1 General

5.1.1 A Biodiversity Net Gain Assessment (RPS, 2022) has been undertaken for the development and should be read in conjunction with this report.

5.1.2 An Ecological Enhancements Plan (RPS, 2022) for the site has been produced and should be read in conjunction with this report.

5.2 Designated Sites

5.2.1 A CEMP will be implemented for the site to avoid negative impacts to Hampton Water Treatment Works SINC as a result of the works. The CEMP will serve to protect other designated sites within 2 km.

5.2.2 A sensitive lighting plan will be implemented at the site to ensure no increase in light pollution to Hampton Water Treatment Works SINC are incurred as a result of the development.

5.3 Habitats

5.3.1 In order to mitigate for the loss of trees, the final landscaping design will incorporate 35 newly planted, native trees comprising the following species: field maple *Acer campestre*, silver birch *Betula pendula*, hornbeam *Carpinus betulus*, aspen *Populus tremula*, crab apple *Malus sylvestris* and rowan *Sorbus aucuparia*.

5.3.2 Trees to be retained as part of the development should be protected during the construction phase of the development by the installation of protective fencing installed in line with BS5837:2012 Trees in Relation to Design, Demolition and Construction: Recommendations.

5.3.3 Newly created grasslands will include areas of wildflower meadow planting to provide suitable habitat for invertebrates.

5.4 Species

Invasive Non-native Species

5.4.1 Butterfly-bush *Budleja davidii* was recorded at the site during the visit. The plant is included in Category 3 on a list of London Invasive Species Initiative (LISI) and should be removed from the site as part of the works and disposed of responsibly.

5.4.2 The site should be monitored for re-growth as part of the post development habitat management. Where re-growth is found, this should be removed from the site.

Invertebrates

5.4.3 The areas of proposed wildflower grassland will provide suitable habitat for a range of invertebrate species with the grasslands and wildflowers capable of supporting different life stages of invertebrate species. The scrub and trees will also provide shelter and suitable foraging habitat for adult and larval stages of some invertebrate species.

5.4.4 Whilst there will be a delay to maturity of newly created habitats on site, it is considered that the range, size and structure of habitats proposed will offer more variation and be more beneficial to invertebrates than the habitats currently present on site.

Birds

5.4.5 To avoid damaging or destroying active nests during site clearance works prior to construction, it is recommended that vegetation clearance and building demolition / works is undertaken outside of the breeding season (which runs from March – August, inclusive). If this is not possible, vegetation and buildings should be checked prior to clearance by a suitably experienced ecologist, and any active nests found must be left undisturbed until the chicks have fledged.

5.4.6 Works outside the nesting bird season should still be preceded by a nesting bird check undertaken by the contractor. Where birds are found to be nesting, no works should occur in this area until it has been confirmed by an ecologist all chicks have fledged.

Bats

5.4.7 Although no bats were recorded roosting in the buildings on site at the time of the surveys, it is recommended that bat boxes be included as part of the post development enhancement of the site for bats. Two bat boxes, Ibstock Enclosed Bat Box 'C' or similar should be installed in suitable locations on buildings and not subject to light levels above 1 lux. The location and further information about installation will be included on the Ecological Enhancement Plan (RPS, 2022).

5.4.8 Seven trees on site will be lost to facilitate the development. These trees were considered to offer some limited suitable foraging habitat for bats. Ten trees will be retained as part of the development. The loss of trees will be mitigated for in the final landscaping scheme through the planting of 35 new trees and the creation of hedgerows and wildflower grassland. There will be a temporary impact to foraging bats whilst these habitats mature, however there is more suitable foraging and commuting habitat in the local area and the site is considered unlikely to form part of significant commuting routes or support high numbers of bats. It is considered that the proposed final landscaping scheme will improve the suitability of the site for bats and will increase the invertebrate assemblage present on site creating a richer food source for local bat populations.

5.4.9 During construction, night working should be avoided and if night working is necessary, lighting impacts will need to be reduced as detailed in **Section 5.4.8.**

5.4.10 Newly created boundary habitats suitable for use by foraging and commuting bats such as the trees, hedgerows and scrub should not be subject to lighting levels above 1 lux. The operational lighting is to be designed in accordance with Bat Conservation Trust and Institution of Lighting Professionals (2018) Guidance Note 8: Bats and artificial lighting including the following recommendations:

- Do not "over" light. Use only the minimum amount of light needed for safety. There are published standards for most lighting tasks, adherence to which will help minimise upward reflected light.
- Eliminate any bare bulbs and any light pointing upwards. The spread of light should be kept near to or below the horizontal.
- Use narrow spectrum bulbs to lower the range of species affected by lighting.
- Use light sources that emit minimal ultra-violet light. Insects are attracted to light sources that emit ultra-violet radiation.
- Reduce light-spill so that light reaches only areas needing illumination. Shielding or cutting light can be achieved through the design of the luminaire or with accessories, such hoods, cowls, louvers and shields to direct the light. Light spill should avoid areas of suitable foraging and commuting habitat (for this site, particularly the southern boundary).

5.4.11 Once complete, the lighting design will need to be reviewed by an ecologist.

Badger

5.4.12 The mitigation outlined below for otter will serve to protect badgers which may cross the site periodically.

Otter

5.4.13 Mitigation measures for otter during construction will need to be implemented to prevent harm as follows:

- any open deep excavations to be sloped or securely boarded / fenced to prevent entrapment;
- should any large pipework be installed, any open pipes should be capped overnight to prevent mammals from becoming entrapped;
- night work should be avoided where possible, and any flood lighting should face away from the site boundaries;
- excavations to be checked for trapped animals daily; and
- any hazardous materials to be stored in a secure store.

5.4.14 In the unlikely event that otter are spotted during works, works must cease immediately, and an appropriately qualified ecologist contacted for further advice.

5.4.15 Lighting during the construction and operational phases of the works should not cause increased illumination of the lagoons to the south of the site in order to prevent disturbance to otter in the unlikely event they are using the lagoons for foraging.

Other Mammals

5.4.16 Mitigation measures outlined for otter above will serve to protect other animals which may enter the site such as hedgehogs and urban fox.

6 CONCLUSIONS

6.1.1 A CEMP will be implemented for the site to avoid negative impacts to Hampton Water Treatment Works SINC as a result of the works. The CEMP will serve to protect other designated sites within 2 km.

6.1.2 An EMP (RPS, 2022 has been produced for the site and should be read in conjunction with this report.

6.1.3 A BNG assessment (RPS, 2022) was undertaken at the site and should be read in conjunction with this report.

6.1.4 The habitats recorded on site were considered to be common and widespread, with the most valuable habitat considered to be the trees. Seven of the trees will be lost to facilitate the development however these will be compensated for through post development tree planting.

6.1.5 Butterfly-bush *Budleja davidii* was recorded at the site during the visit. The plant is included in Category 3 on a list of London Invasive Species Initiative (LISI) and should be removed from the site as part of the works and disposed of responsibly.

6.1.6 The creation of wildflower meadows, scrub and additional tree planting will be beneficial for invertebrates and provide a wider range of habitats than is currently present on site.

6.1.7 To avoid damaging or destroying active nests during site clearance works prior to construction, it is recommended that vegetation clearance and building demolition is undertaken outside of the breeding season (which runs from March – August, inclusive). If this is not possible, vegetation should be checked prior to clearance by a suitably experience ornithologist, and any active nests found must be left undisturbed until the chicks have fledged.

6.2 No bats were recorded emerging from the buildings on site at the time of the surveys and no suitable roosting features were recorded on the trees within the site boundary. Therefore, it is not considered that the site is currently being utilised by roosting bats.

6.3 Bats were recorded using the site for foraging and commuting purposes. The removal of the seven of the trees on the site as part of the development will have a temporary impact on foraging bats whilst compensatory habitats reach maturity, however due to the limited existing suitable foraging habitat and other suitable habitat in the wider area, it is considered unlikely to have a significant impact on local bat populations. Illumination of suitable boundary foraging features should be avoided in the final lighting designs for the scheme, with lux levels below 1 lux in these areas.

6.4 Proposed lighting schemes for the site should be designed in line with the guidance provided in Section 5 above with the final proposed lighting scheme submitted for review by an ecologist prior to implementation.

6.5 Precautionary methods should be implemented throughout the construction phase to prevent accidental harm to otters should they commute across the site. These measures will also serve to protect other animals such as badger, urban fox and hedgehog.

6.6 Should an otter be observed on or adjacent to site, an ecologist should be contacted for further advice.

6.7 No lighting impacts to the lagoons to the south of the site should be incurred as a result of the development.

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APPENDICES

Appendix A
Relevant Legislation

A.1 BIRDS

All birds, their nests and eggs are afforded protection under the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. It is an offence to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; and
- intentionally take or destroy the egg of any wild bird.

Schedule 1 birds cannot be intentionally or recklessly disturbed when nesting and there are increased penalties for doing so. Licences can be issued to visit the nests of such birds for conservation, scientific or photographic purposes but not to allow disturbance during a development even in circumstances where that development is fully authorised by consents such as a valid planning permission.

A.2 BATS

All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. All British bats are also included on Schedule 2 of The Conservation of Habitats and Species Regulations 2019 (Amendment) (EU Exit) Regulations 2019 ;. It is an offence to:

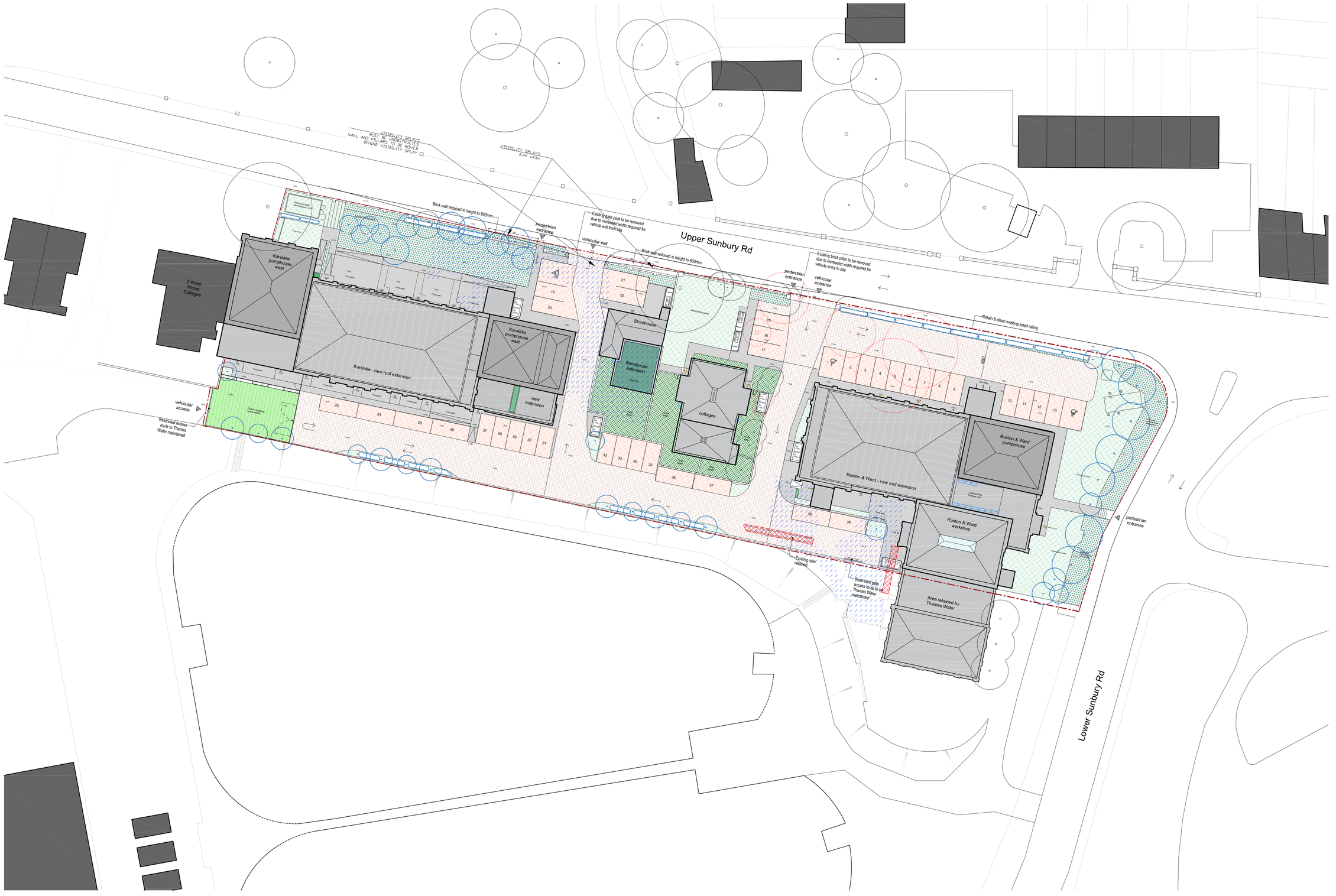
- intentionally or recklessly kill, injure or capture bats;
- deliberately or recklessly disturb bats (whether in a roost or not); and
- damage, destroy or obstruct access to bat roosts

A roost is defined as 'any structure or place which [a bat] uses for shelter or protection'. As bats tend to reuse the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of survey.

A licence will therefore be required by those who carry out any operation that would otherwise result in offences being committed.

The following bat species are listed as being of principal importance for the conservation of biodiversity in England, (commonly referred to as UKBAP Priority species): Barbastelle, Bechstein’s, Noctule, Soprano Pipistrelle, Brown Long-eared, Greater Horseshoe, and Lesser Horseshoe.

Appendix B Proposed Site Plans



SCALE 1:200
Proposed Site Plan

USE OF DRAWINGS

DO NOT SCALE FROM THIS DRAWING. USE WRITTEN DIMENSIONS AND CHECK ON SITE. THIS DRAWING IS BASED ON SITE INFORMATION SUPPLIED BY THIRD PARTIES AND ACCURACY OF EXISTING FEATURES IS NOT GUARANTEED.

ANY ERROR, OMISSION OR DISCREPANCY NOTED ON OR BETWEEN DRAWINGS AND OTHER DOCUMENTS MUST BE REPORTED IN WRITING IMMEDIATELY.

ALL MECHANICAL, ELECTRICAL AND STRUCTURAL LAYOUTS / COMPONENTS ARE INDICATIVE AND MUST BE DESIGNED AND CHECKED BY SPECIALISTS.

DO NOT START WORK ON SITE BEFORE CONFIRMING THAT ALL NECESSARY STATUTORY AND OTHER CONSENTS HAVE BEEN OBTAINED.

REVISIONS

REV	DATE	DESCRIPTION	CHECKED DRAWN	
-	11.10.2019	INITIAL ISSUE	MC	KW
A	04.11.2019	LEVEL ADJUSTMENTS	MC	KW
B	04.05.2020	LEVEL ADJUSTMENTS. ADDITIONAL TREES TO EASTERN BOUNDARY	SJ	RH
C	06.05.2020	MAIN VEHICULAR EXIT AMENDED	SJ	RH
D	15.05.2020	AMENDMENTS TO TREES AND LANDSCAPING	SJ	RH
E	27.05.2020	HABITAT PLANTING SHOWN	SJ	RH
F	25.07.2022	DESIGN REVIEW AMENDMENTS	OC	JF
G	04.11.2022	PLANT ENCLOSURE ADDED; AMENDMENT TO PLAY AREA	LW	JF
H	26.05.2023	HISTORIC ENGLAND FOR COMMENT	JF	JF

NOTE:

- DRAWINGS ARE DESIGN INTENT FOR THE PURPOSE OF PLANNING APPROVAL.
- ALL DRAWINGS ARE SUBJECT TO FURTHER DESIGN DEVELOPMENT AND COORDINATION WITH ENGINEERS INFORMATION.
- ALL FURNITURE AND INTERIOR LAYOUTS ARE INDICATIVE AND SUBJECT TO DETAILED DESIGN.
- EXISTING HERITAGE BRICK AND STONE FACADES TO BE CLEANED AND RESTORED
- INTERNAL VOLUMES TO BE STRIPPED OUT, REMOVING 20TH C. WORK AND RESTORING ORIGINAL FABRIC
- INDUSTRIAL HERITAGE DETAILS - TILES, BRICKS, ELECTRICAL SWITCHES, LIFTING CRANES, ETC. - TO BE CLEANED AND RETAINED
- ALL EXISTING ORIGINAL WINDOWS TO BE RETAINED AND RESTORED, WITH NEW HIGH-PERFORMANCE SECONDARY GLAZING INSERTED BEHIND
- ALL EXISTING WINDOWS WHICH ARE NOT ORIGINAL TO THE BUILDING TO BE REPLACED WITH HIGH PERFORMANCE WINDOWS TO MATCH EXISTING DESIGN
-

Key

- Asphalt
- Shared surface paving
- Pedestrian paving
- Car parking bays
- Private amenity space
- Shared soft landscaping
- Children's play area/ shared access surface
- Habitat planting
- Trees: Existing & retained
- Removed
- New
- Existing cobbles to be retained.
- Existing cobbles to be retained.
- New location of retained cobbles

IN PROGRESS

Metres 0 4 10 20 Scale 1:200

N

client
WATERFALL PLANNING LTD

project
HAMPTON WATERWORKS

drawing title
PROPOSED SITE PLAN

sheet size A1 | scale 1:200 @ A1

status
PLANNING

drawing no 1685-A-P100 | revision H

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Appendix C
Photographs

Photograph 1:
TN1—B9 broken glass on top floor (north side)

Photograph 2:
TN1—B9 broken glass on top floor (south side)

Photograph 3:
TN2—vegetation suitable for nesting birds

Photograph 4:
TN3—missing roof tiles

Photograph 5:
Scattered vegetation on buildings and ground

Photograph 6:
Vegetation growing through hardstanding

Client	Waterfall Planning ltd.	Drawing	ECO0729
Figure Number	Target Notes & Site photos	Drawn: AB / Checked: FM	
Figure Title	1	Date	02/08/2022

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