


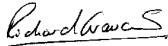


Greggs Bakery / Twickenham

2018 Extended Phase 1 Habitat Survey Report

February 2019

Verification Record

Project	Prepared & Checked by	Approved by	Client	Status	Date
RGA133 Greggs	Dr Suzy Cardy BSc (Hons) MSc CEng	A.R. Graves CEng CEnv FCIEEM	London Square Developments Ltd	V4.0	Feb 19
					

Conditions of Use

This report has been prepared for the exclusive use of London Square Developments Ltd and their consultants and contractors and the local planning authority by Richard Graves Associates Ltd. The purpose of the report is explicitly stated in the text. It is not to be used for any other purposes unless agreed with Richard Graves Associates. The copyright for the report rests with Richard Graves Associates unless otherwise agreed.

According to the purpose of the report, survey information supplied reflects the findings of the surveyor at the time of the visit. Species and habitats are subject to change over time, some species may not be apparent at certain times (for example subject to seasonal variation) and some species may colonise a site after a survey has been completed. These matters should be considered when using this report. Richard Graves Associates takes no responsibility for ecological features present after the date of the most recent survey. Ecological information over two years old should be updated before use in planning

centres is used in accordance with the appropriate terms and conditions of the suppliers. Ecological information more than five years old should be considered of historic interest only and not be relied on for decision making.

All Richard Graves Associates staff are members of, at the appropriate level of the Chartered Institute of Ecology and Environmental Management (CIEEM) and subscribe to its code of professional conduct in their work. In accordance with the code limitations to the methods, results and conclusions will be accurately stated and any biological records collected as part of the project will be supplied to the appropriate local records centre one year after the date of issue of the report unless otherwise agreed.

Contents

1	Summary	5
2	Introduction	7
2.1	Instruction.....	7
2.2	Survey Objectives.....	7
2.3	Site Location and Setting.....	7
2.4	Rationale for the Survey.....	8
2.5	Assessment.....	8
3	Methods	9
3.1	Extended Phase 1 Habitat Survey.....	9
3.2	Desktop Study	9
3.2.1	Sources of Ecological Information	9
3.2.2	Local Records Centre Data	9
3.2.3	MAGIC Data Search	9
3.2.4	Ponds	9
3.2.5	Protected Species Licences.....	9
3.3	Protected Species Walkover and Phase 1 Habitat Survey	10
3.4	Preliminary Bat Roost Assessment	10
3.5	Surveyor Qualifications and Experience.....	10
3.6	Limitations	11
4	Results: Desktop Study	12
4.1	Introduction	12
4.2	Statutory Protected Sites	12
4.2.1	International Sites	12
4.2.2	National Sites.....	12
4.2.3	Local Sites	12
4.3	Non-statutory Sites	14
4.4	Habitats	16
4.5	Ponds	16
4.6	Protected Species Licences.....	16
4.7	Species	16
5	Results: Phase 1 Habitat Survey	19
5.1	Site Overview & Habitats	19
5.2	Protected / Notable Species	19
5.3	Preliminary Bat Roost Assessment.....	20
6	Recommendations	26
6.1	Introduction.....	26
6.2	Generic Site Wide Proposals & Recommendations for Habitat and Species Protection	26

6.3	Consideration of Lighting:.....	26
6.4	Habitat Creation.....	28
6.5	Enhancement	28
7	Conclusions	33
8	Photos	35
9	Figures	39

1 Summary

Instruction

Richard Graves Associates Ltd was commissioned by London Square Developments Ltd in 2018 to undertake a Phase 1 Habitat Survey of the 'Greggs Bakery Site' in Twickenham, London (hereafter referred to as 'the site').

Development Proposal

The survey was required to support London Square Developments Ltd in their undertaking of Due Diligence surveys prior to submitting a planning application for a proposed development which will comprise the construction of 116 new homes, a B1 office building and associated landscaping and infrastructure.

Habitats

The site was dominated by buildings and hardstanding; the only vegetation present was limited to occasional stands of buddleia *Buddleja davidii*, ivy *Hedera helix* and bramble *Rubus fruticosus* agg. as well as ruderal vegetation in the cracks of the hard standing and one small rear garden.

Protected Species: Based on the review of the:

- ecological desktop study records; and
- the findings of the Extended Phase 1 Habitat Survey:

this report includes the following further surveys / recommendations for the ecological constraints on / near the site:

Protected Species

Further surveys are recommended for bats and nesting birds (including precautionary checks for black redstarts *Phoenicurus ochruros* during construction).

Statutory Protected Sites

- Three European designated sites are located within 10km of the site: Wimbledon Common SAC, Richmond Park SAC, and South West London Waterbodies Ramsar Site & SPA. South West London Waterbodies Ramsar Site & SPA and Richmond Park SAC are located under 5km from the site boundary and, given the proximity of these two European designated sites to the Greggs Bakery Site, it is possible that the competent authority (likely to be the Local Planning Authority) may require a Habitats Regulations Assessment (HRA) to be undertaken.
- There are no records of sites with a National statutory designation (SSSI) or (NNR) within 2km of the site. Natural England's Magic Map indicates that the site does fall within two SSSI 'Impact Risk Zone' (IRZ)¹. Residential development within the IRZs, however, is excluded from the list of proposals that prompt consultation with Natural England.
- There is one Local Nature Reserve (LNR), Ham Lands LNR, within the 2km desktop search radius, located 900m from the site.

Non-Statutory Protected Sites

- There are 18 Sites of Importance for Nature Conservation (SINC) within the 2km desktop search radius including the 'M076 Crane Corridor Site of Metropolitan Importance' which is

¹ Due to the scale of the mapped information, and the number of IRZs, it is not possible to state, with confidence, which IRZs relates to which SSSIs.

contiguous with the section of the River Crane located adjacent to the northern boundary of the site.

Minimising Impacts & Recommendations

In addition to the protected species further survey recommendations listed above, site-wide measures include:

- Consultation with a Bird Deterrent Expert to reduce the risk of nesting birds occupying the buildings on site during demolition;
- As the status of protected species can change over time, it is recommended that a site walkover is undertaken by a suitably qualified Ecologist(s), prior to the start of any site construction works (this should be repeated should works be paused for more than approx. 2 weeks between March and November);
- Ecological Tool Box Talk prior to the start of works;
- Protection of off-site habitats - particularly the River Crane;
- Good practice during construction activities to minimise impacts to nearby designated sites;
- Implementation of a sensitive lighting plan - to include avoidance of light trespass on to the River Crane;
- Sensitive timing of works during any elements of site clearance to avoid the nesting bird season; and
- Liaison with the local Natural England Team, Local Planning Authority, Friends of the River Crane Environment, (FORCE) and the London Wildlife Trust and good construction practice with regards to protecting designated sites.

Enhancements

Opportunities for biodiversity gain, as well as avoiding impacts, should be considered as part of the development proposal and could include:

- Tree planting as part of a landscaping scheme (using native species / species of value to biodiversity);
- Incorporation of native species / species of biodiversity value in landscaping proposals;
- Installation of bird and bat boxes and bug hotels in the new buildings / landscaping;
- Installation of stag beetle loggeries;
- Creation of structurally diverse green roofs (70 % vegetation / soil coverage) and green walls / vertical gardens;
- Improvements to the River Crane at suitable locations: these could include:
 - Aquatic planters (using only locally occurring aquatic plant species of ecological value e.g. those included in the River Crane Metropolitan Site citation (M076);
 - Addition of Schwegler Kingfisher/Sand Martin Nest Tunnels / nest boxes at suitable locations;
 - Artificial bank creation for sand martins and kingfishers;
 - Installation of sand martin walls; and
 - Addition of bat boxes under the River Crane railway bridge (if found to be suitable following an inspection and are acceptable to the landowner).

Conclusion

If the recommendations of this report, and any subsequent species-specific survey reports, are undertaken at the appropriate stage there are no undue constraints, with respect to ecology, to potential development.

2 Introduction

2.1 Instruction

Richard Graves Associates Ltd was commissioned by London Square Developments Ltd in 2018 to undertake a Phase 1 Habitat Survey of the 'Greggs Bakery Site' in Twickenham, London (hereafter referred to as 'the site').

2.2 Survey Objectives

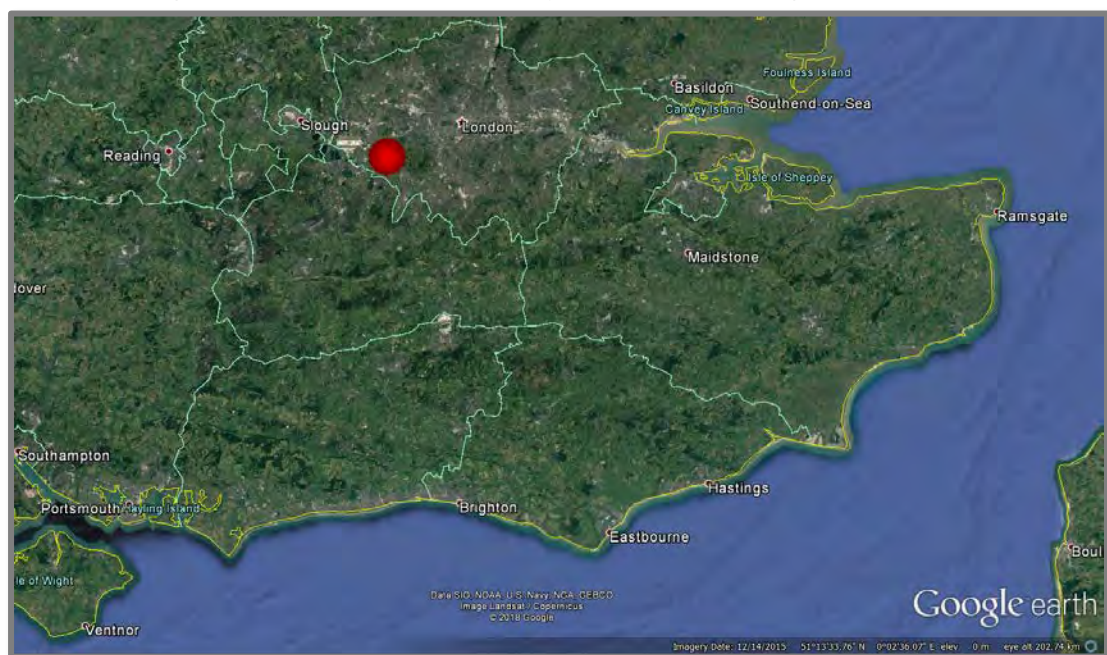
The aims of the study and survey work were to:

- Undertake a desktop study consulting the local biological records centre and online resources to obtain an ecological baseline for the site;
- Undertake a Phase 1 Habitat Survey of the site to determine the extent of habitats and highlight the potential for protected species to be present, identifying any ecological constraints. This survey was extended to note the potential for any protected species on the site;
- Undertake a Preliminary Ground Level Roost Assessment of the buildings on site in order to determine the actual or potential presence of bats and the need for further survey / and or mitigation;
- Outline appropriate mitigation and any further survey effort considered necessary to support planning requirements; and
- Where possible, highlight any initial ecological enhancement opportunities.

2.3 Site Location and Setting

The Greggs Bakery Site covers approx. 1.1 hectare (ha)², centred at Ordnance Survey (OS) grid reference: TQ 15321 73342, and is located in the London Borough of Richmond upon Thames in South West London. The site is situated in a largely residential neighbourhood. Immediately north of the site is the River Crane and the railway line and to the south of the site are a number of light industrial buildings (Figure 1).

Figure 1 Site location indicated by red marker © Google Earth 2019



² Assael (2018) Greggs Bakery / Twickenham Consultants Pack October 2018 A2817 2-10R1

The site is located between two residential terraced streets, Crane Road and Norcutt Road. To the north it wraps around Crane Road and to the south it borders Edwin Road. (Figure 2).

Figure 2. Aerial Mapping indicating the Greggs Bakery Site (outlined in red) © Google Earth 2019



2.4 Rationale for the Survey

The survey was required to support London Square Developments Ltd in their undertaking of Due Diligence surveys prior to submitting a planning application for a proposed development which will comprise the construction of 116 new homes, a B1 office building and associated landscaping and infrastructure.

2.5 Assessment

The assessment is an Extended Phase 1 Habitat Survey which includes an assessment of evidence of, and suitable features for, protected species. Protected species are those, which are fully or partially protected by legislation. The relevant legislation includes:

- The Conservation of Habitats and Species Regulations 2017³;
- The Wildlife and Countryside Act 1981 (as amended)⁴;
- The Natural Environment and Rural Communities Act 2006⁵.

³ HMG, 2017. The Conservation of Habitats and Species Regulations. London: HMSO

⁴ HMG, 1981. The Wildlife and Countryside Act 1981. HMSO

⁵ HMG, 2006. The Natural Environment and Rural Communities Act, London: HMSO

3 Methods

3.1 Extended Phase 1 Habitat Survey

The Extended Phase 1 Habitat Survey is described in *Guidelines for Baseline Ecological Assessment* (Institute of Environmental Assessment, 1995). This approach is based on: *A Handbook for Phase 1 Habitat Survey*⁶, which includes classification of basic habitats and standard mapping, to which are added a desktop study and a protected species walkover. Target notes (TN) are used to denote features of interest. By combining a desktop study information and field survey results, it is possible to identify and evaluate the ecological value of each site in order to determine the potential effects of development on sensitive ecological receptors.

3.2 Desktop Study

3.2.1 Sources of Ecological Information

The following sources of information were reviewed as part of the site desktop study:

- Local Records Centre Data (Greenspace Information for Greater London (GiGL));
- Ordnance Survey (OS) Online Mapping and Google Earth 2019;
- MAGIC (Multi-Agency Geographic Information for the Countryside) - this is a web-based interactive mapping service that provides information on key environmental schemes and designations; and
- Natural England's Local Nature Reserves Database⁷.

3.2.2 Local Records Centre Data

Richard Graves Associates obtained the following information from GiGL with a 2 km search radius of the OS Grid Reference (TQ 15321 73342):

- Statutory and Non-statutory site designations (including Ancient Woodland);
- Protected and Notable Species records; and
- Notable / BAP habitats.

3.2.3 MAGIC Data Search

This web-based data set was interrogated for the following designated sites:

- National Statutory Sites (Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNR)) and Local Nature Reserves (LNR) within a 2km radius of OS Grid Reference: TQ 15321 73342; and
- International Designated Sites: Special Areas of Conservation (SAC), Special Protection Areas (SPA) & Ramsar sites within a 10km radius of OS Grid Reference: TQ 15321 73342.

3.2.4 Ponds

OS Online Mapping and Google Earth were used to facilitate the identification of ponds within 250m of the site.

3.2.5 Protected Species Licences

Magic was used to search for granted European Protected Species Licence Applications relating to the following taxa: amphibians, bats, cetaceans, invertebrates, other mammals, plants and reptiles within 2km of the site.

⁶ JNCC, 2010. Handbook for Phase 1 habitat survey - a technique for environmental audit.

⁷ Natural England. 2017. Local Nature Reserves. [ONLINE] Available at: http://www.lnr.naturalengland.org.uk/Special/lnr/lnr_search.asp. [Accessed 11 January 2019].

3.3 Protected Species Walkover and Phase 1 Habitat Survey

The site was visited for the Phase 1 Habitat Survey and Protected Species Walkover by Richard Graves CEcol CEnv FCIEEM and Dr Suzy Cardy BSc (Hons) MSc CEcol MCIEEM on the 28th November 2018. Habitats were identified and are plotted on a Phase 1 Habitat map (Figure 3); botanical species were recorded and were noted in the text using nomenclature in accordance with (Stace, 2010)⁸ and (Stace, 2010)⁹. Features on the site suitable for, or indicating evidence of, protected species and species of nature conservation significance were recorded using a Global Positioning System (GPS) application (Petosoft, 2010)¹⁰.

3.4 Preliminary Bat Roost Assessment

The buildings within the site were subject to an external inspection for evidence of, and potential to support, bats (Figure 4, Table 1).

During the external inspection, the exterior walls and roofs of the buildings were viewed from ground level and features providing potential bat access points or roosting places were noted. An endoscope (Explorer Premium, Wireless Inspection Camera) and binoculars were available during the survey, but not required.

Where safe access permitted, an initial internal inspection of the buildings for bats / signs of bats was also conducted.

Areas where bat droppings may accumulate, such as on the ground, ledges, window sills and walls, were also inspected. Any features that could be used by bats were identified and any bat roosting features or evidence of bat activity as listed below were noted.

Table 1: External Bat Roosting / Access Features / Direct Evidence of Bats

External Inspection Features	Internal Inspection – Features and Direct Evidence
Gaps between roof tiles or ridge tiles	Live bats or bat corpses
Gaps under the eaves	Droppings
Cracks and crevices in the brickwork	Bat sounds
Gaps around windows	Potential access points
Gaps under the lead flashing seals	Potential roosting sites
Potential access points	Clean, cobweb free gaps around potential entrance points

3.5 Surveyor Qualifications and Experience

Richard Graves

Richard Graves BSc (Hons) MSc PGDip CEcol CEnv FCIEEM has over twenty-five years' experience as a practising ecologist and has undertaken, commissioned and reviewed several hundred Extended Phase 1 Habitat Survey and protected species surveys all over the UK. Richard is a fellow of the Chartered Institute of Ecology and Environmental Management

⁸ Stace, C., 2010. New Flora of the British Isles 3rd Edition. Cambridge: Cambridge University Press

⁹ Stace, C.A., van der Meijden, R. and de Kort, I. (2010) Mobile Interactive Flora of the British Isles - A Digital Encyclopaedia.

¹⁰ Petosoft, 2010. GPS Version 1.3, Petosoft.

(CIEEM) a chartered ecologist and a chartered environmentalist. Richard is also class licenced for great crested newt surveys, a class licenced bat surveyor and a contributor to current good practice guidelines for bat surveys.

Dr Suzy Cardy

Dr Suzy Cardy BSc (Hons) MSc CEcol MCIEEM has over fourteen years' experience in the management and execution of the ecological elements of large-scale development projects including major rail infrastructure developments and one of the UK's largest translocation of protected species. Suzy has a Natural England licence to survey for great crested newts and dormice and has a Level 1 Bat survey licence. Suzy has worked with a variety of Clients across multiple sectors (transport, industrial, education, government, healthcare, commercial, leisure and power / energy).

3.6 Limitations

- An Extended Phase 1 Habitat Survey only provides a snapshot of the broad habitats and species present in an area at the time the survey is undertaken.
- Species are mobile and can move in to and out of an area quickly. The survey relies on evidence such as tracks and droppings to provide evidence that a species is present.
- The locations of all features and target notes within the report and the figures are indicative and approximate only.
- The data provided from consultees and meta-databases is based on existing records but does not necessarily constitute a comprehensive list of protected and notable species records. These records are not exhaustive as there is currently no national or regional policy for systematic data gathering. Therefore, absence of data does not constitute evidence of absence (i.e. it may be that the Site has not previously been surveyed). It is also possible that other data exist within this area that has not been made available to Richard Graves Associates.
- Whilst any incidental sightings of non-native invasive species are recorded, a full invasive species survey is not within the scope of the survey.
- The survey included an external inspection of the accessible parts of the buildings on site. However, not all of the internal sections of the buildings on the site were accessed. A pre-demolition internal inspection has been included in the recommendations, where safe access permits.
- The rear garden of Number 2 Gould Road was not accessed, but much of the garden was viewed from adjacent locations. A walkover inspection of the garden (including checks of the trees for nesting birds and potential bat roosts) should be included in the pre-clearance walkover.
- Development / works on or near a river / flood defence structure / flood plain can require an Environment Permit and consultation / approval from the relevant statutory body. These items are beyond the scope of this report.

4 Results: Desktop Study

4.1 Introduction

The desktop study ecological records report requested from GiGL was received on the 7th December 2018¹¹. The following sections summarise the findings from the records centre, MAGIC and the other information sources.

4.2 Statutory Protected Sites

4.2.1 International Sites

International and European sites are designated for particular habitat and / or species interest and receive the highest level of protection in law under the Conservation Regulations³. It is also necessary to consider impacts on these sites from development proposals even at some distance.

Three European designated sites are located within 10km of the site: Wimbledon Common SAC, Richmond Park SAC, and South West London Waterbodies Ramsar Site & SPA. South West London Waterbodies Ramsar Site & SPA and Richmond Park SAC are located under 5km from the site boundary. Given the proximity of these European designated sites to the Greggs Bakery Site, it is possible that the competent authority (likely to be the Local Planning Authority) may require a Habitats Regulations Assessment (HRA).

4.2.2 National Sites

National Nature Reserves (NNRs) were established to protect some of our most important natural features and species and to facilitate conservation and scientific research. NNRs are declared by the statutory country conservation agencies under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 (as amended).

Sites of Special Scientific Interest (SSSIs) are protected under the Wildlife and Countryside Act 1981 (as amended) and designated for their wildlife or geo-morphological interest. It is usually necessary to consider direct impacts from development within, adjacent to, or within 1 – 2 km of a such sites.

There are no records of sites with a National statutory designation (SSSI) or (NNR) within 2km of the site. Natural England's Magic Map indicates that the site does fall within two SSSI 'Impact Risk Zone' (IRZ)¹². Residential development within the IRZs, however, is excluded from the list of proposals that prompt consultation with Natural England.

4.2.3 Local Sites

Local Nature Reserves (LNRs) are designated and protected under the National Parks and Access to the Countryside Act (HMG, 1949) and are usually owned and managed by local authorities. There is one LNR within the 2km search radius, located approx. 0.9km from the site: Ham Lands LNR (Table 2). Ham Lands LNR consists of an area of infilled gravel pits, water meadows and woodland and is separated from the site by the River Thames.

¹¹ GiGL eCountability (2018) An Ecological Data Search for Greggs Bakery on behalf of Richard Graves Associates Ltd. Report Ref: 12500. Prepared on the 7th December 2018.

¹² Due to the scale of the mapped information, and the number of IRZs, it is not possible to state, with confidence, which IRZs relates to which SSSIs.

Table 2: Statutory Sites within the Desktop Search Area

Site Name	Location (approx. Central Grid Ref)	Approx. Distance to the Nearest Site	Reason for Citation
European Designated Sites with 10km of Site			
Wimbledon Common SAC	Latitude: 51.43222222 Longitude: -0.23444444	6km East	Annex I habitats: Northern Atlantic wet heaths with <i>Erica tetralix</i> & European dry heaths. Annex II species: Wimbledon Common has a large number of old trees and much fallen decaying timber. It is at the heart of the south London centre of distribution for stag beetle <i>Lucanus cervus</i> .
Richmond Park SAC	Latitude 51.44083333 Longitude -0.27444444	2.8km East	Annex II species: Richmond Park has a large number of ancient trees with decaying timber. It is at the heart of the south London centre of distribution for stag beetle and is a site of national importance for the conservation of the fauna of invertebrates associated with the decaying timber of ancient trees.
South West London Waterbodies Ramsar Site & SPA	Latitude: 51 27 41 N Longitude: 00 31 27 W	3.9km SW	The South-West London Water Bodies 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. The reservoirs and gravel pits function as important feeding and roosting sites for wintering wildfowl, in particular gadwall <i>Anas strepera</i> and shoveler <i>Anas clypeata</i> , both of which occur in numbers of European importance.
National Sites within 2km of Site			
None within 2km			
Local Nature Reserves Within 2km of Site			
Ham Lands LNR	TQ 165 723	900 SE	<i>“Ham Lands local nature reserve is an extensive area of grassland and scrub with abundant wildlife. The site was once extensively excavated for gravel, then back-filled over time with a variety of soil types from all over London. This has created a unique mosaic of different vegetation types attracting many butterfly and bird species. In spring, the site is full of hawthorn</i>

			<i>blossom and in the summer, the meadows support hundreds of wild flowers.”¹³</i>
--	--	--	---

4.3 Non-statutory Sites

Sites which are not of national significance, but may contain features important for wildlife, may be designated and given some protection under the planning system. In Greater London, these are typically known as Sites of Importance for Nature Conservation (SINCs). There are three types of SINC: 1) Sites of Metropolitan Importance (SMI); 2) Sites of Borough Importance (SBI); and 3) Sites of Local Importance (SLI).

A total 18 SINCs are present within the 2km search areas (Table 3). The nearest non-statutory site to the Greggs Bakery Site is ‘RiL10 Twickenham Junction Rough SLI’ which is located just west of Twickenham station, approx. 200m east of the site:

“The site contains a typical mix of rough grassland, tall herbs, scrub and young woodland.”¹¹

Also in close proximity to the site is the ‘M076 Crane Corridor SMI’ (located approx.280m west of the site) which is described as follows:

“For a length of over 5 kms, the River Crane is bordered by habitats of remarkable diversity, including woodland, pasture, heathland and areas of open water. Throughout, the width of the river corridor is exceptional by London standards. The river itself is one of the most natural in London, and is a stronghold for uncommon aquatic plants.... Various damp pastures, old water meadows and associated ox-bow ponds also support a rich flora of regionally uncommon plants...Willow-alder woodland occurs in several places; this is a rare habitat in London. The breeding avifauna includes kingfisher, grey wagtail and reed warbler. The specially-protected water vole is also present. There are three Local Nature Reserves within the site; Crane Park Island (managed by London Wildlife Trust), Cranebank Water Meadows and Pevensey Road Open Space.”¹¹

The most southern part of the ‘RiBII04 Duke of Northumberland’s River south of Kneller Road SBI’ is located approx. 270m to the west of the site. Kingfishers *Alcedo atthis* are commonly seen along this 800m section of the river feeding on the abundant fish population, which includes chub *Squalius cephalus* and stone loach *Barbatula barbatula*¹¹.

Table 3: Non-Statutory Sites within 2km of the Site

Site Ref	Site Name	Location	Habitats
Sites of Metropolitan Importance			
M031	River Thames and tidal tributaries	TQ 302 806	Intertidal, marsh/swamp, pond/lake, reed bed, running water, saltmarsh, secondary woodland, vegetated wall/tombstones, wet ditches, wet grassland, wet woodland/carr.
M076	Crane Corridor	TQ 113 743	Pond/lake, running water, scrub, wet grassland, wet woodland/carr.
M083	Ham Lands	TQ 165 722	Pond/lake, scrub, secondary woodland, semi-improved neutral grassland, wet grassland.
Sites of Borough Importance			

¹³ Natural England. 2019. Designated Sites View - Ham Lands LNR [ONLINE] Available at: <https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1008934&SiteName=Ham%20lands&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=> [Accessed 8th January 2019].

HoBI06	Mogden Sewage Works	TQ 154 750	Bare ground, ruderal, running water, scrub, secondary woodland, semi-improved neutral grassland, tall herbs, wet woodland/carr.
RiBI04	Duke of Northumberland's River north of Kneller Road	TQ 151 743	Running water. This 650 metre section of the Duke of Northumberland's River which runs alongside Twickenham Rugby Stadium is very attractive, with excellent aquatic and marginal vegetation.
HoBII07	River Crane at St Margarets	TQ 163 746	Running water, scrub, secondary woodland, semi-improved neutral grassland.
RiBII03	Fulwell and Twickenham Golf Courses	TQ 138 719	Acid grassland, heathland, pond/lake, scrub, secondary woodland, wet ditches.
RiBII04	Duke of Northumberland's River south of Kneller Road	TQ 150 737	Amenity grassland, running water, scattered trees, scrub.
RiBII05	Strawberry Hill Golf Course	TQ 152 720	Acid grassland, heathland, running water, scattered trees, scrub, secondary woodland.
RiBII10	The Copse, Holly Hedge Field and Ham Avenues	TQ 174 726	Scattered trees, secondary woodland, semi-improved neutral grassland, veteran trees.
RiBII12	Petersham Lodge Wood and Ham House Meadows	TQ 174 732	Improved agricultural grassland, semi-improved neutral grassland, wet grassland, wet woodland/carr.
RiBII16	Hounslow, Feltham and Whitton junctions	TQ 131 740	Scrub, semi-improved neutral grassland.
RiBII18	River Crane at St Margaret's (Richmond side)	TQ 164 746	This site includes the Crane between Chertsey Road and the tidal limit at Northcote Road (below which the river is included in the River Thames and tidal tributaries Metropolitan site, and an adjacent area of largely disused allotments. The river is divided into two channels, and is lined with trees and shrubs. Kingfishers are frequently seen. Most of the site is in Hounslow, but one side of the river is in Richmond.
Sites of Local Importance			
RiL02	Marble Hill Park and Orleans House Gardens	TQ 172 736	Amenity grassland, planted shrubbery, scattered trees, secondary woodland, semi-improved neutral grassland, veteran trees.
RiL10	Twickenham Junction Rough	TQ 156 734	Bracken, roughland, scrub, secondary woodland, semi-improved neutral grassland, tall herbs, vegetated wall/tombstones.
RiL22	Twickenham Cemetery	TQ 137 731	Acid grassland, amenity grassland, hedge, scattered trees.
RiL24	Teddington Cemetery	TQ 153 718	Amenity grassland, planted shrubbery, scattered trees, semi-improved neutral grassland, vegetated wall/tombstones.

RiL25	Moor Mead Recreation Ground	TQ 164 740	Amenity grassland, Running water, Scattered trees, Semi-improved neutral grassland, Tall herbs.
-------	-----------------------------	------------	---

4.4 Habitats

No areas of ancient woodland were present within the 2km search area. The Greater London Authority (GLA) habitat surveys information was provided in the GiGL report. The nearest habitats to the site are:

- GiGL_HAB_10939 'River Crane at Mereway, Abandoned allotments' described as 1.52 ha of scrub, semi-improved neutral grassland and scattered trees;
- GiGL_HAB_11166 'Whitton to Twickenham Railsides' described as 3.41 ha of woodland of unknown condition; and
- GiGL_HAB_10868 'Cole Park Range' described as 1.05 ha of roughland, rivers, streams, bare artificial habitat, scattered trees and amenity grassland.

4.5 Ponds

No ponds within 250m of the site were observed on OS Online Mapping or Google Earth.

4.6 Protected Species Licences

Magic was used to search for granted European Protected Species Licence Applications relating to the following taxa: amphibians, bats, cetaceans, invertebrates, other mammals, plants and reptiles within 2km of the site. Two Bat EPS Licences were recorded within the search area:

- A record for a Bat EPS Licence (EPSM2011-2993), dated between 26th April 2011 and 31st August 2014, in relation to common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle bat(s) *Pipistrellus pygmaeus*.
- A record for a Bat EPS Licence (2016-25082-EPS-MIT), dated between 6th of September 2016 and 1st September 2021, in relation to brown long-eared *Plecotus auritus*, soprano and common pipistrelle bat(s).

4.7 Species

In total, 4296 protected and notable species records were returned from GiGL. Only records considered to be relevant to the habitats on site, the scale of the site and from the last five years have been included (Table 4). None of the species records are from within the application site.

The adjacent sections of the River Crane are channelised with concrete sides with no potential water vole *Arvicola amphibious* burrowing or kingfisher *Alcedo atthis* and sand martin *Riparia riparia* nesting habitat (although they do not exclude foraging habitat) and no suitable features for *Lutra lutra* otter holts. However, the River Crane, as a whole, has the potential to support these species.

The desktop records include a variety of bat species all of which were located more than 300m from the site, although it's very likely that bats forage and commute along the River Crane river corridor and the surrounding habitats on a frequent basis.

A number of UK BAP species, considered as 'characteristic of the Richmond Borough' have been assigned Species Action Plans within the Richmond Biodiversity Action Plan¹⁴. Several records for these species / taxa were returned in the desktop study including: bats, water vole (most recently recorded 2017, 764m from site) as well as stag beetle and song thrush (both of which were most recently recorded in 2018, 732m from site).

¹⁴ Richmond Biodiversity Group: Biodiversity Action Plan: London Borough of Richmond Upon Thames.. [ONLINE] Available at: https://www.richmond.gov.uk/habitat_and_species_action_plans. [Accessed 9 January 2019].

The most recent record for black redstarts *Phoenicurus ochruros* dates back to 1996, and the site is located over 10km from their stronghold in along the Thames east of Tower Bridge and in the Lea Valley¹⁵. However, the site is less than 1km from the River Thames and whilst it's considered currently unsuitable for black redstart in its current condition, this may change if materials were allowed to remain during the nesting season after demolition and before construction.

Table 4: Desktop Study Results: Relevant Protected Species within 2km of the Site in the last Five years.

Latin Name	Common Name	Most Recent Record		Nearest Record	
		Date	Distance (m)	Date	Distance (m)
European Protected Species					
<i>Nyctalus leisleri</i>	Lesser noctule	2014	371	2014	371
<i>Nyctalus noctula</i>	Noctule bat	2017	1371	2014	371
<i>Pipistrellus nathusii</i>	Nathusius's pipistrelle	2017	C	2017	C
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	2017	1371	2005	271
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	2017	1371	2014	371
<i>Pipistrellus spp.</i>	Pipistrelle bats	2018	732	2005	528
<i>Myotis daubentonii</i>	Daubenton's bat	2016	1744	2014	371
<i>Plecotus auritus</i>	Brown long-eared bat	2014	371	2014	371
<i>Eptesicus serotinus</i>	Serotine	2017	C	2017	C
<i>Triturus cristatus</i>	Great crested newt	2017	1176	2017	1176
Schedule 1 Birds					
<i>Alcedo atthis</i>	Kingfisher	2017	764	2016	305
<i>Turdus iliacus</i>	Redwing	2017	764	2017	764
<i>Turdus pilaris</i>	Fieldfare	2013	1732	1987	1462
<i>Milvus milvus</i>	Red kite	2014	1462	2011	342
<i>Loxia curvirostra</i>	Common crossbill	2012	342	2012	342
<i>Falco subbuteo</i>	Hobby	2014	C	2014	C
Schedule 8 Plants					
<i>Hyacinthoides non-scripta</i>	Bluebell	2012	1709	2003	271
Schedule 5 Animals					
<i>Arvicola amphibius</i>	European water vole	2017	764	2009	371
<i>Meles meles</i>	Eurasian badger	2018	C	2018	C
Section 41 Species /UK BAP Species					
<i>Cuculus canorus</i>	Cuckoo	2016	1158	2016	1158
<i>Dendrocopos minor</i>	Lesser spotted woodpecker	2012	1462	1987	1462
<i>Aythya marila</i>	Scaup	2014	1232	2014	1232
<i>Motacilla flava</i>	Yellow wagtail	2013	1462	1987	1462
<i>Tyria jacobaeae</i>	Cinnabar	2018	732	2018	732
<i>Acanthis flammea</i>	Common (mealy) redpoll	2013	1664	1998	1462
<i>Emberiza schoeniclus</i>	Reed bunting	2013	C	2013	C
<i>Larus argentatus</i>	Herring gull	2016	1158	1999	1008
<i>Linaria cannabina</i>	Linnet	2017	764	2017	764
<i>Passer domesticus</i>	House sparrow	2018	732	2000	116
<i>Prunella modularis</i>	Dunnock	2018	732	2009	371
<i>Riparia riparia</i>	Sand martin	2014	1462	2014	1462
<i>Streptopelia turtur</i>	Turtle dove	2017	764	2017	764
<i>Sturnus vulgaris</i>	Starling	2018	732	2005	271
<i>Anguilla anguilla</i>	European eel	2016	1608	2015	1508
<i>Passer montanus</i>	Tree sparrow	2017	764	2017	764

¹⁵ Blackredstarts.org.uk. 2018. Black Redstarts in London [ONLINE] Available at: <https://www.blackredstarts.org.uk/pages/london.html>. [Accessed 11th January 2019].

Latin Name	Common Name	Most Recent Record		Nearest Record	
		Date	Distance (m)	Date	Distance (m)
<i>Pyrrhula pyrrhula</i>	Bullfinch	2016	764	2016	764`
<i>Erinaceus europaeus</i>	West European hedgehog	2018	1598	2000	116
<i>Turdus philomelos</i>	Song thrush	2018	732	2000	116
Habitats Directive Annex 2 - non-priority species					
<i>Euplagia quadripunctaria</i>	Jersey tiger	2018	732	2015	168
<i>Lucanus cervus</i>	Stag beetle	2018	732	1998	96
Birds Directive Annex 1 (but not Schedule 1)					
<i>Sterna hirundo</i>	Common tern	2013	1462	2013	1462
<i>Egretta garzetta</i>	Little egret	2013	1664	2013	1664

Key:

- -: confidential record or information not provided;
- **EPS:** European Protected Species;
- **Schedule 8 Plants:** Plants listed on Schedule 8 of the Wildlife and Countryside Act (1981) as amended;
- **Schedule 5 Animals:** Animals listed on Schedule 5 of the Wildlife and Countryside Act (1981) as amended;
- **Schedule 1 Birds:** Birds listed on Schedule 1 of the Wildlife and Countryside Act (1981) (as amended) which are protected by special penalties at all times;
- **Section 41 Species / BAP Species;** UK Biodiversity Action Plan Priority Species, London BAP Priority species and Species "of principal importance for the purpose of conserving biodiversity" covered under section 41 (England) of The Natural Environment and Rural Communities Act (2006); and
- **Habitats & Species Directive Annex 2 Non-Priority species:** Animal and plant species of Community interest (i.e. endangered, vulnerable, rare or endemic in the European Community) whose conservation requires the designation of special areas of conservation.
- **Birds Directive Annex 1:** Birds which are the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. As appropriate, Special Protection Areas to be established to assist conservation measures.
- **C:** confidential record, limited data provided.
- Please note, species may be listed in more than one category, where this is the case, species have been categorised according to the highest level of their protection.

5 Results: Phase 1 Habitat Survey

5.1 Site Overview & Habitats

On-site Habitats

This section provides a description of the habitats on site. Photos of the site are provided in Chapter 8. The site currently stands as a single industrial unit which previously functioned as a bakery. The former bakery is dominated by buildings and hardstanding (including car parking) (Photos 1 and 2). The buildings include a number of occupied and unoccupied offices, warehouses, open-sided sheds, production buildings and one end of a terraced house (Number 2 Gould Road). Two tall silos are prominently located by the Edwin Road entrance (Photo 3, TN 2).

The only vegetation on site comprised: 1) occasional stands of buddleia *Buddleja davidii*; 2) ivy *Hedera helix* and bramble *Rubus fruticosus* agg. over several of the buildings and walls (Photo 4 and 5, TN3); and 3) occasional ruderal vegetation in the cracks of the hard standing (Photo 6, TN 1). The small garden to the rear of Number 2 Gould Road, included semi-mature trees and introduced shrubs (Photo 7, TN7).

Fencing, walls and metal hoarding surrounded the majority of the site (Photos 8, 9 and 10, TN4).

Off-site Habitats

The adjacent sections of the River Crane, to the north of the site, are channelised with concrete sides (Photos 11 and 12, TN5). Whilst, river channelisation can have adverse impacts for wildlife (due to the loss of suitable habitat, but also by the change in hydraulic conditions which make the remaining habitats less suitable¹⁶), the river is still very likely to be used as a commuting route by the local bat population. Bats may also use the rail bridge which is in close proximity to the site and spans the River Crane (Photo 13, TN6). Other protected species such as: otters, kingfishers, sand martins, and eels are also likely to commute along the river to more optimal aquatic habitats (see the above desktop records for more information).

Limited vegetation dominated by buddleia and bramble was observed growing on / through the concrete wall adjacent to the site (along the south edge of the river) (Photo 14). The Waterloo to Reading railway line is situated a few metres to the north of the north side of the river, creating a strip of vegetation that is contiguous with the Mereway Nature Park (which provides varied grasses and bramble for a diverse range of species¹⁷) and beyond this, Kneller Gardens (Photo 15).

5.2 Protected / Notable Species

The surveys recorded features suitable for supporting the following protected species / taxa:

- Bats – the buildings on site were noted as supporting suitable potential bat roosting features (see Section 5.3);
- Nesting birds - on / within the building / limited vegetation on site;
- Limited potential for black redstart foraging once construction begins;
- Foxes *Vulpes vulpes*: Whilst no evidence of fox earths was recorded, fox scats were evident through the site;

¹⁶ Ward D., Holmes N., Jose P. (eds) (1994) *The New Rivers and Wildlife Handbook*. Publication: RSPB, Sandy

¹⁷ London Borough of Richmond upon Thames. 2019. *Mereway Nature Park*. [ONLINE] Available at: https://www.richmond.gov.uk/services/parks_and_open_spaces/find_a_park/mereway_nature_park. [Accessed 9 January 2019].







- Section 41 Species such as house sparrows *Passer domesticus*, soprano pipistrelle bats potentially on site / adjacent to the site.






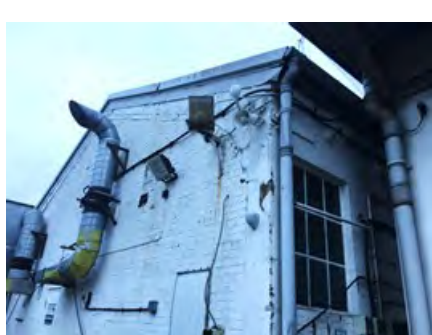
Details of the legislation pertaining to these species, the habitats present, and the recommended surveys / actions are summarised in Table 7.







5.3 Preliminary Bat Roost Assessment







The potential of the buildings on site to host bat roosts is considered generally low and no bats or signs of bats were observed during the inspection (Table 5). Many of the building were open-sided or, large and draughty and were therefore poorly insulated and less likely to provide stable temperatures. However, the site's close proximity to the River Crane, a likely bat commuting / foraging corridor, increases its potential suitability. A description, photos and assessment of bat roost potential for each building surveyed is presented in Table 5.



Table 5: Building Bat Roost Potential Assessment

Building (see Fig 4)	Building External Description	Bat Roost Potential	Photos	
1	<ul style="list-style-type: none"> - Two storey brick building - Flat roof - Plastic and metal window frames - Signage with gaps / potential bat access points underneath - Holes / potential bat access points in brickwork by downpipe - Wooden barge board, partially rotten 	Low		
2	<ul style="list-style-type: none"> - Large elongated factory building - Brick built with large metal roll-up shutters - High void / roof pitch with corrugated tiles and skylights - Some doors and windows bricked up - Holes / potential bat access points in brickwork 	Low		
3	<ul style="list-style-type: none"> - Two silos clad with corrugated sheet metal - No obvious gaps / access points 	Negligible		

Building (see Fig 4)	Building External Description	Bat Roost Potential	Photos	
4	<ul style="list-style-type: none"> - Large elongated storage bay / covered shed - Open sided and therefore likely to be subject to wide temperature fluctuations - Pitched roof with corrugated sheet metal tiles and skylights - Metal framed 	Negligible		
5	<ul style="list-style-type: none"> - Large elongated brick built factory building - Pitch roof with corrugated sheet tiles and skylights - High roof void - Single storey sloping pitch extension to the rear - Metal window frames - Wooden door frames with gaps - Limited number of gaps under wooden barge board 	Low		
6	<ul style="list-style-type: none"> - Large elongated factory building - Painted brick - Pitch roof with corrugated sheet tiles and skylights - Wooden door frames - Gaps under soffits at the gable ends 	Low		

Building (see Fig 4)	Building External Description	Bat Roost Potential	Photos	
7a	<ul style="list-style-type: none"> - Factory entrance gate house - Three storeys - Painted brick - Pitched roof with clay tiles - gaps under some tiles - Wooden door frames - Wooden soffits, lifted in place creating gaps 	Low		
7b	<ul style="list-style-type: none"> - Series of one / two storey flat roof extensions - Brick built - Plastic window frames - Metal door frames - Large spot light on external first floor wall 	Low		
8	<ul style="list-style-type: none"> - Reception / office building - Three storeys with single storey flat roof extension / porch - Rendered brick - Multiple pitched roof in a good state of repair - PVC and metal windows with no obvious gaps - Soffits - lifted in places 	Low		

Building (see Fig 4)	Building External Description	Bat Roost Potential	Photos	
9	<ul style="list-style-type: none"> - Silo storage brick built building - Flat roof with skylights - Good state of repair - No obvious gaps / access points 	Negligible		
10	<ul style="list-style-type: none"> - Brick built single storey office building - PVC windows - Flat roof - No obvious gaps / access points - North face adjacent to River Crane 	Low		
11	<ul style="list-style-type: none"> - Large elongated factory / production building plus multiple porches and flat roof extensions - North face adjacent to River Crane - Brick and concrete construction - Majority of building hosts a pitched roof with corrugated tiles and plastic skylights - Some doors covered by protective weather boarding - Holes in brickwork - Occasional gaps in fascias and cable entry points 	Low		

Building (see Fig 4)	Building External Description	Bat Roost Potential	Photos	
12	<ul style="list-style-type: none"> - Number 2 Gould Road - End of terrace rendered building - Tiled pitch roof - Sash windows - Sloping pitch roof porch - Wooden barge board 	Low		

6 Recommendations

6.1 Introduction

Table 7 at the end of this chapter summarises each of the ecological constraints and potential ecological constraints (protected species and designated sites), the likelihood of the ecological constraint being present, their protection status and initial recommendations for further survey / mitigation. Generic site wide recommendations and prescriptions for habitat and species protection, as well as site enhancement, are provided below.

6.2 Generic Site Wide Proposals & Recommendations for Habitat and Species Protection

Pre-clearance Ecological Walkover: As the status of protected species may change over time, its recommended that a site walkover is undertaken by suitably qualified Ecologist(s), prior to the start of any site demolition / construction. This should be repeated should works be paused for more than approx. two weeks during the demolition / construction phases between March and November.

Protection of Off-Site Terrestrial and aquatic Habitats: There are a number of important wildlife sites and habitats (e.g. the River Crane) that are in very close proximity to the site. As a precaution, good construction practice in relation to ecology should be followed during the site clearance and construction works to prevent water course pollution (for example, avoidance of run-off). Where a Demolition Management Plan (DMP) / Construction Management Plan (CMP) and Site Waste Management Plan (SWMP) are prepared for the development, its recommended that they include a section detailing the provisions aimed at protecting biodiversity.

Tool Box Talk: Prior to the start of works, the contractor should be fully briefed on the potential to encounter bats and other protected species by means of a 'Toolbox Talk' provided by a suitably qualified ecologist (SQE). Further detail on the required contents of the Tool Box Talk can be derived following the completion of the Bat Surveys (see Table 7).

6.3 Consideration of Lighting:

The lighting strategy for the site should be formulated to avoid, and where this is not possible for security reasons, minimise any light trespass on the River Crane and its associated habitats.

Lighting schemes can damage bat foraging habitat directly through loss of land and spatial exclusion of bats due to high illuminance, or indirectly by severing commuting routes from roosts, through light spillage polluting hedgerows, mature tree lines and other linear features often used by commuting bats. Lighting around roosts has also been shown to delay emergence, causing bats to miss the peak in insect prey abundance affecting survival and health¹⁸.

It should be noted that some bat species (common pipistrelle and noctule) can benefit from lighting and are known to forage around and above street lights, where as other species such as brown long-eared bats *Plecotus auritus* are light averse and will avoid brightly lit areas. As such the severity of impacts of any lighting scheme will vary depending on the species present.

¹⁸ Stone, E.L. (2013) Bats and Lighting: Overview of current evidence and mitigation guidance

In accordance with good practice (Bats and artificial Lighting in the UK¹⁹) and planning guidance (National Planning Policy Framework, 2019²⁰), lighting key habitats and features should be avoided altogether and, where lighting must be used, the lighting impacts of new developments should be considered and the following key points should be incorporated in to the lighting design:

Table 6: Summary of Sensitive Lighting Prescriptions

Sensitive Lighting Action	Description
Protect key habitat features	Light trespass on key bat habitats should be below 0.2 lux on the horizontal plane and below 0.4lux on the vertical plane. These figures are lower than what may be expected on a moonlit night.
Avoidance of Up-Lighting	Trees and green landscaping features should not be uplit in order to reduce the disturbance to bats and other nocturnal wildlife.
Minimising Lightspill	Lighting should be directed to where it is needed and light spill from the proposed development on to adjacent habitats should be avoided. Careful selection of the design of the luminaire and the use of accessories such as hoods, cowls, louvres will achieve this and direct the light to the intended area only.
LED Luminaires	LED luminaires should be used where possible as they have a lower intensity, have a sharp cut off, good colour rendition and can be dimmed.
Directional Street Lighting	High level Street lamp columns should have built in reflectors to direct the spread of light downwards, thus eliminating upward light pollution. Only luminaires with an upward light ratio of 0% should be used.
Rear Shields Near Key Green Infrastructure	Locate street lights so that the rear shields are adjacent to any key green features / darker areas of the site.
Low Level Pedestrian Lighting	Where needed, this should be limited to low level bollards where possible, with fittings designed to direct light towards the road pathway with minimal upward light spill.
Lightspill Modelling	Prepare a Horizontal Illuminance Contour Plan to illustrate and, where necessary, facilitate amendment of light trespass from new lighting including from windows.
Motion Sensors	Any external security lighting should be set on motion-sensors and short (e.g. approx. 1 min) timers.
High Peak Wavelengths	Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
Warm White Spectrum	A warm white spectrum (ideally <2700Kelvin) should be used to reduce the component of blue light.
Avoid UV Elements in Luminaires	Luminaires shouldn't possess UV elements; metal halide fluorescent sources shouldn't be used.
Tall Building Locations	Taller building may be best located towards the centre of a site away from any key boundary green linear features.
Screen Light Spill	Consider the use of walls, fences and bunding (preferably in combination with climbers/ planting) to screen light spill.
Minimise Glazing	Where possible, restrict glazing / employ glazing treatments such as 'smart glass'.

¹⁹ Bat Conservation Trust and Institution of Lighting Professionals Guidance Note 08/ 18 "Bats and Artificial Lighting in the UK" Bats and the Built Environment Series

²⁰ Ministry of Housing, Communities & Local Government. 2019. Policy paper: National Planning Policy Framework February 2019.

6.4 Habitat Creation

Sensitive Planting

In accordance with Local Policy (LP 16²¹), where possible, native and pollinator plant species should be used throughout the landscaping and should include plant species to encourage a diversity of insects, which in turn may attract different bat species and generally deliver biodiversity benefits. Planting option guidance should be taken, where appropriate, from sources including:

- Bat Conservation Trust’s ‘Landscape and Urban Design for Bats and Biodiversity’ (Gunnell, 2012); and
- Bat Conservation Trust’s ‘Encouraging Bats: A Guide for Bat-Friendly Gardening and Living’ (Bat Conservation Trust, 2015).

Living Roof(s) & Walls

In accordance with local policy (Policy LP17²¹), it is recommended that green roof / brown roof(s) and green walls are considered as part of the proposed new development. The living roofs should achieve at least 70% coverage across the potential roof plate. They should aim to replicate, as closely as is practical, natural habitats relevant to the locality of the site, providing support for a variety of plants, birds, animals and invertebrates. Where possible, stones and deadwood habitat should be used to form hibernacula and log piles which would add to the structural diversity and biodiversity value of the roof(s).

Photovoltaics would enhance the complexity of a green roof structure, by increasing its suitability for species such as black redstarts and providing microhabitats for invertebrates^{22, 23}. The presence of green roofs would also provide benefits such as the reduction of the urban heat island effect (UHIE), where urbanised areas have a higher proportion of dense impermeable surfaces which have low reflectivity leading to the re-radiation of heat from the buildings during the night.

Green walls may offer an alternative vehicle to deliver environmental and ecological benefit, should it not be possible to incorporate living roofs. Local Policy however, states that developers must: *“provide evidence and justification if a green roof cannot be incorporated for major developments proposals with roof plate areas of 100sqm or more”*²¹.

6.5 Enhancement

Opportunities for biodiversity gain as well as avoiding impact should be considered in accordance with local policy (Policy LP 15¹⁷), particularly where these support the borough-wide Biodiversity Action Plans. Such opportunities could include:

- Creation of stag beetle log pyramids, built from the wood of broadleaved trees²⁴;
- bat boxes on the new buildings / trees;
- bird boxes on the new buildings – targeted at species such as house sparrows;
- Incorporation of bug hotels;

²¹ London Borough of Richmond Upon Thames (2018) Local Plan as Adopted by Council 3rd July 2018

²² Dusty Gedge's Roofs & Rambles. 2018. Black Redstarts on London Olympic Green Roof. [ONLINE] Available at: <https://dustygedge.co.uk/greenroof/breeding-black-redstarts-on-london-olympic-green-roof/>. [Accessed 6 September 2018].

²³ Black Redstarts.org.uk. 2018. Green Roofs & Brownfield Biodiversity. [ONLINE] Available at: <https://www.blackredstarts.org.uk/pages/greenroof.html>. [Accessed 6 September 2018].

²⁴ People's Trust for Endangered Species. (PTES) 2019. Build a log pile for stag beetles. [ONLINE] Available at: <https://ptes.org/wp-content/uploads/2016/11/Build-a-log-pile-for-stag-beetles.pdf>. [Accessed 10 January 2019].

- Creation of structurally diverse green roofs (70 % vegetation / soil coverage) and green walls / vertical gardens;
- Improvements to the River Crane at suitable locations: these could include:
 - aquatic planters (using only locally occurring aquatic plant species of ecological value e.g. those included in the River Crane Metropolitan Site citation (M076));
 - addition of Schwegler Kingfisher/Sand Martin Nest Tunnels / nest boxes;
 - artificial bank creation for sand martins and kingfishers;
 - installation of sand martin walls; and
 - addition of bat boxes under the River Crane railway bridge (if found to be suitable following an inspection and acceptable to the landowner).

Table 7: Confirmed and Potential Ecological Constraints on Site

Ecological Constraint	Location of Confirmed/ Potential Constraint	Likelihood of Ecological Constraint Being Present on Site	Protection Status	Initial Recommendations / Mitigation Proposals
Bats	Potential roosting features present in the buildings. Trees in the garden of Number 2 Gould Road.	Low: A number of the buildings possess bat roost potential.	Building demolition / works on site could cause disturbance to bats in their breeding or resting places, damage, obstruction or destruction of their roosts or/ and risk of killing and injury to bats. These actions would constitute offences under the Wildlife and Countryside Act 1981, as amended and the Conservation of Habitats and Species Regulations 2017.	<p style="text-align: center;">Bat Surveys</p> <ul style="list-style-type: none"> - In accordance to the Bat Survey Guidelines (Collins, 2016)²⁵ the following bat surveys are recommended: - Activity: one survey visit per season (Spring: April / May; Summer: June-August; Autumn: Sept / Oct). Further surveys may be required if these survey visits reveal higher levels of bat activity than predicted. - Once the key locations for bat activity are determined, the following emergence surveys are recommended: - Buildings / walls with Low bat potential: One survey visit (one Dusk Emergence or Dawn Re-entry Survey). - An internal inspection of the buildings for bats / signs of bats conducted prior to demolition works, subject to safe access. - Should a bat(s) be found to be roosting in any of the on-site buildings, works may need to be carried out under a licence issued by Natural England. Additional surveys may be required, and replacement roosts may also be needed to ensure the favourable conservation status of the species is maintained.
Nesting Birds	Potential nesting features present on the buildings and in the ivy / limited vegetation on site.	Assume presence	Building demolition / works / vegetation removal risks damage to and destruction of the nests and eggs of wild birds which would be an offence under the Wildlife and Countryside Act 1981, as amended. Nesting bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981, as amended, are also protected from disturbance.	<p style="text-align: center;">Nesting bird check prior to works</p> <ul style="list-style-type: none"> - Given the potential for birds, such as pigeons, to nest on / in the buildings its recommended that building demolition should ideally be undertaken outside the bird nesting season, i.e. from September to February inclusive (note that birds can nest within this period in good weather and are also protected). - Use of bird deterrents should be considered. - If buildings demolition work / vegetation clearance is not undertaken outside the bird nesting season, they must be checked by a suitably qualified Ecologist for nesting birds, prior to removal. - If an active nest(s) is found, a suitably qualified Ecologist should delineate a 'work exclusion buffer' around the structure containing the nest(s). No works are to take place within this buffer until after young have fledged.
Black Redstart	There are no recent records of black redstart within the 2km desktop search area and the site is over 10km from the population's London stronghold (situated along the Thames, east of Tower Bridge and in the Lea Valley ²⁶). However, this species has adapted to industrial areas and light industry with preferred foraging habitat including sparsely vegetated areas and areas undergoing or awaiting re-development. Therefore the site may increase in its level of	Negligible current potential for nesting black redstart on site. Low: potential for foraging black redstart should construction works be paused mid-works.	All wild nesting birds, their eggs, nests (whilst in use) and chicks are protected. In addition, nesting bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (such as black redstart) are also protected from disturbance.	<p style="text-align: center;">Sensitive Timings of Works and Checks</p> <ul style="list-style-type: none"> - Where possible, works should be conducted outside the nesting bird season, which generally runs from March to August inclusive, but which can extend beyond this period in good weather. Any birds nesting outside this period are also protected. - If works cannot take place outside the nesting bird season, a suitably qualified Ecologist should check the site for nesting black redstart immediately prior to works commencing. - A Tool Box Talk, given to all contractors, should include information on black redstart, such as identification, signs to look out for and what to do if it is suspected / confirmed, that works may impact black redstart, as well as a summary of the potential for nesting birds, legislation protecting Schedule 1 birds and their responsibilities. - As construction works may encourage black redstart to use the site, particularly if works are paused mid-construction, a check for this species (and any other protected species) should be conducted if works are paused for more than approx. 2 weeks during construction (between March and November).

²⁵ Collins, J. (., 2016. Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)., London: The Bat Conservation Trust

²⁶ Blackredstarts.org.uk. 2018. Black Redstarts in London [ONLINE] Available at: <https://www.blackredstarts.org.uk/pages/london.html>. [Accessed 11th January 2019].

Ecological Constraint	Location of Confirmed/ Potential Constraint	Likelihood of Ecological Constraint Being Present on Site	Protection Status	Initial Recommendations / Mitigation Proposals
	suitability for this species during construction.			<ul style="list-style-type: none"> - If a black redstart is found to be nesting that may be impacted by the works (including disturbance risk), all works should stop and the advice of an Ecologist sought immediately. - No works which may impact upon or disturb the nest (either directly or which causes the bird to abandon the nest) may take place until the chicks have fledged. The Ecologist would advise on a suitable buffer area around the nest and any ongoing works (if possible). This buffer area will depend on the location of the nest and the proposed works.
Section 41 / BAP Species e.g. bats and house sparrow	Various potential BAP /S.41 species in on site (e.g. bats) the area surrounding the site.	Moderate	Under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, local authorities should have regard to biodiversity when determining planning permission. The Section 41 / BAP lists are drawn up to assist local authorities and other bodies in their duties.	<p style="text-align: center;">Retention of Habitats & Enhancements</p> <ul style="list-style-type: none"> - Protection of key habitats where possible (see Sensitive Working Practices section below). - Incorporation of features and enhancements to benefit and support local biodiversity (see Section 6.5).
Foxes	Evidence of fox commuting throughout the site's walk ways and alleyways.	Confirmed	All wild mammals, including foxes, are protected from cruelty under the Wild Mammals (Protection) Act 1996 which makes it an offence to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.	<p style="text-align: center;">Pre-Clearance Checks</p> <ul style="list-style-type: none"> - Pre-clearance checks for this species should be made. - Humane deterrent methods should used to discourage foxes from the site, should any earths be present and the development direct impact their earths. This should be conducted under ecological supervision.
European Statutory Sites	Absent on site , but three European designated sites were recorded within the 10km search area: Wimbledon Common SAC, Richmond Park SAC and South West London Waterbodies Ramsar Site & SPA.		<p>SACs are sites that are chosen to conserve the natural habitat types and species of wild flora and fauna listed in Annex I and II of the Habitats Directive. They are the best areas to represent the range and variety of habitats and species within the European Union.</p> <p>SPAs are highly protected sites classified in accordance with Article 4 of the EC Birds Directive (The Birds Directive). They are classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species.</p> <p>Ramsar Sites are wetlands of international importance. All terrestrial Ramsar Sites are effectively protected, through the planning system, under the Wildlife and Countryside Act 1981 (as amended), and the Countryside and Rights of Way Act 2000 (CROW) through their notification as SSSIs (Sites of Special Scientific Interest) and through other regulatory systems addressing water, soil and air quality. The majority of Ramsar Sites fall within, or overlap with, SPAs and are therefore also subject to the level of protection offered to SPAs.</p>	<p style="text-align: center;">Potential Habitats Regulations Assessment Required</p> <ul style="list-style-type: none"> - Given the proximity of the EU designated sites to the site, (particularly Richmond Park SAC and South West London Waterbodies Ramsar Site & SPA which are within 5km) it is possible that the competent authority (likely to be the Local Planning Authority) may require a Habitats Regulations Assessment (HRA) to be undertaken.
UK Statutory Sites	Absent on site , but one LNR is located within the 2km search radius. The nearest LNR is Ham Lands LNR which is located approx. 0.9km from the site. Ham Lands LNR consists of an area of infilled gravel pits, water meadows and woodland. The LNR is separated from the site by the River Thames.		Local Nature Reserves are owned, leased or managed by Local Authorities and designated under the National Parks and Access to the Countryside Act 1949, as amended. LNRs are declared and managed for nature conservation, and provide opportunities for research and education, or simply enjoying and having contact with nature.	<p style="text-align: center;">Sensitive Working Practices</p> <ul style="list-style-type: none"> - Liaise with the local Natural England Team about proposed works, any potential impacts and planned pre-cautionary measures / mitigation. - Adhere to good construction practice through the construction process (see recommendations for SINCS below).
Sites of Importance for Nature	Absent on site , but 18 SINCS are present within the 2km search area. The nearest three non-statutory sites to the Greggs Bakery Site		Local authorities are empowered to designate areas within their jurisdiction as being of local nature conservation	<p style="text-align: center;">Sensitive Working Practices</p>

Ecological Constraint	Location of Confirmed/ Potential Constraint	Likelihood of Ecological Constraint Being Present on Site	Protection Status	Initial Recommendations / Mitigation Proposals
<p>Conservation (SINC)</p>	<p>are: 1) M076 Crane Corridor SMI; 2) RiL10 Twickenham Junction Rough SLI; and 3) the RiBII04 Duke of Northumberland's River south of Kneller Road SBI, all of which are located approx. 200 - 300m from the site.</p>		<p>interest. The criteria for inclusion, and the level of protection provided (if any) may vary between areas.</p> <p>These sites are defined in local and structure plans under the Town and Country Planning system and are a material consideration when planning applications are being determined.</p>	<ul style="list-style-type: none"> - There are at least three SINCs located approx. 200-300m from the site. The Crane Corridor SMI and the Duke of Northumberland's River south of Kneller Road SBI are linked to the sections of the River Crane that run adjacent to the northern boundary of the Greggs Bakery Site. - Liaise with the Local Planning Authority, Friends of the River Crane Environment, (FORCE) and the London Wildlife Trust about proposed works, regarding any potential impacts and planned pre-cautionary measures / mitigation. - Good construction practice should be followed to reduce the risk of impacts to nearby SINCs. These should include provisions for the protection of biodiversity within the site DMP / CMP and SWMP as well as the following: - <i>Surface Run-off</i> - construction activities, wheel washers and pollution incidents must all be properly managed in line with current best practice to minimise pollution of nearby watercourses by surface run off. Safe storage of chemicals/oil must be enforced, and spill kits and other measures to be in place on site. - <i>Minimising lighting</i> - Many nocturnal animals require dark areas of habitat for commuting and foraging. Using powerful lighting on wildlife corridors can, for some species, effectively sever connectivity. Consequently, lighting should be minimised wherever possible. On site, directional lighting, facing away from surrounding habitats (particularly the River Crane). Lighting should be turned off when not in use except to meet the minimum requirements for health and safety; - <i>Limiting construction dust</i> - large quantities of construction dust can travel great distances and negatively impact vegetation and habitats that it settles on. All best practice guidelines regarding limiting construction dust should be followed, especially in relation to surrounding habitats and proximal SINC sites; - <i>Reducing construction noise</i> - Noise from construction activities can cause disturbance to wildlife. Good practice guidelines should be followed and the timing of activities likely to result in high noise levels should be agreed with the relevant authorities. - <i>Disposal of waste</i> - All waste products generated by the re-development should be properly stored and disposed of in line with best practice.

7 Conclusions

In 2018, Richard Graves Associates undertook an Extended Phase 1 Habitat Survey of the 'Greggs Bakery Site' in London.

The northern boundary of the site is adjacent to the River Crane which is known to support a variety of important protected and notable species. The site itself comprises mostly buildings and hardstanding with very limited vegetation cover (restricted to buddleia, bramble, ruderal vegetation and one small rear garden) and is not itself of intrinsic ecological value. However, some of the building have the potential to host roosting bats and nesting birds, therefore recommendations for further surveys are noted and include: bat activity, exit / re-entry surveys, and internal inspections and nesting bird checks (including black redstart).

Three European designated sites are located within 10km of the site: Wimbledon Common SAC, Richmond Park SAC, and South West London Waterbodies Ramsar Site & SPA. South West London Waterbodies Ramsar Site & SPA and Richmond Park SAC are located under 5km from the site boundary and, given the proximity of these two European designated sites to the Greggs Bakery Site, it is possible that the competent authority (likely to be the Local Planning Authority) may require a Habitats Regulations Assessment (HRA) to be undertaken.

There are no records of sites with a National statutory designation (SSSI) or (NNR) within 2km of the site. Natural England's Magic Map indicates that the site does fall within two SSSI 'Impact Risk Zone' (IRZ)²⁷. Residential development within the IRZs, however, is excluded from the list of proposals that prompt consultation with Natural England.

There is one LNR and 18 Sites of Importance for Nature Conservation (SINC) within the 2km desktop search radius. Recommendations for good construction practice and consultation with the local Natural England Team, Local Planning Authority, Friends of the River Crane Environment, (FORCE) and the London Wildlife Trust are provided.

Site-wide recommendations and enhancements options are provided and include:

- Consultation with a Bird Deterrent Expert to reduce the risk of nesting birds occupying the buildings on site during demolition;
- As the status of protected species can change over time, its recommended that a site walkover is undertaken by a suitably qualified Ecologist(s), prior to the start of any site construction works (this should be repeated should works be paused for more than approx. 2 weeks between March and November);
- Ecological Tool Box Talk prior to the start of works;
- Protection of off-site habitats - particularly the River Crane;
- Good practise during construction activities to minimise impacts to nearby designated sites;
- Implementation of a sensitive lighting plan - to include avoidance of light trespass on to the River Crane;
- Sensitive timing of works during any elements of site clearance to avoid the nesting bird season;

²⁷ Due to the scale of the mapped information, and the number of IRZs, it is not possible to state, with confidence, which IRZs relates to which SSSIs.

- Tree planting as part of a landscaping scheme (using native species / species of value to biodiversity);
- Incorporation of native species / species of biodiversity value in landscaping proposals;
- Installation of bird and bat boxes and bug hotels in the new buildings / landscaping;
- Installation of stag beetle loggeries;
- Creation of structurally diverse green roofs (70 % vegetation / soil coverage) and green walls / vertical gardens;
- Improvements to the River Crane at suitable locations: these could include:
 - Aquatic planters (using only locally occurring aquatic plant species of ecological value);
 - Addition of Schwegler Kingfisher/Sand Martin Nest Tunnels / nest boxes at suitable locations (e.g. those included in the River Crane Metropolitan Site citation (M076));
 - Artificial bank creation for sand martins and kingfishers;
 - Installation of sand martin walls;
 - Addition of bat boxes under the River Crane railway bridge (if found to be suitable following an inspection).

In summary: If the recommendations of this report, and any subsequent species-specific survey reports are undertaken at the appropriate stage, there are no undue constraints, with respect to ecology, to potential development.

8 Photos

Photo 1: Overview of the southern section of the Site



Photo 2: Overview of the north section of the Site



Photo 3: Silos



Photo 4: Examples of limited vegetation on site - buddleia stands



Photo 5: Examples of limited vegetation on site - climbing over walls



Photo 6: Examples of limited vegetation on site - in cracks of hardstanding



Photo 7: 2 Gould Road Rear Garden



Photo 8: Examples of fencing



Photo 9: Examples of walls



Photo 10: Examples of metal hoarding



Photo 11: River Crane to the north of the site reinforced with concrete sides



Photo 12: River Crane to the north of the site reinforced with concrete sides



Photo 13: Rail bridge spanning the River Crane



Photo 14: Vegetation on the / near the River Crane wall adjacent to the northern boundary of the site



Photo 15: Vegetated strip between the Waterloo to Reading railway and the River Crane



Photo 16: Alleyways with evidence of fox activity



Photo 17: Substation



Photo 18:

9 Figures

- **Figure 1:** Site Location Plan (within the text)
- **Figure 2.** Aerial Mapping indicating the Greggs Bakery Site (within the text)
- **Figure 3:** 1 Phase 1 Habitat Survey Map. Target Notes:
 - o TN1: Ruderal vegetation in hard standing (Photo 6)
 - o TN2: Silos (Photo 3)
 - o TN3: Buddleia stands (Photo 4)
 - o TN4: Metal hording (Photo 10)
 - o TN5: River Crane (Photos 11-14)
 - o TN6: Rail bridge (Photo 13)
 - o TN7: Rear garden of Number 3 Goulding Road (Photo 7)
 - o TN8: Ivy on wall (Photo 5)
 - o TN9: Sub-station (Photo 17)
 - o TN10: Vegetation climbing on walls
 - o TN11: Buddleia stands
 - o TN12: Narrow alleyway with evidence of fox activity (Photo 16)

- **Figure 4:** Building Reference Map



- Legend**
- Indicative site boundary
 - A3.1 Broadleaved parkland/scattered trees
 - J2.4 Fence
 - J2.5 Brick wall
 - J3.6 Buildings
 - J5 Hardstanding
 - 01 Target note

Note: All areas and locations are approximate and indicative

0	08/01/2019	FIRST ISSUE	JMG	SC	RG
Rev	Revision Date	Purpose of revision	Drawn	Check'd	App'd

 Richard Graves Associates Ltd
 49 London Road, Ipswich, IP1 2HF
 e-mail: richard@richardgravesassociates.com
 Phone: 020 3286 1419 Mobile: 07713 247636
 Web: www.richardgravesassociates.com

Project **Greggs Bakery, Twickenham**

Drawing title **Figure 3: Phase 1 Habitats 2018**

Scale **1:1000 @ A3** Drawn **08 January 2019**

Drawing number **19RG-01-01** Rev **0**

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions. Do not scale from this drawing.

Figure 4: Building References

Greggs Bakery, Twickenham

Legend

- Building References
- ▬ Indicative Site Boundary

