





## **APPENDIX 8.1: PRELIMINARY ECOLOGICAL APPRAISAL**





**QA**

**Royal Brunswick Park – Preliminary Ecological Appraisal**

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## 1.0 EXECUTIVE SUMMARY

- 1.1 Greengage Environmental Ltd was commissioned by Comer Homes to undertake a Preliminary Ecological Appraisal of a site known as the Royal Brunswick Park, New Southgate in the London Borough of Barnet.
- 1.2 This document is a report of this survey and has been produced to support a hybrid planning application for the phased comprehensive redevelopment of the North London Business Park to deliver a residential-led mixed use development. The detailed element comprises up to 466 residential units in five blocks reaching 9 storeys, the provision of a 5 form entry secondary school, a gymnasium, a multi-use sports pitch and associated changing facilities and improvements to open space and transport infrastructure, including improvements to the access from Brunswick Park Road and; the outline element comprises up to 1,967 additional residential units in buildings ranging from three to twelve storeys, up to 7,148 sqm of non-residential floor space (use Class E) and 20,250sqm of open space. Associated site preparation/enabling work, transport infrastructure and junction work, landscaping and car parking.
- 1.3 This survey aimed to establish the current ecological value of this site and the presence/likely-absence of notable and/or legally protected species in order to inform appropriate mitigation, compensation and enhancement actions in light of proposed development works. This survey updates one previously undertaken for an existing permitted development on the site (ref: 15/07932/OUT) and should be read in conjunction with the associated reports that are appended to this report.
- 1.4 The survey area extends to approximately 16 hectares. There are ten buildings on the site with the largest being office buildings and an associated car park, additional buildings include a nursery, a school, site security offices and storage sheds. Surrounding these buildings are areas of hardstanding roads and car parking as well as landscaping in the form of amenity grassland, introduced shrubs, a pond and scattered trees. There is an expanse of rough grassland and scattered scrub at the northern end of the site.
- 1.5 The site survey, undertaken on the 8<sup>th</sup> and 9<sup>th</sup> April 2021, alongside details received from a desk top study confirmed that the site conditions are largely consistent with those identified during previous ecology surveys at the site. The site has potential to support the following protected/notable species:
- Moderate potential to support roosting bats (previously confirmed likely absent);
  - Low value for foraging and commuting bats (previously low levels of foraging recorded);
  - High potential to support reptiles (with presence previously confirmed);
  - High potential to support foraging badger (with potential presence previously identified);

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- High potential to support nesting birds;
  - High potential to support notable invertebrates (with presence previously confirmed); and
  - Moderate potential to support hedgehog.
- 1.6 Recommendations have therefore been provided for additional updated phase 2 surveys to be completed for bats, reptiles and invertebrates, with precautionary actions recommended for badger, hedgehog and breeding birds. The additional phase 2 surveys are due for completion in Summer 2021.
- 1.7 Japanese knotweed (*Fallopia japonica*) was recorded on site. This species is listed under Schedule 9 of the Wildlife and Countryside Act 1981, and therefore measures must be taken to ensure this plant is removed from site and disposed of following best practice guidance.
- 1.8 Preliminary protection, mitigation, compensation and enhancement concepts are outlined within this report, to be confirmed following the phase 2 survey work, with a view to the scheme achieving a net biodiversity gain.
- 1.9 Further to these mitigation and compensation actions, it is recommended that the site's ecological value is enhanced through the incorporation of:
- Wildlife friendly landscaping;
  - Biodiverse living roofs;
  - Invertebrate habitat features (e.g. bee bricks and stag beetle loggery); and
  - Bird and bat boxes integrated within the fabric of new buildings as well as on retained trees.
- 1.10 Details of the mitigation, compensation and enhancement actions should be detailed within an Ecological Management Plan and Construction Environmental Management plan for the site which could be secured through planning condition. Should these recommendations be adhered to, the proposals stand to be compliant with legislation and planning policy.

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## 2.0 INTRODUCTION

- 2.1 Greengage was commissioned by Comer Homes to undertake a Preliminary Ecological Appraisal (PEA) of a site known as the Royal Brunswick Park, New Southgate in the London Borough of Barnet.
- 2.2 This document is a report of this survey and has been produced to support a hybrid planning application for the phased comprehensive redevelopment of the North London Business Park to deliver a residential-led mixed use development. The detailed element comprises up to 466 residential units in five blocks reaching 9 storeys, the provision of a 5 form entry secondary school, a gymnasium, a multi-use sports pitch and associated changing facilities and improvements to open space and transport infrastructure, including improvements to the access from Brunswick Park Road and; the outline element comprises up to 1,967 additional residential units in buildings ranging from three to twelve storeys, up to 7,148 sqm of non-residential floor space (use Class E) and 20,250sqm of open space. Associated site preparation/enabling work, transport infrastructure and junction work, landscaping and car parking.
- 2.3 This survey aimed to establish the current ecological value of this site and the presence/likely-absence of notable and/or legally protected species in order to inform appropriate mitigation, compensation and enhancement actions in light of proposed development works. This survey updates one previously undertaken for an existing permitted development on the site (ref: 15/07932/OUT).

### SITE DESCRIPTION

- 2.4 The survey area extends to approximately 16 hectares and is centred on National Grid Reference TQ280935, OS Co-ordinates 528019, 193504.
- 2.5 There are ten buildings on the site with the largest being office buildings and an associated car park, additional buildings include a nursery, a school, site security offices and storage sheds. Surrounding these buildings are areas of hardstanding roads and car parking as well as landscaping in the form of amenity grassland, introduced shrubs, a pond and scattered trees. There is an expanse of rough grassland and scattered scrub to the north of the site.
- 2.6 The site is situated in a residential area in south Barnet and is surrounded by residential streets with terraced houses in all directions. It is bounded by the Southern Railway line to the west which runs from north to south.
- 2.7 The surrounding landscape is mainly comprised of parks and green open spaces including New Southgate Cemetery ~200m south east of the site, Brunswick Park ~200m east, Friary Park ~900m south west and Oak Hill Park ~1km north.
- 2.8 The survey area is shown in Figure 2.1 below.



**Figure 2.1 Survey area**

## EXISTING ECOLOGICAL INFORMATION

2.9 A suite of surveys were undertaken and reported (see Appendix 1) in December 2015 in support of an existing permission for the site (ref: 15/07932/OUT). The surveys undertaken included:

- A Phase 1 habitat survey including a desk study using results from Greenspace Information for Greater London (GiGL);
- Bat surveys;
- Reptile surveys; and
- Invertebrate surveys.

2.10 The key findings included:

- The site was dominated by building/hardstanding surrounded by amenity grassland and mature ornamental trees. To the north of the site included a large expanse of poor semi-improved grassland and a lake was present to the southeast.
- Badger (*Meles meles*):
  - No badger setts were identified within or adjacent to the site boundary, although possible snuffle holes and a 'badger squeeze' hole with badger hair were noted to the north of the site.
- Bats:

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- Bat emergence/re-entry surveys undertaken on several trees/groups of trees on site confirmed the likely absence of roosting bats from the site; and
  - The bat activity surveys recorded low levels of activity across the site and 5 species/species groups were recorded.
  - Reptile survey:
    - Surveys noted a 'low' population of slow worm (*Anguis fragilis*) in accordance with the criteria set out in the Froglife guidance.
  - Invertebrates:
    - Nine species of conservation interest previously recorded, largely associated with banks surrounding the car park.
  - Invasive species:
    - Japanese knotweed (*Fallopia japonica*), an invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981, was identified within the northern extent of the site.

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## 3.0 METHODOLOGY

3.1 The PEA (which included an Extended Ecological Phase 1 Survey) was undertaken in accordance with guidance in the Joint Nature Conservation Committee (JNCC) (2010) Handbook for Phase 1 Habitat Survey<sup>1</sup> and the Chartered Institute of Ecological and Environmental Management (CIEEM) (2017) Guidelines for Preliminary Ecological Appraisal<sup>2</sup>, in accordance with BS42020:2013: Biodiversity<sup>3</sup>. The overall assessment consisted of:

- A desktop assessment and review of available biological records; and
- A site walkover, protected species scoping assessment (including detailed scoping for badger and roosting bats) and phase 1 habitat survey.

3.2 The survey boundary and existing site is shown at Figure 1.

3.3 Greengage undertook the site walkover on the 8<sup>th</sup> and 9<sup>th</sup> April 2021 during mild and sunny weather conditions. Features within the site boundary and accessible features immediately bordering it were evaluated and the extent and distribution of habitats and plant communities were recorded, and supplemented with target notes on areas or species requiring further commentary. Fauna using the area were recorded and areas of habitat suitable for statutorily protected species were identified where present, with an active search carried out for evidence of such use.

### DESK TOP REVIEW

3.4 A review of readily available ecological information and other relevant environmental databases (included Defra's Multi-Agency Geographic Information for the Countryside (MAGIC) website<sup>4</sup>) was undertaken for the site and its vicinity. In addition, local authority websites and a biological records search from GiGL (Greenspace Information for Greater London) were reviewed to identify the location and citations of local non-statutory designated sites and presence of records for notable and protected species. This provided the overall ecological context for the site, to better inform the Phase 1 Survey.

### ON SITE SURVEYS

#### Flora

3.5 The extent and distribution of different habitats on site were identified and mapped according to the standard Phase 1 Survey methodologies, supplemented with target notes describing the dominant botanical species and any features of interest. Any present protected plant species and invasive/non-natives were also noted. A habitat map has been produced to illustrate the results, as shown at Figure 1.

## Fauna

- 3.6 The Phase 1 Survey specifically included assessments to identify the potential value for notable, rare and protected species at site. This involved identifying potential habitats in terms of refugia, breeding sites and foraging areas in the context of species known to be present locally and regionally.
- 3.7 The likelihood of occurrence is ranked as follows:
- Negligible - While presence cannot be absolutely discounted, the site includes very limited or poor-quality habitat for a particular species. The site may also be outside the known national range for a species;
  - Low - On-site habitat is poor to moderate quality for a given species, with few or no information about their presence from desk top study. However, presence cannot be discounted due to the national distribution of the species or the nature of on-site and surrounding habitats;
  - Moderate - The on-site habitats are of moderate quality, providing most or all of the key requirements for a species. Several factors may limit the likelihood of occurrence, habitat severance, habitat disturbance and small habitat area;
    - High - On-site habitat of high quality for given species. Site is within a regional or national stronghold for that particular species with good quality surroundings and good connectivity; and
    - Present - Presence confirmed for the survey itself or recent, confirmed records from information gathered through desk top study.
- 3.8 The species surveyed for included:

### ***Badger (Meles meles)***

- 3.9 The potential for badger to inhabit or forage within the study area was assessed. Evidence of badger activity includes the identification of setts (a system of underground tunnels and nesting chambers), grubbed up grassland (caused by the animals digging for earthworms, slugs, beetles etc.), badger hairs, paths, latrines and paw prints.

### ***Bat Species (Chiroptera)***

- 3.10 The site visit was undertaken in daylight and the evaluation of bat potential comprised an assessment of natural features on site that aimed to identify characteristics suitable for bat roosts, foraging and commuting. In accordance with Bat Conservation Trust's *Good Practice Guidelines*<sup>5</sup> and methods given in English Nature's (now Natural England) *Bat Mitigation Guidelines*<sup>6</sup> consideration was given to:
- The availability of access to roosts for bats;
  - The presence and suitability of crevices and other places as roosts; and

- Signs of bat activity or presence.

3.11 Definite signs of bat activity were taken to be:

- The bats themselves;
- Droppings;
- Grease marks;
- Scratch marks; and
- Urine spatter.

3.12 Signs of possible bat presence were taken to be:

- Stains; and
- Moth and butterfly wings.

3.13 Features with potential as roost sites include mature trees with holes, crevices or splits (the most utilised trees being oak, ash, beech, willow and Scots pine), caves, bridges, tunnels and buildings with cracks or gaps serving as possible access points to voids or crevices.

3.14 Additionally, linear natural features such as tree lines, hedgerows and river corridors are often considered valuable for commuting and semi-natural habitats such as woodland, meadows and waterbodies can provide important foraging resources. Consideration was given to the presence of these features both immediately within and adjacent to the assessment area.

#### ***Great Crested Newt (*Triturus cristatus*)***

3.15 An assessment was carried out to identify any potential habitats that may support great crested newt (GCN) and other native amphibians. The aquatic and terrestrial habitats required generally include small, still ponds or water bodies suitable for breeding; and woodland or grassland areas where there is optimal invertebrate prey potential.

#### ***Reptiles***

3.16 The potential for reptile species on site was assessed during the walkover survey. Possible species include grass snake (*Natrix natrix*), smooth snake (*Coronella austriaca*), adder (*Vipera berus*), common and sand lizard (*Lacerta vivipara* and *L. agilis*) and slow worm (*Anguis fragilis*). These native reptile species generally require open areas with low, mixed-height vegetation, such as heathland, rough grassland, and open scrub or,

in the case of grass snake, waterbody margins. Suitable well drained and frost-free areas are needed so they can survive the winter.

***Dormouse (Muscardinus avellanarius)***

- 3.17 During the walkover survey the potential for dormouse to be present on site was assessed. This included observations for suitable habitat such as well-layered woodland, scrub and linking hedgerows, particularly those comprised of species offering suitable food sources such as honeysuckle and hazel, in addition to direct evidence such as characteristically gnawed hazelnuts, chewed ash keys and honeysuckle flowers, or nests.

***Water Vole (Arvicola terrestris)***

- 3.18 Water vole potential was assessed during the walkover survey. The potential is identified by the presence of ditches, rivers, dykes and lakes with holes and runs along the banks. Latrines, footprints or piles of food can also be noted.

***Otter (Lutra lutra)***

- 3.19 Where desktop review or consultation indicates the presence of otter in a river catchment, the presence of water bodies with good cover and potential holt (den) sites would be noted. Spraint, footprints or food remains can also be noted.

***Birds***

- 3.20 During the walkover survey, the potential for breeding, wintering and migratory birds was assessed. In particular, this includes areas of trees, scrub, heathland and wetlands that could support nests for common or notable species.

***Invertebrates***

- 3.21 As part of the walkover survey the quality of invertebrate habitat and the potential for notable terrestrial and aquatic invertebrate species was considered. There is a wide variety of habitats suitable for invertebrates including wetland areas, heathland, areas of bare sandy soil, ephemeral brownfield vegetation and meadows.

***Biodiversity Action Plan priority species/ Species of Principal Importance***

- 3.22 Where consultation and desk-study indicates the presence of BAP priority species (Species of Principal Importance) not protected by statute, effort was made to establish the potential for the site to support these species.

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### ***Species Specific Scoping***

#### *Badger*

- 3.23 The potential for badger to inhabit or forage within the study area was assessed through identifying the presence of the following field signs:
- sett entrances, e.g. entrances that are 25cm in diameter with a flattened oval appearance;
  - badger paths;
  - latrines;
  - badger hairs on fences or bushes;
  - scratching posts;
  - signs of digging for food;
  - badger footprints; and
  - large spoil heaps outside sett entrances.

#### *Bat species (Chiroptera)*

- 3.24 The site visit was undertaken in daylight and the evaluation of bat potential comprised an assessment of natural features on site that aimed to identify characteristics suitable for bat roosts, foraging and commuting. In accordance with Bat Conservation Trust survey guidelines<sup>8</sup> and methods given in English Nature's (now Natural England) Bat Mitigation Guidelines<sup>9</sup> consideration was given to:
- The availability of access to roosts for bats;
  - The presence and suitability of crevices and other places as roosts; and
  - Signs of bat activity or presence.
- 3.25 Definite signs of bat activity were taken to be:
- The bats themselves;
  - Droppings;
  - Grease marks;
  - Scratch marks; and
  - Urine spatter.
- 3.26 Signs of possible bat presence were taken to be:
- Stains; and
  - Moth and butterfly wings.

- 3.27 Features with potential as roost sites include mature trees with holes, crevices or splits (the most utilised trees being oak, ash, beech, willow and Scots pine), caves, bridges, tunnels and buildings with cracks or crevices serving as entrance or exit holes.
- 3.28 Additionally, linear natural features such as tree lines, hedgerows and river corridors are often considered valuable for foraging and commuting. Consideration was given to the presence of these features both immediately within and adjacent to the assessment area.

### **SURVEYORS**

- 3.29 James Bumphrey, who undertook the badger and roosting bat scoping survey and reviewed this report, has an undergraduate degree in Environmental Sciences (BSc Hons), a Master's degree in Environmental Consultancy, a Natural England Great Crested Newt Licence (2018-35160-CLS-CLS). James has 8 years' experience in ecological surveying and has undertaken and managed numerous ecological surveys and assessments.
- 3.30 Olivia Guindon, who undertook the PEA survey and wrote this report, has a Bachelor's degree in Ecology and Wildlife Conservation (BSc Hons), a Master's degree in Species Identification and Survey Skills and is a Qualifying member of CIEEM. Olivia has over three years' experience in the commercial sector.
- 3.31 This report was written by Olivia Guindon and reviewed and verified by James Bumphrey who confirms in writing (see the QA sheet at the front of this report) that the report is in line with the following:
- Represents sound industry practice;
  - Reports and recommends correctly, truthfully and objectively;
  - Is appropriate given the local site conditions and scope of works proposed; and
  - Avoids invalid, biased and exaggerated statements.

### **CONSTRAINTS**

- 3.32 The PEA, badger and bat scoping survey visits were undertaken during an optimal time of year during ideal conditions by a suitably qualified ecologist. It was possible to access all areas of the site.
- 3.33 No significant constraints that stand to impact conclusions drawn in this report therefore presented themselves.



## 4.0 RESULTS

### DESK TOP REVIEW

#### Designations

- 4.1 Consultations with the local biological record centres (GiGL) and the MAGIC dataset have confirmed that there are no statutory designations of national or international importance within the boundary of the site.
- 4.2 There are however two Local Nature Reserves (LNR) within a 2km radius.
- 4.3 The search radius was extended to 10km for statutory designated sites of national and international importance with three identified.
- 4.4 Records from GiGL also identified 12 non-statutory Sites of Importance for Nature Conservation (SINCS) within 2km of the site boundary. SINCs are recognised by LPAs as important wildlife sites.
- 4.5 Table 4.1 below gives the locations and descriptions the notable local designations.

**Table 4.1 Notable Statutory and Non-Statutory Designated Sites within Search Radius**

Site Name	Approximate Location	Description
<b>Statutory Designations (National and International Importance)</b>		
Lee Valley (Special Protection Area and Ramsar)	7.8km southeast	Comprises a series of embanked water supply reservoirs, sewage treatment lagoons and former gravel pits that display a range of man-made and semi-natural wetland and valley bottom habitats.  Qualifying species include: <ul style="list-style-type: none"> <li>• Bittern <i>Botaurus stellaris</i></li> <li>• Gadwell <i>Anas strepera</i></li> <li>• Shoveler <i>Anas clypeata</i></li> <li>• Whorled water-milfoil <i>Myriophyllum verticillatum</i></li> </ul>
Walthamstow Reservoirs – part of Lee Valley (Site of Special Scientific Interest)	7.8km southeast	The Walthamstow Reservoirs contain one of the country’s major heronries and a particularly large concentration of breeding wildfowl. They are also an important gathering area for moulting tufted duck and in winter attract nationally significant populations of wildfowl and other wetland birds
Epping Forest (Special Protection Area (SAC))	9.8km east	Epping Forest is a large ancient wood-pasture with habitats of high nature conservation value including ancient semi-natural woodland, old grassland plains, wet and dry heathland and scattered wetland. The semi-natural woodland is particularly extensive but the Forest plains are also a major feature and contain a variety of unimproved acid grasslands.  Qualifying habitats:

Site Name	Approximate Location	Description
		<ul style="list-style-type: none"> <li>Atlantic acidophilous beech forests</li> <li>European dry heaths</li> <li>North Atlantic wet heaths</li> </ul> Qualifying species: <ul style="list-style-type: none"> <li>Stag beetle <i>Lucanus cervus</i></li> </ul>
Statutory Designations (Local Importance)		
Oak Hill Wood (LNR)	~1.4km north	This site comprises of woodland (oak, hornbeam, hazel, elm, holly, elder), grassland and tall herbs. The woodland is bisected by a small stream, a tributary of the Pymmes Brook, that has ferns on its banks. The grassland and tall herb communities are exceptionally rich in flora in places e.g. buttercup, harebell, imperforate St. John's wort, bird's foot trefoil, stitchwort and sorrel. Over 70 species of bird, 19 butterflies, 74 moths, 9 mammals, 82 fungi and 2 amphibians have been recorded on the site.
Coppetts Wood and Glebelands (LNR)	~1.6km south	Coppetts Wood is mainly oak, supported by old coppice hazel and hornbeam. There is also a pond that provides wetland habitat, and compartments containing grassland and tall herb habitats. These are diverse and in places exceptionally rich in flora. Over 38 species of bird and 21 butterfly species have been recorded, and the site is rich in invertebrates, fungi, bats and other mammals. Glebelands is a woodland belt dominated by mature hawthorn. It is remarkable for its boggy conditions and supports locally rare aquatic herbs.
Non-Statutory		
New Southgate Cemetery (SINC – Borough Grade II)	40m east	Support mature trees, breeding bird assemblage, dusky cockroach <i>Ectobius lapponicus</i> .
Barfield Allotments Nature Park (SINC – Borough Grade I)	145m west	A former allotment which supports a reptile population including slow worm and common lizard.
Oakleigh Park Rail Cutting (SINC – Borough Grade I)	510m north	An important wildlife corridor, the site supports goldfinch <i>Carduelis carduelis</i> , chiffchaff <i>Phylloscopus collybita</i> , lesser whitethroat <i>Sylvia curruca</i> and willow warbler <i>Phylloscopus trochilus</i> .
Pymme's Brook (SINC – Borough Grade II)	~700m east	The Pymme's Brook, a small tributary of the River Lea, flows southwards through the eastern part of the borough of Barnet. Two sections of the brook are included in this site. The first is a 500 metre stretch from where the brook leaves Monken Hadley Common to Park Road. The southern section is just over 3 kilometres in length, from Brookside to the borough boundary with Enfield, where it enters Arnos Park on its way to join the River Lea at Edmonton. Between these two sections, the brook flows for about a kilometre between back gardens in a concrete channel of limited nature conservation interest, and then in a short culvert. In the northern section of the site, the brook flows through an attractive strip of rough grassland and scattered

Site Name	Approximate Location	Description
		scrub, with a narrow belt of oak ( <i>Quercus robur</i> ) woodland beside the river. There is little aquatic vegetation because of the shade. The southern section is also largely wooded. The brook in this section has fairly natural banks and a gravel bed, though the dense shade restricts aquatic vegetation.
Friary Park (SINC – Borough Grade I)	750m southeast	A public park which supports veteran trees which pre-date the park, and a stream. The site supports parkland birds including nuthatch <i>Sitta europaea</i> and treecreeper <i>Certhia familiaris</i>
North Middlesex Golf Course Ponds (SINC – Borough Grade II)	~1.2km west	The two ponds on North Middlesex Golf Course support a breeding colony of palmate newts, a rare species in London, as well as the commoner smooth newt. The upper pond, which is close to the club house, is rather formal, with a fountain and lights, and the marginal vegetation is cut regularly. The lower pond is less formal, and has a fringe of yellow iris ( <i>Iris pseudacorus</i> ), reed sweet-grass ( <i>Glyceria maxima</i> ), water mint ( <i>Mentha aquatica</i> ) and brooklime ( <i>Veronica beccabunga</i> ). Rigid hornwort ( <i>Ceratophyllum demersum</i> ) and Nuttall's waterweed ( <i>Elodea nuttallii</i> ) grow beneath the water's surface
Arnos Park (SINC – Borough Grade I)	~1.5km south east	A small but varied park with a range of habitats including the Pymme's Brook which flows through the park. The park's woodland has a diverse range of tree species. To the northeast of the park is an extensive area has been allowed to revert to rough grassland. The Pymme's Brook is largely channelled and of limited ecological value. The Piccadilly line crosses the park on a viaduct at its western end and the site is extended to include its railsides, and the Bounds Green Brook running south from the park.
Bluebell Wood and Muswell Hill Golfcourse (SINC – Borough Grade I)	~2km south	Bluebell Wood is a small area of ancient woodland covering just over one hectare found towards the eastern edge of Muswell Hill. It is open to the public at all times and is regularly used by local people. There is wild service-tree ( <i>Sorbus torminalis</i> ) and Midland hawthorn ( <i>Crataegus monogyna</i> ) in the understorey, indicating the ancient origin of the wood. The ground flora includes further ancient woodland indicators, including bluebell ( <i>Hyacinthoides non-scripta</i> ), wood anemone ( <i>Anemone nemorosa</i> ) and wood millet ( <i>Milium effusum</i> ), the latter at its only Haringey site

## Biodiversity Action Plans

- 4.6 UK Biodiversity Action Plans (BAPs) have been developed which set priorities for nationally important habitats and species. To support the BAPs, Species/Habitat Statements (otherwise known as Species/Habitat Action Plans) were produced that provide an overview of the status of the species and set out the broad policies that can be developed to conserve them. A list of priority species of conservation importance was also developed.
- 4.7 The UK BAP was succeeded in 2012 by the *UK-Post 2012 Biodiversity Framework* which informed the creation of the *Biodiversity 2020* strategy; England's contribution towards the UK's commitments under the *United Nations Convention of Biological Diversity*.

- 4.8 Despite this, the UK BAP priority species lists and conservation objectives still remain valid through integration with local BAPs (which remain valid), and in the form of the Habitats and Species of Principle Importance list (as required under section 41 of the Natural Environment and Rural Communities (NERC) Act).
- 4.9 Local Biodiversity Action Plans (LBAPs) ensure that national action plans (the UK BAP/Biodiversity 2020) are translated into effective action at the local level and establish targets and actions for locally characteristic species and habitats.
- 4.10 There is currently no active Barnet BAP and therefore the London BAP would be considered to be of most relevance to the site.

### **London BAP**

- 4.11 The London BAP lists 214 priority species and eight Species Action Plans (SAPs), in addition to four priority habitats and 11 Habitat Action Plans (HAPs) There are also many species listed on the BAP which are priority species and are of conservation concern. Of these, the features relevant to this report include:
- The onus placed on the importance of built structures to local wildlife;
  - The bat Species Action Plan (SAP);
  - Reptiles (SAP);
  - Stag Beetle (*Lucanus cervus*) SAP;
  - House sparrow (*Passer domesticus*) SAP.

### **Species Record**

- 4.12 The information provided in the biological data search from GiGL identified records of a number of protected and BAP priority species within 2km search radius of the site. Among others, these include the following species of relevance to the site:
- Mammals (excluding bats) – West European hedgehog (*Erinaceus europaeus*) and harvest mouse (*Micromys minutus*).
  - Bat species including serotine (*Eptesicus serotinus*), natterer's (*Myotis nattereri*), common noctule (*Nyctalus noctula*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and brown long-eared (*Plecotus auritus*).
  - Reptiles and amphibians – common toad (*Bufo bufo*); common frog (*Rana temporaria*), great crested newt (*Triturus cristatus*), common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica*) and slow worm (*Anguis fragilis*).
  - Birds – swift (*Apus apus*), cuckoo (*Cuculus canorus*), house sparrow (*Passer domesticus*), starling (*Sturnus vulgaris*), song thrush (*Turdus philomelos*).
  - Invertebrates – stag beetle (*Lucanus cervus*).

- 4.13 The species listed above are primarily those known to be in the area that may be impacted by any proposals at the site, or that stand to benefit as a consequence of potential ecological enhancements at the site and inform site-specific mitigation and enhancement recommendations described in the following chapter.

### **DETAILED DESCRIPTION OF SITE: HABITATS**

- 4.14 The habitats presented across the assessment site consist of the following Joint Nature Conservation Committee (JNCC) Phase 1 Habitat categories, as mapped at Figure 1:

- Building and Hardstanding (J3.6);
- Amenity grassland (J1.2);
- Poor semi-improved grassland (B6);
- Dense scrub (A2.1);
- Scattered scrub (A2.2);
- Tall ruderal (C3.1);
- Introduced shrub (J1.4);
- Standing water (G1.2);
- Species poor intact hedgerow (J2.1.2); and
- Species poor hedge with trees (J2.3.2).

### **Building and hardstanding (J3.6)**

- 4.15 There are ten buildings on the site with the primary use being office building and associated car parking. Additional uses include a nursery, a school, site security offices and storage sheds.

#### ***Building 1 - Nursery***

- 4.16 Building 1 located to the north of the site is currently used as a nursery. It is a one storey brick building with a shallow pitched roof made with corrugated metal.

**Plate 4.1 The nursery (building 1)**



***Buildings 2, 8 and 10 – Small Storage Buildings***

- 4.17 Building 2, 8 and 10 are all small one storey shed-like buildings. Building 2 has timber cladding and a pitched tiled roof; building 10 is of brick construction with a flat concrete roof; and building 8 is of brick construction with a flat concrete roof.

**Plate 4.2 Building 8**



***Buildings 7 and 9 – Security Buildings***

- 4.18 Building 7 and 9 are security offices both situated at an entrance of the business park.
- 4.19 Building 7 is a single storey brick building with a flat roof and building 9 is a one storey building of steel and brick framing with glazing.

**Plate 4.3 Building 7**



***Building 3 – Large Main Office Building***

- 4.20 Building 3 is a large office building made up of four different office blocks joined via annexes to form a large square building footprint with a central ornamental garden. Its construction is modern with metal and glazed cladding and a flat roof with small plant rooms.

**Plate 4.4 Building 3**



***Building 5 –Additional Office Block***

- 4.21 Building 5 is a two-storey office block with metal and glazed cladding and a flat roof.

**Plate 4.5 Building 5**



***Building 6 – Car park***

4.22 Building 6 is a two-storey car park of concrete construction and open on all aspects.

**Plate 4.6 Building 6**



***Building 4 – School building***

4.23 Building 4 is a two-storey building used as a school with glazed and metal cladding and a flat roof.



### Amenity Grassland (J1.2)

- 4.24 The majority of the grassland throughout the site comprised of heavily managed amenity grassland dominated by few species including perennial rye grass (*Lolium perenne*), daisy (*Bellis perennis*) and white clover (*Trifolium repens*).

#### Plate 4.7 Amenity grassland



### Poor Semi-improved Grassland (B6)

- 4.25 To the north of the site is an expanse of well-established rough grassland seemingly left unmanaged. The sward is tall and tussocky and is dominated by grasses including common couch (*Elymus repens*), false oat grass (*Arrhenatherum elatius*), Yorkshire fog (*Holcus lanatus*), and creeping bent (*Agrostis stolonifera*). Wildflower species within the grassland are of a ruderal nature with species such as creeping thistle (*Cirsium arvense*), common nettle (*Urtica dioica*) and others including creeping buttercup (*Ranunculus repens*), wild carrot (*Daucus carota*) and meadow vetchling (*Lathyrus pratensis*).

**Figure 4.1 Area of poor semi-improved grassland to the north of site**



- 4.26 Several areas of grassland displayed a more diverse composition including species such as ladies' bedstraw (*Galium verum*), bird's-foot-trefoil (*Lotus corniculatus*), selfheal (*Prunella vulgaris*), common knapweed (*Centaurea nigra*), oxeye daisy (*Leucanthemum vulgare*) and red clover (*Trifolium pratense*). It is understood from previous ecological assessments of the site that these areas have likely been seeded to increase diversity.

**Figure 4.2 Diverse composition of area of poor semi-improved grassland areas**



**Tall ruderal (C3.1)**

- 4.27 A large mound was present along the eastern boundary of the grassland area to the north of the site which has been colonised by tall ruderal species including bristly

oxtongue (*Picris echioides*) and common nettle (*Urtica dioica*) which implied this area has been subject to disturbance fairly recently.

**Figure 4.3 Mound with tall ruderal species**



**Scattered scrub (A2.2)**

4.28 The area of poor semi-improved grassland to the north of the site was also colonised in places by some areas of scattered scrub mainly comprised of bramble (*Rubus fruticosus*).

**Figure 4.4 Scattered scrub within grassland**



**Dense scrub (A2.1)**

4.29 Areas of dense bramble scrub were also present around the peripheries of the site and around the lake to the south. Urban scrub species such as bramble (*Rubus fruticosus*)

and butterfly bush (*Buddleia davidii*) are dominating throughout the site with goat willow (*Salix caprea*) and dogwood (*Cornus sanguinea*) present around the lake's margins.

**Figure 4.5 Dense scrub**



**Introduced shrub (J1.4)**

- 4.30 Small areas on the site are landscaped with typical ornamental introduced shrubs including *Laurus sp.*, *Hebe sp.*, *Cotoneaster sp.*, and *Fatsia japonica*.

**Figure 4.6 Introduced shrub**



**Standing water (G1.2)**

- 4.31 A large waterbody is present in the southeastern area of the site. Its banks are steep sided and some sides have been reinforced with steel supports. Vegetation within the pond was limited to small areas of common reed (*Phragmites australis*). An island is present within the waterbody with large mature trees. The pond does not meet any of the criteria for it to be considered a BAP Priority Habitat<sup>7</sup>

**Figure 4.7 Lake**



**Species poor intact hedgerow (J1.2.1)**

- 4.32 The car park to the north of the site is surrounded by small hedgerows composed of hawthorn (*Crataegus monogyna*). Although intact in their length, the small hedgerows are no more than 1m in height and therefore do not meet the criteria for the UK BAP priority habitat 'Hedgerow'<sup>8</sup>.

**Figure 4.8 Species poor intact hedgerow**



**Species poor hedge with trees (J2.3.2)**

- 4.33 To the north of the car park area is a hedgerow mainly composed of garden privet (*Ligustrum ovalifolium*) with a number of mature trees including oak (*Quercus sp.*) and ash (*Fraxinus excelsior*). Whilst the hedgerow is intact in its full length and above 3m on average in height and it does not meet the criteria for the UK BAP priority habitat 'Hedgerow' given it is predominately comprised of a non-native species.

**Figure 4.9 Hedge with trees**



- 4.34 Further to the hedgerows, a large resource of trees is present on site, many of which are likely to have been planted in association with the existing development. As a consequence most trees were early to semimature in age and in good condition. Amongst non-native and ornamental species, a large amount of native trees including lime (*Tilia x europaea*), oak, horse chestnut (*Aesculus hippocastanum*) and yew (*Taxus baccatta*) were present scattered across the site.

#### **DETAILED DESCRIPTION OF SITE: SPECIES**

- 4.35 Protected species potential is described below with target notes shown at Figure 1.

##### **Badger**

- 4.36 There are no records of badger within 2km of the site, however the rough grassland habitat on site is suitable for foraging badger with potential evidence of badger recorded on site during the badger scoping in the form of snuffle holes (Target Note 1). Snuffle holes were also previously recorded, in addition to badger hair on a 'squeeze hole' (Appendix 1). No setts were identified however, given the evidence previously recorded there is considered to be **high** potential for foraging badger to be present on site.

##### **Bats**

##### ***Foraging***

- 4.37 The site includes areas of rough grassland, scrub, large mature trees and a lake which provide a suitable foraging resource for bats. The grassland to the north is also unlit, increasing further its potential to support foraging bat species, including those that are intolerant of light. The mature trees and railway line to the west of the site provide good

commuting habitat for bats and are well connected to the residential gardens and parks and open green spaces that make up the wider surroundings. However, the previous surveys at the site recorded limited levels of foraging and consequently the value is considered to be **low**.

### **Roosting**

- 4.38 No field signs of roosting bats were observed during the bat scoping survey. The findings of the bat scoping of the buildings is consistent with the previous assessment of the site (see Appendix 1 for further details). None of the buildings supported any suitable features such as cracks, crevices, missing bricks and other structural features suitable to support roosting bats. The buildings on site are therefore considered to have **negligible** potential to support roosting bats.
- 4.39 Moderate potential roosting features were identified on five of the trees on site. Trees 1,2,3, 4 and 5 (see Figure 1) included woodpeckers holes, ivy and splitting bark with potential to support roosting bats and were therefore considered to have **moderate** potential to support roosting bats. Several other trees were noted as having low potential (primarily associated with the tree group containing T1).

**Table 4.2 Trees with bat roosting potential**

<b>Tree</b>	<b>Species</b>	<b>Description</b>	<b>Bat roosting potential</b>	<b>Target Note</b>
T1	Pedunculate oak ( <i>Quercus sp.</i> )	Mature tree with ivy, woodpecker hole and missing limb	Moderate	2
T2	Weeping willow ( <i>Salix babylonica</i> )	Mature tree which has recently fallen down. Woodpecker holes and splitting bark present on north facing elevation	Moderate	3
T3	Lime ( <i>Tilia sp.</i> )	Mature tree; two woodpecker holes on east facing side of stem	Moderate	4
T4	Pedunculate oak ( <i>Quercus sp.</i> )	Mature tree; ivy clad and woodpecker hole present	Moderate	5
T5	Pedunculate oak ( <i>Quercus sp.</i> )	Mature tree; woodpecker hole present	Moderate	6

### **Great Crested Newt**

- 4.40 The assessment of the potential for great crested newt to be present on site is consistent with that undertaken previously (see Appendix 1). There are records of great crested

newt within 2km of the site, however the pond on site contained large fish and waterfowl and is sufficiently well isolated from other waterbodies present within 500m. In addition, there is a lack of suitable aquatic vegetation for egg laying.

- 4.41 The site is therefore considered to have **negligible** potential to support great crested newts.

### Reptiles

- 4.42 Habitats across the site were largely unsuitable for reptile species being heavily managed and lacking structure. However the area of rough grassland to the north of the site and scrub habitats are suitable to support common and widespread reptile species. In addition, piles of logs, green waste and debris throughout the site provide suitable hibernacula for species such as common lizard and slow worm. The site's connectivity to other habitats is also provided via the railway line to the west of the site.

- 4.43 Furthermore, surveys completed in 2014 (Appendix 1) confirmed the presence of a 'good' population of slow worm.

- 4.44 As such the site is considered to have **high** potential to support reptiles.

### Dormouse

- 4.45 There are no records for dormouse within 2km of the site and the hedges and trees on site lack diversity in fruiting species and provide little suitability for the species. In addition there are no woodlands or suitable habitats connected to the site.

- 4.46 The habitats on site are therefore considered to have **negligible** potential for dormouse.

### Water Vole and Otter

- 4.47 There are no records of water vole and otter within 2km of the site and there are no suitable habitats on site. The existing man-made waterbody is highly isolated from suitable offsite habitats and subject to a high level of disturbance. Therefore the site is considered to be of **negligible** value for water vole and otter.

### Birds

- 4.48 The range of habitats on site have the potential to support an assemblage of common and widespread breeding bird species. There are records of priority bird species within 2km of the site including house sparrow, swift and cuckoo.

- 4.49 Notable species identified during the 2021 walkover included dunnock (*Prunella modularis*, BoCC amber listed and NERC species) and starling (*Sturnus vulgaris*, BoCC red listed and NERC species). These species were also recorded during the 2015 surveys.

- 4.50 Canada geese were numerous around the lake and fledglings were spotted during a site visit in May 2021.



4.51 The site is therefore considered to have **high** potential to support breeding birds.

### **Invertebrates**

4.52 The site is likely to support a range of largely common invertebrate species with habitats of value including trees, dense scrub and rough grassland. There are records of several invertebrate priority species/species of principal Importance within 2km of the site including stag beetle.

4.53 Previous surveys of the site (Appendix 1) identified nine species of conservation interest with all but one of these associated with the banks surrounding the car park area (Target Note 7).

4.54 Whilst stag beetle have been recorded in the locality, none have been recorded on site with areas of deadwood being relatively limited.

4.55 The site is considered to have **high** potential to support notable invertebrates with presence previously confirmed.

### **Protected Plant Species**

4.56 Given the nature of the habitats across the majority of the site and the fact that grass species dominated the grassland and scrub habitats on site, the potential for the site to support protected plant species is considered to be **negligible**.

### **Invasive/Non-native species**

4.57 Japanese knotweed (*Fallopia japonica*), an invasive species listed on Schedule 9 of the Wildlife and Countryside Act, was identified within the northern extent of the site (Target Note 8).

### **Other BAP Species**

4.58 Habitats present across the site including the dense scrub and hedgerow habitats have **moderate** potential to support hedgehog and there are multiple records of this species within 2km of the site.

## 5.0 EVALUATION AND DISCUSSION

- 5.1 The assessment site and its surroundings have potential to support the following ecological receptors of note, which could therefore be impacted upon by any future prospective development proposals. Discussion on appropriate mitigation, compensation and enhancement actions is therefore provided below.
- 5.2 The additional phase 2 surveys described below are due for completion in Summer 2021.

### MITIGATION AND COMPENSATION

#### Designated Sites

- 5.3 There are several statutory designated sites within 2km of the site boundary including Oak Hill Wood LNR ~1.4km north and Coppetts Wood and Glebelands LNR ~1.6km south. There are also 12 non-statutory Sites of Importance for Nature Conservation (SINCs) within the 2km radius including Pymme's Brook Borough Grade II SINC ~700m east and New Southgate Cemetery Borough Grade II SINC ~200m south east.
- 5.4 Construction phase impacts associated with the development such as pollution events, dust deposition and noise pollution/vibration are considered unlikely due to distance and the nature of the surrounding environment being already densely urban. Potential operational impacts such as increased footfall and litter will also be minimal given the designated sites are already in a suburban context and subject to existing management.

#### Habitats

- 5.5 It is understood that the pond will be reconstructed as a part of the development works and will therefore be drained. Consideration will therefore be required with regards to the existing fish present and also the breeding birds around the pond. There are significant opportunities to increase the ecological value of the pond through the incorporation of marginal planting and naturalising the banks.
- 5.6 Whilst the hedgerows on site are unlikely to meet the criteria for the associated UK BAP Priority Habitat it still has existing value as a linear feature providing foraging opportunities for birds, bats and invertebrates. All hedgerow that is lost should be replaced and enhanced with a diverse species mix utilised.
- 5.7 Given the existing cover of landscaping on site, in order to create net gains in biodiversity value on site, green infrastructure should be planned at a site wide level, considering wider ecological features and green corridors. Green space should be multifunctional with high floral diversity and support native species where possible.
- 5.8 In accordance with the above, the following measures are recommended for incorporation into proposals and are largely consistent with recommendations previously provided in Appendix 1:

- 
- Biodiverse living roofs – including wildflower grass and substrate-based systems which are seeded and plug planted, incorporating at least 30 wildflower species of known value to wildlife, should be provided on suitable flat roof areas. The roofs should be further enhanced through the inclusion of features such as log piles, rope coils, sandy piles and ephemeral water features for invertebrates;
  - Wildlife friendly planting – new landscaping should provide a diverse mix of species of demonstrable value for wildlife known to be at site/have the potential to be encouraged to the site. Landscaping should account for climate risk through providing appropriate species mixes which are drought resilient, or suitable for use in rain gardens or for surface water control where appropriate. New trees and hedgerows should be considerate of their wildlife value (providing fruit and berries) and wider function such as pest resilience and air quality control ability. The creation of wildflower meadow and species rich ‘turf’ in formal recreational areas with seasonal bulb planting should be considered;
  - Bird boxes – Nesting opportunities for birds, particularly targeting BAP species such as house sparrow, should be provided. Specialised house sparrow terraces can be included that are fully integrated within new buildings or attached to mature trees. These boxes should be positioned near to any area of vegetation and should be placed at least 2m above ground level;
  - Bat boxes – Bat boxes should be located on the eastern and southern elevations of the buildings and like the bird boxes should be incorporated into the masonry or attached to mature trees;
  - Invertebrate habitat features – Invertebrate habitat features should be incorporated within public landscaped areas to provide features of interest as well as ecological function. Stag beetle loggeries, solitary beehives and habitat panels should be placed in suitable locations. Stag beetle loggeries should be placed in shady areas amongst trees to provide forage and shelter for saproxylic invertebrates in larval stage, whereas beehives and habitat panels should be located in sunny areas; and
- 5.9 The above recommendations are provided with an aim of achieving Biodiversity Net Gain in order to comply with emerging planning policy. Should the recommendations made in this report be adhered to, proposals should be fully compliant with local, regional and national planning policy and biodiversity conservation legislation both which encourage new developments to deliver measurable gains in biodiversity.
- 5.10 The measures described above, once integrated within designs, should be described in an Ecological Management Plan (EMP) for the scheme, which, alongside the Construction Environmental Management Plan (incorporating ecological protection measures), could be secured through planning condition. A Biodiversity Net Gain/Biodiversity Impact Assessment should also be produced.
-

## **Badgers**

- 5.11 Given the evidence of badgers previously recorded best practice protection measures are recommended for construction to ensure badgers (and other small to medium sized mammals) are protected throughout the works:
- Any trenches or deep pits within the development site that are to be left open overnight should be provided with a means of escape should a badger enter. The simplest method for this would be in the form of a roughened plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water.
  - Any trenches/pits should be inspected each morning to ensure no badgers have become trapped overnight. Should a badger become trapped in a trench it will likely attempt to dig itself into the side of the trench, by forming a temporary sett.
  - The storage of topsoil or other 'soft' building materials on site should be given careful consideration. Badgers will readily adopt such mounds as setts. So as to avoid the adoption of any mounds, these should be kept to a minimum and any essential mounds subject to daily inspections with consideration given to temporarily fencing any such mounds to exclude badgers.
  - The storage of any chemicals/liquids on site should be well away from the boundaries, and contained in such a way that they cannot be accessed or knocked over by any roaming badgers.
  - Fires should only be lit in secure compounds away from areas of potential badger activity and not allowed to remain lit during the night.
  - Food and litter should not be left within the working area overnight.
- 5.12 The above recommendations will also ensure the protection of hedgehogs and other mammals.

## **Bats**

### ***Foraging***

- 5.13 The mature trees, areas of scrub and open grasslands provide suitable foraging habitats for multiple bat species. The proposed developments plans seek to clear most suitable habitat including the area of rough grassland and scrub. Additionally, increased lighting levels associated with the development threaten the site's value for foraging bats and could sever potential flight lines.
- 5.14 Further surveys are therefore recommended to determine whether bats are using these habitats on site. A sensitive lighting strategy should be implemented, and should the hedgerows not be retained, new hedgerow should be created on at least a like for like basis within the development proposals.

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### **Roosting**

- 5.15 The survey established that five trees on site have moderate potential to support roosting bats and these trees will be lost as a result of the development.
- 5.16 In order to establish the presence/likely absence of roosting bats emergence/re-entry surveys will be required. In accordance with BCT Good Practice Guidelines moderate potential features require two emergence/re-entry surveys to be undertaken at dusk and/or dawn. These surveys should be undertaken between May-August, with at least one of the surveys completed between June to July to cover the bat maternity season.
- 5.17 An assessment of impact and identification of appropriate mitigation, compensation and enhancement should be informed by the results of these further surveys.
- 5.18 In accordance with the aforementioned BCT guidelines, trees with low roosting potential are not recommended to be subject to emergence re-entry surveys. However, any such trees that are to be recommended will be subject to a pre-works inspection and soft felled in a controlled manner.

### **Reptiles**

- 5.19 The proposals could result in the loss of potential reptile habitat, further reptile surveys are recommended to be undertaken to reconfirm the presence/likely absence of reptiles on the site and to inform mitigation requirements. However, as is referenced above, slow-worm have previously been recorded on the site.
- 5.20 To ensure that slow worms (and any other reptiles) are protected from injury/harm, a receptor area will be created along the western boundary which will be followed by a trapping exercise which excludes reptiles from the working area (the rough grassland and scrub habitats in the north of the site). The working areas would be fenced off with reptile exclusion fencing and a trapping exercise undertaken between March to September/October, when weather conditions are optimal. Reptiles that are caught would be transferred directly to the receptor site. A destructive search of any suitable hibernation features would be undertaken and the area made unsuitable for reptile occupation.
- 5.21 The receptor site, located on the north-western boundary, would be managed to achieve conservation benefits for the existing reptile population. This would be specifically designed to improve both the botanical and structural diversity of vegetation in order to benefit reptiles. These measures would include low intensity management to establish grassland and scrub mosaic, and the provision of a series of additional hibernation features. The detailed design of the habitats would be achieved through the implementation of a Management Plan, which would ensure the successful establishment and maintenance of all retained and newly created habitats, ensuring the favourable conservation status of reptiles is maintained.

- 5.22 The receptor site would be created in advance of any construction works; this would therefore ensure that the habitat has developed adequately to ensure that it can support the translocated reptile population. The area proposed for the reptile reserve would require a degree of tree and shrub removal and grassland establishment. Once the habitat has developed the future management would be secured into perpetuity, with specific management measures outlined within the Management Plan.

### **Birds**

- 5.23 Impacts upon nesting birds can be fully avoided through scheduling works that would stand to impact them. As nesting value exists within the trees, hedgerows and scrub habitats, if removal of these habitats is required as part of the development proposals, clearance should be undertaken outside of the nesting bird season (taken to run from March to August inclusive). If clearance within this window is not possible, a nesting bird check by a qualified ecologist would be required prior to clearance.
- 5.24 Should an active nest be identified, works that would stand to destroy the nest/eggs and/or kill birds building nests must cease until the nest is vacated.
- 5.25 To compensate for any loss in nesting bird habitat in scattered trees or the building, landscaping proposals should utilise native tree and shrub planting, as well as providing integrated nesting boxes within the new buildings. Compensatory planting should focus on the provision of winter berry producing species as well as species with dense shrubby growth within which birds may construct nests. This would not only provide nesting opportunities, but also deliver a vital food resource for birds over the winter months. Species which could be included in the design include, dogwood (*Cornus sanguinea*), hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), and red currant (*Ribes rubrum*).

### **Invertebrates**

- 5.26 Given the value for invertebrates associated with the banks surrounding the car park, it is proposed to recreate this habitat at roof level on the biodiverse green roofs which will incorporate a diverse mix of plant species and features such as log piles, rope coils, sandy piles and ephemeral water features.

### **Additional Notable species: Hedgehog**

- 5.27 Hedgehog are not afforded protection under UK and European law however are protected under the Wild Mammals (Protection) Act (1996) (Appendix 2). This Act requires hedgehog and other small mammals to be protected during site works. Furthermore, given their status as a s41 species, their conservation is a material consideration in the planning process. Measures to protect hedgehog and retain suitable habitat on site for the species, allowing continued connectivity, should therefore be followed.

- 
- 5.28 In order to minimise the potential for killing or injuring of hedgehogs (and other small to medium sized mammals) during site clearance, removal of dense vegetation and tall grass should be undertaken in two phases, by cutting to 30cm in the first instance, then to ground level after that. The vegetation should be checked for mammals between these two cuts. Should any hedgehogs be found, they should be moved to a suitable area of habitat that is not subject to clearance.
- 5.29 Inclusion of dense shrub and scrub species within the soft landscaping design proposals will help to compensate for the loss of suitable hedgehog habitat. This will provide hedgehogs with a foraging resource, as well as shelter from predators. This type of planting would be most effective around the perimeter of the site particularly towards the woodland to the south. Any fence lines or walls which may create barriers for hedgehog movement should have hedgehog highways created through them (~20x20cm holes).





## 6.0 SUMMARY AND CONCLUSION

- 6.1 Greengage was commissioned by Comer Homes to undertake a PEA a site known as the Royal Brunswick Park, New Southgate in the London Borough of Barnet in order to establish the ecological value of this site and its potential to support notable and/or legally protected species.
- 6.2 This survey updates one previously undertaken for an existing permitted development on the site (ref: 15/07932/OUT).
- 6.3 The site survey, undertaken on the 8<sup>th</sup> and 9<sup>th</sup> April 2021, alongside details received from a desk top study confirmed that the site has the potential to support the following protected/notable species:
- Moderate potential to support roosting bats (previously confirmed likely absent);
  - Low value for foraging and commuting bats (previously low levels of foraging recorded);
  - High potential to support reptiles (with presence previously confirmed);
  - High potential to support foraging badger (with potential presence previously identified);
  - High potential to support nesting birds;
  - High potential to support notable invertebrates (with presence previously confirmed); and
  - Moderate potential to support hedgehog.
- 6.4 The following update phase 2 protected species surveys are recommended to be undertaken:
- Bat emergence/re-entry survey;
  - Bat activity survey;
  - Reptile survey; and
  - Invertebrate survey.
- 6.5 The additional phase 2 surveys are due for completion in Summer 2021.
- 6.6 Key mitigation, compensation and enhancement actions which should be included within EMP and CEMP documents for the site and could be secured through planning condition. Should these recommendations be adhered to, the proposals stand to be compliant with legislation and planning policy.














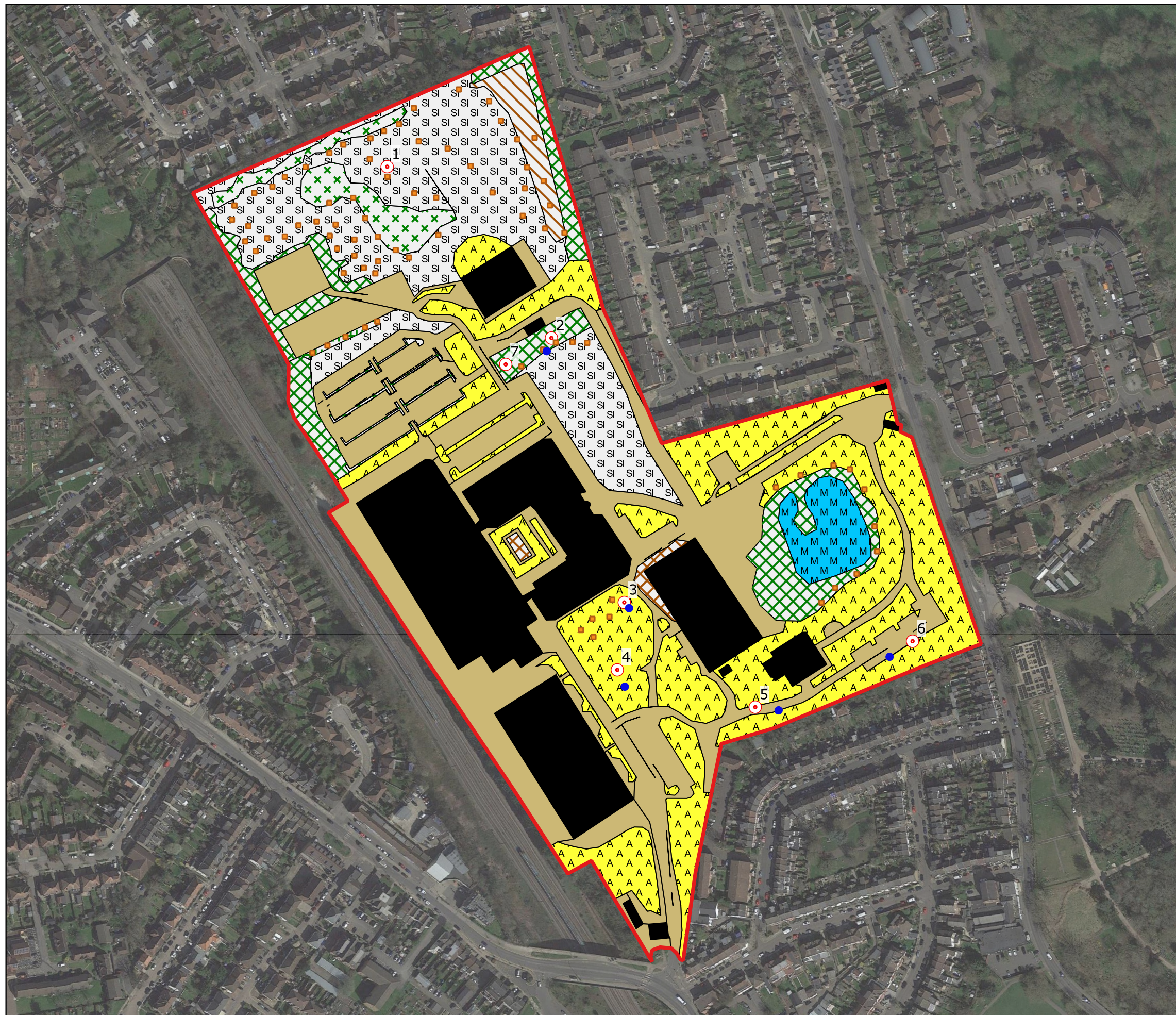
**FIGURE 1 SITE PLAN AND HABITAT MAP**

# North London Business Park

-  Approximate Site Boundary
-  Target Notes
-  Surveyor locations
-  Reptile mats

## Habitats

-  A2.1 - Dense Continuous Scrub
-  A2.2 - Scattered Scrub
-  B6 - Semi-Improved Grassland
-  C3.1 - Tall Ruderal
-  G1.2 - Standing Water - Mesotrophic
-  J1.2 - Amenity Grassland
-  J1.4 - Introduced Shrub
-  J2.1.2 - Intact Hedge - Species Poor
-  J2.3.2 - Hedge with Trees - Species Poor
-  J3.6 - Buildings
-  J5 - Hardstanding



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**Fig 1.0 Site Plan and Habitat Map**

Project Number 551510  
August 2021  
1 to 2800 at A3  
Basemap: Google Satellite

## **APPENDIX 1 15/07932/OUT SURVEY REPORTS**



Comer Group

**North London Business Park**

**Ecological Appraisal**

**APPENDIX 10.3**

December 2015

**FPCR Environment and Design Ltd**

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## 1.0 INTRODUCTION

- 1.1 The following report details the results of an ecological appraisal undertaken by FPCR Environment and Design Ltd on behalf of Comer Homes Group on land at North London Business Park, East Barnet, London (central OS Grid Reference TQ 280 935).
- 1.2 An extended Phase 1 habitat assessment and a preliminary protected species survey were undertaken during August/September 2014. These surveys were commissioned to assess potential ecological constraints to the proposed residential development of the site arising from the presence of any rare/notable habitats or the presence, or potential presence, of protected species. A bat survey was undertaken on the buildings within the site, which included internal assessments where roof voids were present and access granted. During the season additional bat surveys were undertaken which included activity transects, automated static detector surveys and tree assessments.
- 1.3 During the bat activity surveys only common bat species were recorded around the peripheries of the site, with no roosts found in any buildings or trees within the site.
- 1.4 Reptile surveys were also conducted within an area of semi-improved grassland in the north west of the site, during which a 'good' population of slow worms *Anguis fragilis* were recorded.
- 1.5 A subsequent walkover survey was undertaken in November 2015, to confirm the consistency of habitats and note any additional evidence related to protected species.

### Site Context

- 1.6 The site comprises approximately 16.8 ha of land, the majority of which is a built environment with amenity grassland areas. A large resource of native and ornamental trees are scattered across the site and a lake is present within the eastern extent. A compartment of land which appears to have been left unmanaged is present within the northern extent of the site, comprising derelict buildings, a hardstanding sports area, rough grassland which was the remains of a sports pitch and large bunds generally comprising of ruderal vegetation.
- 1.7 The site is situated within a highly urbanised environment within East Barnet, Greater London. The surrounding landscape is largely dominated by residential development with a number of parks in the local vicinity. A railway runs along the site's western boundary, with Brunswick Park Road and Oakleigh Road South running adjacent to the east and south.



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## 2.0 METHODOLOGY

- 2.1 In order to compile existing baseline information, relevant ecological information was requested from both statutory and non-statutory nature conservation organisations including:
- Multi Agency Geographic Information for the Countryside (MAGIC) website ([www.magic.defra.gov.uk](http://www.magic.defra.gov.uk));
  - Local Records Centre – Greenspace Information for Greater London
- 2.2 Further inspection of colour 1:25,000 OS base maps ([www.ordnancesurvey.co.uk](http://www.ordnancesurvey.co.uk)) and aerial photographs from Google Earth ([www.maps.google.co.uk](http://www.maps.google.co.uk)) was also undertaken in order to provide additional context and identify any features of potential importance for nature conservation in the wider countryside.
- 2.3 The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:
- 10km around the application area for sites of International Importance (e.g. Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites).
  - 2km around the application area for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSIs).
  - 1km around the application site for sites of County Importance (e.g. Sites of Importance for Nature Conservation (SINC) / Local Wildlife Sites (LWS) and species records (e.g.: protected, Species of Principal Importance as listed on Schedule 41 of the NERC Act [2006]<sup>1</sup> or other notable species).

### Flora

- 2.4 The initial survey was undertaken in August 2014 using the standard Extended Phase I Habitat Survey Methodology as recommended by Natural England<sup>2</sup>, to identify specific habitats and features of ecological interest. Habitats were marked on a base plan and, where appropriate, target notes were made. An inspection of the site for the presence of any invasive weed species was also carried out. Features such as trees were considered with regard to their ecological value and potential to provide suitable habitats for protected species. A subsequent survey was undertaken on 30<sup>th</sup> November 2015 to confirm the habitats present and note any changes in circumstance.
- 2.5 Hedgerows were surveyed individually using the Hedgerow Evaluation and Grading System (HEGS)<sup>3</sup> to enable identification and evaluation of hedgerows of nature conservation importance within the site. Hedgerows were graded on a scale of 1-4, within which grades 1 and 2 are generally considered to be of nature conservation priority:

1= high to very high value

2 = moderately high to high value

<sup>1</sup> The Natural Environment and Rural Communities Act 2006. [Online]. Available from: <http://www.legislation.gov.uk/ukpga/2006/16/contents> [Accessed 11/11/2013]

<sup>2</sup> JNCC. (1990). *Handbook for Phase 1 habitat survey – a technique for environmental audit*. Peterborough: JNCC

<sup>3</sup> Clements, D. & Toft, R. (1992). *Hedgerow Evaluation and Grading System (HEGS) – a methodology for the ecological survey, evaluation and grading of hedgerows*. Countryside Planning and Management

3 = moderate value

4 = low value.

- 2.6 Hedgerows were also considered against the Hedgerow Regulations 1997 Wildlife and Landscape criteria<sup>4</sup>, to identify any hedgerows, which would be classified as “important” for nature conservation under this part of the act. Under this methodology, hedgerows are considered according to the average number of woody species per 100m of hedgerow. Additional features which enhance hedgerows, when found in association with the hedge, such as mature trees, ditches and hedge banks are also considered.
- 2.7 It should be noted that hedgerows may also qualify as Important under the Archaeological criteria of this Act, which is beyond the scope of this assessment.

### Fauna

- 2.8 During the survey of the site, observations, signs of or suitable habitat for any species protected under Part 1 of the Wildlife and Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2010 (as amended)<sup>5</sup> and the Protection of Badgers Act 1992<sup>6</sup> were noted with particular attention being given to the potential presence of bats, reptiles, great crested newt *Triturus cristatus*, and badger *Meles meles*. Throughout the survey consideration was also given to the existence and use of the site by other protected species or locally notable fauna such as Species of Principal Importance as listed on Section 41 of the NERC Act (2006), reptiles, birds and any Local Biodiversity Action Plan (LBAP) or Red Data Book (RDB) species.

### Badgers

- 2.9 As part of the survey all hedgerows, woodlands, scrub and other suitable habitats within the site and immediately adjacent (where access was possible), were searched for evidence of badger activity. The standard methodology was used, as outlined by Harris, Creswell and Jefferies<sup>7</sup> (1989). This involved a thorough search for evidence of the presence of badgers, including:
- Setts, including earth mounds, evidence of bedding and runways between setts;
  - Latrines, often located close to setts, at territory boundaries or adjacent to favoured feeding areas;
  - Prints and paths or track ways;
  - Hairs caught on rough wood or fencing;
  - Other evidence including snuffle holes, feeding and playing areas and scratching posts.

<sup>4</sup> *The Hedgerow Regulations 1997 – Statutory Instrument 1997 No. 1160*. [Online]. London: HMSO. Available from: <http://www.legislation.gov.uk/ukSI/1997/1160/contents/made> [Accessed 11/11/2013].

<sup>5</sup> *The Conservation of Habitats and Species Regulations* (as amended 2012). [Online]. Available from: <http://www.legislation.gov.uk/ukSI/2010/490/contents/made> [Accessed 11/11/2013]

<sup>6</sup> *The Protection of Badgers Act 1992 (as amended)*. London: HMSO [Online]. Available from: <http://www.legislation.gov.uk/ukpga/1992/51/contents> [Accessed 03/05/2013].

<sup>7</sup> Cresswell, P., Harris, S. & Jefferies, D.J. (1989). *Surveying Badgers*. The Mammal Society Publication No.9 Mammal Society

2.10 The identification of snuffle holes, scratching posts or feeding signs on their own are not necessarily conclusive evidence of the presence of badgers. A number of such signs need to be seen in conjunction before they can be said to be conclusive of badger activity.

**Bats**

Tree Assessments

2.11 Tree assessments were undertaken from ground level, with the aid of a torch and binoculars where required, on all trees within the site. During the survey features considered to provide suitable roost sites for bats such as the following were sought:

- Trunk cavity – Large hole in trunk caused by rot or injury.
- Branch cavity - Large hole in branch caused by rot or injury.
- Trunk split – Large split / fissure in trunk caused by rot or injury.
- Branch spilt – Large split / fissure in branch caused by rot or injury.
- Branch socket cavity – Where a branch has fallen from the tree and resulted in formation of an access point in to a cavity.
- Woodpecker hole – Hole created by nesting birds suitable for use by roosting bats.
- Lifted bark – Areas of bark which has rotted / lifted to form suitable access point/roost site for bats.
- Hollow trunk – Decay in heartwood leading to internal cavity in trunk.
- Hazard beam failure- Where a section of the tree stem/branch has failed causing collapse and leading to longitudinal fractures / splits / cracks along its length.
- Ivy cover – Dense / mature ivy cover where the woody stems could create small cavities / crevices.

2.12 The trees were classified into general bat roost potential groups based on the presence of features listed above. This assessment was completed by an experience ecologist from FPCR during August 2014 and checked again in November 2015.

2.13 Table 1 below classifies the potential categories as accurately as possible. For ease of reference, this table is based upon Table 8.4 in Bat Surveys- Good Practice Guidelines<sup>8</sup>. The table within the guidelines has been designed to inform assessments completed prior to the completion of arboricultural works. Consequently, the suggested survey methods have been refined to suit development works and considers the definition of a breeding site or resting place as described in the Habitat Regulations.

**Table 1: Bat Survey Protocol for Trees**

Tree category and description	Survey requirements prior to determination.	Recommended mitigation works and/or further surveys.
<b>Category 1</b> Confirmed bat roost with field evidence	Identified on a plan and in the field. Further assessment such as climb and inspect and/or dusk/dawn surveys should be	Avoid disturbance where possible. Felling or other works that would affect the roost would

<sup>8</sup> Hundt L (2012) Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust

Tree category and description	Survey requirements prior to determination.	Recommended mitigation works and/or further surveys.
of the presence of bats, e.g. live / dead bats, droppings, scratch marks, grease marks and / or urine staining.	undertaken, if the trees are affected by the development, to provide an assessment on the likely use of the roost, numbers and species of bat present.	require an EPS licence with like for like roost replacement as a minimum. Works may also be subject to timing constraints.
<p><b>Category 2a</b> Trees that have a high / moderate potential to support bat roosts.</p>	<p>Identified on a plan and in the field to assess the potential use of suitable cavities, based on the habitat preferences of bats. Where the tree(s) will be affected by the proposed development, further assessment such as climb and inspect and/or dusk/dawn surveys (up to 2/3 nocturnal surveys) should be undertaken (as appropriate), to ascertain presence/absence of roosting bats. Trees may be upgraded if presence of roosting bats is confirmed or downgraded following further surveys if features present are of low suitability and / or no evidence of a breeding site or resting place * is found within features that can be assessed fully.</p>	<p><b>Trees where no bat roost confirmed after further surveys:</b> Avoid disturbance where possible. In situations where disturbance cannot be avoided and where no evidence of occupation of suitable cavities has been confirmed during the initial surveys or nocturnal surveys (as appropriate), further precautionary survey work following the granting of planning permission and prior to works being completed is recommended to ensure features have not been occupied by bats.</p> <p>The additional precautionary survey work could comprise further nocturnal surveys during the active bat season immediately prior to felling or management works or the completion of additional aerial inspections. Use “soft felling” techniques, removing ivy cover by hand and avoid cutting through tree cavities is recommended once the presence of a roost has been discounted.</p>
<p><b>Category 2b</b> Trees with a low potential to support bat roosts.</p>	<p>Identified on a plan and in the field to assess the potential use of suitable cavities, based on the habitat preferences of bats. Where the tree(s) will be affected by the proposed development, further assessment such as climb and inspect and/or dusk/dawn surveys (one nocturnal survey) should be undertaken (as appropriate), to ascertain</p>	<p><b>Trees where no bat roost confirmed after further surveys:</b> Avoid disturbance where possible. In situations where disturbance cannot be avoided and where no evidence of occupation of suitable cavities has been confirmed during the</p>

Tree category and description	Survey requirements prior to determination.	Recommended mitigation works and/or further surveys.
	<p>presence/absence of roosting bats. Trees may be upgraded if presence of roosting bats is confirmed or downgraded following further surveys if features present are not suitable for bats and / or no evidence of a breeding site or resting place* is found within features that can be assessed fully.</p>	<p>initial surveys or nocturnal surveys (as appropriate), further precautionary survey work following the granting of planning permission and prior to works being completed is recommended to ensure features have not been occupied by bats.</p> <p>The additional precautionary survey work could comprise further nocturnal surveys during the active bat season immediately prior to felling or management works or the completion of additional aerial inspections. Use “soft felling” techniques, removing ivy cover by hand and avoid cutting through tree cavities is recommended once the presence of a roost has been discounted.</p>
<p><b>Category 3</b> Trees with no / negligible potential to support bat roosts.</p>	<p>Identified on a plan and in the field to assess the potential use of suitable cavities, based on the habitat preferences of bats.</p>	<p>None.</p>

\* The Conservation of Habitats & Species Regulations 2010 (as amended) affords protection to breeding sites or resting places at all times. For an area to be classified as a breeding site or resting place, the Regulations require there to be a reasonably high probability that the species will return to the sites and / or place.

Confirmation of a breeding site or resting place in trees can be established through the completion of aerial inspection and / or nocturnal surveys (as appropriate). In situations where nocturnal surveys are completed and a breeding site or resting site is not confirmed, the survey effort is considered to be sufficient to reasonably discount the presence of roosting bats (for a period of time as defined in Natural England’s current Standing Advice). However, further precautionary works may be recommended if the trees is affected by works.

Where features of a tree are identified as providing potential to be used as a breeding site or resting place, evidence of current or previous use of the feature should be identified during an aerial inspection to necessitate the completion of further detailed nocturnal survey work prior to the granting of planning permission. In situations where no evidence of use is identified it is reasonable to conclude that a feature is not being used as a breeding site or resting place as defined by the Regulations but further precautionary measures maybe recommended if a tree is affected by development to ensure occupation has not occurred following completion of the survey. If the presence of a breeding site or resting place cannot be discounted from ground level or aerial inspections, nocturnal survey work to confirm the presence of a breeding site or resting place should be completed.

Internal / External Building Assessment

- 2.14 Consideration was given to the potential for roosting bats within buildings on site through internal and external inspections. The buildings were of a mixed construction period, with older buildings externally clad with metal sheets. The majority of these buildings were all flat roofed with no roof voids, however there were lift and ventilation rooms on some roof tops which were inspected.
- 2.15 The exterior of buildings were visually assessed for features such as small gaps under barge/soffit/fascia boards and cladding, which have potential as access points. Evidence that bats actively used potential access points includes staining, either within gaps from bat droppings or urine staining, a note being made wherever these were present. Indicators that potential access points had not been recently used included the presence of cobwebs and general detritus within potential access points.
- 2.16 The interior of buildings (where access was possible), including roof voids (where present/accessible) and roof top ventilation/lift rooms, were visually assessed for evidence of bat activity and/or for the potential to be used by roosting bats. Evidence of a roost could be determined through the presence of a dead or live bat(s), concentrated piles or scattered droppings, food remains such as insect wing fragments and/or scratch marks and staining.

Activity Surveys

- 2.17 Two dusk and one dawn activity transect were undertaken on 28<sup>th</sup>/29<sup>th</sup> August and 29<sup>th</sup> September 2014. All surveys were undertaken in accordance with current statutory and best practice guidelines (Natural England<sup>9</sup>, Bat Conservation Trust<sup>10</sup> and JNCC<sup>11</sup>). The primary objective of transects completed was to identify foraging areas, commuting routes and species utilisation of the site. The site falls within a large site classification as it was over 15ha (16.8ha), however the majority of the site consists of hardstanding car parks, roads and buildings, natural habitats were restricted to small areas, particularly in the north. The habitats within the site were evaluated as being low in quality; therefore it was determined using the BCT guidance to require no more than seasonal surveys (spring, summer and autumn).
- 2.18 The transect routes were predetermined prior to surveys in order to comprehensively cover all areas of the site and included point count stops, to identify activity levels around the features of potential value to bats, including those which are to be most affected by proposals (i.e. hedgerows and tree lines which are to be removed).
- 2.19 The dusk transects commenced approximately 15 minutes prior to sunset, and were 2 to 3 hours in duration. The dawn surveys commenced at least 2 hours prior to sunrise and finished at sunrise.
- 2.20 Each transect was walked at a steady pace and when a bat passed by, the species, time and behaviour was recorded on a site plan. This information provides a general view of the bat activity on site and identifies the key foraging areas and commuting routes. Bat Box Duets bat detectors were utilised in conjunction with MP3 recorders to provide back-up information and enable identification of bats encountered, if necessary. The results of these surveys were used to

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<sup>9</sup> English Nature (2004) Bat Mitigation Guidelines

<sup>10</sup> Bat Conservation Trust (2012) Bat Surveys- Good Practice Guidelines

<sup>11</sup> JNCC (1999) Bat Workers Manual

assess the level of bat activity across the site in relation to the abundance of individual species foraging and commuting.

- 2.21 The transect surveys included nine point counts. Each point count was 6 minutes in duration during which time all bat activity was recorded. The point counts were strategically located throughout the site to ensure a comprehensive coverage of habitats present (see Appendices A to F for transect routes and point count locations).
- 2.22 Transects surveys were undertaken by licenced or experienced bat workers during suitable conditions (i.e. when the ambient air temperature exceeded 10°C and there was little wind and no rain).
- 2.23 Post-survey, where necessary, bat calls were analysed using BatSound (version 4), by taking measurements of the peak frequency, inter-pulse interval, call duration and end frequency. This analysis was completed by a suitably experienced ecologist from FPCR.

#### Static Bat Detector Survey

- 2.24 Static bat detectors were used to record the passing behaviours of bats from a fixed position. These automated logging systems (SM2BAT+, Wildlife Acoustics) saved all recordings onto to an internal storage device for analysis. A single static unit was deployed on site for at least 3 consecutive nights from the 28<sup>th</sup> August to 1<sup>st</sup> September and 25<sup>th</sup> to 29<sup>th</sup> September 2014. This information was used to supplement transect survey data and species composition at different points within the site.
- 2.25 The static bat detector was placed along features considered to be of value to bats, such as hedgerows, scrub and tree lines (see Figure 2 for locations) which are likely to be affected by the development proposals. Devices were placed in each location for an extended period of time of suitable weather conditions (little or no rain/wind and temperatures above 10°C). Detectors were programmed to activate 30 minutes before dusk and recorded continuously until 30 minutes following sunrise. The output from this detector was subjected to computer analysis using the AnalookW (Titley Electronics) and Batsound (version 4) software packages.

#### **Great Crested Newts**

- 2.26 Any water bodies to which access could be legally gained were noted and described so as to indicate their potential to support an amphibian population, including GCNs. Where access was granted and where there were no barriers to dispersal between the pond and site, ponds within a 500m radius of the site were surveyed and assessed for suitability. These ponds were assessed using the GCN Habitat Suitability Index (HSI).

#### Habitat Suitability Index (HSI)

- 2.27 All water bodies within and surrounding the site were assessed (where access was available and no barriers to dispersal occurred), to determine their potential to support an amphibian population during their terrestrial phase, including GCNs. In addition, any water bodies found within the site were noted and described to assess their potential to support an amphibian population, including GCNs.



2.28 The HSI provides a measure of the likely suitability that a water body will support newts (Evaluating the suitability for the Great Crested Newt, *Herpetological Journal* 10(4); Oldham et al). In general, ponds with a higher score are more likely to support GCNs than those with a lower score and there is a positive correlation between HSI scores and ponds with newts recorded. Ten separate attributes are assessed for each pond:

- Geographic location
- Pond area
- Pond drying
- Water quality
- Shade
- Presence of waterfowl
- Presence of fish
- Number of linked ponds
- Terrestrial habitat
- Macrophytic coverage

2.29 A score is assigned according to the most appropriate criteria level set within each attribute and a total score calculated of between 0 and 1. Pond suitability is then determined according to the following scale:

**Table 2: Habitat Suitability Index Scores and Pond Suitability**

HSI Score	Pond Suitability
<0.5	Poor
0.5 - 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

## Reptiles

2.1 A strategic reptile presence / absence survey was undertaken at specific locations identified as offering potential habitat within the area of survey, which was isolated to the overgrown habitats in the north. The survey was undertaken based on methodology detailed in the *Herpetofauna Workers Manual*<sup>12</sup> and the *Froglife Advice Sheet 10 - Reptile Survey*<sup>13</sup>. Methods involved a search for basking reptiles on / under naturally occurring and strategically positioned artificial refugia. These were placed in locations that offered the most suitable habitat for common reptiles, i.e. structurally diverse grassland habitats with areas of bare ground/short vegetation.

<sup>12</sup> Gent, T. and Gibson, S. (1998) *Herpetofauna Workers' Manual*. Joint Nature Conservation Committee, Peterborough.

<sup>13</sup> Froglife (1999). *Froglife Advice Sheet 10: reptile survey*. Froglife, London.

2.2 The surveys within the site were carried out following those guidelines within the Froglife Advice Sheet, surveys were undertaken whenever suitable conditions were achieved, which sometimes fell outside of the recommended times of day. The Guidelines recommends the following:

- At temperatures of between 9°C-18°C;
- On sunny/cloudy days with little or no wind;
- Between 09:00 & 11:00 and between 1600 & 1900 hrs;

In addition guidance also recommends:

- Using regularly spaced corrugated tin sheeting/similar (0.5m<sup>2</sup>) as artificial refugia with a black upper side;
- Approaching refugia from downwind, casting no shadow and with care so as to not disturb basking animals when checking;
- That lifting and replacing tins, to check for the presence of reptiles underneath in hot weather is undertaken with care, to avoid potential harm to any animals underneath;
- That the location and number of tins are mapped to aid survey and avoid the possibility of leaving tins *in situ* after completion of the survey.

2.3 Froglife recommends between five and ten refuges per hectare, however the only areas of suitable habitat identified within the site was restricted to the northern parts of the site, which consisted of overgrown sports fields. This field is approximately 3.7 hectares, therefore between 18 and 37 refuges is the recommended density, a total of 42 refugia were spread during these surveys. The location of the reptile refuges can be seen in figure 2.

2.4 To confirm the presence / absence of reptiles within the site and inform the population assessment the refugia were checked on seven suitable occasions. Survey dates and weather conditions are shown in Table 3.

**Table 3: Survey Dates & Weather Conditions**

Survey Occasion	Date	Weather
1	01/09/2014 10:00	16°C overcast, 40% high cloud cover, windy.
2	15/09/2014 11:00	16°C, 50% cloud cover, slight breeze and rain.
3	18/09/2014 10:00	17°C, 60% cloud cover, light breeze and no rain.
4	22/09/2014 11:00	14°C, 20% cloud cover, light breeze and no rain.
5	25/09/2014 18:00	17°C, 20% cloud cover, windy and no rain.
6	29/09/2014 14:00	18°C, 50% cloud cover, light breeze and no rain.

Survey Occasion	Date	Weather
7	27/10/2014 10:30	15°C, 5% cloud, medium wind, no rain.

- 2.5 Reptile populations were assessed in accordance with population level criteria as stated in the Key Reptile Site Register<sup>13</sup>. This system classifies populations of individual reptile species into three population categories assessing the importance of the population (Table 4). These categories are based on the total number of adult reptiles observed during individual survey occasions.

**Table 4: Key Reptile Site Survey Assessment Categories (HGBI 1998)**

Species	Low Population (No. of individuals)	Good Population (No. of individuals)	Exceptional Population (No. of individuals)
Adder	<5	5 - 10	>10
Common lizard	<5	5 - 20	>20
Grass snake	<5	5 - 10	>10

### Protected Species Survey Constraints

- 2.6 The passive recording units do not discern between individual bats or a single bat passing the microphone several times and therefore the data recorded can only provide an indication of bat activity as bat passes per unit time.
- 2.7 The project was commissioned during August, therefore a spring bat surveys was not undertaken, however based on the limited habitat available on site and the surveys already conducted, the absence of spring data is unlikely to have an effect on the evaluation of the sites function for the local bat population.
- 2.8 The reptile surveys were all undertaken during September and October, and not spread out during the survey period between March and October; however the Froglife advice sheet does state that the most profitable months for surveying includes September. It is therefore, considered that a robust data set was obtained that is presentative of the local reptile population.

### 3.0 BASELINE CONDITIONS

#### Desk Study (Figure 1)

- 3.1 The Multi-Agency Geographic Information for the Countryside (MAGIC) website indicates that there are two internationally designated sites within 10km of the site boundary. There are, however, no nationally statutory designated sites within 2km of the site boundary.
- 3.2 Lee Valley Ramsar and SPA (Special Protection Areas) is located 7.8km to the south east and is separated from the application site by large residential areas of north London, including Wood Green and Tottenham. There are no habitat linkages between the application site and Lee Valley. Within the Ramsar/SPA designation there is also a Site of Special Scientific Interest (SSSI) called Walthamstow Reservoirs. The Lee Valley is designated for its water features such as large areas of open water, which support a number of Annex I birds and regular migratory species, this includes the northern shoveler *Anas clypeata*, gadwell *Anas strepera* and Eurasian bittern *Botaurus stellaris*.
- 3.3 Epping Forest Special Area of Conservation (SAC) is located approximately 9.8km east of the site. Designated for its Atlantic acidophilous beech forests, European dry heaths and North Atlantic wet heath habitats; the site supports a number of veteran trees and deadwood invertebrates including the stag beetle *Lucanus cervus*. The SAC is separated from the site by large residential areas, with no habitat linkages between them.

#### Non-Statutory Designated Sites

- 3.4 Data received from the local records centre identified five non-statutorily designated sites within 1km of the application boundary, known as Sites of Importance for Nature Conservation (SINC).
- 3.5 These include New Southgate Cemetery (40m east); Barfield Allotments Nature Park (145m west); Pymme's Brook (384m east); Oakleigh Park Rail Cutting (510m north); and Friary Park (750m southwest).
- 3.6 Details of all of the statutory and non-statutory site designations are provided in Table 5.

**Table 5: Details of Statutory and Non-Statutory Sites**

Site Name	Designation	Approximate Location	Size (ha)	Reasons for Designation
Lee Valley	SPA / Ramsar	7.8km southeast	447.87	<p><u>SPA</u></p> <p><b>Article 4.1</b> of the Directive (79/409/EEC) by supporting <b>Annex I</b> species of over wintering Bittern <i>Botaurus stellaris</i></p> <p><b>Article 4.2</b> of the Directive (79/409/EEC) by supporting Gadwell <i>Anas strepera</i> and shoveler <i>Anas clypeata</i>.</p>

<b>Walthamstow Reservoirs (part of Lee Valley)</b>	SSSI	7.8km SE	178.30	<p><u>Ramsar</u></p> <p><b>Criterion 2</b> – Supports nationally scarce whorled water-milfoil <i>Myriophyllum verticillatum</i>; and rare/vulnerable invertebrates including a water-boatman <i>Micronecta minutissima</i></p> <p><b>Criterion 6</b> – Supports populations of international level of importance of northern shoveler and gadwell</p> <p>Supports a notable variety of breeding wetland birds.</p>
<b>Epping Forest</b>	SAC	9.8km east	1604.95	<p><u>SAC</u></p> <p><b>Annex I Habitats (Primary):</b> Atlantic acidophilous beech forests</p> <p><b>Annex I Habitats (not primary):</b> European dry heaths North Atlantic wet heaths</p> <p><b>Annex II Species:</b> Stag beetle <i>Lucanus cervus</i></p>
<b>New Southgate Cemetery</b>	SINC – Grade II Borough Importance	40m east	21.99	Support mature trees, breeding bird assemblage, dusky cockroach <i>Ectobius lapponicus</i>
<b>Barfield Allotments Nature Park</b>	SINC – Local Importance	145m west	0.5	A former allotment which supports a reptile population including slow worm and common lizard.
<b>Pymme's Brook</b>	SINC – Grade II Borough Importance	384m east	10.8	A small tributary to the River Lea. The banks support ancient woodland and rough grassland
<b>Oakleigh Park Rail Cutting</b>	SINC – Local Importance	510m north	7.99	An important wildlife corridor, the site supports goldfinch <i>Carduelis carduelis</i> , chiffchaff <i>Phylloscopus collybita</i> , lesser whitethroat <i>Sylvia</i>

				<i>curruca</i> and willow warbler <i>Phylloscopus trochilus</i>
<b>Friary Park</b>	SINC – Local Importance	750m southwest	9.1	A public park which supports veteran trees which pre-date the park, and a stream. The site supports parkland birds including nuthatch <i>Sitta europaea</i> and treecreeper <i>Certhia familiaris</i>

### Protected / Notable Species Records

3.7 Records of protected and notable species were returned by GiGL. No records were provided from within the site boundary, a number of records were provided from within 1km of the site. The locations of these records are illustrated on Figure 1 Consultation Results Plan.

- No records for GCN *Triturus cristatus* were returned from within 1km of the site boundary.
- Following consultation no records of badger *Meles meles* were returned from within 1km of the site boundary.
- Records of common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared *Plecotus auritus* were returned from within 1km of the site boundary. The nearest record was for a common pipistrelle 241m north of the site (2007). A record for a soprano pipistrelle was returned from 976m southwest of the site (2007) and brown long-eared bat recorded approximately 959m southwest of the site (2004). There were no habitat corridors connecting these records to the site. These records also do not specify if the records were roosts or in flight contacts.
- Two records of reptiles including a common lizard *Zootoca vivipara* and a slow worm *Anguis fragilis* were returned from 450m west of the site (2002) within the area of a school.
- A single record of a hedgehog was returned from 826m west of the site from within a residential area (2002).

### Field Results – Habitats/Flora

3.8 Habitat descriptions of the site are provided below. Target Notes (TN) and the locations of the habitats described below can be found on Figure 2 Phase One Habitat Plan, Survey Results & Static Detector Locations 2014.

#### Semi-improved Grassland

- 3.9 The northern extent of the site was characterised by an expanse of land which appeared to have been left unmanaged. This area was largely dominated by rough grassland, with a number of derelict buildings and hardstanding present within its south-western extent. The encroachment of scrub around and within the buildings and peripheries has resulted in the establishment of a mosaic of habitats (scrub, ruderal and tussock grassland).
- 3.10 The main body of this abandoned area was largely characterised by broad-leaved grasses, such as timothy *Phleum pratense*, common couch *Elymus repens* and false oat-grass *Arrhenatherum*

*elatius*, indicative of neutral grassland. Finer grass species such as creeping bent *Agrostis stolonifera* and Yorkshire fog *Holcus lanatus* were recorded frequently with occasional creeping soft grass *Holcus mollis* and giant fescue *Festuca gigantea*. The diversity of forbs present was fairly limited and many of those present tended to be isolated to the margins, likely to be a product of natural management (e.g. rabbit grazing). The herb component largely comprised a ruderal nature marked by an abundance of creeping thistle *Cirsium arvense*, common nettle *Urtica dioica* and common ragwort *Senecio jacobaea*. Other localised frequently encountered herbs included yarrow *Achillea millefolium*, creeping buttercup *Ranunculus repens*, wild carrot *Daucus carota* and meadow vetchling *Lathyrus pratensis*.

- 3.11 The peripheries of the grassland, particularly along the western and south-western boundaries, were found to be slightly more herb rich, although limited in extent. Further species included wood sage *Teucrium scorodonia*, creeping cinquefoil *Potentilla reptans*, common fleabane *Pulicaria dysenterica*, hairy tare *Vicia hirsuta* and bird's-foot-trefoil *Lotus corniculatus*.
- 3.12 A large bund was present along the eastern boundary of this area, which had been colonised by ruderal herbs; but dominated by bristly-ox-tongue *Picris echioides* and common nettle, which suggests this area had been subject to disturbance fairly recently.
- 3.13 During the walkover survey in November 2015 it was noted that the grassland at the north of site had been mown and areas of ruderal which had developed atop the bund had also been removed.



**Photograph 1. Unmanaged Grassland (2014)**



**Photograph 2. Amenity Grassland**

- 3.14 Much of the grassland around the site was heavily mown for amenity purposes and largely comprised a species poor rye-grass *Lolium perenne* dominated habitat. A small area of amenity grassland (Tn1) present on top of a large bund within the eastern extent of the site displayed a herb rich composition. This had been mown heavily and is likely the result of seeding. In addition to species recorded previously, ladies bedstraw *Galium verum*, selfheal *Prunella vulgaris*, common knapweed *Centaurea nigra*, oxeye daisy *Leucanthemum vulgare* and red clover *Trifolium pratense* were recorded.

### Hedgerows

- 3.15 There was a limited resource of hedgerows on site and due to the nature of the site, all were heavily managed and largely comprised of non-native species. Hedgerow H1 comprised a 15m section of snowberry *Symphoricarpos albus* within the centre of the site. This hedgerow scored

4+ in accordance with HEGS and is therefore considered to be of low conservation value. This hedgerow was not considered under the Hedgerow Regulations as it was less than 20m in length and dominated by a non-native species.

- 3.16 Hedgerow H2 lies within the northern extent of the site and is dominated by garden privet *Ligustrum ovalifolium* with a number of mature trees scattered along its length. Tree species comprised pedunculate oak *Quercus robur* and ash *Fraxinus excelsior* and further species within the hedgerow included snowberry, holly *Ilex aquifolium*, and elder *Sambucus nigra*. Due to its connectivity with further habitats along the western boundary, an abundant tree resource and intact structure, the hedgerow scored -2 in accordance with HEGS and is considered to be of moderately high nature conservation value. The hedgerow was not classified as being important under the Wildlife and Landscape Criteria of the Hedgerow Regulations 1997.



Photograph 3. Hedgerow H2



Photograph 4. Hedgerow H3

- 3.17 Hedgerow H3 comprised four separate hedgerows located within one of the car parks on site. All hedgerows were found to be of the same structure and composition and have been assessed together. These hedgerows had been heavily managed and were no more than 1m in height and width. The only species present was hawthorn *Crataegus monogyna*. These hedgerows were unconnected to each other or any further habitats and scored -4 in accordance with HEGS, characterising them as low nature conservation value. The hedgerow was not classified as being important under the Wildlife and Landscape Criteria of the Hedgerow Regulations 1997.

### Trees

- 3.18 A large resource of trees was present on site, many of which are likely to have been planted in association with the existing development. As a consequence most trees were early to semi-mature in age and in good condition. Amongst non-native and ornamental species, a large amount of native trees including lime *Tilia x europaea*, Pedunculate oak, horse chestnut *Aesculus hippocastanum* and yew *Taxus baccatta* were present scattered across the site.
- 3.19 In addition to the planted resource, a line of mature Leyland cypress *X Cupressocyparis leylandii* separated the site from the railway line along the western boundary. A group of trees within the eastern extent of the site (TG2) had established, many of which were likely self-set. Species included sycamore *Acer pseudoplatanus*, rowan *Sorbus aucuparia*, pedunculate oak and silver birch *Betula pendula*. This area had received less management and an understorey of hawthorn, elder dogwood and bramble was present. The ground flora was largely composed of ivy *Hedera*



*helix* and other shade tolerant species such as herb Robert *Geranium robertianum*, garlic mustard *Alliaria petiolata* and wood avens *Geum urbanum*. Many of these trees supported ivy within their canopies.

- 3.20 A small number of mature trees across the site were identified as providing roosting potential for bats, displaying features such as ivy coverage, woodpecker holes, canopy dead wood and cavities. These trees are discussed in more detail within the fauna section below.

### Scrub

- 3.21 Scrub was limited to the peripheries of the site, where management was less intensive. The derelict buildings within the northern extent of the site had been engulfed by bramble *Rubus fruticosus* agg and butterfly-bush *Buddleja davidii*, typical pioneers of abandoned urban areas. The north-western periphery of the site was demarked by a line of scrub including hazel *Coryllus avellana*, hornbeam and field maple *Acer campestre*. The ground flora in this area was sparse due to a heavy canopy and limited to wood avens, common nettle and hedge woundwort *Stachys sylvatica*.

### Water Bodies



**Photograph 5. Water body within site boundary**

- 3.22 A large water body, approximately 4250m<sup>2</sup> was present within the eastern extent of the site. This was observed to be supporting large fish, as these were seen breaching during the surveys. The margins were less manicured than other habitats on site; with areas of bramble surrounding the southern and eastern peripheries which extended approximately 1-2 from the water's edge. Low growing scrub was also present and included goat willow *Salix caprea*, ash and dogwood *Cornus sanguinea*. The remaining banks were steep sided with exposed soil/clay. The south western banks were re-enforced with steel supports and backed onto building B7, with no vegetation present. The very limited marginal vegetation comprised small pockets of common reed *Phragmites australis* in the south. There was, however, no aquatic vegetation seen in the pond. Within the water body was an island towards the western bank with three mature trees present, two lombardy poplar *Populus nigra* and a single crack willow *Salix fragilis*. It was not possible to access the island, however observations from the bankside indicated a scrubby form, with underdeveloped tree species including ash and sycamore.
- 3.23 During the subsequent walkover survey undertaken in November 2015, it was observed that the scrub surrounding the pond had increased with a dense scrub, colonising the majority of the banks. The south-western section of the pond was dry and had developed a scrubby form

dominated by young crack willow, with field maple, rowan and bramble also present. Aquatic species recorded comprised abundant soft rush *Juncus effusus* and common reed.

### **Built Environment**

- 3.24 Due to the nature of the site, buildings and hardstanding dominated with associated amenity grassland, ornamental shrub and tree planting. These areas were heavily managed and due to their situation within a highly urbanised environment provided limited value for native wildlife.

### **Invasive Species**

- 3.25 Japanese knotweed *Fallopia japonica* (Tn2, Figure 2) was identified within the northern extent of the site. This covered a small area, approximately 15m<sup>2</sup> within the undergrowth of tree group TG2. This species is considered to be an invasive species and it is listed on Schedule 9, Part II of the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is an offence to plant or otherwise cause the species to grow in the wild.

### **Fauna**

#### **Badger**

- 3.26 During the initial surveys in 2014, no evidence of badger, including the presence of setts, latrines, hairs, prints and snuffle holes were observed at the time of survey. However, during walkover survey undertaken in November 2015, three snuffle holes were recorded within the semi-improved grassland compartment towards the north of site. Additionally a badger squeeze was discovered along the north-eastern boundary, where badger hair found. The site provides commuting and foraging opportunities along hedgerow bases and arable margins, however there was a lack of habitat linkage to surrounding areas to facilitate colonisation.

#### **Bats**

##### Site Habitats

- 3.27 The site was situated within a highly urbanised area and the network of hedgerows and trees across the site provided only limited potential roosting, foraging and commuting habitats for bats. Within the locality of the site were small fragments of suitable habitats such as the railway line, parks and golf courses, which may provide some limited stepping-stone habitats providing limited linkages to habitats outside the application boundary.

##### Tree Roosts

- 3.28 Seven mature trees and two tree groups were identified as providing bat roosting potential, details of these are found below within Table 6.

Table 6: Details of Trees with Bat Potential

Tree Number	Species	Description	Tree Category
T1	Lime	Mature specimen; small, shallow crevice in western side of main stem, approximately 5m high exposed to elements and not deep enough to provide protection.	3
T2	Weeping willow	Mature tree; three woodpecker holes in east and west facing sides of main stem.	2a
T3	Pedunculate oak	Mature tree; ivy clad; west - facing woodpecker hole approx. 9m up, slightly cluttered environment; canopy dead wood.	2a
T4	Pedunculate oak	Mature tree; north facing woodpecker hole approx. 9m high, canopy dead wood.	2a
T5	Pedunculate oak	Mature tree, ivy clad.	3
T6	Crack willow	Mature, with loose bark near base of tree	3
T7	Hybrid Black Poplar <i>Populus x canadensis</i>	Trunk cavity, ivy clad (latticed)	2b
TG1	<i>Sa</i>	Heavy ivy coverage	2b
TG2	<i>Qr, Ap, Bp, Sa, Salix</i> sp	Group of trees supporting ivy	2b

**Key to Species:** *Qr Quercus robur* Pedunculate oak, *Ap Acer pseudoplatanus* Sycamore, *Bp Betula pendula* Silver birch, *Sa Sorbus aucuparia* Rowan, *Salix* sp Willow.

- 3.29 Trees T2, T3 and T4 were all assessed as having features that could be utilised by roosting bats, however during the initial surveys there was no evidence to suggest that these were used by bats. During the survey period the extent of the application boundary was not finalised. Therefore, a precautionary approach was undertaken, where additional nocturnal surveys were undertaken to establish presence or absence of roosting bats of all trees identified as offering roosting potential.
- 3.30 On the 28/29<sup>th</sup> August a dusk (emergence) and pre-dawn (re-entry) survey was undertaken on these trees. As potential roosting features associated with trees T3 and T4 were on a single aspect one surveyor was used to monitor each feature; two surveyors monitored tree T2 during the dusk (emergence) survey and this was reduced to a single surveyor during the pre-dawn survey.
- 3.31 The surveys of the trees found there to be no evidence of any bats emerging / entering features associated with the trees. No swarming or false return behaviour was recorded in association with the trees during the pre-dawn survey which further confirms the absence of roosting bats. During the surveys of T3 & T4 a number of bat passes were recorded along the southern boundary. Commuting and foraging behaviour was recorded from both common and soprano pipistrelle bats, although, common pipistrelle was the most frequently recorded species.

#### Activity Surveys

- 3.32 Nocturnal activity surveys were carried out seasonally in accordance with the BCT guidance, however as the project was received late in the season a spring survey was not undertaken. The

walked transects covered all features considered to be suitable for bats, with 6 minute point counts located within areas that are to be lost to development and/or have features which could be used by bats.

*Transect 1: 28<sup>th</sup> August 2014 Dusk (Appendix A & B)*

- 3.33 This transect was undertaken from 15 minutes before sunset. There was 90% cloud cover with a slight breeze during short periods of the survey, with temperatures around 18 degrees at the start of survey, but finishing at 16 degrees.
- 3.34 A total of nine bat contacts were recorded during the walked transect, all of which were common pipistrelle bats. The first bat contact was at 20:29 in the north of the site near tree group TG2, comprising 2 passes from a single common pipistrelle bat. There were three areas of the site which had pockets of activity: the peripheries of the northern semi-improved grassland field; habitats around the pond in the south east and the southern boundary. The southern boundary recorded the most bat activity comprising continuous commuting and foraging common pipistrelle bats from 21:49 until 21:58.
- 3.35 Nine six minute point counts were undertaken, during which 9 bat contacts were recorded over five of the point counts. Point counts 5, 6 and 7 only had single contacts from commuting common pipistrelle bats.
- 3.36 Point count 4 recorded seven common pipistrelle contacts comprising commuting and foraging. Point Count 9 recorded five common pipistrelle bat contacts foraging and commuting along the southern boundary of the site along a tree groups which backed on to housing.

*Transect 2: 29<sup>th</sup> August 2014 Dawn (Appendix C & D)*

- 3.37 Temperatures started at 13 degrees and finished at 12 degrees. There was no cloud cover or rain but there were periods with a strong breeze. Surveys commenced at 04:06 two hours before sunrise at 06:06.
- 3.38 A total of three bat contacts were recorded during the activity transect, all were common pipistrelle bats which consisted of no more than 2 passes, with no foraging or feeding behaviour exhibited. Two of these contacts occurred in the north of the site around the northern boundary and around tree group TG2; the third contact occurred down the western boundary along a group of leylandii which backed onto a railway line.
- 3.39 No bats were heard during any of the nine point counts undertaken.

*Transect 3: 29<sup>th</sup> September Dusk (Appendix E & F)*

- 3.40 Cloud cover during this period was 100%, with temperatures at 17 degrees at the start of the survey dropping to approximately 15 degree at the end. There was no rain during this survey and only a slight breeze was recorded. The activity transect commenced at 18:38, with sunset occurring at 18:53.
- 3.41 Seven common pipistrelle contacts were recorded during this period, with five occurring in the northern sections of the site, which were focused around tree group TG2. Continuous foraging was recorded around tree group TG2. The contacts in the south occurred in two areas: in the south west near the site entrance and residential buildings; and near the existing car park with surrounding trees. Foraging was recorded during both of these contacts.

- 3.42 The only bat contacts recorded during the point counts occurred around the tree group TG2, however only five foraging passes were recorded during the 6 minutes, all passes were faint and were from common pipistrelles.
- 3.43 Common pipistrelle was the only species recorded during the survey.

#### Static Detector Surveys (Figure 2 & Table 7)

- 3.44 The static detector surveys followed the BCT guidance for a medium site of low habitat quality, therefore, detectors were deployed on site for three consecutive nights.

#### 29<sup>th</sup> August to 1<sup>st</sup> September

- 3.45 During the survey period, average daytime temperatures were 20°C degree, whilst average overnight temperatures were 13°C. There were periods of rain, however these were not intense and fell only for short periods in the early afternoon/evening. Winds averaged around 14km/h during the survey period, with the occasional gust. The weather conditions during the survey period were considered representative given the time of year. The static detector was positioned within the north western corner of the site within areas of scrub, which backed onto the railway line, boundary fencing and residential gardens along the northern boundary.
- 3.46 During this survey period 278 bat contacts were recorded, of these 234 were common pipistrelle (average 6.93 contacts per hour), 27 were soprano pipistrelle (0.80cph), 11 were unidentifiable pipistrelle species (0.33cph), 1 Nathusius' pipistrelle *Pipistrellus nathusii* (0.03cph) and 5 *Nyctalus* species (0.15cph). There did not appear to be any set patterns with the bat contacts during this period, for common pipistrelles the highest number of contact were 23 recorded between 20:15 and 21:00 on 29<sup>th</sup> August, with occasional contact throughout the night until 05:30. The *Nyctalus* contacts were only recorded during the evening of 31<sup>st</sup> and morning of the 1<sup>st</sup> September.

#### 25<sup>th</sup> to 28<sup>th</sup> September

- 3.47 The average temperature for this period was 20 degrees, with temperature not dropping below 15 degrees in the evenings. There were brief periods of rainfall but these were not intense. This static detector was positioned along the southern boundary of the site, as earlier surveys had indicated increased bat activity in this area.
- 3.48 A total of 154 bat contacts were recorded during this period, of which 153 contacts were with common pipistrelle bats (3.92phr) and 1 contact with an unidentified *Myotis* species which occurred at 22:30 on the 27<sup>th</sup> September. There were no obvious peaks in activity for common pipistrelles during the survey period, however the majority of the activity occurred each evening between 19:15 and 23:45. Outside this period, bat activity dropped to occasional passes.

Table 7: Static Survey Results Table

Recording Period (2014)	Species Recorded and Data Analysis (in order of peak numbers recorded)																		
	No. of Hours Analysed	Common Pipistrelle			Soprano pipistrelle			Pipistrelle Species			<i>Nyctalus</i>			Nathusius' Pipistrelle			<i>Myotis</i>		
		Period Total	Peak Nightly Count	Av.per Hour	Period Total	Peak Nightly Count	Av.per Hour	Period Total	Peak Nightly Count	Av.per Hour	Period Total	Peak Nightly Count	Av.per Hour	Period Total	Peak Nightly Count	Av.per Hour	Period Total	Peak Nightly Count	Av.per Hour
29th August-1st September	33.75	234	105	6.93	27	13	0.80	11.00	4.00	0.33	5.00	3.00	0.15	1.00	1.00	0.03	0.00	0.00	0.00
25th - 28th August	39	153	4	3.92	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.03