**18-22 Haverstock Hill,** PPR Haverstock Hill LLP
Preliminary Ecological Appraisal, April 2018

# QA

# 18-22 Haverstock Hill – Preliminary Ecological Appraisal

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|---|---|---|
| Issue/Revision: | Draft | Final |
| Date: | March 2018 | April 2018 |
| Comments: | | |
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| File Reference: | 551027nfFeb18DV01_PEA.docx | 551027nfFeb18FV01_PEA.docx |

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# 1.0 EXECUTIVE SUMMARY

1.1 Greengage Environmental Ltd was commissioned to undertake a Preliminary Ecological Appraisal (PEA) by PPR Haverstock Hill LLP of a site located at 18-22 Haverstock Hill in the London Borough of Camden.

1.2 This document is a report of this survey and has been produced to support a planning submission for the site which seeks to demolish the existing buildings and construct a new building comprising ground plus basement and five upper floors for use as 29no. dwellings (Class C3) and flexible Class A1/A2/A3/A4 and associated works.

1.3 This survey aimed to identify the potential for any rare, notable or protected species or habitats to be present onsite thus informing any required mitigation or compensation to implement within the design proposals.

1.4 The survey area extends to 0.074 hectares (ha) and comprises 11 self-contained residential flats with commercial space at ground level currently occupied by a hair salon and a hot food takeaway.

1.5 The survey confirmed negligible or low potential for the majority of protected species to be present. The site comprises buildings and hardstanding with no natural habitats or vegetation.

1.6 Moderate potential for roosting bats was determined through a systematic external and internal inspection with features such as loose lead flashing and a small accessible roof void providing potential roosting opportunities. Bat emergence/re-entry surveys will be completed in May-September to confirm the presence/likely-absence of roosting bats and inform any necessary mitigation. A standalone bat survey report and addendum to this PEA will be submitted within the determination period to support the planning submission.

1.7 In lieu of mitigation, minor negative impacts upon ecological receptors of note are predicted.

1.8 Mitigation should include seasonal clearance of adjacent trees to avoid disturbance of nesting birds. Should a bat roost be identified through further survey, mitigation will likely include integrated bat boxes which have pre-emptively been incorporated into the scheme.

1.9 Ecological enhancements recommended for the site include integrated bird nest boxes, invertebrate features, wildlife-friendly landscaping and areas of living roof.

1.10 If the above recommendations are adhered to, the development will result in net gains for biodiversity with any residual impacts upon protected species avoided, minimised or compensated for, in line with best practice guidance and local policy drivers.

# 2.0 INTRODUCTION

2.1 Greengage was commissioned to undertake a PEA by PPR Haverstock Hill LLP of a 18-22 Haverstock Hill and surrounding land in LB Camden.

2.2 This document is a report of this survey and has been produced to support a planning submission for the site which seeks to demolish the existing buildings and construct a new building comprising ground plus basement and five upper floors for use as 29no. dwellings (Class C3) and flexible Class A1/A2/A3/A4 and associated works.

2.3 This survey aimed to establish the 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.

## SITE DESCRIPTION

2.4 The survey area extends to approximately 0.074 ha and is centred on National Grid Reference TQ 28171 84439, OS coordinates 528171, 184439.

2.5 The site comprises 18-22 Haverstock Hill and surrounding land. The existing buildings are used as 11 self-contained residential flats, one Class A1 unit (a hairdressing salon) and one Class A5 unit (a hot food takeaway). Hardstanding parking bays and access are provided to the frontage and rear of the properties. There are no natural habitats or vegetation at the side with the exception of *Buddleia* and early coloniser growth at the peripheries.

2.6 The site is bound by Haverstock School to the north and west, the Salvation Army to the east and Haverstock Hill A502 to the south, with Chalk Farm underground station immediately opposite. The site context is typical of the Borough of Camden, with leafy green streets and mature residential gardens, and larger areas of open greenspace comprising Regents Park and Hampstead Heath, among other smaller urban parks and formal gardens.

# 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[1] and the Chartered Institute of Ecological and Environmental Management (CIEEM) (2013) Guidelines for Preliminary Ecological Appraisal[2], in accordance with BS42020:2013: Biodiversity[3]. The overall assessment consisted of:

- Site specific biological information gained from statutory and non-statutory consultation; and
- A site walkover, protected species scoping assessment and phase 1 habitat survey.

3.2 The site-specific consultation provided the ecological context for the site survey carried out on the 13th February 2018. Further visits were also competed on 26th March and 3rd April 2018 when additional access was provided to the flat roof and internal void for the bat scoping assessment.

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

3.4 Greengage undertook the site walkover during mild and drizzly 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

3.5 A review of readily available ecological information and other relevant environmental databases (included Defra's Multi-Agency Geographic Information for the Countryside (MAGIC) website[4]) was undertaken for the site and its vicinity. In addition, local borough websites, the National Biodiversity Network (NBN) online Gateway mapping tool[5], and a biological records search from Greenspace Information for Greater London (GiGL) 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

3.6 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 valuable or interesting features. A habitat map has been produced to illustrate the results, as shown at Figure 1.

**Fauna**

3.7 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.

3.8 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.

3.9 The species surveyed for included:

***Badger (Meles meles)***

3.10 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.

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

3.11 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.

***Bat species (Chiroptera)***

3.12 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[6] and methods given in English Nature's (now Natural England) *Bat Mitigation Guidelines*[7] 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.

3.13 Definite signs of bat activity were taken to be:

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

3.14 Signs of possible bat presence were taken to be:

- Stains; and
- Moth and butterfly wings.

3.15 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.

3.16 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.

***Reptiles***

3.17 The potential for reptile species on site was assessed during the walkover survey. Possible species include the grass snake (*Natrix natrix*), smooth snake (*Coronella austriaca*), adder (*Vipera berus*), common and sand lizard (*Lacerta vivipara* and *L. agilis*) and the 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)***

3.18 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 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)***

3.19 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)***

3.20 Where desk-top 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.

***Birds***

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

***Notable Invertebrates***

3.22 As part of the walkover survey the quality of invertebrate habitat and the potential for notable 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***

3.23 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.

## SURVEYORS

3.24 Naomi Foot, who surveyed the site and prepared this report, has an undergraduate degree in Ecology and Conservation (BSc Hons), a Master's degree in Applied Ecology and is a Graduate member of CIEEM. Naomi has extensive experience throughout her degree and her experience in the commercial sector.

3.25 Daniel Perlaki, who also surveyed the site, has an undergraduate degree in Ecology (BSc Hons) and a Master's degree in Conservation Science and Policy.

3.26 Mitch Cooke has a degree in Ecology (Hons), an MSc in Environmental Assessment and Management, and is a full member of CIEEM with over 20 years' experience in ecological survey and assessment. Mitch has set up and developed ecological and environmental teams for over 10 years and has undertaken and managed numerous ecological surveys and assessments. He is the Director at Greengage and manages the team.

3.27 This report was written by Naomi Foot and reviewed and verified by Mitch Cooke 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

3.28 The PEA was undertaken during ideal conditions by a suitably qualified ecologist.

3.29 The survey was completed in February which is sub-optimal for botanical survey. This is not considered to impact the results due to the lack of natural habitats onsite.

3.30 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 centre (GiGL) and the Multi-Agency Geographic Information for the Countryside (MAGIC) dataset[8] have confirmed that there are no statutory or non-statutory designations of local, national or international importance within the boundary of the site.

4.2 Records from GiGL did however identify 2 Local Nature Reserves (LNR) and 17 non-statutory Sites of Importance for Nature Conservation (SINC) within 2km of the site boundary. SINCs are recognised by LPAs as important wildlife sites.

4.3 Table 5.1 below gives the locations and descriptions of a selection of the nearest/most relevant local designations.

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

| Site Name | Approximate Location | Description |
|---|---|---|
| **Statutory Designations** | | |
| Belsize Wood LNR; SINC Borough II | TQ275852<br>1.1km NW | Belsize Wood is a steeply sloping site divided into a northern half, which is always open to the public and is of lesser ecological value, and a southern part which is in a better state of conservation. |
| St John's Wood Church Grounds LNR; SINC Borough I | TQ271830<br>1.8km SW | This site is a small park developed on the site of a former burial ground. The main body of the park comprises an area of short-mown turf with scattered trees. However, there is an area that is managed as a wildlife area and contains a mixture of meadow and woodland habitats with associated communities of tall grasses and herbs. In addition, a hedge of native species has been planted along part of the eastern boundary. |
| **Non-Statutory** | | |
| London's Canals SINC Metropolitan | TQ202833<br>0.5m SE | London's canals support a wide range of aquatic flora, amongst which are found a number of locally rare species. |
| Hampstead Heath SINC Metropolitan | TQ273866<br>1.4km N | Extensive site well known for its unique mix of semi-natural and formal habitats including ancient woodlands and veteran trees, wet flush, acid grassland, ponds, watercourses, and heathland (restoration). |
| Regents Park SINC Metropolitan | TQ280829<br>0.8km S | Royal Park with a particular importance for a variety of breeding birds associated with the mature trees and ornamental lake. The heronry on one of the islands is one of London's larger breeding colonies, while the lake itself supports a nationally significant breeding population of pochard alongside the captive wildfowl |

| Site Name | Approximate Location | Description |
|---|---|---|
| | | collection. In recent years, an informally-managed wildlife area has been established in the north-west of the park, which various common butterflies and other invertebrates have begun to colonise. |
| Chalk Farm Embankment and Adelaide Nature Reserve SINC Borough I | TQ276843<br>0.2km W | This steep-sided railway embankment, lying between Adelaide Road and railway sidings, is densely vegetated with secondary woodland. This is chiefly composed of sycamore (*Acer pseudoplatanus*), horse chestnut (*Aesculus hippocastanum*), lime (*Tilia* sp.), holm oak (*Quercus ilex*), laburnum (*Laburnum anagyroides*), elder (*Sambucus nigra*), and hawthorn (*Crataegus monogyna*). The ground flora is dominated by ivy (Hedera helix) and bramble (*Rubus fruticosa* agg.) and false oat-grass (*Arrhenatherum elatius*) occurs towards the edges. The nature reserve to the west is far more open, with neutral grassland and scrub present as well as woodland. |
| Primrose Hill SINC Borough II | TQ276838<br>0.5km SW | This area of Regent's Park predominantly comprises mown amenity grassland with scattered groups of mature trees including London plane (*Platanus hispanica*), common lime, hawthorn, horse chestnut and young whitebeam (*Sorbus acuparia*) which support a variety of birds. |

***Biodiversity Action Plans***

4.4 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.

4.5 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*.

4.6 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).

4.7 There were no UK BAP priority habitats present at site or in the immediate vicinity.

4.8 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. The site is subject to the London BAP and the Camden BAP.

*London BAP*

4.9 Relevant features within the London BAP include:

- Bats SAP;
- House sparrow SAP;
- Black redstart important species;
- Private gardens HAP; and
- Built structures important habitat.

*Camden BAP*

4.10 Relevant features within the Camden BAP include:

- Target of all new developments including living roofs where feasible and that 75% living roofs should be biodiverse;
- Encourage installation of bird and bat bricks in new developments;
- Green roofs priority habitat;
- Gardens priority habitat; and
- Bats, butterflies, sparrows, swift, stag beetle and bees priority species.

***Species Record***

4.11 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; primarily these are species that are 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:

- Stag beetle (*Lucanus cervus*);
- Small heath (*Coenonympha pamphillus*);
- Small blue (*Cupido minimus*);
- White admiral (*Limenitis camilla*);
- Knot grass (*Acronicta rumicis*);
- Common toad (*Bufo bufo*);
- Swift (*Apus apus*);
- House sparrow (*Passer domesticus)*;
- Black redstart (*Phoenicurus ochurus*); and
- Bats including serotine (*Eptesicus serotinus*); Daubenton's (*Myotis daubentonii*); Natterer's (M*. nattereri*); Noctule (*Nyctalus noctula*); Leisler's (*N. leisleri*); brown

long-eared (*Plecotus auritus*); and common, soprano and Nathusius's pipistrelle (*Pipistrellus pipistrellus*, *P. pygmaeus*, and *P. nathusii*).

### Detailed Description of Site: Habitats

4.12 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:

- Buildings / hardstanding (J3);
- Tall ruderal (C3.1); and
- Scattered trees (A3.1).

### Detailed description of Site: Protected Species Potential

***Bats***

*Foraging*

4.13 Foraging habitat is very limited at the site and in the immediate landscape. Some low levels of foraging by common urban species (e.g. *Pipistrellus* spp.) is likely to be supported occasionally, however, there are no suitable habitats or vegetation that would encourage foraging or commuting within the site boundary and no further surveys are deemed necessary.

4.14 More extensive and valuable resources are present within Hampstead Heath 1.4km north, Primrose Hill 0.5km southwest and Regents Park beyond this.

*Roosting*

4.15 A systematic external and internal inspection was carried out of the buildings. Generally, the brickwork and windows were found to be in a good state of repair with no cracks or crevices that would provide opportunities for roosting bats.

4.16 The buildings are constructed with a flat roof across the majority of original terraced buildings and extensions to the east and south. There is a small pitched roof over an internal void with hanging slate tiles. These features are not visible from ground level with binoculars. The roof void is however accessible through a hatch in flat 18D and the external structure with hanging tiles can be viewed from the flat roof accessed via a hatch in a communal stair well. There is also a gap in the wooden soffit of the rear extension to the east of the site providing potential access to this small cavity.

4.17 Whilst the site is located within a relatively urban location, there are numerous records for at least nine bat species within 2km of the site and vast areas of open green space are present in the wider landscape.

4.18 Overall the site is assessed as having moderate potential to support roosting bats and a presence/likely-absence survey consisting of two emergence/re-entry visits completed May-September is required.

4.19 The trees adjacent to the site are not suitable for roosting bats, lacking in cavities or crevices.

4.20 See site photographs at Appendix 1.

***Nesting Birds***

4.1 Nesting habitat is present within the stand of trees to the west of the site (Haverstock School grounds) which may support small passerine species during the breeding season. The impact of the development on these trees is currently being reviewed under an Arboricultural Impact Assessment to support the planning submission.

4.2 All brickwork and windows were found to be in good condition and there were no suitable features or habitats within the site boundary that may provide opportunities for nesting birds.

***Invasive/non-native species***

4.3 A small stand of *Buddleia davidii* was recorded to the rear of the buildings where this species has colonised and grown through concrete hardstanding. No other invasive species were recorded or likely to be present.

***BAP Species***

4.4 None were recorded during the site walkover and it is unlikely that any would be present at site. Ecological enhancements recommended for the scheme will specifically target locally important species to help meet conservation objectives.

***Other Species***

4.5 Owing to the urban nature of the site and lack of natural habitats or ecological features, the following receptors were found to be likely-absent from the site:

- Invertebrates;
- Badger;
- Great Crested Newt;
- Reptiles;
- Dormouse;
- Water Vole and Otter; and
- Protected Plant Species.

# 5.0 EVALUATION AND DISCUSSION

## BASELINE SUMMARY

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, as indicated in Table 5.1 below. Comment on further recommendations for each receptor is provided; further detail and discussion can be found at paragraph 5.2 onward:

**Table 5.1 Baseline Summary**

| Receptor | Presence/Potential Presence | Comments |
|---|---|---|
| Designated Sites: Statutory | NA | No statutory designated sites on or adjacent to the site and no impacts of development predicted. |
| Designated Sites: Non-Statutory | NA | No non-statutory designated sites on or adjacent to the site and no impacts of development predicted. |
| Notable/Rare Habitats | NA | Importance placed on built structures within London and Camden BAPs. Opportunities to provide ecological features (bird and bat boxes, living roofs) through redevelopment. None others present on or adjacent to site. |
| Badger | Negligible | No suitable habitat onsite and no further surveys or consideration necessary. |
| Foraging bats | Low | Habitat extremely limited in the landscape. May be some value in small area of trees immediately west of the site. No further surveys necessary. |
| Roosting bats | Moderate | Potential for roosting bats to be present beneath loose lead flashing and hanging tiles, within the small roof void, or wooden soffit. Further surveys required to confirm presence/likely-absence to be completed May-September. Integrated bat boxes incorporated into the scheme to embed mitigation pre-emptively. |
| GCN | Negligible | No suitable habitat onsite and no further surveys or consideration necessary. |
| Reptiles | Negligible | No suitable habitat onsite and no further surveys or consideration necessary. |
| Dormice | Negligible | No suitable habitat onsite and no further surveys or consideration necessary. |

| Receptor | Presence/Potential Presence | Comments |
|---|---|---|
| Water Vole and Otter | Negligible | No suitable habitat onsite and no further surveys or consideration necessary. |
| Invertebrates | Negligible | No suitable habitat onsite and no further surveys necessary. Ecological enhancements will include planting and living roofs to provide foraging resources for pollinators and other invertebrates. |
| Birds | Moderate | No suitable habitat onsite. Some value within trees adjacent to the site which may be removed / pruned to facilitate the development. Carry out nesting bird check prior to any clearance. |
| Flora | Negligible | No natural habitats present onsite. |
| Invasive species | Low | Small stands of *Buddleia* present to rear of site. No other species recorded. |

## DISCUSSION AND RECOMMENDATIONS

5.2 Discussion is provided below on the key ecological receptors that stand to be impacted/benefit from proposed works; high level commentary on appropriate mitigation, compensation and enhancement actions is also provided.

5.3 An Ecological Management Plan (EMP) should be produced and implemented for the site providing greater detail on the below, which could be secured through planning condition in accordance with *BS 42020: 2013: Biodiversity*.

### Bats

5.4 Overall the site is assessed as having moderate potential to support roosting bats and a presence/likely-absence survey consisting of two emergence/re-entry visits completed May-September is required, in line with best practice guidance.

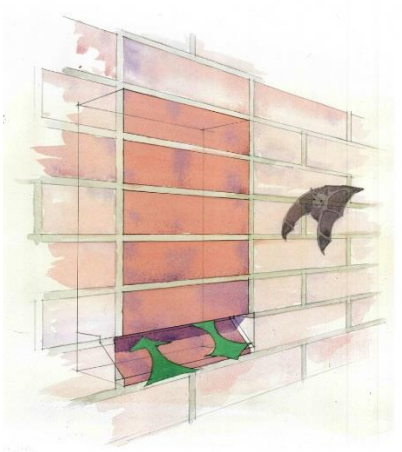
5.5 During the survey, one surveyor will be present at ground level and one surveyor will be located on the flat roof. Due to the lack of visibility of the potential roosting features, a static bat detector will be placed within the roof void for a period of 2 weeks to supplement the emergence/re-entry survey. This detector will record any bat activity present within the void.

5.6 In lieu of survey results, integrated bat boxes should be provided within the built form to help meet local policy requirements and to compensate for any loss of potential

roosting opportunities associated with the existing features onsite. It is recommended to include:

- 4 no. 'habibat' bat boxes on the south/west elevation below eaves.

**Figure 5.1 Habibat bat box[9]**



5.7 Following the bat survey, a standalone report will be submitted to the Local Planning Authority for consideration as supporting information for the planning submission. The report will detail the findings and implications of the survey, including any specific mitigation actions or Natural England licencing requirements. In accordance with best practice, the two survey visits will be spaced at least 2 weeks apart between May-September and will therefore likely be completed by late-May – early-June 2018.

### Nesting Birds

5.8 Due to the legal protection afforded to nesting birds, if any trees require removal or pruning to facilitate the development, this should be done outside of the bird breeding season (March-September) or following a check by a suitably qualified ecologist confirming nesting bird absence.

5.9 Integrated nest boxes targeting locally important BAP species should be provided within the built form to help meet local policy requirements and objectives within the Camden BAP. It is recommended to include:

- 2 no. house sparrow boxes on north/east elevation below eaves;
- 2 no. swift boxes on north/east elevation below eaves; and
- 1 no. black redstart box on the biodiverse roof.

5.10 Whilst Greengage does not specifically endorse any product, the following models would be suitable for inclusion.

**Figure 5.2 House sparrow terrace[10]**

**Figure 5.3 Swift box[11]**


**Figure 5.4 Black redstart brick[12]**

## Living Roofs

5.11 Areas of living roofs should be provided on all new developments where practical, in line with Development Policy DP22. Camden's CPG3 Sustainability provides guidance on the design and installation of living roofs within the borough to ensure sustainable design objectives are met through development.

5.12 It is understood the development currently includes a terrace with intensive green roof planting and areas of green roof on private terraces comprised of sedum or wildflower blanket.

5.13 Whilst the guidance states that the appropriate roof will be dictated by the development and location among other specific factors, the optimum design for biodiversity typically comprises extensive biodiverse roofs formed of deep substrate (80-150mm), seeded/plug planted with species of local provenance.

5.14 It is therefore recommended that an area of biodiverse roof is provided on the upper level to encourage invertebrates, birds and bat foraging.

5.15 The table at Appendix 3 summarises the species mix that would be suitable for the biodiverse roof and includes further details on the wildlife benefit and growth conditions.

5.16 It is recommended that at least at least 25 of the species listed at Appendix 3 are incorporated into the living roof strategy at the Haverstock Hill site.

**Example of biodiverse roof in Bristol**

5.17 Over time, the roof will also self-colonise with local species, further increasing the biodiversity value. It is recommended that the substrate is mounded locally to provide a shallow 'sand dune' effect, varying in depth between 80mm and 150mm, to encourage growth of different species generally across the roof area. This creation of micro-habitat will further enhance the roof for invertebrates. As the mounding will vary across the roof it is not possible to say exactly where the substrate will be 80mm and where at 150mm and where in-between these depths, although it is recommended to have the higher depth of substrate to the north of the roof areas so the slope down towards the south is south facing capturing more sunlight to create 'hotspots' for invertebrates to use as beneficial habitat.

5.18 To give the roof landscape an extra 'layer' of habitat, deadwood logs, sandy piles and coiled rope can be incorporated into the roof increasing opportunities for invertebrates to colonise these microhabitats. Specifically, the number of additional features will include 2 piles of deadwood, 2 sandy piles and 2 rope coils, evenly distributed to cover much of the roof area.

**Log and sand piles on biodiverse roof**

5.19 Additionally, shallow plastic trays may be embedded within the biodiverse roof in order to provide a water source for birds and invertebrates. These should be weighed down with rocks or other substrate. The trays will naturally infill with rainwater and evaporate, requiring little maintenance. At least two water trays should be provided.

**Water and mud trays embedded within the substrate of a green roof. Photo credit: Edward Mayer, Swift Conservation Trust**

5.20 The ideal solution for 'brown' roof features would be to re-use site material produced from building demolition such as crushed brick and concrete to form a recycled substrate. If this is not possible due to contamination of these materials during their previous use, there are other sources of recycled brick and concrete available to mix and form a suitable substrate. In principle any substrate used on the roof should be nutrient poor and locally sourced.

5.21 Further to the above, the draft planting palette for the roof terraces has been reviewed by Greengage and currently comprises a mix of native and ornamental species which provide a range of aesthetic and wildlife benefits. For the areas of green roof, Greengage

has advised that wildflower blankets would be favoured over sedum blankets however a decision is yet to be made.

5.22 In determining the planning application, the LPA will expect the following information:

- A statement of the living roof design objectives;
- Details of its construction and materials including 1:20 section of build up;
- Planting details – installation, species mix and densities;
- A management plan outlining maintenance regime of the feature.

5.23 The above could be provided within an overarching EMP secured by planning condition.

# 6.0 SUMMARY & CONCLUSION

6.1 Greengage was commissioned by PRP Haverstock Hill LLP to undertake a PEA a site located at 18-22 Haverstock Hill in Camden in order to establish the ecological value of this site and its potential to support notable and/or legally protected species.

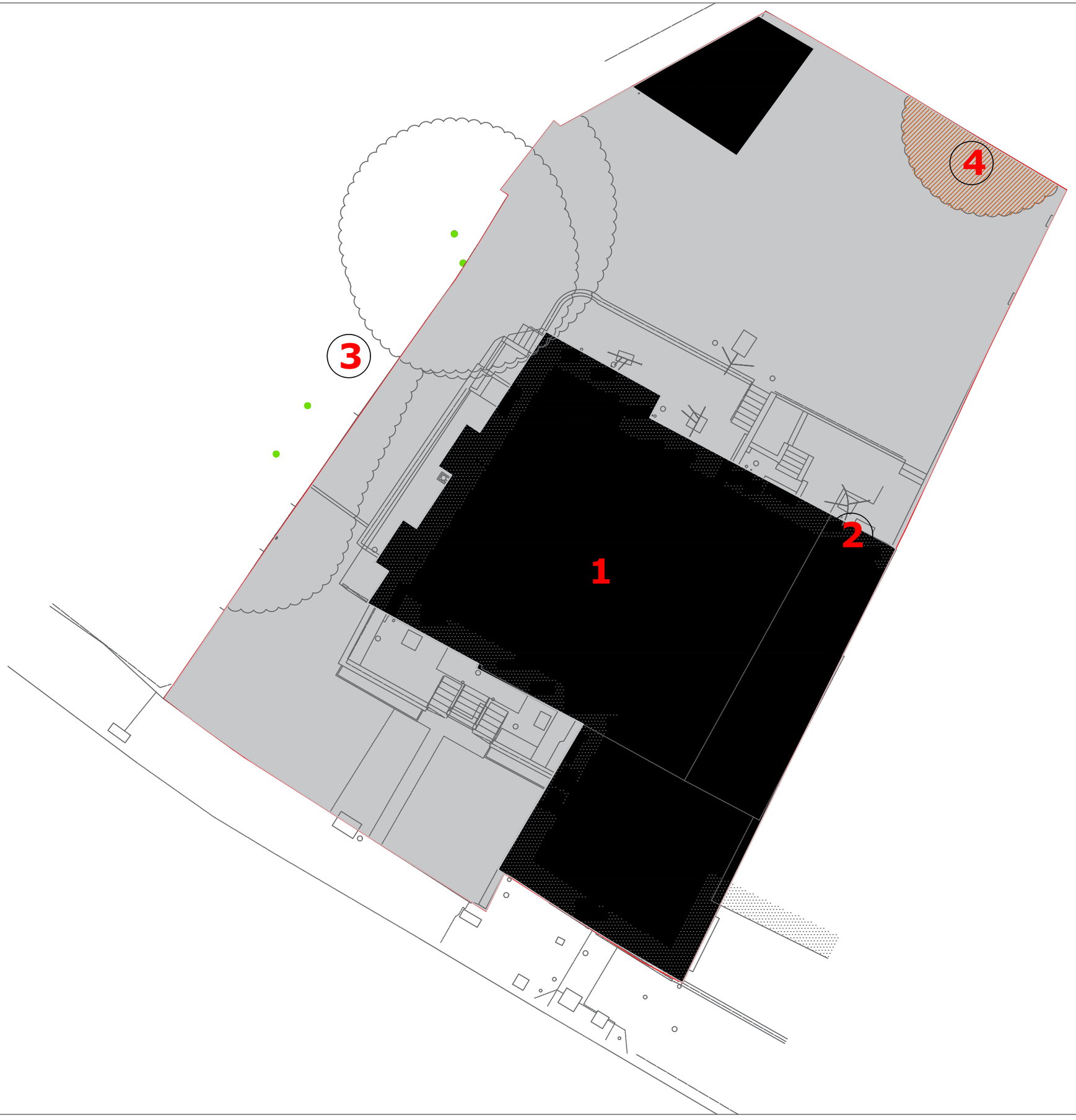
6.2 The PEA identified confirmed there to be negligible or low potential for the majority of protected species and habitats.

6.3 However, owing to the moderate potential for roosting bats within the existing building, a bat presence/likely-absence survey comprising emergence/re-entry visits and static bat data collection will be completed in May-September. This will inform any specific mitigation actions to be drawn up into a standalone bat survey report.

6.4 Notwithstanding, in light of the PEA findings, key mitigation, compensation and enhancement actions are described to enable legislative and policy compliance (see context at Appendix 2), aiming to achieve net gains in biodiversity for the site.

6.5 An Ecological Management Plan (EMP) could be secured through planning condition to provide an overarching approach once further protected species surveys are complete and detailed designs are available.

## FIGURE 1 SITE PLAN




# 18-22 HAVERSTOCK HILL

- Application Site
- Scattered Trees
- Tall Ruderal
- Hardstanding
- Building
- 1 Target Note

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| No. | Date | Revision/Issue |
|---|---|---|
| 1 | 02/03/18 | 551027nfMar18DV01_Habitat.dwg |

**FIGURE 1.0**
**Site Plan and Habitat Map**

# APPENDIX 1 SITE PHOTOGRAPHS

Photograph 1 – side aspect (eastern) of buildings from Haverstock School grounds

Photograph 2 – Patio gardens at lower ground level to rear of buildings viewed from upper floor

Photograph 3 – Hardstanding to rear of existing buildings with single storey structure. Haverstock School in background

Photograph 4 – Rear aspect

Photograph 5 – Hardstanding to rear of buildings with Buddleia growth

Photograph 6 – Existing access leading to rear of buildings

Photograph 7 – Existing frontage

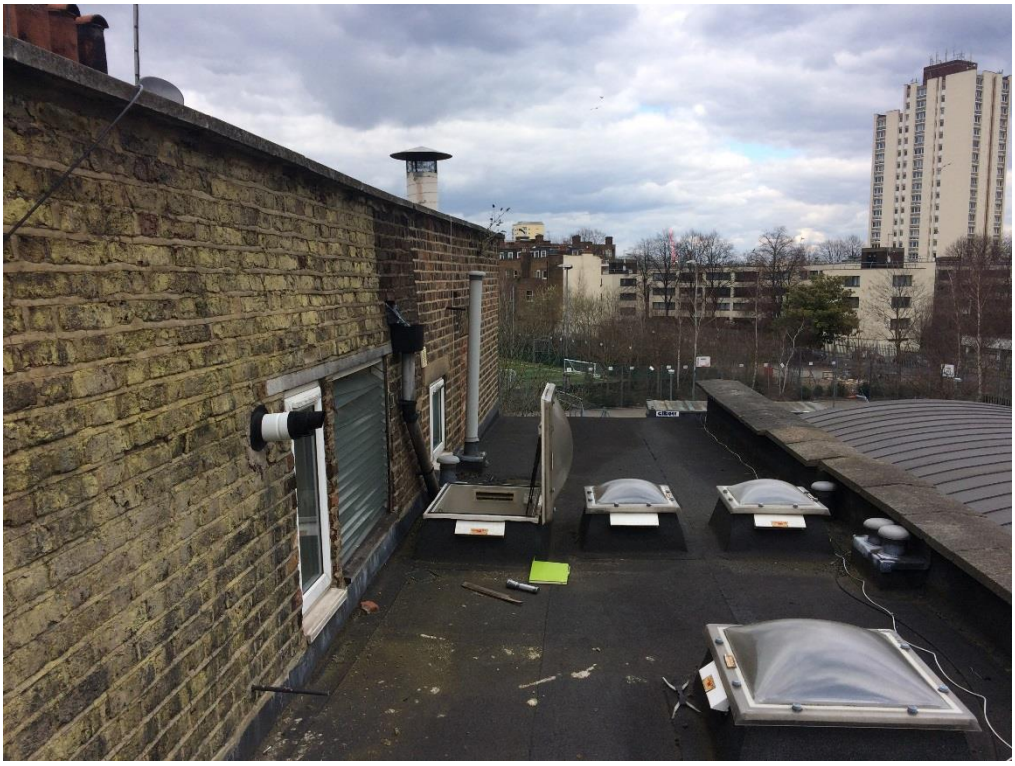
Photograph 8 – Existing hot food takeaway

Photograph 9 – Gap in wooden soffit on the rear extension to the east of the site

Photograph 10 – Frontage from Haverstock Hill

Photograph 11 – Section of pitched roof with loose ridge tiles and lead flashing

Photograph 12 – Flat roof



Photograph 13 – Internal roof void

# APPENDIX 2 RELEVANT LEGISLATION AND POLICY

Current key legislation relating to ecology includes the Wildlife and Countryside Act 1981 (as amended)[13]; The Conservation of Habitats and Species Regulations 2010 ('Habitats & Species Regulations')[14], The Countryside and Rights of Way Act 2000 (CRoW Act)[15], and The Natural Environment and Rural Communities Act, 2006[16].

**The Conservation of Habitats and Species Regulations 2010**

The Habitats & Species Regulations replace The Conservation (Natural Habitats, etc.) Regulations 1994 (as amended)[17], and transpose Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora ('EU Habitats Directive')[18], and Council Directive 79/409/EEC on the Conservation of Wild Birds ('Birds Directive')[19] into UK law (in conjunction with the Wildlife and Countryside Act).

Regulation 41 of the Habitats & Species Regulations makes it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2 (European protected species of animals), or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4 (European protected species of plant). Development that would contravene the protection afforded to European protected species requires a derogation (in the form of a licence) from the provisions of the Habitats Directive.

Regulation 61(1) states: 'A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which —

> (a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects); and
>
> (b) is not directly connected with or necessary to the management of that site; must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.'

**Wildlife and Countryside Act 1981 (as amended)**

The Wildlife and Countryside Act 1981 (as amended) is the principal mechanism for the legislative protection of wildlife in Great Britain. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats[20] (the 'Bern Convention') and the Birds Directive and EU Habitats Directive are implemented in Great Britain.

**The Countryside and Rights of Way Act 2000**

The Wildlife and Countryside Act has been updated by the CRoW Act. The CRoW Act amends the law relating to nature conservation and protection of wildlife. In relation to threatened species it strengthens the legal protection and adds the word 'reckless' to the offences of damaging, disturbing, or obstructing access to any structure or place a protected species uses for shelter or protection, and disturbing any protected species whilst it is occupying a structure or place it uses for shelter or protection.

**The Natural Environment and Rural Communities Act 2006**

The Natural Environment and Rural Communities Act 2006 states that every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. Biodiversity Action Plans provide a framework for prioritising conservation actions for biodiversity.

Section 41 of the Natural Environment and Rural Communities Act requires the Secretary of State to publish a list of species of flora and fauna and habitats considered to be of principal importance for the purpose of conserving biodiversity. The list, a result of the most comprehensive analysis ever undertaken in the UK, currently contains 1,149 species, including for example, hedgehog (*Erinaceus europaeus*), and 65 habitats that were listed as priorities for conservation action under the now defunct UK Biodiversity Action Plan[21] (UK BAP). Despite the devolution of the UK BAP and succession of the UK Post-2010 Biodiversity Framework[22] (and Biodiversity 2020 strategy[23] in England), as a response to the Convention on Biological Diversity's (CBD's) Strategic Plan for Biodiversity 2011-2020[24] and EU Biodiversity Strategy (EUBS)[25], this list (now referred to as the list of Species and Habitats of Principal Importance in England) will be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 41 of the Natural Environment and Rural Communities Act 2006 'to have regard' to the conservation of biodiversity in England, when carrying out their normal functions.

**Biodiversity Action Plans**

Non-statutory Biodiversity Action Plans (BAPs) have been prepared on a local and regional scale throughout the UK over the past 15 years. Such plans provide a mechanism for implementing the government's broad strategy for conserving and enhancing the most endangered ('priority') habitats and species in the UK for the next 20 years. As described above the UK BAP was succeeded in England by Biodiversity 2020 although the list of priority habitats and species remains valid as the list of *Species of Principal Importance for Nature Conservation*.

Regional and local BAPs are still valid however and continue to be updated and produced.

Detail on the relevant BAPs for this site are provided in the main text of this report.

**Legislation Relating to Nesting Birds**

Nesting birds, with certain exceptions, are protected from disturbance under the Wildlife and Countryside Act 1981 (as amended) and the CRoW Act. Any clearance of dense vegetation should therefore be undertaken outside of the nesting bird season, taken to run conservatively from March to August (inclusive), unless an ecologist confirms the absence of active nests prior to clearance.

**Legislation Relating to Bats**

All UK bats and their roosts are protected by law. Since the first legislation was introduced in 1981, which gave strong legal protection to all bat species and their roosts in England, Scotland and Wales, additional legislation and amendments have been implemented throughout the UK.

Six of the 18 British species of bat have Biodiversity Action Plans (BAPs) assigned to them, which highlights the importance of specific habitats to species, details of the threats they face and proposes measures to aid in the reduction of population declines.

Although habitats that are important for bats are not legally protected, care should be taken when dealing with the modification or development of an area if aspects of it are deemed important to bats such as flight corridors and foraging areas.

The Wildlife & Countryside Act 1981 (WCA) was the first legislation to provide protection for all bats and their roosts in England, Scotland and Wales (earlier legislation gave protection to horseshoe bats only.)

All eighteen British bat species are listed in Schedule 5 of the Wildlife and Countryside Act, 1981 and under Annexe IV of the Habitats Directive, 1992 as a European protected species. They are therefore fully protected under Section 9 of the 1981 Act and under Regulation 39 of the Conservation of Habitats and Species Regulations 2010, which transposes the Habitats Directive into UK law. Consequently, it is an offence to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat; and
- Intentionally or recklessly obstruct access to a bat roost.

This legislation applies to all bat life stages.

The implications of the above in relation to the proposals are that where it is necessary during construction to remove trees, buildings or structures in which bats roost, it must first be determined that work is compulsory and if so, appropriate licenses must be obtained from Natural England.

**Legislation Relating to Natura 2000 Sites and Habitats Directive Annex I/II Species**

European Commission Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora ('EU Habitats Directive'), and Council Directive 79/409/EEC on the Conservation of Wild Birds ('Birds Directive') form the cornerstones of nature conservation legislation across EU member states. Priority species requiring protection across Europe are listed in the Annexes of these Directives. The Habitats

Regulations, 2010 (as amended) and Offshore Marine Conservation Regulations, 2007 (as amended) transpose these directives into UK law and set the basis for the designations of protected sites (known as Natura 2000 sites; Special Areas of Conservation under the Habitat Directive and Special Areas of Protection under the Birds Directive) that are of importance for habitats, species or assemblages listed on the directive Annexes. In the UK Ramsar sites are also offered the same level of protection as SPAs and SACs however the qualifying species for the designation may differ; Ramsar sites being designated specifically as important wetland habitats.

Under article 6(3) of the Habitats Directive, where projects stand to have likely significant effect (in accordance with the European Court of Justice ruling of C-127/02 Waddenzee cockle fishing) upon the integrity of conservation objectives (i.e. conservation status of the qualifying species or habitats) within the designated sites then the Competent Authority must undertake an Appropriate Assessment.

**Planning Policy**

***National Planning Policy Framework (NPPF)***

Guidance on nature conservation within planning is issued by the Government within the National Planning Policy Framework[26]. This Framework document acts as guidance for local planning authorities on the content of their Local Plans, but is also a material consideration in determining planning applications.

The NPPF has replaced, among other planning guidance documents, Planning Policy Statement 9: Biological and Geological Conservation[27]. However, the accompaniment to PPS9, government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System[28], remains valid. The prevention of harm to biodiversity through prudent planning decisions is the key principle in the NPPF when considering planning and the natural environment; set out in section 11.

Within the NPPF the Government's vision for conserving and enhancing biological diversity in England within the planning system is set out. The Governments objectives for planning from an ecological perspective are, among others, to recognise the wider benefits of ecosystem services, minimise the impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, which will include the establishment of coherent ecological networks that are more resilient to current and future pressures.

Of particular note to ecological impact assessment is paragraph 152 of the Plan-Making Section which states:

"Local planning authorities should seek opportunities to achieve each of the economic, social and environmental dimensions of sustainable development, and net gains across all three. Significant adverse impacts on any of these dimensions should be avoided and, wherever possible, alternative options which reduce or eliminate such impacts should be

pursued. Where adverse impacts are unavoidable, measures to mitigate the impact should be considered. Where adequate mitigation measures are not possible, compensatory measures may be appropriate".

As a result of the NPPF any species or habitats of principal importance found on the application site, in addition to statutorily protected species, are of material consideration in the planning process.

## REGIONAL POLICY

### The London Plan: Spatial Development Strategy for Greater London[29]

The London Plan is comprised of separate chapters relating to a number of areas, including London's Places, People, Economy and Transport. The following policies have been identified within the London Plan, which relate specifically to ecology and this development.

***Policy 2.18 Green Infrastructure***

'*Policy 2.18 aims to protect, promote, expand and manage the extent and quality of, and access to, London's network of open and green spaces'*.

***Policy 5.10 Urban Greening***

This policy encourages the 'greening of London's buildings and spaces and specifically those in central London by including a target for increasing the area of green space (including green roofs etc) within the Central Activities Zone'.

***Policy 5.11 Green Roofs and Development Site Environs***

Policy 5.11 specifically supports the inclusion of planting within developments and encourages boroughs to support the inclusion of green roofs.

***Policy 5.13 Sustainable Drainage***

'Policy 5.13 promotes the inclusion of sustainable urban drainage systems in developments and sets out a drainage hierarchy that developers should follow when designing their schemes'.

***Policy 7.19 Biodiversity and Access to Nature***

'The Mayor will work with all the relevant partners to ensure a proactive approach to the protection, enhancement, creation, promotion and management of biodiversity in support of the Mayors Biodiversity Strategy.'

### Supplementary Planning Guidance (SPG): Sustainable Design and Construction 2014[30]

As part of the London Plan 2011 implementation framework, the SPG, relating to sustainable design and construction, was released in April for consultation which includes the following sections detailing Mayoral priorities in relation to biodiversity of relevance to this development.

***Nature conservation and biodiversity***

The Mayor's priorities include ensuring 'developers make a contribution to biodiversity on their development site'.

***Overheating***

Where priorities include the inclusions of 'measures, in the design of schemes, in line with the cooling hierarchy set out in London Plan policy 5.9 to prevent overheating over the scheme's lifetime'

***Urban greening***

A Priority is for developers to 'integrate green infrastructure into development schemes, including by creating links with wider green infrastructure network'.

***Use less energy***

'The design of developments should prioritise passive measures' which can include 'green roofs, green walls and other green infrastructure which can keep buildings warm or cool and improve biodiversity and contribute to sustainable urban drainage'.

## LOCAL POLICY

### Camden Local Plan (2017)

The Local Plan was adopted by Council on 3 July 2017 and has replaced the Core Strategy and Camden Development Policies documents as the basis for planning decisions and future development in the borough.

*Policy A3 Biodiversity*

The Council will protect and enhance sites of nature conservation and biodiversity. We will:

a. designate and protect nature conservation sites and safeguard protected and priority habitats and species;

b. grant permission for development unless it would directly or indirectly result in the loss or harm to a designated nature conservation site or adversely affect the status or population of priority habitats and species;

c. seek the protection of other features with nature conservation value, including gardens, wherever possible;

d. assess developments against their ability to realise benefits for biodiversity through the layout, design and materials used in the built structure and landscaping elements of a proposed development, proportionate to the scale of development proposed;

e. secure improvements to green corridors, particularly where a development scheme is adjacent to an existing corridor;

f. seek to improve opportunities to experience nature, in particular where such opportunities are lacking;

g. require the demolition and construction phase of development, including the movement of works vehicles, to be planned to avoid disturbance to habitats and species and ecologically sensitive areas, and the spread of invasive species;

h. secure management plans, where appropriate, to ensure that nature conservation objectives are met; and i. work with The Royal Parks, The City of London Corporation, the London Wildlife Trust, friends of park groups and local nature conservation groups to protect and improve open spaces and nature conservation in Camden.

*Trees and vegetation*

The Council will protect, and seek to secure additional, trees and vegetation. We will:

j. resist the loss of trees and vegetation of significant amenity, historic, cultural or ecological value including proposals which may threaten the continued wellbeing of such trees and vegetation;

k. require trees and vegetation which are to be retained to be satisfactorily protected during the demolition and construction phase of development in line with BS5837:2012 'Trees in relation to Design, Demolition and Construction' and positively integrated as part of the site layout;

l. expect replacement trees or vegetation to be provided where the loss of significant trees or vegetation or harm to the wellbeing of these trees and vegetation has been justified in the context of the proposed development;

m. expect developments to incorporate additional trees and vegetation wherever possible.

*Policy CC2 Adapting to climate change*

The Council will require development to be resilient to climate change. All development should adopt appropriate climate change adaptation measures such as:

a. the protection of existing green spaces and promoting new appropriate green infrastructure;

b. not increasing, and wherever possible reducing, surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems;

c. incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and

d. measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.

Any development involving 5 or more residential units or 500 sqm or more of any additional floorspace is required to demonstrate the above in a Sustainability Statement.

# APPENDIX 3: BIODIVERSE ROOF RECOMMENDED SPECIES

| Species Name | Latin Name | Height | Wildlife Benefit | Growth Conditions |
|---|---|---|---|---|
| Agrimony | *Agrimonia eupatoria* | Up to 65cm | The food plants by the larvae of some Lepidoptera species including Grizzled Skipper and Large Grizzled Skipper | A hardy plant that prefers partial shade |
| Autumn Hawkbit | *Leontodon autumnalis* | 15-30cm | Late flowering, attracts beetles and butterflies | Drought tolerant, low nutrients, wind tolerant, open conditions |
| Birds Foot Trefoil | *Lotus corniculatus* (do not confuse with introduced sown variety *L. Corniculatus* var *sativus)* | 20-40cm | Mid flowering, good nectar source for many insects and a larval source for many species of Lepidoptera - beneficial for black redstarts | Drought and wind tolerant, low growing, sprawling habit. Common on grasslands and along roadsides. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time |
| Biting Stonecrop | *Sedum acre* | 10-15cm | Branched clusters of bright yellow flowers, which have long protruding stamens and are attractive to bees for pollen and nectar. | This is a spreading plant that thrives on virtually soil-less conditions. Favours full sunlight. |
| Black Medick | *Medicago lupulina* | Up to 50cm | Early flowering, attracts butterflies, hoverflies and bees. Beneficial for black redstarts | Low growing, ground hugging plants. Very common on roads and roadsides and is drought and wind tolerant, and can survive relatively cold conditions. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time |
| Bladder Campion | *Silene vulgaris* | 40-80cm | The Bladder Campion is an important nectar source for butterflies and a favourite food plant of frog hoppers, the insects which create cuckoo spittle | It prefers neutral, dry soils and is generally found alongside paths and in open grassy or rough ground. |
| Breckland Thyme | *Thymus serpyllum* | 5-20cm | Flowers are attractive to bees | Easily grown in average, dry to medium, well-drained soils in full sun. Tolerates drought and poor soils of low fertility. Loose, sandy or rocky soils with excellent drainage are best habitat |
| Bugle | *Ajuga reptans* | 10-25cm | The flower is an important early source of nectar for | A small, spreading plant that produces a ring of blue |

| | | | | |
|---|---|---|---|---|
| | | | butterflies, especially the Duke of Burgundy, Marsh Fritillary and the Pearl-Bordered Fritillary. | flowers on top of each set of leaves. Prefers sunny of semi-shaded conditions |
| Bulbous Buttercup | *Ranunculus bulbosus* | 20-50cm | The food plant of the larvae of some Lepidoptera species including Hebrew Character and Small Angle Shades | Favours nutrient-poor, well-drained soils |
| Common Corncockle | *Agrostemma githago* | Up to 80cm | Attracts lady-beetles and parasitic wasps | Hardy plant found in many conditions. Likes disturbed, nutrient poor soils |
| Common Field Speedwell | *Veronica persica* | 10-30cm | Flowers most of the year, attracts butterflies. | Low growing, hardy plant, nutrient rich |
| Common Forget-Me-Not | *Myosotis arvensis* | 10-35cm | Food plant of the larvae of some Lepidoptera species including *Setaceous Hebrew Character* | Shows a preference for soils with low pH |
| Common Mouse Ear | *Cerastium fontanum* | Up to 50cm | Early to late flowering, flowers are self or insect pollinating | Low growing, likes dry grassland and wasteland conditions, prefers richer nutrient levels |
| Common Poppy | *Papaver rhoeas* | Up to 60cm | Has no nectar but the flowers provide pollen for bees. Beetles feed in the seed capsules and some species may overwinter here when the capsules are empty | Hardy plant grows on disturbed soils |
| Common Vetch | *Vicia sativa* | 15-40cm | Mid flowering, attracts bees, wasps, butterflies and aphids – aphids are beneficial for house sparrows | Particularly attractive to aphids, an essential food source for house sparrow chicks. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time |
| Corn Camomile | *Anthemis arvensis* | Up to 30cm | Attract a range of pollinating insects | Preference for light chalky or sandy soils |
| Cornflower | *Centaurea cyanus* | 30-80cm | Attract many beneficial insects that come to nectar and feed on the pollen | A hardy plant which grows of many soil types and prefers full sun |
| Cowslip | *Primula veris* | Up to 25cm | Food plant of the Duke of Burgundy Fritillary butterfly, Plain Clary and Northern Rustic moths | A hardy plant preferring well drained soils and full sun |

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|---|---|---|---|---|
| Cut Leaved Crane's-Bill | *Geranium dissectum* | 10-40cm | Mid to late flowering, attracts beetles and butterflies. | Likes stony ground, wasteland, and thin soils. Low growing sprawling plant |
| Dove's-Foot Crane's-Bill | *Geranium molle* | Up to 20cm | Early flowering, attracts range of insects and beneficial for black redstarts | Low growing, sprawling habit. Drought tolerant and common on roadsides, wastelands and brownfield sites |
| Fox And Cubs | *Hieracium aurantiacum* | 15-35cm | Mid flowering, attracts flies, good nectar source | Drought tolerant, hardy plant, low growing |
| Hares Foot Clover | *Trifolium arvense* | 10-40cm | Late flowering, attracts flies, good nectar source | Drought and wind tolerant. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time |
| Hoary Plantain | *Plantago media* | 30-55cm | Mid flowering, large flowerhead, attracts bees and wasps | Drought tolerant, low growing |
| Kidney Vetch | *Anthyllis vulneraria* | Up to 60cm | Late flowering, attracts bees and wasps and butterflies. Beneficial for black redstarts. | Low growing, ground covering plant, found on wastelands, railway embankments etc. Drought tolerant. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time |
| Knapweed | *Centaurea scabiosa* | Up to 50cm | Very attractive to butterflies and bees. | Tolerant of a wide range of soils. It's common throughout the British Isles. |
| Lemon-scented Thyme | *Thymus x citriodorus* | 10cm | Very attractive to numerous species of butterflies and bees | Hardy low growing plant. Frost tolerant. |
| Musk Mallow | *Malva moschata* | Up to 80cm | Particularly attractive to several species of bees. | Prefers dry and fertile soils and full sun. |
| Ox Eye Daisy | *Leucanthemum vulgare* | Up to 60cm | Late flowering, attracts beetles and hoverflies. | Grows on disturbed soils and wastelands as well as wildflower meadows, tolerant of a wide range of environmental conditions including drought |
| Pale Toadflax | *Linaria repens* | Up to 80cm | Has pollen for bees and pollen beetles, *Brachtypterus spp*., in the flowers. | Grows on dry banks and stony ground over much of England and Wales. |
| Perforate St Johns Wort | *Hypericum perforatum* | 20-50cm | Mid flowering, attracts bees, wasps and beetles. Beneficial for black redstarts. | Found on wastelands, dry stony ground, drought tolerant, robust plant |

| | | | | |
|---|---|---|---|---|
| Red Campion | *Silene dioica* | 30-80cm | The nectar of the flowers is utilised by bumblebees and butterflies, and several species of moth feed on the foliage | Grows in a variety of conditions but prefers to grow on damp, non-acid soils. |
| Red Clover | *Trifolium pratense* | 20-60cm | Late flowering, attracts bumble bees, common carder bee, butterflies and weevils. | Low growing drought tolerant, hardy plant, low nutrient growth. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time |
| Reflexed Stonecrop | *Sedum reflexum* | 10cm | An excellent source of nectar for bees and butterflies | Low growing plant which grows in small bushes, spreading on the ground |
| Ribwort Plantain | *Plantago lanceolata* | 10-40cm | Beneficial for black redstarts | Drought tolerant and very common on wasteland, brownfield sites and roadsides |
| Rough Hawkbit | *Leontodon hispidus* | 20-50cm | Yellow flower attracts butterflies and bees | A slow-growing, rosette-forming perennial of dry, neutral or calcareous soils. Dislikes nutrient-rich soils. |
| Scented Mayweed | *Matricaria recutita* | 15-50cm | This plant is a very good source of nectar for bees and flies. One small weevil, *Omphalapion hookeri* lives on the seedheads. Scented mayweed is highly attractive to ladybirds that feed on aphids | It thrives best on lighter soils but can grow on loams and heavy clays. Prefers full sun. |
| Self Heal | *Prunella vulgaris* | 30-60cm | Mid flowering, good for bees. Beneficial for black redstarts | Prefers sun or semi-shade and some moisture but drought tolerant, low growing creeping plant. |
| Tunic Flower | *Petroraghia saxifraga* | 10-15cm | Flowers attracts numerous butterfly and bee species. | Grows in sunny location in poor to moderately fertile soil, low water. Tolerates drought and neglect. |
| Viper's Bugloss | *Echium vulgare* | 30-60cm | An important food source for species of bumblebee and butterflies. | Grows in dry, sunny position in well-drained or sandy soils. |
| White Clover | *Trifolium repens* | 20cm | Late flowering, attracts, honey bee, bumble bees, weevils | Low growing, relatively drought tolerant, will not grow well in shade, low nutrient growth. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time. |

| | | | | |
|---|---|---|---|---|
| White Stonecrop | *Sedum album* | 20cm | It provides nectar and pollen for bees including the buff-tailed bumble bee. Used as food plants by the larvae of some Lepidoptera species. | Grows well in a city environment. Is drought tolerant and prefers sunny positions. |
| Wild Basil | *Clinopodium vulgare* | 30-70cm | Pollinated by bees and attractive to butterflies. | Very hardy plant and drought resistant. |
| Wild Marjoram | *Origanum vulgare* | 30-60cm | Late flowering, attracts butterflies and bees | Drought resistant, low growing |
| Wild Mignonette | *Reseda lutea* | 30-50cm | The green-yellow flowers are very attractive to bees. | Grows in waste, scrubby, disturbed soils that are well drained and in full sunlight. |
| Wild Pansy | *Viola tricolor* | Up to 40cm | Attractive to, and pollinated by, a variety of species of bee. | Prefers sandy substrates and partial shade. |
| Wild Thyme | *Thymus serpyllum* | 2-10cm | It is an important nectar source plant for honeybees as well as the large blue butterfly which feeds exclusively on wild thyme | A hardy plant that thrives in full sun and often grows in pavement cracks. A low growing, creeping plant |
| Yarrow | *Achillea millefolium* | Up to 80cm | Attracts beneficial Syrphid flies. | Drought tolerant plant that prefers full sun and shallow, disturbed and nutrient poor soils. |
| Zigzag Clover | *Trifolium medium* | 20-60cm | Attracts bumblebees and butterfly species. | Low growing drought tolerant, hardy plant, low nutrient growth. A member of the legume family therefore nitrogen fixing and will increase the nutrient value of the substrate over time |
| **Mosses** | | | | |
| Springy Turf Moss | *Rhytidiadelphus squarrosus* | Up to 15cm | | It tolerates a wide range of soils and colonises on man-made habitats. |
| Wall Screw Moss | *Tortula muralis* | 5-10cm | | Commonly found on stone and concrete areas. |
| Grey Cushion Moss | *Grimmia pulvinata* | 2cm | | Grows on rocks and concreted areas. |

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