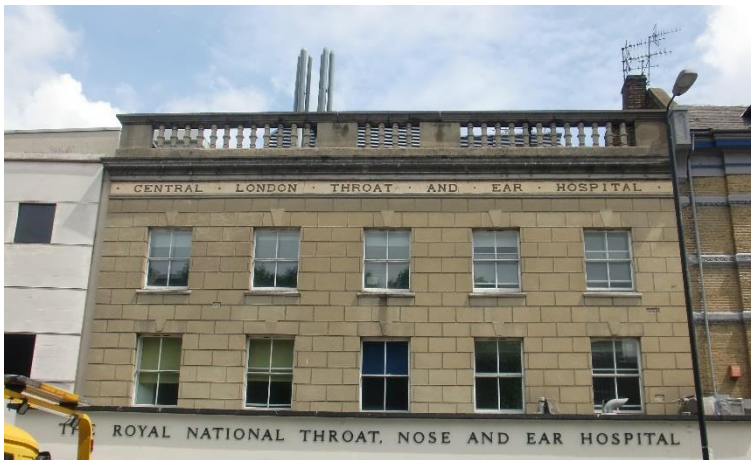
Our reference: DFCP 4357
Date: 14 August 2019

D F Clark Bionomique Ltd

Preliminary Ecological Appraisal Report

of 330, Grays Inn Road on behalf of 330, Grays Inn Road Limited.



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Provided no significant changes are made to the proposal (where provided) or on the proposed site (*e.g.* significant changes to management practices or habitats present) subsequent to the report's issue; this report can be considered valid for 18 months from the date of issue.

Document History

This document has been issued and amended as follows:

Version	Initial Survey Date	Report Issue Date	Description	Author	Job Title	Verified and Approved by	Job Title
1	11th June 2019		Draft	Maithri Jayasuriya	Assistant Consultant Ecologist	Harry Smith	Consultant Ecologist
2		14th August 2019	Issue	Maithri Jayasuriya	Assistant Consultant Ecologist	Harry Smith	Consultant Ecologist

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Qualifications of Principal Author

Recommendations included within this report are the professional opinion of an experienced ecologist, based on an ecological site survey and the client's proposal for the site.

The site survey was carried out by Alexandra Zemanova BSc MSc, an assistant ecological consultant with previous experience of conducting Phase 1 surveys and with a license to survey Great-Crested Newts.

The report was written by Maithri Jayasuriya. Maithri is an assistant ecological consultant with a BSc (Hons) in Zoology and an MSc in Ecology and Environmental Management, and has two years of experience as a field surveyor with a year's experience at assistant consultant level. He is also a qualifying member of the Chartered Institute of Ecology and Environmental Management.

Quality Assurance

This report has been produced in accordance with guidelines produced by The Chartered Institute of Ecology and Environmental Management (CIEEM) and British Standards Institute (BSI):

- BSI (2013) *Biodiversity – Code of practice for planning and development*. *BS 42020: 2013.*
- CIEEM (2017) *Guidelines on Ecological Report Writing*. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Chartered Institute of Ecology and Environmental Management, Winchester.

All Preliminary Ecological Appraisal reports produced by DF Clark Bionomique Ltd are checked, verified, and approved by a second competent ecologist.

Contents

1 Summary

1.1 Purpose of the report

1.1.1 **This report should be read in full to identify potential impacts on protected/notable species and habitats, species and habitats of principal importance, statutory and non-statutory designated sites, and any further actions required.**

1.1.2 A Preliminary Ecological Appraisal (PEA) was carried out on 330, Grays Inn Road, Kings Cross, London, WC1X 8DA (TQ 30562 82803). This report aims to provide advice regarding ecological constraints and opportunities arising from the proposed development of the site, and includes, if relevant, recommendations for further surveys. Where further surveys are recommended, these will ideally be undertaken in support of the planning application as results shall provide further specifications for mitigation and/or European Protected Species licencing requirements.

1.1.1 The proposed development site consisted of several buildings, hardstanding, amenity grassland, introduced shrub and a tree. There were no areas that qualify as habitats of principle importance under section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

1.1.2 The site falls within 2m of two statutory designated sites of local importance. There are 52 non statutory designated sites within 2km.

1.1.3 The site features two buildings with low bat potential and a tree with moderate bat potential. The tree and introduced shrubs onsite have potential to support nesting birds. The rest of the site does not have the potential to support protected species.

1.1.4 Care must be taken to prevent pollution from entering the surrounding area from the site during the construction and operational phases of the development.

1.2 Conclusions

1.2.1 The development works has the potential to impact on roosting bats that could be roosting within two buildings and a tree on site as well as nesting birds. The development works do not have the potential to impact reptiles, great crested newts, badgers, dormice, otter, water vole or white-clawed crayfish.

1.3 Key Recommendations

1.3.1 If protected species presence are identified during any of the below recommended surveys, further survey work and / or appropriate impact avoidance and mitigation measures may need to be incorporated into designs. For any European Protected Species (*e.g.* bats, and great crested newt), a licence may need to be obtained from Natural England prior to works being carried out. Full recommendations are given within section 6 of this report.

Species/Habitats	**Recommendations for Further Survey**	**Timings**
Bats	Buildings 2 and 4 were found to be of low bat potential. There are extensive records of bats in the area. It is recommended that one dusk emergence survey be conducted on each building. If bats are found to be using the buildings during the survey, then a further two (total of three) surveys, including a dawn re-entry survey should be conducted to inform an application for a European Protected Species Mitigation license.	May to September inclusive
	Endoscope survey of walnut tree in the centre of the site, found to be of moderate bat roost potential. Survey should be carried out by a licensed ecologist.	May to September
Species/Habitats	**Recommended Enhancements**	**Timings**
Soft Landscaping	Where possible, mature trees should be retained and protected during construction in accordance with the advice of an arboriculturalist, and in line with the British Standard: *'BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations* Planting of climbers can be attached to sections of trellis on external walls of buildings, sections of fence and other walls and structures to increase the space available for wildlife. Climber planting should incorporate at least three species, such as: honeysuckle (*Lonicera periclymenum*), ivy (*Hedera helix*), common jasmine (*Jasminum officinale*), golden hop (*Humulus lupulus 'Aureus*') and old man's beard (*Clematis vitalba*). Where non-native species are to be included within the soft landscaping scheme, these can also be chosen for their wildlife benefit. The '*RHS Perfect for Pollinators*' label can be used as a useful guide when selecting non-native plants. Wildlife-friendly plantings will provide a degree of compensatory habitat for any vegetation removed in addition to an	Design/Construction Phase

	ecological enhancement where high value habitats are included within the design scheme.	
Birds	Two Schwegler 1B nest boxes with 26mm and 32mm entrances holes should be incorporated. Unless there are trees or buildings which shade the box during the day, face the box between north and east. Boxes should be placed facing north or north-west at a height of 4m-7m.	Design/Construction Phase

2 Introduction

2.1 Instruction

2.1.1 D.F. Clark Bionomique Ltd were instructed on 17th May 2019 by 330 Grays Inn Road Limited to conduct a Preliminary Ecological Appraisal (PEA) on 330, Grays Road, Kings Cross, London, WC1X 8DA (TQ 30562 82803).

2.2 Site description

2.2.1 The proposed development site measures approximately 0.67 hectares. A reference plan showing the site boundaries can be seen in Appendix 2.

2.2.2 The site comprises of several buildings, amenity grassland with a broadleaved tree, introduced shrub and hardstanding.

2.2.3 The surrounding area is largely urban with commercial and residential buildings and associated gardens. The A201 Swinton Street road runs along the site's southern boundary with Wicklow Street to the north. The A501 runs along the western boundary, with railway tracks leading to and from the Kings Cross train station (240 metres to the north-west) running along the eastern boundary. Patches of woodland are found to the south-west where the Friends of St George's fields (304 metres) and Coram's Fields (415 metres) are located. Myddleton Square Gardens are located approximately 600 metres to the east and contain further woodland habitats. Further areas of woodland are located approximately 900 meters to the north-east, 920 metres to the south; 700 metres to the south-west and 850 metres to the south-west. Regent's canal runs approximately 605 metres to the north.

2.3 Development proposal

2.3.1 The proposed plans entail the redevelopment of the existing site for residential, office and apart-hotel use (see Appendix, 4).

2.4 Purpose of the report

2.4.1 This survey report aims to:

- Identify key ecological constraints to the project;
- Accurately assess and record the existing habitats on site;
- Identify habitats and/or structures that have the potential to support protected/priority/notable/invasive species and make recommendations for further surveys where appropriate;
- Identify any statutory/non-statutory designated sites within the zone of influence of the proposed development;
- Summarise the overall ecological value of the site in the context of legislation, planning policy and other relevant indicators of importance.

- Where possible at this stage, set out the mitigation measures required to ensure compliance with nature conservation legislation and address any potentially significant ecological effects;
- Where possible at this stage, identify appropriate enhancement measures.

3 Planning policy & legislation

3.1 Overview

3.1.1 In surveying and assessing the biodiversity features present on and near the site, regard has been given to relevant biodiversity legislation and the planning context of the development proposal. Reference has been made to established planning principles, all relevant national and local planning policies, local biodiversity objectives and targets, and green infrastructure strategies, along with any relevant supplementary planning documents.

3.1.2 Appendix 4 provides a more detailed summary of planning policy and biodiversity legislation information.

4 Methodology

4.1 Scope of the assessment & Zone of Influence

4.1.1 The survey site included the habitats within the proposed construction zone (red-line boundary), and where possible the survey boundary extended just beyond the construction zone.

4.1.2 '*The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities'* (CIEEM, 2018). The potential impacts of a development are not always limited to the boundaries of the site concerned, and for there to be an impact upon land that is outside of the site boundaries, there needs to be a source of impact, a pathway and a receptor.

4.1.3 In order to determine the zone of influence of the proposed development on ecological features (receptors), the potential key activities that can generate ecological impacts have been considered for the construction and operational phases of the development.

4.1.4 These impacts have then been considered in the context of pathways available to potential receptors on and off-site. Receptors considered will include any relevant statutory or non-statutory nature conservation designations to a distance of 2km for those at a national or local level, and to 5km for those at an international level. Protected species under national and international legislation, as well as Habitats and Species of Principal Importance for conservation under section 41 of the Natural Environment and Rural Communities Act 2006 have also been considered. An assessment of the presence of or the potential presence of invasive plant and animal species was also made during the site visit.

4.1.5 The zone of influence of the project should be reviewed if the project changes to ensure that it is still relevant.

4.2 Desk study

4.2.1 The Multi Agency Geographic Information for the Countryside (MAGIC) website managed by Natural England was consulted on the 23rd July 2019 to obtain information about:

- Statutory designated sites of European/international importance such as Ramsar Sites, Special Protection Areas (SPA) and Special Areas of Conservation (SAC) to a radius of 5km;
- Statutory designated sites of national importance such as Sites of Special Scientific Interest (SSSI) within a 2km radius of the site;
- The potential for the proposed development site to be present within a SSSI Impact Risk Zone and the effect that this could have on the proposed development;
- European Protected Species Mitigation (EPSM) licences that have been issued to a distance of 2km from the proposed site;
- Ponds within 250 metres of the site.

4.2.2 Aerial imagery (*Google maps*; 23rd July 2019) was used in order to provide an indication of land-use in the surrounding area and the connectivity of habitats on and adjacent to the proposed development site.

4.2.3 The Greenspace Information for Greater London (GIGL) database was consulted to identify Local Wildlife protected/priority/otherwise notable species recorded within a 2km radius of the application site.

4.3 Desk study limitations

4.3.1 Information regarding aerial photography, European Protected Species Mitigation licences and protected areas is accurate to the date the records were retrieved, and last updated.

4.3.2 Records from biological records centres help understand the species that are or may be present in and around the study area. However, survey effort is variable between areas and many records are not submitted to records centres. Therefore, biological records centres cannot confirm absence of a species, and have only been used in this report in conjunction with other techniques to build up a picture of a study area.

4.3.3 There were no other known limitations to the desk study.

4.4 Field survey

4.4.1 A single daytime site visit was carried out on 11th June 2019. The weather conditions on the day of the visit were cloudy and overcast.

4.4.2 The survey was conducted following the standard methodology for Phase 1 Habitat Survey (JNCC, 2010). Vegetation communities were assessed through the identification of individual plant species, which were then grouped, classified and mapped based on standardised habitat descriptions.

4.4.3 Habitat suitable for protected/notable species, species of principal importance, or evidence of these species was also recorded, along with location information.

4.5 Field survey limitations

4.5.1 The survey was undertaken during the recommended period for carrying out PEAs.

4.5.2 All buildings were currently operational as a hospital facility and as such, an internal inspection of any voids was not possible.

4.5.3 There were no other known limitations to the survey.

4.6 Assessment

4.6.1 The ecological value of the site and potential ecological impacts of the proposed development have been assessed in accordance with industry standard guidelines (CIEEM, 2013; CIEEM, 2018. Detailed assessments have not been recommended for widespread, unthreatened and resilient features. However, recommendations have still been made to safeguard biodiversity as a whole, as per the European Union Biodiversity Strategy 2020 (CIEEM, 2018).

4.6.2 Key ecological features that require consideration during the development process include: statutory/non-statutory designated nature conservation sites, county biodiversity lists, Biodiversity Action Plan lists, red-listed, rare and legally protected species. These categories have been used to assist in making value judgements within the report. Further, geographical context has also been considered, with international/European importance being the highest value for conservation, followed by: national, regional, metropolitan, borough and local importance (as lowest value) (CIEEM, 2018). Finally, it will be assumed that a statutory designation holds a higher ecological value than a non-statutory designation.

4.6.3 The field survey included an assessment of the site's potential to support any legally protected species. Where best practice guidelines exist, these were used to assess the likelihood that individual species will be present using habitat suitability ratings, for example *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2016). These have been used as a guide to inform any need for further surveys in respect of species which are present or have the potential to be present on site.

4.6.4 Historic data has only been considered if dated within the last ten years.

5 Results: Baseline Ecological Conditions

5.1 Overview

5.1.1 Only the results pertinent to the production of this report have been included below. Full copies of the original field and desk-top data, along with evidence of subsequent analysis and interpretation of results are available upon request.

5.2 Zone of Influence

5.2.1 Two Local Nature Reserves (LNR) lie within 2km of the site (Table 1). The proposed development is isolated from both by a network of roads and buildings. There is no pathway by which pollutants may enter these sites, The Zone of Influence (ZoI) is limited to the site boundaries and areas just beyond.

5.3 Designated sites

5.3.1 The MAGIC website indicated that there are no sites of European/international significance within a 5km radius of the proposed site. (Table 1).

5.3.2 There are two designated sites of local importance (Table 2) within a 2km radius of the site.

5.3.3 The site does not fall within a SSSI Impact Risk Zone and there are no automatic recommendations for the Local Planning Authority to consult with Natural England regarding the likely risks of the development on nearby statutory designated sites.

Table 1: Results of the UK/local statutory designated sites desk study.

Name	**Designation**	**Distance & Direction (approximate)**	**Size (ha)**	**Grid Ref**	**Reasons for Designation**
Uk/local designations					
Camley Street Nature Reserve	Local Nature Reserves (LNR)	750m (NW)	0.84	TQ 299 834	Features a flowering meadow, pond and marsh areas, coppiced deciduous woodland, mixed woodland, dipping pond with boardwalk. Also features stag beetle, kingfisher (*Alcedo atthis*) and other bird species.
Barnsbury Wood	Local Nature Reserve (LNR)	1.3km (NE)	0.32	TQ 308 842	Smallest LNR in London. Features sycamore (*Acer pseudoplatanus*); ash (*Fraxinus excelsior*); lime (*Tilia cordata*) and horse chestnut (*Aesculus hippocastanum*). Also provides habitats for long-tailed tit (*Aegithalos caudatus*); lesser stag beetle (*Dorcus parallelipedus*) and sixteen-spot

					laybird (*Tytthaspis sedecimpunctata*).

Table 2: Results of the non-statutory designated sites desk study (Closest 10 SINCs out of 52).

Name	Designation	Distance & Direction (approximate)	Size (ha)	Grid Ref	Reasons for Designation
Non-statutory designated sites					
CaL05 Calthorpe Community Gardens	SINC	300m (S)	0.44	TQ 306 825	Community garden with a good range of wildlife habitats
EsL28 Winton Primary School Gardens	SINC	400m (N)	0.03	TQ 306 832	Small school nature garden recently refurbished. Pond/lake, semi-improved grassland present
Cal08 St Andrews Gardens	SINC	400m (N)	0.66	TQ 307 824	Former churchyard now park with tree and shrub species.
CaL14 Coram's Field	SINC	490 (SW)	2.7	TQ 305823	Park with acid grassland, amenity grassland. Hedge planted shrubbery, pond/lake, scattered trees.
IsBll05 Claremont Square Reservoir	SINC	540m (NE)	0.68	TQ 311 830	Planted shrubbery , semi-improved neutral grassland
IsL20 Islington Square	SINC	620m (SW)	0.39	TQ 311 825	Amenity grassland, planted shrubbery, scattered trees
M095 Camley Street Natural Park	SINC	750m (NW)	0.8	TQ 300 834	Pond/lake, reed bed, secondary woodland, semi=improved grassland.
IsL39 Skinner Street Open Space	SINC	920M (SW)	0.38	TQ 314 824	Amenity grassland, lawn, mature trees.
IsL30 Barnard Park	SINC	970m (NE)	3.58	TQ 310 837	Species poor amenity grassland with scattered trees. Nesting opportunities for birds
IsL40 Spa Fields Gardens	SINC	840m (SW)	0.84	TQ 313 824	Landscaped park with amenity grasslands, ornamental flower beds, ornamental grape vines and scattered trees.

5.4 Habitats

5.4.1 A plan showing the habitats found on-site can be seen in Appendix 3. Photographs of the site can be found in Appendix 1.

Buildings

5.4.2 There were several buildings ranging from single-storey to six-stories high that made up the majority of the site. The buildings were mostly medical facilities with flat roofs (Photo 1 and 2). The buildings could be split into eight sections (see Appendix 3):

Table 3: Description of buildings.

Building	Description
1	Four-storey brick building with a gambrel roof used as the Audiology Centre.
2	Two-storey brick building with flat roof with bitumen lining.
3	Single-storey security guard post with flat roof.
4	Three single-storey storage buildings, each with pitched roofs made of corrugated metal.
5	Four- storey brick building with flat roof used as a nurse's home.
6	Multiple brick buildings ranging from two-storey to six-storeys.
7	Multiple brick buildings ranging from one to six-storeys, Make up the main Ear, Nose and Throat hospital and feature flat roofs.

Amenity Grassland and Broadleaved Tree

5.4.3 A small patch on amenity grassland was located centrally enclosed on all sides by buildings. Within this area of grassland, a single walnut tree (*Juglans regia*) was found (Photo 3).

Introduced shrubs

5.4.4 A patch of introduced shrubs was present to the south of the amenity grassland (Photo 4).

Hardstanding

5.4.5 The rest of the site featured hardstanding areas used for parking, and other operational purposes.

5.5 Species

5.5.1 The below information will include a combination of desk study and field information. Value judgements will be included with regards to the species present or possibly present on site.

Amphibians

5.5.2 There are no ponds showing on MAGIC (*magic.defra.co.uk*; accessed on 24th July 2019) within 250m of the site.

5.5.3 No European Protected Species Mitigation licences (EPSM) have been issued for great crested newt (*Triturus cristatus*) within 2km of the site in the last 10 years.

5.5.4 The GIGL does not have any records of great crested newts (GCN) within 2km from the last 10 years. There are extensive records of common frog (*Rana temporaria*), with the most recent record being 1.4km away to the south-east from 2018. Common toads (*Bufo bufo*) have been

found 1.3km to the north-west in 2017 (most recent record).

5.5.5 The site featured no ponds or areas of standing water. Much of the site was either buildings or hardstanding. The patch of amenity grassland and shrubs in the centre were enclosed by buildings on all sides. A wall running along the southern boundary and the railway line to the east act as further barriers. It is highly unlikely that GCN can access the site.

5.5.6 The surrounding area is urban with commercial and residential dwellings, with no suitable habitats for GCN.

5.5.7 Due to the lack of available habitats, the site is considered to be of negligible potential for GCN or other amphibians.

Bats

5.5.8 There have been two EPSM licences issued for bats within 2km of the site. The most recent record was for the destruction of a soprano pipistrelle (*Pipistrellus pygmaeus*) resting place in approximately 1.2km away to the west in 2017. An EPSM license was issued for the destruction of a common pipistrelle (*PIpistrellus pipistrellus*) resting place approximately 1.4km away to the south-west in 2015.

5.5.9 A search of the GIGL database revealed extensive records of bats within 2km of the site from the last 10 years, with pipistrelles making up the majority of observations.

- Common pipistrelles recorded 409m away to the SW (closest records) in 2016.
- Soprano pipistrelles recorded 1km away to the west in 2017 (most recent record).
- Nathusius pipistrelle (*Pipistrellus nathusii*) recorded 1.6km away to the north-west in 2012 (most recent record).
- Three records of noctules (*Nyctalus noctula*) recorded 626m away to the north (closest record) in 2011.
- One Leisler's bat (*Nyctalus leisleri*) was recorded 1.8km away to the north in 2011.
- Three Daubenton's bats (*Myotis daubentonii*) recorded approximately 725 metres away to the north in 2009 (closest record).

5.5.10 The buildings on site could be separated into seven sections. None of the buildings displayed signs of bat roosting opportunities. A small gap was present on the northern elevation (Photo 5) of Building 2 (B2); cracks in the western elevation of B2 (Photo 6) a small hole at the edge of the roof on the western side of B4 (Photo 7). There was a broken brick on the northern elevation of B7, though this was superficial. Another hole was evident on B2 but too was superficial as some insulating material was visible inside it. All buildings were currently operational as a hospital facility and as such, an internal inspection of any voids was not possible.

5.5.11 The walnut tree at the centre of the site displayed cavities on the branches as a result of pruning (Photos 8 and 9). These would provide roosting opportunities for bat species that typically roost in trees such as noctules.

5.5.12 The woodland to the south-west (304 metres and 415 metres) and east (600 metres) provide good foraging habitats for commuting bats. The urban area surrounding the site provides little in the way of foraging opportunities. Regent's Canal (605 metres to the north)

would offer further foraging opportunities.

5.5.13 Overall the buildings on the site are of low potential for roosting bats. The walnut tree is of moderate potential for roosting bats.

Hazel Dormice

5.5.14 There are no EPSM licences for hazel dormouse (*Muscardinus avellanarius*) from the last 10 years within 2km of the site. No records of hazel dormice exist within a 2km radius of the site from the last 10 years.

5.5.15 The GIGL database did not have any records of hazel dormouse.

5.5.16 There were no hedgerows or woodland areas on-site that would provide foraging or nesting habitats for dormice, and no connectivity to suitable areas off-site. No evidence of hazel dormice was found on the site during the survey and it is highly unlikely that they will be found.

5.5.17 The site is considered to be of negligible potential for dormice.

Otter and Water Vole

5.5.18 The GIGL database did not have any records for water voles (*Arvicola amphibius*) within 2km of the site for the last 10 years. There was one record of an otter (*Lutra lutra*) approximately 727 metres away to the north in 2013 along Regents Canal.

5.5.19 There are no ditches or running water bodies anywhere on site, and as such is not suitable for these species.

5.5.20 The immediate surrounding area does not feature suitable habitats for this species. Regent's Canal which runs 605 metres to the north, has the potential to support otters and water voles, however there are no routes or pathways by which the site could be accessed.

5.5.21 Overall the site is considered to be of negligible potential for otters and water voles.

Invertebrates

5.5.22 The GIGL database has records of invertebrate species such as stag beetles (*Lucanus cervus*) approximately 457 metres to the southwest in 2016; the marbled white butterfly (*Melaorgia galothea serena*) approximately 1.5km to the east in 2016; horse chestnut moth (*Pachycnemia hippocastanaria*) approximately 906 metres to the north-west in 2014 (closest records).

5.5.23 The site has limited potential to support invertebrate species. Any found would be common and widespread to the area.

Reptiles

5.5.24 The GIGL database does not hold any records of protected reptiles within 2km of the site from the last 10 years.

5.5.25 The hardstanding and amenity grassland areas are unsuitable for reptiles as they would not provide and foraging, hibernating or basking opportunities for reptiles. No reptiles were seen during the survey. The surrounding urban environment is similarly unsuitable, however the river could provide habitats. This area is cut off from the site by the network of roads and buildings, and so it is unlikely that any reptiles would be able to access the site.

5.5.26 Overall, the site was of negligible potential for reptiles.

Birds

5.5.27 There are extensive records of bird species recorded within 2km of the site from the last 10 years. These included kingfisher (*Alcedo atthis*) 828m to the south-west in 2016 (closest record); black redstart (*Phoenicurus ochruros*) 1km to south-west in 2014 (most recent); goldcrest (*Regulus regulus*) 341m to the north-west;

5.5.28 There are no woodland or scrub habitats on site, and the buildings would provide little opportunity for nesting birds. The walnut tree in the centre and introduced shrub around it represented the only suitable nesting habitats on site. No nests were seen at the time of the walkover.

5.5.29 Any birds species accessing the site from the wider area are likely to be common and widespread.

5.5.30 The site provides low potential for nesting birds.

Badgers

5.5.31 The GIGL database has no records of badgers within 2km from the last 10 years.

5.5.32 No evidence of badgers (tracks, fur, latrines, setts) were found on-site at the time of the survey. There is some potential for badgers to access the site from the surrounding area but any such instances would be transitional as there is negligible potential habitat for badgers to build their setts in.

White-clawed crayfish

5.5.33 The GIGL database has no records of white-clawed crayfish (*Austropotamobius pallipes*) however there is one record of the invasive red-clawed crayfish (*Procambarus clarkia*) approximately 880m away to the north-west around Regent's Canal from 2014.

5.5.34 The site is of negligible potential for white-clawed crayfish due to the lack of any running waterbodies.

Invasive plants

5.5.35 No invasive plant species were seen during the time of the survey.

Other protected/notable species

5.5.36 Hedgehogs (*Erinaceus europaeus*) were recorded in the surrounding area, with the most recent record being approximately 1.9km away to the west in 2017. There were limited suitable habitats for hedgehogs to hibernate or forage in onsite, with any suitable habitats located centrally. The walls to the south and railway to the west, along with the road network make it unlikely that hedgehogs will access the site.

6 Conclusions and Recommendations

6.1 General

6.1.1 The following section includes information regarding the ecological constraints and opportunities, recommendations for mitigation and any further survey works required.

6.1.2 Opportunities to enhance biodiversity have been noted below, and the '*mitigation hierarchy*' followed (BS 42020:2013). The *'mitigation hierarchy'* seeks first to avoid impacts, then mitigate unavoidable impacts, as a last resort compensation is recommended for unavoidable residual impacts (BS 42020:2013).

6.1.3 Where further survey work is required, a calendar showing appropriate survey times can be viewed in Appendix 5. The calendar is in line with the BSI Standards Publication: *Biodiversity – Code of practice for planning and development (BS 42020:2013).* However, survey calendars should only be used as a guide. Seasonal windows vary throughout the UK and between years, so timings can be flexible in accordance with the advice from a competent ecologist.

6.2 Zone of Influence

6.2.1 Standard pollution prevention control measures are recommended during the works. These measures should be reflected in working method statements and be communicated to all staff. Working method statements that include standard pollution prevention controls that all staff are aware of, understand and implement, will mean that any pollution incidents will be unlikely during construction and if they do occur, should be predominantly limited to the construction zone boundaries and those areas just beyond.

6.2.2 Emergency plans should be in place and practised in absence of a real incident to ensure that they are suitable and sufficient, and provide training to staff.

6.2.3 Where working near water, useful guidance on how to avoid a pollution event is provided by the Scottish, Welsh and Northern Irish relevant government agencies: http://www.netregs.org.uk/media/1303/gpp-5-works-and-maintenance-in-or-near-water.pdf

6.2.4 The effectiveness and implementation of environmental control measures should be continually monitored and reviewed. If unsure about the relevant controls required, gaining the advice of a specialist is recommended.

6.2.5 Care must be taken to ensure no run-off of pollution from the construction and operational phases of the development are allowed to enter the drainage network to the south of the site, and into the River Thames and the nearby RAMSAR site and SPA area, as well as the SSSI and LNR.

6.3 Designated sites

6.3.1 The development is not close to any sites of European or international significance, nor is it within any SSSI risk zones.

6.3.2 The Camley Street Nature Reserve and Barnsbury Wood LNRs are located 750m and 1.3km away to the north-west and north-east (respectively). These are unlikely to see a significant increase in foot traffic.

6.4 Habitats

6.4.1 The habitats present are of limited value for wildlife *e.g.*tall ruderal and bare ground. As far as possible, the habitats on site should continue to link to the habitats off site. This will help retain habitat corridors and landscape connectivity for a variety of species.

6.4.2 Where possible, mature trees should be retained and protected during construction in accordance with the advice of an arboriculturalist, and in line with the British Standard: ***'BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations'.***

6.4.3 The proposed re-development provides an opportunity to enhance the ecological value of the site. It is recommended that locally appropriate, native flowering and fruiting shrubs, trees, and climbers that are beneficial to wildlife are included in the soft landscaping of the development (see Appendix 6).

6.4.4 Planting of climbers can be attached to sections of trellis on external walls of buildings, sections of fence and other walls and structures to increase the space available for wildlife. Climber planting should incorporate at least three species, such as: honeysuckle *Lonicera periclymenum*; ivy *Hedera helix*; common jasmine *Jasminum officinale*, golden hop *Humulus lupulus* 'Aureus' and old man's beard *Clematis vitalba*.

6.4.5 Where non-native species are to be included within the soft landscaping scheme, these can also be chosen for their wildlife benefit. For example, species such as lavender *Lavandula* sp, *Hebe* (especially late-autumn/winter flowering varieties such as 'Autumn Glory' and 'Great Orme'), and rosemary *Rosemarinus officinalis* provide good wildlife benefits. The RHS '*Perfect for Pollinators'* label can be used as a useful guide when selecting non-native plants. Wildlife-friendly plantings will provide a degree of compensatory habitat for any vegetation removed in addition to an ecological enhancement where high value habitats are included within the design scheme.

6.4.6 Prior to planting, more detailed horticultural instructions should be referred to for each plant species selected. This will help to ensure that the planting scheme is suitably located and managed and thus will remain viable post-development.

6.5 Species

Amphibians

6.5.1 Great crested newt, their breeding sites, and their places of shelter and rest are protected under Regulation 41 of the Conservation of Habitats and Species Regulations 2017 and Schedule 5, Section 9 of the Wildlife and Countryside Act 1981 (as amended). Under the terms

of this legislation, it is an offence for anyone intentionally to kill, injure or disturb a great crested newt, or to possess one (whether live or dead) without licence. It is also an offence to damage, destroy or obstruct access to any place used by great crested newt for shelter. This includes terrestrial habitat areas.

6.5.2 There are no ponds or waterbodies on site, or within 250m of the site. The site would not support the terrestrial phases of GCN and as a result no further surveys are necessary. If any GCN are encountered at any time during the construction phase, the work should stop and an ecologist contacted for advice.

Bats

6.5.3 All bat species in England and Wales, and their resting and breeding places (roosts), are afforded protection under The Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is an offence for anyone to intentionally or recklessly kill or injure a bat, or disturb a roosting bat. It is also an offence to damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

6.5.4 The buildings on site were generally well maintained. There were limited features such as gaps and cracks on the northern and western elevations of Building 2 (respectively), and a hole on the roof on the western side of Building 4. These features could potentially be of use for crevice-welling species such as pipistrelles (*Pipistrellus* spp.). The buildings were deemed to be of low bat potential and as such one dusk emergence survey is recommended for each.

6.5.5 If one or both buildings are found to be home to roosting bats, then a further two surveys (a total of three) including one dawn re-entry survey will be required to inform the application of a European Protected Species Mitigation licence.

6.5.6 The walnut tree in the patch of amenity grassland at the centre of the site was of moderate bat roost potential, and such would require further survey. It is recommended that an endoscope survey be conducted by a licensed ecologist. This would involve inspecting the cavities featured on the branches of the tree for droppings, urine stains or bats themselves, to establish the presence or likely absence of roosting bats.

6.5.7 The surrounding area provides some foraging habitats for commuting bats, which could be affected by increased light and noise pollution from construction activities. However this is likely to be localised and temporary (BCT/ILE 2009). Any lighting on the site associated with the development should be directed downwards to where it is needed, with hoods, cowls, louvres, or shields used to direct the light to the intended area only. Measures to reduce the impacts of lighting need particular consideration with respect to areas where trees have been found to have bat potential or near foraging and commuting areas such as; hedgerows, woodland and boundary flowing drains. Further lighting advice can be found in Appendix 8.

Hazel dormice

6.5.8 Hazel dormice and their resting and breeding places are afforded protection under The Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is an offence for anyone to intentionally or recklessly kill or injure a dormouse, or disturb a dormouse in its place of shelter. It is also an

offence to damage, destroy or obstruct access to any place used by dormice for shelter, whether they are present or not.

6.5.9 There are no suitable foraging or nesting habitats for hazel dormice on-site. There is no connectivity to any suitable areas off-site.

6.5.10 No further surveys for hazel dormice are necessary.

Otters and Water voles

6.5.11 Otters, and their breeding and resting places, are fully protected by the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017.

6.5.12 Water voles are protected from killing, injury and disturbance whilst occupying a place of shelter or protection under the Wildlife and Countryside Act 1981 (as amended). This protection also prohibits any reckless or intentional damage, destruction or obstruction of any structure or place that water voles may be using for shelter or protection.

6.5.13 The banks of the Thames lie approximately 1.3km to the south and would provide some suitable areas for otters and water voles. However the site features no such habitats or methods by which these species could access it. It is not anticipated that the development works will come within 10m of the banks of the canal, and as such no further surveys are necessary.

Invertebrates

6.5.14 No invertebrates protected by the Conservation of Habitats and Species Regulations 2017, under schedule 5 of the Wildlife and Countryside Act 1981 (as amended), or classified as Species of Principal Importance in England under section 41 of the Natural Environment and Rural Communities Act 2006 were observed during the site visit.

6.5.15 The habitats present on-site are of poor quality for invertebrates, and any species present would be common and widespread. As a result no detailed invertebrate surveys are necessary.

6.5.16 Including soft landscaping to comprise native or wildlife-friendly planting (as above), e.g. with nectar-rich flowers will be attractive to a range of invertebrate species (e.g. bees and butterflies).

Reptiles

6.5.17 Common and widespread UK reptile species - common lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), grass snake (*Natrix natrix helvetica*) and adder (*Vipera berus*) are protected from killing and injury under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). The onsite habitats are not considered suitable for sand lizard (*Lacerta agilis*) or smooth snake (*Coronella austriaca*), which are protected under both the WCA and the Conservation of Habitats & Species Regulations 2017. All native UK reptile species are also listed as species of principal importance (SPI) under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

6.5.18 The habitat on-site is considered to be of negligible potential for reptiles. The patch of amenity grassland and shrub are unlikely to provide adequate habitats. No further surveys are necessary.

6.5.19 If reptiles are encountered during the construction works, then work should stop and an ecologist contacted for advice.

Birds

6.5.20 Nesting birds and their nests, eggs and chicks are protected from damage or destruction under the Wildlife and Countryside Act 1981 (as amended). Birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) are also protected from disturbance at, on or near a nest.

6.5.21 No bird nests were observed on the buildings or the tree at the time of the survey. However the tree does have the potential to be used as a nesting site. Introduced shrubs in the central area around the tree provides further potential nesting habitats for birds.

6.5.22 No further surveys are necessary at this time, but it is recommended that the tree and introduced shrubs be removed outside the nesting season (March to September inclusive). If this is not possible, then a nesting bird check would be required by a suitably experienced ecologist, at most 48 hours prior to the commencement of the works. Should nests be found nesting on site, the works should stop and an ecologist contacted for advice.

6.5.23 In order to provide an ecological enhancement for birds on the site, it is recommended that bird boxes be incorporated into the design. Two Schwegler 1B nest boxes with 26mm and 32mm holes should be placed on the site at a height of approximately 4-7m in a sheltered north or east-facing direction. Further details on placement and where to purchase the boxes can be found in Appendix 7.

Badgers

6.5.24 Badgers and their setts are afforded protection under the Protection of Badgers Act 1992 (as amended). This legislation includes protection against damage to badger setts and against interference and disturbance of badgers whilst they are occupying a sett.

6.5.25 If any badger setts are discovered within 30m of the site, or badgers are found to be using the site regularly for foraging, then there is potential for the proposed scheme to impact upon this species and an impact avoidance/mitigation strategy should be devised. If any active badger setts are found within the footprint for the proposed works and these cannot be retained and protected, it will be necessary to apply to Natural England for a licence to close said sett(s).

6.5.26 There were no large mammal burrows or badger signs such as latrines, track marks or fur found during the walkover. There is a chance that badgers may access the site from the surrounding area but such instances are only likely to be transitional as it does not offer any foraging opportunities.

6.5.27 No further surveys for badgers are necessary.

Invasive plants

Some plant species are controlled under the Wildlife and Countryside Act 1981 (as amended) (e.g. Japanese knotweed and giant hogweed), making it illegal to plant or cause these plants to grow in the wild. Strict control of the disposal of affected soil and plant material is required.

6.5.28 Giant hogweed (*Heracleum mantegazzianum*) was recorded approximately 980 metres to the north-east in 2014 (most recent record). Japanese knotweed was recorded approximately 1.8km to the north-west in 2013 at the closest.

6.5.29 No invasive plant species were observed during the walkover and as such no further action is needed.

Other legally protected/notable species

6.5.30 All wild mammals receive some protection under the Wild Mammals (Protection) Act 1996. This act includes offenses of crushing and asphyxiation of any wild mammal with intent to inflict unnecessary suffering.

6.5.31 European hedgehogs (*Erinaceus europaeus*) are listed under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC). The UK population has been in decline over recent years. Hedgehogs will commonly be found in urban environments though are unlike to be able to access the site. No further surveys are necessary.

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Websites

Natural England's MAGIC www.magic.defra.gov.uk

Appendix 1: Photographs

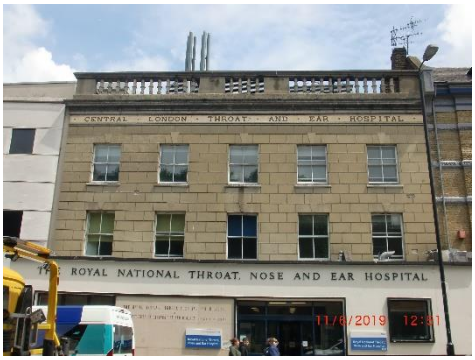

Photo 1: Entrance to main building of B7

Photo 2: Southern elevation of B1.

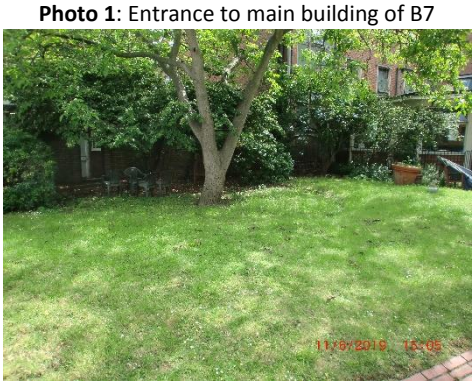

Photo 3: Amenity grassland in centre of site, with walnut tree

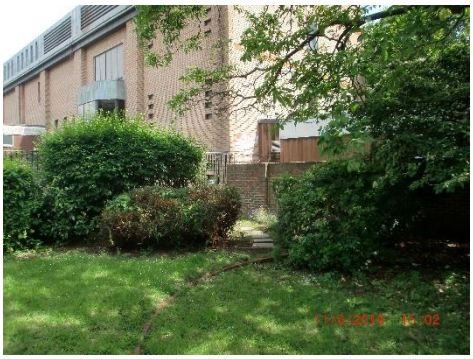

Photo 4: Introduced shrubs to southern margin of amenity grassland.

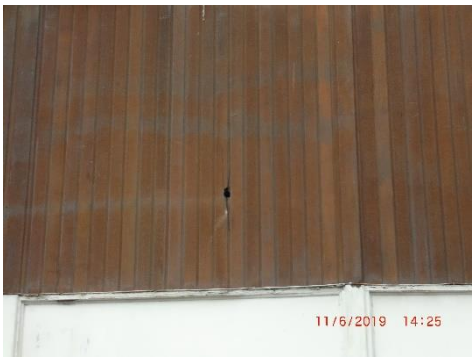

Photo 5: Small hole in northern elevation of B2

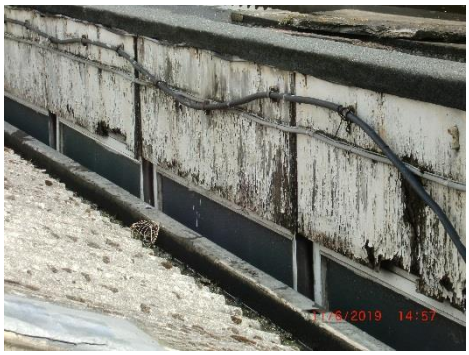

Photo 6: Cracks in wall of B2 (west facing)

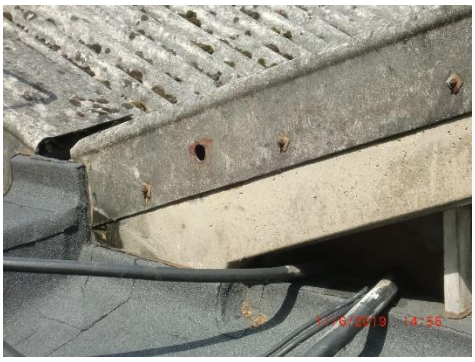

Photo 7: Small hole in edge f roof of B4.

Photo 8: Cavity in walnut tree

Photo 9: Small hole in northern elevation of B2

Appendix 2: Location Plan

Appendix 3: Habitat Plan

Appendix 4: Planning Policy and Biodiversity Legislation

National Planning policy

The UK Post-2010 Biodiversity Framework forms the government response to the 2010 Convention on Biological Diversity, and replaces the UK Biodiversity Action Plan with five internationally agreed strategic goals and targets, including reducing pressures on biodiversity and safeguarding ecosystems, species and genetic diversity. The government's Biodiversity 2020 strategy aims to halt the loss of biodiversity and the degradation of ecosystem services by 2020, to include restoration where feasible. These are used as a guide for decision makers such as local authorities to fulfil their obligations under sections 40 and 41 of the Natural Environment and Rural Communities Act 2006 to have regard to the purpose of conserving biodiversity in carrying out their duties.

The National Planning Policy Framework (NPPF) 2018 states the '*planning system should contribute to and enhance the natural and local environment by...minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures'.* Further, the NPPF states that *'when determining planning applications, local planning authorities should apply the following principles:*

a) *if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
b) *development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
c) *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
d) *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.'*

The NPPF also states that *'the following should be given the same protection as habitats sites:*

a) *potential Special Protection Areas and possible Special Areas of Conservation;*
b) *listed or proposed Ramsar sites; and*
c) *sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.'*

Local Planning policy

Camden Local Plan (2017)

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;

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

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.

Ecological Surveys

Our supplementary planning document Camden Planning Guidance on sustainability sets out when the Council will require ecological surveys, the level and scope of detail required and the times in which they should be carried out. These surveys are used to identify important habitat features. It is expected that an ecology scoping survey will be required on all major sites unless the Council has specifically agreed it is not.

Enhancing nature conservation value

On larger schemes where development is considered to place a significant additional demand on natural greenspace, the Council will seek the provision of new natural greenspace within the site. Our Camden Planning Guidance on amenity sets out the size of scheme this relates to and how much greenspace will be sought based on the occupancy of the development. The layout and type of new habitats should take into account the site's role in buffering and connecting nature sites and wildlife corridors. Habitats and wildlife features should be integrated throughout the site, rather than being isolated pockets of nature

Where on-site provision is not possible, the impact should be mitigated through works to create, reinstate or enhance habitats nearby. Enhancements will be secured through the use of planning conditions and where appropriate, planning obligations. Strategic projects will potentially be funded through the Community Infrastructure Levy (CIL).

In many developments, it should be feasible to incorporate biodiversity enhancing measures. These can deliver a wide range of environmental and social benefits. This includes retrofits of existing buildings, subject to impacts on heritage assets and amenity. Potential responses including biodiverse-rich landscaping, sustainable urban drainage systems, 'species features' such as bird and bat boxes, artificial roosts for bats, tree planting and green roofs and walls. The Council will negotiate the provision of biodiverse living roofs in all suitable developments. Front gardens also provide an opportunity to provide soft landscaping (planting) which can improve biodiversity as well as enhancing the character and attractiveness of the area.

Developers and landowners should also give consideration to the need for species to move between different types of habitats. The Council will seek opportunities to secure green corridors as part of developments and through public realm improvements. Areas that could provide these corridors include land adjacent to railway lines and the Regent's Canal, where existing vegetation can be enhanced or new vegetation provided, and sites adjoining existing open spaces.

All enhancement measures, including the provision of natural greenspace, should contribute to the delivery of the BAP and green infrastructure strategies. As highlighted in Policy A2 Open space, the Mayor of London is supporting the development of a multi-functional network of accessible spaces and natural features (the All-London Green Grid).

Statutory and Non-Statutory Designations

Areas of land can be designated to legally protect a number of species and their habitats, as well as landscape and cultural aspects of the countryside. There are a number of different designations that can be applied with varying levels of protection.

Ramsar Wetlands of International Importance

Ramsar sites are of international importance for the quality of their wetland habitats and features. They are designated under the Ramsar Convention, with the first sites designated in 1976. All Ramsar sites in England are also European conservation sites and protected through the European legislation that protects SACs and SPAs (see below).

Special Areas of Conservation and Special Protection Areas

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are of European wide importance and strictly protected sites under the Conservation of Habitats and Species Regulations 2017. These regulations consolidate all the various amendments made to the Conservation (Natural Habitats etc.) Regulations 1994 (England and Wales). The regulations transpose the Council of the European Communities Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora into national law.

The Conservation of Habitats and Species Regulations 2017 provide for the designation and protection of Natura 2000 sites. The Marine and Coastal Access Act 2009 provides provision for the implementation of the protection of such sites in coastal/marine areas.

Sites of Special Scientific Interest

Sites of Special Scientific Interest (SSSIs) represent the best wildlife and geological sites in the country and are of national importance. SSSIs are protected under the Wildlife and Countryside Act 1981 (as amended).

A list of operations likely to damage the SSSI is provided to the landholder who must get permission from the regulator before carrying out any listed activity. Operations/developments adjacent to the SSSI can also have a negative impact and may also require permission from the regulator before being carried out. Natural England's online mapping tool: MAGIC.gov.uk provides *SSSI Impact Risk Zones* and lists types of developments within the *Impact Risk Zones* that could have an impact upon adjacent SSSIs.

Areas of Outstanding Natural Beauty

An Area of Outstanding Natural Beauty (AONB) is a precious landscape with distinctive character and natural beauty. There are 36 AONBs in England protected by the National Parks and Access to the Countryside Act of 1949.

AONBs often include flora and fauna of high quality and interest, as well as historical and cultural associations and scenic views.

National Nature Reserves

Sections 16-29 of the National Parks and Access to the Countryside Act 1949 in England establish National Nature Reserves, provisions strengthened by the Wildlife and Countryside Act 1981 (as amended).

A National Nature Reserve (NNR) is an area which is one of the best examples of a particular type of habitat/s. These areas are of national importance for conservation and are given strict protection against damaging operations. Any damaging operations which need to be carried out must be authorised by the designating body.

These protected areas also have strong protection against development on and around it.

Local Nature Reserves

Local Nature Reserves are statutory designations made under Section 21 of the National Parks and Access to the Countryside Act 1949, and amended by Schedule 11 of the Natural Environment and Rural Communities Act 2006, by principal local authorities.

To qualify as a Local Nature Reserve, the site must be of importance for wildlife, geology, education or public enjoyment.

Local Nature Reserves (LNRs) are of local, but not necessarily national importance and are almost always owned by local authorities with good public access and facilities.

LNRs can be given protection against damaging operations, and has protection against development on and around it. Protection to the sites are usually through the Local Plan (produced by the planning authority), and are often supplemented by local by-laws.

The level and type of protection afforded to the LNR is decided locally and varies from site to site.

Local Non-Statutory Designations

The Local Planning Authority for any given area can designate certain areas as of being of local conservation interest. This is the lowest tier of conservation designation and the level of protection provided varies from area to area.

The Local Plan designates a certain level of protection for such areas in the planning process, giving limited protection against developments of certain types.

The name for locally designated sites varies from area to area. One name for such a designation is: a Site of Importance for Nature Conservation (SINC).

Protected Species Legislation

The Wildlife and Countryside Act 1981 (as amended), the Conservation of Habitats & Species Regulations 2017 and the Protection of Badgers Act 1992 (as amended) confer various degrees of legal protection on species including bats, reptiles, great crested newts, otters, dormice, water voles, badgers and birds. (A full list of protected species and their specific legal protection is provided within the schedules of the legislation.) This legal protection overrides all planning decisions.

The level of protection afforded to protected species varies dependent on the associated legislation.

In general, European Protected Species (EPS) (e.g. bats, great crested newt, dormice and otter) are afforded the highest level of protection. Any person who deliberately captures, injures or kills an EPS, deliberately disturbs an EPS or who damages or destroys a breeding site or resting place is guilty of an offence. Furthermore, any person who intentionally or recklessly disturbs an animal whilst it is occupying a structure / place used for shelter / protection and who obstructs access to any structure or place that an animal uses for shelter or protection is also guilty of an offence.

The level of protection afforded to species listed on the Wildlife and Countryside Act 1981 (as amended) varies considerably. 'Fully protected species,' such as water vole, are afforded the highest level of protection. Any person who intentionally kills, injures, or takes 'fully protected species,' or who intentionally or recklessly damages or destroys a structure or place used for shelter / protection, disturbs the animal whilst occupying a structure / place used for shelter and protection or obstructs access to any structure / place used for shelter or protection is likely to have committed an offence. Other species, such as common reptiles, are afforded less protection and for these species it may only be an offence to intentionally or recklessly kill or injure animals. All active bird nests, eggs and young are protected from destruction and Schedule 1 listed birds are also protected from disturbance whilst breeding.

Under certain circumstances licences can be granted by the Statutory Nature Conservation Organisation (Natural England in England) to permit actions that would otherwise be unlawful under The Wildlife and Countryside Act 1981 (as amended), the Conservation of Habitats & Species Regulations 2017 and the Protection of Badgers Act 1992 (as amended).

In addition to the above legislation, the Wild Mammals (Protection) Act (1996) provides protection for all wild mammals from certain cruel acts including crushing and asphyxiation, which can have relevance for methods employed during site clearance works.

Further, there is a requirement for local planning authorities to consider Species (and Habitats) of Principal Importance listed under Section 41 of the Natural Environment and Rural Communities Act 2006 when making planning decisions.

Appendix 5: Survey Calendar

Appendix 6: Native Planting Options

Trees and Shrubs

All of the plants recommended below are of recognized benefit to wildlife. This may be via the production of nectar for insects, berries and seeds for birds and mammals, foliage to support a range of insects, early flowering to provide an early source of nectar for insects, or provision of nesting, roosting and overwintering cover for a range of wildlife.

Climbers

Walls and fences provide a surface upon which a variety of plants can thrive, and provide alternative habitat for roosting, nesting and feeding. The species highlighted below are native or recommended by wildlife organizations. Some are evergreen, and will cover an unsightly wall or fence, softening the appearance of a new development.

Wildflowers

Native wildflower mixes (if applicable) can also provide a large number of additional species and can be found for a variety of meadow soils as well as woodland glades, woodland edges, hedgerows and ponds. The species listed in such mixes can also be used separately within any planting scheme. Removing the topsoil in fertile areas or over time regular mowing and removal grass cuttings reduces the vigour of grasses that compete with wildflowers. Always leave an area of grassland unmown preferably one third in a rotational cut to provide for wildlife.

NATIVE TREES	
Acer campestre	Field maple
Alnus glutinosa	Alder
Betula pendula	Silver birch
Betula pubescens	Downy birch
Buxus sempervirens	Box
Calluna vulgaris	Heather
Castanea sativa	Sweet chestnut
Carpinus betulus	Hornbeam
Chaenomeles spp.	Quince
Cornus sanguinea	Dogwood
Corylus avellana	Hazel
Crataegus monogyna	Hawthorn
Crataegus oxyacantha	Midland hawthorn
Cytisus scoparius	Broom
Erica cinerea	Bell heather
Erica tetralix	Cross leaved heather
Euonymus europaeus	Spindle
Fagus sylvatica	Beech
Frangula alnus	Alder buckthorn
Hypericum androsaemum	Tutsan
Hypericum calycinum	St John's Wort
Ilex aquifolium	Holly
Juniperus communis	Juniper
Larix decidua	European Larch
Ligustrum vulgare	Privet
Malus domestica	Apple
Pinus sylvestris	Scots pine
Populus alba	White poplar
Populus nigra	Black poplar
Potentilla fruticosa	Shrubby cinquefoil
Prunus avium	Wild cherry
Prunus domestica	Wild plum
Prunus padas	Bird cherry
Prunus spinosa	Blackthorn
Pyrus communis	Pear
Pyrus pyraster	Wild pear
Quercus spp	Oaks
Rosa arvensis	Field rose
Rosa rubiginosa	Sweet briar
Rosa spinosissima	Burnet rose
Rhamnus catharticus	Buckthorn
Rubus idaeus	Raspberry
Salix caprea, S.cinerea, S.fragilis, S.pentandra	Willows
Sambucus nigra	Elder
Sorbus aucuparia	Rowan
Sorbus aria	Whitebeam
Sorbus torminalis	Wild Service Tree
Taxus baccata	Yew
Tilia europaea	Lime
Ulex europaeus	Gorse
Ulmus procera	English Elm
Viburnum opulus	Guelder Rose

NATIVE CLIMBERS	
Hedera helix	Ivy
Lonicera periclymenum	Honeysuckle

Native Wildflowers	
Wet & Damp Areas	
Fritillaria meleagris	Fritillary
Caltha palustris	Marsh marigold
Cardamine pratensis	Lady's smock
Lychnis flos-cuculi	Ragged robin
Lotus pedunculatus	Greater birdsfoot trefoil
Succisa pratensis	Devils bit scabious
Hypericum perforatum	Perforate St John's Wort
Heavy Clay Soils	
Leontodon hispidus	Rough hawkbit
Rumex acetosa	Common sorrel
Geranium pratense	Meadow cranesbill
Centaurea nigra	Common knapweed
Centaurea scabiosa	Greater knapweed
Ononis spinosa	Spiny restharrow
Moist Soils	
Lotus corniculatus	Common birdsfoot trefoil
Ajuga reptans	Bugle
Sanguisorba minor	Salad burnet
Ranunculus acris	Meadow buttercup
Silene latifolia	White campion
Trifolium pratense	Red clover
Primula veris	Cowslip
Leucanthemum vulgare	Oxeye daisy
Medicago lupulina	Black medick
Rhinanthus minor	Yellow rattle
Anthyllis vulneraria	Kidney vetch
Galium verum	Lady's bedstraw
Daucus carota	Wild carrot
Knautia arvensis	Field scabious
Prunella vulgaris	Selfheal
Vicia cracca	Tufted vetch
Lathyrus pratensis	Meadow vetchling
Achillea millefolium	Yarrow
Light Sandy Soils	
Myosotis arvensis	Field forget-me-not
Trifolium dubium	Lesser trefoil
Campanula rotundifolia	Harebell
Hypericum perforatum	Perforate St Johns Wort
	= Early Flowering
	= Late Flowering

Appendix 7: Nesting Provision for Birds

Birds

Nest boxes can be free standing (placed on buildings or trees) or integrated into the brickwork of buildings. If purchased as free standing, nest boxes should be made from woodcrete because this experiences less temperature fluctuations than wood and is longer lasting. Usually integrated boxes can be matched to rest of the brickwork of a building.

Place nest boxes between 2.5 and 5.5m from ground level, although heights vary between species and this should be checked prior to placement. The higher end of the height range should be chosen where cats may be a risk to chicks or adult birds at the nest. Nest boxes must be in a cool, secluded location, out of reach of cats. The boxes should be sited between north and east facing. Exposed/windy locations are to be avoided. Boxes should not be illuminated so siting them near street lights should be avoided. Following the lighting advice for bats in Appendix 8 will also benefit nesting birds. If boxes are stand-alone, they should be tilted down slightly to reduce issues with driving rain. The boxes should also be sited near vegetation to encourage use by birds.

Species	Special Features Required	Example Photos	Potential Sources
Starling	Entrance hole of 45mm diameter		Free standing: • CJ Wildlife: Birdfood.co.uk *e.g.* WoodStone® Starling Nest Box Integrated: • NHBS: Ecosurv Ecological Consultants – Starling Box – Smooth Brick • Birdbrickhouses.co.uk
House Sparrow	Should be sited in loose colonies of two-three boxes in close proximity. Entrance hole of 32mm diameter. Should not be sited near nest boxes for other bird species.		Free standing: • CJ Wildlife: Birdfood.co.uk: WoodStone® Estella House Sparrow Nest Box Integrated: • Birdbrickhouses.co.uk • Woodstone Build-in Swift Nest Box.
Swift	Need to be sited in colonies. Needs to be 6-7m above ground level in the eaves of a building.		Integrated boxes: • Birdbrickhouses.co.uk • NHBS: 17a Schwegler Swift Nest Box Triple Cavity; 16 Schwegler Swift Box; Woodstone Build-in Swift Nest Box.
Black Redstart	Open fronted nest boxes are suitable for this bird and ideally should be near water and brownfield habitats/green/brown roofs.		Integrated boxes: • Birdbrickhouses.co.uk • NHBS: Woodstone Build-in Open Nest Box Free standing: • NHBS: 1N Schwegler Deep Nest Box

NB: DF Clark Bionomique Ltd does not endorse the content of any of the websites listed and relevant checks should be made to ensure that the products supplied, meet the requirements outlined in this document. Photographs were sourced from the listed vendors.

Appendix 8:Lighting for Bats

Lighting Recommendations

Most bat species find artificial lighting very disturbing as they are adapted to low light conditions (Gunnell *et al.,* 2012). To avoid increasing predation risk and loss of suitable roosting, foraging and commuting habitats for bats, both on and immediately adjacent to the site, consider the following lighting recommendations (Gunnell *et al.,* 2012; Bat Conservation Trust, 2018):

- Reduce light intensity as far as possible. Light levels post-development should be considered in the context of light levels pre-development. Use the minimum amount of lighting for safety and minimise light spill. Eliminate bare bulbs and upward pointing light. It is recommended that artificial lighting does not directly illuminate any features or habitats of value to foraging bats such as hedgerows or treelines, waterbodies etc. Bat roosting sites should not be lit.

- Where appropriate, use lighting design software and professional lighting designers to predict light spill. Post-installation checks ensure the lighting installation is in accordance with the design and predictions were accurate, and mitigations successful.

- Limit the height of lighting columns. Occasionally a higher lighting column may be preferred to reduce horizontal spill or number of columns required.

- Use as steep a downward angle of light as possible and/or use a shield, hood, cowl, louvre that directs the light below the horizontal plane. Avoid lighting above 90° and 100° (*e.g.* with horizontal cut off units) and keep ideally under 70° above the horizontal. Directional accessories can be installed post-installation as a last resort to reduce light spill.

- Planting (e.g. hedgerows/trees) can minimise light spill, or man-made features can block light from certain directions. The effectiveness will depend on pre-development light surveys/modelling to understand the extent and level of light around the site. Use temporary close boarded fencing until vegetation matures to shield sensitive areas from lighting.

- Limit the times lights are on to provide dark periods using modern lighting control methods e.g. during peak bat activity periods (0 to 1.5 hours after sunset and 1.5 hours before sunrise) where this does not conflict with health and safety and security requirements.

- Use narrow spectrum light sources to lower the range of species affected by lighting and light sources should emit minimal ultra-violet (UV) light. Metal halide or mercury light sources emit high UV light. Low pressure sodium lights are a preferred option to high pressure sodium or mercury lamps.

- Avoid white and blue wavelengths. Warm-white wavelength lights are a good alternative (ideally <2700Kelvin). White LED lights do not emit UV but can affect bats. LED lamps allow for directional lighting and most luminaires are full cut-off. Lights should peak at over 550nm or use glass lantern covers to filter UV light. Further, altering the spacing between luminaires can allow for dark areas and reduce the impacts on bats.

- Lighting required for security/safety should use sensor activated lamps of no more than 2000 lumens (150 Watts). Low wattage lamps are preferable (<70W). '*Variable aim'* luminaires can allow the angle of the beam to be altered to reduce impacts. Security lighting should be set on motion sensors and short (1 minute) timers.

- Lighting for pedestrians should be low level, directional and below 3 lux at ground level (preferably below 1 lux).

- Glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and features. Where windows and glass facades etc. cannot be avoided, low transmission glazing treatments may be suitable to achieve reduced illuminance targets. Products available include: retrofit window films and factory tinted glazing. 'Smart glass' can be set to automatically obscure on a timer during the hours of darkness, and automatic blinds can also be used.

- Use asymmetric beam floodlights, orientated so the glass is parallel to the ground to avoid horizontal spill. See http://www.nationaltrust.org.uk/main/w-bat05_events.pdf for further information.