

Leopard UK Kensington PropCo Ltd
**Heythrop College– Kensington
Square, London**
Ecological Appraisal

R03 | 24 August 2018

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Executive Summary

The purpose of the report is to provide an ecological appraisal for the proposed development at Heythrop College, Kensington Square, London W8 5HN.

The following surveys have been completed; an extended Phase 1 habitat survey (conducted on 6 October 2017, as well as an ecological data search for information on statutory and non-statutory designated sites and protected species records held by Greenspace Information for Greater London (GiGL) and the London Bat Group); a preliminary bat roost assessment of buildings and trees; automated/static bat surveys and internal inspections of two underground structures during the periods of October 2017-February 2018 and May-June 2018); and dusk emergence and dawn re-entry surveys of buildings in May and June 2018. This report documents the methods, results, and evaluation of these surveys, and the mitigation and enhancement measures proposed.

There are no statutory designated sites within 1km of the site. There are three non-statutory designated sites within 1km of the site, these are sufficiently isolated from the site that any direct or indirect impacts are unlikely.

The site comprises areas of mown amenity grassland, buildings and hard standing, introduced shrub, and a small ornamental pond. The habitats are common and contain widespread or introduced species. They are of low ecological value and not considered to be of importance to protected or notable species, although there are large mature broad-leaved trees on site which are of local ecological value. Invasive species, Japanese knotweed *Fallopia japonica* and a cotoneaster sp., were recorded across the site. Treatment of the Japanese knotweed commenced in June 2018.

No evidence of bats was recorded during the preliminary bat roost assessment of the buildings, structures and trees on site. Buildings B2, B4, B5, and B6, two grottos, and two trees were assessed as having low potential to support roosting bats and B8 as moderate potential, due to the presence of potential roosting features. No bats were recorded emerging or returning to/from the buildings during the further surveys, and therefore it is concluded that bats are not roosting in the buildings. No bats or evidence of bats was found during the surveys of the trees, the two trees will be retained as part of the development proposals.

In December 2017 the automated/static survey of the two grottos recorded common pipistrelle *Pipistrellus pipistrellus* and Soprano pipistrelle *Pipistrellus pygmaeus* echolocation, indicating the presence of a hibernation roost used by 1-2 bats. Automated/static bat surveys and internal inspections were undertaken in October and November 2017 and January, February, May and June 2018 to characterise the roost. However, no definitive bat echolocation was recorded to suggest bats were using the grottos to roost in during these months. Landscaping and development proposals include the retention of the grotto with the attached underground room. Therefore, the bat roost will be retained. A European Protected Species Mitigation (EPSM) licence will be applied for from Natural England. Further details are provided in Section 4.4.

The vegetation and buildings on site are suitable for nesting birds. Mitigation measures to protect nesting birds are detailed in Section 4.4.

There is a detailed tree mitigation strategy included in the Landscape Report to compensate for the loss of the majority of existing trees. Green spaces within the landscape proposals include vegetated terraces, gardens (including a nature garden and wildlife pond), and green and brown roofs, these will be planted with native species or species of known benefit to wildlife. Ecological enhancement measures included in the design are detailed in Section 4.5.

1 Introduction

1.1 Background

This Ecological Appraisal has been prepared by Ove Arup & Partners Ltd. to accompany applications being submitted by the Applicant, Leopard UK Kensington PropCo Ltd, to the Royal Borough of Kensington and Chelsea (RBKC). This report provides an Ecological Appraisal of the proposed development site, Heythrop College, Kensington Square, London, W8 5HN, centred at approximate OS grid reference TQ257793.

The proposal is for three townhouses, extra care facility including units, communal facilities and service areas, a community hall and on-site affordable housing.

1.2 Site Description

The site forms the south-western edge of Kensington Square and comprises a series of buildings which developed over time. The existing buildings largely form two parts to the site – north and south – separated by open space between.

The buildings on the northern portion of the site include 23 Kensington Square which was originally constructed as two townhouses between 1837 and 1839; a connected ‘college’ building which was constructed between 1859 and 1870; a series of later connected buildings and extensions constructed up to 1956; and 24 Kensington Square which was originally constructed as a townhouse in 1790. 23 Kensington Square, the connected ‘college’ building and 24 Kensington Square are Grade II Listed buildings, with the exception of the later extensions to the west of the connected ‘college’ building. The buildings on the northern part of the site have been extended and altered over time including heavy alterations to 24 Kensington Square and a range constructed in the 1920s to connect 23 Kensington Square to the adjoining ‘college’ building.

The buildings on the southern portion of the site range in height including two and three storeys (along South End, adjoining the terraces along South End Row and adjoining the railway line), and also up to nine storeys along the railway line. These buildings range in appearance and character, including poor quality mid-20th century buildings adjacent to the railway line.

The site is predominantly occupied by Heythrop College (part of the University of London) which is a theology and philosophy college. Heythrop College comprises teaching facilities, student accommodation (approximately 110 bed spaces), academic offices, libraries, study space, conference rooms and support facilities such as common rooms, kitchen, dining room and social space.

Due to falling student numbers, Heythrop College will vacate the site in October 2018. As a result of the planned closure, Heythrop College has been letting a small proportion of floorspace to Fordham College for education purposes (including teaching, student accommodation and conference space). There are two

additional occupiers of the site including the Dyslexia Training Centre and Counselling in Companies.

1.3 Ecological Context

Heythrop College is in central London c.200m south of Kensington High Street. It fronts on to Kensington Square to the north, the London Underground Circle and District Lines immediately to the west, and residential three to four story terraces to the south and east. The surrounding landscape is urban, with poor habitat connectivity to surrounding parks. However, Kensington Square Gardens is immediately north-east of the site, with Kensington Gardens and Hyde Park c.335m north-east and Holland Park c.510m north-west.

The Proposed Location Plan (Kohn Pedersen Fox Associates (KPF), which includes the red line boundary of the area surveyed in this report is shown in Appendix A.

1.4 Proposed Development

The proposed development includes the reinstatement of three townhouses on Kensington Square (currently known as part of 23 and 24 Kensington Square); refurbishment of the existing college building (currently known as part of 23 Kensington Square) and use as extra care. Demolition of all other buildings on the site. Erection of a deck over the adjacent London Underground line and construction of buildings for use as extra care including units, communal facilities and services areas, community hall and on-site affordable housing. These proposals include associated access, parking, servicing and landscaping proposals.

1.5 Scope of Survey

The purpose of this report is to:

- Identify key ecological constraints to the proposed development;
- Report on results of the bat surveys; and
- Provide recommendations and enhancement opportunities.

This report has been prepared with reference to current guidelines for Preliminary Ecological Appraisals (PEA) (CIEEM, 2017)¹ and in accordance with BS42020:2013: Biodiversity – Code of Practice for Planning and Development (BSI, 2013)².

¹ Chartered Institute of Ecology and Environmental Management (CIEEM) (2013); 'Guidelines for Preliminary Ecological Appraisal.' Available from: <https://www.cieem.net/guidance-on-preliminary-ecological-appraisal-gpea->

² British Standards Institute (BSI), (2013). 'BS42020 - Biodiversity Code of Practice for Planning and Development.' BSI, London.

2 Methodology

2.1 Desk Study

An ecological data search was undertaken in October 2017 for information on statutory and non-statutory designated sites and protected species records held by Greenspace Information for Greater London (GiGL), as well as a data search for information on bat records held by the London Bat Group. The data searches were centred on the site and covered a radius of 1km. Only records of protected and notable species dated from within the last ten years were considered in the baseline review. Records older than ten years are no longer considered to be representative of the status of biodiversity in the local area, due to the changes in habitats over time and resulting changes in species distribution.

Additional information on statutory designated nature conservation sites was obtained from the government's MAGIC website³.

2.2 Planning Policy Review

A number of relevant planning policies and guidance relating to ecology and biodiversity are set out within the following documents and were reviewed in relation to the proposed development:

- National Planning Policy Framework (NPPF)⁴;
- ODPM Circular 06/2005 (Defra Circular 01/2005)⁵;
- The London Plan 2016⁶;
- The London Plan (draft 2017)⁷;
- Royal Borough of Kensington and Chelsea Consolidated Local Plan⁸; and
- Westminster Local Biodiversity Action Plan⁹.

Relevant legislation was also reviewed and is outlined in Appendix E.

³ Natural England, (2013); 'Magic'. Available at: <http://magic.defra.gov.uk/>.

⁴ Ministry of Housing, Communities and Local Government (2018) National Planning Policy Framework. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

⁵ ODPM (2005) Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact with the Planning System. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf

⁶ Available at: <https://www.london.gov.uk/what-we-do/planning/london-plan/current-london-plan>

⁷ Greater London Authority (2017) The Draft London Plan, The Spatial Development Strategy for Greater London. Draft for Public Consultation. Greater London Authority, London.

⁸ Royal Borough of Kensington and Chelsea Consolidated Local Plan (2015). Available at: <https://www.rbkc.gov.uk/planning-and-building-control/planning-policy/local-plan/local-plan>

⁹ Westminster Local Biodiversity Action Plan. Available at: <https://www.westminster.gov.uk/biodiversity-action-plan>

2.3 Field Survey

2.3.1 Preliminary Ecological Appraisal

A PEA, comprising a Phase 1 Habitat Survey and protected species assessment, was undertaken following standard methods as described in the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2012¹⁰) and the Phase 1 Habitat Survey Methodology (JNCC, 2010¹¹).

The Phase 1 habitat survey and protected species assessment was conducted by Arup ecologists Tanith Cook and Rob Selwyn on 6 October 2017. Tanith is a Senior Consultant Ecologist with over nine years' experience, she is a Chartered Ecologist (CEcol) and Full Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Rob is a Consultant Ecologist with over one years' industry experience following the completion of an MSc from UCL. The walkover survey included:

- mapping of the habitats present on site and recording characteristic plant species, with target notes to identify particular areas of interest or concern (see Appendix B: Phase 1 Habitat Survey Map);
- assessment of features which have the potential to support protected and/or notable species; and
- search for non-native invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Weather conditions during the site visit were fine, the temperature 15°C, no precipitation, light breeze and clear skies.

2.3.2 Preliminary Bat Roost Assessment – Buildings and Trees

The site was evaluated for its suitability to support foraging, commuting and roosting bats. All trees, eight buildings and two underground structures (described as grottos) on site were assessed, in accordance with the Bat Conservation Trust's *Bat Surveys for Professional Ecologists, Good Practice Guidelines* (see Table 1)¹² by Tanith Cook and Rob Selwyn on 6 October 2017. Tanith holds a Class 2 Natural England licence allowing the disturbance of bats for the purposes of survey in all counties of England (Licence Reference Number 2015-13052-CLS-CLS) and has over nine years' experience of undertaking bat surveys. The location plan for each building, grotto and trees is provided in Appendix C,

The preliminary roost assessment of the buildings involved an external inspection from the ground to look for features that bats could use for entry/exit and roosting,

¹⁰ Chartered Institute of Ecology and Environmental Management (CIEEM) (2012) Guidelines for Preliminary Ecological Assessment Technical Guidance Series. Available from: <http://www.cieem.net/guidance-on-preliminary-ecological-appraisal-gpea>;

¹¹ JNCC (2010) *Handbook for Phase 1 Habitat Survey*. Joint Nature Conservation Committee, Peterborough.

¹² Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists; Good Practice Guidelines* (3rd Edn). The Bat Conservation Trust, London.

and to search for signs of bats. The search covered potential roosting features (PRFs) and areas where bat droppings may collect such as windowsills, window panes, hanging tiles, eaves, soffit boxes, fascias/ barge boards, lead flashing, under tiles, and gaps in brick work (this list is not exhaustive).

The two underground type structures (grottos) were accessed and inspected internally.

A ground-level tree assessment for bats was also undertaken. Trees were inspected from ground-level to assess their potential to support roosting bats. Tree-features suitable for bats include:

- loose, flaking or folding bark;
- cracks and fissures in limbs, and
- holes bored by woodpeckers, or any downward facing crevice or hole in the limbs or trunk.

Signs indicating possible use by bats include;

- scratches and staining around an entry point;
- bat droppings in, around or below an entry point;
- squeaking noises;
- flies around an entry point;
- a distinctive smell of bats, and
- smoothing of surfaces around a cavity.

The inspections were facilitated by the use of binoculars and a high powered torch.

Table 1: Classification criteria for bat roosting potential (adapted from Bat Conservation Trust's Bat Surveys for Professional Ecologists, Good Practice Guidelines).

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.

Suitability	Description Roosting habitats	Commuting and foraging habitats
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree lined watercourses and grazed parkland. Site is close to and connected to known roosts.

2.3.3 Further Bat Surveys – Tree Cavities and Bat Box

The preliminary bat roost assessment identified one tree with a bat box and one tree with a PRF. Further detailed inspections were completed as follows:

- A bat box on a London Plane *Platanus × acerifolia* (T9, Appendix C, Photograph 22, Appendix D), was inspected for bats and evidence of bats.
- A large cavity in a London Plane *Platanus × acerifolia* (T3, see Appendix C), was also inspected for bats and evidence of bats (Photograph 21, Appendix D).

The inspection was completed by Gemma Turner on 16 November 2017. A ladder and endoscope was used.

2.3.4 Bat Automated/Static Survey and Internal Inspection of the Grottos

The preliminary bat roost assessment identified two grottos with low potential to support roosting bats, their location is marked in Appendix C. To determine the presence or absence of bats and the need for further survey or mitigation, static bat detectors (two Batlogger A+s) were initially deployed in each grotto in October, November and December 2017 over a minimum of five consecutive nights as shown in Table 3. BatExplorer sound analysis software was used to analyse calls recorded. Due to the recording of bat echolocation in December 2017, additional bat automated/static surveys were undertaken in January and February 2018 to

further characterise the presence of the hibernation roost (for example the potential numbers of bats, species confirmations and time of use by bats). Batlogger A+ detectors were placed inside each grotto, with one SM2BAT+ inside the underground room and an additional SM2BAT+ in US2 as shown in Table 2.

In order to further characterise the roost and determine whether the grottos are used during the summer, an additional two bat static/automated surveys were undertaken in May and June 2018 for both grottos.

Internal inspections of the grottos were also completed on deploying and collecting the static detectors to look for bats and or evidence of bats. The underground room attached to US1 was inspected on one occasion on 11 January 2018 (see Section 2.4 Limitations).

Table 2: Bat automated/static survey and internal inspection dates

Dates deployed and collected	Static detector recording dates	Internal inspection and date and personnel
20-26 October 2017	US1: Stopped recording on 25/10/17 at 03:51 US2: Stopped recording on 25/10/17 at 04:46	20 October 2017 by Tanith Cook
16-21 November 2017	US1: Stopped recording on 21/11/17 at 02:01 US2: Stopped recording on 21/11/17 at 02:19	16 November 2017 by Gemma Turner*
6-11 December 2017	US1: Stopped recording on 09/12/17** at 21:05 US2: Stopped recording on 09/12/17 at 21:44	11 December 2017 by Tanith Cook
5-11 January 2018***	Batlogger A+: US1: Stopped recording on 09/01/18 at 22:13 US2: Stopped recording on 09/01/18 at 18:00 SM2BAT+: US1 underground room: Stopped recording on 11/01/18 at 08:05 US2: Stopped recording on 06/01/18 at 08:05	5 and 11 January 2018 by Tanith Cook & Rob Selwyn****
20-25 February 2018*****	Batlogger A+: US1: Stopped recording on 25/02/18 at 04:34 US2: Stopped recording on 25/02/18 at 06:51 SM2BAT+: US1 underground room: Stopped recording on 05/03/18 at 03:59 US2: Stopped recording on 02/03/18 at 23:50	20 February 2018 and 6 March 2018 by Tanith Cook

8-15 May	US1: Stopped recording on 15/05/18 at 05:00 US2: Stopped recording on 15/05/18 at 04:27	8 May 2018 by Tanith Cook
20-29 June 2018	US1: Stopped recording on 29/06/18 at 23:57 US2: Stopped recording on 29/06/18 at 23:24	2 July 2018 by Tanith Cook

* Gemma Turner holds a Class 2 Natural England bat licence with over eight years' experience.

* Gemma Turner holds a Class 2 Natural England bat licence with over eight years' experience.

** Due to the length of battery power, the detector stopped recording on the fourth night

*** The minimum temperature during this hibernation period was -1°C and the maximum was 10°C

**** The 11 January 2018 internal inspection extended into the underground room attached to US1

***** The minimum temperature during this hibernation period was -3°C and the maximum was 9°C

2.3.5 Bat Dusk Emergence and Dawn Re-entry Surveys

The preliminary bat roost assessment identified several buildings with low potential to support roosting bats, and one building with moderate potential to support roosting bats (see section 3.4.1), their location is marked in Appendix C. To determine the presence or absence of bats and the need for further survey or mitigation, a single dusk emergence survey was undertaken of those buildings identified with low potential in May 2018, and a dusk emergence and dawn re-entry survey was undertaken on the building identified with moderate potential in May and June 2018, respectively. Dates and times are shown in Table 3. Buildings assessed as having negligible potential do not require further survey.

Surveyors were positioned around the buildings in order to survey and record bat activity in and around PRFs. The dusk emergence surveys started 15 minutes before sunset and finished 1.5 hours after sunset. The dawn re-entry survey started 1.5 hours before sunrise and finished at sunrise. The surveys followed the Bat Conservation Trust's (2016) *Bat Surveys for Professional Ecologists, Good Practice Guidelines*.

Table 3: Bat dusk emergence and dawn re-entry survey dates

Month	Building and surveyor numbers	Survey start/end time	Weather conditions
8 May 2018	B6, B8 – 4 surveyors	Sunset at 20:37: survey start at 20:20; survey end at 22:07	Temperature 21.9°C; dry and calm with 100% cloud cover.
9 May 2018	B2, B4, B5 – 4 surveyors	Sunset at 20:35: survey start at 20:20; survey end at 22:05	Temperature 20.1°C; dry and calm with 0% cloud cover.
7 June 2018	B8 – 3 surveyors	Sunrise 04:46: Survey start at 02:55; survey end at 04:46	Temperature 18 °C; dry, light breeze and little cloud cover.

2.4 Limitations

One grotto (Underground Structure 1 as shown in Appendix C) has an underground room attached to it, with access only possible through a hole in the wall. The underground room attached to US1 was inspected on one occasion on 11 January 2018; however, upon the re-classification of the room as a ‘confined space’, no further internal inspections were carried out. This is a limitation to the survey as there is potentially evidence of bats or bats themselves in the underground room that we cannot confirm absence or presence of. However, a detailed inspection on 11 January 2018 did not find evidence of bats and during May – July 2018, cobwebs were visible across the entrance of the hole in the wall as well as in the room (which could be viewed from US1). Although this does not mean that bats are absent, the presence of extensive cobwebs indicates no bat activity during the surveys. Furthermore, the use of static detectors in US1 and the underground room increased the level of survey effort above that of simply undertaking internal inspections.

Access to the roof voids of the buildings to inspect for bats or evidence of bats was not possible due to the presence of asbestos. However, the dusk emergence and dawn re-entry surveys were considered sufficient and supported by the very low level of bat activity on site.

The Phase 1 habitat survey was undertaken in October 2017, October is considered to be a sub-optimal period for Phase 1 habitat surveys. However, plant species were still in flower and given the urban context, planted and managed nature of the site, this is not considered to be a limiting factor to the survey.

3 Results

3.1 Desk Study

3.1.1 Designated Nature Conservation Sites

There are no statutory designated nature conservation sites within 1km of the site.

There are three non-statutory designated sites within 1km of the site, these are known as Sites of Importance for Nature Conservation (SINC), details of which are included in Table 4.

Table 4: Non-statutory designated nature conservation sites within 1km of the site.

Site name	Reason for designation	Distance and orientation from site
Hyde Park and Kensington Gardens Site Of Metropolitan Importance	The largest open space in central London, these Royal Parks are recognised to support locally significant population of waterfowl, including great crested grebe <i>Podiceps cristatus</i> , pochard <i>Aythya farina</i> and tufted duck <i>Aythya fuligula</i> . Several mature trees, such as sweet chestnuts <i>Castanea sativa</i> support two nationally rare beetle species. Areas of acid grassland and wildflower meadow also support notable plant species such as harebell <i>Campanula rotundifolia</i> , slender trefoil <i>Trifolium micranthum</i> and great pignut <i>Bunium bulbocastanum</i> .	335m North-east
Holland Park Site of Metropolitan Importance	An extensive woodland with several ponds and associated patches of marshy grassland supports a variety of flora, birds, invertebrates and mammals. Breeding birds include tawny owl <i>Strix aluco</i> , coal tit <i>Periparus ater</i> and bullfinch <i>Pyrrhula pyrrhula</i> , while resident mammals include bank vole <i>Myodes glareolus</i> and hedgehog <i>Erinaceinae</i> . Other notable species recorded on the site are purple hairstreak butterfly <i>Neozephyrus quercus</i> , and a number of locally uncommon plants such as St John's wort <i>Hypericum maculatum</i> .	510m West
Natural History Museum Gardens Site of Borough Grade II Importance	A wildlife garden consists of a range of habitats, including open water bodies, in an otherwise densely urban area. It is designed to support breeding birds, mammals such as woodmice <i>Apodemus sylvaticus</i> , grey squirrels <i>Sciurus carolinensis</i> and foxes <i>Vulpes vulpes</i> , and a range of invertebrates.	790m South-east

3.1.2 Protected and Notable Species

Table 5 shows the species of potential interest that have been recorded within 1km of the site.

Table 5: Protected and notable species recorded within 1km of the site.

Common name	Latin name	Designation and status*	Within 100m	Within 1km
Amphibians				
Common toad	<i>Bufo bufo</i>	WCA5_9.5a Priority species	X	
Birds				
Brambling	<i>Fringilla montifringilla</i>	WCA1.1	X	
Fieldfare	<i>Turdus pilaris</i>	WCA1.1	X	
Firecrest	<i>Regulus ignicapilla</i>	WCA1.1	X	
Mediterranean gull	<i>Larus melanocephalus</i>	Habitat Regs WCA1.1	X	
Peregrine	<i>Falco peregrinus</i>	Habitat Regs WCA1.1		X
Redwing	<i>Turdus iliacus</i>	WCA1.1	X	
Scaup	<i>Aythya marila</i>	WCA1.1 Priority species	X	
Skylark	<i>Alauda arvensis</i>	Priority species	X	
Turtle dove	<i>Treptopelia turtur</i>	Priority species		X
Yellow wagtail	<i>Motacilla flava</i>	Priority species		X
Invertebrates				
August Thorn moth	<i>Ennomos quercinaria</i>	Priority species	X	
Dot moth	<i>Melanchra persicariae</i>	Priority species	X	
Dusky Brocade moth	<i>Apamea remissa</i>	Priority species	X	
Dusky-lemon Sallow moth	<i>Cirrhia gilvago</i>	Priority species	X	
Figure of Eight moth	<i>Diloba caeruleocephala</i>	Priority species	X	
Knot Grass moth	<i>Acrionicta rumicis</i>	Priority species	X	
Rustic moth	<i>Hoplodrina blanda</i>	Priority species	X	
Shoulder-Striped Wainscot moth	<i>Leucania comma</i>	Priority species	X	
Silky Wave moth	<i>Idaea dilutaria</i>	Priority species	X	
Small Square-Spot moth	<i>Diarsia rubi</i>	Priority species	X	
Small Heath butterfly	<i>Coenonympha pamphilus</i>	Priority species	X	
Stag beetle	<i>Lucanus cervus</i>	Habitat Regs Priority species	X	
Streak moth	<i>Chesias legatella</i>	Priority species	X	
White Ermine moth	<i>Spilosoma lubricipeda</i>	Priority species	X	
Bats				
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Habitat Regs WCA5_9.4b&c Priority species	X	
Nathusius's pipistrelle	<i>Pipistrellus nathusii</i>	Habitat Regs WCA5_9.4b&c	X	

		Priority species		
Noctule	<i>Nyctalus noctula</i>	Habitat Regs WCA5_9.4b&c Priority species	X	
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Habitat Regs WCA5_9.4b&c Priority species	X	
Flora				
Bluebell	<i>Hyacinthoides non-scripta</i>	WCA8	X	
Juniper	<i>Juniperus communis</i>	Priority species	X	
Starved Wood-Sedge	<i>Carex depauperata</i>	WCA8 Priority species	X	

*'WCA5_9.5': Section 9 under Schedule 5 of The Wildlife and Countryside Act 1981 (as amended); 'WCA1.1': Schedule 1 of The Wildlife and Countryside Act 1981 (as amended); 'WCA5_9.4': Schedule 5 Section 9.4 of the Wildlife & Countryside Act 1981; 'WCA8': Schedule 8 of The Wildlife and Countryside Act 1981 (as amended); 'priority species': under Section 41 (S41) of the 2006 Natural Environment and Rural Communities (NERC) Act, 'Habitat Regs': Conservation of Habitats and Species Regulations.

3.2 Planning Policy

Local Authorities must have regard for the following national planning policies:

- National Planning Policy Framework (NPPF)¹³; and
- ODPM Circular 06/2005¹⁴ (Defra Circular 01/2005).

The National Planning Policy Framework (NPPF) states that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures. The NPPF is implemented at the local level in this instance by RBKC Consolidated Local Plan¹⁵ and going forward into The Draft London Plan¹⁶. RBKC's Policy CE4 requires development proposals to create opportunities, where possible, for attracting biodiversity and habitat creation. The following Draft London Plan policies (amongst others) also support implementation of net gains in biodiversity as part of development, such as Policy G1 states green features in the built environment such as green roofs should be designed and managed as integrated features of green infrastructure and Policy G6

¹³ Ministry of Housing, Communities and Local Government (2018) National Planning Policy Framework. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

¹⁴ ODPM (2005) Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact with the Planning System. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf

¹⁵ Royal Borough of Kensington and Chelsea Consolidated Local Plan (2015). Available at: <https://www.rbkc.gov.uk/planning-and-building-control/planning-policy/local-plan/local-plan>

¹⁶ Greater London Authority (2017) The Draft London Plan, The Spatial Development Strategy for Greater London. Draft for Public Consultation. Greater London Authority, London.

states biodiversity enhancement should be considered from the start of the development process.

3.2.1 Biodiversity Action Plans

RBKC is a partner in the Westminster Biodiversity Partnership, as a result the habitats and species which are conservation priorities within the borough are listed in the Westminster Local Biodiversity Action Plan¹⁷ (LBAP). The list includes habitats and species of principal importance. Those listed and that are relevant to this assessment include:

- protect, enhance and create opportunities for biodiversity in the built environment;
- protect and enhance biodiversity in private gardens and squares including the retention of existing veteran trees;
- prevent further decline of House Sparrow *Passer domesticus*, and (if possible) reverse the decline in the borough; and
- protect bats and increase species range through habitat management.

3.3 Phase 1 Habitat Survey

3.3.1 Habitats

A Phase 1 habitat map detailing the findings of the habitat survey is shown in Appendix B1. Associated target notes and a botanical species list are provided in Appendix B2 and Appendix B3, respectively. The following habitats (with their relevant habitat codes) were recorded within the proposed development boundary:

- Buildings (J3.6);
- Hard standing (J4);
- Amenity grassland (J1.2);
- Introduced shrub (J1.4);
- Scattered broad-leaved trees (A3.1); and
- Standing water/ponds (G1).

The following sections provide an overview of the habitats recorded on the Site during the survey. Photographs are provided in Appendix D.

3.3.1.1 Buildings

The site is dominated by buildings, which are part of Heythrop College. These include the main college building (Building 8, see Appendix C), St Andrew's Hall (Building 4), the Cottages (Building 5), and on-site student accommodation (Building 1). Two grottos were also identified during the site walkover (see

¹⁷ Westminster Local Biodiversity Action Plan. Available at:
<https://www.westminster.gov.uk/biodiversity-action-plan>

Target Note 4 shown in Appendix B), with one appearing to be linked to an old workshop that has been built over (Photograph 6, Appendix D).

3.3.1.2 Hard standing

There are extensive areas of hard standing within the site (Photograph 5, Appendix D). This consists of a series of tarmacked driveways and vehicle access, as well as a network of gravel pathways around the amenity grassland and introduced shrub of the main courtyard and smaller gardens to the north and south-west of the site (Photograph 1, Appendix D).

3.3.1.3 Amenity grassland

In the centre of the site, two areas of amenity grassland cover the main courtyard. The grassland is species-poor, with species such as Clover *Trifolium sp.*, and Perennial Rye Grass *Lolium perenne*. The grassland is well maintained and closely mown (Photograph 2, Appendix D).

3.3.1.4 Introduced shrub

Introduced shrub borders several buildings, as well as the amenity grassland within the main courtyard. Species include Box *Buxus sp.*, a Cotoneaster species *Cotoneaster sp.*, spotted-laurel *Aucuba japonica*, and Oregon grape *Mahonia aquifolium*. Much within the main courtyard appears managed, but patches in the garden in the north of the site, as well as along the south-west boundary, are more overgrown (Photograph 4 and 13, Appendix D).

3.3.1.5 Scattered broad-leaved trees

Mature broad-leaved trees surround the main courtyard include London plane *Platanus × acerifolia* (Photograph 5, Appendix D), Lime *Tilia sp.*, Sycamore *Acer pseudoplatanus*, Cork Oak *Quercus suber*. Other trees include Crab apple *Malus sylvestris*, Mulberry *Morus sp.*, and Cherry *Prunus sp.*

3.3.1.6 Standing water/ponds

A small ornamental pond is present in the garden in the north of the site. The habitat is well shaded with a paved edge. Species include pondweed *Potamogeton* and water Lily *Nymphaea sp.*

3.3.2 Invasive Plants

Two invasive species listed on Schedule 9 Part 2 of the Wildlife and Countryside Act, 1981 (as amended) were recorded on the site (see Target Notes 1 and 2, Appendix B).

Japanese knotweed *Fallopia japonica* was identified at five separate locations (Photograph 3, Appendix D) (see Target Note 1, Appendix B). The largest of these is a stand along the western boundary of the site, behind the student accommodation block (Building 1). Three saplings were recorded amongst

introduced shrub in the main courtyard, and a further stand in a shingle courtyard north of the main building (Building 8). It is unclear if the plants are currently managed; a return visit to the site when deploying static detectors on 20 October 2017, noted that the northern courtyard saplings identified on 6 October 2017 was no longer present apart from very small shoots.

A Cotoneaster *Cotoneaster* sp. was identified in the garden in the north of the Site as well as in amongst amenity grassland adjacent to the main building (see Target Note 2, Appendix B).

Additionally, within the garden to the north of the site butterfly-bush *Buddleja davadii* was recorded. This is an invasive species as identified by the London Invasive Species Initiative¹⁸, but one which provides a known benefit to many butterfly species. Cotoneaster sp. is also listed by the London Invasive Species Initiative.

3.3.3 Protected and Notable Species

The trees and buildings on site are suitable for nesting birds. Bird droppings were identified down the side of Building 5 (B5)(Photograph 6, Appendix D), which may indicate nesting activity.

During the site walkover, no evidence was identified of reptiles, amphibians and other protected species. Furthermore, the habitats on site are not suitable for these species as they are well managed and do not provide the structural diversity needed. The site is also heavily disturbed and in an isolated location.

3.4 Preliminary Bat Roost Assessment – Buildings and Trees

The site generally lacks connectivity to surrounding foraging and commuting habitat because of its urban location. However, there are small pockets of vegetation and scattered trees such as Kensington Square Gardens, which may provide some connectivity to more suitable areas like Holland Park and Hyde Park. Heythrop College is also well lit from external lighting, which will often deter bats. However, four species of bat (common pipistrelle, *Nathusius pipistrelle*, soprano pipistrelle and noctule) have been recorded within 100m of the site boundary and there is suitable foraging habitat within the grounds of the site, which could be used by these species.

3.4.1 Buildings

All buildings on the site were assessed for their potential to support roosting bats. Each building has been given a number (e.g. B1, B2 etc.) as shown in the figure in Appendix C.

¹⁸ London Invasive Species Initiative Plan. Available at: <http://www.londonisi.org.uk/tackling-inns/lisp/>

- Building 1: a nine-storey student accommodation block and library, constructed of brick (Photograph 7, Appendix D). The building is flat roofed, with mixed cavity and solid walls. No potential roosting features were identified and Building 1 is assessed to have negligible potential to support roosting bats.
- Building 2: a three-storey brick building adjoining the nine-storey student accommodation (Photograph 8, Appendix D). It is flat roofed, with mixed cavity and solid walls. Several weep holes on one elevation provide small gaps, which bats could use for roosting. However, no evidence of bats such as staining or droppings was recorded. Building 2 is assessed to have low potential to support roosting bats.
- Building 3: a one-storey brick building, with patches of vegetation and plastic cladding (Photograph 9, Appendix D) on the north elevation. It is flat roofed with a cavity wall. Weep holes were present above the windows, but on closer inspection they were seen to be superficial gaps and too small to provide a suitable roosting location. No evidence of bats such as staining or droppings were observed. Building 3 is assessed to have negligible potential to support roosting bats.
- Building 4: a two-story building, known as St Andrew's Hall, and used for a dyslexic teaching centre (Photographs 10 & 11, Appendix D). It has a pitched, slate roof and dormers with lead flashing, there is lead flashing instead of ridge tiles, and there are no soffits/barge boards at the eaves. The western pitch of the roof is overall in a good state of repair. However, there are a small number of missing/lifted tiles and gaps under the lead flashing, which may provide potential roosting opportunities for bats. No evidence of bats such as staining or droppings were observed. Building 4 is assessed to have low potential to support roosting bats. Evidence of bird droppings were visible on the north elevation (Photograph 6, Appendix D). It is not possible to view the eastern pitch of the roof (see Photograph 11, Appendix D).
- Building 5: a two-storey brick building, known as the cottages. It is flat roofed, with overhanging decorative clay tiles, which potentially provide small crevices for bats (Photograph 12, Appendix D). No evidence of bats such as staining or droppings were observed. As such, Building 5 is assessed to have low potential to support roosting bats;
- Building 6: a one-storey brick building adjacent to the main college building (Photograph 13, Appendix D). The building has a flat roof covered with bitumen felt. Several weep holes on one elevation provide small cavities, no evidence of bats such as staining or droppings were observed. Building 6 is assessed to have low potential to support roosting bats;
- Building 7: a two-storey brick building adjacent to the main college building (Photograph 14 & 15, Appendix D). The building has a pitched slate roof. No signs of stains or droppings were observed. As such, Building 7 is assessed to have negligible potential to support roosting bats; and
- Building 8: the main college building (Photographs 16 & 17, Appendix D). The building has a pitched, slate tiled roof with clay ridge tiles, and multiple dormers (both pitched and flat roofed), which have lead flashing around.

There are a number of chimneys, which also have lead flashing around the base. Gaps under the lead flashing, and occasional missing/ slipped tiles, and missing mortar beneath the ridge tiles provide small gaps, which could potentially be suitable for roosting bats. As such, Building 8 is assessed to have moderate potential to support roosting bats.

3.4.2 Trees

All the trees were assessed as having negligible potential to support roosting bats, except for two trees (both of which will be retained):

- Tree 3 – a mature London plane *Platanus × acerifolia* tree (T3 within the pre-development tree condition survey prepared by Peter Wilkins Tree Consultancy TSP-01 Rev 01) (Photograph 21, Appendix D). A PRF in the form of a large cavity is present on the eastern most branch c.3.5m from the ground. No stains or droppings were observed when the cavity was inspected from a ladder using an endoscope. However, the full extent of the cavity could not be inspected as the cavity extended beyond the length of the endoscope. The tree has been assessed as having moderate potential to support roosting bats. The proposal is to retain the tree.
- Tree 9 – a mature London plane *Platanus × acerifolia* tree (T9 within the pre-development tree condition survey prepared by Peter Wilkins Tree Consultancy TSP-01 Rev 01) (Photograph 22, Appendix D). A bat box has been installed on the eastern aspect, c.2-3m from the ground. Nearby lighting is directed towards it. No staining or droppings were found when inspected from a ladder. There were also insects and cobwebs around the entrance of the bat box. The proposal is to retain the tree.

3.4.3 Bat Automated/Static Survey and Internal Inspection of the Grottos

Underground Structure (U1) (see Appendix C), is linked by a small window to an abandoned underground workshop (Photograph 18, Appendix D). The entrance to U2 is cluttered and obscured by vegetation (Photograph 19, Appendix D) especially during the summer months (June and July 2018). Internally there are cracks and crevices within and linking both grottos, which are suitable for roosting bats. The cracks and crevices were heavily covered with cobwebs and dust, and full of loose debris which fell out upon inspection when using an endoscope (Photograph 20, Appendix D). No evidence of bats, such as droppings were found stuck on the walls, on the floor or around the crevices during any of the inspections. Furthermore, cobwebs were present across the small window leading into the underground room and throughout the small room (visible with a torch) during the summer site inspections.

Two Batlogger A+ detectors were initially placed inside each grotto in October, November and December 2017 over at least five consecutive nights, the results are shown in Table 6. Raw data and sonogram images are provided in Appendix F. Two species' echolocation, common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*, were recorded by the static detector in

US1 on three occasions and US2 on one occasion in December 2017. No echolocation was recorded in October and November.

Two species' echolocation, common pipistrelle *Pipistrellus pipistrellus* and pipistrelle sp. *Pipistrellus* sp., were recorded by the static detector in US1 on three occasions and US2 on one occasion in May 2018, and in US1 on fourteen occasions and US2 on one occasion in June 2018.

These results are discussed in further detail in Section 4.4.3.

Table 6: Bat automated/static survey results

Month	Bat echolocation recordings US1	Bat echolocation recordings US2
20-26 October 2017	None	None
16-21 November 2017	None	None
6-11 December 2017	05/12/17: Common pipistrelle at 17:54. Temperature 11°C. 05/12/17: Common pipistrelle at 19:44. Temperature 11°C. 06/12/17: Common pipistrelle at 17:19. Temperature 12°C. 08/12/17: Soprano pipistrelle at 17:16, Temperature 8°C. 08/12/17: Soprano pipistrelle at 18:16, Temperature 7°C.	06/12/17: Common pipistrelle at 17:20. Temperature 11°C.
5-11 January 2018	None	None
20-25 February 2018	None	None
8-15 May 2018	11/05/18: Common pipistrelle at 21:15. Temperature 16°C. 14/05/18: Common pipistrelle at 23:29. Temperature 15°C. 15/05/18: Common pipistrelle at 00:13. Temperature 15°C.	10/05/18: Pipistrelle sp. at 02:21. Temperature 16°C.
20-29 June 2018	20/06/18: Common pipistrelle at 22:39. Temperature 19°C. 20/06/18: Common pipistrelle at 23:55. Temperature 19°C.	20/06/18: Common pipistrelle at 23:54. Temperature 19°C.

Month	Bat echolocation recordings US1	Bat echolocation recordings US2
	21/06/18: Common pipistrelle at 04:02. Temperature 17°C.	
	21/06/18: Common pipistrelle at 22:00. Temperature 18°C.	
	21/06/18: Common pipistrelle at 23:48. Temperature 18°C.	
	22/06/18: Common pipistrelle at 23:43. Temperature 18°C.	
	23/06/18: Common pipistrelle at 04:02. Temperature 17°C.	
	24/06/18: Common pipistrelle at 21:55. Temperature 19°C.	
	25/06/18: Common pipistrelle at 04:07. Temperature 19°C.	
	25/06/18: Common pipistrelle at 22:08. Temperature 19°C.	
	28/06/18: Common pipistrelle at 00:11. Temperature 19°C.	
	28/06/18: Common pipistrelle at 22:11. Temperature 20°C.	
	29/06/18: Common pipistrelle at 22:04. Temperature 20°C.	
	29/06/18: Common pipistrelle at 23:24. Temperature 20°C.	

3.4.4 Bat Dusk Emergence and Dawn Re-entry Surveys

Very low levels of bat activity were recorded with two brief bat passes on the 8 May 2018, and one bat pass on both 9 May and 7 June 2018 (Table 7). No evidence of bats emerging or returning to/from the buildings was recorded.

Table 7: Bat dusk emergence and dawn re-entry survey results

Date of survey	Building and surveyor numbers	Bat echolocation recordings and notes	Sunset and sunrise times
8 May 2018	B6 and B8 Four surveyors	Pipistrelle sp. pass at 21.11. Pipistrelle sp. pass at 21.47 Passes were brief, only heard, not seen.	Sunset at 20:37

Date of survey	Building and surveyor numbers	Bat echolocation recordings and notes	Sunset and sunrise times
9 May 2018	B2, B4, B5 Four surveyors	Very brief pipistrelle sp. pass at 21:49. Heard, not seen.	Sunset at 20:35
7 June 2018	B8 Three surveyors	Brief common pipistrelle pass at 03:49. Heard, not seen. Security lighting was on around B8 as well as street lighting. The roof is well lit from neighboring light pollution.	Sunrise at 04:46

4 Evaluation, Mitigation Measures

This section includes mitigation measures to be employed prior to and during construction based on the field assessment, information gleaned from desk study data during the PEA and bat survey results. Ecological enhancement measures, which will be included in the design have also been listed.

4.1 Designated Sites

The three non-statutory designated sites within 1km of the site are sufficiently isolated from the proposed development that any impacts are very unlikely.

4.2 Habitats and Plants

The amenity-grassland, introduced shrubs, hardstanding, buildings, ornamental pond on the site are common locally and nationally and are, therefore, of low ecological value.

There is a Tree Preservation Order (TPO) which was put in place in 1990 for all the existing trees on the site. Many of the scattered broad-leaved trees on site are mature London planes, due to their age, size, urban context, and the difficulty to replace them, they are of local ecological value.

4.2.1 Mitigation

It is proposed that 26 trees will be removed to facilitate both the basement, buildings, and deck development, with four trees proposed for retention (see Arboricultural Report¹⁹). Trees T3, T8, T9 and T17 will be retained by the proposals. The retained trees would be protected during the construction works following BS 5837:2012 Trees in relation to design, demolition and construction. The tree planting strategy will deliver a tree mitigation strategy which increases the number of trees on the site from 30 to 50 (four existing/retained large trees, six proposed single large species trees, 40 proposed small and medium sized trees, plus 50 or more structural shrub/small garden trees throughout planting in gardens, terraces and borders, see Landscape Report)²⁰. The tree mitigation strategy will include: retaining the three largest and most prominent London plane trees and protecting these for the future; planting four new large canopy trees in positions suitable to ensure they can develop to a mature size and become assets to the local community; and planting a diverse range of small and medium sized trees throughout the development creating a rich mix of species and hierarchy in canopy structure.

¹⁹ Ruskins Tree Consultancy (2018) *Heythrop College, Arboricultural Report and Tree Condition Survey*.

²⁰ Andy Sturgeon Design (2018) *Heythrop Landscape Report*.

4.3 Invasive Species

There are several stands of Japanese knotweed *Fallopia japonica* on the site. Under Schedule 9 Part 2 of the Wildlife and Countryside Act, 1981 (as amended) it is an offence to plant or otherwise cause this species to grow in the wild (see Appendix E). Soil and waste containing Japanese knotweed is classed as ‘controlled waste’ and so can only be disposed of at licensed landfill sites. The developer will be undertaking all necessary steps to ensure that the Japanese knotweed is managed and treated effectively prior to and during the development. Treatment started in July 2018.

A Cotoneaster *Cotoneaster* sp. was identified in two locations, some species of Cotoneaster are listed under Schedule 9 of the Wildlife and Countryside Act, 1981, as amended (see Appendix E). Under the Act it is an offence to plant or otherwise cause this species to grow in the wild. Therefore, care should be taken to prevent these species from spreading if removal of these plants is required during the construction works.

4.4 Protected Species

4.4.1 Nesting Birds

The trees and buildings on site have potential to support nesting birds.

Mitigation

All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended) (see Appendix E). Therefore, all affected habitats suitable for nesting birds should be removed outside of the bird-breeding season (March to August, inclusive). Where it is not possible to remove habitats suitable for nesting birds outside of March to August, a search by an ecologist for any nesting birds prior to tree felling and works to the buildings will be needed. If nests are found they will need to be protected until the young have fledged. This would involve setting up a cordon, of appropriate size for the species concerned, around the nest. Works may then proceed up to, but not within that cordon. Once an ecologist confirms that the young have fledged and left the nest, works can be completed. It should be noted that, whilst the main breeding season is within the time period stated above, nesting can occur at other times of the year, so vigilance should be applied, and workers on site notified of this risk.

4.4.2 Other Protected and Notable Species

The site has negligible potential to support other protected species (e.g. reptile, amphibian) because of unsuitable habitat and few to no records of the species being recorded within 1km of the site. However, in the unlikely event that any of the above species are found to be present during works, works should be stopped immediately and ecological advice should be taken promptly.

4.4.3 Bats

All species of bat are protected under law (see Appendix E).

Buildings

Very low levels of bat activity were recorded (one to two bat passes) during each dusk emergence and dawn re-entry survey carried out by surveyors in May and June 2018. The bat passes recorded were outside of the anticipated emergence time (e.g. over 30 to 75 minutes after sunset) and the re-entry time for pipistrelle species, indicating that the passes were most likely to be from bats commuting over or through the site (to another location). No bats were recorded emerging or returning to/from the buildings and therefore it is concluded that bats are not roosting in the buildings during the summer months.

Underground Structures

Static detector surveys were completed across the survey period from the initial preliminary ecological appraisal in October 2017 until the end of the period of subsequent bat surveys in June 2018. Undertaking surveys over this time period has provided a thorough data set to understand bat activity on the site.

Common pipistrelle and soprano pipistrelle echolocation were recorded by the static detector in US1 on three occasions and once in US2 in December 2017. No echolocation was recorded in either US1 or US2 in January and February 2018. It is therefore considered that 1-2 bats (both common pipistrelle and soprano pipistrelle) are using US1 or the room attached to US1 as a hibernation roost during the winter months. The bat recorded in US2 in December 2017, may have been a bat exploring the grotto.

No bats or evidence of bats were recorded during the surveys in the transitional/swarming months (October and November).

Common pipistrelle and pipistrelle sp. echolocation were recorded by the static detector in US1 on three occasions and US2 on one occasion in May 2018, and in US1 on fourteen occasions and US2 on one occasion in June 2018. However, the amplitude of these recordings was very low (compared to the recording in December 2017), in particular due to the small size of the grottos from which any bat echolocation would be expected to be a relatively high amplitude. Given this, and the fact there was no evidence of bats or bats themselves found during the internal inspections, it is likely that the recordings are from bats flying close to the entrance and around the tree canopy above the grotto and, therefore unlikely to be using it as a summer roost at the time of the survey. Furthermore, the maternity roost habits of pipistrelle species generally include roosting above ground in warm locations (e.g. roof spaces) and at moderate to high numbers of bats together. Evidence of bats or this type of bat behaviour was not recorded at either of the underground structures or on site around the buildings.

Mitigation

It is considered that 1-2 common pipistrelle and soprano pipistrelle bats are using US1 or the room attached to US1 as a hibernation roost. It has been agreed as part of the design and landscaping works that US1 with the underground room will be retained (see Landscape Report²¹). This means that the bat roost will be retained in situ.

The adjacent statue (east of the grotto entrances) will be removed and the levels around the entrance to the two grottos will be raised. A new stone entrance will replace the existing, and be sited in a planted border, creating a buffer between US1 and other landscaped areas. It should be noted that US1 will be in the construction exclusion zone as specified by the arboriculturalist (as one of the mature London plane *Platanus x acerifolia* trees above the grotto will be retained).

Due to the proposals to modify US1 and other temporary disturbing activities (such as piling), a European Protected Species Mitigation (EPSM) licence will be required from Natural England for the works to legally proceed. Further detail around the new landscaping surrounding US1 will be included in the EPSM licence, but it will include measures so that the entrances remain open and uncluttered with a vegetation buffer to protect the entrance from light, wind, and noise.

New roosting opportunities will be provided inside US1, such as the installation of sheets of plywood raised off the walls with a wooden batten (beneath which bats can roost). Access to US1 and the underground room will be maintained to allow for future monitoring, although no additional public access to the grottos will be provided.

Prior to construction mitigation measures will include the installation of two Schwegler 1FW hibernation box on either Trees T3, T8 or T9 to provide alternative and additional roosts pre construction, during works, and post construction. This will be a requirement of the EPSM licence. The final landscaping design has incorporated gardens and lawns north of the grottos, with Tree T9, which is above the structure being retained along with Trees T3 and T8. This means there will still be canopy cover around the structure during and post construction.

External lighting around the retained trees and the grottos will need to be designed in consultation with an ecologist to avoid the impacts of lighting on existing roosts, new bat boxes, and key areas of foraging and commuting habitat. This is also referenced in the Landscape Report. This is because research has found that bats are sensitive to artificial lighting and that excessive lighting can delay bats from emerging from roosts, thus potentially reducing the time available for foraging, as well as potentially causing bats to move away from suitable foraging areas or roost sites to less optimal areas²².

²¹ Andy Sturgeon Design (2018) Heythrop Landscape Report.

²² Jones, J. (2000) Impact of Lighting on Bats. Bat Conservation Trust, London.

Trees

No evidence of roosting bats such as droppings was identified in or around the PRF on Tree 3 (T3, Appendix C); however, the full extent of the cavity could not be inspected due to its size. The cavity in T3 has potential to be used by roosting bats and has been categorised as having moderate potential to support roosting bats. The proposal is to retain T3; therefore, further bat surveys will not be required. However, should the proposals change to include the removal of this tree, further surveys in the form of one dusk emergence and a dawn re-entry survey on separate nights will be required to determine the presence or absence of bats (and the subsequent need for licensing).

The proposals also include the retention of Tree 9 (T9). However, should the proposals change to include the removal of this tree, the bat box will need to be checked for evidence of or the presence of bats prior to its removal.

4.5 Ecological Enhancement

The following general enhancements have been included in the landscaping proposals and take into account biodiversity policies in the NPPF and local planning policy, in particular with regard to the Westminster LBAP targets outlined in Section 3.2.1:

- Both the Tree Mitigation Strategy and Landscape Proposal²³ include proposals for planting large canopy trees such as sweetgum *Liquidambar styraciflua*, scarlet oak *Quercus coccinea*, and black mulberry *Morus nigra*, as well as small / medium canopy trees such as hazel *Corylus avellana* and field maple *Acer campestre* 'Elsrijk'. This extends to creating a 'woodland meadow journey' character area along the new deck (which will be over the London Underground rail line). Additional shrub planting will include native species or species of known benefit to wildlife such as yarrow *Achillea millefolium*, small scabious *Scabiosa columbaria*, grass species such as spear grass *Achnatherum calamagrostis*, lavender *Lavendula angustifolia* and sedums *Sedum* sp.
- Additional gardens and 'character areas' within the landscape proposal, such as the College garden, courtyard garden, nature garden and wildlife pond will include species of known benefit to biodiversity in accordance with their desired character. Plant species such as bluebell *Hyacinthoides non-scripta* and chamomile *Asteraceae* are flagship species within the Westminster LBAP (specifically the Private Gardens Action Plan as part of the LBAP) and will be included.
- A key area of focus within Policy CE4 of the Royal Borough of Kensington and Chelsea Consolidated Local Plan (section 3.2), as well as the Westminster LBAP, is greening the built environment through the provision of green infrastructure. The Landscape Proposal includes the incorporation of amenity roof gardens (rooftop allotments, gardens and beehives), green, blue and biodiverse roofs, and roof terrace gardens. The vegetated roofs will create a

²³ Andy Sturgeon Design (2018) *Heythrop Landscape Report*

matrix of habitats across the roof scape. These should have suitable specification, which emphasises native planting of known benefit to biodiversity, as well as include space for insect hibernacula, sand and shingle piles, and log piles. If implemented in full this feature has the potential to support foraging house sparrow *Passer domesticus*, a flagship species in the Westminster LBAP, and provide habitat for flagship invertebrates such as stag beetle *Lucanus cervus*.

- Terrace areas and planters within the Landscape Proposal, should also have a suitable growing medium with a minimum depth of 110mm, and be planted with native species of known benefit to wildlife.
- As part of the building interface, bat and bird boxes should be incorporated within landscape designs. Bird boxes should include; at least 10 Schwegler Swift boxes, which can be incorporated into the new buildings. They should be out of direct sunlight or else shaded day long beneath broad eaves, be 5m or more above ground and away from windows; Schwegler Sparrow Terrace boxes, which can also be incorporated into the facades of the new buildings; and Schwegler 1B bird nest boxes with a 26mm entrance²⁴ could also be installed on suitable mature trees, they would need to be positioned with a northerly shaded aspect between 2m and 4m above ground. The final location of these boxes should be designed with an ecologist.

²⁴ Available from: <http://www.nhbs.com/title/158587/1b-schwegler-nest-box>

Appendix A:

Location Plan

A1 Location Plan

Appendix B

Phase 1 Habitat Survey Map, Target Notes and Botanical Species List

B1 Phase 1 Habitat Map

B2 Target Notes

Target Note 1: Japanese knotweed

Target Note 2: Cotoneaster

Target Note 3: Butterfly bush

Target Note 4: Underground Structures (grotto)

B3 Botanical Species List

Common Name	Latin Name
Bay laurel	<i>Laurus nobilis</i>
Daisy	<i>Bellis perennis</i>
St John's Wort	<i>Hypericum perforatum</i>
Holly	<i>Ilex sp.</i>
Fuschia	<i>Fuchsia sp.</i>
Green alkanet	<i>Pentaglottis sempervirens</i>
Festcue	<i>Festuca sp.</i>
Creeping thistle	<i>Cirsium arvense</i>
Broadleaf plantain	<i>Plantago major</i>
Geranium	<i>Geranium sp.</i>
Hawkweed	<i>Hieracium</i>
Spurge	<i>Euphorbia sp.</i>
Hedge bindweed	<i>Calystegia sepium</i>
Fern	<i>Polypodiopsida sp.</i>
Common poppy	<i>Papaver rhoeas</i>
Willow herb	<i>Epilobium sp.</i>
Japanese knotweed	<i>Fallopia japonica</i>
Conoteaster sp.	<i>Conoteaster sp.</i>
Butterfly bush	<i>Buddleja davidii</i>
Pond weed	<i>Potamogeton sp.</i>
Water lily	<i>Nymphaea sp.</i>
Pendulous sedge	<i>Carex pendula</i>
Anemone	<i>Anemone sp.</i>
Clover	<i>Trifolium sp.</i>
Perennial rye grass	<i>Lolium perenne</i>
Yarrow	<i>Achillea millefolium</i>
Creeping buttercup	<i>Ranunculus repens</i>
Highclere holly	<i>Ilex x altaclerensis</i>
Snow berry	<i>Symphoricarpos</i>
Wild strawberry	<i>Fragaria vesca</i>
Spotted laurel	<i>Aucuba japonica</i>
Box	<i>Buxus</i>
Cherry laurel	<i>Prunus laurocerasus</i>
English yew	<i>Taxus baccata</i>
Wood spurge	<i>Euphorbia amygdaloides</i>
Common lilac	<i>Syringa vulgaris</i>
Italian lords & ladies	<i>Arum italicum</i>
Purple bellflower	<i>Campanula</i>
Broom	<i>Genistea</i>
Oxeye daisy	<i>Leucanthemum vulgare</i>
Ginkgo tree	<i>Ginkgo biloba</i>
Honey suckle	<i>Lonicera</i>
Sweet pea	<i>Lathyrus odoratus</i>
Rosemary	<i>Rosmarinus officinalis</i>
Aster	<i>Aster sp.</i>
Oregon grape	<i>Mahonia aquifolium</i>
Lavender	<i>Lavandula sp.</i>
Grapevine	<i>Vitis sp.</i>
Firethorn	<i>Pyracantha sp.</i>
Cherry tree	<i>Prunus sp.</i>
Crab apple tree	<i>Malus sp.</i>
Rose	<i>Rosa sp.</i>

Common Name	Latin Name
Ivy	<i>Hedera sp.</i>
Sycamore	<i>Acer pseudoplatanus</i>
Cork Oak	<i>Quercus suber</i>
London Plane	<i>Platanus × acerifolia</i>
Lime	<i>Tilia × europaea</i>
Hawthorn	<i>Crataegus</i>
Mulberry	<i>Morus</i>
Magnolia	<i>Magnolia grandiflora</i>
Snowy Mespil	<i>Amelanchier lamarckii</i>
Cupressus (conifer)	<i>Cupressus</i>
Mountain-ash	<i>Sorbus</i>
Foxglove tree	<i>Paulownia tomentosa</i>
Himalyan birch	<i>Betula utilis</i>
Ash-leaved maple	<i>Acer negundo</i>

Appendix C

Preliminary Bat Roost Assessment

C1 Preliminary Bat Roost Assessment Map – Trees, Structures, Static Detector Location

Appendix D

Site Visit Photographs

Appendix E

Legislation

E1 Legislation

The following sections list the legislation concerning the species identified as present on site:

E1.1 Invasive species

For the purpose of this report, an “invasive species” has been defined as a plant which is listed on Schedule 9 Part II of the Wildlife and Countryside Act 1981 (as amended).

It is an offence to ‘plant or otherwise cause to grow in the wild’ any plant listed in Schedule 9, Part II under section 14(2) of The Wildlife and Countryside Act 1981 (as amended).

The Countryside and Rights of Way Act 2000 (as amended) introduced stricter enforcement on offences (such as moving contaminated soil and plant material from one place to another) under The Wildlife and Countryside Act 1981.

Although there is no obligation under the Wildlife and Countryside Act 1981 (as amended) to remove or treat species listed under Schedule 9, it is against the law to cause these species to spread into the wild.

E1.2 Birds

All wild birds, their nests and their eggs are afforded legal protection through provisions in the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act 2000.

It is an offence, with certain exceptions, to intentionally:

- Kill, injure or take any wild bird;
- Take, damage or destroy the nest of any wild bird while it is in use or being built;
- Take or destroy the egg of any wild bird; and
- Have in one’s possession or control any wild bird (dead or alive), part of a wild bird or egg of a wild bird which has been taken in contravention of the Act, the Protection of Birds Act 1954 or the law of any EU Member State (which implements the EU Birds Directive 1979).

In addition to the above listed offences, it is also illegal to intentionally or recklessly disturb any wild bird listed on Schedule 1 of the Act while it is nest building or is in, on or near a nest with eggs or young; or to disturb the dependent young of such a species.

For certain species which are listed on Schedule 1 of the Act, such as barn owl, consent from Natural England would be required to cause disturbance to a nesting individual or to disturb its dependent young.

E1.3 Bats

All species of British bat are protected by The Wildlife and Countryside Act 1981 (as amended), extended by the Countryside and Rights of Way Act 2000. This legislation makes it an offence to:

- Intentionally kill, injure or take;
- Possess or control;
- Intentionally or recklessly damage, destroy or obstruct access to a breeding site or resting place; and
- Intentionally or recklessly disturb whilst the animal occupies a breeding site or resting place.

Bats are also European Protected Species listed on The Conservation of Species and Habitats Regulations 2017 (as amended). This legislation makes it an offence to:

- Deliberately capture, injure or kill;
- Deliberately disturb, including in particular any disturbance which is likely (a) to impair their ability - (i) to survive, to breed or reproduce, or to rear or nurture their young; or (ii) hibernate or migrate, where relevant; or (b) to affect significantly the local distribution or abundance of the species to which they belong;
- Damage or destroy a breeding site or resting place; and
- Possess, control, transport, sell, exchange, or offer for sale or exchange.

Appendix F

Static Detector Results December 2017

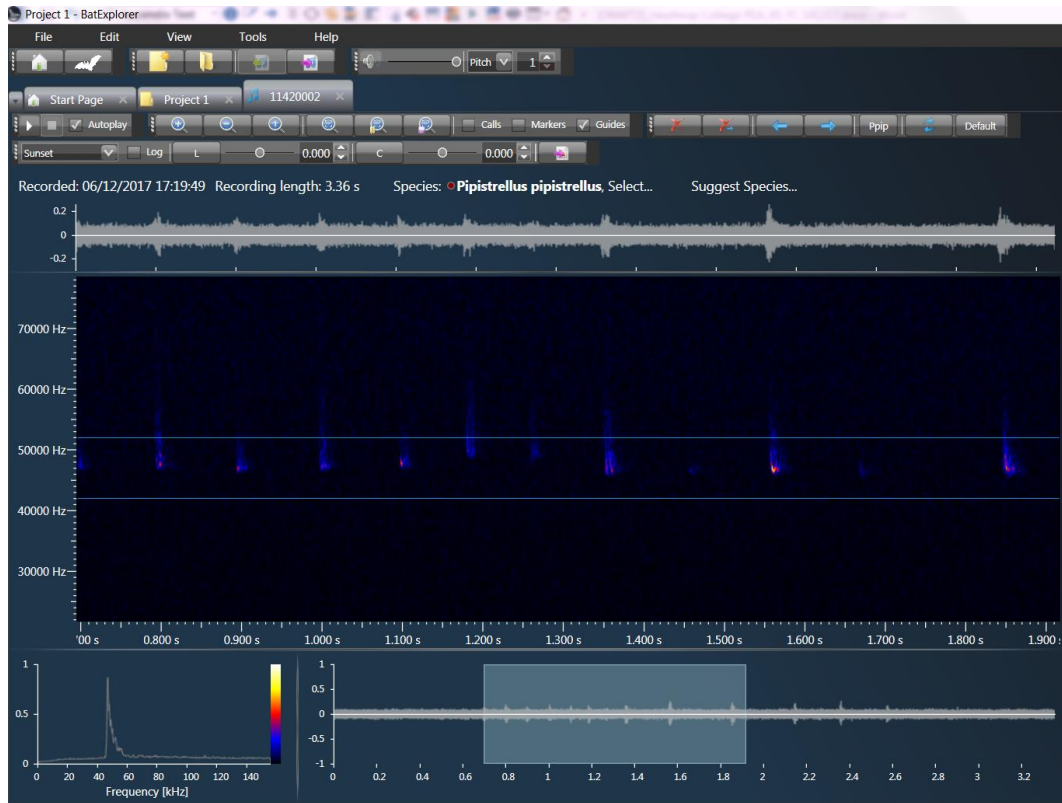
F1 Underground Structure 1

Raw data from Batlogger A+

Timestamp	Status	#Recordings	Temperature [°C]	Battery [V]
05.12.2017 15:30:00	Idle	0	9	8.4
05.12.2017 16:00:00	Listening	0	10	8.4
05.12.2017 17:00:00	Listening	1	11	8.36
05.12.2017 18:00:00	Listening	1	11	8.33
05.12.2017 19:00:00	Listening	0	11	8.29
05.12.2017 20:00:00	Listening	1	11	8.25
05.12.2017 21:00:00	Listening	0	11	8.22
05.12.2017 22:00:00	Listening	0	11	8.2
05.12.2017 23:00:00	Listening	0	11	8.16
06.12.2017 00:00:00	Listening	0	11	8.13
06.12.2017 01:00:00	Listening	2	11	8.09
06.12.2017 02:00:00	Listening	0	11	8.07
06.12.2017 03:00:00	Listening	0	11	8.03
06.12.2017 04:00:00	Listening	0	11	8
06.12.2017 05:00:00	Listening	0	11	7.96
06.12.2017 06:00:00	Listening	0	11	7.94
06.12.2017 07:00:00	Listening	0	11	7.91
06.12.2017 08:00:00	Listening	0	12	7.87
06.12.2017 15:30:00	Idle	0	12	7.87
06.12.2017 16:00:00	Listening	1	11	7.83
06.12.2017 17:00:00	Listening	0	12	7.8
06.12.2017 18:00:00	Listening	1	12	7.78
06.12.2017 19:00:00	Recording	1	12	7.74
06.12.2017 20:00:00	Listening	2	12	7.72
06.12.2017 21:00:00	Listening	0	12	7.68
06.12.2017 22:00:00	Listening	0	12	7.67
06.12.2017 23:00:00	Listening	0	12	7.63
07.12.2017 00:00:00	Listening	0	12	7.61
07.12.2017 01:00:00	Listening	0	12	7.57
07.12.2017 02:00:00	Listening	0	12	7.56
07.12.2017 03:00:00	Listening	0	12	7.52
07.12.2017 04:00:00	Listening	2	12	7.5
07.12.2017 05:00:00	Listening	1	12	7.46
07.12.2017 06:00:00	Listening	0	12	7.45
07.12.2017 07:00:00	Listening	3	13	7.41
07.12.2017 08:00:00	Listening	1	13	7.39
07.12.2017 15:30:01	Idle	0	9	7.37
07.12.2017 16:00:00	Listening	0	11	7.35
07.12.2017 17:00:00	Listening	2	11	7.34

07.12.2017 18:00:00	Listening	1	11	7.32
07.12.2017 19:00:00	Listening	0	11	7.3
07.12.2017 20:00:00	Listening	1	10	7.28
07.12.2017 21:00:00	Listening	0	10	7.28
07.12.2017 22:00:00	Listening	0	10	7.26
07.12.2017 23:00:00	Listening	0	10	7.24
08.12.2017 00:00:00	Listening	0	9	7.24
08.12.2017 01:00:00	Listening	0	9	7.23
08.12.2017 02:00:00	Listening	0	9	7.23
08.12.2017 03:00:00	Listening	1	9	7.21
08.12.2017 04:00:00	Listening	0	9	7.21
08.12.2017 05:00:00	Listening	1	9	7.19
08.12.2017 06:00:00	Listening	0	9	7.19
08.12.2017 07:00:00	Listening	0	9	7.17
08.12.2017 08:00:00	Listening	0	8	7.17
08.12.2017 15:30:01	Idle	0	8	7.17
08.12.2017 16:00:00	Listening	0	7	7.17
08.12.2017 17:00:00	Listening	0	8	7.15
08.12.2017 18:00:00	Listening	1	7	7.15
08.12.2017 19:00:00	Listening	1	7	7.13
08.12.2017 20:00:00	Listening	0	7	7.12
08.12.2017 21:00:00	Listening	0	7	7.12
08.12.2017 22:00:00	Listening	0	7	7.1
08.12.2017 23:00:00	Listening	0	7	7.1
09.12.2017 00:00:00	Listening	0	7	7.06
09.12.2017 01:00:00	Listening	0	6	7.04
09.12.2017 02:00:00	Listening	0	6	7.02
09.12.2017 03:00:00	Listening	0	6	7.01
09.12.2017 04:00:00	Listening	0	6	6.99
09.12.2017 05:00:00	Listening	0	6	6.95
09.12.2017 06:00:00	Listening	0	6	6.91
09.12.2017 07:00:00	Listening	0	6	6.89
09.12.2017 08:00:00	Listening	0	6	6.88
09.12.2017 15:30:00	Idle	0	6	6.88
09.12.2017 16:00:00	Listening	0	7	6.86
09.12.2017 17:00:00	Listening	0	7	6.82
09.12.2017 18:00:00	Listening	0	7	6.8
09.12.2017 19:00:00	Listening	1	7	6.77
09.12.2017 20:00:00	Listening	0	7	6.69
09.12.2017 21:00:00	Listening	0	7	6.53

Common pipistrelle sonogram recorded 6 December 2017 at 17:19



F2 Underground Structure 2

Raw data from Batlogger A+

Timestamp	Status	#Recordings	Temperature [°C]	Battery [V]
05.12.2017 15:30:00	Idle	0	8	8.38
05.12.2017 16:00:00	Listening	0	10	8.38
05.12.2017 17:00:00	Listening	0	10	8.35
05.12.2017 18:00:00	Listening	0	10	8.31
05.12.2017 19:00:00	Listening	0	10	8.27
05.12.2017 20:00:00	Listening	0	10	8.24
05.12.2017 21:00:00	Listening	0	10	8.2
05.12.2017 22:00:00	Listening	0	10	8.18
05.12.2017 23:00:00	Listening	0	10	8.14
06.12.2017 00:00:00	Listening	0	10	8.11
06.12.2017 01:00:00	Listening	0	10	8.09
06.12.2017 02:00:00	Listening	0	10	8.05
06.12.2017 03:00:00	Listening	0	11	8.02
06.12.2017 04:00:00	Listening	0	11	8
06.12.2017 05:00:00	Listening	0	11	7.96
06.12.2017 06:00:00	Listening	0	10	7.92
06.12.2017 07:00:00	Listening	0	11	7.91
06.12.2017 08:00:00	Listening	0	11	7.87
06.12.2017 15:30:00	Idle	0	11	7.87
06.12.2017 16:00:00	Listening	0	10	7.83
06.12.2017 17:00:00	Listening	0	11	7.81
06.12.2017 18:00:00	Listening	1	11	7.78
06.12.2017 19:00:00	Listening	0	11	7.74
06.12.2017 20:00:00	Listening	0	11	7.72
06.12.2017 21:00:00	Listening	0	11	7.68
06.12.2017 22:00:00	Listening	0	11	7.67
06.12.2017 23:00:00	Listening	0	11	7.65
07.12.2017 00:00:00	Listening	0	11	7.61
07.12.2017 01:00:00	Listening	0	11	7.59
07.12.2017 02:00:00	Listening	0	11	7.57
07.12.2017 03:00:00	Listening	0	11	7.54
07.12.2017 04:00:00	Listening	0	11	7.52
07.12.2017 05:00:00	Listening	0	11	7.48
07.12.2017 06:00:00	Listening	0	11	7.45
07.12.2017 07:00:00	Listening	0	11	7.41
07.12.2017 08:00:00	Listening	0	11	7.39
07.12.2017 15:30:00	Idle	0	11	7.39
07.12.2017 16:00:00	Listening	0	10	7.35
07.12.2017 17:00:00	Listening	0	11	7.34
07.12.2017 18:00:00	Listening	0	10	7.32

07.12.2017 19:00:00	Listening	0	10	7.3
07.12.2017 20:00:00	Listening	0	10	7.28
07.12.2017 21:00:00	Listening	0	10	7.28
07.12.2017 22:00:00	Listening	0	9	7.26
07.12.2017 23:00:00	Listening	0	9	7.26
08.12.2017 00:00:00	Listening	0	9	7.24
08.12.2017 01:00:00	Listening	0	9	7.24
08.12.2017 02:00:00	Listening	0	8	7.23
08.12.2017 03:00:00	Listening	0	8	7.21
08.12.2017 04:00:00	Listening	0	8	7.21
08.12.2017 05:00:00	Listening	0	8	7.21
08.12.2017 06:00:00	Listening	0	8	7.19
08.12.2017 07:00:00	Listening	0	8	7.19
08.12.2017 08:00:00	Listening	0	8	7.17
08.12.2017 15:30:00	Idle	0	8	7.17
08.12.2017 16:00:00	Listening	0	7	7.17
08.12.2017 17:00:00	Listening	0	7	7.15
08.12.2017 18:00:00	Listening	0	7	7.15
08.12.2017 19:00:00	Listening	0	7	7.15
08.12.2017 20:00:00	Listening	0	6	7.13
08.12.2017 21:00:00	Listening	0	6	7.12
08.12.2017 22:00:00	Listening	0	6	7.12
08.12.2017 23:00:00	Listening	0	6	7.1
09.12.2017 00:00:00	Listening	0	6	7.08
09.12.2017 01:00:00	Listening	0	6	7.06
09.12.2017 02:00:00	Listening	0	6	7.04
09.12.2017 03:00:00	Listening	0	6	7.02
09.12.2017 04:00:00	Listening	0	5	7.01
09.12.2017 05:00:00	Listening	0	5	6.97
09.12.2017 06:00:00	Listening	0	5	6.93
09.12.2017 07:00:00	Listening	0	5	6.89
09.12.2017 08:00:00	Listening	0	5	6.88
09.12.2017 15:30:00	Idle	0	5	6.88
09.12.2017 16:00:00	Listening	0	6	6.86
09.12.2017 17:00:00	Listening	0	6	6.84
09.12.2017 18:00:00	Listening	0	6	6.82
09.12.2017 19:00:00	Listening	0	6	6.8
09.12.2017 20:00:00	Listening	0	6	6.77
09.12.2017 21:00:00	Listening	0	6	6.66

Common pipistrelle sonogram recorded 6 December 2017 at 17:20

