



Ecology Consultancy



Hampstead Heath Ponds Project - Kenwood Ladies' Bathing Pond Changing Rooms

Bat Roost Characterisation Surveys

Report for City of London

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Executive Summary

The Kenwood Ladies' Bathing Pond Changing Rooms were previously identified as containing an ephemeral roost of brown long-eared bats. A nearby tree, T1164, was also previously assessed as having moderate potential to support roosting bats. The Hampstead Heath Ponds Project involves the demolition of the existing changing rooms at Kenwood Ladies' Bathing Pond and removal of Tree T1164. New changing rooms will be constructed as part of the project. The Ecology Consultancy was commissioned by City of London in August 2014 to carry out a bat roost characterisation survey of this building, together with a bat presence or likely absence survey of T1164. These surveys were carried out on 26th August and 4th, 5th and 10th September, 2014 to inform and support a European Protected Species Mitigation Licence application to Natural England. The findings of the surveys are presented in this report. The main findings are:

- Three surveys comprising one dusk emergence survey, one dusk emergence and pre-dawn re-entry survey, and one pre-dawn re-entry survey were carried out on 26th August and 4th, 5th and 10th September 2014, respectively. T1164 was surveyed on 4th, 5th and 10th September, 2014.
- No bats were recorded emerging from or re-entering the Kenwood Ladies' Bathing Pond Changing Rooms or Tree 1164 during the course of the surveys.
- Foraging and commuting activity by at least six bat species were recorded over the pond and around vegetation to the east, south and west of the changing rooms building, as well as within the woodland containing T1164.

1 Introduction

BACKGROUND

- 1.1 The Kenwood Ladies' Bathing Pond Changing Rooms were previously assessed as containing an ephemeral roost of brown long-eared bats *Plecotus auritus* following the identification of two old bat droppings that were of a size and morphology characteristic of this species (Atkins, 2014). A nearby tree, T1164, was also previously assessed as having moderate potential to support roosting bats.
- 1.2 The Ecology Consultancy was subsequently commissioned by City of London, in August 2014, to carry out a bat roost characterisation survey of the Kenwood Ladies' Bathing Pond Changing Rooms and a presence or likely absence survey of T1164, with moderate potential to support roosting bats.

SCOPE OF THE REPORT

- 1.3 The surveys and subsequent reporting were undertaken to support and inform a European Protected Species Mitigation (EPSM) Licence application for the demolition of the changing rooms building as part of the wider Hampstead Heath Ponds Project. It is understood that the City of London have made arrangements to produce an EPSM Licence application. This report details the methodology, results and conclusions of the bat roost characterisation survey and presence or likely absence bat surveys carried out by The Ecology Consultancy on 26th August and 4th, 5th and 10th September, 2014.

SITE CONTEXT AND STATUS

- 1.4 The survey site consisted of the Changing Rooms building, constructed on a timber deck on the southern bank of the Kenwood Ladies' Bathing Pond, Hampstead Heath, in London. Tree 1164, also targeted, was situated within an area of woodland approximately 25 metres (m) to the south-west of the Kenwood Ladies' Bathing Pond Changing Rooms building.
- 1.5 The immediate surroundings of the survey site included woodland and ponds with extensive parkland and residential urban areas in the wider area. The National Grid Reference for the changing rooms building was TQ 276 869.

DEVELOPMENT PROPOSALS

- 1.6 The Hampstead Heath Ponds Project involves the demolition of the existing changing rooms at Kenwood Ladies' Bathing Pond and removal of Tree T1164. New changing rooms will be constructed as part of the project.

2 Methodology

BAT ROOST CHARACTERISATION SURVEYS

- 2.1 One dusk emergence survey, one dusk emergence and pre-dawn re-entry survey, and one pre-dawn re-entry survey were carried out on 26th August and 4th, 5th and 10th September, 2014. A dusk emergence survey and dawn re-entry survey carried out within 24 hours are considered to comprise a single survey visit. In addition, T1164, a silver birch assessed as having moderate potential to support roosting bats, was subjected to one dusk emergence survey followed by a pre-dawn re-entry survey, and one dawn re-entry survey, conducted on 4th, 5th and 10th September, 2014.
- 2.2 The objectives of the surveys were to:
- confirm the species, numbers of bats and timing of use by bats of the roost identified in the changing rooms building; and,
 - determine if any bats are roosting in T1164;
- 2.3 A total of three surveyors were required to cover all potential bat roosting features on the changing rooms building during dusk emergence surveys. It was concluded that two surveyors was sufficient to cover the building for dawn surveys, during which bat activity is easier to see and follow compared to during dusk emergence period. One surveyor was required to cover T1164 during all surveys of this tree.
- 2.4 The ecologists were experienced in carrying out bat dusk emergence and dawn re-entry surveys and included one licensed bat ecologist (Bat Survey Class Licence CL18 - registration number CLS02362).
- 2.5 Each surveyor used a BatBox Duet bat detector to pick up any echolocation calls. All bat activity was recorded using Roland Edirol 24bit 96kHz Wave/MP3 recorders attached to each bat detector. Recordings were later analysed using BatSound to aid the identification of species according to Russ (2012).
- 2.6 The survey methodology followed the Bat Conservation Trust *Bat Survey - Good Practice Guidelines 2nd Edition* (Hundt, 2012).

CONSTRAINTS

- 2.7 The surveys took place during the period May to September in accordance with the Bat Conservation Trust guidelines (BCT, 2012). One survey was carried out during the optimum period, in this case in August, and the remaining two surveys were undertaken in September. While September is considered a suboptimal time, surveys in this period are considered acceptable under suitable temperature and weather conditions. Maternity roosts often disperse by September, and ideally surveys are spread through the season, but in this instance no evidence to indicate the presence of a maternity colony was identified during the initial building inspection. All surveys were all conducted under suitable temperature and weather conditions and bats were recorded in every survey session. Therefore, the timing of the surveys is considered to pose a minor constraint on the survey findings. An additional internal inspection of the building will be undertaken to compensate for this constraint.
- 2.8 During the dusk emergence survey on 4th September 2014, surveyor 3, positioned to the south-west of the building, and surveyor 4, positioned to the east of T1164, were late into position and did not begin recording until 20:11, 30 minutes after sunset. Bats were active at both locations at the start of recording. Therefore it is possible that emergences from these areas were missed. However, surveyor 1 and 2 were in position 15 minutes before sunset as planned, and thus the key parts of the building were being covered in the absence of surveyor 3. Also, all surveyors were in position from the start during the other surveys.
- 2.9 The roost identified within the Kenwood Ladies' Bathing Pond Changing Rooms is believed to be an occasional roost used by brown long-eared bats (Atkins, 2014). Brown long-eared bats can be difficult to observe and record emerging from roosts. This is due to a late emergence time, when light levels are very low; and the low power of their echolocation calls which can often only be detected from within a few metres of the bat (Russ, 2012). This is considered to pose a minor constraint on the survey findings as surveyor positions were selected to minimise the risk of missing an emergence by this species.
- 2.10 *Myotis* species bats all use similar echolocation calls which can be hard to differentiate, both in the field and during analysis (Russ, 2012). For this reason, it is often not possible to identify a bat pass to a specific species and are then labelled as *Myotis* species. This is considered to pose a negligible constraint on the survey findings as the roost identified within the Kenwood Ladies' Bathing Pond Changing Rooms is believed to be

an occasional roost used by brown long-eared bats (Atkins, 2014), the identification of *Myotis* species to species level was not considered necessary. Similar problems can also be encountered when trying to differentiate the two *Myctalus* species, namely noctule *N. noctula* and Leisler's *N. leisleri*.

- 2.11 It should be noted that, while every effort has been made to provide a comprehensive description of the buildings, no investigation can ensure the complete characterisation and prediction of the natural environment.

3 Survey results

BAT ROOST CHARACTERISATION SURVEYS

- 3.1 The bat roost characterisation surveys comprised: one dusk emergence survey, one dusk emergence and pre-dawn re-entry survey, and one pre-dawn re-entry survey undertaken on 26th August and 4th, 5th and 10th September, 2014. In addition, T1164, a silver birch assessed as having moderate potential to support roosting bats, was subjected to one dusk emergence and pre-dawn re-entry survey, and one dawn re-entry survey, on 4th, 5th and 10th September, 2014.
- 3.2 All four survey sessions were conducted in suitable temperature and weather conditions over an appropriate survey duration (see Appendix 2, Tables 1, 2, 3 and 4), in accordance with survey guidance (Hundt, 2012). The survey findings are mapped in Appendix 1, recorded in detail in Appendix 2 and summarised below.

Dusk Emergence Survey 26th August 2014

- 3.3 No bats were recorded emerging from the building during the survey.
- 3.4 At least three species of bat were recorded foraging and commuting within, or in the vicinity of, the survey site. Species comprised: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus* and a *Myotis* species bat.
- 3.5 Pipistrelle species and soprano pipistrelle activity was recorded on the site from 20:28, 28 minutes after sunset. *Myotis* bats were recorded from 20:39, and common pipistrelle from 20:43.
- 3.6 Extensive foraging activity was recorded. This activity was concentrated over the pond, although several passes were recorded as bats flew over the building and decking area of the survey site.

Dusk Emergence Survey 4th September 2014

- 3.7 No bats were recorded emerging from the building or tree during the survey.
- 3.8 At least six species of bat were recorded foraging and commuting within, or in the vicinity of, the survey site. Species comprised: common pipistrelle, soprano pipistrelle,

Nathusius' pipistrelle *P. nathusii*, a *Myotis* species bat, a *Nyctalus* species bat, and brown long-eared bat.

- 3.9 A *Nyctalus* species bat was recorded at 19:40, 1 minute before sunset. Common pipistrelle activity was recorded on the site from 20:00, 19 minutes after sunset. Soprano pipistrelle were recorded from 20:23, and *Myotis* bats from 20:36. A single pass by a brown long-eared bat was recorded to the south of the changing rooms building at 20:26. Nathusius' pipistrelle was recorded late in the survey, from 20:45.
- 3.10 Extensive foraging activity by common pipistrelle, soprano pipistrelle and *Myotis* species bats was recorded, concentrated over the pond and around trees and vegetation to the south of the pond. Several passes were recorded as bats flew over the building and decking area of the survey site.
- 3.11 Common pipistrelle, soprano pipistrelle and a *Myotis* species bat were recorded in the vicinity of T1164.

Dawn Re-Entry Survey 5th September 2014

- 3.12 No bats were recorded entering the building or tree during the survey.
- 3.13 At least five species of bat were recorded foraging and commuting within, or in the vicinity of, the survey site. These were common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, a *Myotis* species bat and noctule.
- 3.14 The last activity recorded on the site was noctule commuting over the pond until 06:02, with a *Nyctalus* species pass recorded at 06:04, 15 minutes before sunrise. *Myotis* species activity was recorded near the changing rooms building until 05:43, and in the vicinity of Tree 1164 until 05:56. Common pipistrelle were recorded until 05:37, and soprano pipistrelle were last recorded near the changing rooms building at 05:58. Nathusius' pipistrelle were only recorded at 04:50 and 05:07.
- 3.15 Foraging activity by soprano pipistrelle and *Myotis* species was recorded mostly over the pond and around vegetation to the south of the pond, as well as in the woodland near T1164. Occasional passes by common and Nathusius' pipistrelle were recorded around the changing rooms building. Noctules were recorded flying high over the woodland and pond.

Dawn Re-Entry Survey 10th September 2014

- 3.16 No bats were recorded entering the building or tree during the survey.
- 3.17 At least five species of bat were recorded foraging and commuting in the vicinity of the survey site. These were common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, a *Myotis* species and noctule.
- 3.18 The last activity recorded on the site was by soprano pipistrelle at 06:00, 27 minutes before sunrise. *Myotis* species activity was recorded near the changing rooms building until 05:38. Common pipistrelle were recorded until 05:46, and Nathusius' pipistrelle until 05:51. Noctule activity was only recorded at 05:30.
- 3.19 Foraging activity by soprano pipistrelle, Nathusius's pipistrelle and *Myotis* species was recorded mostly over the pond and around vegetation to the south of the pond, as well as in the woodland near T1164. Occasional passes by common pipistrelle were recorded around the changing rooms building. Noctules were only recorded near T1164.

4 Conclusions

CONCLUSIONS

Bat Roost Characterisation Surveys

- 4.1 A preliminary bat roost assessment identified an occasional roost used by brown long-eared bats within the Kenwood Ladies' Bathing Pond Changing Rooms (Atkins, 2014). However, a suite of roost characterisation surveys recorded no bat emergence or re-entry into the building. These findings support the conclusion that the roost is used only on an occasional basis.
- 4.2 Brown long-eared bats were recorded once during the course of the bat roost characterisation surveys, during the dusk emergence survey on 4th September, 2014. This bat was observed flying east, close to the southern elevation of the changing rooms building. Bat activity that was observed but not heard, or passes that were too faint to be identified were recorded during the surveys on 26th August and 4th and 5th September 2014. Due to the very quiet nature of brown long-eared bat echolocation calls, it is also possible that these unidentified bat passes belonged to brown long-eared bats.

Bat Presence or Likely Absence Surveys

- 4.3 A silver birch tree labelled T1164 was previously assessed as having moderate potential to support roosting bats and was subject to a Bat Presence or Likely Absence Survey on 4th, 5th and 10th September, 2014. No bat emergence or re-entry into T1164 was recorded. It is therefore concluded that a bat roost is likely absent from T1164.

Commuting and Foraging Activity

- 4.4 Bats of at least five other species were recorded foraging and commuting in the vicinity of the changing rooms building and T1164. These included common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, *Myotis* species and noctule. It can be very difficult to identify *Myotis* species calls to species level, however it is suspected that the majority of *Myotis* activity was by Daubenton's bat *Myotis daubentonii*, although Natterer's bat *M. nattereri* may also have been present. Foraging activity by the three pipistrelle species and the *Myotis* species appeared to be concentrated over the pond, but extensive activity was also recorded over and around vegetation throughout the survey area. Commuting activity by *Nyctalus* species, all identified as noctule where species-level identification was possible, was recorded during all survey sessions.

References

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Greater London Authority (2011) *The London Plan Spatial Development Strategy for Greater London*. Greater London Authority, London.

Her Majesty's Stationary Office (1981) *The Wildlife and Countryside Act (WCA)* (as amended).

Her Majesty's Stationary Office (2010) *The Conservation of Habitats and Species Regulations 2010* (as amended).

Hundt, L. (2012) *Bat Surveys, Good Practice Guidelines*. Bat Conservation Trust, London.

Russ, J. (2012) *British Bat Calls: A Guide to Species Identification*. Pelagic Publishing, Exeter.

Appendix 1: Survey plans

Figure 1: Dusk Emergence Survey Bat Activity Plan – 26th August 2014

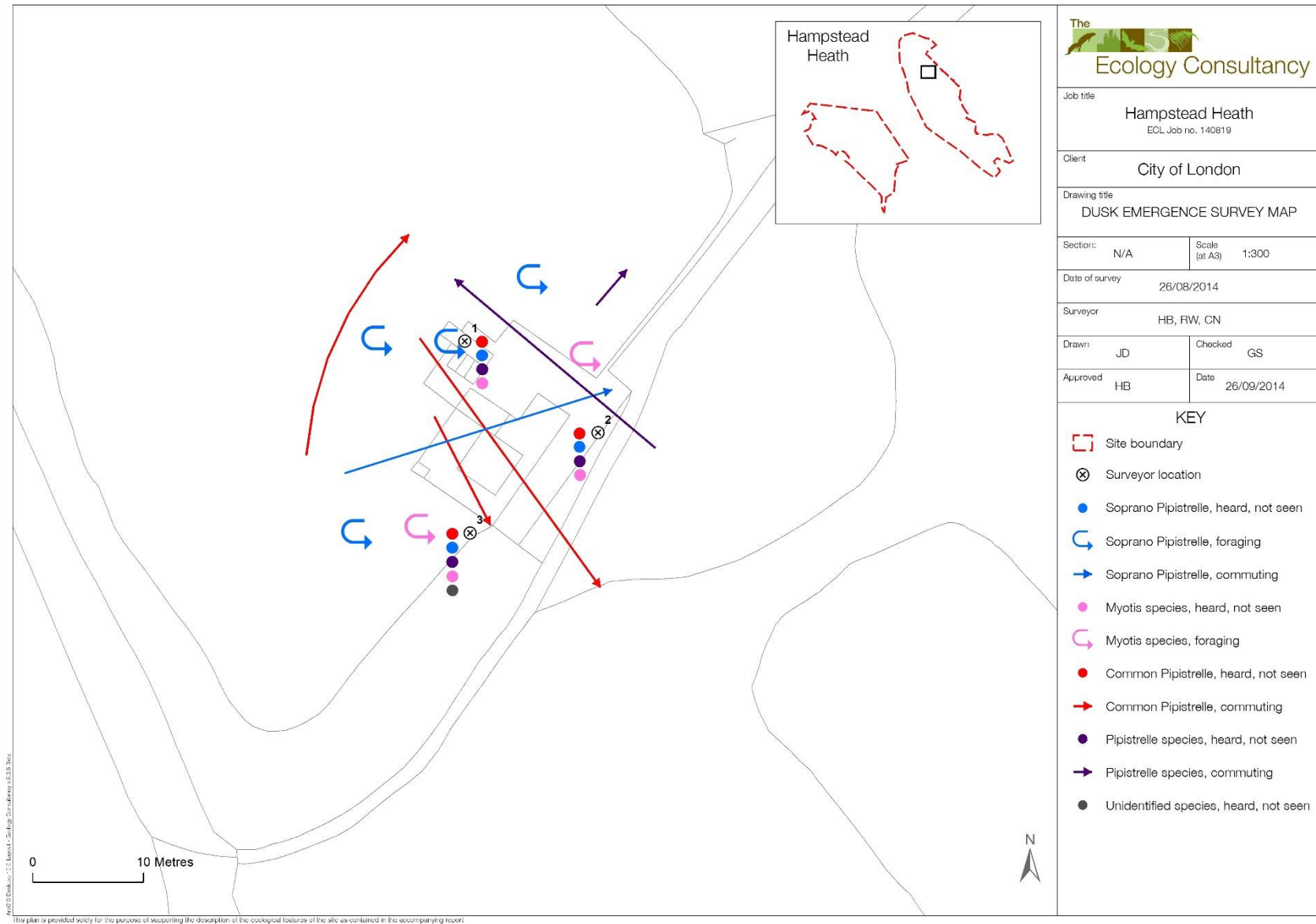


Figure 2: Dusk Emergence Survey Bat Activity Plan – 4th September 2014

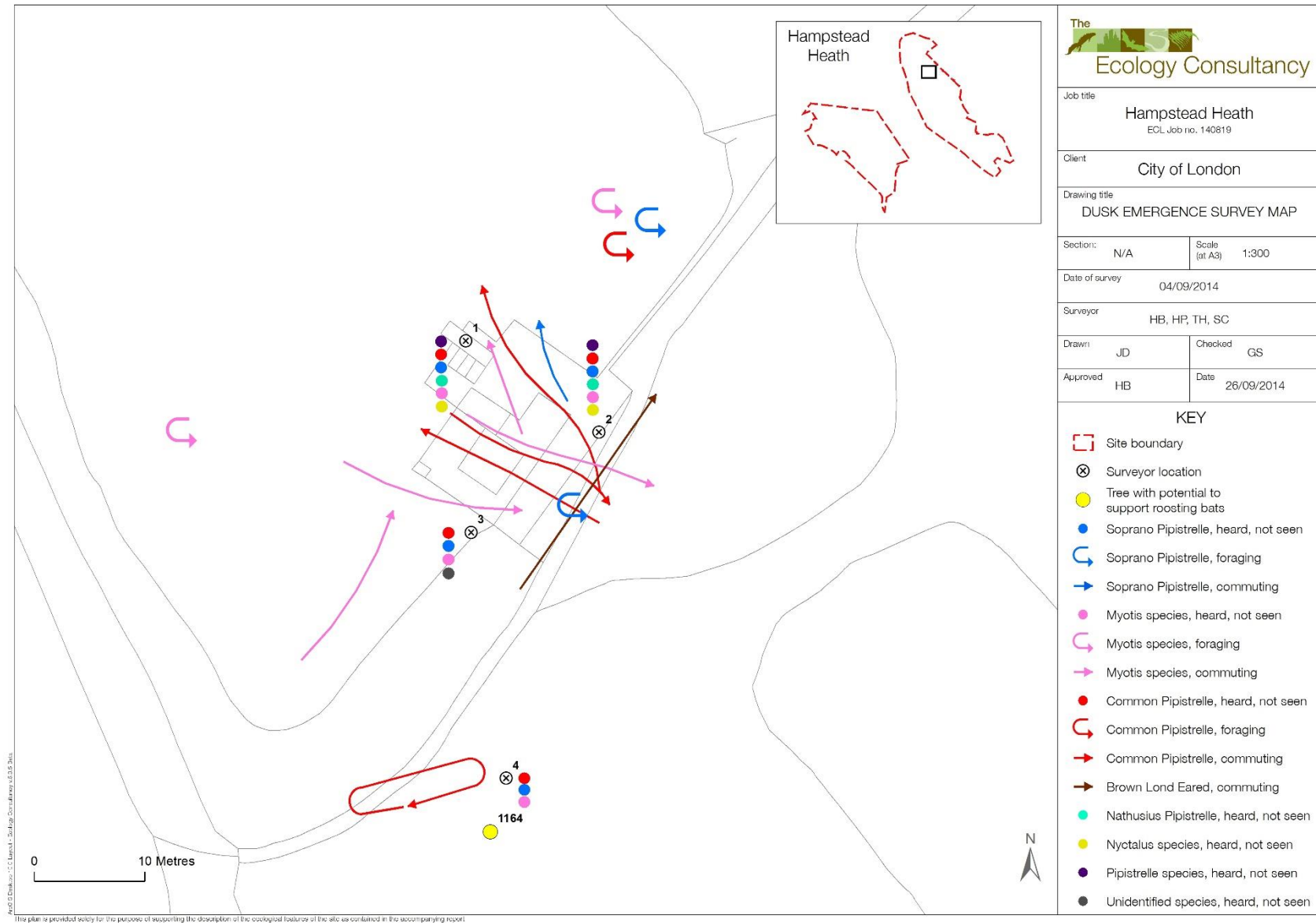


Figure 3: Pre-dawn Re-entry Survey Bat Activity Plan – 5th September 2014

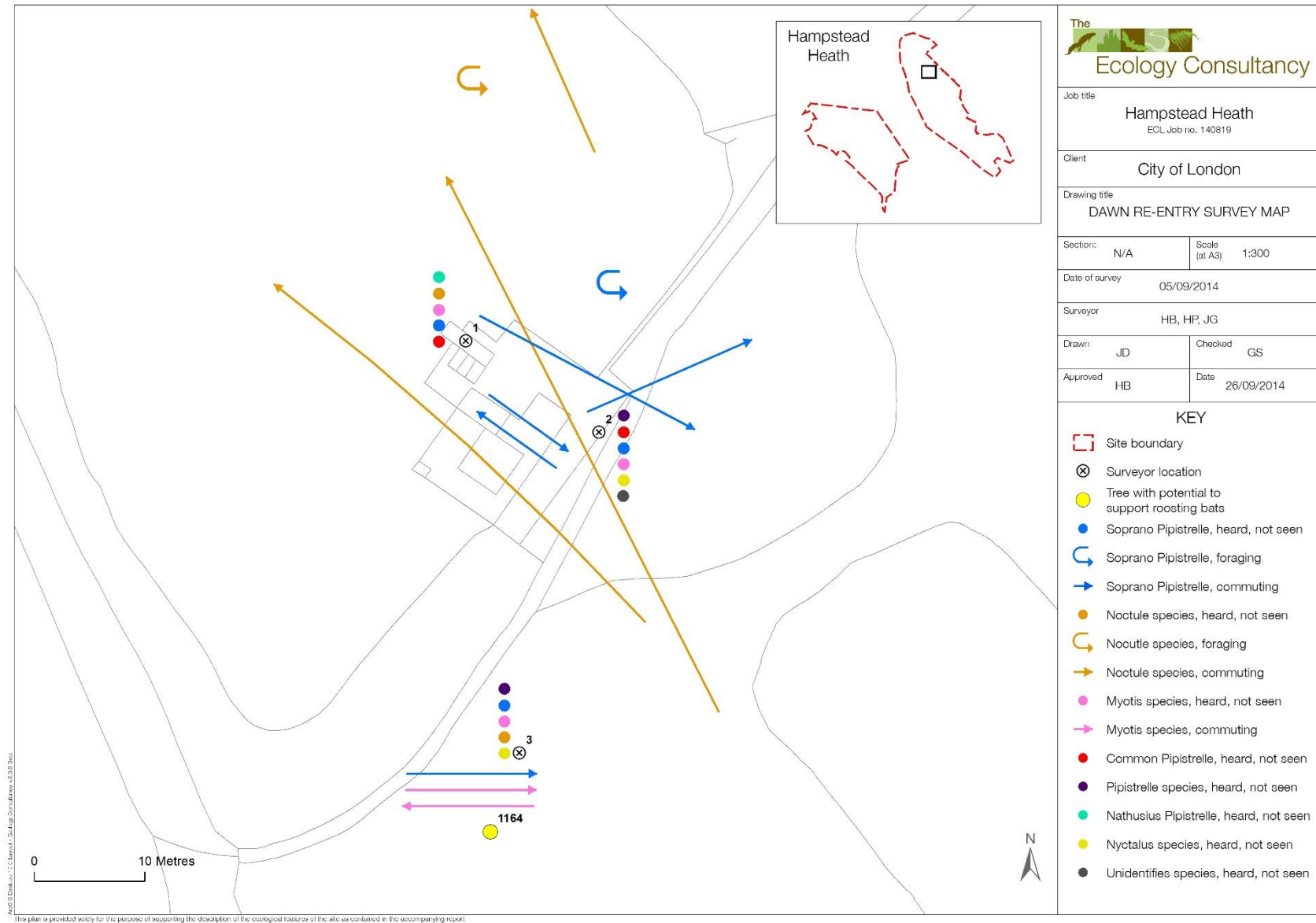
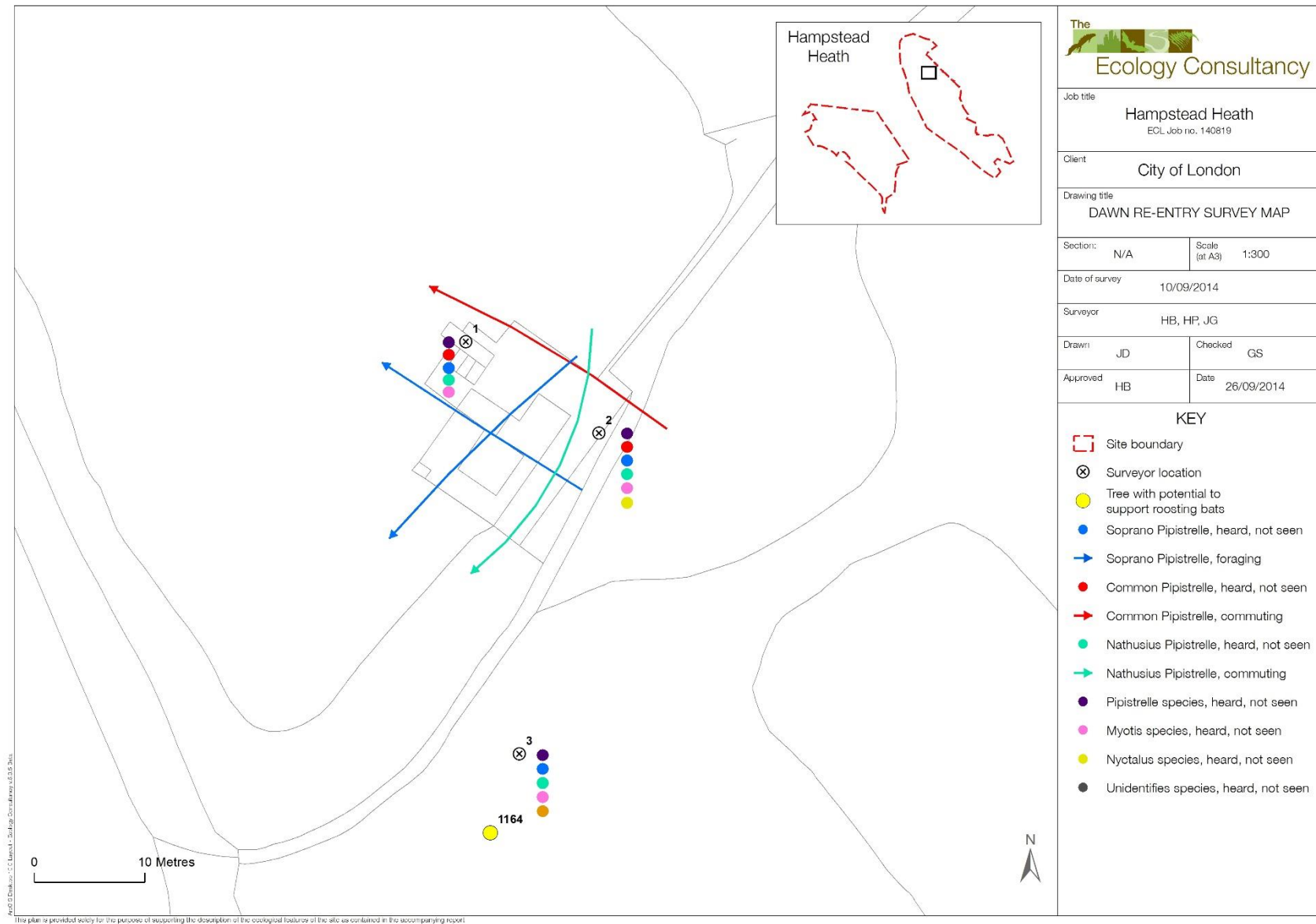


Figure 4: Pre-dawn Re-entry Survey Bat Activity Plan – 10th September 2014



Appendix 2: Bat Survey Data

Table 1: Kenwood Ladies Pond Changing Rooms Dusk Bat Emergence Survey – 26/08/2014

Sunset: 20:00

Start time: 19:45

End: 21:30

Weather conditions: 16°C, cloud cover 60%, Light breeze.

Surveyor Position 1: North of building			
Time	Minutes after sunset	Species	Comments
20:29	29	Soprano pipistrelle	Unseen pass
20:31	31	Soprano pipistrelle	Flew east over decking, to north of building
20:35	35	Soprano pipistrelle	Unseen pass
20:37 – 20:43	37 – 43	Soprano pipistrelle	Continuous faint unseen passes
20:43	43	Soprano pipistrelle	Flew south west over decking, north of building
20:43	43	<i>Myotis</i> species	Unseen pass
20:44	44	Soprano pipistrelle	Flew north east over pond
20:44	44	<i>Myotis</i> species	Unseen pass
20:45	45	Soprano pipistrelle	Flew west over building
20:45	45	Common pipistrelle	Unseen pass
20:45	45	<i>Myotis</i> species	Unseen pass
20:48	48	Common pipistrelle	Flew east over decking, to north of building
20:50	50	Common pipistrelle	Unseen pass
20:50	50	Common pipistrelle	Flew south west over decking, north of building
20:53	53	Common pipistrelle	Flying south and foraging over decking to north of building
20:57 – 21:30	57 – 90	Common pipistrelle	Frequent unseen foraging passes
20:57 – 21:30	57 – 90	Soprano pipistrelle	Frequent unseen foraging passes
21:16	76	Common pipistrelle	Flew north, then east over decking to east of building

Surveyor Position 2: South-east of building			
Time	Minutes after sunset	Species	Comments
20:28	28	Pipistrelle species	Unseen pass
20:30	30	Pipistrelle species	Unseen pass

20:31	31	Soprano pipistrelle	Flying north over decking, to east of building
20:34	34	Soprano pipistrelle	Unseen pass
20:34 – 20:40	34 – 40	Pipistrelle species	Frequent faint unseen passes
20:41	41	Soprano pipistrelle	Unseen pass
20:42	42	Soprano pipistrelle	Flying over pond to north of building
20:43	43	<i>Myotis</i> species	Unseen pass
20:44	44	Soprano pipistrelle	Unseen pass
20:46	46	Soprano pipistrelle	Flying over pond to north of building
20:46	46	<i>Myotis</i> species	Unseen pass
20:47	47	Unidentified bat species	Flying around trees to east of building
20:49	49	Common pipistrelle	Unseen pass
20:49	49	Soprano pipistrelle	Unseen pass
20:52	52	Pipistrelle species	Unseen pass
20:52	52	<i>Myotis</i> species	Unseen pass
20:53	53	Common pipistrelle	Flying south west over pond, to north of building
20:54	54	<i>Myotis</i> species	Flying around trees to east of building
20:55	55	Common pipistrelle	Unseen pass
20:59	59	Soprano pipistrelle	Unseen pass
21:01	61	Common pipistrelle	Flew south over decking, to east of building
21:03	63	Common pipistrelle	Flying over pond to north of building
21:03	63	Soprano pipistrelle	Unseen pass
21:04 – 21:30	64 – 90	Common pipistrelle	Frequent unseen passes with occasional passes observed over pond to north of building
21:04 – 21:30	64 – 90	Soprano pipistrelle	Occasional unseen passes
21:04 – 21:30	64 – 90	<i>Myotis</i> species	Occasional unseen passes

Surveyor Position 3: South-west of building			
Time	Minutes after sunset	Species	Comments
20:29	29	Pipistrelle species	Unseen pass

20:34	34	Soprano pipistrelle	Unseen pass
20:34	34	Soprano pipistrelle	Flying north over pond, to west of building
20:36	36	Soprano pipistrelle	Flying over pond, to west of building
20:38	38	Unidentified bat species	Unseen pass
20:39	39	<i>Myotis</i> species	Flying south over pond, to west of building
20:43	43	Common pipistrelle	Flying south over building
20:43 – 20:53	43 - 53	<i>Myotis</i> species	Unseen pass
20:43 – 20:53	43 - 53	Soprano pipistrelle	Unseen pass
20:53	53	Common pipistrelle	Flying east over pond and building
20:53 – 21:30	53 – 90	Common pipistrelle	Frequent unseen passes
20:53 – 21:30	53 – 90	Soprano pipistrelle	Frequent unseen passes
20:53 – 21:30	53 – 90	<i>Myotis</i> species	Frequent unseen passes

Table 2: Kenwood Ladies Pond Changing Rooms Dusk Bat Emergence Survey – 04/09/2014

Sunset: 19:41

Start time: 19:26

End: 21:11

Weather conditions: 19C, cloud cover 100%, Light breeze.

Surveyor Position 1: North of building			
Time	Minutes after sunset	Species	Comments
20:01	20	<i>Nyctalus</i> species	Unseen pass
20:02	21	Pipistrelle species	Unseen pass
20:11	30	Common pipistrelle	Unseen pass
20:17	36	<i>Myotis</i> species	Unseen pass
20:20	39	<i>Myotis</i> species	Flying over pond, to northeast of building
20:23	42	Soprano pipistrelle	Unseen pass
20:25	44	<i>Myotis</i> species	Unseen pass
20:27	46	<i>Myotis</i> species	Flying north east from over building
20:33	52	Pipistrelle species	Flying over vegetation, southeast of building
20:35	54	Soprano pipistrelle	Unseen pass

20:36	55	Common pipistrelle	Flying north over building, then south back over the building
20:36	55	Soprano pipistrelle	Unseen pass
20:38	57	Common pipistrelle	Flying east over building
20:40	59	<i>Myotis</i> species	Flying northwest over building
20:42	61	Soprano pipistrelle	Flying northeast over building
20:45	64	Pipistrelle species	Unseen pass
20:49	68	Common pipistrelle	Flying over pond, to west of building
20:49	68	Soprano pipistrelle	Unseen pass
20:50	69	Common pipistrelle	Flying over pond, to northeast of building
20:52	71	Soprano pipistrelle	Flying south over building
20:57	76	Soprano pipistrelle	Flying north over building
20:58	77	Common pipistrelle	Flying over vegetation, southeast of building
21:01	80	<i>Myotis</i> species	Flying over pond, to northeast of building
21:01	80	Common pipistrelle	Unseen pass
21:07	86	Common pipistrelle	Unseen pass
21:09	88	Nathusius' pipistrelle	Unseen pass

Surveyor Position 2: South-east of building			
Time	Minutes after sunset	Species	Comments
19:40	-1	<i>Nyctalus</i> species	Unseen pass
20:00	19	Common pipistrelle	Unseen pass
20:01	20	<i>Nyctalus</i> species	Unseen pass
20:01	20	Common pipistrelle	Flying north over building and turning to the west
20:05	24	Common pipistrelle	Unseen pass
20:10	29	Pipistrelle species	Unseen pass
20:11	30	Common pipistrelle	Flying north over building
20:12	31	Common pipistrelle	Unseen pass
20:12	31	Common pipistrelle	Flying over vegetation, south of building
20:13	32	Unidentified bat species	Flying over vegetation, south of building

20:16	35	Common pipistrelle	Unseen pass
20:17	36	Common pipistrelle	Flying northeast, to south of building, then north over decking to east of building
20:17	36	<i>Myotis</i> species	Flying east over building
20:20	39	<i>Myotis</i> species	Flying over vegetation southeast of building
20:21	40	Pipistrelle species	Unseen pass
20:22	41	<i>Myotis</i> species	Flying over south side of building
20:24	43	Pipistrelle species	Unseen pass
20:26	45	Brown long-eared bat	Flying along path, south of building
20:30 – 20:31	49 – 50	<i>Myotis</i> species	Unseen passes
20:32 – 21:11	51 – 90	Common pipistrelle	Frequent unseen passes
20:37 – 20:41	56 – 60	Soprano pipistrelle	Flying over building and around canopy of trees west of building
20:42 – 21:11	61 – 90	Soprano pipistrelle	Frequent unseen passes
20:45	64	Nathusius' pipistrelle	Unseen pass
20:46	65	<i>Myotis</i> species	Unseen pass
21:00 – 21:01	79 – 80	<i>Myotis</i> species	Unseen passes
21:06	85	Nathusius' pipistrelle	Unseen pass
21:08	87	Nathusius' pipistrelle	Unseen pass

Surveyor Position 3: South-west of building			
Time	Minutes after sunset	Species	Comments
20:11	30	N/A	Begin recording late
21:11	30	Unidentified bat species	Unseen pass
20:12	31	Soprano pipistrelle	Unseen pass
20:12	31	<i>Myotis</i> species	Unseen pass
20:14	33	<i>Myotis</i> species	Unseen pass
20:16	35	<i>Myotis</i> species	Unseen pass
20:19	38	<i>Myotis</i> species	Flying south over pond and building
20:21	40	Soprano pipistrelle	Unseen pass

20:21	40	Common pipistrelle	Unseen pass
20:23	42	Soprano pipistrelle	Unseen pass
20:23 – 21:11	42 – 90	<i>Myotis</i> species	Frequent unseen passes
20:36 – 20:11	55 – 90	Soprano pipistrelle	Frequent unseen passes
20:36 – 20:11	55 – 90	Common pipistrelle	Frequent unseen passes
20:37	56	<i>Myotis</i> species	Flying over pond, northwest of building
20:59	78	<i>Myotis</i> species	Flying northeast over pond, southwest of building

Surveyor Position 4: East of Tree 1164			
Time	Minutes after sunset	Species	Comments
20:09	28	N/A	Begin recording late
20:09 – 21:11	28 – 90	<i>Myotis</i> species	Frequent unseen passes
20:35	54	Common pipistrelle	Unseen pass
20:40 – 20:57	59 – 76	Common pipistrelle	Frequent unseen passes
20:53 – 20:58	72 – 77	Soprano pipistrelle	Occasional unseen passes
21:00	79	Common pipistrelle	Foraging between trees at canopy level

Table 3: Kenwood Ladies Pond Changing Rooms Pre-dawn Bat Re-Entry Survey – 05/09/2014

Sunrise: 06:19

Start time: 04:19

End: 06:19

Weather conditions: 16°C, cloud cover 60%, Still.

Surveyor Position 1: North of building			
Time	Minutes before sunrise	Species	Comments
04:30 – 05:24	109 – 55	<i>Myotis</i> species	Frequent unseen passes
04:34 – 05:36	105 – 43	Soprano pipistrelle	Frequent unseen passes
04:34 – 05:13	66	Common pipistrelle	Occasional unseen passes
04:50	89	Nathusius' pipistrelle	Unseen pass
05:07	72	Nathusius' pipistrelle	Unseen passes
05:26	53	Noctule	Unseen pass
05:29	50	Noctule	Tow bats flying north high over building
05:34	45	Noctule	Unseen pass
05:37	42	Noctule	Flying over pond, north of building
05:37	42	Soprano pipistrelle	Flying over pond, to northeast of building
05:39	40	Noctule	Unseen pass
05:41	38	Noctule	Unseen pass
05:42	37	Soprano pipistrelle	Flying southeast over decking, to east of building
05:43	36	<i>Myotis</i> species	Unseen passes
05:45	34	Noctule	Flying north over pond, northeast of building
05:45	34	Soprano pipistrelle	Unseen pass
05:51 – 05:58	28 – 21	Soprano pipistrelle	Flying over pond, to northeast of building
05:56	23	Noctule	Flying north over trees and pond northeast of building
06:02	17	Noctule	Flying north over trees and pond northeast of building

Surveyor Position 2: South-east of building			
Time	Minutes before sunrise	Species	Comments
04:41	98	Unidentified bat species	Unseen pass

04:48 – 05:37	91 – 42	Soprano pipistrelle	Frequent unseen passes
04:49 – 05:37	90 – 42	Common pipistrelle	Frequent unseen passes
05:08 – 05:38	71 – 41	Pipistrelle species	Occasional unseen passes
05:21	58	<i>Myotis</i> species	Unseen pass
05:24	54	<i>Myotis</i> species	Unseen pass
05:29	50	<i>Nyctalus</i> species	Unseen pass
05:35	44	<i>Nyctalus</i> species	Unseen pass
05:41	38	<i>Nyctalus</i> species	Unseen pass
05:42	37	Pipistrelle species	Flying southeast over building
05:45	34	Soprano pipistrelle	Flying southeast over building
05:51	28	Soprano pipistrelle	Flying northwest over building
05:53	26	Soprano pipistrelle	Flying east from direction of building
05:56	23	<i>Nyctalus</i> species	Unseen pass
06:02	17	<i>Nyctalus</i> species	Unseen pass

Surveyor Position 3: East of Tree 1164			
Time	Minutes before sunrise	Species	Comments
04:48	91	Soprano pipistrelle	Unseen pass
04:53	86	Soprano pipistrelle	Flying southeast, to east of Tree 1164
05:14	65	<i>Myotis</i> species	Unseen pass
05:15	64	<i>Myotis</i> species	Unseen pass
05:21	58	Soprano pipistrelle	Unseen pass
05:28	51	<i>Nyctalus</i> species	Unseen pass
05:30	49	Soprano pipistrelle	Unseen pass
05:31	48	<i>Nyctalus</i> species	Unseen pass
05:32	47	Noctule	Unseen pass
05:39	40	Pipistrelle species	Unseen pass
05:39	40	<i>Nyctalus</i> species	Unseen pass
05:39	40	Soprano pipistrelle	Flying southeast, to east of Tree 1164

05:40	39	Noctule	Unseen pass
05:42	37	<i>Myotis</i> species	Flying northwest, to the east of Tree 1164
05:42	37	<i>Nyctalus</i> species	Unseen pass
05:44	35	<i>Myotis</i> species	Two bats flying northwest, to the east of Tree 1164
05:47	32	<i>Nyctalus</i> species	Unseen pass
05:47	32	<i>Myotis</i> species	Unseen pass
05:56	23	<i>Myotis</i> species	Flying southeast, to east of Tree 1164
05:57	22	<i>Nyctalus</i> species	Unseen pass
06:04	15	<i>Nyctalus</i> species	Unseen pass

Table 4: Kenwood Ladies Pond Changing Rooms Pre-dawn Bat Re-Entry Survey – 10/09/2014

Sunrise: 06:27

Start time: 04:27

End: 06:27

Weather conditions: 11°C, cloud cover 30%, Still.

Surveyor Position 1: North of building			
Time	Minutes before sunrise	Species	Comments
04:37	110	Soprano pipistrelle	Unseen pass
04:37	110	Nathusius' pipistrelle	Unseen pass
04:44	103	<i>Myotis</i> species	Unseen pass
04:45	102	Nathusius' pipistrelle	Unseen pass
04:46	101	Nathusius' pipistrelle	Unseen passes
04:50	97	Pipistrelle species	Unseen pass
04:52	95	<i>Myotis</i> species	Unseen pass
04:52	95	Soprano pipistrelle	Unseen pass
04:56	91	Nathusius' pipistrelle	Unseen pass
04:59	88	Common pipistrelle	Unseen pass
05:01	86	Common pipistrelle	Unseen pass
05:05	82	Soprano pipistrelle	Unseen pass
05:06	81	Nathusius' pipistrelle	Unseen pass

05:10	77	Soprano pipistrelle	Unseen passes
05:11	76	<i>Myotis</i> species	Unseen pass
05:11	76	Soprano pipistrelle	Unseen pass
05:22	65	Nathusius' pipistrelle	Unseen pass
05:23	64	Soprano pipistrelle	Unseen pass
05:36	51	Pipistrelle species	Unseen pass
05:38	49	Soprano pipistrelle	Unseen pass
05:41	46	Soprano pipistrelle	Unseen pass
05:42	45	Pipistrelle species	Unseen pass
05:44	43	Soprano pipistrelle	Unseen pass
05:44	43	Common pipistrelle	Unseen pass
05:48	39	Common pipistrelle	Flying northwest over building
05:50	37	Soprano pipistrelle	Unseen pass
05:52	35	Soprano pipistrelle	Flying southwest over building
06:00	27	Soprano pipistrelle	Unseen pass

Surveyor Position 2: South-east of building			
Time	Minutes before sunrise	Species	Comments
04:30	117	Common pipistrelle	Unseen pass
04:31	116	Soprano pipistrelle	Unseen pass
04:38	109	Soprano pipistrelle	Unseen pass
04:38	109	Pipistrelle species	Unseen pass
04:46	101	Nathusius' pipistrelle	Flying southwest, to south of building
04:46	101	Pipistrelle species	Unseen pass
04:52	95	Soprano pipistrelle	Unseen pass
04:52	95	<i>Myotis</i> species	Unseen pass
04:57	90	Nathusius' pipistrelle	Unseen pass
05:00	87	Nathusius' pipistrelle	Unseen pass
05:03	84	Pipistrelle species	Unseen pass

05:07	80	<i>Myotis</i> species	Unseen pass
05:07	80	Soprano pipistrelle	Unseen pass
05:07	80	Nathusius' pipistrelle	Unseen pass
05:11	76	Soprano pipistrelle	Unseen pass
05:11	76	<i>Myotis</i> species	Unseen pass
05:23	64	Nathusius' pipistrelle	Unseen pass
05:24	63	Common pipistrelle	Unseen pass
05:24	63	<i>Nyctalus</i> species	Unseen pass
05:42	45	Soprano pipistrelle	Unseen pass
05:45	42	<i>Myotis</i> species	Unseen pass
05:45	42	Soprano pipistrelle	Unseen pass
05:46	41	Common pipistrelle	Flying northwest over building
05:46	41	Soprano pipistrelle	Unseen pass
05:49	38	<i>Myotis</i> species	Unseen pass
05:51	36	Nathusius' pipistrelle	Unseen pass
05:52	35	Soprano pipistrelle	Unseen pass

Surveyor Position 3: East of Tree 1164			
Time	Minutes before sunrise	Species	Comments
04:57	90	Nathusius' pipistrelle	Unseen pass
05:11	86	Soprano pipistrelle	Unseen pass
05:13	84	Pipistrelle species	Unseen pass
05:26	61	<i>Myotis</i> species	Unseen pass
05:30	57	Noctule	Unseen pass
05:40	47	Nathusius' pipistrelle	Unseen pass
05:47	40	Soprano pipistrelle	Unseen pass
05:51	36	Soprano pipistrelle	Unseen pass
05:53	34	Pipistrelle species	Unseen pass
05:58	29	Soprano pipistrelle	Unseen pass



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