



39 Fitzjohns Avenue Ltd

39a Fitzjohns Avenue & Maresfield Gardens
Camden


Bat emergence survey
(& tree bat inspections)

Dr Greg Carson
CEcol CEnv MIEEM

February 2024

Report control

Document:	Bat emergence survey (& tree bat inspections)
Project:	39a Fitzjohns Avenue & Maresfield Gardens
Client:	39 Fitzjohns Avenue Ltd
Job Number:	23001
File Origin:	23001 MaresfieldGdns BAT R02.doc

Primary Author	Dr Greg Carson	
Contributor		
Review By		

Issue	Date	Status
1	17/12/23	Draft
2	8/2/24	Final
3		
4		

© Ecology Network Ltd
Primrose Hill Business Centre
110 Gloucester Ave
LONDON
NW1 8HX

+44 (0)777 544 6260 Mob
+44 (0)207 483 2681 Tel
+44 (0)207 483 4541 Fax
info@ecologynetwork.co.uk
www.ecologynetwork.co.uk

Registered company: 6906166

Contents

1. Introduction	4
2. Tree setting	5
3. Approach	9
4. Method - nocturnal surveys	10
5. Method - daytime tree inspections	16
6. Results - nocturnal surveys	17
7. Results of tree inspections	24
8. Limitations	26
9. Discussion	30
10. Conclusions & recommendations	31
11. Appendix 1	34
12. Appendix 2	37
13. Appendix 3	40
14. Report conditions	43

Executive summary

Location	39a Fitzjohn's Avenue & 46 Maresfield Gardens, NW3 (OS GR: TQ 265850)
Previous surveys	<i>39a Fitzjohns Avenue & Maresfield Gardens, Preliminary Ecological Appraisal & Preliminary Roost Assessment.</i> Ecology Network, Feb 2024
Survey	Trees: Bat activity (emergence) survey and daytime inspection
Conclusions	<p>Use of the site is restricted to 3 types of pipistrelle bat, and whilst these were noted to fly (and forage?) within the northern boundary ash and the horse chestnut, the video footage did not reveal conclusive evidence of bat emergence (in one case, the origin of a bat remained uncertain).</p> <p>The daytime inspection did not reveal evidence of bat droppings, within the birch or southern boundary ash, therefore the presence of significant roosts within these trees is unlikely. The possibility of occasional ad hoc roosting from single bats, cannot be discounted.</p> <p>It is unlikely that the conservation status of bats will be adversely affected by the proposal, so long as a sensitive approach to development (for example, with respect to lighting) is adopted during construction and within the design layout.</p>
Recommendations	<p>Due to the inherent difficulty in surveying mature (+/- ivy-covered) trees for bats, as a precaution it is recommended that the trees are 'soft-felled', overseen by a licenced bat worker. The felling should be take place in September or October of any one year (unless a licenced bat worked indicates that weather (or other) conditions, indicate otherwise).</p> <p>Opportunities should be explored for the incorporation of features that benefit bats within the woodland and the new build.</p> <p>A single nights nocturnal monitoring of the site, using static and manual detectors, should be undertaken at the optimum time of year, during years 1, 3 and 6 following the completion of the development.</p>

1. Introduction

- 1.1. A preliminary roost assessment (PRA)¹ undertaken in March 2023 of land adjacent to 39a Fitzjohn's Avenue & 46 Maresfield Gardens, NW3 (OS Grid Ref: TQ 26494 85008; Fig 1) concluded that the presence of bats associated with the building was unlikely.



Fig 1 Location plan, land adjacent to 39a Fitzjohn's Avenue & 46 Maresfield Gardens

- 1.2. The survey also concluded that many of the mature trees have the capacity to accommodate bats either through the presence of dense ivy and/or through defects within the trees themselves (knot holes, pruning wounds etc). As part of the proposal to redevelop the site, it is planned to remove four of these trees:

T9 - Mature horse chestnut, 15m high
T52 - silver birch, 14m high
T19/20 - twin stemmed ash, 18m max height
T42 - ash, 20m high

- 1.3. The PRA recommended a combination of activity surveys and/or inspections of these trees in order to ascertain their presence or likely absence. Ecology Network Ltd was commissioned by 39 Fitzjohns Avenue Ltd on 1st August 2023 to undertake the surveys.

¹ 39a Fitzjohns Avenue & Maresfield Gardens, Preliminary Ecological Appraisal & Preliminary Roost Assessment. Ecology Network, Feb 2024

- 1.4. With respect to the trees due to be retained, disturbance of bat foraging and commuting activity may be avoided through carefully planned construction works as well as sensitive layout and landscape design (see Para. 10.9)
- 1.5. This report should be read in conjunction with the PRA, which, amongst other information, details the site layout and the policy & legislative background to bat safeguard and mitigation.

2. Tree setting ²

- 2.1. The trees surveyed are shown in Fig. 2

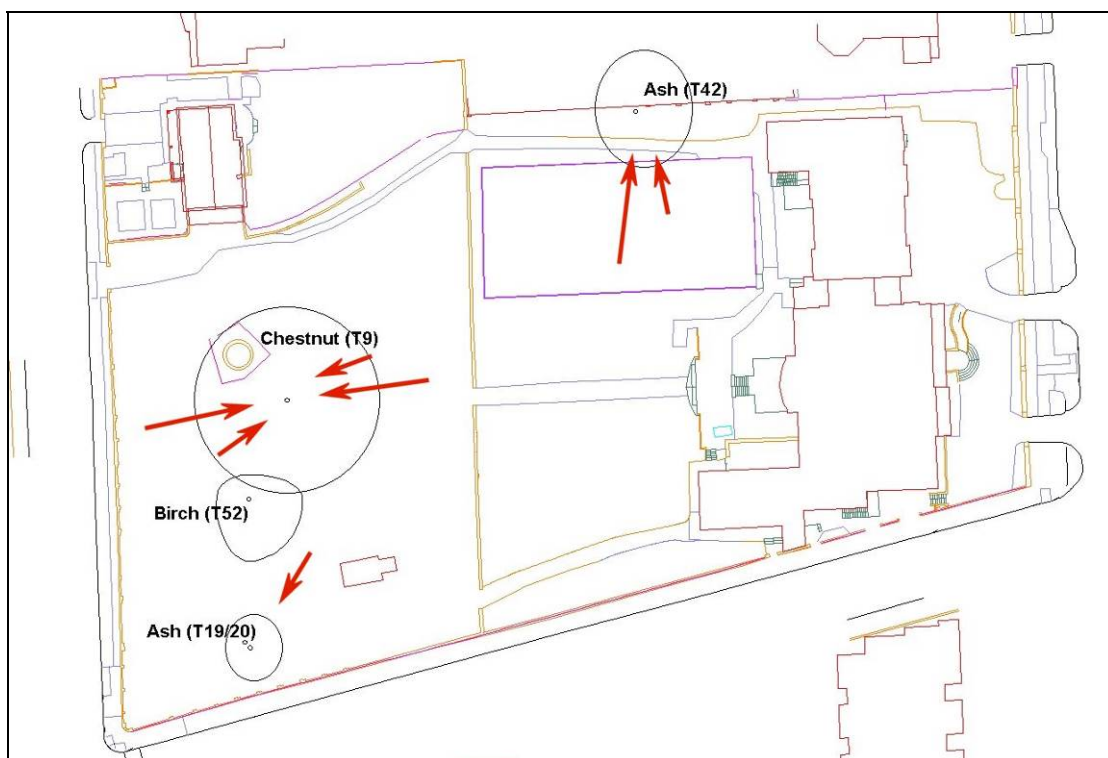


Fig. 2 Location of the four trees with significant roost potential, also due for removal. The long arrows indicate the location of the night vision survey equipment, the short arrows the location of the associated Anabat Express static detector.

- 2.2. The horse chestnut (T9) is some 15m high and stands in the centre of the wooded area at the west of the site (that adjacent to Maresfield Road). Of those trees surveyed, it is the nearest to the ventilation shaft to the underlying rail line, which is some 6m to the NW. It is a substantial mature tree, with a wide crown, in good structural condition. Some of the main

² Details of tree dimension and morphology also draw upon *Appendix 1 - Tree Constraints Survey*, Landmark Trees, Nov 2022

stem is covered in ivy, but there are sufficient parts of the stem and branches exposed to note that defects and general structure may serve as potential roosting features (Fig. 3).

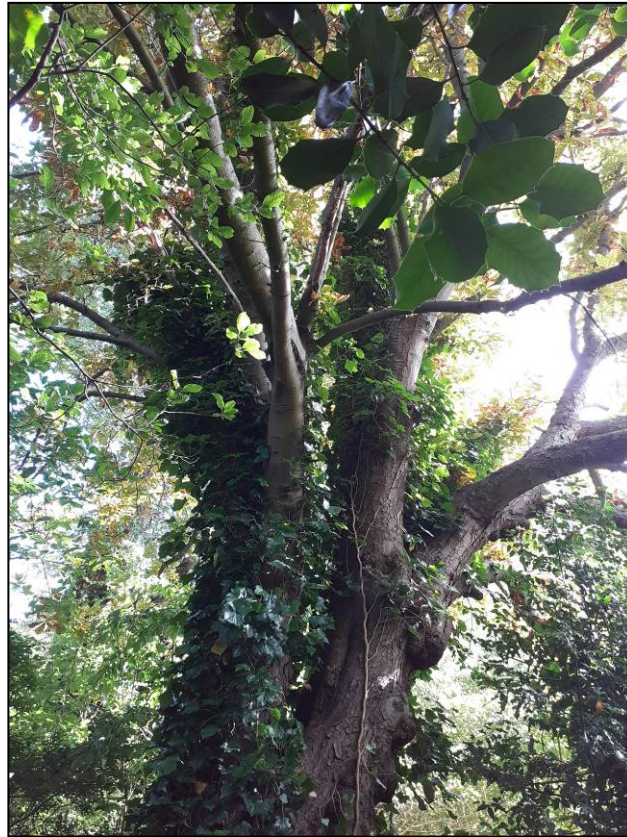


Fig. 3 Horse chestnut (T9) with some superficial ivy (taken from the west, 22/8/23)

- 2.3. The silver birch (T52) stands some 14m high and 11m south of the chestnut, within the same densely wooded area. About the same height as the chestnut, it has a more slender form with a constrained lateral extension of the branches. Most of the tree is covered with dense ivy (Fig. 4).



Fig. 3 Birch (T52) with dense ivy cover (taken 22/8/23)

- 2.4. The ash (T19/20) comprises two main stems arising from the same stock. It reaches a maximum of 18m height. Also within the wooded area, it stands some 6m from the southern boundary to the site. As with the birch, it is densely ivy clad (Fig. 4).

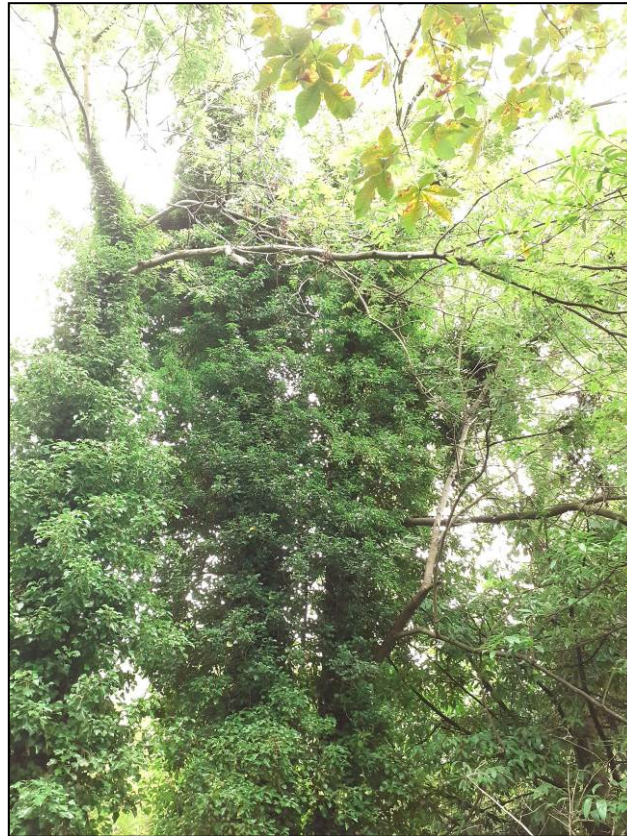


Fig. 4 Ash (T19/29) with dense ivy cover (taken 22/8/23)

- 2.5. Ash (T42) reaches a height of 20m and, unlike the tress described above, stands on the northern boundary to the site, alongside a handful of subordinate trees / shrubs, next to the disused tennis court. There is no significant ivy growth, but the tree has suffered construction damage and is in decline. The tree displays a number of distinct potential roosting features (Fig. 5).

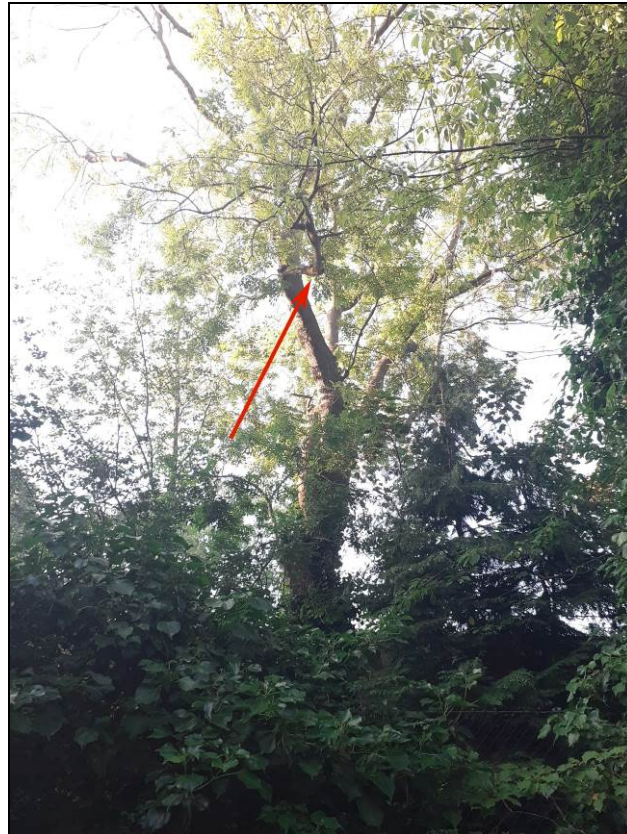


Fig 5 Ash (T42) along the northern boundary, with potential roosting features, in particular that indicated (taken 22/8/23)

3. Approach

- 3.1. Initially, it was proposed to undertake activity (emergence) surveys of the three trees within the wooded area: That bats may be utilising either the ivy and/or a plethora of potential roosting features within the main fabric of the chestnut precluded an inspection at height. The ivy serves as the main potential roosting feature in the case of the silver birch and ash, the extent of which also precluded a search for roosting features at height.
- 3.2. At the time of the survey, it was evident that undertaking an emergence survey was appropriate for the chestnut. However, the ivy growth on the birch and ash which had taken place over the summer was significant, such that if bats were observed within the ivy during a nocturnal survey, it would be impossible to ascertain whether bats were foraging or had emerged from the ivy itself. Given that there is a legislative imperative to distinguish whether the bats are roosting or foraging, an alternative approach had to be devised.

- 3.3. The solution was to undertake a detailed daytime visual inspection of the two trees, not of potential roosting features in the first instance, but of bat droppings: Outside of buildings, the 'residence' time of bat droppings within the natural fabric of a tree is expected to be low (perhaps a day or two?), given the possibility of being eaten by woodlice etc. Consequently, it was accepted that any inspection would serve only as a brief snapshot of bat activity which may be taking place. In addition, the maximum height accessible was that using a 9m ladder - only half to three-quarters the height of the respective trees. These limitations were ameliorated by undertaking inspections on two separate occasions, over three weeks apart, under optimum weather conditions when bats may be expected to be active.
- 3.4. The ash (T42) on the northern boundary lacks significant ivy growth, and the most expedient method to inspect the potential roosting features would have been to undertake a close inspection (potentially with an endoscope), using a 'cherry picker' or engaging a bat surveyor with climbing experience. However, access for a cherry picker was not possible in the context of the current site layout, and it proved difficult to secure the services of a licenced climber within the timescale required. Consequently, an emergence survey of the tree was undertaken at the same time as that of the chestnut.

4. Method - nocturnal surveys

- 4.1. Accepted guidance³ provided the framework for visual observation of bats during nocturnal surveys.
- 4.2. As the trees were of moderate to high suitability for bats, two surveys were undertaken on two separate occasions, each separated by at least two weeks. Because of technical issues, an additional survey was undertaken the day after the first survey.
- 4.3. For each survey, 'survey stations' provided a vantage point to record bat activity related to the chestnut T9 and ash T42. For the former, two stations were set up, one on the western, the other on the eastern side of the tree. Because of the boundary location of the ash, it was only possible to provide one station, at the south side of the tree (Fig. 2).

³ *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). Collins, J. (ed.). The Bat Conservation Trust, 2016
Use of night vision aids for bat emergence surveys and further comment on dawn surveys. Interim Guidance Note. Bat Conservation Trust, May 2022
Note the above was the guidance in place at the time. Since then, the 4th edition of the Good Practice Guidelines has been issued

- 4.4. At each survey 'station', a tripod was assembled with a Canon XA10 or XA11 video camera set to infra-red mode⁴, two 850nm IR illuminator lamps and a either a Batbox 'Duet' (set to 45kHz), a Peersonic ultrasonic detector set to frequency division (FD) mode (with output to a portable speaker), or a Anabat SD1, facing the same direction as the camera (Figs. 6 - 8). A metre or so from each tripod assembly, an Anabat Express ultrasonic detector was deployed (angled on a chair or cable-tied to vegetation), also directed towards the tree (Fig. 9). The same configuration was used at each tree on the different survey nights.



Fig 6 Survey station at ash (T42). The XA11 camera, IR lights, Peersonic (& external speaker) are mounted on the tripod. The Anabat Express detector is mounted on the chair

⁴ The trees were filmed in portrait, to gain the maximum field of view. So when viewed in standard landscape mode, the image is rotated 90°.
The video resolution was standardised at 1920 x 1080, 24Mbps



Fig 7 Survey station at the west side of chestnut (T9). The XA10 camera and IR lights, are mounted on the tripod. The Batbox Duet is mounted on the handle of the camera

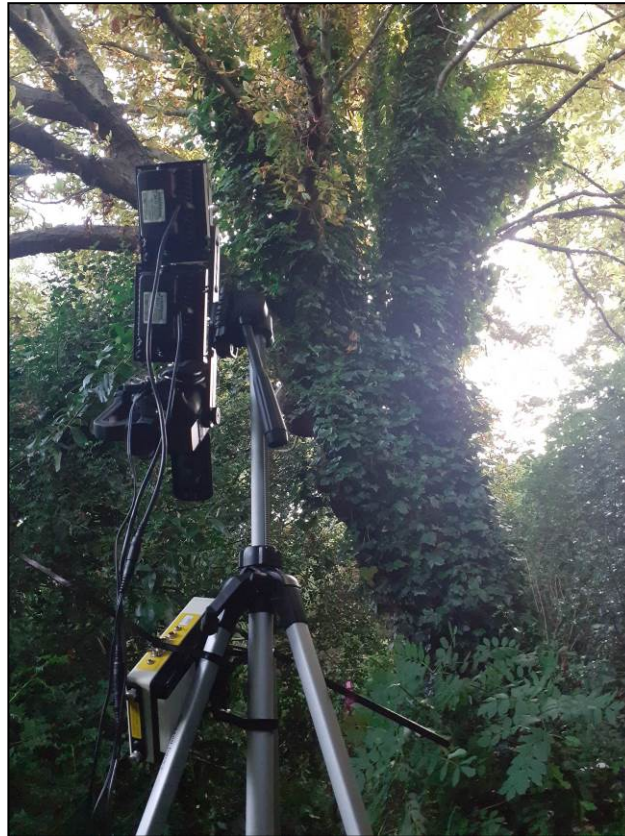


Fig 8 Survey station at the east side of chestnut (T9). The XA11 camera, IR lights and Anabat SD1, are mounted on the tripod.



Fig 9 The Anabat Express facing the east side of chestnut (T9), attached to vegetation.

- 4.5. During the surveys of 22 August and 13 September, an additional Anabat was deployed towards the southern site boundary, directed towards Ash T19/20. This was to (a) gauge the extent of bat activity associated with these trees and (b) to serve as a 'control' with which to compare the extent of bat activity found associated with the other parts of the site.
- 4.6. The Anabat Express records in FD mode. Although this does not give the visual 'resolution' of a full-spectrum or time-expansion recording, it allows a considerable amount of data to be analysed swiftly: Used with the proprietary Analook software, it is possible to scan the entire evenings recordings relatively quickly⁵, and ascertain (a) the species (or at least genera) present and (b) the periods of concentrated bat activity.

⁵ Using a time magnification of 5 secs created a view of 2.5 mins on the computer screen. This gives sufficient resolution to pick out bat calls, whilst at the same time allowing a rapid assessment of the whole file (zooming into calls as and when required).

- 4.7. Aside from being useful information in its own right, this also enables a more efficient scanning of the video footage, as attention can be given to those periods of time when activity was picked up by the Anabat.
- 4.8. In using this approach, it is recognised that bats may not always echolocate, especially when leaving a roost. However, it is likely that they will start echolocating soon after, which will be picked up by the detector. So when using the time of the calls as determined by the Anabat to guide the inspection of the footage, at least one minute of footage 'either side' of the time of the call was viewed.
- 4.9. Sometimes, an image on the video footage is clearly that of a bat, and other times it is very obvious that the object is a moth or bird. However, in many of the observations made, the animal is 'cryptic' - it is not possible from the image alone to say with certainty whether it is a bat or not. Although a bat may fly without echolocating, if the image is coincident with an echolocation call (either aurally from the detector adjacent to the camera or from the associated Anabat), then it adds certainty to the animal being a bat.
- 4.10. The detectors mounted on the tripod next to the camera, simply added an aural context to the video, which assists in picking out bats from within the footage. As the relevant detectors are native FD (or were set to FD mode)⁶, the sound of any bat will be broadcast, irrespective of species⁷.
- 4.11. In addition, to the static detectors, a hand-held Anabat Walkabout full-spectrum detector was used on an 'ad hoc' basis at different locations during the survey. The Walkabout was used actively with dual heterodyne / FD audio through respective headphone channels. Recording were activated manually upon hearing a call (because there is a buffer, no recordings were unintentionally missed).
- 4.12. At no point was automated species identification software used.
- 4.13. The time on all the equipment was accurately set (from the internet⁸), such that all devices were both precise and accurate to within about 1

⁶ The Duet (a heterodyne, not FD detector) was set to 45kHz, since common / soprano pipistrelle were the most likely bats to have been encountered. At this setting, myotis bats may also register, and possibly pipistrelle social calls. Echolocation calls of the larger bats however, are unlikely to have been heard.

⁷ The recordings from the detectors mounted next to the cameras, primarily for the purpose of creating the audio context in the video footage, were generally not analysed, unless confirmation of recordings by the Anabat Express or Walkabout was required.

⁸ Apart from the Anabat Express detectors (where the time is automatically from GPS satellites)

second, although results are generally reported to the nearest minute. Due to the way that the absolute time was calibrated for the video cameras (unfortunately in these models there is no way of creating a 'time stamp'), the correlation of events recorded by the video and the detectors is accurate to 2 seconds (for footage derived from the XA11s) or 6 seconds (for footage derived from the XA10).

- 4.14. Video footage was analysed using VLC and viewed on a 40" Sony 'Bravia' TV screen or a 40" Samsung LE40R8.
- 4.15. The video equipment was deployed at least 11 mins before sunset, and the Anabat Express detectors at least 18 minutes before sunset.
- 4.16. Each survey aimed to start half an hour before and finish 2 hours after sunset. In other words, best practice was applied in exceeding the minimum required survey duration of 1½ hrs after sunset. In practice, because of the time required to set up the video equipment and take it down again, the video recordings started later. However, because the Anabats were in the main deployed 1/2hr before sunset (as well as continuing sometime after the two hour post-sunset end time), it was possible to ascertain if there had been any activity during the duration of the video set up (although see Para 4.8) or dismantling.

5. Method - daytime tree inspections

- 5.1. Each tree was inspected at 4 heights, determined by the extension of the three part ladder (ie at approximately head height, 3m, 6m and 9m). At each height, the entire circumference of the tree was inspected, by moving the ladder to each of each of 4 'elevations' around the tree. Whilst the most detailed inspection was undertaken at each of the 4 heights, visual inspection was maintained whilst ascending and descending the ladder. For any one tree, the inspection started at the lowest point, working upwards, so if any droppings were found, they would have been likely to have been in situ.
- 5.2. Finding a single dropping would not conclusively demonstrate that a bat had been roosting within the tree, but would serve as an indication to undertake for a detailed endoscopic examination of the ivy and other features of the tree within the immediate vicinity. Although locating droppings within this environment is challenging, it is entirely feasible with sufficient effort: There were sufficient instances of 'false alarms' (ie finding detritus of a similar size to droppings on leaves or within cobwebs - see Figs. 15, 16 & 17) to provide confidence that if droppings were present, they would have been noted. This would particularly be the

case in the event that multiple droppings were present, providing a strong indication of roosting.

- 5.3. In summary, using this approach, the absence of droppings does not prove that bats are absent from within the two trees. However, it serves as the most appropriate approach given the nature of the ivy cover. The 'imprecision' of the approach is addressed by subsequent mitigation (see Para. 10.5).

6. Results - nocturnal surveys

- 6.1. The 'raw' results from the detectors, the video and field observations are tabulated and appended⁹. The objective of the survey was to determine whether bats were emerging from roosting features within the trees. The information presented provides detail to support the interpretation, but is not intended as a comprehensive activity survey (for example to gain an understanding of degree of feeding, spatial movement of bats etc).
- 6.2. The nocturnal surveys were undertaken on 21st & 22nd August, and 13th September.
- 6.3. The weather conditions and sunset times for each survey (including those of the daytime inspections) are tabulated below

⁹ Compiling the information in this way is used as a tool for qualitatively establishing concentrated periods of activity and drawing broad comparisons between the three different observation stations. Some of the comments in the table may not reflect the subsequent interpretation.

Within the tables, timing of each event is mostly recorded in two formats: HH.MM:SS, which is the absolute time of the event, and [MM.SS] which is the time of the event within the relevant video file. The latter makes it easier to re-locate an event when scanning through a video file.

	21 Aug	22 Aug	22 Aug	13 Sep	15 Sep
Start temp	20°C	23°C	22°C	18°C	18°C
Weather	Warm, still, overcast (90% cloud cover), dry (had not rained for a couple of days)	Hot, dry, still,, clear (10% cloud)	Warm, very slight breeze, clear	Warm, still, overcast (95% cloud cover), dry	warm, clear (0% cloud cover), dry still
End temp	18°C	N/A	18°C (est)	17°C	N/A
Sunset	20:10	N/A	20:10	19:21	N/A

21st August

- 6.4. The latest deployment of the Anabats was 18 mins before sunset. During the period between when the Anabats were deployed and all three video cameras activated, there were no bats detected.
- 6.5. The first bat detected was an echolocating common pipistrelle *Pipistrellus pipistrellus*, at the ash (T42) at 21.02 (52m after sunset). Thereafter bats were noted fairly regularly until 21.40. Thereafter, pipistrelle activity was noted until the end of the survey (1hr45 mins after sunset). The pipistrelle activity included Type D social calls from 21.33, as well as a pipistrelle social call being the last call during the survey (at 22.11 Fig. 10), noted by the Walkabout within the vicinity of the ash.

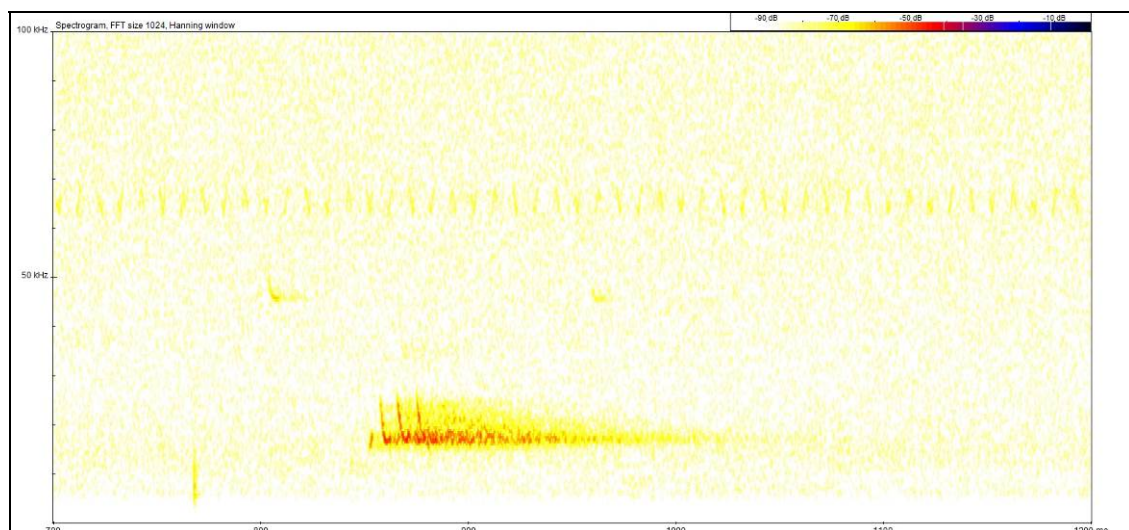


Fig 10 Common pipistrelle social call in the vicinity of ash (T42) at end of survey on 21/8/23

- 6.6. Unfortunately, there was a power failure to the IR light source which was not rectified until 21.32. This is discussed below (Para. 8.3). From 21.44 on the video footage, three occurrence of bats were noted flying around the tree (Fig. 11), but at no stage were bats seen emerging from any part of the tree.



Fig 11 Bat ascending ash (T42) before heading east. 21/8/23, 21.48

- 6.7. At the chestnut, virtually no distinct bat calls were picked up by the Anabats during the entire survey: On the east side, around 20.46 - 20.43, three extremely faint common pipistrelle calls were noted, and one faint common pipistrelle call at 22.02. On the west side, activity was restricted to a weak calls from 20.32 up to c20.49, with (likely to be) the same pipistrelle noted from the west side at 22.02.
- 6.8. At 21.29 and 21.36, animals were noted within the video footage flying within the tree, but whether these were indeed bats was far from certain.

22nd August

- 6.9. The latest deployment of the Anabats was 28 mins before sunset. During the period between when the Anabats were deployed and all three video cameras activated, there were no bats detected.
- 6.10. The first bat detected was at 20.21 (11 mins after sunset) at the chestnut - a faint common pipistrelle call noted on the Anabat, but also heard emanating from the Duet on the video footage. Thereafter, regular

(mostly faint) pipistrelle calls were noted from the vicinity of the chestnut for about $\frac{3}{4}$ hr.

- 6.11. At 20.24, what is believed to be a common pipistrelle was observed flying within the vicinity of the ivy covering the lower part of the trunk. A faint common pipistrelle call was noted on the Anabat at the same time. It is not clear whether the bat is emerging from within the ivy, or flying from behind
- 6.12. From around 21.12 for around $\frac{1}{2}$ hr, common pipistrelles were still regularly noted, but strongly associated with social calls (determined as Type Da from recordings made on the Walkabout).
- 6.13. From the video footage, there were a number of 'cryptic' sightings which may have been bats flying within the tree, but no bats were confirmed emerging from the structure of the tree itself. From 21.03 - 21.08, the video footage captured the sound of bat echolocation calls picked up by the Duet, but there was no corresponding observations of bats flying within or emerging from the tree.
- 6.14. Common pipistrelle activity within the vicinity of Ash T42 commenced at 20.25 (15 mins after sunset), including considerable social calling, and continued with some intensity for around 10 mins. Real time observation noted that most of the activity was in relation to foraging over the tennis court, with common and soprano pipistrelles flying from the south. Activity continued throughout the survey, with a noticeable cessation between 20.56 and 21.26. Towards the end of the survey, calls were fainter and often of a social type. The video footage revealed a maximum of two bats flying within the tree, but no bats were noted emerging from the rot hole at the end of the branch nor any other part of the tree.
- 6.15. A technical fault with the camera meant the footage ended at 21.33 (1h23m after sunset).
- 6.16. The Anabat directed towards Ash T19/20 only picked up two indistinct common pipistrelle calls (eg Fig. 12)

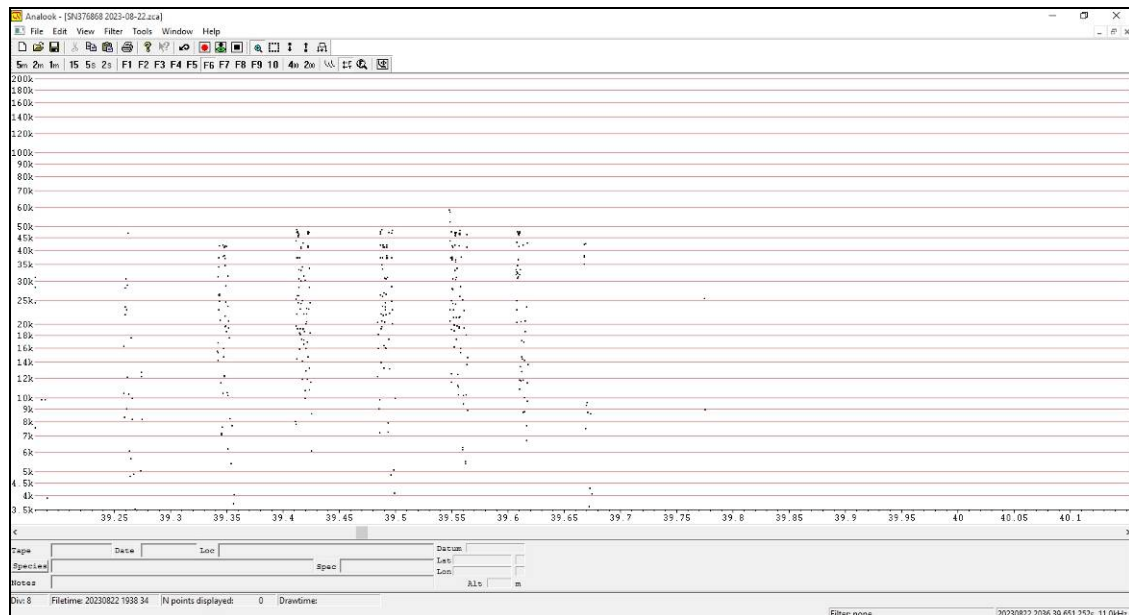


Fig 12 Indistinct common pipistrelle at ash T19/20. 22/8/23 20.37

13th September

- 6.17. The latest deployment of the Anabats was 22 mins before sunset. During the period between when the Anabats were deployed and all three video cameras activated, there were no bats detected.
- 6.18. The first bat was detected at 19.25 (4mins after sunset) at Ash T42. The soprano pipistrelle was noted in the Anabat and also heard (from the Peersonic) on video footage. From thereon, pipistrelle (mostly common) activity was evident until towards the end of the survey, particularly strong around 19.35 (Fig.13) and with an appreciable hiatus from 20.01 to 20.51.

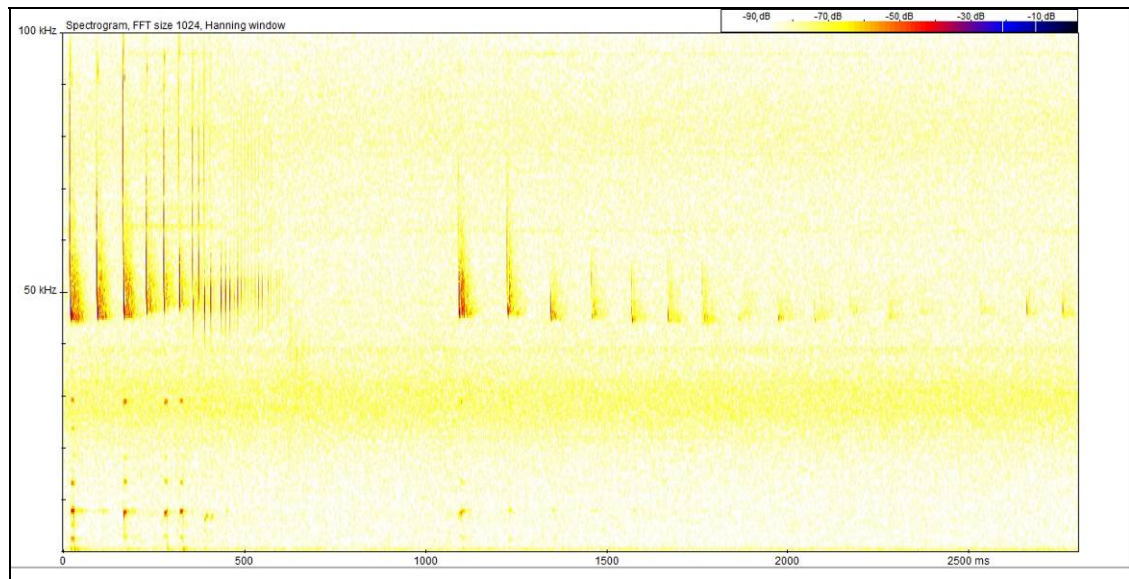


Fig 13 Feeding common pipistrelle in the vicinity of ash (T42). 13/9/23, 19.35

6.19. Of note was a *Nathusius pipistrelle*, recorded at 20.52 (Fig. 14)

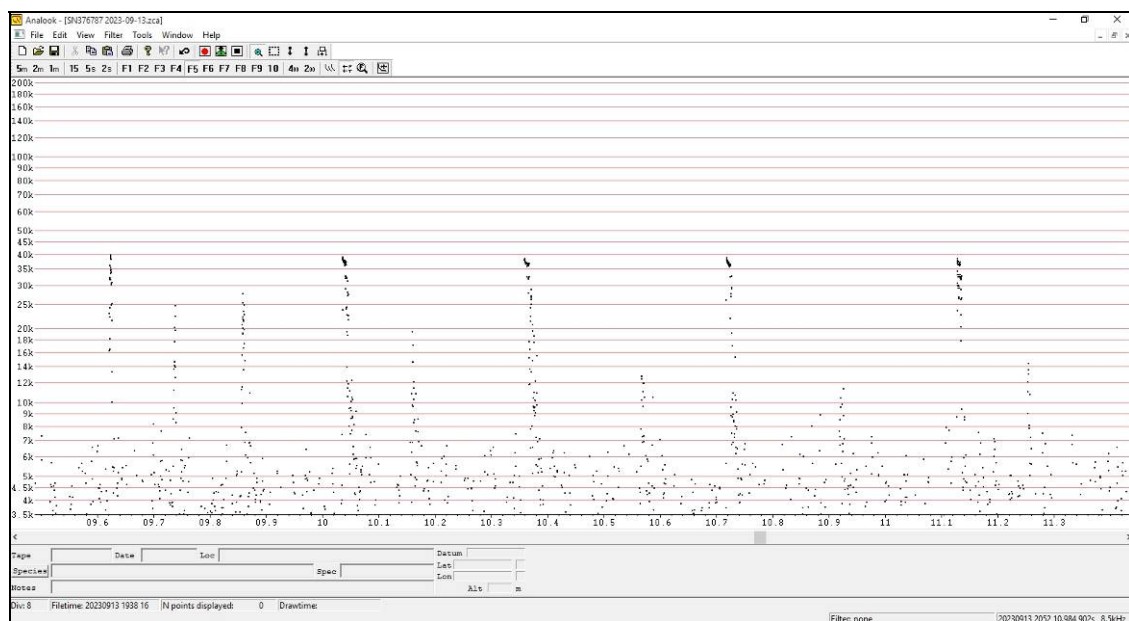


Fig 14 *Nathusius pipistrelle* in the vicinity of ash (T42). 13/9/23, 20.52

6.20. Incidental observations from being positioned close to the northern boundary, noted that from 20.34 to 20.45, bat foraging activity (mostly common pipistrelle) was emanating from the tennis court, rather than the northern boundary where ash T42 is located. From 20.59 there was a bout of continuous social calling for around 10 mins, emanating from south of the survey station.

- 6.21. There were two technical issues with the video recording at the ash during the survey (1) the infra red lamps were not switched on until 20.20 (ie around 40mins after sunset), meaning that no adequate video was available between 19.48 and 20.01, and (2) a fault with the camera caused the loss of the video clip from 21.04 onwards. These are discussed below (Para. 8.3).
- 6.22. Notwithstanding the above, within the video footage, no bats were noted emerging from the ash. There were a number of 'cryptic' bat passes, but only two of these coincided with bat (common pipistrelle) calls picked up by the Anabat.
- 6.23. The first bat noted within the vicinity of the chestnut was a common pipistrelle at 19.33 (8 mins after the first bat at the ash). Thereafter, there was an apparent absence of bat activity until 19.52 where faint common pipistrelle calls were noted for around 15mins. Following this, there was no discernable activity for 40mins, with (mostly faint) common pipistrelle calls evident only from 20.49 and lasting almost to the end of the survey.
- 6.24. A faint *Nathusius pipistrelle* call was noted at 21.13.
- 6.25. The video footage captured the initial pipistrelle (at 19.33), feeding within the confines of the tree. A bat was also observed weaving its way down the tree at 21.14:54. This coincided with a faint FM (frequency modulated) call noted on the Anabat which may be that of a brown long eared bat. All the other 'bat' passes noted were 'cryptic'.



Fig 14 Bat descending in front of the eastern side of chestnut T9. 13/9/23, 21.15

6.26. As with the ash, there was a technical problem with the video recording at the chestnut during this survey, the video camera covering the east side of the tree having been accidentally switched off at the start of the survey, such that no footage was obtained between 19.21 and 19.52. It is noted that during this time, by coincidence, not a single call was noted from the associated Anabat. The implications for this are discussed below.

6.27. The Anabat revealed limited bat activity within the vicinity of Ash T19/20. The first bat at 19.33 may have been the same common pipistrelle as that noted in relation to the chestnut. Thereafter, there were only 3 faint calls from common pipistrelle between 19.52 and 20.06, with two unidentified low frequency (21kHz) recordings later on in the evening. It is possible also that the Nathusius noted by the chestnut was also foraging near T10/20.

7. Results of tree inspections

- 7.1. The tree inspections were undertaken on 22 August and 15 September under optimum weather conditions (see table in Para 6.3), where bats would have been active during the preceding nights.
- 7.2. On 22 August, the survey started at 10.24 and ended 13.35, on 15 September, the survey started at 9.23 and ended at 13.40.
- 7.3. The dense nature of the ivy completely covering the trees is shown in Figs 3 & 4. The inspections focussed on cobwebs within the ivy, as well as on the leaves. That on many occasions, 'detritus' of a superficially similar colour, form and size were noted (Figs. 15 & 16) meant that if droppings had been present, they are likely not to have been missed, particularly had they been present as a significant accumulation.



Fig 15 Detritus (of similar size & colour of a bat dropping) on a leaf of the ivy covering birch (T52), at c 9m height. 15/9/23, 10.49



Fig 16 Detritus (of similar size & colour of a bat dropping) within a cobweb of the ivy covering ash (T19/20)), at c 3m height. 15/9/23, 11.53

7.4. As well as within the dense mass of ivy, particular attention was given to the tops and sides of the lateral branches (against which a deposited dropping would have been clear) and the leaves of those branches.

Attention was given also to the dead or 'green' leaf litter that had accumulated within the forks of the branches.

- 7.5. On one occasion (c 9.40 on 15/9/23), what may have been a bat dropping was noted at c3m on the north side of the birch T52 (Fig. [9.41]). It did not have much of a characteristic shape, but crumbled like a bat dropping. A particularly intensive search was undertaken looking for additional droppings at the same location. About 1m above, there was a large horizontal cobweb, which did not contain any droppings. So the 'dropping' noted is likely to have originated from below the cobweb. An inspection of the ivy within the vicinity was undertaken using an endoscope, but this revealed that the ivy stems would not have offered sufficient confinement for bats. So assuming the specimen was bat-derived, it would have likely been deposited during foraging within the tree.



Fig 17 Possible bat dropping on a leaf of ivy covering birch (T52), at c 3m height. 15/9/23, 9.41. No evidence of roosting found within the immediate 'micro'vicinity

- 7.6. Apart from the above potential dropping, no confirmed bat droppings were found.

8. Limitations

- 8.1. One main limitation of the approach adopted is in relation to the height / expanse of the trees: With respect to the daytime inspections, depending upon the tree up to a quarter or half the upper part of the

tree remained beyond the reach of the surveyor. However, it is not unreasonable to assume that the middle sections of the trees, where the ivy is very dense, offers considerable structural potential to serve as bat roosts, although in this instance, no significant roosts appeared to be present.

8.2. The extent of the trees is also a limitation to the night vision surveys: As stated above, there is a trade off between encompassing a wider view of the tree and maintaining detail sufficient to see bats emerge: The further from the tree, the greater the field of view, but greater the possibility of missing bat activity. Capturing the upper parts of the tree, but below the extensive branching, is expected to maximise the possibility of noting bats emerge from the tree, if they were present.

8.3. Further limitations were in relation to the equipment failures experienced during the three surveys:

21/8/23 No power to the IR lights directed towards ash T42, eliminating footage from 20.38 to 21.32

22/8/23 All equipment functional

13/9/23 Accidentally switching off the camera directed towards the eastern side of chestnut T9, losing footage from 19.21 to 19.52, failing to switch on the IR lights to ash T42 until 20.02 and file corruption losing footage from ash T42 between 21.04 and the end of the survey

8.4. Despite these setbacks, there is sufficient information from the surveys to gain an understanding of the bat activity associated with the relevant trees:

8.5. The survey on 22/8/23 was programmed in immediately after the end of the survey the night before, as the guidance provides for surveys on consecutive nights to be considered as one. Therefore, it is valid to use the data obtained in relation to the ash T42 from 22/8/23 in lieu of that from 21/8/23. wrt the survey of the same ash on 13/9/23, the IR lights were not activated until 20.20. However, it was possible to image enhance the video such that there was confidence in seeing a bat should one have emerged before ½hr after sunset (Fig. 18a & 18b). This meant that from ½ hr after sunset to ¾ hr after sunset, had a bat emerged from the roosting feature, it would not have been noted.



Fig 18a Still from image enhanced video of ash (T42) at 9 mins after sunset. Features of the tree remain clear, so had bats emerged, they would have been noted., 15/9/23,



Fig 18b Still from image enhanced video of ash (T42) at 27 mins after sunset. By this time, features of the tree are becoming indistinct, so there is little confidence that the origin point of an emerging bat would have been established if a bat was noted after this time. 15/9/23.

8.6. During that period, 3 faint common pipistrelle calls (Fig. 19) and one faint soprano pipistrelle call (Fig. 20) were noted. Given the low strength of

the calls (with only the CF (constant frequency) elements present) and lack of any social calling, it is unlikely that these would have been derived from a bat emerging from the roosting feature to which the Anabat was fully directed, and more likely to be derived from bats foraging outwith of the tree, in a less cluttered environment.

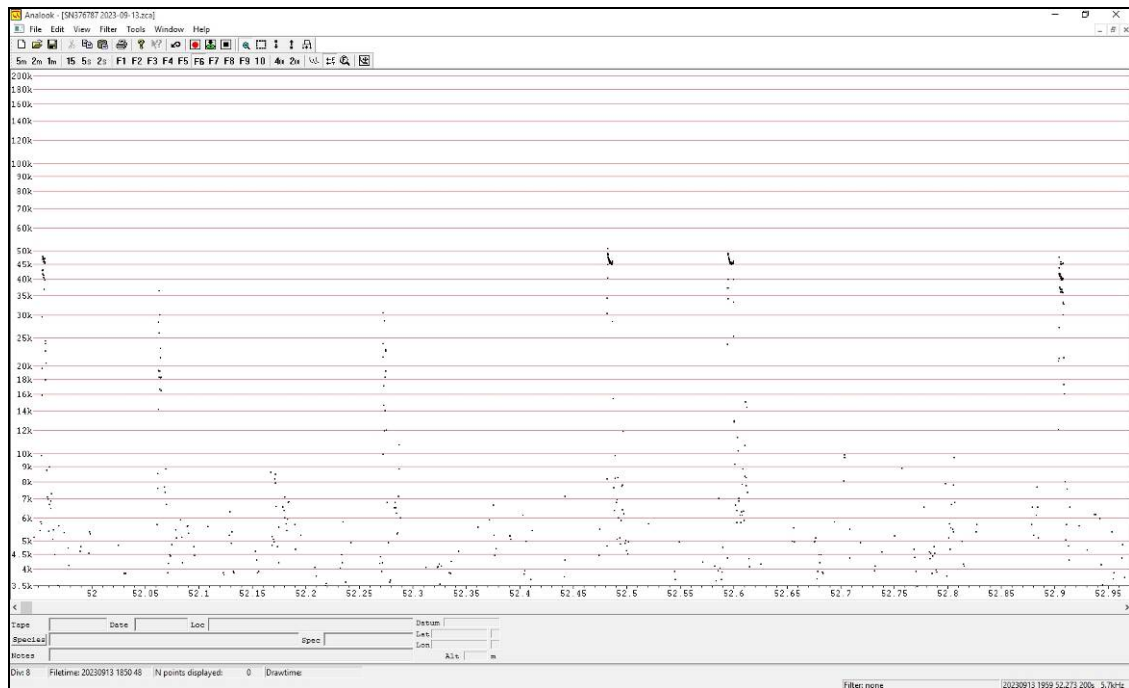


Fig 19 Faint common pipistrelle call within the vicinity of ash (T42) noted at the time where no video footage was available 15/9/23. 19.59

- 8.7. That a corruption of the last video file caused the loss of footage from the final 20 minutes of the survey, means that although in the case of the ash, 'best practice' was not achieved on that evening, the standard approach to survey was still being maintained (see Para. 4.16).

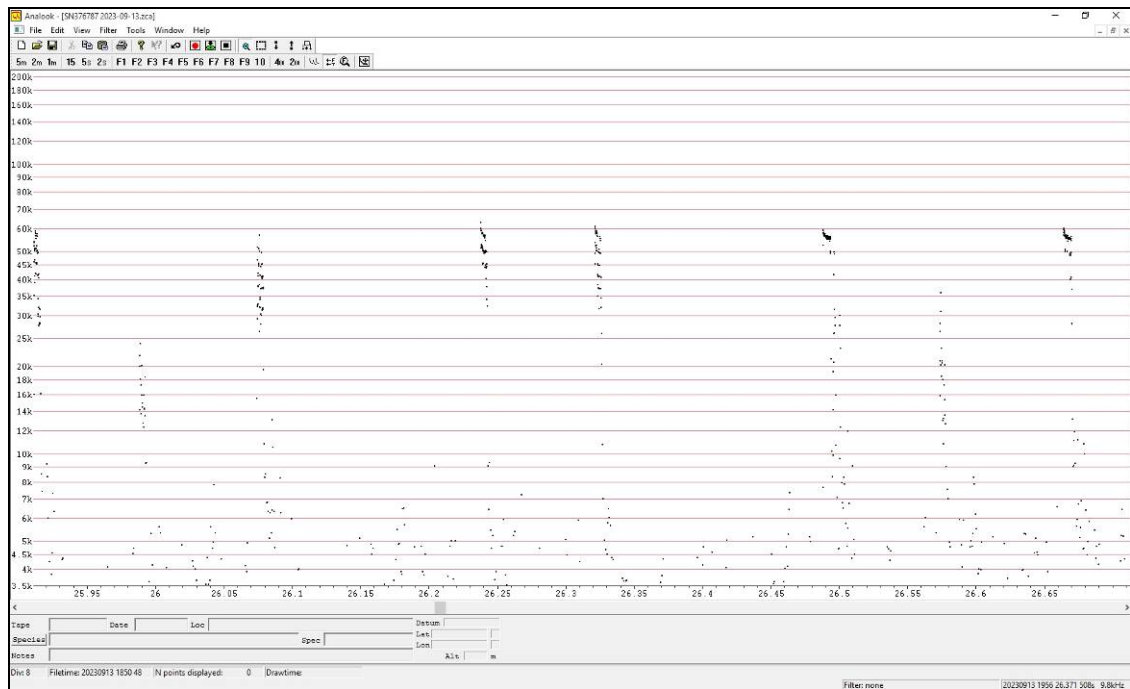


Fig 20 Faint soprano pipistrelle call within the vicinity of ash (T42) noted at the time where no video footage was available 15/9/23. 19.56

9. Discussion

- 9.1. The area between the rear of No's 39 & 39a Fitzjohns Avenue and Maresfield Road comprises a secondary (predominately) deciduous woodland with structural diversity and some sizeable mature trees. The trees, in their unmanaged state, offers opportunities to serve as bat roosts. Bats are active on site, but despite the apparent suitability of the trees surveyed, significant bat roosts appear to be absent.
- 9.2. The mature horse chestnut (T9), offers potential to accommodate bats within its dense (albeit patchy) ivy cover and also within fabric of the tree itself. Although the tree is approximately within the centre of the wooded area (and therefore least subject to the effects of street lighting, car noise etc), it is also in very close proximity to the rail vent shaft.
- 9.3. During the activity surveys, it was noted that the passing of each train is preceded by a significant disturbance to the foliage of the vegetation surrounding the shaft (probably by air compression within the tunnels from the moving train?). It was noted that each time this happens, a significant amount of ultrasonic noise is generated, up to about 20 - 23kHz. Although not quite the frequency of pipistrelle social calling, it is

not far off. So it is possible that this regular (albeit random) ultrasonic disturbance makes the chestnut unsuitable for bat roosting.

- 9.4. In the case of the ivy covered birch (T52) and ash (T19/20), no evidence of any significant roosting was found during the daytime searching. It is acknowledged that the daytime search for droppings has significant limitations (see above). Yet it is also the case that there appears to be much lower bat activity (as measured by the Anabat data) associated with the (at least the) ash when compared to other parts of the site. This may not be surprising given the proximity of the tree to street, perhaps making it less favourable as a roost compared with other parts of the site.
- 9.5. Pipistrelles were noted feeding over the more open areas (scrub) parts of the woodland, appearing to favour more the edge habitat rather than within the large trees surveyed themselves.
- 9.6. The ash (T9) lacks ivy growth but has at least one clear potential roosting feature (the rot hole at the end of the branch), with other potential minor cavities. The majority of these features were within the field of view of the survey equipment. The video footage revealed bats flying within the confines of the tree on 9 occasions¹⁰ over the 3 surveys, but at no stage did the video footage reveal bats emerging from these points. It was also evident from the bat detector data (particularly that from the manual use of the Walkabout), that the more significant foraging was over the tennis court, and social activity concentrated more towards the area south of the tennis court.
- 9.7. During all the surveys at all the trees, the earliest observation of bat social calling was 18mins after sunset (from the vicinity of the ash T42 on 22/8/23, and direct visual observation noted this to be associated with foraging bats over the tennis courts). Whilst the absence of early social calling does not indicate an absence of roosting, it is not uncommon for there to be vocalisations from bats prior to emerging from a roost. So the absence of early social calling provides additional evidence that the trees do not accommodate roosts for significant numbers of bats.

10. Conclusions & recommendations

- 10.1. Nocturnal activity surveys focussing upon potential bat emergence from the trees, revealed the presence of mainly common pipistrelle, but also

¹⁰ Although it should be noted that some of these observations were cryptic, ie it could not be certain from the footage if the animal observed was indeed a bird or moth, rather than a bat

soprano pipistrelle, and on during one evening, Nathusius' pipistrelle. Other species of bat appear to be absent.

- 10.2. Careful observation (comprising nocturnal infra-red recording and daytime inspections) of the 4 trees proposed for removal which had the capacity to serve as bat roosts, did not reveal bats emerging from the structure of the tree / evidence of roosting from droppings.
- 10.3. It may be that the proximity of the trees to sources of noise (+/- light) disturbance make the trees less favourable than other trees / structures within the vicinity.
- 10.4. There is confidence therefore, that those 4 trees are not accommodating significant bat roosts. However, because of the limitations of the survey effectively providing a 'snapshot' of bat activity at any one time, as with any tree, it is not possible to say with absolute certainty that bats (such as single male pipistrelles) would not be either using the tree as a short-term day roost during the summer, or indeed for hibernation during the winter, at the time the tree was removed.
- 10.5. Consequently, as a precaution it is recommended that each of the trees is 'soft-felled' (ie carefully sectionally dismantled with each section being lowered using a rigging rope), allowing inspection by a licenced bat worker who would be present throughout the operation. The arboricultural contractor should be experienced in using such an approach. With the birch T52 and ash T19/20, where possible, the outer stems of ivy should be removed prior to felling.
- 10.6. Whilst bats may use trees for summer roosting and/or winter hibernation, in this case it is recommended that the removal of the trees takes place during September / October to avoid the end of the breeding season, and the onset of hibernation (when bats are most vulnerable to disturbance).
- 10.7. Should bats (or evidence of a bat roost) be found, work would be suspended until the bat worker is able to advise on an approach which will enable the tree removal to continue without contravening wildlife legislation.
- 10.8. In relation to the trees identified for removal but with insignificant roosting potential, as a precaution it is recommended that a licenced bat worker provides a 'toolbox talk' for the arboricultural contractors prior to the commencement of work, in order that they are aware of bat signs within trees during their work.

- 10.9. During the emergence surveys, it was evident that bat foraging activity was concentrated in the more 'open' areas of the site (ie over the tennis court and over the unsealed surface (rear access track) of the western section). Whilst it is acknowledged that there will be significant changes to the site during the construction phase, it is recommended that advice is sought to minimise impact upon bat activity during the summer months (such as timing of construction activity and lighting).
- 10.10. It is recommended also that advice is sought on minimising the impact of lighting upon the retained woodland surrounding the new build, as well as features which may be incorporated within the same to benefit bats.
- 10.11. A single nights nocturnal monitoring of the site, using static and manual detectors, should be undertaken at the optimum time of year, during years 1, 3 and 6 following the completion of the development, to assess if the development has encouraged different species within the area.

11. Appendix 1

'Raw' notes on data from detectors, field observation and video, 21/8/23

23001 Maresfield Gdns / Fitzjohns Ave										
Bat recording summary										
[mm:ss] indicates time on the relevant video clip. Without parentheses is the absolute time										
Time	W of horse-chestnut AnabatX (on cut bu)	E of horse-chestnut T9 AnabatX (on cut bu)	Anabat Walkabout	Ash T42 AnabatX (on cut bu)	Peersonic	Walkabout	W of horse-chestnut Notes on video	E of horse-chestnut Notes on video	Ash T42 Notes on video	Field comments (incl real time Walkabout obs)
21/08/2023										
19:40	Deployed									
19:41										
19:42										
19:43										
19:44										
19:45		Deployed								
19:46										
19:47										
19:48										
19:49										
19:50										
19:51										
19:52										
19:53				Deployed						
19:54										
19:55										
19:56										
19:57										
19:58										
19:59										
20:00										
20:01										
20:02										
20:03										
20:04										
20:05										
20:06										
20:07										
20:08										
20:09										
20:10									XA11 & Peersonic ON	SUNSET
20:11										
20:12										
20:13										
20:14										
20:15										
20:16										
20:17										
20:18										
20:19										
20:20										
20:21	Something with faint CF around 35kHz									
20:22										
20:23							XA10 (& Duet) ON			
20:24										
20:25										
20:26										
20:27										
20:28										
20:29										
20:30										
20:31										
20:32	}							XA11 & Anabat SD1 ON 20.31:40 [2.40] bird flying within crown. 20.32:22 [3.22] Good example of changing 'perspective' of moth		
20:33	}									
20:34	}									
20:35	} com pip QCF									
20:36	}	v v faint com pip								
20:37	}									
20:38	}									
20:39		v v faint com pip							IR switched on	
20:40	com pip									
20:41										
20:42										
20:43	}	v v faint com pip								
20:44	} com pip									
20:45	}									
20:46			Walkabout deployed							
20:47										
20:48								20.47:57 [18.57] 'cryptic' moth passing from south in front of lower part of tree		

20:49	faint com pip									
20:50										
20:51										
20:52										
20:53										
20:54										
20:55										
20:56										
20:57										
20:58										
20:59										
21:00										
21:01										
21:02										
21:03										
21:04										
21:05										
21:06										
21:07										
21:08										
21:09										
21:10										
21:11										
21:12										
21:13										
21:14										
21:15										
21:16										
21:17										
21:18										
21:19										
21:20										
21:21										
21:22										
21:23										
21:24										
21:25										
21:26										
21:27										
21:28										
21:29										
21:30										
21:31										
21:32										
21:33										
21:34										
21:35										
21:36										
21:37										
21:38										
21:39										
21:40										
21:41										
21:42										
21:43										
21:44										
21:45										
21:46										
21:47										
21:48										
21:49										
21:50										
21:51										
21:52										
21:53										
21:54										
21:55										
21:56										
21:57										
21:58										
21:59										
22:00										
22:01										
22:02	faint com pip	faint com pip								

22:03											
22:04										22:04:03 [17.10] bat(?) flying from west, swooping down in front of ash, then heading up and back to west. No sound picked up	
22:05											
22:06											
22:07											
22:08											
22:09											
22:10											
22:11											strong social
22:12											
22:13											
22:14										Exactly- XA11 OFF	
22:15											
22:16											
22:17											
22:18											
22:19											
22:20											
22:21											
22:22											
22:23											
22:24											
22:25											
22:26											
22:27											
22:28											
22:29											
22:30								Exactly 22.30:30 - XA10 OFF			
22:31											
22:32											
22:33											
22:34											
22:35											
22:36											
22:37										Exactly 22.37:30 - XA11 OFF	
22:38											
22:39											
22:40											
22:41											
22:42											
22:43											
22:44											
22:45											
22:46											
22:47											
22:48											
22:49											
22:50											
22:51											
22:52											
22:53											
22:54											
22:55	AnabatX OFF	AnabatX OFF									
22:56											
22:57											
22:58											
22:59					AnabatX OFF						

12. Appendix 2

'Raw' notes on data from detectors, field observation and video, 22/8/23

23001 Maresfield Gdns / Fitzjohns Ave									
Bat recording summary					[mm:ss] indicates time on the relevant video clip. Without parentheses is the absolute time				
Time	Ash 19/20 AnabatX (on)	W of horse- chestnut (on)	E of horse-chestnut T9 AnabatX (on)	Ash T42 (south) AnabatX (on)	Peersonic Walkabout	W of horse-chestnut Notes on video	E of horse-chestnut Notes on video	Ash T42 (south) Notes on video	Field comments (incl real time Walkabout obs)
22/08/2023									
19:15									
19:16									
19:17									
19:18									
19:19									
19:20									
19:21									
19:22									
19:23									
19:24									
19:25									
19:26									
19:27		Deployed							
19:28									
19:29									
19:30									
19:31									
19:32									
19:33			Deployed						
19:34									
19:35									
19:36									
19:37									
19:38									
19:39									
19:40									
19:41									
19:42	Deployed								
19:43									
19:44									
19:45									
19:46									
19:47						XA10 (& Duet) ON			
19:48									
19:49							XA11 & Anabat SD1 ON		
19:50									
19:51									
19:52									
19:53									
19:54									
19:55									
19:56								XA11 & Peersonic ON; viewed footage from here up to 1st sound recording	
19:57									
19:58									
19:59									
20:00									
20:01									
20:02									
20:03									
20:04									
20:05					Deployed				
20:06									
20:07							20:07:24 [18.23] bird flew from L - R of frame (ie from bottom to top of tree)		
20:08							[18.34] ditto		
20:09							20:09:29 [20.28] two dark butterflies lower left corner of frame		
20:10									SUNSET
20:11									
20:12									
20:13									
20:14									
20:15									
20:16									
20:17									
20:18									
20:19									
20:20									
20:21	v v faint com pip					heard on Duet			
20:22							20:21:33 [8.14] top right corner of frame - prob moth		
20:23						[01.49] nice butterfly			
20:24	com pip					20:24:17 [2.56] bat flew by ivy top left of frame			
20:25					com pip	20:24:44 [3.23] ditto	20:24:37 [11.18] Lower left of frame poss bat?		) Com & sop pip circling & feeding over
20:26	faint com pip				com pip		20:26:22 [13.03] Poss bat flying close to ivy at lower part of main stem, and poss through or on ivy (is it a bat?)	20:26:06 [05.56] Soc calls clearly heard on Peersonic. Bat(?) passing in front of ash E - W	) tennis court. Came from trees on 39/39a
20:27					com pip + Type Da social				) boundary?
20:28	faint com pip				com pip + Type Da social		20:27:43 [14.36] Check on SD1		
20:29		v v faint com pip		) com pip	com pip		20:28:34 [15.15] poss bat flying by ivy towards base of main stem. No sound on SD1 (after the moth flies down) 20:29:21 [16.02] flies N from S forked limb - looks like a bird, although coincident with call from SD1		
20:30				)	com pip Type Da social & faint com pip				20:30:20 pip social
20:31	v faint com pip			)		20:30:55 [3.35] bird landing in tree			
20:32	Indistinct com pip??			)	com pip		20:32:24 [14.05] woodpecker lands		
20:33	)			)	com pip feeding				pip (& other?) feeding over tennis court
20:34	)			)			20:34:33 [21.14] Bird flies down near S limb of tree, hovers, then heads off S		
20:35	) com pip))					

20:36	)	) com pip		faint com pip				
20:37	Indistinct com pip??	)	)	com pip				
20:38				com pip				
20:39	com pip							
20:40								
20:41				com pip		20:41:29 [8.45] bird landing in tree		
20:42	faint com pip							
20:43						20:43:50 [10.46] bird flies, then immed after, something flies towards left behind the ivy		
20:44				faint com pip				
20:45								
20:46	FM calls(?) from c 15 - 25kHz - NO						20:46:03 Moved IR and adj camera view	
20:47								
20:48								
20:49				com pip				
20:50								
20:51	com pip			faint com pip				
20:52								
20:53				v v faint com pip				
20:54								
20:55				com pip				
20:56							20:56:07 [11.38] Pip flying upwards in front of ash	
20:57								
20:58								
20:59								
21:00								
21:01								
21:02								
21:03	faint com pip					call heard on Duet [7.12]		
21:04						21:04:19 [08.49] Tawny call		weird low frequency noise
21:05						Pip on Duet [check AnabatX timing]		
21:06								
21:07	v faint com pip		at chestnut					
21:08						21:08:34 [01.41] ie diff call to that above		
21:09								
21:10								
21:11								
21:12								
21:13	faint pip social	v faint pip social	com pip Type Da social (not noct) every 6-800ms					21:13:08 Noct + social (not picked up by SD1?)
21:14								
21:15								
21:16								
21:17								
21:18								
21:19								faint com pip - not recorded
21:20								
21:21								
21:22								
21:23						Exactly - XA10 time calibration check - Video said 21.22:55 [04.39], so running 5 sec slow		
21:24								
21:25								
21:26	com pip & social							) really strong com pip & social calls
21:27	faint com pip social	v faint com pip & social	BY CAR com pip CF + Type Da social	com pip		Nothing heard on SD1		) by tree near car
21:28								
21:29				faint com pip CF				
21:30								
21:31								
21:32	com pip CF			com pip				
21:33				com pip				
21:34								
21:35								
21:36	v faint com pip			[no social calls noted]				Exactly - XA11 time calibration check. 21.36:20 faint social calls, accidentally deleted
21:37		v faint com pip				Nothing heard on SD1		
21:38								
21:39								
21:40								
21:41								
21:42								
21:43								
21:44								
21:45								
21:46								
21:47								
21:48								
21:49								
21:50								
21:51								21:50:49 social calls (pip?)
21:52				pip(?) social calls 17 - 25kHz				21:52:19 strong pip(?) soc - not picked up by Peersonic - too quiet?
21:53								
21:54								
21:55								21:55:05 strong pip(?) soc - not picked up by Peersonic - too quiet?
21:56								
21:57				v faint com pip				
21:58								
21:59								
22:00								
22:01								
22:02								

22:03						weak pip				22:03:07 strong pip(?) soc - not picked up by Peersonic - too quiet?
22:04						social				22:04:19 strong pip(?) soc - not picked up by Peersonic - too quiet?
22:05						pip social				
22:06										
22:07										
22:08										
22:09	faint com						not heard on Duet			
22:10	pip					com pip & social			Exactly - XA11 OFF [but resultant video ends 21.33 due to camera fault]	
22:11										
22:12										
22:13						com pip				
22:14										
22:15										
22:16						com pip		Exactly 22:16:30 - XA11 OFF		
22:17										
22:18							Exactly 22:18:30 - XA10 OFF			
22:19										
22:20										
22:21										
22:22										
22:23						com pip				
22:24						social				
22:25										
22:26										
22:27						faint com				
22:28						pip CF				
22:29										
22:30										
22:31										
22:32										
22:33										
22:34										
22:35	faint com									
22:36	pip CF									
22:37										
22:38										
22:39										
22:40										
22:41										
22:42	AnabatX									
22:43	OFF									
22:44										
22:45	AnabatX									
22:46	OFF									
22:47		AnabatX								
22:48		OFF								
22:49										
22:50										
22:51						com pip				
22:52										
22:53										
22:54										
22:55										
22:56										
22:57										
22:58										
22:59										
23:00										
23:01										
23:02						AnabatX				
23:03						OFF				

13. Appendix 3

'Raw' notes on data from detectors, field observation and video, 13/9/23

23001 Maresfield Gdns / Fitzjohns Ave									
Bat recording summary									
(mm:ss) indicates time on the relevant video clip. Without parentheses is the absolute time									
Time	Ash 19/20 AnabatX (or	W of horse- chestnut T9 AnabatX (or	E of horse-chestnut T9 AnabatX (or	Ash T42 (south) AnabatX (or	W of horse-chestnut Notes on video	E of horse-chestnut Notes on video	Ash T42 (south) Notes on video	Field comments (incl real time Walkabout obs)	
13/09/2023									
18:43				Deployed					
18:44									
18:45									
18:46									
18:47									
18:48									
18:49									
18:50									
18:51		Deployed							
18:52									
18:53									
18:54			Deployed						
18:55									
18:56									
18:57									
18:58									
18:59	Deployed								
19:00									
19:01									
19:02									
19:03									
19:04									
19:05									
19:06									
19:07									
19:08									
19:09									
19:10									
19:11									
19:12									
19:13									
19:14									
19:15									
19:16									
19:17									
19:18									
19:19									
19:20									
19:21									
19:22									
19:23									
19:24									
19:25									
19:26				1st bat (sop pip)					
19:27									
19:28									
19:29									
19:30									
19:31									
19:32									
19:33	1st bat (com pip)	1st bat (com pip)							
19:34									
19:35									
19:36									
19:37									
19:38									
19:39									
19:40									
19:41									
19:42									
19:43									
19:44									
19:45									
19:46									
19:47									
19:48									
19:49									
19:50									
19:51									
19:52	v v faint com pip								
19:53									
19:54									
19:55									
19:56									
19:57									
19:58									
19:59									
20:00	v v faint com pip								
20:01									
20:02									
20:03									
20:04									

23001

[illegible]

14. Report conditions

- 14.1. This report is produced solely for the benefit of 39 Fitzjohns Avenue Ltd and no liability is accepted for any reliance placed upon it by any other party unless specifically agreed in writing otherwise.
- 14.2. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Ecology Network Ltd. In time, improved practices, new information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of Ecology Network Ltd using due skill and care in the preparation of the report.
- 14.3. This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.
- 14.4. This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.
- 14.5. Reliance has been placed on the documents and information supplied to Ecology Network Ltd by others but no independent verification of these has been made and no warranty is given on them. No liability is accepted or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.
- 14.6. Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information, particularly due to timescale, seasonal and weather related conditions. Thus we cannot guarantee that the survey or monitoring undertaken as part of the commission completely define the degree or extent of, for example, species abundance or habitat management efficacy which may be described.
- 14.7. Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Actual environmental conditions are typically more complex and variable than the investigative approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.
- 14.8. The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties.
- 14.9. The performance of environmental mitigation measures is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. Ecology Network Ltd accept no liability for issues with performance arising from such factors.