

Bat Emergence Survey

Lower Eastfield Farm, Thurgoland

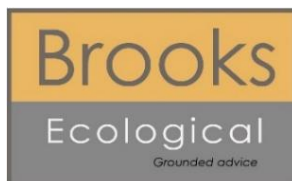
J & J Miller

Report Reference: R-4304-02

September 2019

Report Title:	Bat Emergence Survey Lower Eastfield Farm, Thurgoland
Report Reference:	R-4304-02
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Date:	10 th September 2019

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Summary Statement

Emergence survey has confirmed the presence of five small roosts used by low numbers of common pipistrelle and brown long-eared bats.

Redevelopment of the Site is likely to impact on these roosts and will require derogation by a Natural England License, which must be put in place prior to any work on the roost buildings.

Introduction

1. Subsequent to the recommendations made in Brooks Ecological's Preliminary Ecological Appraisal Report (R-4304-01), detailed bat survey was commissioned at Lower Eastfield Farm, Eastfield Lane, S35 7ES (grid reference SE 29862 02745).

Box 1 Legal background

Bats are afforded full protection under The Wildlife and Countryside Act (1981) plus amendments, and the Conservation of Habitats and Species Regulations 2010. Under these Acts it is an offence among others, to recklessly kill, injure or disturb bats. It is also an offence to destroy or obstruct a roost even if bats are not in occupancy at the time of the action.

There are no defences against contravention of the Conservation of Habitats and Species Regulations 2010 which means that it is important for detailed and well-designed bat surveys to be carried out, prior to carrying out activities that may impact upon bat roosts such as demolition of buildings or removal of trees.

Where bats are found within a potential development site, a license from Natural England may need to be secured if works that could otherwise contravene legislation are to be carried out. These licences are only issued where Natural England is satisfied that works are unavoidable and would not have a negative impact on the favourable conservation status of bats. A Natural England license requires that the potential development site has full planning permission and that bats were a material consideration of the planning permission.

Box 2 Bat roosts

Bats roost in buildings and trees in different locations depending upon time of year and environmental factors such as position of the sun, proximity to heat sources and feeding grounds. The following types are commonly referred to:

Transitional roosts: Bats frequently gather early in the season (March to April) before dispersing to summer roosts. Bats can be found in high numbers in these roosts for a very short period. Transitional roosts can also be found shortly before hibernation in August to October when bats (depending upon species) can gather in roosts not used earlier in the season.

Maternity roosts: These are among the most important roosts and are normally occupied from May to August. Depending on the species involved, some maternity roosts can contain a very significant proportion of the local population.

Summer (non-breeding) roosts: Small groups of non-breeding female and male bats can gather in these roosts or bats from a local population may choose to roost individually. There are normally a large number of suitable locations for summer non-breeding roosts and these may be routinely used or used only on an occasional basis. Irregularly used summer roosts can be very hard to find without unreasonable survey effort.

Mating roosts: Around September bats will gather in roost to mate; these are often in different locations than summer or breeding roosts.

Hibernation roosts: As bats in hibernation roosts are highly vulnerable to disturbance and bats can be present in large numbers these are considered to be among the most important bat roosts. Many species of bats roost in large and nationally important hibernation roosts associated with underground sites, many of which are well known and protected. However, the most common bat in the UK (the common pipistrelle) is largely unaccounted for in winter but thought to disperse and roost individually or in small groups in thermally stable cracks and crevices in thick walls or trees.

Method

2. Brooks Ecological specialise in bat surveys ranging from individual buildings through to complex sites requiring numerous visits with large teams. In terms of the survey effort, number of personnel and number of visits required to be able to properly evaluate the building(s) use by bats, we refer to the Bat Conservation Trust Survey Good Practice Guidelines (2016). However, these guidelines are not prescriptive and we approach each site individually as required using our professional judgement and significant experience base.
3. In this case, two visits with a team of seven surveyors were deemed necessary to fully evaluate the potential use of the site for roosting. Surveys were carried out with surveyors positioned around the buildings to cover all aspects where bats could potentially emerge or return, and to establish activity levels around the site.
4. The surveyors, using heterodyne detectors, were in place half an hour before sunset left once all species of bat would be expected to have left or returned to a roost and patterns of activity within the site had been appraised. Conditions and dates of the surveys are summarised in Table 1 below:

Table 1 Survey summary.

Date	Survey Type	Temp. Start/End	Weather	Invertebrate Activity
20.08.19	Emergence Sunset – 20:24	15°C – 13°C	Overcast with very light intermittent rain. Still with wind increasing to B1.	Low
03.09.19	Emergence Sunset - 19:52	18°C – 16°C	Overcast. Drizzle at start of survey, clearing by sunset. Light winds to B1-2.	Low

5. Survey and assessment was directed by Rob Weston BSc (Hons) MSc MIEEM. Rob is a Registered Consultant (RC065) under the Bats Low Impact Class License and is registered to use the Class Survey Licence WML CL18 (Level 2).
6. Survey 1 was led by Kate Wright and Josh Birchall, both of whom hold a Level 1 Class license, and assisted by a team of experienced surveyors. Survey 2 was led by Rob Weston and Kate Wright.
7. In addition to heterodyne detectors used during the surveys, both survey visits included the use of FLIR Systems Ax5 Series Thermal Imaging Camera, while the second survey also employed the use of a Pulsar Helion XP38 Thermal Scope and Anabat Scout Bat Detector to assist in gathering as much information as possible about the size and nature of roosts found on Site.

8. Analysis of bat calls to species level was carried out using specialist software (Analog Insights).
9. A daytime visual inspection was carried out prior to the start of the second survey to further explore features within buildings 4 and 6 (Figure 1) and to look for bats or their signs.

Constraints

10. For health and safety reasons, the upper floor of building 6 was inspected from the top of the stone stairway, as the wooden floorboards were found to be in a poor condition with some holes present.
11. It was deemed unsafe to access building 3 as the gable end is unstable and has partially collapsed, the roof now being supported by an acrow prop.

Figure 1 Site location and numbered plan of buildings.



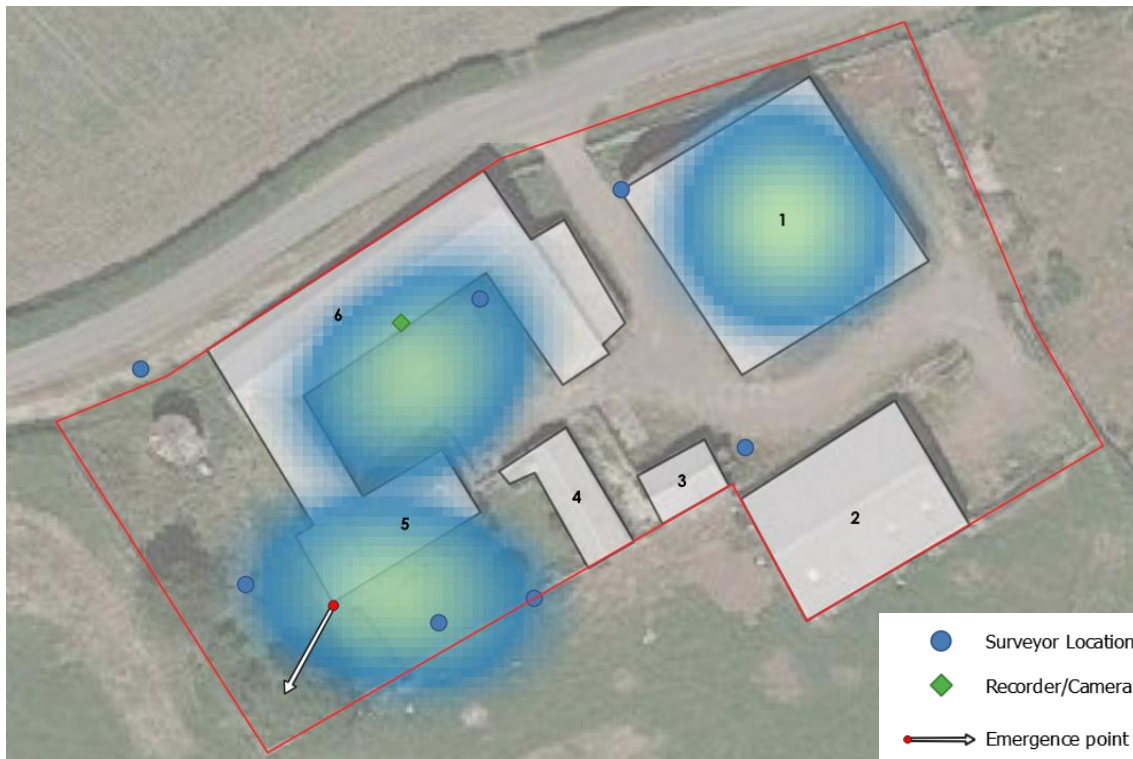
12. Buildings 1 and 2 (agricultural barns) were not subject to further survey, these being considered to have negligible bat roosting potential.
13. Having low bat roosting potential, one survey was carried out on buildings 3 and 4, both single storey outbuildings.
14. With moderate bat roosting potential, the two-storey house and barn (buildings 5 and 6 respectively) were subject to two emergence surveys.

Results

Survey 1 – 20th August 2019 (Sunset 20:24)

15. Seven surveyors were situated around the farm complex, surveying buildings 3, 4, 5 and 6, with a thermal imaging camera also being deployed.
16. The first bat seen was a common pipistrelle flying around the central farmyard at 20:10, 14 minutes *before* sunset. Whilst the bat was not seen to emerge, it was strongly suspected to emerge from the southern elevation of building 6.
17. At 20:17, 7 minutes before sunset, a common pipistrelle was again seen in the courtyard, before moving off over the fields to the south towards nearby woodland.
18. From 20:39, more frequent calls were heard, these representing at least three common pipistrelle bats foraging in the farmyard. Calls were almost constant, with bats occasionally passing over the roof of buildings to the north and west. A bat was also seen entering an open upper storey window on the northern wing of the complex, foraging in a more sheltered area.

Figure 2 Surveyor locations and activity summary (survey 1).



19. Constant foraging calls were also recorded in the canopy of the open barn to the east of the farmhouse (building 1), from 20:50 until the end of the survey. This represented a small number (up to three) common pipistrelle bats.
20. At 21:05 a common pipistrelle was seen to fly directly away from the south-west corner of the house. A roost was suspected to be present in this area; although the entrance to the roost was not identified on that occasion, it was confirmed on the second survey visit (see below).
21. Foraging calls by a low number of common pipistrelle were noted in the gardens to the south of the farmhouse (building 5).

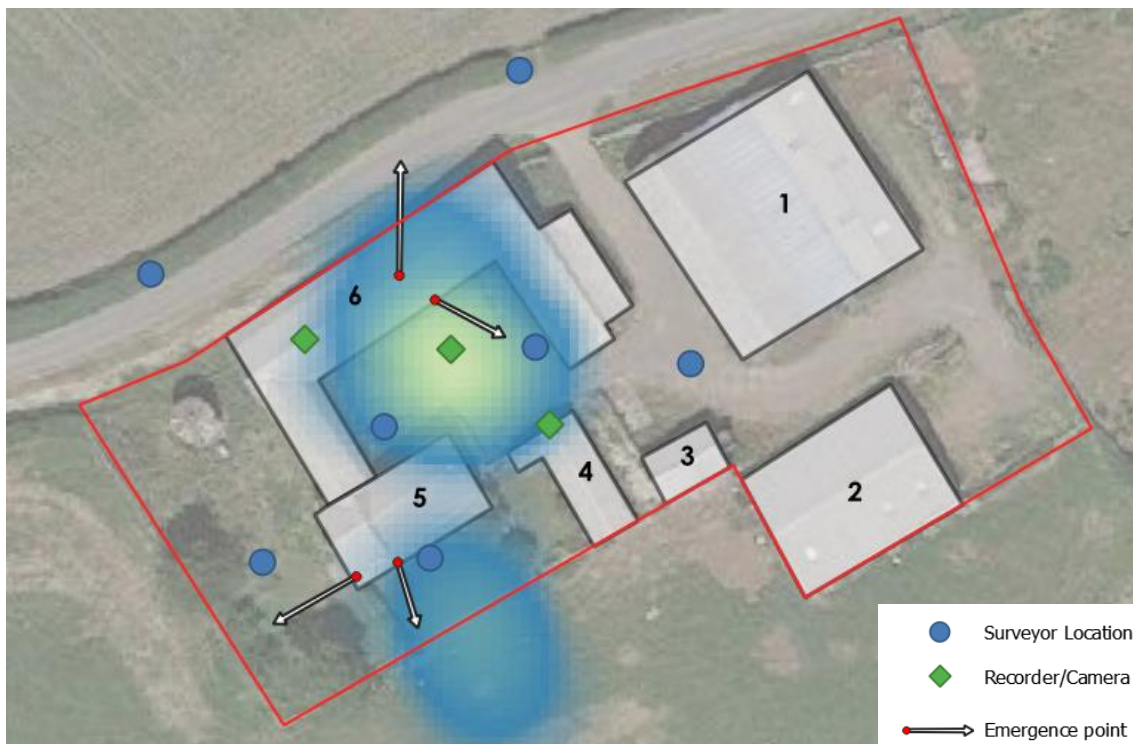
Survey 2 – 3rd September 2019 (Sunset 19:52)

22. Seven surveyors were located around the farm complex, surveying buildings 5 and 6, with recording devices (audio and thermal imaging) also being utilised.
23. The first bat seen was a common pipistrelle, which emerged from under the guttering on the southern elevation of the house (building 5, roost 1) at 20:05, 13 minutes after sunset. This foraged briefly in the garden to the south before moving into the farmyard courtyard. Two minutes later, a second bat emerged from the same location.
24. At 20:11, two noctules flew high overhead in a northerly direction. These bats were not associated with features on the site.
25. At 20:16, a common pipistrelle was seen flying inside the upper storey of the barn (building 6; roost 4). This exited the upper right-hand window of the barn a minute later. It entered the single storey arm of the same barn to the east, remaining within it for several minutes before exiting and foraging around the central farmyard.
26. At 20:18, two common pipistrelle emerged in rapid succession from a small gap under a raised tile on the verge close to the south-west corner of the house (building 5, roost 2). The bats moved off-site to the west.
27. At the same time, two further common pipistrelle emerged from a gap in the ridge of the barn (building 6, roost 3), moving off-site to the north.
28. At 20:20, a common pipistrelle emerged from a small gap in the stonework on the southern elevation of building 6 (roost 5). This joined the earlier bat in foraging around the courtyard before the pair moved off-site to the south at 20:35.
29. From 20:30, a larger bat visually identified as a brown long-eared bat was seen flying inside the upper floor of the barn (building 6; roost 4). After 15 minutes, this was seen to leave the barn via the upper right-hand window. A second brown

long-eared bat was confirmed to still be present in the building - this perched on a roof joist for several minutes before flying off to forage within the barn close to the end of the survey.

30. From 20:24, calls of a single *Myotis* bat foraging in the farmyard for c. 10 minutes were noted. Analysis of the calls later identified this as a Whiskered bat.
31. Levels of activity to the north and east of the farm complex were very low, with only occasional calls of common pipistrelle or Noctule flying overhead.
32. Towards the end of the survey, levels of foraging activity around the farmyard had significantly reduced, with bats seen to move off in the direction of woodland to the south.

Figure 3 Surveyor locations and activity summary (survey 2).



Visual Inspection – 3rd September 2019

33. No bats, droppings, or other signs were noted within the areas of buildings 4 or 6 that could be safely accessed.

Summary

34. Five roosts have been identified on the Site. These are summarised in the figure and table below, with illustrations of their locations shown on the following pages.

Figure 4 Location of identified roosts.



Table 2 Summary of roosts identified.

Roost	Building	Location	Number of Bats / Species
1	5	Wall top of southern elevation of house	2 x common pipistrelle
2	5	Verge of western gable end of house	2 x common pipistrelle
3	6	Ridge of northern wing of barn	2 x common pipistrelle
4	6	Interior of barn	2 x brown long-eared 1 x common pipistrelle
5	6	Southern elevation of northern arm of barn	1 x common pipistrelle

Roost 1



Figure 5

Location of roost at wall top on southern elevation of house.



Figure 6

Close-up of roost feature highlighting displaced brick behind guttering.

Roost 2



Figure 7

Location of roost under raised tile at verge on south-west corner of house (building 5).

Roost 3

Figure 8 Approximate location of roost in ridge of barn (building 6).



Roost 4

Figure 9 exit point from roost in upper storey of barn (building 6).



Figure 10 Brown-long eared bat perched on roof beam inside barn (building 6).

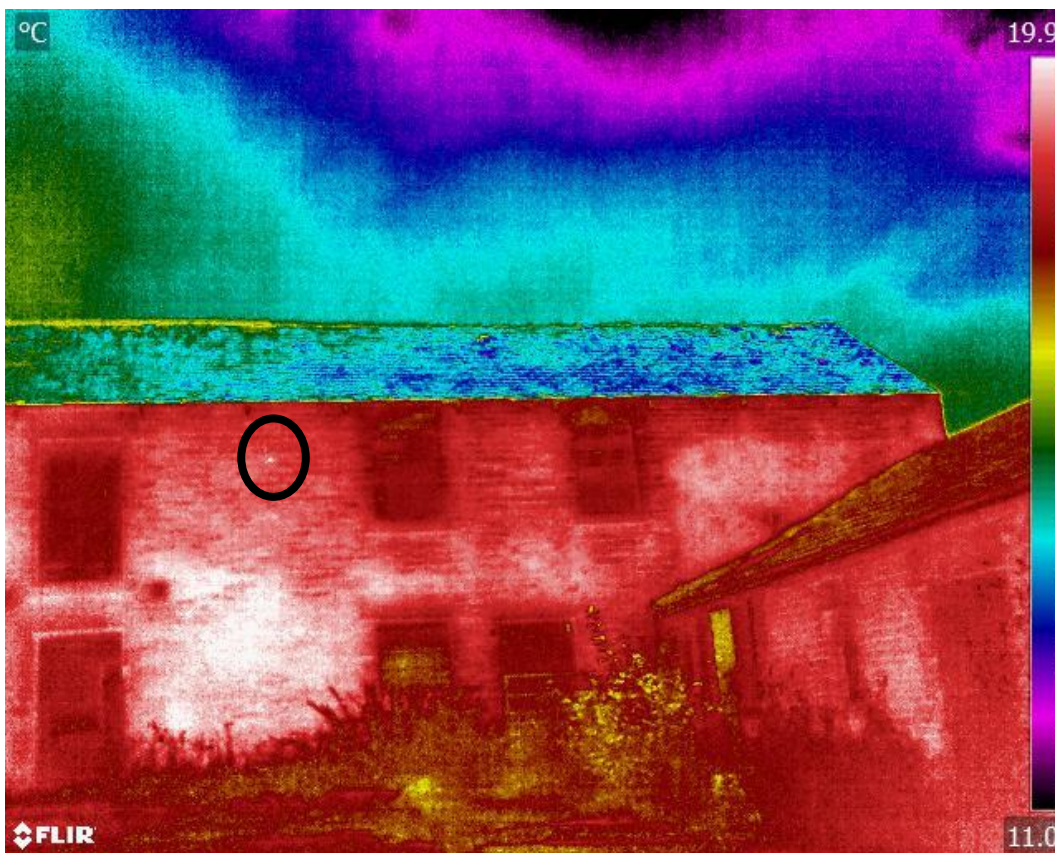


Roost 5

Figure 11 Location of roost in gap in stonework of barn (building 6).



Figure 12 Thermal image of bat emerging from gap in stonework (building 6).



Evaluation

35. Following survey work, low levels of bat activity have been noted on and around the Site. Low numbers of common species of bat have been identified roosting on Site, and based on this evidence the Site is considered to be of low conservation significance to local bat populations.
36. Later in the summer bats will disperse from their more important summer maternity roosts and will occupy a larger number of roost sites as individuals or small numbers of bats. There is no evidence of larger, or more important summer roosts being present at the Site, but it does provide a multitude of cracks and crevices which can be used for this more occasional/sporadic roosting. The survey provides a snap-shot of this use, but it is likely that bats will move around on a regular (even nightly) basis between suitable roosts in this and other local sites. Given its location and construction, the Site seems unlikely to provide the stability necessary for important hibernation roosts.
37. The presence of five roosts, located within the farmhouse and barn (buildings 5 and 6) has been confirmed. The presence of larger, or more important roosts elsewhere on site is not suspected.
38. The roosts are used by low numbers of common species of bat and, although legally protected, these roosts are assessed as being of low conservation significance.
39. The offence relating to the loss of the roosts (and potentially the disturbance of the bats using them) can be derogated with a standard mitigation license (EPSML).
Works to these buildings cannot take place until this provision is in place.

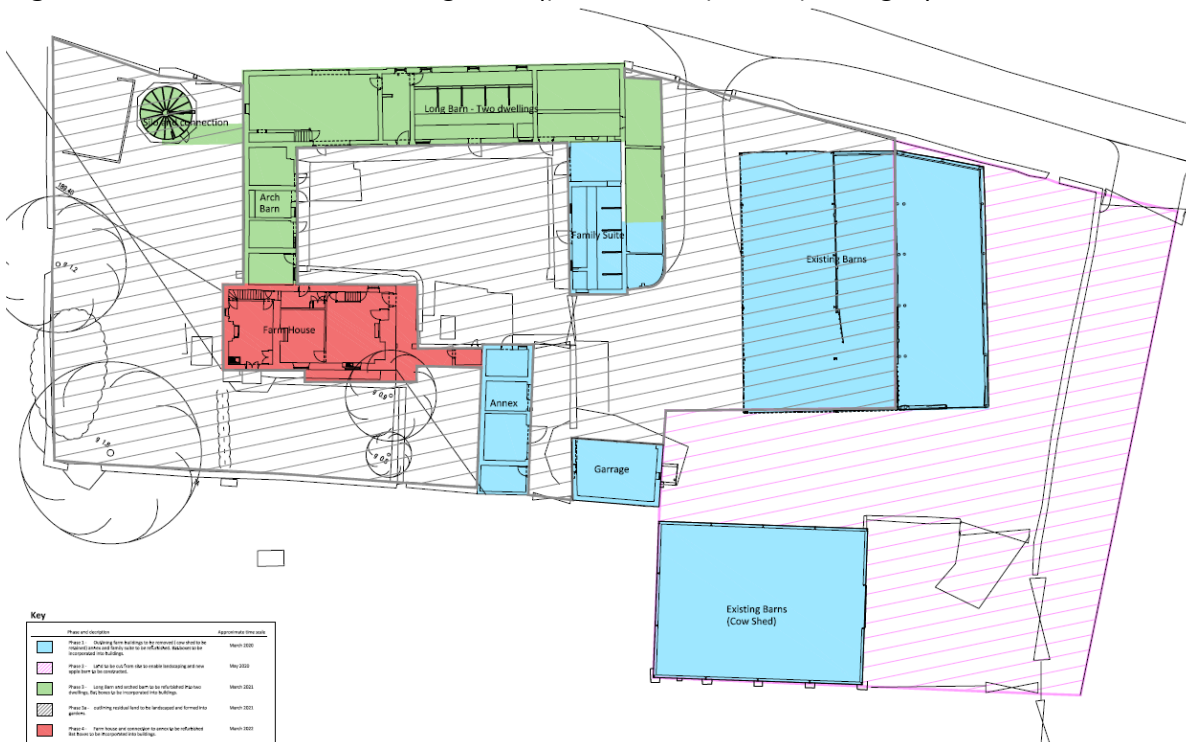
Proposed Development

40. As shown in Figure 13 overleaf, the initial phase of development, planned for the site in March 2020, will see the removal of the agricultural barn (building 1), alongside the conversion of building 4 and the eastern arm of building 6.
41. Phase 2 of the work, from 2021, will see the conversion of the remainder of the main barn, building 6, into two residential dwellings.
42. The last phase of development will see the refurbishment of the farmhouse.

Recommendations

43. The first phase of development will not impact on any identified roosts.
44. Prior to work commencing on the first phase of development, the roost buildings (the farmhouse and north and west arms of building 6) should be fenced off and left undisturbed. Clear instructions on the presence of roosts in the complex should be passed on through a tool-box talk.
45. Although no evidence of roosting has been demonstrated in the eastern arm of building 6, it must be noted that bats frequently move between roost sites, can be very casual in their choice of roosting location and can turn up unexpectedly at any time. On this basis the developer should always be mindful of bats as a potential constraint and have a protocol in place should any bats be seen or suspected during works: works should stop, a suitably licensed ecologist consulted, and their advice followed.

Figure 13 Construction Phasing Plan (provided by Group Ginger).



46. The second and third phases of the development will impact on identified roosts and, prior to these phases of development, an updating bat survey will need to be carried out to establish the status of bat roosting at that time and gather sufficient (and up to date) data to apply for the necessary Natural England license.

47. In applying for use of a license, it will be important that certain conditions are met. These are summarised below.

Has sufficient survey been carried out - is sufficient information known about the roost and its use? Has detailed planning permission been granted for the site and have all conditions relating to wildlife been discharged?

48. Surveys should be updated ahead of licensing and should include data from the most recent active season (May-June) prior to work starting. Conditions should be reviewed for suitability and discharged in time.

Can the project satisfy the three licensing tests?

(i) FCS Test (Regulation 53(9)(b) - Can the favourable conservation status of bats be protected?

49. Roosts are of low conservation significance and can easily be replaced in the developed Site using standard methods.

(ii) Purpose Test (Regulation 53(2)(e) - Is the purpose of the proposed activity one which is licensable and demonstrable?

50. The project would be able to apply under the 'Imperative Reasons of Over-riding Public Interest' purpose.

(iii) The No Satisfactory Alternative Test (Regulation 53(9)(a) - Have alternatives to the proposed activity been considered and ruled out?

51. Project planning and design should take account of these conditions - particularly that alternatives to impacting on the roosts are considered carefully. For instance, it may be possible to retain some roosts (such as in wall cavities or ridges) through simple changes in design.

Mitigation

52. Natural England will require specific mitigation for the licensed impacts on the roosts.
53. Interim boxes should always be in place before any works on the roost buildings, and at this Site it would be further recommended to install such boxes for the commencement of any work to the proposed family suite and annex (buildings 4 and 6) - as a precautionary measure.
54. A suitable interim bat box would be the Vivara Pro low profile woodstone bat box (or similar) which may be placed on a retained, undisturbed tree or building away

from the immediate development area. This should be left in place post-development.

55. It may be possible to retain some roosts, such as where access is from a ridge or directly into stonework. Where this is not possible high-quality replacements will be needed and bat boxes should be integrated into the new buildings. The Habibat Bat Box - Custom Brick Stone Facing model is suggested, as this can be tailored to match the finish of the walls and blend in with the design.



Figure 14

Suggested bat box models:

Interim - low profile
woodstone bat box (left)

Integrated – custom faced
Habibat bat box (right)

56. The nature, location and timing of roost replacement would be agreed with Natural England in licensing and should not form any part of conditions.

Artificial Lighting

57. Artificial light may have a negative impact on the foraging, roosting and reproductive opportunities of bats. This can be minimised through a sympathetic lighting plan. The following recommendations are made to avoid adverse impacts on bats.

- Avoid lighting close to roost features; places new roosts away from windows, doors and security lights.
- Use LED light with a reduced spectrum in preference to lights featuring UV and blue light.
- Use low level columns or bollards and direct lighting downwards.
- If external security lighting is required, use in conjunction with a motion sensor with a short timer (one minute).
- Reduce light spill using baffles, hoods or louvres.
- Within buildings, set lights back into rooms to reduce spill, and use glazing treatments to obscure light.

58. The impacts on bats by artificial lighting should be considered as part the Ecological Design Strategy (EDS) and/or Landscape Ecological Management Plan (LEMP) for the Site. Further guidance is available in Bat Conservation Trust Guidance Note 08/18.

References

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