ADDC ARCHITECTS

33 ST JOHN'S ROAD, BUXTON, DERBYSHIRE

PHASE 1 HABITAT AND BAT SURVEYS (*DRAFT*)

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Penny Anderson Associates Ltd
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PHASE 1 HABITAT AND BAT SURVEYS *(Draft)*

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This project has been undertaken in accordance with PAA policies and procedures on quality assurance.

Signed:_____

C O N T E N T S

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1. INTRODUCTION

Background and Aims

1.1 Penny Anderson Associates Ltd (PAA) was commissioned in June 2008 to carry out a Phase 1 Habitat Survey of 33 St. John's Road in Buxton, Derbyshire along with an appraisal of the site for potential to support bat roosts. The surveys were requested by the Local Planning Authority in support of a planning application for site clearance and re-development.

1.2 The objectives of the survey were to:

- complete a Phase 1 Habitat map for the site, including identification of the main plant species present;
- undertake an inspection of the site for use by bats;
- assess the ecological importance of the habitats and features present on site; and
- appraise the potential of the site to support protected and/or rare species, with particular reference to bats;

1.3 Following the initial building inspection, which revealed evidence of bats using the loft space, further bat activity surveys were recommended and undertaken in August 2008. The objective of this survey was to gain a better understanding of the use of the buildings by bats, including where possible the numbers of bats roosting in the building, the species of bats and the type of roost (breeding, summer or winter roost).

The Site

1.4 The site at 33 St John's Road is on the one of the main roads (the A53) entering Buxton from Leek. The site consists of a 1930s house and an adjacent single-storey garage set within a garden. There is a gravel drive to the font and a terraced garden to the back with paved and grassed areas. The property backs onto the Serpentine, a public open space through which the River Wye runs.

Legislative Context in Relation to Bats

1.5 All wild species of bat are protected under the Wildlife and Countryside Act 1981 (as amended), which has been also amended by the Countryside and Rights of Way (CRoW) Act 2000 (see Appendix I for a summary).

1.6 Bat species are also listed under Annexes IIa and IVa of EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, also known as the 'Habitats Directive'. They are consequently identified as European Protected Species (EPS) and protected under the Conservation (Natural Habitats and Wild Fauna and Flora (92/43/EEC)) Regulations 1994 and recent amendments as presented in the Conservation (Natural Habitats and Wild Fauna and Flora (92/43/EEC)) (Amendments) Regulations 2007. These two documents are referred to as the 'Habitats Regulations' and the 'Amendment Regulations', respectively.

1.7 In addition, under *UK's Biodiversity Action Plan*, seven native British bat species including the soprano pipistrelle (*Pipistrellus pygmaeus*) and the brown long-eared bat (*Plecotus auritus*), both of which are frequently found in buildings, are listed as a 'Priority Species'. UK BAP Priority Species are also referred to as 'species of principal importance' for the conservation of biodiversity in England within Section 74 of the CRoW Act 2000.

1.8 In Planning Policy Statement 9, Local Authorities are required to take measures to protect the habitats of these species from further decline, protect the species from the adverse effect of development and refuse planning permission for development that harms these species unless the need for, or benefit of, the development clearly outweighs that harm. The commitment to preserving, restoring or enhancing biodiversity is further emphasised in Part 3 of the Natural Environment and Rural Communities (NERC) Act 2006.

Structure of the Report

1.9 The report presents the methods and results of the surveys and then evaluates the results, providing some overall conclusions and recommendations. Plates are included to illustrate the property and adjacent garden. Summaries of relevant legislation are presented in the Appendices at the end of this report, along with supplementary information on proposed mitigation measures.

2. METHODOLOGY

Phase 1 Habitat Survey

2.1 Habitats and flora on the site were surveyed following Phase 1 Habitat Survey methodology (Joint Nature Conservation Committee 2003) on 27th June 2008. In addition, a list of the main plant species for each habitat was compiled. Each plant species recorded was assigned a rank using the DAFOR scale (d = dominant; a = abundant; l = local; f = frequent; o = occasional; r = rare), which provides an assessment of relative abundance of each species. Botanical nomenclature followed that of Stace (1997).

2.2 The Phase 1 Habitat Survey was 'extended' to include an assessment of each habitat and feature for the presence of, or potential for, protected species or other species of particular note.

Bat Survey

Desk study

2.3 The Derbyshire Bat Conservation Group was contacted and records of bats or their roosts within 1km of the property, centred on National Grid Reference SK 05200 73370, were requested.

Building and tree inspections for bat use

2.4 The buildings on site (the house and garage) were inspected for use by bats and an assessment of their potential to support bat roosts also completed. The property was accessible inside and out and inspections were completed by Sarah Ross and Jon Byrd, both of whom hold survey licences in respect of bats and their roosts and are experienced at surveying all types of structures/sites for bat use. Survey methods followed guidance within the Bat Mitigation Guidelines (Mitchell-Jones 2004) and the Bat Survey Guidelines (Bat Conservation Trust 2007).

2.5 The survey was undertaken during daylight hours on 27th June 2008. The external inspection of the buildings involved walking slowly around each building and visually inspecting features such as window panes, windowsills, walls, paving, ledges and fascia boards for any evidence of bat use. These same features were also assessed for their potential to provide crevices for roosting bats, or access points to other part of the building which may also be used for roosting (e.g. roof voids).

2.6 Evidence of bats looked for included the presence of bat droppings, staining on crevices by fur oils or urine, prey residues (e.g. moth and butterfly wings) as well as the bats themselves. Potential access points which were noted, including features such as dislodged or missing slates/tiles or ridge tiles, gaps or holes in fascia/barge boards and crevices around lintels and window frames.

2.7 The internal inspection of the loft was carried out at the same time, the area being searched systematically for signs of bats or bat use. The inspection was aided by the use of a high-powered torch, close-focusing binoculars and ladders as required. The property's orientation and the construction materials were also noted. Weather conditions at the time of survey were favourable, being dry and bright with a light breeze.

2.8 Brief additional external building inspections were also carried out immediately prior to the bat activity surveys, following a similar approach.

2.9 The trees on the site were assessed for their potential to support bat roosts on the basis of the presence of features such as cracks, crevices, flaking bark and holes. Each tree was assessed from the ground using, where necessary, close-focusing binoculars and a high powered torch to look for signs of bat use.

Bat activity surveys

2.10 Three bat activity surveys were undertaken on the property to determine the number of bats leaving the roost and to verify access points. The surveys comprised one dawn bat swarming survey on 13th August 2008, and two evening bat emergence surveys on 13th and 20th August 2008. The surveys were undertaken by two surveyors, one positioned either side of the property to view all aspects, each survey being led by either Sarah Ross or Jon Byrd.

2.11 The survey started approximately 10 to 15 minutes before sunset and continued for around 90 minutes after sunset (or until it was too dark to see bats emerging), based on the guidance in the Bat Survey Guidelines (Bat Conservation Trust 2007) and the Bat Workers' Manual (Mitchell-Jones and McLeish 2004). The two surveyors watched for signs of bat activity (commuting or foraging bats) in the area and for any bats that emerged from/entered the buildings on site.

2.12 Surveyors were assisted by bat detectors (Bat Box Duet, Stag Electronics) to help identify the presence and activity of bats. In addition, sound recordings of bat echolocation calls were made onto an MP3 recorder (Creative Zen Nano Plus) and later analysed using Bat Sound Pro 3.31 (Pettersson Elektronik). This can aid in the identification of bats that might not be heard clearly in the field, such as the brown long-eared bat.

Constraints on the Surveys

2.13 There were no constraints identified for the Phase 1 Habitat survey.

2.14 During the internal loft inspection for bats several large wasp nests were observed. During the search the wasps became active and attracted to the light from the high powered torches. The loft inspection was therefore ended a little before all areas had been thoroughly searched, however, enough evidence was obtained to confirm use by bats.

2.15 The during the external building inspection it was clear that a potential bat access point to the loft space was underneath raised roofing tiles, however, a full inspection of this feature was unable to take place as the protruding soffit boxing obscured the view.

2.16 Due to high levels of wind and rain during the evening prior to the building inspection, any field signs such as droppings may have been dissolved or blown/washed away, leaving no trace externally of bat presence.

3. RESULTS

Phase 1 Habitat Survey

3.1 For the purposes of the mapping and description, the habitats on site have been divided into four separate areas and each area is mapped and described separately (Figure 1). A plant species list for each area is presented in Table 1. The areas are:

- the front drive and borders;
- the east side;
- the upper paved patio and lawn (back garden), and;
- the lower lawn (back garden).

The front drive and borders

3.2 The front boundary of the property is defined by a variegated privet hedge (formerly clipped) with trees and a shrub/herbaceous border behind. The plants comprise a range of ornamental species such as Japanese maple[1], berberis, spotted laurel, Spanish bluebell, lobelia, crocosmia and varieties of heather. In addition, there are some self-seeded native species typical of garden situations including herb-Robert, broad-leaved willowherb, rosebay willowherb and wavy bittercress. Tree species include copper beech, monkey puzzle, a cherry, wych hazel, sycamore,

3.3 Between the border and the front of the house there is a semi-circular gravel drive with scattered self-seeded species such as herb-Robert, broad-leaved willow-herb, self-heal, creeping buttercup, biting stonecrop and sycamore seedlings, along with occasional plants of Yorkshire-fog, cuckoo-flower, greater plantain and common groundsel.

3.4 There is potential for nesting birds to be present in the more dense shrubs, hedges and trees within this area.

The east side

3.5 Adjacent to the detached single-storey garage, along the eastern side of the property, there is a gravelled area with plant species scattered throughout, including creeping buttercup, great willowherb, ragwort, rosebay willowherb, herb-Robert, hedge woundwort, field horsetail and broad-leaved dock. Of particular note is the occurrence of Japanese knotweed as scattered plants all along the eastern boundary including a small patch in the eastern side of the front border (see Figure 1 and Plate 1).

The upper paved patio and lawn (back garden)

3.6 The area immediately behind the house is a mixture of a paved patio area, a small lawn and an ornamental flower-bed with paths (running from east to west across the back of the house, see Figure 1 and Plate 2). The paved area has a mix of small ornamental trees (largely maples), a short cypress hedge and a range of self-seeded native species including creeping buttercup, field horsetail and prickly sow-thistle.

[1] Nomenclature follows Stace (2007); please see Table 1 for scientific name of plant species and full species list

3.7 The lawn area is now over-grown and unmanaged, allowing the grasses to flower. The main species comprise a range of common grasses such as Yorkshire-fog, rough meadow-grass common bent, perennial rye-grass, creeping bent, red fescue, false oat-grass, crested dog's-tail along with occasional to frequent self-heal, creeping buttercup, heath wood-rush, prickly sow-thistle, white clover, broad-leaved willowherb, lawn moss (*Rhytidiadelphus squarrosus*), dandelion, spear thistle, and oxeye daisy. There are some self-seeded saplings of goat willow and wych hazel along with a small planted honeysuckle. Other species within the borders and the ornamental flowerbeds include Spanish bluebell, ornamental geraniums, chives, London pride, lady-fern, ground-elder, male-fern, and species of Hosta and roses.

3.8 Again, the larger shrubs and trees have potential as areas for nesting birds.

The lower lawn (back garden)

3.9 This area comprises a larger lawn that has been allowed to grow tall and is currently unmanaged. The lawn slopes down toward the Serpentine and is bounded by low walls and shrubs. Some larger trees occur just outside garden boundary, to the south, but overhang the garden area. The larger shrubs and trees have potential to support nesting birds.

3.10 The main plant species recorded in this lower grassland include red clover, creeping buttercup, white clover, common bent, dandelion, Yorkshire-fog, self-heal, rough meadow grass, lawn moss, perennial rye-grass, red fescue and broad-leaved dock. Less frequent species in the lawn included sweet vernal-grass, ragwort, daisy, ribwort plantain, common sorrel, germander speedwell, common cleavers, oxeye daisy, cock's-foot, beaked hawk's-beard and fox-and-cubs. Species indicative of damper grassland, at least in part, include carnation sedge, cuckoo flower and fen bedstraw, which occur only rarely. A plant species of interest is the common spotted orchid (Plate 3), again occurring only rarely within the species mix. Although this species is not specially protected, it is relatively unusual in town gardens and perhaps reflects the more rural location of this property, close to the Serpentine.

Bat Survey

Desk study

3.11 A range of bat records were returned from the Derbyshire Bat Conservation Group for the area around the property, and are presented in Figure 2. Several roosts, including winter hibernation roosts, are confirmed along with records of general bat activity. Several species of bat have been recorded from the area, including common pipistrelle bat, soprano pipistrelle bat, noctule bat (*Nyctalus noctula*), whiskered/Brandt's bat (*Myotis mystacinus/Myotis brandtii*), Natterer's bat (*Myosis natterieri*) and brown long-eared bat. The results indicate a high level of bat activity in the locality, particularly around the Poole's Cavern area and the associated Grin Low woodlands.

Building and tree inspections

The loft space of the main house

3.12 The loft space was boarded with a suspended ceiling below. The roof is of a hipped design with wooden beams and rafters (Plate 4), concrete tiles with black roofing felt below. Although some materials were being stored within the loft, this did not restrict access for inspection. A number of wasp nests were present within the Western end and the wasps became active as the survey progressed.

3.13 Two separate concentrations of bat droppings were located within the loft. Up to 60 medium sized bat droppings were discovered under the apex of the eastern hipped end where the hip

met with the main apex (Plate 5). One or two of the droppings in this collection were very fresh, indicating the bat was likely to be roosting in the loft at the time of inspection. In addition, up to 30 bat droppings of a similar size were located to the north-east on the same hipped end, on the boards directly under loose roofing membrane in front of the loft hatch.

3.14 Several bat droppings of varying sizes were also scattered across other areas of the loft; however, these appeared to have been left during flight and not as a result of roosting. The majority of the droppings were located in the eastern hipped end of the loft, while the western hipped end had a greater occurrence of wasp nests.

3.15 The two types of droppings (small and medium sized) suggest the possibility of two different species of bat using the roof. Further bat activity surveys were completed to determine the use of the loft (see below).

The exterior of the main house

3.16 The main house is a 1950s property and is clad with concrete render (Plate 6). The hipped multi-pitched roof is constructed of wooden rafters and beams overlain with black bitumistic roofing membrane, concrete tiles and ridge tiles. Some tiles appear to have lifted, leaving gaps. The lead flashing, barge boards and soffit boxes were in very good condition with no obvious holes/gaps within them and the paintwork on the soffit boxes and barge boards was well presented with no deterioration.

3.17 There is a small porch with a pitched tiled roof to the front. This structure has a small number of gaps where it abuts the house wall, and there are also gaps under the tiles. The windows are a mix of original metal-framed casement windows and more modern replacements fitted with secondary glazing. All appear sound with no gaps around the frames.

3.18 No bat droppings or other field signs were observed externally, however, up to three potential access points were identified on the roof, due to lifted roof tiles. A further potential access point on the porch was also observed.

The garage

3.19 This building has a flat, board and felt roof, with wooden rafters and no loft space (Plate 7). No sign of bat use was discovered during the internal or external search of the garage.

3.20 A potential point of access was located on the north east front of the garage, where the east wall and north wall meet. The gap underneath the felt at this join would allow access to the cavity wall and the rest of the garage.

Trees

3.21 After inspecting the trees is was clear that there were no suitable trees for bats to roost in. The age of the trees meant that they were too young to support the necessary cracks, flaking bark or holes that might be used by roosting bats. All trees within the boundary of the site were therefore classed as having low/no potential for bat roosts.

3.22 The tree and shrub planting do however link the property to the Serpentine public open space which has a number of larger trees present. Trees along the southern boundary of the property that overhang the site (but are not actually within the site boundary) are more mature; as such they are considered to have medium potential to support bat roosts, particularly because of their close proximity to the River Wye.

Bat activity surveys

Dawn survey 13/08/2008

3.23 At the start of the dawn swarming survey (04:10) the temperature was 13.2°C with a humidity of 76%, dropping to 9.4°C with a humidity of 80% at the end (05:30). The survey was carried out on a clear, dry morning with little/no wind present, although at a higher level at the top of surrounding trees the wind appeared much stronger. Visibility was good.

3.24 During the dawn survey on 13th August a small group of three brown long-eared bats was observed flying close to the eastern hipped end. The fluttering flight and lack of sound recording (this species of bat is very quiet and often not detected on recording equipment) suggests this species was a brown long-eared bat, and this is consistent with the medium sized bat dropping located in the loft. The three bats were paying close attention to an area on the roof where a tile has raised exposing an access point into the loft, consistent with 'swarming' activity that bats tend to undertake immediately before returning to their roost. This coincides with the area within the loft space where a large cluster of bat droppings was located. After swarming around this entrance point, none of the bats actually entered the loft but left the site.

3.25 The back (southern elevation) of the house, including the garden, showed a greater level of bat activity than the front. Several common pipistrelle bats (*Pipistrellus pipistrellus)* were observed foraging in and commuting through the area for the duration of the survey. Two common pipistrelle bats also showed a higher level of interest in the soffit box above the two left hand windows on the back of the house. However, no bats were observed entering the loft or roof at the back of the house.

Dusk survey 13/08/2008

3.26 At the start of the evening emergence survey (08:30) the temperature was very mild at 14.5°C with a humidity of 76%, dropping to 11.8°C with a humidity of 64% at the end (10:00). The survey was carried out on a clear evening with little/no wind present and the visibility was good. It began to rain lightly towards for the final 15 minutes of the survey.

3.27 A frequent level of both foraging and commuting bat activity was observed within the back garden of the property throughout this survey. Common pipistrelle was the only species of bat to be observed and the majority of activity involved bats travelling from east to west of the property feeding for a few passes and then continuing on to the Serpentine.

3.28 The frontage of the property had three pipistrelle bats feeding to the east of the main house over the gravel drive, however; none of these bats stayed for any length of time and left the site to forage in an adjacent garden.

Dusk survey 20/08/2008

3.29 The survey started at 07:55 and ended at 10:00. Survey conditions were warm (14.6 to 14.8°C) with a stiff breeze and 100% cloud cover. Light rain began at 08:40 increasing to heavy rain at 09:09, easing some six minutes later and finally stopping at 09.:35 (humidity 81 – 86%). Bat activity was, however, heard throughout the period of rain.

3.30 At 08:31 a single common pipistrelle (echolocation peak frequency 46kHz) bat was observed emerging from a small crevice in the soffit box on the north east corner of the building, just by a down-pipe. The bat flew immediately off in a south easterly direction toward the Serpentine. It is possible that this bat was roosting either in/behind the soffit box or used this as an entrance into the loft space. No other bats were seen to emerge from the buildings on site.

3.31 There were, however, good numbers of records of bats flying over the site and foraging and feeding within the grounds. The species recorded were common pipistrelle bat (approximately 13 different contacts recorded, peak frequency at between 45kHz and 50kHz) and a single record of a possible soprano pipistrelle bat (the recording was not able to be analysed due to rain causing too much background noise). The favoured area for foraging and feeding was the eastern and southern sides of the site, over the gardens and grassland. In terms of commuting behaviour, the majority of bats appeared to be commuting towards the Serpentine area.

4. EVALUATION

Habitats and Plants

4.1 The proposed re-development site at 33 St John's Road has a garden typical of a suburban property of this age and type, with a gravel drive to the front, lawns and paved areas to the sides and back and areas planted with shrubs and trees.

4.2 The range of plant species were a mix of ornamental planted species and native plants that have colonised the site since the property has been empty. None of the plant species recorded was rare or had any special nature conservation interest (Cheffings and Farrell 2005, Preston *et al*. 2002). Common spotted orchid was recorded as rare within the lower lawn, and although this is an unusual garden species it is not specially protected or included as a Biodiversity Action Plan (BAP) species and is noted as the commonest orchid in England by Stace (1997). It would, however, be a positive action to retain all or part of this lawn into the re-development proposals to retain this species on site.

4.3 The trees and shrubs on site have some importance for commuting and foraging bats within the locality and therefore should be retained on site, or replaced with similar planting. This is discussed in greater detail below.

4.4 Japanese knotweed was recorded on site, as occasional patches along the eastern boundary of the property. This is a highly invasive plant species and while there is no statutory requirement for landowners to remove the plant from their property, because of its potential harm to native species, it is listed on Schedule 9 and subject to section 14 of the Wildlife and Countryside Act (1981). This makes it an offence to plant, or cause this species to grow, in the wild. In addition, Japanese knotweed is regarded as controlled waste under the Environmental Protection Act (1990) and the plant, and any material (e.g. soil) containing the plant, has to be disposed of at licensed sites or by burning/burying on site.

Bats

4.5 The main house at 33 St John's Road has been confirmed as a bat roost, used by small numbers of brown long-eared and common pipistrelle bats. These findings are consistent with the results of the desk study, which indicate the area has relatively high levels of bat activity with both these species being previously recorded in the area.

4.6 Three brown long-eared bats were observed 'swarming' around the eastern hipped roof on the dawn survey (Plate 8), although they did not enter the building. These bats are likely to have been roosting recently in the loft space at the eastern end where collections of droppings had been observed. A single common pipistrelle was seen to emerge from the south east corner of the building (from the soffit box/under the eaves) on the second evening survey (Plate 8, left hand corner of eastern gable). Two common pipistrelle bats also showed interest in the soffit boxes/eaves of the southern elevation of the property during the dawn survey (Plate 9), although they were not observed entering the building at this point.

4.7 Small numbers of (probable) pipistrelle bat droppings were found within the loft, along with slightly larger (probable) brown long-eared bat droppings concentrated in the eastern end of the loft (close to the roost entrance points) and scattered more widely under the ridge beam. Some of the larger droppings were very fresh indicating that bats were roosting in the loft at the time of inspection.

4.8 Although only a small number of individuals have been recorded as roosting in the loft space, it appears to be used regularly by these bats, as on two of the three surveys bats were observed

showing an interest in the roof void and the fresh droppings indicated at least one bat was present during the building inspection. This would suggest that for a small number of bats it is a frequently used roost site and possibly important for these few bats.

4.9 There were no large accumulations of droppings as might be expected for larger roosts, suggesting the roost is not a breeding (maternity) roost but a non-breeding roost used by small numbers of male or non-breeding female bats.

4.10 The property is considered to be a summer roost, as during the winter the space would be too warm and temperatures are likely to fluctuate too greatly (bats require cool stable conditions for their winter hibernation). Therefore, any proposed demolition or works to the loft or roof structure should be undertaken in the winter when the bats are likely to have moved to their wintering roosts. Once roosting features are removed, the works can extend into the summer period, as bats will be unlikely to return to try to roost while works are ongoing. However, the provision of alternative roost sites prior to the summer would allow bats in the area some replacement roosts, and would be desirable.

4.11 The common pipistrelle bats are likely to be using external crevices such as behind fascia boards, within soffit boxes and perhaps under roof tiles around the eaves, with less use of the actual loft space. Roost exit points for this species have been confirmed in the south east corner of the property at the soffit box/under the eaves. The brown long-eared bats appear to be using the entire loft void to some degree, with bat droppings scattered under the ridge beam and a small cluster found to the eastern end of the loft. A likely roost entrance point has been identified for this species on the eastern hipped roof of the property, under the slightly raised roof tiles.

Nesting Birds

4.12 The larger shrubs, hedges and trees as well as the main house and garage have potential to support nesting birds, although none were confirmed on the site at the time of survey. All active bird nests, eggs and dependent young are protected from disturbance under the Wildlife and Countryside Act (1981, and amendments). As such, all site clearance should be undertaken in the winter period (October to February, inclusive) to avoid the bird breeding season. If clearance is to begin in mid to late February it would be appropriate to hand-search the site for nests as breeding may have already begun if the weather is suitably mild. The search should be completed by an appropriately experienced ecologist, and the site cleared immediately after the search.

5. CONCLUSIONS AND RECOMMENDATIONS

Habitats and Plants

5.1 Where possible, the lower lawn area should be retained and incorporated into the re-development design to enable the common spotted orchid and other associated plant species to remain on site.

5.2 The larger shrubs, hedges and trees around the boundary of the property should be retained or replaced with a similar design to retain these habitats on site. This would benefit both bats and breeding birds in the area.

5.3 The Japanese knotweed present on site should be controlled and/or eradicated during the proposed re-development. It is recommended that guidance on this matter is sought from a specialist company to ensure this highly invasive non-native species is dealt with in accordance with legislative requirements and best practice guidance.

Bats

Mitigation proposals

5.4 The proposed re-development of the site should be designed so as to re-create the small gaps behind the external fascia boards/within soffit boxes/under the eaves to retain roosting areas for the common pipistrelle bats using the site. Gaps left should be 15-20mm high, and no greater, to reduce the potential for small birds to be able to access the areas. This is particularly important on the southern and eastern elevations of any new property, as this is where these bats were seen to emerge and where foraging is concentrated.

5.5 The re-development proposals should include provision for brown long-eared bats within the loft/roof void of any new building, to act as a replacement roost. Brown long-eared bats tend to use loft spaces that are large enough for them to fly around in before they emerge, and guidance suggests roost spaces need to be 1.5 to 2m high (floor to apex) by 4 to 5m long to be suitable for this species. It is therefore proposed that a space of this type is retained within any new property. Access points will also need to be created to allow bats to enter the roof void and use the space. This could be created via small gaps created by raised ridge tiles, raised slates, raised lead flashing areas and small access points under the eaves. Again, all gaps should be no greater than 15 – 20mm high, to reduce the potential for small birds to use them.

5.6 To ensure bats are not without a roost for the period of demolition and re-development, additional roosting provision in the form of bat boxes is recommended to be put in place in the winter during which works begin. While brown long-eared bats do not tend to have maternity roosts in bat boxes, they can be found roosting in small numbers in bat boxes within Derbyshire (Derbyshire Bat Conservation Group 2005, 2006) and therefore non-breeding animals may also successfully take up residence in standard bat boxes in this location, at least in the short term.

5.7 As the bats from within the roost, and from across the wider area, appear to use the general area for commuting and foraging, it is recommended that edge shrub and trees be retained or replaced in the redevelopment proposals. This will ensure that the connectivity between the roost and the wider landscape is retained, as this is an important feature for brown long-eared bats as they are reluctant to cross open areas to forage.

5.8 There is potential for the property to be used by breeding birds in the summer, in particular species such as blue tits may be able to get under the eaves and into soffit boxes (although

none were present at the time of survey). Roof removal in the winter period (as recommended for bat roosts) is also a suitable approach to avoid the period when active bird nests might be present (as all breeding birds are protected to some degree whist breeding, see Appendix II).

Licensing requirements

5.9 A Natural England European protected Species (EPS) Licence in respect of bats and development will be required for the proposed demolition and re-development works at 33 St John's Road, Buxton. This is because the property is confirmed as a bat roost (although a non-breeding roost used by small numbers of bats) and the proposed re-development is highly likely to result in the permanent loss of the roost, in particular the loft used by brown long-eared bats.

5.10 The licence would allow the loss of this roost, which might otherwise contravene existing wildlife legislation, to be undertaken in a controlled manner and for suitable mitigation and compensation measures to be put in place.

5.11 Please note this licence requires a detailed method statement to be prepared by a suitably qualified ecologist, and cannot be applied for until full planning permission has been granted and all relevant planning conditions resolved. Natural England require a six week consultation period between receipt and determination of the licence application. If the licence is not granted, then the work which might affect bats cannot be undertaken, irrespective of planning permission status.

Outline approach

5.12 In the light of the above evaluation, the following recommendations are made and should form the basis of the licence method statement:

- Contractors should be briefed fully on their obligations in respect of bats and the associated EPS licence.
- All stripping out/demolition works should be completed in the winter period (October to February, inclusive) to reduce the risk of bats being inadvertently harmed during works.
- Fascia boards, all lead flashing, the roof tiles in the two rows immediately above the eaves and all ridge tiles should be carefully removed by hand and checked for the presence of bats or bat droppings. This may need to be overseen by the licensed bat ecologist.
- If bats or further accumulations of bat droppings are discovered during works, the consultant ecologist should be contacted immediately for further advice.
- During this winter period new bat roosting structures should be put in place to ensure bats are not without a roost of some form on their return in the summer.
- For this interim compensation measure, during active works on site, the replacement roost should be oak/beech crevice-type bat boxes from a reputable supplier (e.g. the Bat Conservation Trust or Wildcare-Envisage) or constructed according to the design provided in Appendix IIIa and IIIb. A total of six boxes is considered sufficient, placed on existing trees within the property.
- Longer term compensation for loss of the existing pipistrelle roost can be achieved by using the roof structure on the new property to recreate roosting areas for this species. This should be in the form of small gaps and crevices (no greater the 15 - 20mm high)

behind external fascia and/or barge boards, small access points within soffit boxes and gaps created under ridge tiles. The final design will depend on the final detail of the roof construction and needs to be finalised at the point of the licence application. Some designs for possible roost provision are presented in Appendix IV a-c for illustration.

- Longer term compensation for brown long-eared bats should take the form of a large roof void retained for the use of the bats in the new property proposed for the site. The area should be 1.5 - 2m high from floor to apex and 4 - 5m in length. Bat access to the roof void can be achieved by creating a small (15 - 20mm high) gaps beneath ridge tiles, under roof slates, at the eaves and under flashing, with associated slits cut into roofing felt under these areas. The design will depend on the detail of the roof construction and needs to be finalised at the point of the licence application.

- External lighting should be kept to a minimum. Lighting should either be directed down onto key areas for minimal light pollution, or kept at a low level (i.e. no more than 2m from ground level) to allow bats to continue to use a darker upper commuting route over and around the property. No lighting should be directed onto bat boxes or roof access points created for bats, as this may deter them from using these features.

- Any timber treatments required should be very carefully undertaken as these chemicals or their residues may harm bats. A list of those products which are considered suitable for use in bat roosts, as provided by English Nature (now Natural England) is included in Appendix V.

Monitoring of mitigation measures

5.13 The licence may require a period of monitoring of the site to identify how the mitigation measures are being used by bats following completion of the proposed re-development. This may be for one or two summers following the completion of works, usually by undertaking a series of three evening surveys each year, as was completed for this assessment. The final requirement for monitoring will need to be agreed at the licence application stage.

Nesting Birds

5.14 All site clearance should be undertaken in the winter period (October to February, inclusive) to avoid the bird breeding season. If clearance is to begin in mid to late February it is recommended that a hand-search the site for nests is completed by an appropriately experienced ecologist, and the site cleared immediately after the search, as breeding may have already begun if the weather is suitably mild.

Overall Summary and Conclusions

5.15 The main house at 33 St John's Road, Buxton is confirmed as a non-breeding summer roost for small numbers of common pipistrelle and brown long-eared bats. Without mitigation the bats are likely to lose the use of these roosts as the property is proposed for demolition as part of the application for re-development.

5.16 However, given the small numbers of bats recorded at the site, it is considered that the mitigation proposals outlined above can satisfactorily replace these roosts in both the short (i.e. during construction) and longer term.

5.17 Demolition work should be undertaken in the winter period (October to February, inclusive) and specific features of the roof likely to be used by bats removed by hand under supervision by the licensed bat ecologist. During this period bats are likely to have moved to their winter roosts and in the unlikely event that a bat was still present, it could be safely removed.

5.18 In the short term, traditional good quality wooden bat boxes erected on the existing trees on site will ensure the bats are not left without a roost in the summer during which development works might be ongoing.

5.19 In the longer term, the new property proposed for the site should incorporate suitable external crevices (e.g. gaps behind fascia boards and under eaves) to recreate roosting sites for the pipistrelle bats. The brown long-eared bats also require a replacement roost and the retention of a large roof void with access created via gaps in the roof features would be recommended.

5.20 A European Protected Species (EPS) licence in respect of bats and development would be required to undertake the proposed demolition of the main house and cannot be applied for until full planning permission has been granted.

5.21 Site clearance should also take account of the potential for breeding birds to be present on site, and clearance should be completed in the winter period (October to February, inclusive).

5.22 Features such as the boundary hedges, trees and shrubs should be retained within the proposals, or reinstated during re-development, to maintain habitat for use by nesting birds and commuting bats. Where possible, the lawn containing common spotted orchid should be incorporated into the re-development design to retain this species on site.

5.23 Japanese knotweed is present on site. This is a highly invasive non-native plant species, and special measures are required to ensure control and/or eradication of this species. It is recommended that advice on this matter is sought from a specialist company.

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