

Ecological Impact Assessment at

Denver House

Acton Burnell
Shrewsbury
Shropshire
SY5 7PQ

(SJ52831.02025)

By Churton Ecology
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SUMMARY

Background

Churton Ecology was instructed to carry out an Ecological Impact Assessment of land and buildings at Denver House, Acton Burnell, Shrewsbury, Shropshire SY5 7PQ.

The site comprises a mix of modern and traditional agricultural buildings surrounded by hardstanding, amenity grassland, improved grassland and scattered immature trees and shrubs. The proposal is for the conversion of the buildings to residential use.

Method of study

A desktop search, daytime building inspection and general protected species walkover of the site and surrounds aimed to establish the presence or absence of bats, breeding birds and other protected species with potential to be negatively affected by the development. All survey activities potentially disturbing to bats were carried out under licence by Mr. Rob Thorne on 21/03/2023. Further activity surveys of two buildings were carried out on 17/07/23, 17/08/23 and 06/09/23.

Ecological features

The site supports habitats of low biodiversity value. Bats (roosting and foraging) and birds (nesting) are considered to be important ecological features of the site.

Mitigation and enhancement measures

With mitigation measures in place for bats and birds there should be no significant residual adverse effect on protected species.

With enhancements in place there could be a maintenance or increase in the biodiversity value of the site.

1 INTRODUCTION

1.1 Background and site description

Churton Ecology was instructed by Batch Valley Design Ltd to carry out an Ecological Impact Assessment of land and buildings at Denver House, Acton Burnell, Shrewsbury, Shropshire SY5 7PQ (SJ52831.02025).

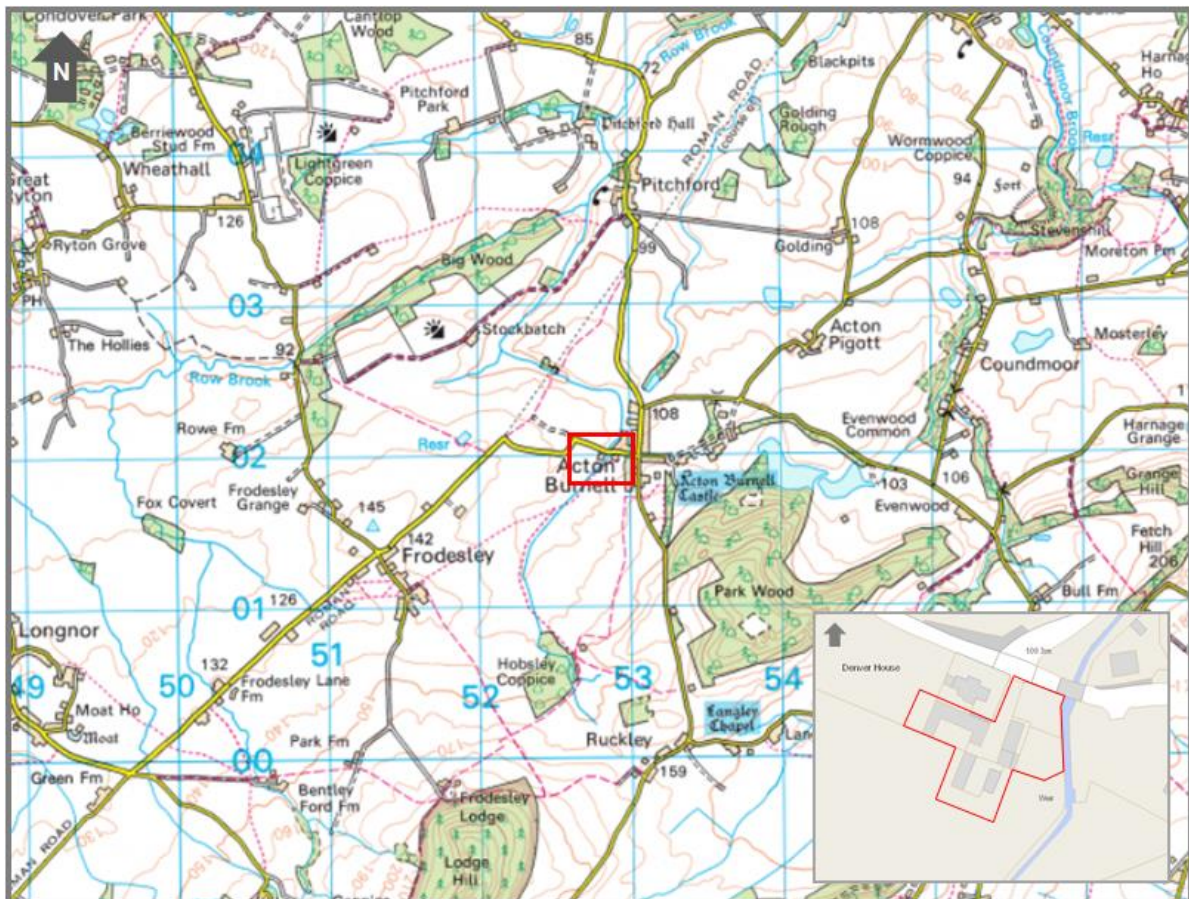


Fig 1: Site location and layout
OS map licence no. 100048619

A desktop search, daytime building inspection and general protected species walkover of the site and surrounds aimed to establish the presence or absence of bats, breeding birds and other protected species with potential to be negatively affected by the development. Further activity surveys of two buildings were carried out on 17/07/23, 17/08/23 and 06/09/23.

The site comprises a mix of modern and traditional agricultural buildings surrounded by hardstanding, amenity grassland, improved grassland and scattered immature trees and shrubs.

1.2 Proposed works

The proposal is for the conversion of the buildings to residential use.

2 METHODOLOGY

2.1 Desk study

Sites of international and national conservation significance were sought within 1km of the site. Sites of local conservation significance were sought within 500m of the site. Searches were conducted using the following sources:

- MAGIC maps
- The Shropshire Environmental Network (SEN)

OS maps and aerial photographs (Google Earth) were used to identify landscape features of potential ecological interest including hedgerows, tree-lines, ponds, streams, ditches and areas of likely (semi-)natural value.

2.2 Habitat survey

A building inspection and survey of the site and surrounds was conducted on 21/03/2023 by Mr. R.G.Thorne (Churton Ecology).

Habitats were assessed and their importance/value noted based on botanic diversity and/or their potential to support uncommon or rare species of flora and fauna (e.g. axiophytes/Red Data Book species).

2.3 Protected species survey

2.3.1 Bats

Daytime inspection survey

A suitably high ladder was used to access all elevated areas with potential to support roosting bats.

Searches were conducted using a fibrescope, extraction pooter, mirrors and torches to identify and collect signs indicating past or current bat use, such as the presence or not of live or dead bats, their droppings or urine splats, cobweb-free areas in cracks and crevices, grease stains or smoothed edges within or below potential roosts and/or their access points.

Habitat suitability assessment

A general habitat suitability assessment of the site and surrounds was carried out to determine the likely value of foraging and commuting habitats.

Dusk emergence surveys

Three dusk emergence surveys were carried out on 17/07/23, 17/08/23 and 06/09/23 - each using two surveyors and four thermal imaging cameras. The surveys adequately covered the median roost emergence times of all UK bat species.

Thermal imaging cameras (Track IR Pro 19mm) enable full visual coverage of the building in all light levels. These record non-radiometric video files for later computer analysis. The Track IR Pro 19mm has a 50Hz refresh (frame) rate, with a 22.9 x 17.2 degree field of view and a thermal resolution of 640 x 480 pixels. The specifications of the device exceed the minimum requirements recommended in the interim guidance for using thermal imaging cameras for carrying out bat surveys (Fawcett Williams [2021] Thermal Imaging: Bat Survey Guidelines – BCT). Automated bat detectors (3x Anabat Express and 1x Anabat Swift) were positioned around the buildings to record echolocating bats emerging – species/genera were determined later through zero crossing and full spectrum sonogram analysis.

The surveyors used BatBox duets (combined heterodyne and frequency division detectors) to identify bats in situ and AnaBat SD2 (frequency division detectors with data-loggers) to record bats for later species/genera determination through zero crossing sonogram analysis. The surveyors used head-mounted night vision binoculars to observe bat activity in darkness.

2.3.2 Great Crested Newt

Desktop search

Ponds and other potential breeding habitats were sought within 250m of the site using OS maps and aerial photographs.

2.3.3 Otter

Field survey

Signs of Otter activity were sought along the section of stream flanking the site to the east. Given the context of the site - with the stream bordering several gardens to the north-east - this was considered adequate enough survey effort.

The survey aimed to identify any evidence of potential holts (permanent resting places), hovers or couches (temporary resting places) and any slides or paths leading to or from such features. Additional signs such as footprints, feeding remains and spraints - isolated or deposited on prominent features (seats) along the stream bank - were also noted. An

extendable mirror and torch were available to inspect potential resting places (and to look through denser areas of vegetation for evidence of Otter activity).

Habitat suitability assessment

A general habitat suitability assessment was carried out to determine the likely value of this stretch of stream for foraging and commuting Otters.

2.3.4 Badger

Field survey

Burrows were sought within at least 30m of the site. Other evidence of site use, such as latrine pits, paths, snuffle holes, feeding remains and hairs (in burrow spoil or snagged along trails) was also sought.

2.3.5 Breeding birds

Field survey

Birds seen or heard during the survey were recorded and old nests were attributed to species where possible.

Habitat suitability assessment

Habitats, with potential to support common, priority or Schedule 1 species of nesting bird were identified within the site and the immediate surrounds.

2.3.6 Other protected and priority species

Habitat suitability assessment

Habitats thought suitable to support other protected or priority species potentially relevant to the site location were also sought. Where no suitable habitats exist and/or where no impacts can be reasonably predicted, species can be discounted from further survey, impact assessment and mitigation - in this instance Dormouse, White-clawed Crayfish, Water Vole and Reptiles.

3 RESULTS AND EVALUATION

3.1 Designated sites

Statutory and non-statutory sites

There are no sites of international or national conservation significance within at least 1km of the site and no sites of local conservation significance within 500m.

The Shropshire Environmental Network

The site does not represent a core area in the Shropshire Environmental Network; however, it is recognised as a wildlife corridor under the same network. As such, the proposed scheme must clearly demonstrate how it will 'promote the conservation, restoration and enhancement of priority habitats and ecological networks' as required by paragraph 174 of the National Planning Policy Framework and provide a net gain in biodiversity.

Evaluation and discussion

Pollution in the construction and operational phases could be damaging to the nearby stream and any associated eco-systems. The impact of this could be significant at the local level (or greater) depending on the nature of the contamination.

It is the engineer/developer's responsibility to be fully conversant with GPP5 and PPG5, the pollution prevention guidelines on works or maintenance in or near water. The developer shall put in place measures to prevent pollution or to deal with any spillages during the construction phase that are compliant with both GPP5 and PPG5. The documents can be downloaded from the Environment Agency website.

Ultimately all other drainage matters will be considered by the relevant planning consultees with appropriate recommendations made and incorporated into the design of the scheme. It is not the remit of this report to consider the effects of pollution on statutory or non-statutory sites for nature conservation, since there is no reasonable likelihood of this occurring with the system of planning control in place.

3.2 Field survey

3.2.1 Building descriptions

Building A

The building comprises a central-wing and two smaller perpendicular wings to the east and west. The roof of the west-wing is badly damaged and only the tiles on the west roof slope remain. Large sections of the roof of the central-wing (south roof slope) have also lost their tiles, although the bitumen felt remains. The east-wing supports ground and first-floor levels and is separated from the central-wing by a full height brick partition wall. The central and west wings are single-storey and divided into rooms by a number of full height brick partition walls. With the exception of the east-wing, which is dark and enclosed, the interior is light and draughty and roosting opportunities are limited in these areas.

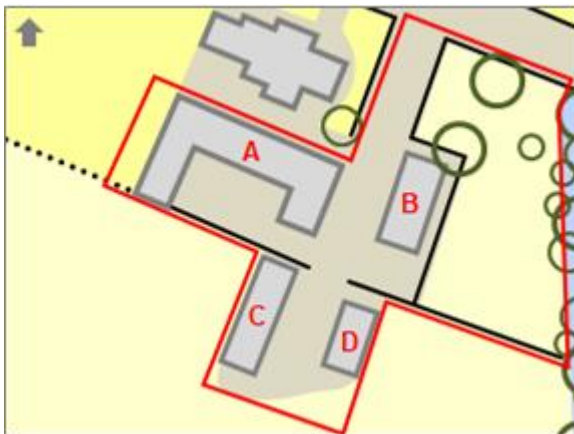


Fig 2: Site plan with existing habitats



P1: Building A: viewed from the NE, looking WSW



P2: Building A: viewed from the SE, looking NW



P3: Building A: viewed from the SW, looking NE

The building is pre-cavity-era brick construction and there are various cracks and crevices present throughout, particularly around the lintel and joists bearings. The roof-verges are close-verge construction; however, two of these are slightly damaged providing potential access to the gable wall tops in these areas.



P4: Building A: viewed from the NW, looking ESE



P5: Building A: Example of the interior

Potential roost sites are limited to occasional holes and crevices in the wall masonry. Additionally there is access to the gable end and partition wall tops, ridge cavities, roof- verges and access to the building interior is possible via occasional open or damaged window and doorway openings.

Building B

The building is small and rectangular and was formerly used as a butchers shop. The walls are cavity-era brick construction and there is potential access to the wall cavity in two or three locations. The roof is lined with bitumen felt and covered with flush slate and overlapping, angled clay ridge-tiles. Some of the vented ridge-tiles have the potential to be occupied by roosting bats.



P6: Building B: viewed from the NE, looking SW



P7: Building B: viewed from the SE, looking NW

The roof-verges are mortared and intact; however, there is some potential for bats to access the gable wall tops under the end rafters. Internally the building is single-storey with a rudimentary loft space - the mdf ceiling panels are badly damaged centrally which provides uninterrupted access to the building interior from the loft space.



P8: Building B: Example of the interior



P9: Buildings C + D: viewed from the SE, looking NW

Buildings C and D

These are two steel framed Dutch barns, partially covered in corrugated tin sheeting. Neither building has the potential to support roosting bats.

3.2.2 Site habitats

The buildings are surrounded by areas of hardstanding, amenity grassland, improved grassland and some scattered immature trees and shrubs.



P10: Site: viewed from the SE corner, looking NW



P11: Site: viewed from the SW, looking NE

Evaluation and discussion

No trees or shrubs will be removed so their level of ecological value can be scoped out of this assessment. None of the other habitats present represent rare or priority habitat types and none are considered to be important ecological features of the site.

3.2.3 Habitats in the site surrounds

The site is bordered by a small stream to the east. The site has reasonable links to significant areas of (semi-)natural habitats in the wider surrounds.

3.3 Protected species survey

3.3.1 Bats

Daytime inspection survey

No bats, droppings or other field signs were noted in Building B; however, the building does have some moderate potential to support roosting bats in areas that could not be accessed (e.g. under the vented ridge-tiles).

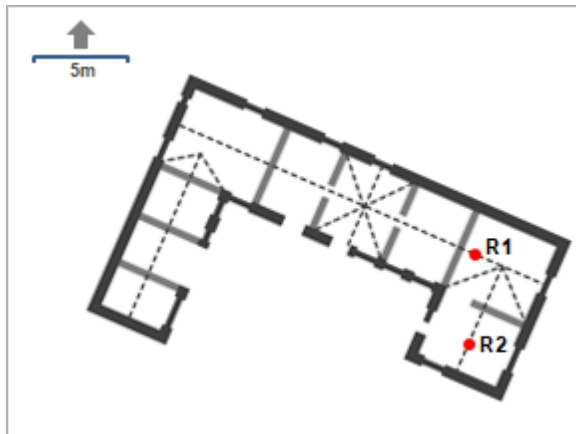


Fig 3: Roost location plan



P12: BLE droppings under roost R1



P13: Roost R1 location detail



P14: Roost R2 (a single BLE bat) location detail

Several hundred recent and mixed aged Brown Long-eared bat droppings were recorded on the floor in Building A under roost R1. The roost is either used by free-hanging individuals or the droppings could have been deposited by bats aggregating prior to full emergence with the roost located nearby in a more secluded location (e.g. in the ridge cavity or on top of the nearby partition wall). A single Brown Long-eared bat was also recorded roosting against the ridge-beam at roost R2.

No other evidence of roosting bats was recorded, although there is potential for other bat species/roosts to be present.

Habitat suitability assessment

The site has good links to overgrown hedgerows, meadows and riparian woodland to the east and is suitable for a moderate range of both generalist and specialist bat species.

1st Dusk emergence survey

17/7/23 Dusk	Sunset	Cloud cover %	Rain	Temp (°C)	Hum %	Wind speed	Other
Start (21.10)	21.25	100	No	16	69	0 mps W	No
Finish (22.55)		80	No	13	85	0 mps W	No

On arrival individual Brown Long-eared bats were recorded at Roosts R1 and R2. These emerged from a broken window pane on the west elevation of the east-wing between 22.04 and 22.09. The first bat flew around the yard and in and out of the open-fronted buildings before commuting to the stream (presumably) to the south-east. The second bat commuted directly to the stream.

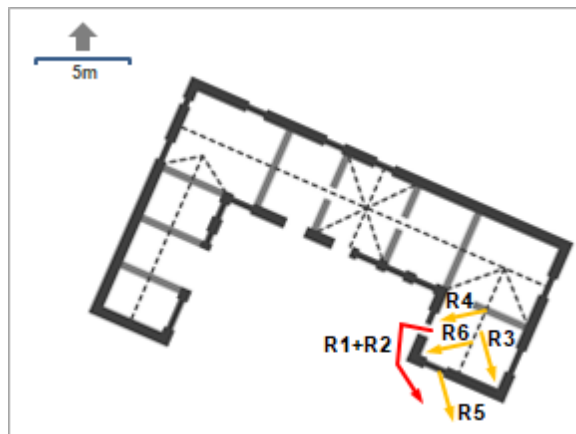


Fig 4: Roost and flightpath location plan



P15: Building emergence details

A total of four Common Pipistrelle bats emerged from four different roost locations at R3 (counted six ridge-tiles along from the south gable, east roof slope, at 21.47), R4 (counted eight ridge-tiles along from the south gable, west roof slope, at 21.47), R5 (a damaged roof-ridge approximately 1.25m down from the ridge, west roof slope, at 21.54) and R6 (counted four ridge-tiles along from the south gable, west roof slope, at 21.55). Two of the bats foraged around the yard and meadow to the south for most of the survey.



P16: Building emergence details

With the exception of Noctule bat, which was recorded passing over the site on one occasion, bat activity was limited to the individuals (and species) using the building. A single *Myotis* bat call (possibly Whiskered/Brandt's bat) was recorded on one occasion in the meadow to the west. Interestingly the bat was recorded (on camera) landing on a grass tussock (possibly gleaning) before flying off approximately five seconds later.

No bats emerged from building B.

2nd Dusk emergence survey

17/8/23 Dusk	Sunset	Cloud cover %	Rain	Temp (°C)	Hum %	Wind speed	Other
Start (20.18)	20.33	100	No	19	57	2 mps E	No
Finish (22.03)		80	No	17	73	2 mps E	No

At 20.58 a single Whiskered bat emerged from under a ridge-tile on the central cross-wing at R7 (counted four ridge-tiles along from the south gable, east roof slope). The bat commuted to the south-east and was then recorded foraging around the Dutch barn (close to one of the bat detectors) for approximately twenty minutes (aiding species identification).

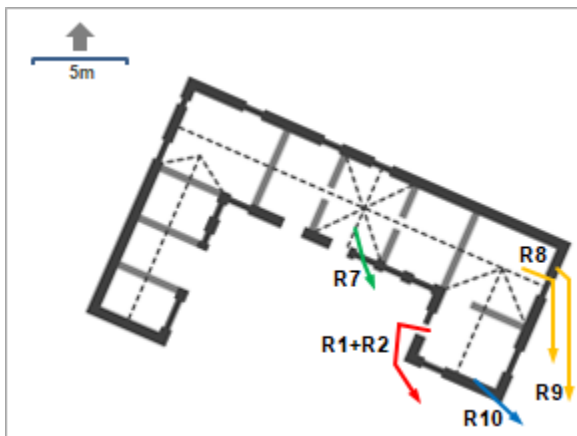


Fig 5: Roost and flightpath location plan



P17: Building emergence details

A total of two Common Pipistrelle bats emerged from two different roost locations at R8 (a crevice above the window hatch on the south-east gable, at 20.59) and R9 (a crevice behind the door lintel on the south-east gable, at 21.03).



P18: Building emergence details



P19: Building emergence details

At 21.04 a single Soprano Pipistrelle bat emerged from under a roof-tile along the roof-verge at R10 (counted sixteen tile courses up from the eaves, east roof slope).

A total of four Brown Long-eared bats emerged from a broken window pane on the west elevation of the east-wing between 21.05 and 21.32. The bats flew around the yard and in and out of the open-fronted buildings before commuting to the stream (presumably) to the south-east.

With the exception of one Lesser Horseshoe bat pass to the south-east (at 21.16) and Noctule bat, which was recorded passing over the site on two occasions, bat activity was again limited to the individuals (and species) using the building.

No bats emerged from building B.

3rd Dusk emergence survey

06/9/23 Dusk	Sunset	Cloud cover %	Rain	Temp (°C)	Hum %	Wind speed	Other
Start (19.33)	19.48	0	No	23	76	1 mps SE	No
Finish (21.20)		0	No	21	87	0 mps SE	No

A total of two Common Pipistrelle bats emerged from two different roost locations at R11 (a masonry crevice above a door lintel on the cross-wing [south] gable, at 20.14) and R12 (a loose ridge-tile counted two tiles along from the south gable, east roof slope, at 20.19).

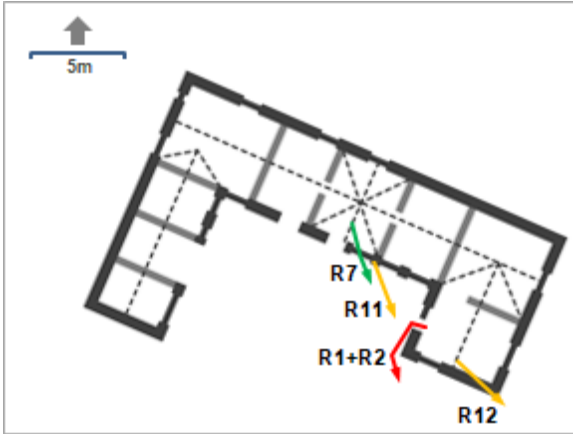


Fig 6: Roost and flightpath location plan



P20: Building emergence details

At 20.16 a single Whiskered bat emerged from the same ridge-tile roost (at R7) where it was recorded during the previous survey. The bat was then recorded foraging around the Dutch barn on and off for the majority of the survey (as during the previous survey).



P21: Building emergence details



P22: Building emergence details



P23: Building emergence details

A total of six Brown Long-eared bats emerged from the same broken window pane on the west elevation of the east-wing between 20.26 and 21.05.

With the exception of Noctule bat, which was recorded passing over the site once, bat activity was again limited to the individuals (and species) using the building.

Evaluation and discussion

The bat survey was carried out thoroughly and all areas could be observed adequately. The extensive use of thermal imaging cameras adds a level of robustness to the survey which would be unachievable if using surveyors alone.

Bats were found to be absent from Building B.

Building A supports individual day roosts used by small numbers of male and/or non-breeding female Common Pipistrelle bats (eight roosts [R3, R4, R5, R6, R8, R9, R11+R12] occupied by four to eight individuals, although some if not all of the roosts may be used on a rotational basis so a more accurate number is likely to be between four and six individuals), Soprano Pipistrelle bat (one roost [R10] occupied by a single bat), Whiskered bat (one roost [R7] occupied by a single bat) and Brown Long-eared bats (two roosts [R1+R2] occupied by a total of six individuals during the transitional autumn period and a range of between two and four individuals during the summer [day roost] period).

Common Pipistrelle and Soprano Pipistrelle bats are considered common and widespread throughout the UK. Whiskered bat is considered to be widespread across much of England. Brown Long-eared bat is considered to be relatively common and widespread throughout the UK. Current UK population trends have either remained stable (Soprano Pipistrelle bat, Brown Long-eared bat and Whiskered bat) or increased (Common Pipistrelle bat) since 1999 (BCT – 2022 NBMP report); therefore, it would be reasonable to conclude that all four species are being maintained at a favourable conservation status.

3.3.2 Great Crested Newt

Desktop search

The site is located in the known geographic range for this species and the species is widespread in this part of the county. Given the scale of the development, only ponds within 250m of the site were considered to be potentially relevant to the proposal. No mapped ponds were identified within this area and there is nothing to indicate the potential presence of any unmapped ponds (based on aerial photography).

Evaluation and discussion

Great Crested Newt is not considered to be an important ecological feature of the site; therefore, no further survey effort, impact assessment or mitigation is required in relation to it.

3.3.3 Otter

Field survey

The section of stream flanking the site to the east has been sluiced through a mill run and supports high retaining stone walls on both banks. Evidence of Otter activity (spraints and footprints) was recorded under the roadbridge to the north-east. No paths or slides were noted entering the stream at any point and there are no potential resting sites within close proximity of the site.

Habitat suitability assessment

The stream is likely to be used by small numbers of Otters (commuting) on an occasional basis and this is consistent with activity levels on similar streams of this size in Shropshire; however, it is reasonable to predict that this section of stream does not form part of an Otter's core home range based on the extent of residential housing that flanks the stream to the north-east.

Evaluation and discussion

Otter persecution is a thing of the past and this species has become noticeably more diurnal and tolerant of human activity (frequenter urban locations) as a result. Otters are also regularly encountered by fishermen and there seems to be very little evasion response to such encounters. With the stream passing through Acton Burnell to the north-east the animals will be familiar with the general disturbances and smells associated with regular human activity and would be imbued with a high disturbance tolerance at this location. The retaining stone walls flanking the stream would also provide a natural barrier against the effects of transmitted light from the developed buildings.

It is the opinion of Churton Ecology that no further survey or impact assessment is required in relation to this species; however, lighting restrictions (which will be necessary for bats) will provide adequate mitigation for Otter, given the context of the site.

3.3.4 Badger

Field survey

No signs of Badger were noted within 30m of the site.

Evaluation and discussion

Badger is not considered to be an important ecological feature of this site; therefore, no further survey, impact assessment or mitigation is required in relation to it.

3.3.5 Birds

Field survey

All four buildings contained evidence of bird nesting activity to a lesser or greater degree including House Sparrow (a UK BAP), Swallow, House Martin (under the eaves of Building B), Swallow, Wren, Blackbird, Robin, Tit and Feral Pigeon/Stock Dove.

Habitat suitability assessment

The buildings are also likely to be used by additional ledge or crevice nesting species not recorded during the survey (e.g. Starling or Pied Wagtail).

Evaluation and discussion

Nesting birds are considered to be an important ecological feature of the site but given the scale and commonality of the habitats present these are likely to be important at the site level only.

3.3.6 Other protected and priority species

There is limited potential for other protected or priority species to be negatively affected by the proposed development.

4 POTENTIAL IMPACTS

4.1 General

This section considers the potential impacts (and subsequent effects) which might arise from the development in the absence of avoidance measures and/or mitigation. Wherever possible, the negative ecological impact of a development must be avoided. Any residual effects and their level of significance are further discussed with mitigation and/or enhancements in place.

It is important to note that the purpose of an ecological impact assessment is to consider impacts and effects in relation to species and habitats that have some level of international, national or local conservation significance – broadly speaking rare, uncommon or declining species and habitats. These are variously protected by domestic law and priority species have some limited protection under the provisions of the NERC Act and The Environment Act (2021) – species and habitats listed on the UK/Local biodiversity/habitat action plan and consequently S41 of the NERC Act.

4.2 Protected species

4.2.1 Bats

Significance of effects prior to mitigation

The bat survey was carried out thoroughly and with no accessibility constraints. No evidence of bat activity was noted in Building B. It is therefore the opinion of Churton Ecology that no further bat survey effort, impact assessment or mitigation is required in relation to this building.

Works affecting Building A could result in the disturbance, killing and injuring of small numbers of Common Pipistrelle bats (four to six adults), Soprano Pipistrelle bat (one adult), Whiskered bat (one adult) and Brown Long-eared bats (six adults). This represents a high level of predicted negative impact at the site level and a low/moderate level of predicted negative impact at the local level.

The proposed works will result in the destruction of eight Common Pipistrelle bat day roosts, one Soprano Pipistrelle bat day roost, one Whiskered bat day roost and two Brown Long-eared bat day/transitional roosts.

None of the roosts are considered to be of regional or national significance. The Common Pipistrelle, Soprano Pipistrelle, Whiskered and Brown Long-eared bat roosts (the type) have a low level of conservation significance (Natural England's Bat Mitigation Guidelines - Section 7.2, P.39) and it is highly likely that alternative roost sites will be known to the same bats locally (the three surveys supported this assessment to some degree, with varying numbers of bats recorded on each occasion). Roost loss is likely to have a high level of predicted negative impact at the site level only. Such losses are unlikely to have a detrimental impact on the species' abundance and overall distribution and current favourable conservation status would not be negatively affected (even in the absence of mitigation).

There will be no loss of potential bat foraging habitat; however, the illumination of any peripheral habitats could result in the disturbance or deterioration of commuting habitats.

Significance of residual effects after mitigation

Roost retention/compensation measures will be incorporated into the design of the scheme and mitigation measures will ensure that no bats are injured or killed during the development. With the addition of lighting mitigation measures there should be no significant residual adverse effect on roosting, commuting and foraging bat species.

4.2.2 Breeding birds

Significance of effects prior to mitigation

The development will result in the small scale loss of suitable nesting habitat. The impact of this is unlikely to have a significant adverse effect on local bird populations; however, works that have the potential to damage or destroy the (active) nesting site of a bird would constitute a legal offence.

Significance of residual effects after mitigation

With mitigation measures in place (providing replacement nesting sites and timing restrictions) there will be no significant residual adverse effect on nesting birds.

Significance of residual effects after enhancement

The development could result in the provision of new bird nesting opportunities (boxes/cups) for House Martin, House Sparrow and Starling. The impact of this could have a beneficial effect on local bird populations.

4.3 Survey constraints

There were no significant survey constraints.

4.4 Protected species legislation

Bats

All UK bat species are protected under The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and The Wildlife and Countryside Act 1981 (as amended). Essentially this makes it unlawful to; deliberately capture, injure or kill a bat; intentionally or recklessly disturb a bat whilst it occupies a roost or deliberately cause disturbance to (a bat) or significant group of bats; damage or destroy the roosting site of a bat; intentionally or recklessly obstruct access to a bat roost.

Notably, legal protection gives absolute protection to bat roosts and their continued functionality, regardless of deliberate, intentional or reckless action. Legal protection also extends to seasonal roosts which are not always occupied by bats throughout the year.

Disturbance caused through excessive noise or lighting and/or alterations to the landscape could potentially impact on bat roosting, foraging and/or commuting habitats and may have legal implications with regards disturbance and roost deterioration laws. It is therefore the duty of the relevant competent authority to take habitat severance, disturbance and land use change issues and their potential for impact on bat populations into consideration when assessing applications for the relevant consent.

Birds

With the exception of Schedule 1 listed bird species, which receive a higher level of protection against breeding disturbance, all common species of bird are protected during their breeding activities under the Wildlife and Countryside Act 1981

Essentially, this makes it an offence to intentionally take, damage or destroy the nest of any wild bird whilst that nest is occupied or being built; intentionally take or destroy the egg of any wild bird.

4.5 Personnel

Rob Thorne BA (Hons) MRSB has eighteen years' experience surveying sites for development and conservation purposes, covering Ecological Impact Assessment, botanical and vegetation surveys, and is competent to survey for a wide range of protected and priority species. He holds NE and NRW bat (17yrs) and Great Crested Newt (15yrs) survey and numerous mitigation licences and is a long-time member of The Shropshire Bat Group. He holds, or is accredited to work under, survey licences for Barn Owl, White-clawed Crayfish and Dormouse. He is also an experienced reptile and Otter surveyor having undertaken large scale reptile surveys for Natural England (to inform SSSI designations) and the Wildlife Trusts and targeted Otter surveys of watercourses for The Shropshire Mammal Group (as well as for numerous development proposals). He is also experienced in reptile mitigation, habitat management and trans/re-locations and has carried out long-term studies of several Slow-worm populations.

5 PROPOSED AVOIDANCE MEASURES, MITIGATION AND ENHANCEMENTS

5.1 Avoidance measures and mitigation

5.1.1 Protected species

Bats

In relation to Building B, no further mitigation is required other than the careful vigilance of contractors during the works period; however, in the event that bats, or evidence of bats, are encountered during any part of the development, then there is a legal requirement for works to cease immediately. Natural England must be consulted at the earliest opportunity and further surveys will most likely need to be conducted to meet any subsequent licensing requirements.

If bats are discovered these should be covered by the last object removed (where there is no risk of crushing) and any associated coverings nearby must also be replaced. An estimate of the numbers should be **quickly** ascertained by the contractor before the bats are concealed. If grounded bats are discovered these should be covered by a cardboard box until the bat worker arrives.

Works to Building A will need to be carried out under a European Protected Species Mitigation Licence. This can only be granted after planning permission has been secured. Since the building does not support a maternity colony of bats roost destruction under licence (i.e. the commencement of building conversion works) can commence at any time of year excluding the two core hibernation months of December and January – the commencement will also be subject to nesting bird requirements. The named ecologist on the licence will need to be present when the roof is stripped and when certain areas of masonry are dismantled. If any bats are found these will either be i) re-covered and allowed to disperse naturally overnight ii) removed and retained in a suitable container for release on-site at dusk or iii) placed in a bat box mounted on a nearby tree.

Access to the five ridge-tile roosts (R3, R4, R6, R7, + R12) will be provided in a like-for-like fashion. Access to these would be a simple case of either propping up the ridge-tile, cutting out a 15mm (high) x 50mm (wide) notch in the foot of the ridge-tile or creating access through the mortar bed under the ridge-tile – a dry ridge system would not be appropriate in this instance. The tiles will need to be dabbled on at either end and mortared along the sides (leaving the access point open) to provide a suitable cavity inside.

Access to the two roof-tile/roof-verge roosts (R5 + R10) will be provided in a like-for-like fashion using a lead bat slate inserted at each roost location.

Mitigation for the destruction of roosts (R8, R9 + R11) will be provided by means of various new roosting features including two new ridge-tile roosts and two bat bricks integrated into the wall masonry.

Roost compensation measures must also include the provision of a dedicated loft space suitable for use by Brown Long-eared bats (to mitigate the destruction of the Brown Long-eared bat roosts at R1 + R2). The loft must have a minimum height of 2m - measured from the ridge apex to the loft floor. Ideally it should measure 5m in length (or more). The void must be open, so there can be no use of pre-fabricated scissored trusses. The roof (within the loft) must be lined with traditional Type 1F felt. Purpose built roosting crevices will be provided inside the loft to ensure there are a variety of environments for bats to roost in (including cooler transitional roost sites in the lower walls). Flight access will be via purpose built crevices on the relevant gable or via modified ridge-tiles with the felt removed beneath. N.B. it may be appropriate to construct the dedicated bat loft in Building B if this is preferable.

If any external lighting is proposed, then a lighting plan may be requested as a condition of planning consent. Alternatively, a lighting plan can be submitted with the application to reduce the number of conditions attached to the planning notice. The plan submitted must take into account the following guidance and summary recommendations:

- Bat Conservation Trust (2023) *Bats and Artificial Lighting at Night – Institute of Lighting Professionals* Bat Conservation Trust, London
- Bat Conservation Trust (2018) *Bats and artificial lighting in the UK – Bats and the Built Environment Series* Bat Conservation Trust, London
- Bat Conservation Trust (2014) *Interim Guidance: Artificial lighting and wildlife – Recommendations to help minimise the impact of artificial lighting* Bat Conservation, London
- Institute of Lighting Professionals (2011) *Guidance notes for the reduction of obtrusive light* Institute of Lighting Professionals, London

As a matter of best practice, external lighting must be minimised or avoided altogether. Where used, lighting must be fixed on the lowest column practical with light spread kept well below the horizontal using cowls, hoods, screens or simply by downward directionality.

There must be no allowance for permanent security lighting. PIR systems must only be used where absolutely necessary and these must be set on a short timer (thirty seconds maximum) and responsive only to larger moving objects. LED bulbs with a warm white colour spectrum (2700 Kelvins) must be used to reduce the blue light component most disturbing to bats.

Breeding birds

The nests of actively breeding birds must be avoided during the works period. If nests are encountered then works must cease or avoid that area until the young have departed the nest. Construction activities that may affect nesting birds (the commencement of building conversion works) must be carried out as follows:

- During the nesting season between March 1st and August 31st after an ecologist has inspected the building for signs of nesting birds. **This is highly likely to result in delays to the project and is not recommended.**
- Between September and March 1st - outside the breeding season - when birds are unlikely to be nesting.

5.2 Enhancement recommendations

5.2.1 Species

The development could result in the provision of new bird nesting opportunities (boxes/cups) for House Martin, House Sparrow and Starling.

The locations of these would typically be provided at the Reserved Matters (or a prior to first occupation/use condition); however, where bat roosting/bird nesting features are to be integrated into the fabric of the building (such as a bat brick/ridge-tile roost) it is advisable to include these in the architectural drawings submitted with the application to avoid the need to retro-fit at a later date.

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