



Holwell Farm, Ozleworth, Wotton-under-Edge,
Gloucestershire, GL12 7QB

Preliminary Ecological Appraisal & Dusk Emergence Survey for Bats



October 2021

All Ecology Ltd

Tel: 01453 393001

Email: info@allecology.co.uk

Web: www.allecology.co.uk

Document Control

Site: Holwell Farm, Ozleworth, Wotton-under-Edge, Gloucestershire, GL12 7QB

Title: Preliminary Ecological Appraisal and Dusk Emergence Survey for Bats

For: Millar Howard Workshop

Project Number: 21135

Document Version: 1.1

Survey Dates: 22nd July 2021 (PEA) and 4th August (Dusk Emergence Survey)

Document Date: 28th October 2021

Version	Date	Version Details	Prepared by	Reviewed by	Approved by
1.0	14/08/21	-	JG	VP	JG
1.1	28/10/21	Considers final plans	JG	VP	JG



England and Wales Office

All Ecology Ltd,
Haw Street,
Coaley,
Dursley,
Gloucestershire,
GL11 5AY.

Scotland Office

All Ecology Ltd,
Bowfield Road,
Howwood,
Renfrewshire,
PA9 1BZ.

Tel: 01453 393001
Email: info@allecology.co.uk
Web: www.allecology.co.uk

All Ecology is the trading name of All Ecology Ltd. Registered in England and Wales, Company Number 8306310

Notice to Readers:

The results of the survey and assessment work undertaken by All Ecology are representative at the time of surveying.

Every endeavour has been made to identify the presence of protected species on site, where this falls within the agreed scope of works.

The flora and fauna detailed within this report are those noted during the field survey and from anecdotal evidence. It should not be viewed as a complete list of flora and fauna species that may frequent or exist on site at other times of the year.

Up to date standard methodologies have been used, which are accepted by Natural England and other statutory conservation bodies. No responsibility will be accepted where these methodologies fail to identify all species on-site.

All Ecology cannot take responsibility where Government, national bodies or industry subsequently modify standards.

All Ecology cannot accept responsibility for data collected from third parties.

Reference to sections or particular paragraphs of this document taken out of context may lead to misrepresentation.

Executive Summary

In July 2021, All Ecology Ltd was commissioned to undertake a Preliminary Ecological Appraisal of part of a site known as Holwell Farm, Ozleworth, Wotton-under-Edge, Gloucestershire, GL12 7QB. The site as a whole includes a large house with separate art studio and garage annex, and a cart shed, surrounded by formal gardens and landscaped areas including patio areas, lawns and planted borders.

The site is the subject of a planning application to permit the following main items:

Kitchen extension to the house, the roof of which would tie into the existing lean-to roof; the main roof would not be affected.

Refurbishment and extension of the house log store for a new boot room.

Minor landscaping works to provide a new kitchen garden courtyard.

Construction of a new artist studio and link to connect to the existing annex.

Internal changes to the existing annex to convert garage and studio to guest accommodation and office

The habitats present on site are of low ecological value in terms of their vegetation. Any changes/loss are expected to be negligible.

Bats – The buildings had potential roosting features for roosting bats which would be lost/disturbed. These were classified as being of low potential. A dusk emergence survey was subsequently carried out; this did not record any roosting bats and it is concluded that they are likely to be absent. Details of appropriate mitigation are given.

Birds – Nesting habitats on/in the buildings and a number of Swallow nests were recorded in the garage. Details of appropriate mitigation are given.

Great Crested Newts – Three nearby ponds are potentially suitable for this species. The area of habitat to be affected are minimal. No further surveys required but details of precautionary methods of working and reasonable avoidance measures are given.

Suggestions for enhancement are also given.

Contents

Executive Summary	1
Contents	2
1.0 Introduction	4
Background	4
Objectives and Aim	4
Site Location	5
2.0 Methodology	6
Personnel	6
Habitat Survey	6
Fauna	6
Dusk Emergence Survey	7
Equipment	7
Valuation of Ecological Features	8
Nomenclature	8
Limitations	8
3.0 Results - PEA	9
Habitats	9
Bats	10
Badgers	15
Other mammals	15
Birds	16
Amphibians and Reptiles	16
Invertebrates	19
4.0 Dusk Emergence Survey for Bats	20
Results	20

Evaluation	20
5.0 Development Constraints and Recommendations	22
Development Proposals	22
Habitats	22
Bats	22
Badgers and other mammals	24
Birds	24
Amphibians	25
Invertebrates	26
6.0 References	27
7.0 Plans	29
Plan 1 – Dusk Emergence Survey Results	29

1.0 Introduction

Background

- 1.1 In July 2021, All Ecology Ltd was commissioned to undertake a Preliminary Ecological Appraisal of part of a site known as Holwell Farm, Ozleworth, Wotton-under-Edge, Gloucestershire, GL12 7QB. The site as a whole includes a large house with separate art studio and garage annex, and a cart shed, surrounded by formal gardens and landscaped areas including patio areas, lawns and planted borders.
- 1.2 The site is the subject of a planning application to permit the following main items:
 - Kitchen extension to the house, the roof of which would tie into the existing lean-to roof; the main roof would not be affected.
 - Refurbishment and extension of the house log store for a new boot room.
 - Minor landscaping works to provide a new kitchen garden courtyard.
 - Construction of a new artist studio and link to connect to the existing annex.
 - Internal changes to the existing annex to convert garage and studio to guest accommodation and office.

Objectives and Aim

- 1.3 The main objectives and aim of the survey were to identify features of ecological interest, undertake a basic search of habitats present for evidence of use, or potential use, by protected species, and to identify any other possible ecological constraints to the proposed development. The survey recorded potential roosting features for bats that could not be fully inspected and a dusk emergence survey was subsequently carried out.

Site Location



Figure 1: Site location plan.



Figure 2: Aerial photo.

2.0 Methodology

Personnel

- 2.1 The surveys were carried out by [REDACTED], an ecologist with over 14 years' experience working as a consultant; an experienced bat surveyor assisted with the dusk emergence survey. [REDACTED] has extensive experience of managing environmental contracts, and particular experience in surveying, assessment and mitigation for rare and protected species. He has considerable knowledge of the development and planning process including Ecological Impact Assessments, sustainable ecological design and he has completed ecology chapters of Environmental Statements. [REDACTED] holds a number of protected species licences including bats (all species, all counties, Class Licence Registration No. 2015-12313-CLS-CLS), and Great Crested Newts (Class Licence Registration No. 2019-44282-CLS-CLS). He has successfully obtained European Protected Species mitigation licences for a number of bat species including Lesser Horseshoe, Greater Horseshoe, Serotine, Brown Long-eared, Common Pipistrelle and Natterer's bats, for a number of roost types including maternity and hibernation sites.

Habitat Survey

- 2.2 The site was visited on the 15th June 2021 and surveyed in accordance with the Joint Nature Conservation Committee (JNCC) Phase I Habitat Survey methodology (JNCC, 2010). This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential that might warrant further study.

Fauna

- 2.3 The habitats present on the site were searched for signs of animal activity. The trees and buildings were assessed for their potential to support bat roosts. The trees were assessed by visually inspecting them from the ground using binoculars and high-powered torches where appropriate. The buildings were inspected externally and internally following the methodology set out in the Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd Ed (Collins, 2016).
- 2.4 In summary, the buildings were searched externally and then internally, where access was available, for any evidence of use by bats and notes were made on the following:
- Location and number of any live bats.
 - Location and number of any corpses or skeletons.
 - Location and number of droppings.
 - Notes on relative freshness, shape and size of droppings.
 - Location and quantity of feeding remains.
 - Location of clean, cobweb-free timbers, crevices and holes.
 - Location of characteristic staining from urine and/or grease marks.
 - Location of known and potential access points to the roost.
 - Location of the characteristic smell of bats if no other evidence is recorded.

- 2.5 Notes were also made on the characteristics and features of the buildings as follows.
- Type, age and aspect.
 - Wall construction, in particular the type of brick or stone used to build the walls and whether it has cavity walls or rubble- filled walls.
 - Form of the roof, in particular the presence of gable ends, hipped roofs, etc. and the nature and condition of the roof covering.
 - Presence of hanging tiles, weather boarding or other forms of cladding.
 - Nature of the eaves, in particular if they are sealed by a soffit or boxed eave and the tightness of the fit to the exterior walls.
 - Presence and condition of lead flashings.
 - Gaps under eaves, around windows, under tiles, lead flashings etc.
 - Presence and type of roof lining.
 - Presence of roof insulation.
 - Presence of water tanks in loft (note if covered or uncovered).
 - Structure of the roof including the truss type, age and nature of timber work.
 - Information or evidence of work having been undertaken that could affect use of the structure by bats
- 2.6 The site and surroundings, for a minimum distance of 30 m, were searched for signs of Badgers. These include setts, latrines, dung pits, snuffle marks or hairs caught in hedges or on fencing.
- 2.7 Incidental observations of invertebrates and birds were recorded and a search made for any signs of current or previous nesting.
- 2.8 The habitats were assessed for their potential to support reptiles and amphibians. There were two ponds in the surroundings that were subject to the Great Crested Newt Habitat Suitability Index (HSI) Assessment.

Dusk Emergence Survey

- 2.9 The building was subject to a dusk emergence survey on the 4th August 2021. In order to adequately cover the annex building and relevant part of the house and log store, three surveyor positions were used.
- 2.10 In accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd Ed (Collins, 2016), dusk surveys should begin 15 minutes before sunrise and continue for 1.5 – 2 hours after sunset with the survey start time adjusted on subsequent surveys or a repeat of the survey should bats already be in flight at 15 minutes before sunset. The dusk survey therefore began 30 minutes before sunset to avoid the risk of having to repeat the survey as species such as pipistrelles will often emerge well before sunset.

Equipment

- 2.11 Equipment used to aid the Preliminary Ecological Appraisal survey included a ladder, binoculars, torches, endoscope and camera.

- 2.12 For the Dusk Emergence Survey, surveyors were equipped with Echo Meter Touch 2 Pro bat detectors. Registrations were recorded on the devices and notes were made on species recorded, behaviour, time of registration, location and direction of flight where possible, including incidental observations from surrounding habitats. All identifications were made on site and it was not necessary to analyse audio recordings using Wildlife Acoustics' Kaleidoscope software.

Valuation of Ecological Features

- 2.13 The valuation process used in this report follows the Guidelines for Ecological Impact Assessment in the UK and Ireland from the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018).
- 2.14 The presence of injurious and legally controlled weeds has also been taken into account.

Nomenclature

- 2.15 The English name only of flora and fauna species is given in the main text of this report; however, scientific names are used for invertebrates where no English name is available. Vascular plants and charophytes follow the nomenclature of The Botanical Society for the British Isles (BSBI) 2007 database (BSBI, 2007) with all other flora and fauna following the Nameserver facility of the National Biodiversity Network Species Dictionary (<http://www.nhm.ac.uk/nbn/>), which is managed by the Natural History Museum.

Limitations

- 2.16 The roofs of the buildings had vaulted ceilings; it was not possible to inspect the void between this and the tiles during the Preliminary Ecological Appraisal, with gaps at the verges and/or under hip tiles providing potential access to this and other possible roosting features. The site was otherwise fully accessible with no limitations to undertaking the survey in accordance with the stated methodology.
- 2.17 There were no limitations to carrying out the dusk emergence survey in accordance with the Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd Ed (Collins, 2016).
- 2.18 The surveys only provide a 'snapshot' of the bat activity associated with the building and immediate surroundings and although the absence of a maternity roost can be determined with a high level of confidence as well as other roost types at the time of the surveys, it is possible that bats could roost at other times of the year

3.0 Results - PEA

Habitats

- 3.1 The application site comprises the house, annex and cart shed buildings with surrounding gardens of lawns, planted beds, scattered trees, patio areas and driveway, with separate stonewalls. Two connecting ponds are also present in the garden. The established lawn areas were typical amenity swards, dominated by Perennial Rye-grass with abundant Yorkshire-fog, and frequent Creeping Buttercup, Yarrow and Dandelion. There were also rare occurrences of Greater Plantain, Fescue sp and Silverweed. A newer area of turf was dominated by Perennial Rye-grass with frequent Fescue sp.



Photograph 1: New lawn and patio area.



Photograph 2: Planted flower bed along the east side of the annex.



Photograph 3: Lawn to the east of the annex (location of proposed art studio).

Bats

- 3.2 Foraging and Commuting Habitats – Small areas of garden foraging habitat around the buildings with woodland surrounding the site to the south and a sheltered valley to the north. Common species are expected to forage on site regardless of roosting, with potential for occasional or passing notable species such as Lesser Horseshoes.
- 3.3 Roosting – There are no larger trees near the buildings and the shrubs do not offer any potential roosting features.

Building 1 – Occupied house. Stone walls with slate roofs of gable, half-hip and lean-to construction. Walls extend up to meet the underside of the slates to close the eaves. No fascia boards or soffits present. Internally, the ceilings are vaulted throughout and there are no roof voids. A small open-fronted log store has a single pitch roof lined with a plastic membrane; a timber fascia board is present along the front

The building provides the following features:

Large numbers of gaps under roof slates provide access to the voids between the slates, and any lining/ceilings below. No evidence of use such as staining but a full inspection of these kinds of features is not possible.

Gaps behind the fascia board on the log store. No evidence of bats such as staining, or droppings below but the gaps led to the main void between the slates and plastic membrane, which could not be fully inspected.

The main roof of the house is deemed to have high potential for crevice-dwelling bats on account of the large number of access points and the optimal location in terms of habitat. However, the only part of the roof that would be affected by the works are the lean-to kitchen roof and the log store roof. These parts of the roof are deemed to have low potential for roosting bats.



Photograph 4: House – kitchen lean-to roof.



Photograph 5: House – kitchen lean-to roof – south elevation.



Photograph 6: House – log store.

Building 2 – Single storey annex with a garage at the north end and art studio in the remainder. Constructed of stone and brick with a gable end roof covered with clay pan tiles. Open eaves. Garage doors present on the north elevation with an overhanging canopy. Windows and doors present on the west and south elevations. Chimney stack with lead flashing.

The interior is occupied with a garage, approximately one third, with the remainder being an open art studio with vaulted ceilings. The bitumen felt lining is visible in the garage where there is no ceiling; there are no enclosed roof voids, the roof supported by traditional roof timbers.

The building provides the following features:

Small number gaps in ridge mortar. No evidence of use such as staining but a full inspection of these kinds of features is not possible. Ridge vents also present but these are sealed with mesh.

Gaps in the eaves between the wall plates and tiles. No evidence of use such as staining but a full inspection of these kinds of features is not possible.

Gaps under the end exposed rafter on the south gable roof verge. No evidence of use such as staining but a full inspection of these kinds of features is not possible.

Open garage doors allow direct access to the garage interior. This is well lit through the same doorway but potential for night roosts; however, no evidence of such use was recorded.

Overall, the potential is limited to external crevices that allow bats to access gaps under tiles and taking into account the limited number of potential access points and the low height of the building, any potential is regarded as low.



Photograph 7: Annex – west elevation.



Photograph 8: Annex – south elevation.



Photograph 9: Annex – east elevation.



Photograph 10: Annex – north elevation.



Photograph 11: Annex – art studio.



Photograph 12: Annex – garage roof interior.



Photograph 13: Annex – gaps under tiles.



Photograph 14: Annex – gaps under ridge tiles – vent left (meshed) missing mortar right.



Photograph 15: Annex – Gaps on the south gable roof verge.



Photograph 16: Annex – gaps in the eaves.

- 3.4 Any hibernation potential is minimal and limited to the same potential roosting features described above for species such as pipistrelles that will tend to hibernate in relatively exposed locations in order to take advantage of warmer winter days to forage.

Badgers

- 3.5 Habitats – Small site where amenity provides optimal but limited foraging habitat with minimal potential for the construction of setts.
- 3.6 Presence/absence – Any potential limited to passing individual Badgers. No evidence of presence recorded.

Other mammals

- 3.7 Habitats – The planted borders provide cover for Hedgehogs and other small mammals. The site is unlikely to be important on account of its small size and limited extent of habitats other than amenity grassland.
- 3.8 Presence/absence – No evidence of presence. Small numbers of small mammals and possibly Hedgehogs could be present.

Birds

- 3.9 Foraging Habitats – Small area of garden provides limited foraging habitat.
- 3.10 Nesting Habitats – Nesting habitats in the garage and under the canopy where multiple Swallow nests were noted both old and active. External gaps on the buildings could be used by species such as House Sparrow but gaps generally appeared to be too small and there was no evidence of present. car port and house provide potential nesting sites for birds but no evidence of presence.
- 3.11 Presence/absence – Swallow nests recorded in the garage (Photograph 12), and under the canopy. Other species recorded on site and the surrounding area were Woodpigeon and Blackbird.



Photograph 17: Swallow nests under the canopy above the garage doors.

Amphibians and Reptiles

- 3.12 Terrestrial Habitats – The planted border along the east edge of the annex provides a limited area of cover, but this in association with grassland that lacks any structure making it poor for reptiles.
- 3.13 Aquatic Habitat – None present in the area of proposed works but a chain of three interconnected garden ponds are present 25 m to the east of the annex beyond an area of lawn. There are no other ponds in the surrounding area.
- 3.14 Presence/absence – The site provides minimal cover in association with poor habitat in the form of lawn. The likelihood of these habitats supporting reptiles is negligible and these species are expected to be absent from the site.
- 3.15 With regard to Great Crested Newts, there are three ponds within the 100 m radius of the proposed working area typically considered for minor developments. These were subject to the Great Crested Newt Habitat Suitability Index (HSI) Assessment which got the following scores:

Table 1: Pond HSI Scores

HSI Calculator	Pond			
	1	1	1	
SI1 - Location	1	1	1	
SI2 - Pond area	2	0.05	0.05	
SI3 - Pond drying	3	0.1	1	
SI4 - Water quality	4	0.67	0.67	
SI5 - Shade	5	1	1	
SI6 - Fowl	6	1	1	
SI7 - Fish	7	1	1	
SI8 - Ponds	8	0.75	0.75	
SI9 - Terr'l habitat	9	0.67	0.67	
SI10 - Macrophytes	10	1	1	
HSI Score	Score	0.53	0.66	0.62

- 3.16 All of the ponds scored above the 0.5 threshold indicating there is reasonable likelihood of Great Crested Newts being present and where further consideration is required.

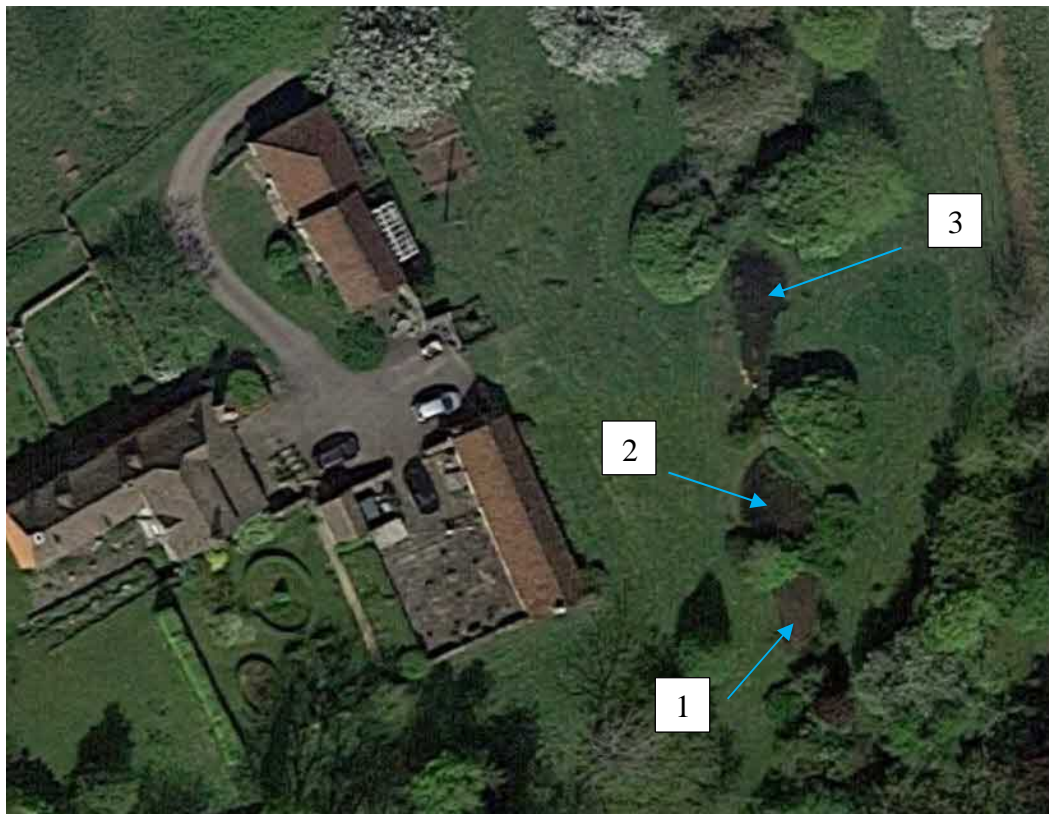


Figure 3: Pond location plan.



Photograph 18: Pond locations in relation to the annex.



Photograph 19: Pond 1.



Photograph 20: Pond 2.



Photograph 21: Pond 3.

- 3.17 All of the ponds scored above the 0.5 threshold indicating there is reasonable likelihood of Great Crested Newts being present and where further consideration.

Invertebrates

- 3.18 The site is small and provides only limited habitats for invertebrates. A limited assemblage of common species will be present but the potential for notable species is almost negligible.

4.0 Dusk Emergence Survey for Bats

Results

- 4.1 No bats were recorded emerging from, or entering the buildings during the survey.
- 4.2 During the dusk survey the following species were recorded foraging and/or commuting over the course of the survey.

Table 1: Survey results for 24th June 2021 dusk survey.

Species	Times	No. Passes	Comments
Noctule	20:59 – 21:31	4	Commuting passes overhead from south to north.
Common Pipistrelle	21:22 – 22:45	24	Occasional foraging passes to the south and east of the buildings.

Table 2: Weather conditions and sunset/sunrise times.

Date	Temperature (°C)	Sunset/Sunrise Times	Wind	Cloud Cover (%)
04/08/21 (dusk)	18-17	20:54	None	25

Evaluation

- 4.3 No bats were recorded emerging from, or entering, the surveyed buildings during the survey and it is therefore concluded that roosting bats were absent from the buildings at the time of the survey. The presence of a maternity roost can be ruled out with a high level of confidence and although individual bats could roost at any time, the present surveys indicate general absence.
- 4.4 The first activity recorded was a distant Noctule commuting unseen overhead. A further three recordings of unseen Noctules were also made. Noctules tend to feed over habitats rich in invertebrate fauna such as permanent pasture, woodland edge and hedgerows. It is still a relatively widespread species in much of England, Wales and to southwest Scotland, but has become scarce in some areas of intensive agriculture (BCT, 2010). No significance is attached to these recordings that were of high up bats and not associated with the buildings or site as such.
- 4.5 The activity recorded on and around the site was that of Common Pipistrelle, appearing to be one or two individuals making multiple foraging passes, Common Pipistrelle bats are the most common species of bats in the UK with widespread distributions (BCT, 2010a). Pipistrelle bats are the most common species of bat in the UK with widespread distributions, most commonly found in England and Wales.

- 4.6 No other bats were recorded and there was no activity associated with the buildings as such. There was no indication that the site or adjacent areas were important commuting routes for any nearby roosts.
- 4.7 It is not possible to determine the value of the site for foraging and commuting bats based on a single dusk survey. However, based on the small size and nature of the site, it is unlikely that the site is important for any particular species of bat.
- 4.8 The habitats around the building provide limited foraging habitats where likely low numbers of bats forage and feed during the night throughout the active season.

5.0 Development Constraints and Recommendations

Development Proposals

5.1 The site is the subject of a planning application to permit the following main items:

Kitchen extension to the house, the roof of which would tie into the existing lean-to roof; the main roof would not be affected.

Refurbishment and extension of the house log store for a new boot room.

Minor landscaping works to provide a new kitchen garden courtyard.

Construction of a new artist studio and link to connect to the existing annex.

Internal changes to the existing annex to convert garage and studio to guest accommodation and office.

Habitats

5.2 The remaining habitats on site consist of typical garden habitats with low diversity. The grassland, hard standing and planted border do not qualify as priority habitat and the loss/disturbance of this grassland while works take is not considered to be important and gardens around the new building will be established. Where new trees or shrubs are to be planted, native tree and shrub species should be used as these are most beneficial to invertebrates, and many also produce seeds, nuts and berries that are food for native mammals and birds. Planting of non-native plant species should be limited to those that are not invasive and should prioritise those that provide a good source of nectar for invertebrates e.g. Jasmine.

Bats

5.3 In the absence of mitigation, the following impacts and potential impacts with regard to bats have been identified:

New kitchen roof to be tied into the existing lean-to roof and refurbishment of the log store resulting the destruction of potential roosting features suitable for crevice dwelling bats in the form of gaps under slates and behind log store fascia board. The dusk emergence survey did not record presence. No impact predicted but bats could roost at other times.

Construction of a new artist studio and link to connect to the existing annex which will tie into the roof resulting the destruction of potential roosting features suitable for crevice dwelling bats in the form of gaps in the eaves and under tiles and possible disturbance of other nearby roosting features on the roof. The dusk emergence survey did not record presence. No impact predicted but bats could roost at other times

Temporary/permanent disruption of areas of bat foraging and commuting habitat through changes to the building layout and lighting. Impact unknown but likely to be low and mitigation possible.

Further Surveys

5.4 The building was classified as being of low potential. In accordance with the Bat Conservation Trust Good Practice Guidelines (Collins, 2016), buildings of low potential should be subject to a

single survey visit, either a dusk or pre-dawn survey, to determine the presence roosting bats or give sufficient confidence in a negative result. The survey should be conducted in suitable weather conditions between May and August. This survey was therefore carried out and no further surveys are required at this time.

- 5.5 Sufficient surveys have been carried out to satisfy the recommended survey effort and repeat surveys would not be required unless the proposals are delayed by one year or more.

Legal Compliance

- 5.6 The Wildlife and Countryside Act 1981 as amended by The CRoW Act 2000 and The Conservation of Habitats and Species Regulations 2010 makes it illegal to recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection, whether the bat is occupying the shelter at the time or not.
- 5.7 European Protected Species (EPS) Licences to permit the above for the purposes of development must be obtained from Natural England. To gain a licence the scheme must have been issued with detailed planning permission and must not result in a loss of conservation status of the species concerned. Based on the survey evidence presented in this report it has been concluded that roosting bats are likely to be absent and an EPS Licence will not be required to permit the works.

Timing of Works

- 5.8 There are no restrictions on the timing of works with respect to bats.

Care and Vigilance During Works

- 5.9 It should be noted although there was nothing to indicate the presence of roosts on site, it is possible that crevice-dwelling bats e.g. Common Pipistrelle, could be present at other times or could begin roosting in crevices at any time. The contractor(s) should therefore be advised to carry out all work with care and vigilance for bats.
- 5.10 During the works, particularly those to the existing roofs, the contractor should be advised to adhere to the following procedures in the unlikely event bats are found during works:

If the roost is still in the structure and bats are not injured, stop work and contact a licensed ecologist. If help is not available, allow bats to fly out of harm's way.

If material containing a roost has been removed, the roost is not exposed and the bats are not injured, temporarily seal and isolate the roost, stop work and seek advice from a licensed ecologist. If advice is not readily available, re-open it and allow bats to relocate of their own accord.

If the roost has been exposed, and especially if bats have been injured, stop work, collect bats in a secure box or bag (using a glove) and contact a licensed ecologist.

Habitat Creation

- 5.11 No roosting bats were recorded during the survey. No specific provision for roosting bats is required and although a small number of low potential roosting features will be lost, a large

number of more optimal features, particularly on the unaffected main house roof, will remain undisturbed and available for future use. No recommendations for enhancement are suggested.

Lighting

- 5.12 Common Pipistrelles are very tolerant of increased light levels but it is highly likely that other species that are more susceptible to disturbance from lighting, forage on or around the site at other times. It has been concluded that the site is unlikely to be important for bats but nevertheless it is recommended that external lighting be kept to minimum in order to minimise disturbance of bats. Any lighting around new roost entrances should be avoided. Where lighting is necessary for reasons of security and/or health and safety, highly directional warm white LED lighting, an example being down spots at 2.5 m high using warm white (2700 K) 8W LED lamps, 550 lumens, 35 degree beam angle, should be used. These could be individually activated by PIR sensors on a 5 minute cut off to further reduce their impacts. These will assist in lighting only the areas where lighting is required and minimising light spill either directly or through reflected light.

Badgers and other mammals

- 5.13 The potential for other species of protected or notable mammal species to use the site is deemed to be low. No constraints are predicted as a result of the potential presence of small mammals and passing urban Badgers. As a precaution it is recommended that during the construction phase of the project any trenches and other excavations are back-filled before nightfall or a ramp left to allow animals to easily exit, and any open pipes larger than 150 mm should be capped off overnight.

Birds

- 5.14 The site provides minimal foraging habitat and the main interest is associated with the potential for nesting with old and active Swallow nests recorded in the garage and under the canopy above the door. The conversion of the garage will result in the loss of Swallow nesting sites within the garage although nesting sites under the canopy will remain.
- 5.15 Nesting birds are protected under The Wildlife and Countryside Act 1981 (and amendments). No further surveys for birds are required at this time. Usually works should ideally be scheduled to take place outside the nesting season of March to September in this instance, to take into account the often extended Swallow nesting season. However, in this case, provided the garage doors are closed prior to March then birds will not be able to access the interior and the nesting sites in the canopy will be left undisturbed and available for use. Should nesting birds gain access to the garage interior then the nest must be left undisturbed until the young have fledged.
- 5.16 The development should include enhancements for nesting birds to compensate for the loss of small areas of nesting habitat and generally enhance the site. A bird box for small birds could be installed on the north or east side of the new building, the east side of the annex, or the north side of the log store. The canopy and the adjacent cart shed, for which no works are proposed, will continue to provide nesting sites for Swallows.

Amphibians

- 5.17 The planted border along the edge of the annex, part of which will be lost and disturbed, provided the only cover for amphibians, the remaining areas being lawn and hard standing. There is a chain of three ponds 25 m to the east and all three are potentially suitable for Great Crested Newts. If present, this species may shelter in the planted border and could cross the site.
- 5.18 Great Crested Newts and their places of breeding or rest are protected under the Wildlife and Countryside Act 1981 (and amendments) and The Conservation of Habitats and Species Regulations 2010 making it illegal to kill, injure, capture or disturb a Great Crested Newt and to damage or destroy a breeding or resting site of this species. All activities that would otherwise constitute an offence under The Conservation of Habitats and Species Regulations 2010 must be licensed by Natural England. Great Crested Newts are also a NERC Priority Species.
- 5.19 The area to be lost is approximately 0.004 ha, which includes a small area of planted border and an area of lawn. There would also be temporary disturbance of the immediate surrounding grassland.
- 5.20 Using the Natural England's Great Crested Newt Rapid Risk Assessment, for any land (not just newt habitat) within 100 m from any breeding pond where up to 0.01 ha of land within 100 m of a breeding ponds is to be lost or damaged, the risk of an offence being committed is classified 'green: offence highly likely'.
- 5.21 No further assessment of ponds, or surveys, are therefore required and works may proceed using care and vigilance for Great Crested Newts and ensuring that any excavations are back-filled the same day and not left open overnight.
- 5.22 No exclusion of newts or pre-works survey are proposed. Due to the nature of works, habitats to be impacted on site and distance to nearby ponds the risk of harm to Great Crested Newts will be minimal when following precautionary methods of working for amphibians.

Species of amphibians, including Great Crested Newts could be found on site throughout the construction phase although any potential is minimal. Removal of the vegetation in the planted border will be supervised by a licensed ecologist. Any discovered newts would be removed to a new log pile to be created adjacent the south east edge of Pond 2. Any contractors on site will then be advised to carry out all remaining work with care and vigilance for these species. Should any Great Crested Newts be found during works, then works will cease and a licensed Ecologist consulted before works continue.

A licensed newt worker will not be required day to day and instead all contractors will be briefed on the identification of amphibians. Any discovered common amphibians will be captured and relocated away from the area of works to a location where it can seek cover until it relocates on its own accord.

Works will be restricted to the designated development area and the impact of works on adjacent habitats avoided by the clear demarcation of the works area.

Any clearance works should ideally be undertaken during the period of March to June when newts are most likely to be in ponds and away from the site.

Substantial groundworks are not required; however, duration of any groundworks, should be kept as short as possible and any trenches left overnight should be covered or provided with ramps to prevent amphibians (and other animals) from becoming trapped.

Works will be undertaken during daylight hours only when GCN are less active and are less likely to occupy the grassland and planted identified for works.

Any debris, spoil collected during site clearance should be removed from the site immediately to avoid it becoming used as refuges by amphibians and reptiles. Any building materials should be kept off site or where not possible stored on pallets to prevent them being used as cover.

Invertebrates

- 5.23 The habitats on site will support at least small numbers of common invertebrates but there is little potential for rare or notable species.
- 5.24 In order to enhance the development for invertebrates, consideration should be given to providing homes for pollinators. This is not only beneficial to invertebrates but also other species groups that depend on them, bats, birds, wildflowers etc. These can be installed on various aspects of new and existing buildings.

6.0 References

Bat Conservation Trust (2010). *Noctule: Species information leaflet*. Bat Conservation Trust. [Online]. Available at: http://www.bats.org.uk/data/files/Species_Info_sheets/noctule_11.02.13.pdf [accessed on 14th August 2021].

Bat Conservation Trust (2010a). *Common Pipistrelle: Species information leaflet*. Bat Conservation Trust. [Online]. Available at: http://www.bats.org.uk/publications_download.php/212/commonpipistrelle.pdf [accessed on 14th August 2021].

BSBI (2007). BSBI 2007 List. [Online]. Available at: <http://www.bsbi.org.uk/taxonomy.html> [accessed on 14th August 2021].

Collins (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3rd Ed. The Bat Conservation Trust: London.

The Conservation of Habitats and Species Regulations 2010, SI 2010/490

Countryside and Rights of Way Act 2000, (c.37), London: HMSO.

Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the United Kingdom. [Online]. Available at: <http://www.cieem.net/ecia-guidelines-terrestrial-freshwater-and-coastal-> [accessed on 14th August 2021].

Forest of Dean District Council (2012) *Precautionary Method of Working for Reptiles* [Online]. Available at: <https://www.fdean.gov.uk/media/3289/precautionary-method-of-working-for-reptiles.pdf> [accessed on 14th August 2021].

Joint Nature Conservation Committee (2010) Handbook for Phase I Habitat Survey – a Technique for Environmental Audit. JNCC: London.

Joint Nature Conservation Committee (2021). UK BAP Priority Habitats. [Online]. Available at: <http://jncc.defra.gov.uk/page-5718> [accessed on 14th August 2021]

Joint Nature Conservation Committee (2021 a). UK BAP Priority Species. [Online]. Available at: <http://jncc.defra.gov.uk/page-5717> [accessed on 14th August 2021]

Jones, K. & Walsh, A. (2001). *AIDGAP: A Guide to British Bats*. Field Studies Council/The Mammal Trust.

Mitchell-Jones, A.J. (2004). *The Bat Mitigation Guidelines*. English Nature: Peterborough.

Multi-Agency Geographical Information for the Countryside (2021). MAGIC. [Online]. Available at: www.magic.gov.uk/ [accessed on 14th August 2021].

Natural Environment and Rural Communities Act 2006, (c.16), London: HMSO.

The Protection of Badgers Act 1992, (c.51), London: HMSO.

Wildlife and Countryside Act 1981 (and amendments). (c.69), London: HMSO.

7.0 Plans

Plan 1 – Dusk Emergence Survey Results

