

# Pwll y Hwyaidd, Meifod Bat Roost Assessment

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**Prepared for Chrysalis Architectural Design**

**December 2022**

**Revision 01**

**TURNSTONE ECOLOGY LIMITED**


Project Number                      TT3484

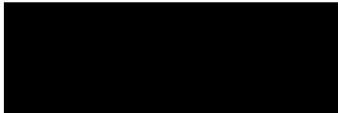
Title                                      Pwll y Hwyaidd, Meifod

Document Number                      R01-Bat Roost Assessment-Rev01

Client                                      Chrysalis Architectural Design

Issue Date                                01 December 2022

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## ***SURVEY AND REPORT VALIDITY***

It is important that planning decisions are based on up-to-date ecological reports and survey data. However, it is difficult to set a specific timeframe over which reports or survey data should be considered valid, as this will vary in different circumstances. In some cases there will be specific guidance on this (such as for the age of data which may be used to support a Protected Species Licence application) but in circumstances where such advice does not already exist, the Chartered Institute of Ecology and Environmental Management (CIEEM) has provided the general advice set out below.

<b><i>Age of Data / Survey / Report</i></b>	<b><i>Validity</i></b>
<b>Less than 12 months</b>	Likely to be valid in most cases.
<b>12-18 months</b>	<p>Likely to be valid in most cases with the following exceptions:</p> <ul style="list-style-type: none"> <li>Where a site may offer existing or new features which could be utilised by a mobile species within a short timeframe;</li> <li>Where a mobile species is present on site or in the wider area, and can create new features of relevance to the assessment;</li> <li>Where country-specific or species-specific guidance dictates otherwise.</li> </ul>
<b>18 months to 3 years</b>	<p>A professional ecologist will need to undertake a site visit and then review the validity of the report.</p> <p>Some or all of the other ecological surveys updated.</p>
<b>Protected Species Licensing</b>	Licence applications usually only possible using data less than 2 years old

The likelihood of surveys needing to be updated increases with time and is greater for mobile species or in circumstances where the habitat or its management has changed significantly since the surveys were undertaken. Factors to be considered include (but are not limited to):

Whether the site supports, or may support, a mobile species which could have moved on to site, or changed its distribution within a site;

Whether there have been significant changes to the habitats present (and/or the ecological conditions/functions/ecosystem functioning upon which they are dependent) since the surveys were undertaken, including through changes to site management;

Whether the local distribution of a species in the wider area around a site has changed (or knowledge of it increased), increasing the likelihood of its presence.

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## 1 INTRODUCTION

### 1.1 Purpose of Report

This report has been completed in connection with the proposed extension of a detached residential dwelling at Pwll y Hwyaidd, Meifod (OS Grid Location SJ 193 150). The location of the proposed development site is shown in *Figure 1* and the proposed development plans are fully detailed in *Section 4*.

A Preliminary Roost Assessment was completed on 16<sup>th</sup> June 2022 by Turnstone Ecology Ltd and Bat Activity Surveys were completed between July and September 2022.

The potential presence of other protected species, such as nesting birds and Great Crested Newt (*Triturus cristatus*) within the proposed development site has also been assessed.

This report details survey and assessment methodology along with the results of a desk-based study and on-site surveys. It also provides an assessment of potential impacts and appropriate mitigation to offset any impacts associated with the proposal.

*Figure 1. Location of proposed development*



## 1.2 Ecological Context

The proposed development site is located approximately 4.3 km north-east of Meifod, adjacent to the A490. The site comprises a two-storey detached residential dwelling with extensions on the south-eastern and north-eastern elevations (*Figure 2*). The proposals involve the demolition of the existing single-storey extension along the north-eastern elevation of the dwelling and subsequent construction of a two-storey extension on a larger footprint.

The affected dwelling is bordered by a hardstanding yard and driveway to the north-west and mature gardens to the south, east and west. Agricultural buildings and a detached garage are located to the north-east and west and a large, mature garden pond and meadow are located to the south-east. Agricultural fields bordered by hedgerows and trees surround the site, the A490 curves around the north and west of site and the River Vyrnwy is located approximately 270m north of the site.

The wider landscape is dominated by mixed agricultural fields, woodland pockets and scattered residential dwellings and farms.

*Figure 2. Proposed development site (red outline indicates application site boundary) and land under applicant's ownership (blue line boundary)*



## 2 METHODS

### 2.1 Desk-based Study

Information relating to designated sites, and historic records of protected species within 2 km of the proposed development site were obtained from Magic ([www.magic.gov.uk](http://www.magic.gov.uk)) and other freely available information on the internet, such as planning portals.

A data request through the local environmental records centre was not undertaken as the site is small, the habitats that will be impacted are limited and it is very unlikely that the records obtained would impact the site assessment and mitigation proposed.

Any species-specific historic records are detailed within the relevant species accounts in the *Results* section.

### 2.2 Preliminary Roost Assessment

The buildings were assessed for potential to support bat roosts. The assessment involves a consideration of various factors including;

- Light levels;
- Temperature regime and protection from weather;
- Access to the interior of the building or to other suitable roost sites;
- Potential roost sites;
- Building construction;
- Tree structure; and
- Habitat context.

Based on these factors, an assessment was made of whether the buildings affected by the proposals might support bats and the type and number of roosts that might be present.

A detailed inspection was made of the exterior and, where possible, the interior of the buildings within the proposed development boundary for any evidence of bat use, such as live or dead bats, droppings, scratch marks, staining and prey remains, and in some cases the absence of cobwebs. Large quantities of cobwebs in roof voids or at access points tend to be suggestive of no bat use, although this evidence is not conclusive.

Features identified as possible bat access points or potential roosting locations were thoroughly searched where possible, using powerful torches and binoculars to facilitate the process. An endoscope and ladders were also used to enable more detailed inspection of cracks and crevices as far as access allowed.

The survey was undertaken in good light conditions. This type of survey can be completed at any time of year though the optimal time period for completion is at times when bats are most likely to be present



in buildings (April-October). That said evidence of bats, if present in sheltered locations, is likely to persist well beyond this time period.

Buildings and trees are categorised according to their suitability for roosting bats as follows (taken from Bat Survey Guidelines, 3<sup>rd</sup> Edition):

*Negligible* – Negligible habitat features on site likely to be used by roosting bats

*Low* – A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (*i.e.* unlikely to be suitable for maternity or hibernation). Or a tree of sufficient size and age to contain potential roost features but with none seen from the ground, or features seen with only very limited roosting potential.

*Moderate* – A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only).

*High* – A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. They could be suitable for maternity roosts or hibernation sites.

*Confirmed* – Roosting bats confirmed as being present, either by the discovery of live or dead bats, droppings, prey remains, scratching or fur-staining.

Habitats were also assessed for their suitability for use by foraging or commuting bats. Areas of particular interest vary between species, but generally include sheltered areas and those habitats with good numbers of insects, such as woodland, scrub, hedges, watercourses, ponds, lakes and more species-rich or rough grassland.

### **2.3 Bat Activity Surveys**

Evening emergence and dawn re-entry surveys are the primary methods for locating roosts in trees, buildings or built structures, as bats are not always found by internal and external inspection surveys (*e.g.* if the bats roost in areas that cannot be searched and/or leave little or no visible trace). These surveys can also give a reasonable estimate of the number of bats present.

The surveys were carried out by Turnstone Ecology, using four surveyor locations. The surveyors used Echo Meter Touch 2 Bat Detectors and noted information on time, species and behaviour on to survey forms. Bat calls were continually recorded for the duration of the surveys to ensure all bat activity was

saved. Audio tracks were downloaded and assessed using the appropriate software to confirm the identity of bats noted during the survey. Surveyors were able to position themselves so any activity could be clearly observed and general activity around the site could also be recorded from the surveyor's location (*Figure 3*). Three activity surveys were completed in total, with the dawn survey completed over two survey days with two surveyors used on each survey. The first dawn survey focusing on the north-eastern section of the house and the second dawn survey focusing on the south-western section.

*Figure 3. Surveyor locations (yellow stars)*



The surveys were carried out during appropriate weather conditions (see *Table 1* for full details) and access was sufficient to successfully complete the surveys.

*Table 1. Survey timings and conditions*

	<b>Dusk Survey</b> Whole house 07/07/2022		<b>Dawn Survey</b> North-eastern section of house 26/07/2022		<b>Dawn Survey</b> South-western section of house 12/08/2022		<b>Dusk Survey</b> Whole house 01/09/2022	
	<b>Start</b>	<b>End</b>	<b>Start</b>	<b>End</b>	<b>Start</b>	<b>End</b>	<b>Start</b>	<b>End</b>
<b>Time</b>	21:21	23:06	03:52	05:27	04:19	05:54	19:46	21:31
<b>Temp (°C)</b>	18.0	16.0	13.0	11.0	13.0	12.0	19.0	16.0
<b>Wind (Bft)</b>	0	0	1	1	0	0	0	0
<b>Cloud (Octas)</b>	0	0	1	0	0	0	3	4
<b>Precipitation</b>	Dry		Dry		Dry		Dry	

	<b>Dusk Survey</b> Whole house 07/07/2022	<b>Dawn Survey</b> North-eastern section of house 26/07/2022	<b>Dawn Survey</b> South-western section of house 12/08/2022	<b>Dusk Survey</b> Whole house 01/09/2022
<b>Sunset/rise</b>	21:36	05:22	05:49	20:01

## 2.4 Other Protected Species

### 2.4.1 General

Habitat that might be used by nesting birds was identified and actively nesting birds or evidence of nesting birds noted where present.

During the site visits, the habitats on and around site were also assessed for their suitability to support Great Crested Newts and reptile species.

### 2.4.2 Great Crested Newt

The suitability of any aquatic and terrestrial habitat on the site, and in the immediate vicinity, was assessed for suitability for use by Great Crested Newts. Great Crested Newts are known to travel up to 500m between breeding ponds and suitable terrestrial habitat, however, are only likely to travel up to 250m away from a breeding pond if there is suitable terrestrial habitat within that distance. Therefore, a desk-based search was undertaken for any ponds up to 250m from the site using OS maps and aerial imagery. The terrestrial habitat between the site and these ponds, and therefore connectivity to the site, was also considered.

Where access allowed, ponds were assessed using the Habitat Suitability Index (HSI) developed by Oldham *et al.* (2000), which is derived from systems developed by the US Fish and Wildlife Service. It is a numerical index, between 0 and 1, where 0 indicates unsuitable habitat and 1 represents optimal habitat. The HSI for the Great Crested Newt uses ten factors (suitability indices (SI) 1 to 10), which are thought to affect Great Crested Newts:

- geographic location (SI 1)
- surface area (SI 2)
- hydrology (drying) (SI 3)
- water quality (SI 4)
- shade (SI 5)
- presence of water-fowl (SI 6)
- presence of fish (SI 7)
- number of adjacent water features (SI 8)
- terrestrial habitat (SI 9) and
- macrophyte cover (SI 10).

Each factor is scored using field and desk-based survey. These ten scores are then converted to SI scores using a scale from 0.01 to 1 from graphs given in Oldham et al. (2000) and a HSI result is calculated using the following formula:

$$\text{HSI} = (\text{SI1} \times \text{SI2} \times \text{SI3} \times \text{SI4} \times \text{SI5} \times \text{SI6} \times \text{SI7} \times \text{SI8} \times \text{SI9} \times \text{SI10})^{1/10}$$

Further research by Brady (unpublished) has developed a system for using HSI scores to define pond suitability for Great Crested Newts according to the following categories.

HSI	<0.5	= poor
HSI	0.5 – 0.59	= below average
HSI	0.6 – 0.69	= average
HSI	0.7 – 0.79	= good
HSI	> 0.8	= excellent

HSI cannot guarantee the presence or absence of Great Crested Newts however, there is a positive correlation between HSI scores and presence and abundance. Generally, ponds with high HSI scores are likely to support larger populations. The relationship is however not sufficiently precise to conclude that any pond with a high HSI will support newts in high populations, or that any pond with a low score will support low numbers of newts or no newts at all.

## 2.5 Constraints

All surveys were carried out at a suitable time of year and access was sufficient to successfully complete the surveys. Loft spaces 2 and 5 were only able to be viewed from the loft hatches due to the structure of the floor and roof frame respectively however this is not considered to have impacted on the assessment.

### **3 RESULTS**

#### **3.1 Desk Study**

##### **3.1.1 Designated Sites**

There are no statutory designated sites within 2 km of the proposed development site.

##### **3.1.2 Background Records**

There are historic records of Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Noctule (*Nyctalus noctula*), Brandt's Bat (*Myotis brandtii*), Brown Long-eared Bat (*Plecotus auritus*) and Lesser Horseshoe Bat (*Rhinolophus hipposideros*) at Twll Farm approximately 900m south of the proposed development site. These records include a maternity roost of at least 27 Soprano Pipistrelle within the property (*Oakwood Ecology, 2020; Powys Planning Portal*).

#### **3.2 Preliminary Roost Assessment**

##### **3.2.1 General**

The proposed development site comprises a two-storey stone and timber frame residential dwelling with rendered two-storey and single-storey extensions on the south-eastern elevation and single storey lean-to extension and porch on the north-eastern elevation. The building is surrounded by associated hardstanding, amenity grassland and ornamental planting. An access drive is located to the north-west, agricultural building to the north-east and large pond and meadow to the south-east of site, all on land owned by the applicant. The existing layout of the site is shown in *Figure 4* and existing elevations and floor plans are shown in *Figures 5 to 9*.

Figure 4. Aerial view of application site (outlined in red), land in applicant's ownership (outlined in blue) and surroundings



Figure 5. Existing north-western elevation



Figure 6. Existing north-eastern elevation



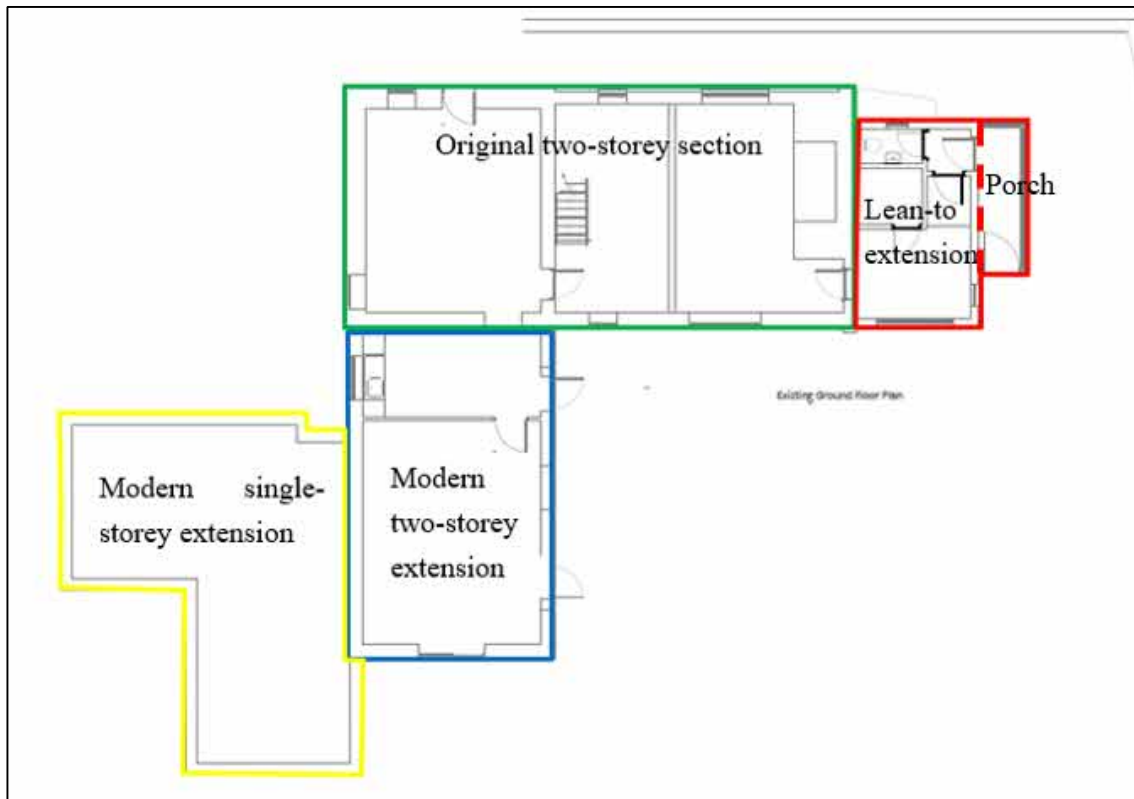
Figure 7. Existing south-eastern elevation



Figure 8. Existing south-western elevation



Figure 9. Existing ground floor plan (red outline = lean-to extension; green outline = original two-storey section of house; blue outline = modern two-storey extension; yellow outline = single storey extension)



### 3.2.2 External building description

The affected building comprises a two-storey house which has been subject to extension (*Plates 1 to 4*). The original section of the property, located at the north-eastern end (*Plates 1 to 3; Figure 9*), has an exposed brick and timber framed wall along the south-eastern elevation. At the time of the initial survey, the south-western elevation and a section of the north-western elevation had recently had the render removed to expose the underlying stone wall, due to issues with damp. These walls were re-rendered following completion of the bat activity surveys and confirmation that no roosting bats were present within or adjacent to these areas. The north-eastern gable end is rendered and painted. The roof is pitched with slate roof and ridge tiles and four Velux windows, two on either pitch. Brick chimneys with lead flashing around the bases are located at the north-eastern and south-western extents of this section. uPVC windows and/or doors are located along the north-western, south-eastern and south-western elevations.

A single-storey lean-to extension is present on the north-eastern gable end. This has painted brick walls with timber cladding at the wall tops on the north-western and south-eastern elevations. The roof is sloped with slate roof tiles and timber frame. A further lean-to porch with half-height brick walls, wrap around timber-framed windows and plastic sloped roof extends from the north-eastern end of the extension.



A modern two-storey extension is located at the western end of the house (*Plates 3 and 4*). The extension has rendered walls and pitched roof with slate tiles and solar panels on the south-western aspect. uPVC windows and/or doors are located along the north-eastern, south-eastern and south-western elevations.

A modern single-storey L-shaped extension, forming annexe accommodation, is located along the south-western elevation of the two-storey extension (*Plates 1 and 4*). The extension has a pitched, slate tiled roof and rendered walls with uPVC windows and doors.

*Plate 1. South-western and north-western elevations of main house and single storey extension (looking south-east)*



*Plate 2. North-eastern elevation of house, lean-to extension and porch (looking south-west)*



*Plate 3. South-eastern and north-eastern elevations of house and two-storey extension (looking north-west)*



*Plate 4. Single storey L-shaped extension at south-western end of dwelling (looking north)*



### **3.2.3 Internal building description**

Internally, the ground and first floors of the property are used as living accommodation and are light, and well-sealed. There are a total of five loft spaces across the property as shown in *Figure 10*.

Two loft spaces are present above the original section of the house (*Lofts 1 and 2*), these have a dividing stone wall with a small gap over the top of the wall linking the two spaces. Loft 1 measures approximately 6m long x 4m wide x 1.5m height floor to ridge and Loft 2 measures approximately 7m long x 4m wide x 1.5m height floor to ridge. Both lofts have exposed stone walls and brick chimneys with fibreglass insulation covering the floor. The timber roof beams are exposed and the roof is lined with bitumastic felt (*Plates 5 and 6*).

Figure 10. Layout of loft spaces

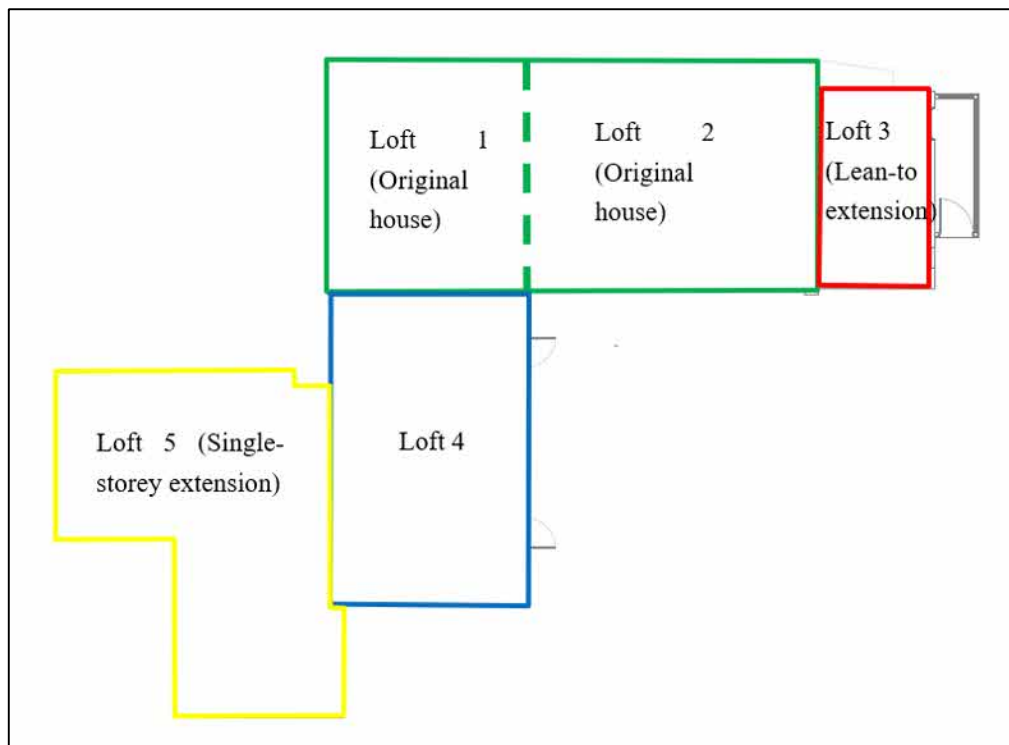


Plate 5. Loft 1 at western end of original section of house



*Plate 6. Loft 2 at eastern end of original section of house*



Loft 3 is located above the lean-to extension and measures approximately 3m wide x 7m long x 2m high at the highest point. The loft has an exposed stone and rendered wall along the south-western aspect and an exposed timber roof frame with bitumen roof liner. The external timber cladding at the wall tops are exposed internally on both the north-western and south-eastern aspects. (*Plate 7*).

*Plate 7. Loft 3 above north-eastern lean-to extension*



Loft 4 is located above the modern, two-storey extension and measures approximately 10m long x 4m wide x 1.2m height floor to ridge (*Plate 8*). The loft has an exposed timber frame and is lined with Breathable Roof Membrane (BRM).

*Plate 8. Loft 4 above two-storey extension*



Loft 5, located over the modern single storey extension, was only able to be viewed from the loft hatch due to the structure of the roof frame impeding access (*Plate 9*). The loft measures approximately 7m long x 3m wide x 1.2m height floor to ridge and has an exposed timber frame, Breathable Roof Membrane liner and fibreglass insulation covers the floor.

*Plate 9. Loft 5 above single storey extension*



### **3.2.4 Suitable roosting features and evidence**

Approximately 50 droppings characteristic of a Pipistrelle species were recorded on the floor of Loft 1 and approximately 20 bat droppings were noted at the base of the chimney in Loft 2.

Within Loft 3, approximately 80 droppings characteristic of a Pipistrelle species were recorded on the stone wall and approximately 40 droppings, also characteristic of a Pipistrelle species, were recorded on the timber cladding on the south-eastern aspect (*Plates 10 and 13*).

Approximately 50 droppings characteristic of a Pipistrelle species were recorded scattered on the floor of Loft 4 above the south-eastern extension. No bat droppings were recorded in Loft 5 although a full inspection was not possible.

Suitable roosting features around the house include gaps under roof and ridge tiles (*Plates 11 and 12*), gaps behind timber barge boards, gaps at wall tops, gaps in the timber cladding on the lean-to extension (*Plate 13*) and gaps in the stonework (*Plate 14*).

*Plate 10. Bat droppings in loft space above lean- to extension*



*Plate 11. Examples of gaps under roof and ridge tiles*



*Plate 12. Gaps under end tiles*



*Plate 13. Gaps in timber cladding on lean-to extension (red arrows) and location of bat droppings in gap between cladding and frame (green arrow)*

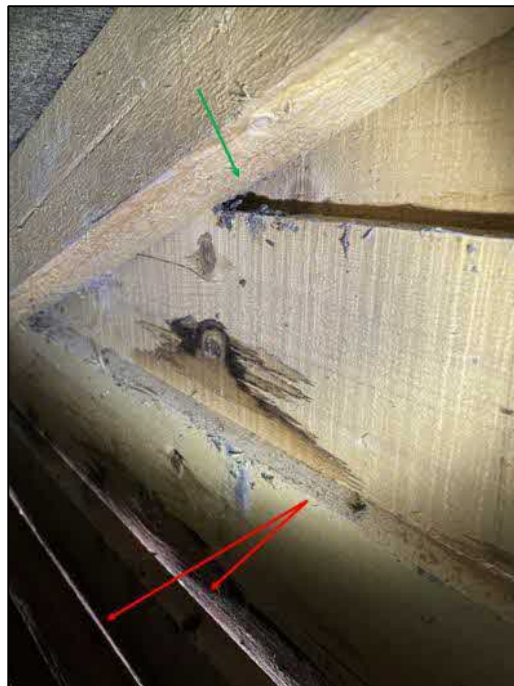


Plate 14. Example of gaps in stonework



### 3.2.5 Foraging habitat

The proposed development site is set within a rural landscape to the north-east of Meifod. The site comprises buildings and hardstanding, amenity grassland, a large mature pond and a meadow. The site is surrounded by agricultural fields bordered by mature hedgerows, scattered trees and the River Vyrnwy to the north. The wider landscape is dominated by grass fields with woodland pockets and scattered residential dwellings and farms. These habitats on and around the site are suitable for foraging and/or commuting bats.

## 3.3 Bat Activity Surveys

Based on the evidence recorded, potential roosting features in and around the building and the quality of the surrounding foraging habitats, the house was categorised as having *Confirmed* roosts within four of the loft spaces and as having *High* suitability to support roosting bats.

A total of two dusk emergence surveys were completed on 7<sup>th</sup> July and 1<sup>st</sup> September 2022 and one dawn return survey was completed, split over two survey days, on 26<sup>th</sup> July and 12<sup>th</sup> August 2022. A summary of bat roosting activity is shown below with emergence locations shown in *Plates 15 to 18*.

*Dusk emergence survey – 7<sup>th</sup> July, sunset at 21:36*

**One Soprano Pipistrelle** emerged from the wall top on the south-eastern elevation of house at 22:01 (*Plate 15*);

**One silent bat** (probable Soprano Pipistrelle based on timings, presence on site following emergence and subsequent emerging bat from the same feature) emerged from the apex of the north-eastern gable end at 22:02 (*Plate 16*);

**One Soprano Pipistrelle** emerged from the apex of the north-eastern gable end at 22:16 (*Plate 16*).



*Dawn return survey – 26<sup>th</sup> July, sunrise at 05:22*

**One Soprano Pipistrelle** re-entered the top of the wooden cladding on the south-eastern side of the lean-to extension at 04:42 (*Plate 15*).

*Dawn return survey – 12<sup>th</sup> August, sunrise at 05:49*

**One Soprano Pipistrelle** re-entered the south-western gable end of the single-storey extension at 05:27 (*Plate 17*);

**One Common Pipistrelle** re-entered the apex of the north-eastern gable end at 05:00 (*Plate 16*);

**One Soprano Pipistrelle** re-entered the timber cladding on south-eastern elevation of lean-to at 05:25 (*Plate 15*).

*Dusk emergence survey – 1<sup>st</sup> September, sunset at 20:01*

**One Soprano Pipistrelle** emerged from apex of north-eastern gable end at 20:17 (*Plate 16*);

**One silent bat** (probable Pipistrelle sp. based on timings) emerged from wall top of north-western elevation at 20:21 (*Plate 16*).

Small numbers of Common Pipistrelle, Soprano Pipistrelle, Brown Long-eared Bat, Daubenton's Bat (*Myotis daubentonii*) and Noctule were recorded foraging or commuting over site and the nearby pond during the surveys.

*Plate 15. Location of emerging individual Soprano Pipistrelle on 7<sup>th</sup> July (red circle); re-entering individual Soprano Pipistrelle on 26<sup>th</sup> July (green circle); and re-entering individual Soprano Pipistrelle on 12<sup>th</sup> August (yellow circle)*



Plate 16. Location of individual emerging Soprano Pipistrelle on 7<sup>th</sup> July (yellow circle); location of emerging individual Soprano Pipistrelle and probable Soprano Pipistrelle on 7<sup>th</sup> July; re-entering individual Common Pipistrelle on 12<sup>th</sup> August and emerging individual Soprano Pipistrelle on 1<sup>st</sup> September (red circle); and location of emerging individual probable Pipistrelle sp. on 1<sup>st</sup> September (green circle)



Plate 17. Location of re-entering individual Soprano Pipistrelle on 12<sup>th</sup> August (yellow circle)



### 3.4 Nesting Birds

No evidence of nesting birds was recorded during the initial survey although the gable end wall tops could be used by nesting House Martin (*Delichon urbicum*).

## 3.5 Great Crested Newt

### 3.5.1 General

There are no apparent records of Great Crested Newt within 2 km of the proposed development site.

The buildings, hardstanding and amenity grassland within, and adjacent to the development footprint (*Plates 20 and 21*) are unsuitable for foraging or hibernating Great Crested Newt due to lack of cover and refuges but could be crossed during dispersal.

### 3.5.2 Ponds

There is one pond within 250m of the proposed development footprint (*Figure 11 and Plate 18*), which was subject to an initial assessment by Turnstone Ecology Ltd on 16<sup>th</sup> June 2022. It is located approximately 25m south-east of the development footprint, within the land owned by the applicant, and had a Habitat Suitability Index score of 0.82 confirming *Excellent* suitability for Great Crested Newt (*Table 2*). It is surrounded by amenity grassland and ornamental planting to the north-west, meadow to the east and agricultural fields to the south and west. There are two islands located within the middle of the pond which were densely vegetated with Foxglove (*Digitalis purpurea*) and Oxeye Daisy (*Leucanthemum vulgare*) at the time of the assessment. It is unshaded with dense aquatic vegetation at the margins and some floating aquatic vegetation.

Great Crested Newt eggs were recorded within the pond during the initial assessment (*Plate 19*) and small numbers of Great Crested Newt were also observed in the pond during a brief torchlight survey of the pond following the dusk activity survey in July 2022 (*Plate 19*). These results confirmed the presence of a breeding population of at least a *Small* population of Great Crested Newt within the on-site pond, although it is likely that the pond supports at least a *Medium* population based on the timing of the torchlight survey (later than the optimum survey period) and numbers of folded leaves observed around the pond edges.

Figure 11. Location of ponds within 250m of site

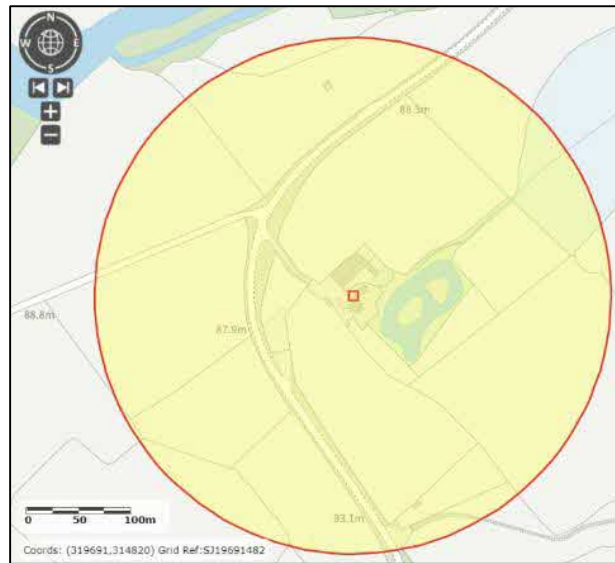


Plate 18. Pond located approximately 25m east of site



Table 2. Habitat Suitability Index score of on-site pond

ARGUK GCN HSI Calculator		
	Pond Name	Pwyll Y Hwyaïd
	Grid Ref	SJ 19389 15024
SI No	SI Description	SI Value
1	Geographic location	0.5
2	Pond area	0.8
3	Pond permanence	0.9
4	Water quality	1
5	Shade	1
6	Water fowl effect	0.67
7	Fish presence	1
8	Pond Density	0.9
9	Terrestrial habitat	1
10	Macrophyte cover	0.6
<b>HSI Score</b>		<b>0.82</b>
Pond suitability		Excellent

Plate 19. Folded aquatic plant leaves



*Plate 20. Habitats within the area of the proposed extension*



*Plate 21. Habitats within the area of the proposed extension*



### **3.6 Other Species**

Suitable habitat for common reptiles, Common Toad (*Bufo bufo*) and European Hedgehog (*Erinaceus europaeus*) is present within the wider site boundaries including the amenity grassland, meadow and boundary hedgerows.

## 4 EVALUATION

### 4.1 Summary of Proposals

The proposed development involves the demolition of the existing single storey extension along the north-eastern elevation of the dwelling and subsequent construction of a two-storey extension on a larger footprint (*Figures 12-15*).

*Figure 12. Proposed south-eastern elevation*



*Figure 13. Proposed north-eastern elevation*



Figure 14. Proposed north-western elevation

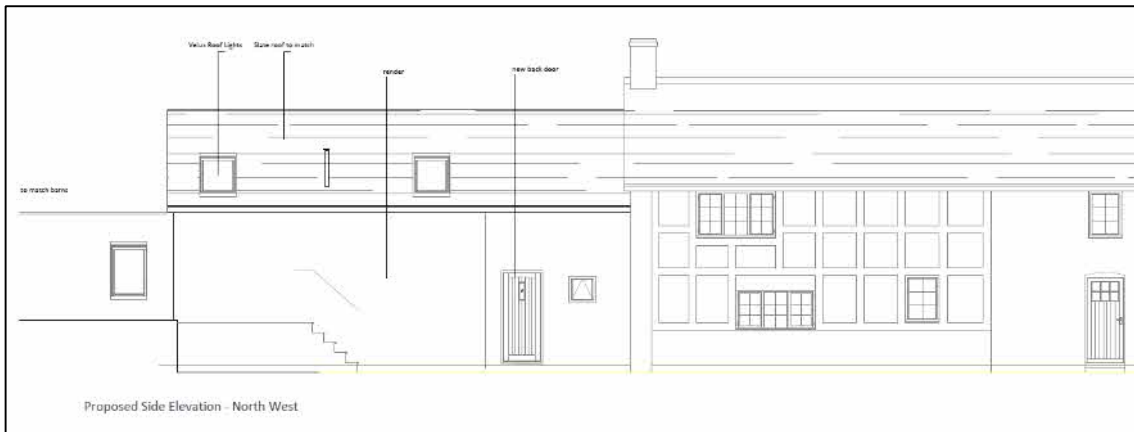
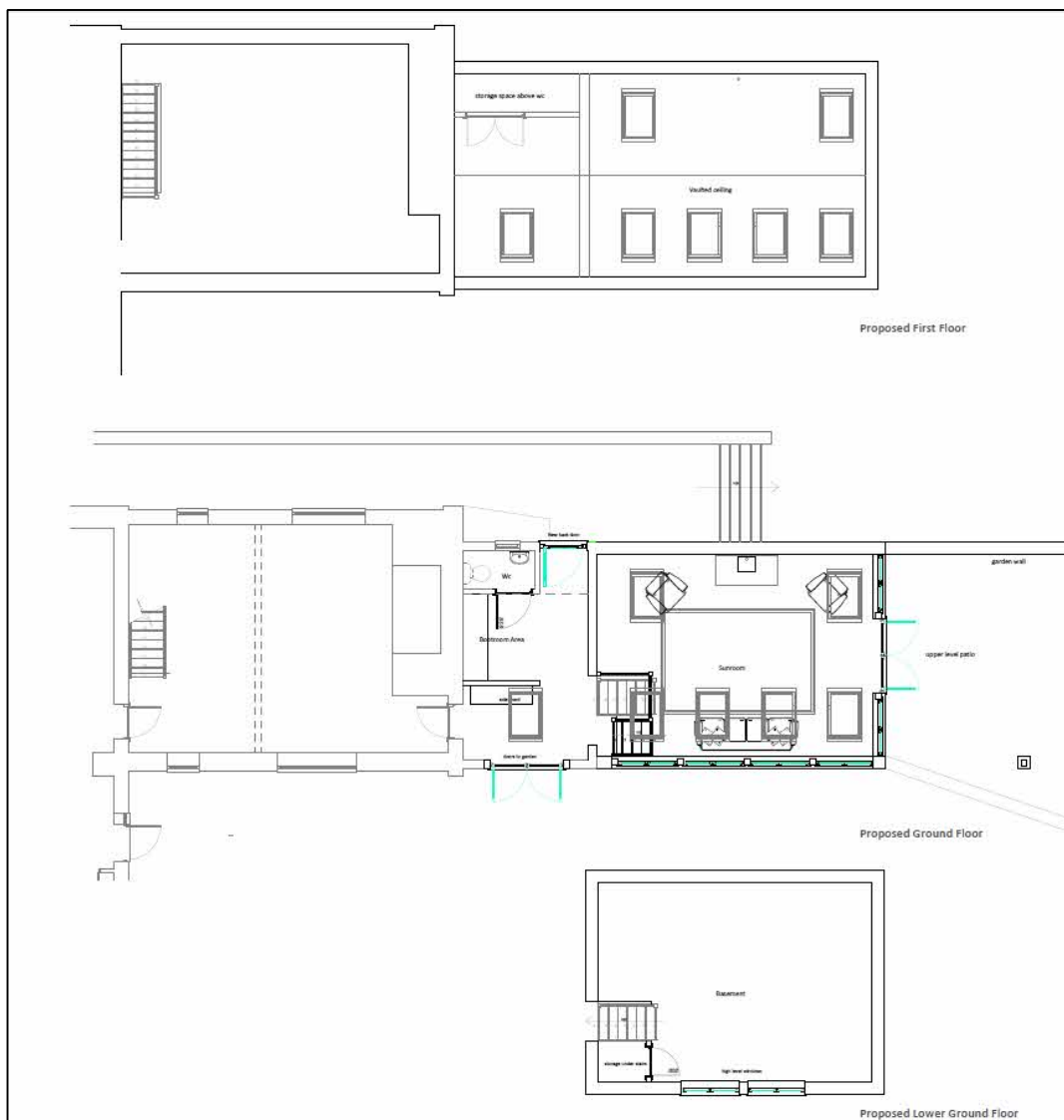


Figure 15. Proposed floor plans





## 4.2 Summary of Results

### 4.2.1 Preliminary Roost Assessment

Evidence of roosting bats (droppings characteristic of a Pipistrelle species in Lofts 1 to 4) were recorded during the initial survey. Suitable roosting features for bats around the house include gaps under roof and ridge tiles, gaps behind timber barge boards, gaps at wall tops, gaps in the timber cladding on the lean-to extension and gaps in the stonework and the house was as having *High* suitability for use by roosting bats with *Confirmed* roosts in four of the loft spaces.

### 4.2.2 Activity Surveys

Based on the results of the Preliminary Roost Assessment, the proposed works were considered to have the potential to damage or destroy bat roosts. Bat Activity Surveys were therefore completed to determine number and species of bats using the house. These surveys confirmed the following roosts:

**One Soprano Pipistrelle** roosting at the wall top of the south-eastern elevation;

**Up to two Soprano Pipistrelle** roosting behind the cladding of the lean-to extension;

**One Soprano Pipistrelle** roosting at the wall top of the north-eastern gable end;

**One Common Pipistrelle, one Soprano Pipistrelle and one probable Soprano Pipistrelle** roosting at the apex of the north-eastern gable end;

**One probable Pipistrelle sp.** roosting at the wall top of the north-western elevation; and

**One Soprano Pipistrelle** roosting at the gable end of the south-western gable end of the single-storey extension.

Small numbers of Common Pipistrelle, Soprano Pipistrelle, Brown Long-eared Bat, Daubenton's Bat and Noctule were recorded foraging or commuting over site and the nearby pond during the surveys.

## 4.3 Evaluation and Impacts

The proposed demolition of the lean-to and subsequent extension works would cause the possible injuring/killing of four roosting Soprano Pipistrelle, an individual Common Pipistrelle and an individual probable Soprano Pipistrelle. The proposed works would also result in the long-term loss of three day roosts of individual Soprano Pipistrelle as well as short-term exclusion of a day roost of an individual Common Pipistrelle, an individual Soprano Pipistrelle and an individual probable Soprano Pipistrelle with access to the existing roost location recreated following completion of works. The loft spaces in the house will remain available for use by bats following completion of works.

Two day roosts of individual Soprano Pipistrelle on the south-western gable end of the single storey extension and at the wall top of the south-eastern elevation, and one day roost of an individual probable Pipistrelle at the wall top of the north-western elevation will be retained and unaffected by the works.

Based on the type of features suitable for roosting bats, evidence found during the preliminary survey and the results of the Bat Activity Surveys, it is considered that the building is only likely to be used by individuals/small numbers of common bat species.

Common Pipistrelle and Soprano Pipistrelle are common bats in the United Kingdom with approximately 2,430,000 and 1,500,000 individuals estimated to be present<sup>1</sup> respectively. For the purpose of this project these species are considered to be common on a regional scale (with the scale stretching through common, rarer to rarest species). In accordance with the Bat Mitigation Guidelines the requirement for mitigation for roosts of individual and low numbers of Common Pipistrelle and Soprano Pipistrelle includes;

- Flexibility over provision of bat boxes, access to new buildings *etc.*; and
- No conditions about timing or monitoring.

#### 4.4 Mitigation and Enhancement

Destruction of bat roosts can only occur under a Protected Species Licence. All agreed methods will be included in the licence application and appropriate mitigation and safe working methods can only be confirmed upon agreement of the licence. The methods (which may be updated upon confirmation of an accepted Licence application) are likely to include;

Works to commence following receipt of a Protected Species Licence from Natural Resources Wales.

Timing of works on known roosting locations to be completed when bats are usually active and when overnight temperatures consistently above 9°C.

Prior to the start of works a suitably qualified ecologist will deliver a tool box talk to contractors and staff on site, informing them of the likelihood of encountering bats, what to do if they find bats and give a brief overview of the licence documents.

Provision of roosting locations for the duration of works with two Schwegler 2F bat boxes, or equivalent, erected on retained trees around the site boundaries (*Figure 16*). These boxes will be retained and maintained for the lifetime of the development.

A wooden or woodcrete bird box will be placed adjacent to the bat boxes to help ensure the bat box remains open for use by bats.

Pre-works check by a licenced ecologist of all known and potential roosting locations around the affected area of the building will take place.

If the entirety of a feature can be searched and found to be empty these will be blocked (newspaper or expanding foam). If the feature cannot be fully searched it will be excluded using folded acetate or similar to allow bats to leave the feature but not re-enter. If exclusions are used, they will be left in place for a minimum of 5 nights in suitable weather conditions. Following this they will be permanently filled using the same methods as above with the exception of the two roosts to be retained at the apex and wall top of the north-eastern gable end which will be temporarily filled and access re-instated following completion of works.

Roof stripping of the lean-to will be completed under the watching brief of the licenced ecologist, or agent thereof, with the roof tiles being removed carefully by hand.

If bats are found during works, they will be caught by a licensed ecologist who will be wearing suitable gloves. The bat will be placed into a cloth bag and carefully placed in to the previously erected bat boxes.

A minimum of two lifted ridge tiles will be incorporated in the roof of the extension (*Figures 17 and 18*).

One Beaumaris bat box will be erected on the south-eastern elevation of the adjacent barn (*Figure 16*).

Breathable roofing membranes (BRM) must **not be used** in the construction of the new roof where roosting features could be created due to issues with bat entanglement and reduced membrane performance if used in areas of bat use. 1F bitumastic felt should be used instead.

Dry ridge technology **must not be used** due to issues with bat entanglement. A traditional cement and mortar ridge will be used instead.

No lighting directed on known, potential or newly created bat roost access points and roosting features and only movement activated timed security lighting used outside of potential roosting locations.

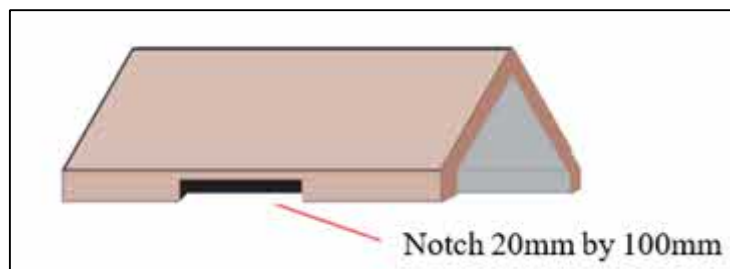
*Figure 16. Proposed bat and bird box locations around site boundary (blue stars) and Beaumaris bat box on barn (red star)*



Figure 17. Proposed bat and bird box locations (green rectangles = lifted ridge tiles)



Figure 18. Creation of access and roosting opportunities under lifted ridge tiles in new roof



#### 4.5 Nesting Birds

The building is of limited suitability for nesting birds and no evidence of nests were recorded during the initial survey.

One hole-fronted nest box will be erected on the south-eastern elevation (Figure 17) and a House Sparrow terrace box will be erected on the south-western elevation (Figure 19). One hole-fronted nest box will also be erected adjacent to each of the pre-works bat boxes (Figure 16).

Figure 19. Location of Sparrow terrace box (blue box)



## 4.6 Great Crested Newt

### 4.6.1 General

The results of the surveys and assessment of the only pond within 250m of site confirmed the presence of breeding Great Crested Newt within the pond.

Given the small size of the development footprint (approximately 130m<sup>2</sup>) and the very limited suitability of habitats affected by the proposals, it was considered that sufficient information had been obtained from the surveys to inform the proposals and population assessment surveys were not considered necessary.

### 4.6.2 Impacts

Using the distances between the construction area and nearest Great Crested Newt breeding pond a Natural England Rapid Risk Assessment showed *Amber: Offence Likely*. However, the building, hardstanding and short-sward amenity grassland affected by the proposals, are unsuitable habitats for foraging or hibernating Great Crested Newt and only suitable for dispersal.

Based on the limited suitability of habitats impacted by the proposals and the small scale of works, negative impacts on Great Crested Newts are not predicted but precautionary Reasonable Avoidance Measures (RAMs) will be adhered to prior to and during works.

### 4.6.3 Mitigation

RAMs will be followed prior to and for the duration of works and will include the following measures:

Affected grassland to be kept to a short-sward pre- and during the proposed works to deter newts, and reptiles, from occurring in this area.

Prior to the start of works a suitably qualified ecologist will deliver a tool box talk to contractors and staff on site, informing them of the likelihood of encountering Great Crested Newt and what to do if they find a Great Crested Newt.

All groundworks will be carried out within the areas of existing buildings, hardstanding and short-sward amenity grassland and shall not affect any parts of the hedgerows along the garden boundaries.

Access for construction vehicles and materials will utilise the existing hardstanding immediately north and west of the development footprint and access will be completed during the day.

Any excavations will be completed during daylight and backfilled (and suitably compacted) before nightfall.

During construction, any storage of piles of materials and excavated earth on the site will be kept to a minimum and stored on hardstanding away from the boundaries and raised (*e.g.* on pallets) to deter Great Crested Newt from using them for temporary cover. Any excavated earth should be compacted on the day it is excavated and stored on site for a maximum of three nights.

**If a Great Crested Newt or reptile is found during any stage of the above works all works must cease and a licensed Ecologist called to provide advice and/or attend site if not already present on site. In the event of a Great Crested Newt being found Natural Resources Wales will need to be contacted to discuss an acceptable course of action.**

#### **4.7 Other Species**

The RAMs for Great Crested Newt will also ensure there are no negative impacts on common species of reptile, European Hedgehog and Common Toad, which may occur in the vicinity of the proposed works.

In order to enhance the site for European Hedgehog a Hedgehog house such as a Vivara Pro Woodstone Hedgehog House will be installed along the hedge line to the north of the pond.

## 5 LEGAL PROTECTION

This section briefly describes the legal protection afforded to the protected species referred to in this report. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation but summarises the salient points.

### 5.1 Bats

All species of British bat are protected by *The Wildlife and Countryside Act 1981* (as amended) extended by the *Countryside and Rights of Way Act 2000*. This legislation makes it an offence to:

- intentionally kill, injure or take a bat;
- possess or control a bat;
- intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- intentionally or recklessly disturb a bat whilst it occupies a bat roost.

Bats are also European Protected Species listed on *Schedule 2* of the *Conservation of Habitats and Species Regulations 2010* (SI 2010/490) under *Regulation 41*. This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats in such a way as to be likely to (a) impair their ability to: (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or b), to affect significantly the local distribution or abundance of the species to which they belong; and
- damage or destroy a breeding site or resting place of a bat; and
- possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

All bat roosting sites receive legal protection even when bats are not present.

Where it is necessary to carry out an action that could result in an offence under the *Conservation of Habitats and Species Regulations 2017* it is possible to apply for a European Protected Species (EPS) licence from Natural England (NE). Three tests must be satisfied before this licence (to permit otherwise prohibited acts) can be issued:

Regulation 53(2)(e) states that licences may be granted to “preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.”

Regulation 53(9)(a) states that a licence may not be granted unless “there is no satisfactory alternative”.

Regulation 53(9) (b) states that a licence cannot be issued unless the action proposed “will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range”.

## 5.2 Nesting Birds

All species of bird are protected under *Section 1* of the *Wildlife and Countryside Act 1981* (as amended). The protection was extended by the CRow Act.

The legislation makes it an offence to intentionally:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

Certain species of bird are listed on *Schedule 1* of the *Wildlife and Countryside Act 1981* (as amended) and receive protection under *Sections 1(4)* and *1(5)* of the Act. The protection was extended by the CRow Act. The legislation confers special penalties where the above-mentioned offences are committed for any such bird and also make it an offence to intentionally or recklessly:

- disturb any such bird, whilst building its nest or it is in or near a nest containing dependant young; or
- disturb the dependant young of such a bird.

## 5.3 Great Crested Newt

Great Crested Newt is listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receive full protection under *Section 9*. This species is also listed on *Schedule 2* of the *Conservation of Habitats and Species Regulations 2017* (as amended). Protection was extended by the *Countryside and Rights of Way Act 2000* (the CRow Act).

Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection;
- or
- sell or attempt to sell any such species.

The Great Crested Newt is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as a species of principal importance for the conservation of biological diversity in England under *Section 74* of the CRow Act.