



**Maes y Gwilog Farm
Skewen**

Bat and Nesting Bird Survey Report

October 2020

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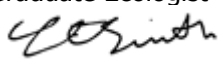
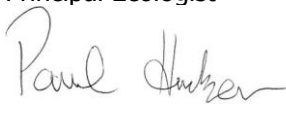
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DOCUMENT CONTROL

Maes y Gwilog Farm, Skewen Bat and Nesting Bird Survey Report				
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Summary

Brief and Site Location	This report presents the findings of a bat and nesting bird survey of buildings located at Maes y Gwilog Farm Crymlyn Road, Skewen, Neath, SA10 6NL (Ordnance Survey Grid Reference: SS 7102 9658).								
Proposed Works	Plans comprise the demolition of the stables closest to the house and the rear conservatory, and the construction of a two-storey rear extension and a single-storey rear extension, including balustrading on the roof to form a terrace, together with associated alterations to fenestration.								
Survey Methodology	The survey comprised the following: • A preliminary bat roost assessment of the buildings searching for signs of bats and nesting birds; • One dusk emergence survey of the part of the house affected by the works; and • One dawn re-entry survey of the parts of the house affected by the works.								
Results of Preliminary Bat Roost Inspection	No signs of bats were found during the internal and external inspection of the house or stables. The buildings are located within an area providing moderate-quality foraging and commuting habitat for bats.								
Suitability of the Buildings to Support Roosting Bats	The house was assessed as having moderate suitability to support roosting bats. The stables were assessed as having negligible suitability to support roosting bats.								
Results of Dusk Emergence and Dawn Re-entry Surveys and Roost Characterisation	Roosts within the house were characterised as below: <table><tr><td>Bat Species</td><td>Maximum Count</td><td>Roost Type</td></tr><tr><td>Common pipistrelle</td><td>One</td><td>Occasional day roost</td></tr></table> Moderate to high levels of bat activity were recorded. Common and soprano pipistrelles as well as noctules were recorded foraging around the buildings. One <i>Myotis</i> species bat (whiskered/Brandt's) was also recorded during the initial dusk survey.			Bat Species	Maximum Count	Roost Type	Common pipistrelle	One	Occasional day roost
Bat Species	Maximum Count	Roost Type							
Common pipistrelle	One	Occasional day roost							
Evidence of Nesting Birds	Three active swallow nests were found in the stables. No evidence of barn owl was found.								
Requirements for Additional Survey	None required.								
Licensing Requirements for Bats	None required.								
Recommendations and Precautionary Measures	Detailed recommendations are given in Section 6 of this report. These include precautionary methods and guidance for action to take if bats are found during the works.								

1. Introduction

1.1. Brief

This report presents the findings of a bat and nesting bird survey of two detached buildings which are described within the report as the 'house' and 'stables', located at Maes y Gwilog Farm, Crymlyn Road, Skewen, Neath, SA10 6NL (Ordnance Survey Grid Reference: SS 7102 9658).

The buildings are situated within the boundary of Neath Port Talbot County Borough Council.

1.2. Site Description

The buildings are situated towards the south-western boundary of the village of Skewen. The area to the north of the buildings comprises residential housing, whilst to the south and west are areas of woodland. Approximately 0.3km to the south is a large industrial site with very little vegetation present. To the west of the buildings is a railway line, and to the south-east a reservoir.

The location of the buildings is shown on Plan 1: Location Plan.

1.3. Proposed Works

Plans comprise the demolition of the stables and rear conservatory, and construction of a two-storey rear extension and a single-storey rear extension, including the addition of balustrading to the roof to form a terrace, together with associated alterations to fenestration. Existing and proposed plans can be found in Drawings 1 and 2: Development Proposals (Planning Reference number: P2020/0517)¹.

1.4. Legislation and Planning Policy

1.4.1. Bats

All UK species of bat are designated as 'European Protected Species'. Their breeding sites or resting places² (roosts) are fully protected under the Wildlife and Countryside Act 1981³ (as amended) and the Conservation of Habitats and Species and Planning (various amendments) (England and Wales) Regulations 2018⁴, until and unless superseded by The Conservation of Habitats and Species (Amendment) (EU Exit) ['CHSAEU'] Regulations 2019⁵.

Works affecting bats are subject to licensing procedures by Natural Resources Wales (NRW). The legal protection and licensing procedures are summarised in Appendix 1.

¹<https://planningonline.npt.gov.uk/onlineapplications/applicationDetails.do?activeTab=summary&keyVal=QBT7Y0KZ01000>

² Resting places are defined as 'areas that are essential to sustain an animal or group of animals when they are not active' (Anon 2007).

³ <https://www.legislation.gov.uk/ukpga/1981/69>

⁴ <http://www.legislation.gov.uk/uksi/2018/1307/contents/made>

⁵ EU Exit – The European Union (Withdrawal) Act 2018 (the EUWA) will end the supremacy of EU law in UK law, will convert directly applicable EU legislation (in particular, EU Regulations and Decisions) as it stands at the moment of exit into domestic law, and will preserve legislation previously made in the UK to implement EU obligations. The legislation will generally have the same effect that it had before the UK left the EU, unless or until it is changed by Parliament. In some cases, there may be changes in referencing and guidance as a result of secondary legislative amendments.

1.4.2. Nesting Birds

All wild British birds (whilst building nests, nesting and sitting on eggs) and their nests and eggs (with certain limited exceptions⁶) are protected by law under Section 1 of the Wildlife and Countryside Act 1981⁷ (as amended) and the Countryside and Rights of Way Act 2000⁸. Some species, such as barn owls (*Tyto alba*), are listed in Schedule 1 have additional protection from disturbance during the breeding season as do their nests, eggs and dependent young.

1.5. Survey Scope

The survey comprised the following:

- A preliminary bat roost assessment which included a survey for nesting birds;
- One dusk emergence survey of the part of the house affected by the works; and
- One dawn re-entry survey of the parts of the house affected by the works.

1.6. Reporting

This report aims to:

- Outline the survey methodology used;
- Present the results of the survey;
- Provide an interpretation of the survey results;
- Determine the need for further targeted surveys on site; and
- Provide suitable recommendations in line with planning policy and wildlife law including potential licencing requirements, mitigation, compensation and enhancement measures.

⁶ Details of the exceptions are available at <https://bit.ly/2KiQTFH>

⁷ <https://www.legislation.gov.uk/ukpga/1981/69>

⁸ <https://www.legislation.gov.uk/ukpga/2000/37>

2. Methods

2.1. Desk Study

An assessment of the site and surrounding area was carried out, including existing habitats, from maps and aerial photographs. A Geographic Information System (GIS) dataset obtained from NRW was used to search for statutory and non-statutory conservation designated sites for bats within 10km. A 2km search was undertaken for all other statutory and non-statutory conservation designated sites.

A search of the local planning portal was undertaken to look for other sites within the same postcode area which have had bat surveys submitted as a part of their planning application.

2.2. Field Study

2.2.1. Daytime Internal and External Inspection

A systematic search was made of the exterior and interior of the buildings looking for features that bats could use for entering/exiting and roosting⁹. In addition, a search was made for the presence of bats or evidence of bat use, such as droppings, feeding remains, urine staining, scratch marks and the remains of dead bats. The survey was undertaken on 20th August 2020 by Ashley Dale (accredited agent under Paul Hudson's¹⁰ (MCIEEM) NRW licence (Licence Number: S088190/1)) with the assistance of Jenny Smith^{11/12}.

A high-powered torch (Clulite), binoculars and a ladder were available for use, as appropriate during the survey.

2.2.2. Assessment of Bat Roost Suitability

The value of the site for bats (and any potential roost sites therein) was assessed, in accordance with Table 4.1 of the Bat Surveys for Professional Ecologists (Collins, 2016) (see Appendix 2). The assessment was based on the relative abundance and quality of potential roost sites; and the habitat features within both the site and the surrounding landscape, suitable for roosting, foraging and commuting bats (see Appendix 3).

2.2.3. Dusk Emergence and Dawn Re-entry Surveys

The evening dusk emergence survey commenced 30 minutes prior to sunset, and continued until 90 minutes after sunset.

⁹ Bats may utilise gaps as small as 8mm by 20mm (Bat Conservation Trust, Cluster flies leaflet).

¹⁰ Paul graduated with a degree in Environmental Biology from Reading University and a Postgraduate Diploma in Conservation Management from the University of East Anglia. He has worked within ecological consultancy since 2000 and has been involved in bat work since 2001. He holds licences to disturb bats in both Wales (S088190/1 valid until June 2022) and England (2018-36707-CLS-CLS valid until 2028). Further details of his qualifications and experience can be found at <http://linkd.in/19aGTf4>.

¹¹ Jenny graduated from Cardiff University with a degree in Biological Sciences in 2020, during which she studied modules on biodiversity, ecology and conservation. She is in her first season of working as a Graduate Ecologist and is undergoing training with Acer Ecology in basic bat ecology, bat survey techniques (including preliminary roost assessments and dusk emergence/dawn re-entry surveys) and bat sound analysis.

¹² Jenny accompanied Ashley and helped with the external building inspection. She did not enter the loft spaces during the survey.

The dawn re-entry survey commenced 90 minutes before sunrise and continued for 15 minutes after sunrise.

Two surveyors undertook the dusk emergence and dawn re-entry surveys. Jenny Smith and Jakes Jones conducted the dusk emergence survey on the 26th August 2020, whilst Paul Hudson and Megan Fowler conducted the dawn re-entry survey on the 8th September 2020. Surveyor details can be found in Appendix 4. The surveyors were all equipped with Elekon Batlogger M bat detectors.

Surveyors were positioned at viewpoints where they had good sight of the parts of the house where proposed developments are to take place, so that all potential roosting features could be observed to detect any bat emerging from, or re-entering, the house. Bat activity near the house was recorded to help ascertain flight lines.

In accordance with Section 2.6.1 of the Bat Conservation Trust's Bat Surveys for Professional Ecologists (Collins, 2016) surveys were undertaken during nights with temperatures above 10°C at sunset and during mornings where the previous sunset temperature was above 10°C. The surveys were also undertaken in the absence of rain and strong wind (5.4 m/s or greater, which is equivalent to 13 mph or Beaufort 4).

2.2.4. Survey for Nesting Birds

A visual search was undertaken for active bird nests, as well as any signs which might indicate either past or current nesting, such as guano, singing birds, birds carrying nesting material, food items, faecal sacs and calling chicks.

2.2.5. Constraints

General Temporal Constraints

An ecological survey can only identify what was present on site at the time it was conducted. Habitat usage by species can, however, change over time.

Restricted Access and Health and Safety Considerations

Some areas of the loft voids in the house were inaccessible, as described below:

- The first loft space was only surveyed by looking from the open hatch. Entry into the loft void was not carried out because large amounts of rockwool insulation blocked access and covered the floor.
- The second loft also could not be entered because the loft hatch was too small to fit through.

The results and conclusions of this report must therefore necessarily remain qualified and provisional, pending further and more detailed surveys carried out at an appropriate time of year.

Floor Condition

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Some areas of the floor of the stables had a covering of dense animal bedding and various general storage items present that made it difficult to detect bat droppings.

Security Lighting

Throughout the dusk emergence survey, security lights were turned on, which could have deterred roosting, foraging and commuting behaviour of bats. The security lights on the stables turned on at 20:25, and the lights on western and south-western elevations of the house turned on at 20:15. Additionally, the security lights on the un-surveyed bungalow and un-surveyed stables to the south of the house and surveyed stables appeared to be turned on by motion sensing.

Data Search

A Local Records Centre (LRC) data search was not undertaken due to the relatively small size and nature of the development. The overall impact on biodiversity is likely to be localised and of low significance and current proposals suggest no land will be lost or linear features severed. It is considered very unlikely that the development will have any impact outside the footprint of the works. The data search results are considered unlikely to impact on the decision-making process and therefore a LRC search has not been undertaken.

3. Results

3.1. Desk Study

3.1.1. Bat Roosts Reported in Planning Applications Within the Same Postcode

The search on the planning portal returned no records of bat roosts within the same postcode area as the proposed development.

3.1.2. Protected Sites

The location of protected sites is shown in Plan 2: Protected Sites.

Statutory Sites Notified for Bats (Special Areas of Conservation (SACs)) or Sites of Special Scientific Interest (SSSIs) Within 10km

No SACs that have been specially designated for bats lie within 10km of the buildings.

Other Protected Sites Within 2km

Crymlyn Bog is the only designated site within 2km of the buildings and is situated approximately 0.5km to the south-west. The site is designated at a SAC, SSSI, RAMSAR site, and NNR. The SSSI citation states that "Crymlyn Bog is of special interest for its fen (topogenous mire) communities, wet woodland, associated invertebrate assemblages, a substantial population of the nationally rare slender cotton grass *Eriophorum gracile* and a population of the nationally scarce hornet robberfly (*Asilus crabroniformis*)."

"Crymlyn Bog is also of national importance for invertebrates, supporting several rare and nationally scarce species. These include the water beetle *Limnoxenus niger*, the crane fly *Pilaria nigropunctata* and the jumping spider *Marpissa radiata*. Open waterways and marginal flushes support the scarce blue-tailed damselfly *Ischnura pumilio* and the variable damselfly *Coenagrion pulchellum*." There is no mention of bats in the citation, however, the site is likely to be used by several bat species for commuting and foraging.

Non-statutory Protected Sites

Ancient Woodland Sites

There are 25 areas of Ancient Semi-Natural Woodland (ASNW)¹³, seven Restored Ancient Woodland Sites (RAWS)¹⁴, nine Plantations on Ancient Woodland Sites (PAWS)¹⁵, and four Ancient Woodland Sites of Unknown Category¹⁶, located within 2km of the site.

¹³ Ancient Semi-Natural Woodland (ASNW) – broadleaf woodlands comprising mainly native tree and shrub species which are believed to have been in existence for over 400 years.

¹⁴ Restored Ancient Woodland Sites (RAWS) – woodlands which are predominately broadleaves now and are believed to have been continually wooded for over 400 years. These woodlands will have gone through a phase when canopy cover was more than 50% non-native conifer tree species and now have a canopy cover of more than 50 percent broadleaf.

¹⁵ Plantation on Ancient Woodland Sites (PAWS) – sites which are believed to have been continuously wooded for over 400 years and currently have a canopy cover of more than 50 percent non-native conifer tree species.

¹⁶ Ancient Woodland Site of Unknown Category (AWSU) – woodlands which may be ASNW, RAWS or PAWS. These areas are predominantly in transition and existing tree cover is described as 'shrubs', 'young trees', 'felled' or 'ground prepared for planting'.

The nearest area of ancient woodland is an unnamed area of ASNW located approximately 0.2km to the south of the buildings.

Protected Sites Summary

Given the small scale of the proposed development, the localised nature of the proposed works, as well as the limited scope for impacts outside of the footprint of the proposed works, no adverse impacts to the protected sites are likely to occur. These sites are not mentioned any further in this report.

3.2. Field Study

3.2.1. Ecological Context of Site

Lighting

The buildings are assessed as being within Zone E2¹⁷ (Institute of Lighting Professionals, 2012) as they are situated at the very edge of a suburban area, away from high levels of artificial lighting. The residential area to the north may increase the district level brightness at night, however the buildings are separated from this and are surrounded by trees. However, numerous security lights are present which provide a high amount of illumination.

Site and Surrounding Habitats

The area to the north of the buildings comprises moderate-density suburban housing with few linear features which bats could utilise as ecological corridors. To the south, east and west are areas of woodland which surround the buildings and would be easily accessible by foraging bats. To the north-west, there are fields bordered by hedgerows and treelines which bats could utilise to commute between the buildings and the wider landscape. Despite that the residential area to the north-east of the site lacks foraging opportunities and has relatively high levels of light pollution and noise, the foraging and commuting habitat for bats in all other directions are considered moderate-quality (see Appendix 3 for habitat assessment criteria).

¹⁷ E2: Rural lighting zone, with low district brightness.

3.2.2. Building Description from the Perspective of Bat Habitat

The following tables summarise the key features of the house and stables.

Table 1: Key Features of the House

Building Type	The house is an L-shaped, two-storey detached building made with pebble dash rendering and is in good condition (Photos 1-6). The south-western elevation comprises of a single storey extension with a flat roof and balcony (Photo 1). The north-north-western elevation has a single-storey porch with an A-frame roof with a symmetrical gable end and walls made from stone bricks (Photo 5).
Roof	The house roof is pitched and constructed from cement tiles with clay ridge tiles. Two solar panels are positioned on the roof of the southern elevation of the house (Photo 1). Roof tiles are generally well aligned with minimal gaps. There are, however, gaps under some of the end roof tiles where the cement mortar has been weathered away, such as near the solar panels (Photos 7 and 8). The porch's roof has various lifted and broken slate tiles (Photo 9).
Chimneys	There is missing mortar around the chimney stack base (Photo 8).
Lead Flashing	There are some gaps in the lead flashing (Photos 10 and 11), however, the majority is well sealed with no lifted areas suitable for roosting bats.
Soffits, Fascias and Bargeboards	The PVC soffits are well sealed in places, however, there is a hole and a crack in a soffit box which could enable access for roosting bats (Photos 12 and 13).
External Walls/Render	The external walls are covered in cream-coloured pebble dash rendering (Photos 1-6).
Conservatory	There is a timber framed conservatory attached to the south-south-eastern elevation of the house with glass pane windows (Photos 1 and 14).
Windows	The windows and doors have timber frames and are in good condition (Photos 1, 3, 5 and 6).
Roof Void, Lining and Construction	Loft Space 1 located at the south-eastern elevation of the house was very dark and filled with a lot of rockwool insulation, including a pile of it at the most southerly wall of the void (Photo 15). The void is approximately 2m high and is constructed with modern A-frame timbers (Photo 16). The roof is lined with bitumen felt that is in good condition. Overall, the void was airy and open, with a gentle breeze felt by the surveyor. Loft Space 2 also contained a lot of rockwool insulation laid on the floor and was constructed of modern A-frame timbers that were covered in a lot of cobwebs (Photo 17). Loft Space 3 is cavernous and lined with bitumen felt, containing two water tanks behind the loft hatch (Photo 18) voids and some light ingress at the eaves (Photo 19). The construction is a fink truss made of older beams than those found in Loft Spaces 1 and 2 (Photo 20). A breeze was also felt within this loft space. An active wasp nest was also found (see Plan 3).
Security Lighting	Security lights are present and active on the house on the western, southern, south-western and eastern elevations (Photos 4, 6 and 14).

Table 2: The Key Features of the Stables

Building Type	The regularly used stables comprise an L-shaped single-storey detached building made with breeze block walls that are occasionally covered in a plaster and paint rendering (Photos 21-24). The building contained six separate stables and two storage areas.
Roof	The galvanised pitched roof comprises of corrugated metal sheets, with gaps underneath each ridge and eaves that could allow access into the stables (Photos 21-25).
Soffits, Fascias and Bargeboards	The metal bargeboards are flushed tightly against the gable end walls (Photos 21 and 22).
Doors and Walls	The timber doors have timber frames (Photos 21-24). There is open access into the stables via the open storage area and stable doors on the northern elevation, and the cupboard at the south-eastern elevation (Photo 24). The wooden dividing walls between each stable are in poor condition (Photo 26).
Roof Void and Construction	There is no ceiling in the stables, so the roof void is continual with the stable spaces and therefore there is a lot of light ingress. The internal roof void is a typical truss design (Photo 26 and 27).
Floor	The floor of the stables is cluttered in most rooms with various equipment (e.g. cement mixer) and horse bedding, which makes finding bat droppings difficult.
Security Lighting	There are four security lights on the northern, eastern, western, and southern elevations. These are active, which could act as deterrents to bat roosting (Photos 21, 23 and 24).
Nests	There is an active wasp nest within one of the two stables at the southern elevation of the building (see Plan 3). Three intact and active nests of swallows (<i>Hirundo rustica</i>), house martins (<i>Delichon urbicum</i>) or swifts (<i>Apus apus</i>) are located in the stables cupboard and the first stables to the left of the storage space on the northern elevation of the building (Photo 28 and Plan 3).

Photos Showing Features of the House and Stables

Photo 1: Southern and South-Western Elevations of the House, Including the Flat Roof Section



Photo 2: South-Eastern Elevation of the House



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Photo 3: Western Elevation of the House



Photo 4: North-North-Eastern Elevation of the House and Security Lights



Photo 5: North-North-Western Elevation of the House with Porch



Photo 6: North-Western Elevation of the House and Security Light



Photo 7: Eroded Cement Mortar Under Roof Tiles Near Solar Panel [R1]



Photo 8: Gap Under Ridge Tiles and Gap Between Ridge Tile and Rendering of Chimney [R2]



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Photo 9: Broken and Lifted Tiles of Porch [R3]



Photo 10: Gap Under Lead Flashing



Photo 11: Gap Under Lead Flashing



Photo 12: Cracked Soffit Box



Photo 13: Hole in Soffit



Photo 14: The Timber Framed Conservatory and Security Lights



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Photo 15: Piled Insulation in Loft 1



Photo 16: A-Frame Modern Timbers of Roof Void 1



Photo 17: Modern Timbers of Loft Space 2



Photo 18: Water Tanks in Loft Space 3



Photo 19: Light Ingress in Loft Space 3



Photo 20: Timbers of Loft Space 3



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Photo 21: Northern and Western Elevations of the Stables, and Security Lighting



Photo 22: Northern Elevation of the Stables



Photo 23: Southern Elevation of the Stables and Security Lighting



Photo 24: Eastern Elevation of the Stables and Open Cupboard and Security Lighting



Photo 25: Gaps Under Ridges of Roofing Sheets



Photo 26: Dividing Wall in Poor Condition and Open Roof Void



Photo 27: Roof Structure of Stables



Photo 28: One of Three Active Swallow/House Martin/Swift Nests



3.2.3. Potential Bat Access Points and Bat Roosting Locations

Potential Access Points for Bats in the House

There are some access points for bats including within a hole and crack in a soffit box (Photos 12 and 13), gaps under roof tiles near the solar panels (Photo 7) gaps under the ridge tiles near the chimney breast (Photo 8) and under lead flashing (Photos 10 and 11).

Potential Access Points for Bats in the Stables

Due to the open nature of the building there are numerous potential access points for bats into the interior, mainly through the open windows and doors. However, there are very few potential roosting locations within the building.

Potential Roosting Sites for Bats in the House

The following potential roost sites were recorded:

- R1 – Gaps under roof tiles created by eroded mortar near solar panels (see Photo 7);
- R2 – Gaps under the ridge tiles near the chimney breast (see Photo 8);
- R3 – Gaps under broken and lifted tiles of the porch (see Photo 9);
- R4 – Between roof tiles and bitumen roof lining; and
- R5 – Within the roof voids of the house (Photos 15-20).

3.2.4. Evidence of Bats

No bats or signs of bats were found anywhere in either the internal spaces or external parts of the buildings during the preliminary bat roost assessment.

3.2.5. Dusk Emergence and Dawn Re-entry Surveys

Table 3: Summary of Conditions During Dusk Emergence and Dawn Re-entry Surveys of the House

	Survey 1	Survey 2
Date	26.08.20	08.09.20
Sunset/Sunrise Time	20:14	06:38
Start Time	19:44	05:08
Finish Time	21:44	06:53
Start Temperature		15°C
Sunset Temperature	14°C	
Rain	None	Brief shower prior to start of survey. Dry during survey.
Wind¹⁸	1	1
Cloud Cover	2/8 oktas	3/8 oktas

Table 4: Summary of Dusk Emergence and Dawn Re-entry Surveys Results

	Survey 1: Dusk Emergence	Survey 2: Dawn Re-entry
Emergences/ Re-entries	One common pipistrelle (<i>Pipistrellus pipistrellus</i>) bat emerged at 20:33 from underneath a roof tile in approximately the centre of the south-east facing roof between the valley of the two pitched, south-east facing roofs (see Photos 1 and 2, and Plan 4).	No bats returned to roost within any of the buildings or interacted closely with the building.
Commuting/ Foraging Routes	Noctule (<i>Nyctalus noctula</i>) bats were regularly observed flying high in an easterly direction above the stables. Common and soprano pipistrelles (<i>Pipistrellus pygmaeus</i>) regularly commuted along the hedgerows and vegetation adjacent to the north-west and west of the house. Noctules were observed commuting high over the arena in a north-western direction towards the treeline to the north and north-west of the house.	Soprano pipistrelles were foraging in the area of scrub to the east of the site for a 40-minute period during the survey. At least two individuals were recorded.
Bat Activity¹⁹	Overall, moderate to high levels of bat activity were recorded. Common pipistrelles were recorded the most regularly. Noctules were recorded occasionally within the first 90 minutes of the survey. Soprano pipistrelles were occasionally recorded throughout the survey.	As well as the soprano pipistrelles, mentioned above, low numbers of common pipistrelle and noctule bats were recorded during the survey.

¹⁸ Estimated on site using the Beaufort scale.

¹⁹ Activity thresholds have been quantified using personal judgement according to past experience of surveying similar sites.

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	One individual of a narrow range ²⁰ <i>Myotis</i> ²¹ species (whiskered/Brandt's or Daubenton's bat) was heard at 21:36.	
Incidental Bird Records	A swallow (<i>Hirundo rustica</i>) was observed entering the stables at 19:54. A swallow, possibly the same individual, exited shortly afterwards.	

Photos Showing Confirmed Common Pipistrelle Roost / Access Sites

Photo 1: Showing the area of the house where the access point was observed. The common pipistrelle access point is highlighted by the yellow circle.



Photo 2: Showing the access point underneath a roof tile on the south-east facing slop of the pitched roof where the common pipistrelle (yellow circle) emerged.



3.2.6. Nesting Bird Survey

No signs of birds having recently nested were found during the survey within or on the exterior of the House.

Three active swallow nests were found in the stables' cupboard and the first stables to the left of the storage space on the northern elevation of the building (Photo 28). One swallow was observed entering and later emerging from the stables during the dusk emergence survey.

²⁰ *Myotis* species with a peak frequency of between 60 and 70 KHz and a call of narrow bandwidth.

²¹ Differentiation between *Myotis* species (especially when flying within confined spaces) is often problematic and not always possible. This is because of the use of frequency modulated calls (FM) which have highly overlapping features making it difficult to distinguish between species.

4. Evaluation

4.1. Summary of Field Work

The preliminary roost assessment found no evidence of bats roosting within the house or stables. During the dusk emergence survey of the house, a common pipistrelle was recorded emerging from beneath a tile in the centre of the south-east facing roof between in the valley of the two pitched, south-east facing roofs.

4.2. Roost Characterisation

The preliminary roost assessment, dusk emergence and dawn re-entry surveys confirmed that the following roost is present within the house:

Table 5: Roost Characterisation

Bat Species	Maximum Count	Roost Type	Roosting Location
Common pipistrelle	One	Occasional ^{22/23} Day roost ²⁴	Under a tile in centre of the south-east facing roof between in the valley of the two pitched, south-east facing roofs.

The roost has been assessed as being of low nature conservation significance as defined in the Guidelines for proportionate mitigation, Figure 4 of the Bat Mitigation Guidelines (2004) (see Appendix 5). It is also a low risk case²⁵ as set out in NRW Approach to Bats and Planning October 2015: Good Practice Guide²⁶.

4.3. Suitability for Summer Roosts

The house was assessed during the initial preliminary roost assessment survey as having moderate suitability for use by crevice-dwelling bats; moderate suitability for use by roof-void dwelling bats; and negligible suitability for use by direct access species (horseshoe species). The stables were assessed as having negligible suitability for use by crevice-dwelling bats and roof-void dwelling bats. They have low potential for use as a night roost by horseshoe bats, but evidence of such use was absent and is likely to have been apparent if the building was being used in this way. Full justification of the assessment can be found in Appendix 2B. This assessment was used to determine the number of dawn re-entry and emergence surveys required (see Appendix 3).

²² Occasional use of bat roosts is typical of all UK bat species to some extent, as bats are known to alternate between several roosting sites to avoid predator detection and build-up of parasites.

²³ It is likely that the roost is used occasionally due to the infrequent nature of roosting recorded at the site (i.e. on one of the two survey occasions).

²⁴ Day roosts are defined by NE as a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.

²⁵ The following are considered to be high risk cases: Maternity roosts of any bat species regardless of the size of the roost; Hibernation roosts of any species; Any proposal involving greater horseshoe bat, lesser horseshoe bat, barbastelle bat, Bechstein's bat, grey long-eared bat, Leisler's bat, serotine bat and Nathusius' pipistrelle bat; Any proposal involving roost sites for 3 or more different bat species; and Any mating or swarming site considered to be important.

²⁶ <https://naturalresources.wales/media/5436/gpg-3-nrw-approach-to-bats-and-planning-english.pdf>

4.4. Winter Roosts

It is possible that both the house and stables could be used by crevice-dwelling hibernating bats, but this is considered unlikely²⁷, due to the following factors:

- The absence of any underground or subterranean features;
- The largely open nature of the stables as well as its roof being constructed of corrugated metal means that the temperature and humidity regimes are likely to fluctuate too dramatically;
- The roof and walls of the buildings have smooth surfaces with few roosting opportunities;
- The walls of the buildings are generally well-mortared lacking deep penetrating crevices suitable for entry by bats;
- The absence of roof lining in the stables;
- The buildings are in a relatively exposed position. The buildings are not shaded by any tall structures to the south (i.e. large trees/ buildings). They are therefore likely to be subject to direct sunlight throughout the winter months for much of the day and would therefore be unlikely to provide the stable, cool temperatures and humidity regime that would ordinarily be required by hibernating bats; and

4.5. Birds – Interpretation of the Nesting Bird Survey

Three active swallow nests were observed in the stables on the roof trusses. According to the RSPB, swallows have a UK green conservation status (Eaton et al., 2015). Birds on this list are the least critical group. A swallow was observed entering and then emerging from the stables during the dusk emergence survey.

²⁷ There is limited research on where pipistrelle bats hibernate, but current evidence suggests that they may hibernate adjacent to their breeding roosts in secure locations such as cavity walls that have relatively stable temperatures. Other individuals disperse to roost in small numbers in more exposed locations such as around window frames. In exposed locations pipistrelle bats typically hibernate as one or two individuals. Often there are often no obvious external signs of their presence (JNCC, 2004). Because of the highly exposed location of hibernation sites used by some individuals, it is therefore very difficult to completely rule out hibernation use by this species in almost any building that has some very shallow crevices, openings or gaps.

5. Impact Assessment

The potential impacts are based on the development proposals at the time of writing. This impact assessment may need to be reviewed and amended if any alterations are made to the development proposals.

5.1. Potential Impacts of the Development on Bats

Potential Direct Impacts

Based on the conclusion that bats are unlikely to be using the stables as a roost site, no negative direct or indirect impacts on bats are anticipated.

The house has been confirmed as supporting a common pipistrelle day roost. It is anticipated, however, that the proposals would not result in either the permanent/temporary loss of the roosting site, or that the works would result in a significantly high level of disturbance to bats. Precautions will be needed, however, to reduce disturbance to bats during construction and to ensure that the bat access is unaffected by the final works. Recommendations for precautionary measures to guard against impacts on bats roosting opportunistically within the house are presented in Section 6.

Potential Indirect Impacts

There is the possibility of the disturbance of the bats while works are going on, including increased noise, dust and vibration. This is likely to only have a short-term effect on the resident bat population.

5.2. Potential Impacts of the Development on Birds

The proposals are anticipated to have a direct impact on birds that were recorded nesting within the stables. If the demolition is undertaken during the nesting period, the works will destroy active nests. To prevent causing offence under the Wildlife and Countryside Act 1981 (as amended) via the destruction of active bird nests, precautionary and enhancement measures within Section 6 will be followed.

6. Required Actions

6.1. Licensing Requirements for Bats

Since the development proposals will not have a direct impact or result in the loss/modification of the common pipistrelle roost, a European Protected Species Licence will not be required from NRW. Precautionary measures and ecological enhancements are given in this section to ensure minimal indirect impacts to bats during the works and a net gain in biodiversity as a result of the development, in accordance with the Environment (Wales) Act 2016.

However, if the area where the bat was roosting will be affected by the proposals or subject to re-roofing a licence from NRW will be required.

6.2. Avoidance, Mitigation, Compensation and Enhancement Measures for Bats

6.2.1. Timing of Works

As the roost found is not likely to be a maternity roost and has limited potential for hibernation use, Natural England's²⁸ (previously English Nature) Bat Mitigation Guidelines (2004) for proportional mitigation (see Appendix) would suggest that no seasonal timing restrictions are required, and instead, work can proceed at any time of the year. Nevertheless, works to the house should avoid taking place during the core months between May to August and ideally works to the roof structure, fascias, soffits and bargeboards etc. should be undertaken from 1st October to 31st March at a time when there is least likelihood of bats being present.

6.2.2. Site Induction and Toolbox Talk

Prior to the start of works, a suitably qualified bat ecologist will deliver a 'tool-box talk' to all contractors undertaking works that could affect bats. All site workers will be made aware of the role of the ecologist and briefed on the legal status of bats²⁹, the likely places to find them, the working practices required to minimise and avoid harming or disturbing bats (e.g. the procedure required for removing tiles etc.), and the action to be taken if bats are encountered during the works. All site workers will be made aware that all works must cease immediately if any bats (or occupied birds' nests) are found, or suspected, when the ecologist is not on site, and appropriate expert advice sought from the ecologist or NRW.

6.2.3. Roosting Provision for Bats

Raised Roof Tiles

Four raised roof tiles will be installed to the roof of the new southern extension, creating mitigation for crevice-dwelling species (see Appendix 6). These will be created by placing a small amount of cement or mortar under the bottom of the tile, lifting the edge of the tile by around 20mm.

²⁸ Natural England Guidance is used because no Welsh equivalent guidance has been produced by Natural Resources Wales.

²⁹ Emphasis will be given that causing harm or distress to a bat through knowing disregard for bat welfare or through recklessness is a criminal offence.

Schwegler 1F Bat Tube

One Schwegler 1FR bat tube (see Appendix 7) or equivalent³⁰ will be incorporated into the exterior wall of southern extension. The tubes will be recessed into the walls and lying flush with the surrounding wall. They can then be rendered, but with care taken to ensure that the entrance slot is left exposed or painted with breathable paint if required. The tubes will be positioned at least 0.5m below the eaves or gable apex to prevent predation by domestic cats. Ideally, the tubes will not be positioned above windows or doors but instead will be installed in unlit locations close to connective features to allow bats undisrupted dispersal to local foraging habitat.

6.3. Avoidance, Mitigation, Compensation and Enhancement Measures for Birds

Timing Restrictions

There are three active swallow nests situated within the roof of the stables on the western elevation. The demolition of this building will be undertaken from September to February outside the bird breeding season (March to August inclusive). Alternatively, any works undertaken from March to August will be subject to a check for nesting birds by a suitably qualified ecologist immediately prior to the works. If any active nests are found these will be protected, along with an appropriate buffer zone of approximately 10m, until the nesting is complete, and the young have fledged³¹.

Compensation and Mitigation

Opportunities for nesting swallows, will be provided within the developed house using the recommendations listed below. All artificial nests will be installed on the house, including on the proposed extension to compensate for the possible loss of swallow, nesting opportunities within the stables. This will be in the form of a Ridge Overhang Swallow Nest box or suitable equivalent. Further details are found in Appendix 8.

6.4. Longevity of Report

Bat Surveys for Professional Ecologists (Collins, 2016) states that the survey data should ideally be from the last survey season before a planning or licence application is submitted, although the length that survey data remains valid should be decided on a case-by-case basis and is dependent upon several factors³². It is considered that if development works do not begin within eighteen months (CIEEM, 2019) to two years of the date of this report, an update survey may be required in accordance with guidance in BS 42020:2013³³

³⁰ A variety of bat boxes, tubes and bricks suitable for buildings are available from Schwegler <http://www.schwegler-nature.com>, Ibstock <http://www.ibstock.com/sustainability-ecozone.asp> or Greenwood EcoHabitats <http://www.greenwoodsecohabitats.co.uk>.

³¹ Some bird species, especially raptors and owls remain dependent upon the nesting site after fledging and so depending upon the species the nest site may need to be protected for a period of time after fledging.

³² The factors identified are as follows: Were the original surveys carried out according to good practice guidelines?; Were the original surveys constrained in any way?; Do the results of the original surveys support the original conclusions and are these still relevant?; Has the nature of the site or the surrounding area changed since the original surveys were undertaken; and are additional surveys likely to provide information that is material to a decision, the design of mitigation measures, or specific advice relating to a proposed activity.

³³ As set out in Section 6.2.1, Point 7 which states that ecological information should not normally be more than two/three years old, or as stipulated in good practice guidance).

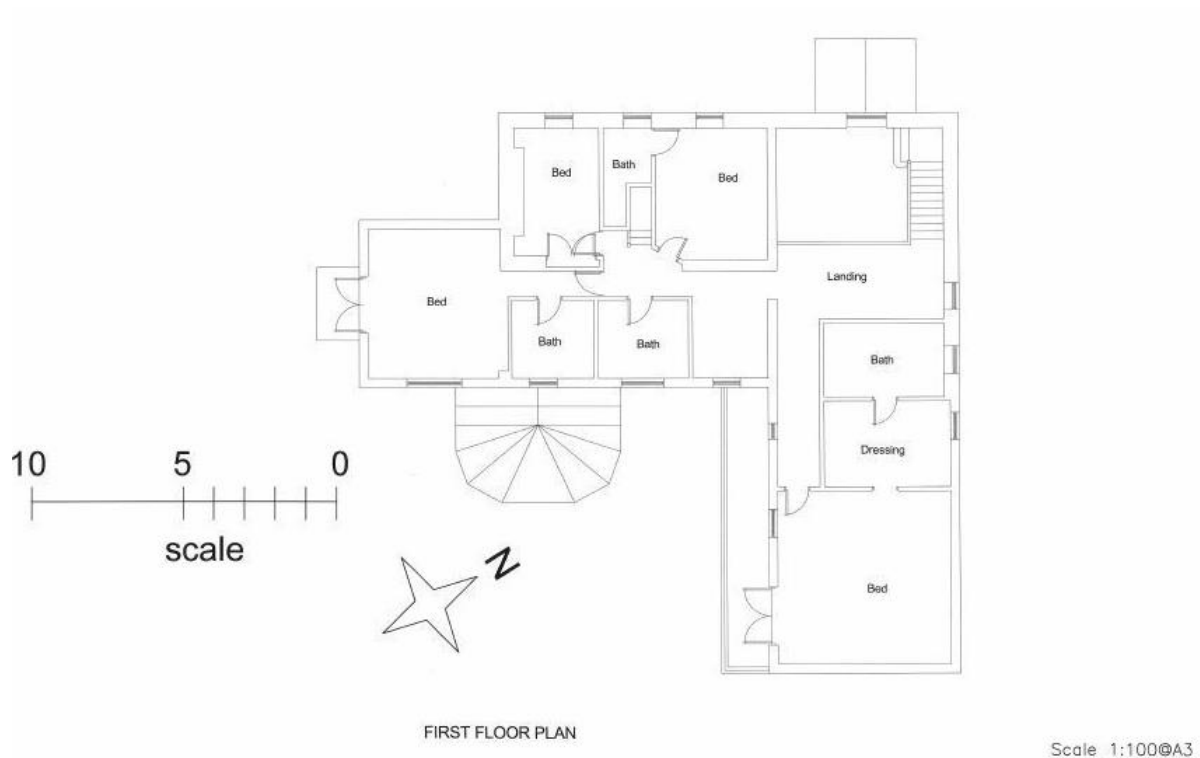
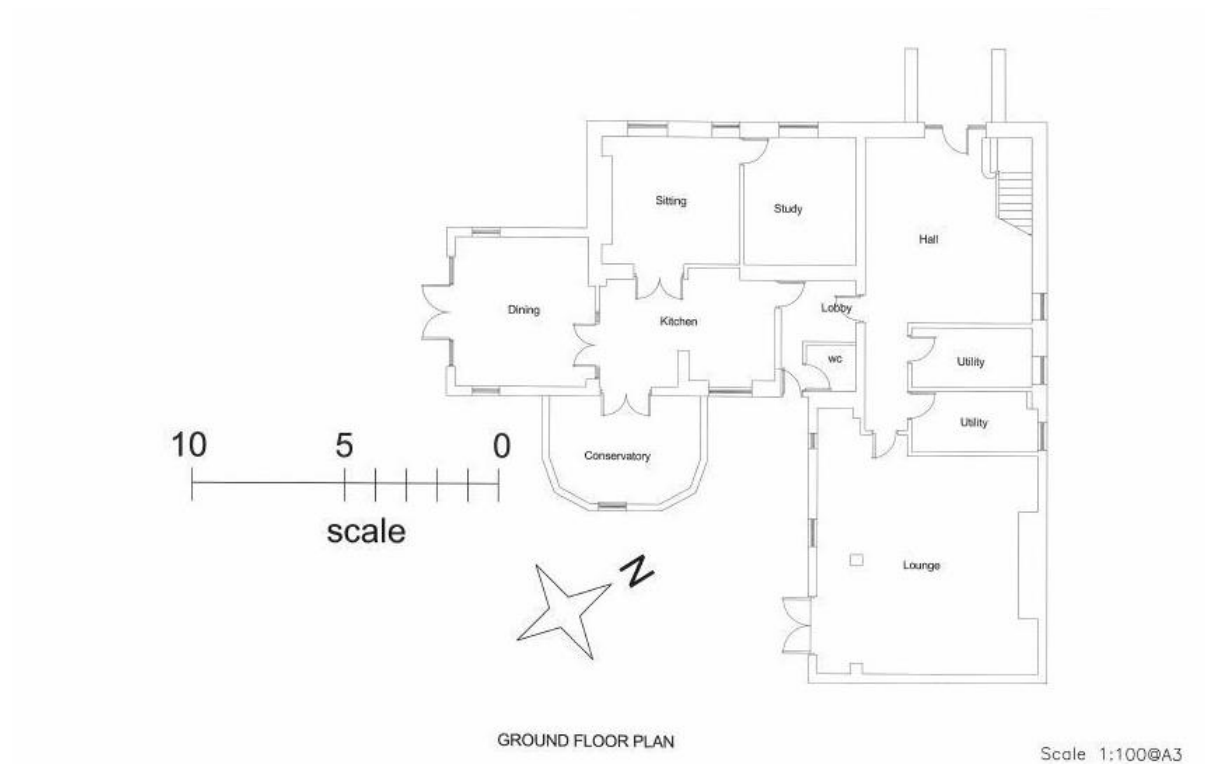
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and CIEEM (2019), to determine if conditions and evidence of bat use has changed since described in the current report.

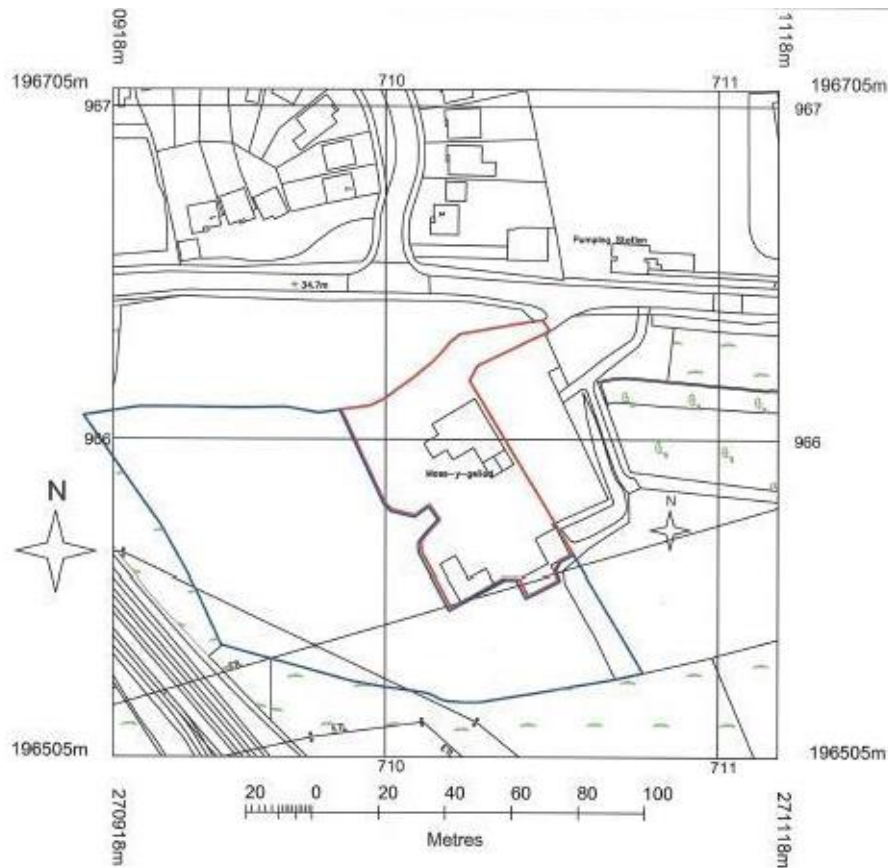
7. References

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Drawing 1: Existing Site Plans



Drawing 2: Proposed Development



SIDE ELEVATION



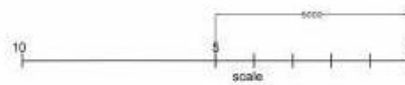
REAR ELEVATION

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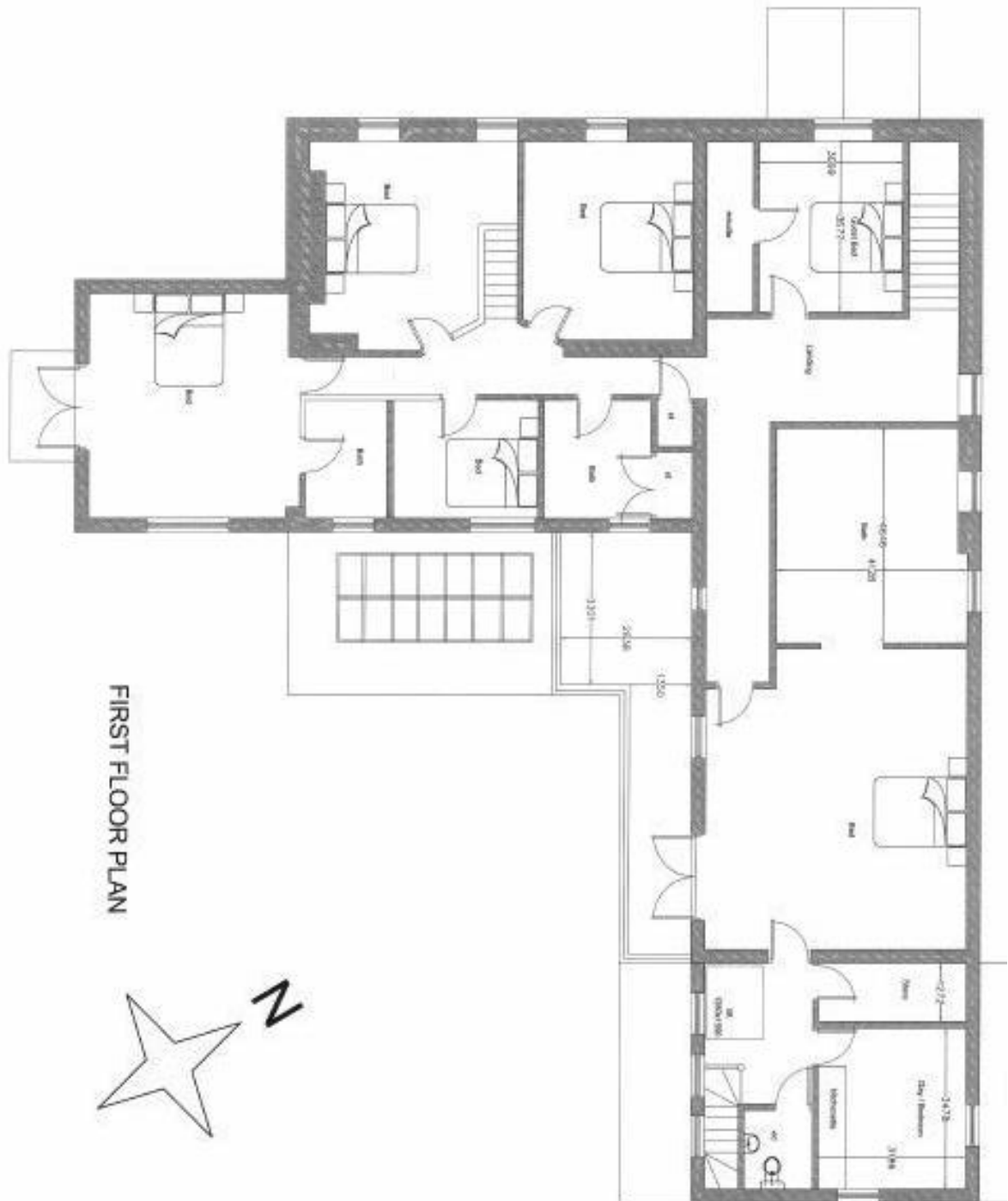
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SIDE ELEVATION



Scale 1:100@A3



FIRST FLOOR PLAN

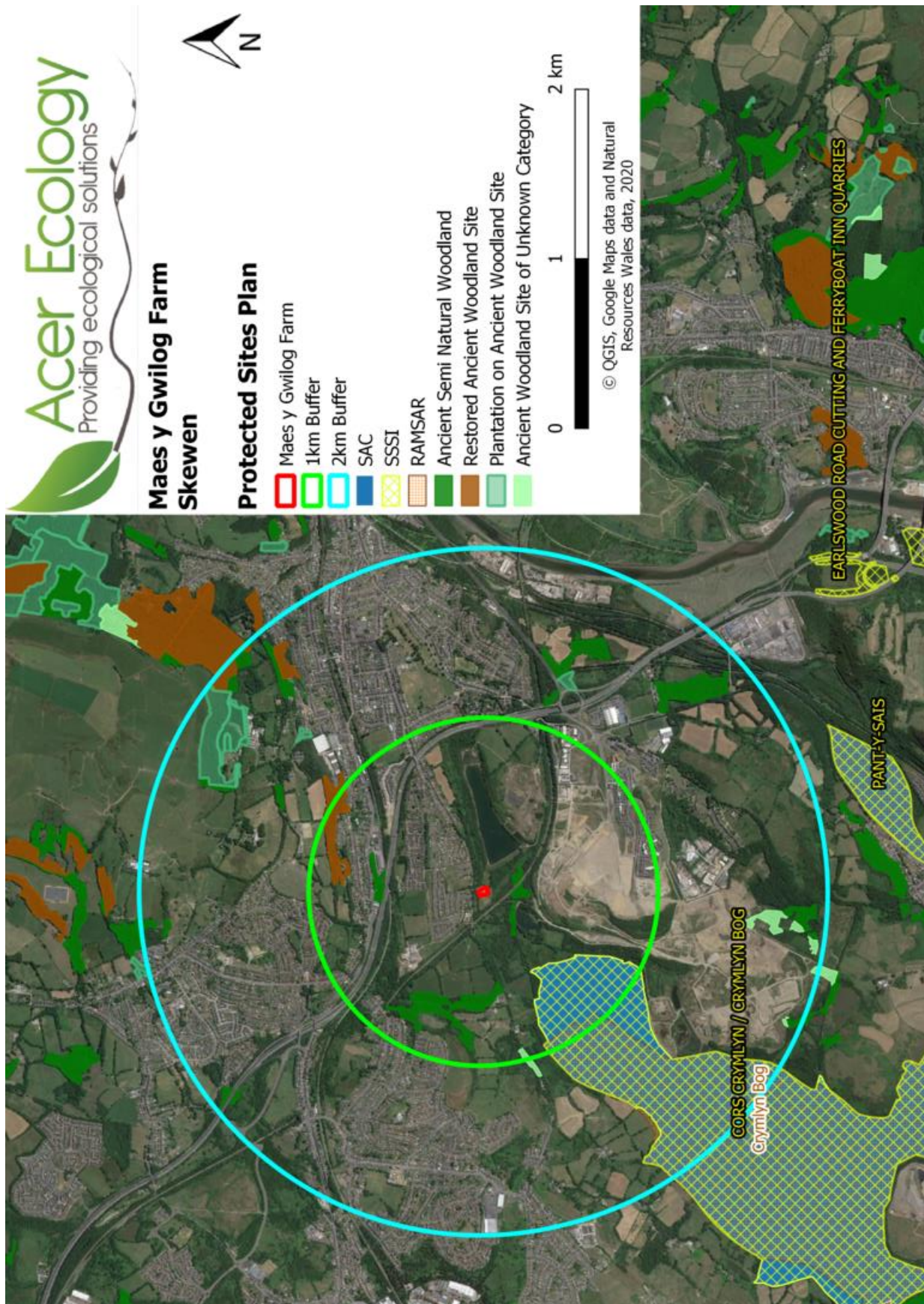


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Plan 1: Location Plan

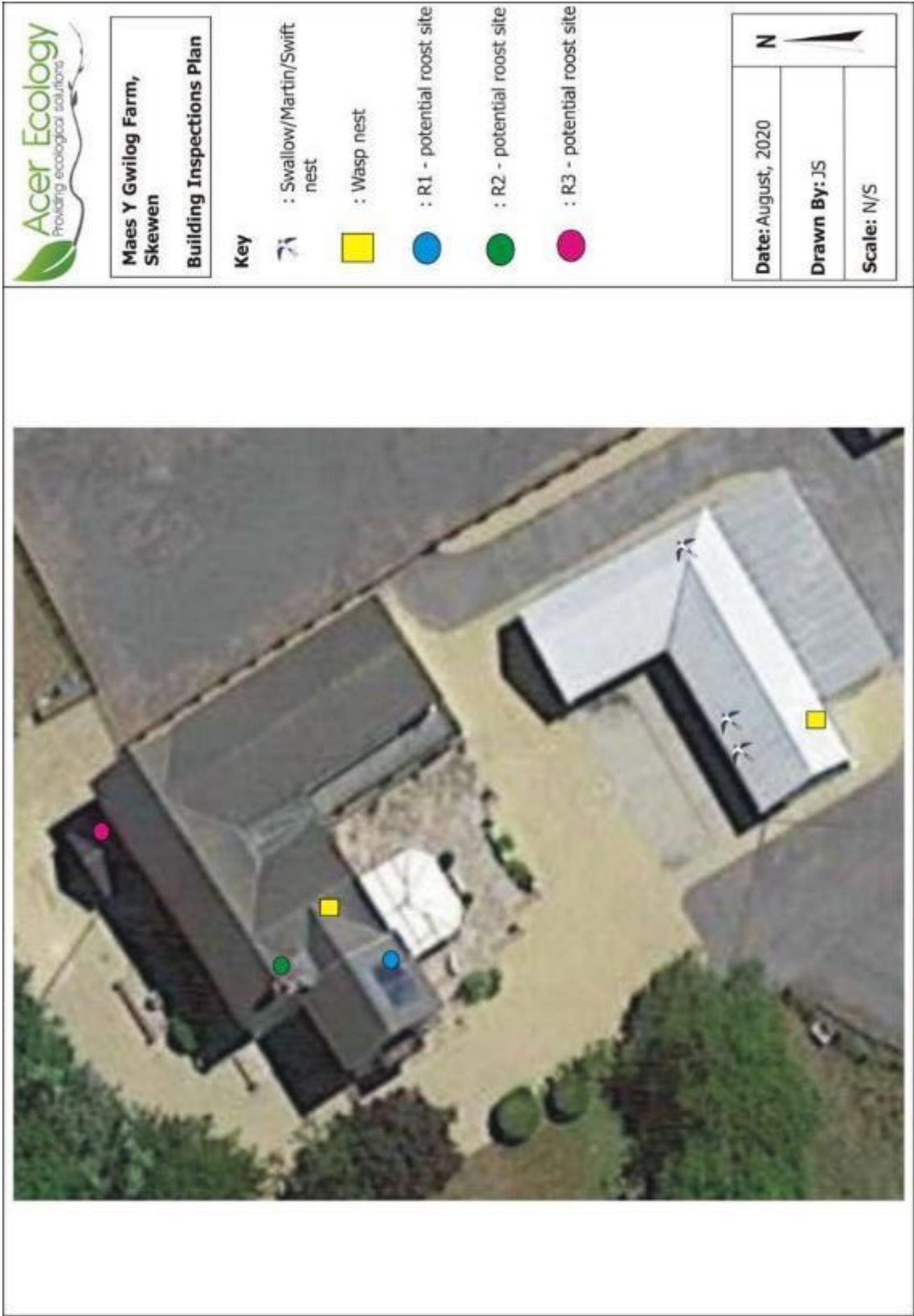


Plan 2: Protected Sites



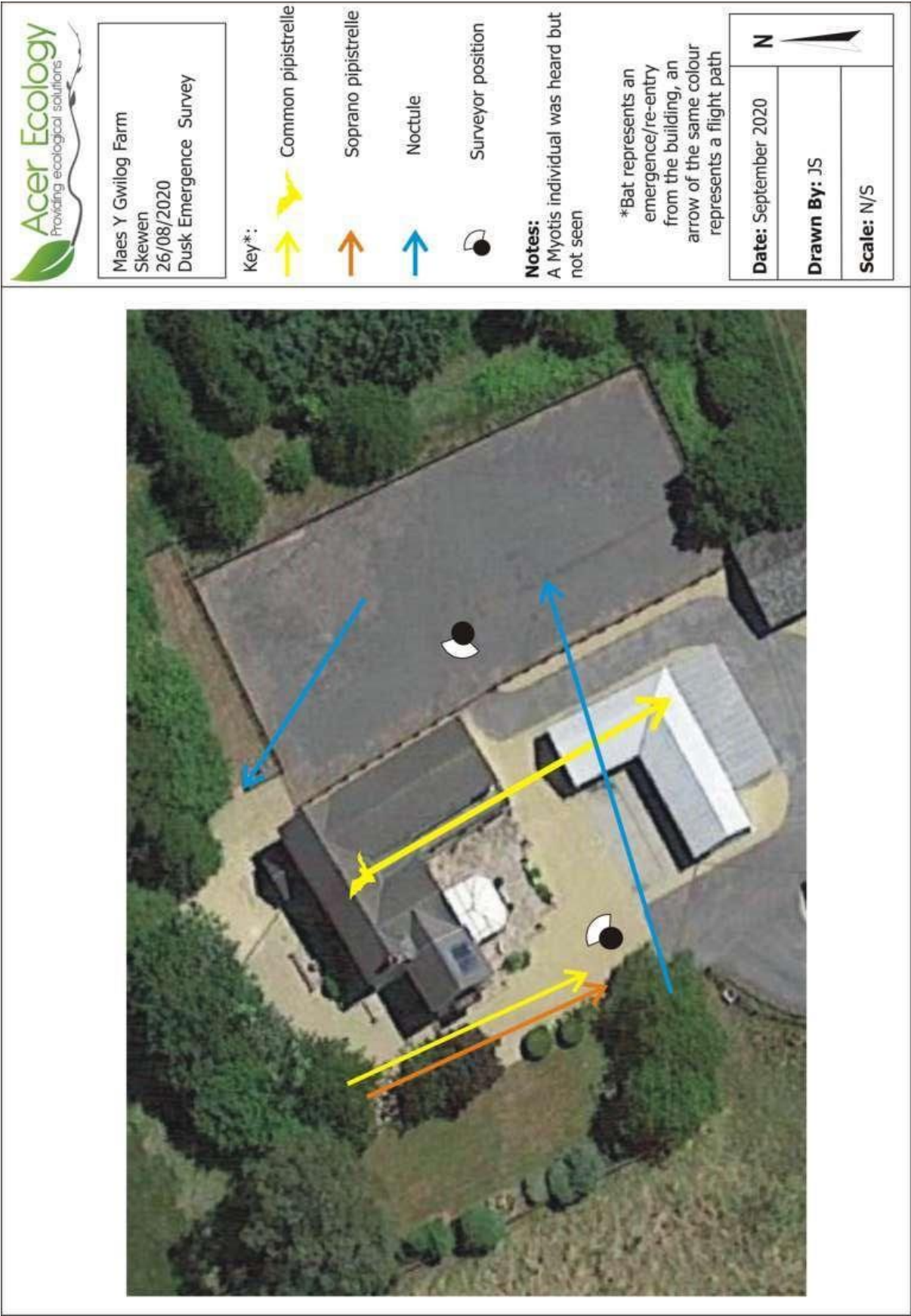
Note: Crymlyn Bog is also designated as a NNR, which has not been displayed to make the plan clearer.

Plan 3: Building and Preliminary Roost Inspection



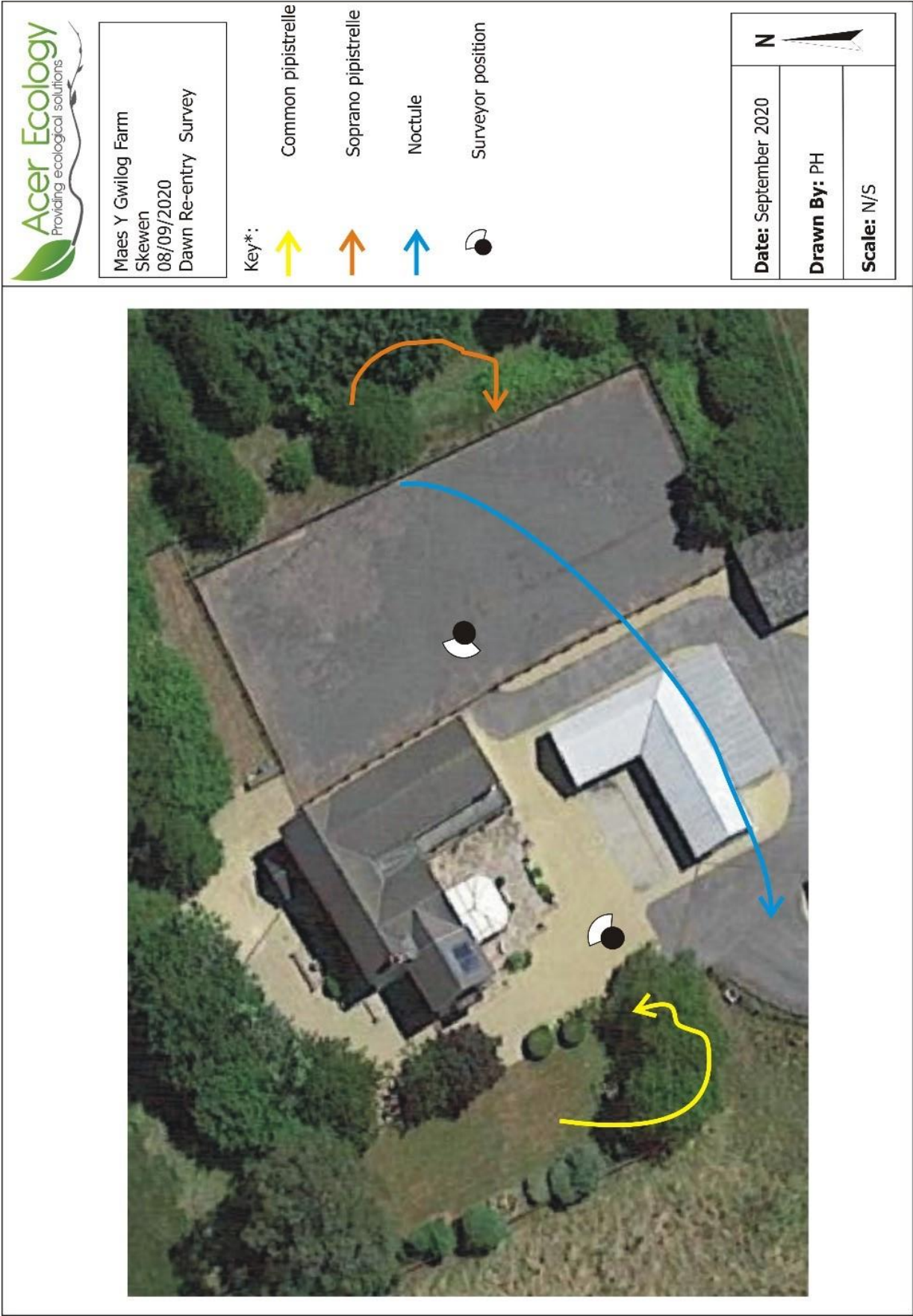
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Plan 4: Dusk Emergence Survey (26.08.20)



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Plan 5: Dawn Re-entry Survey Results (08.09.20)



Appendix 1: Bat Ecology and Legislation Protecting Bats and Their Roosts

Bat Ecology

There are 17 known breeding species of bat found in the UK, with additional species recorded as migrants or vagrants. All of them are small, nocturnal, flying, insectivorous mammals that are under conservation threat and many having undergone massive population declines over the last century. Some species, such as common and soprano pipistrelle (*Pipistrellus pygmaeus*) are relatively common and widespread in the UK, while others, such as greater horseshoe (*Rhinolophus ferrumequinum*) bats, have an extremely restricted distribution.

Most bats will use a variety of roosts of different types throughout the year. The winter hibernation sites typically have cool, humid conditions with a stable microclimate and low levels of disturbance. Most British bats hibernate in caves or artificial structures that fulfil these requirements such as mines, tunnels and cellars. Bats emerge from hibernation around late March or early April and move into transition or intermediary roosts. Around early May, female bats gather in colonies to form summer or maternity roosts, and it is here where they will give birth between late May and early July. A colony may consist of many individuals (sometimes hundreds of bats) of mixed age and sex. Roosts may be in a variety of habitat types including tree-holes, caves, buildings and other secure crevices or internal spaces with appropriate stable temperatures and humidity. Bats may change roost locations many times during a year and colonies may split up and reform during this period. Males occupy solitary roosts in autumn, to which they attract females for mating.

Legislation

All British bat species and any place used for shelter or protection, or a breeding site or resting place (their roosts) are fully protected under the amended Wildlife and Countryside Act 1981 through inclusion in Schedule 5. The roosts are protected irrespective of whether bats are present at the time. All bats are 'European Protected Species' and fully protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species and Planning (various amendments) (England and Wales) Regulations 2018, until and unless superseded by The Conservation of Habitats and Species (Amendment) (EU Exit) ['CHSAEU'] Regulations 2019. These pieces of legislation make it illegal to deliberately or recklessly:

- kill, injure or capture bats;
- disturb bats;
- damage, destroy, or obstruct access to bat roosts (including sites that are currently unoccupied);
- possess or transport a bat or any part of a bat unless acquired legally; or
- sell, barter or exchange bats or parts of bats.

Disturbance is defined as that which is likely to impair bats ability:

- to survive, to breed or reproduce, or to rear or nurture their young;
- to hibernate or migrate; or
- to affect significantly the local distribution or abundance of the species to which they belong.

Habitats Regulations Licensing

If a European Protected Species will be affected by a development, Natural Resources Wales (NRW) can issue licences under the Habitats Regulations to permit otherwise prohibited acts. Licences for certain activities can be granted providing “3 tests” are satisfied, that is:

1. the purposes of “preserving public health or safety, or for reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment”;
2. there must be “no satisfactory alternative”; and,
3. the derogation is “not detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range”.

Licences are issued by NRW, with NRW assessing Test 3, and the Local Planning Authority assessing tests 1 & 2 (where proposals are not subject to planning, then NRW alone will assess all three tests). Where Planning regulations apply, NRW will only issue a licence after determination of the planning application.

The licence application will require the production of a detailed method statement, which sets out the activities to be carried out under the licence to minimise the risk of bats being harmed during construction works, and to ensure that bats will be conserved during the development of the site. This will need to detail the mitigation proposed (such as the replacement or compensation roost), the timescale and schedule of works, the number, size and locations of bat access points to be provided, the type of materials to be used (roofing material, roof lining, fascias, soffits and bargeboards etc.), lighting proposals, action to be taken in the event bats are found during works and a post-development monitoring programme. The method statement will need to be accompanied by scaled plans and maps detailing the bat mitigation features. A cross-section of the access points and roost space is often required. The method statement must ensure that provision is made for new or continued roosting opportunities after the completion of development works. In some instances, a method statement is requested by the Local Planning Authority or Natural Resources Wales before the planning application is determined.

Environment (Wales) Act 2016

The Environment (Wales) Act 2016³⁴ dictates that Local authorities have a duty to have regard to the conservation of biodiversity in exercising their functions. The duty affects all public authorities and aims to raise the profile and visibility of biodiversity, to clarify existing commitments relating to biodiversity, and to make it a natural and integral part of policy and decision making. Part 1 Section 7 of the Act provides a list of the ‘*living organisms of principal importance for maintaining and enhancing biodiversity in relation to Wales*’. This includes seven bat species (soprano pipistrelle, barbastelle (*Barbastella barbastellus*), Bechstein’s (*Myotis bechsteini*), noctule, brown long-eared, lesser horseshoe and greater horseshoe bats).

³⁴ <http://www.legislation.gov.uk/anaw/2016/3/contents>

Appendix 2A: Guidelines for Assessing Potential Bat Roosting Suitability and Determining Required Number of Dusk/Dawn Surveys

Suitability	Description of Roosting Habitat	Minimum Number of Dusk/Dawn Surveys Required ³⁵
Negligible (Stables)	Negligible habitat features on site likely to be used by roosting bats.	None.
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 ³⁶ 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 ³⁷ .	One survey visit. One dusk emergence or dawn re-entry survey (Survey period from May to August) (Collins 2016).
Moderate (House)	A structure 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 ³⁸ (with respect to roost type only) the assessments in this table are made irrespective of conservation status, which is established after presence is confirmed.	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey ³⁹ . Surveys should be undertaken from May to September with at least one of the surveys between May and August (Collins 2016).
High	A structure 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.	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. Surveys should be undertaken from May to September with at least two of the surveys from May to August (Collins 2016).
Confirmed Roost	Evidence of bats or use of bats found.	Minimum of two required to characterise the roost. If it is not possible to characterise the roost on the basis of two surveys, additional surveys may be required. In the event that no evidence of bat roosting is detected during the dusk and dawn surveys a third survey may be required. In this situation DNA analysis of the droppings may also be required.

³⁵ Adapted from Tables 7.1 and 7.3 of the Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016).

³⁶ For example, in terms of temperature, humidity, height above ground levels, light levels or levels of disturbance.

³⁷ Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2015). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for large numbers of this species to be present during the autumn and winter in large buildings in highly urbanized environments.

³⁸ 'High roost status' is not defined within Collins, 2016. Acer Ecology Ltd. interpret maternity, hibernation, swarming sites, mating sites, and satellite roosts as being of 'high roost status' and exclude day roosts, night roosts, feeding roosts, transitional/occasional roosts from this definition. Pre-maternity/collecting roosts are not included within Collins, 2016 and will be assessed on an individual basis.

³⁹ Multiple surveys should be spread out to sample as much of the survey period as possible. It is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk survey is considered only one visit.

Appendix 2B: Justification for Number of Surveys Undertaken

From the assessment made during the survey, the House is assessed as having:

- Moderate suitability for use by crevice-dwelling bats (*Pipistrellus* species and smaller *Myotis* species such as Brandt's (*Myotis brandtii*) and whiskered bats (*Myotis mystacinus*)) due to various access points and potential roost sites and suitable surrounding vegetation habitat that can be utilised as foraging and commuting corridors;
- Moderate suitability for use by roof-void dwelling bats² (long-eared species and large *Myotis* bats, such as Natterer's bat (*Myotis nattereri*) and serotine bats (*Eptesicus serotinus*)) because of various potential access points under roof tiles that could be utilised to access the roof voids; and
- Negligible suitability for use by direct-access species requiring a large access point and large roost space (lesser horseshoe (*Rhinolophus hipposideros*) and greater horseshoe (*Rhinolophus ferrumequinum*) bats)), as there no suitable access points were recorded leading in to the building or any of the voids.

From the assessment made during the survey, the Stables is assessed as having:

- Negligible suitability for use by crevice-dwelling bats due to a lack of small access points and potential roost sites;
- Negligible suitability for use by roof-void dwelling bats² because of various potential access points under roof tiles that could be utilised to access the roof voids. The vast amount of light ingress, however, prevents the Stables from having higher potential for these species; and
- Low suitability for use by direct-access species requiring a large access point and large roost space, as there are suitable access points were recorded leading in to the stables roof void with numerous suitable beams to hang from. The vast amount of light ingress, however, prevents the Stables from having higher potential. Evidence of such use was absent and is likely to have been apparent if the building was being used in this way.

These assessments will be used to determine the level of further survey effort required (see Appendix 2). The presence of bat roosts within the buildings cannot be ruled out at this preliminary stage and it is not uncommon to find roosts in similar buildings.

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Appendix 3: Guidelines for Assessing Bat Habitat Suitability

Suitability	Commuting and Foraging Habitat
Negligible	Negligible habitat features on-site likely to be used by commuting and foraging bats.
Low	<u>Commuting Habitat</u> Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. <u>Foraging Habitat</u> Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	<u>Commuting Habitat</u> Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. <u>Foraging Habitat</u> Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland, or water.
High	<u>Commuting Habitat</u> Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. <u>Foraging Habitat</u> High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses, and grazed parkland. <u>Proximity to Known Bat Roosts</u> Site is close to and connected to known roosts.

Appendix 4: Surveyor Experience

26th August 2020

Jenny Smith – Jenny graduated from Cardiff University with a first-class degree in Biological Sciences in 2020, during which she studied modules on biodiversity, ecology and conservation. She is in her first season of working as a Graduate Ecologist and is undergoing training with Acer Ecology in basic bat ecology, bat survey techniques (including preliminary roost assessments and dusk emergence/dawn re-entry surveys) and bat sound analysis. Further details of her qualifications and experience can be found at <https://www.linkedin.com/in/jenny-smith-a48269150>.

Jake Jones – Jake graduated with a BSc in Zoology from Cardiff University in 2016. He has previous experience in bat surveying with the Bat Conservation Trust and as a subcontractor for another ecological consultancy company where he also conducted reptile surveys and translocations, and Phase 1 and 2 Habitat surveys.

8th August 2020

Paul Hudson MCIEEM - Paul graduated with a degree in Environmental Biology from Reading University and a Postgraduate Diploma in Conservation Management from the University of East Anglia. He has worked within ecological consultancy since 2000 and has been involved in bat work since 2001. He holds licences to disturb bats in both Wales (S088190-3 valid until June 2022) and England (2018-36707-CLS-CLS valid until 2028). Further details of his qualifications and experience can be found at <http://linkd.in/19aGTf4>.

Megan Fowler - Megan graduated with a Undergraduate Masters in Zoology with Climate Change from Bangor University in 2019. She is currently involved with training within Acer Ecology, focusing on dusk emergence and dawn re-entry surveys. Megan has also been involved with bat field work in Mexico, accumulating over 40 hours of mist-netting and transect surveys.

Appendix 5: Guidelines for Proportionate Mitigation

Low Conservation significance High	Roost status Feeding perches of common/rarer species Individual bats of common species Small numbers of common species. Not a maternity site Feeding perches of Annex II species Small numbers of rarer species. Not a maternity site Hibernation sites for small numbers of common/rarer species Maternity sites of common species	Mitigation/compensation requirement (depending on impact) Flexibility over provision of bat-boxes, access to new buildings etc. No conditions about timing or monitoring Provision of new roost facilities where possible. Need not be exactly like-for-like, but should be suitable, based on species' requirements. Minimal timing constraints or monitoring requirements + Timing constraints. More or less like-for-like replacement. Bats not to be left without a roost and must be given time to find the replacement. Monitoring for 2 years preferred. *
	Maternity sites of rarer species Significant hibernation sites for rarer/rarest species or all species assemblages Sites meeting SSSI guidelines Maternity sites of rarest species	Timing constraints. Like-for-like replacement as a minimum. No destruction of former roost until replacement completed and usage demonstrated. Monitoring for at least 2 years. Oppose interference with existing roosts or seek improved roost provision. Timing constraints. No destruction of former roost until replacement completed and significant usage demonstrated. Monitoring for as long as possible.

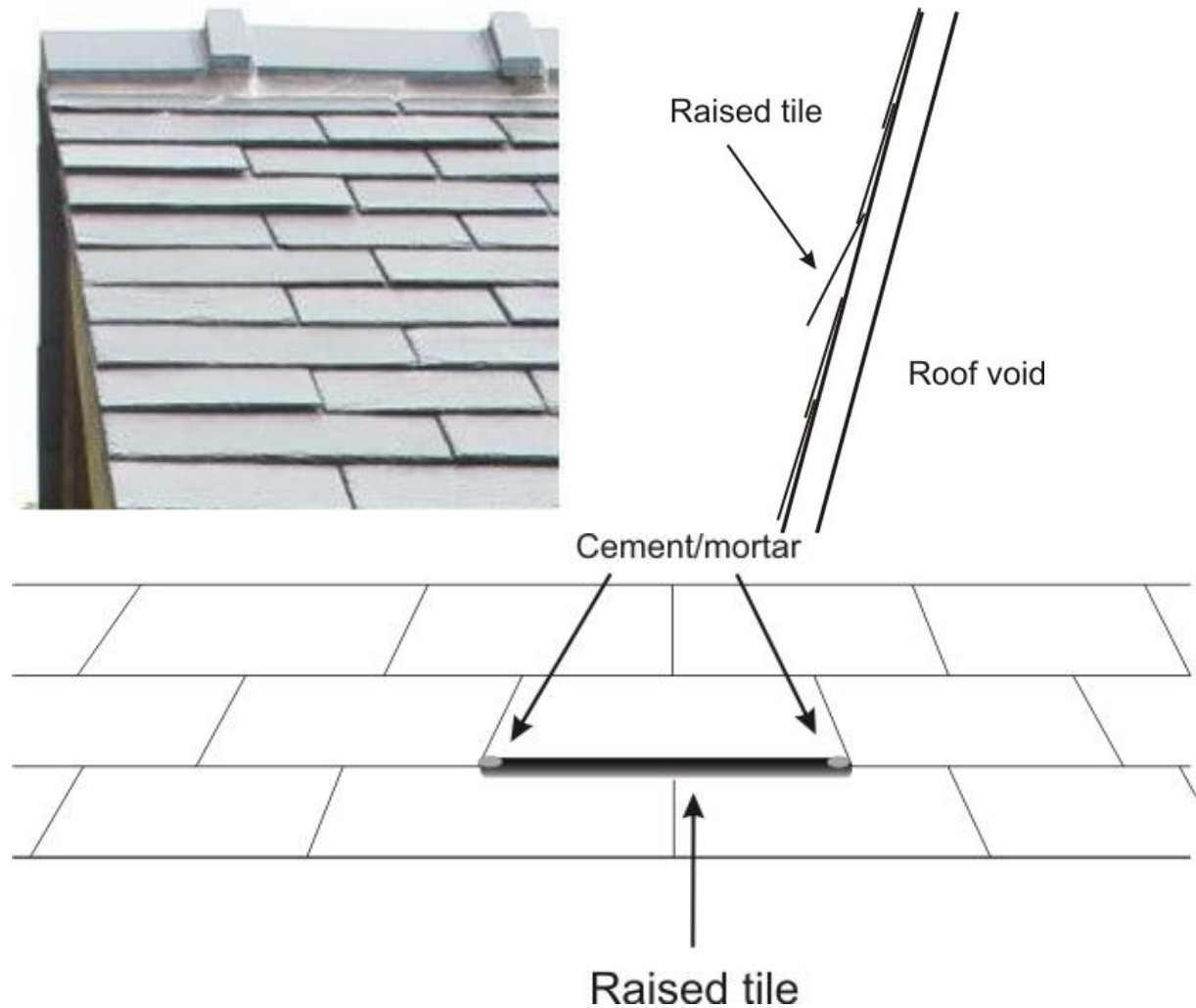
Notes: The definition of common, rare and rarest species requires regional interpretation.

* The level of monitoring specified is no longer considered appropriate by Local Planning Authorities and NRW. At least three years of monitoring is considered to be required for maternity roosts of 'rarer' species and five years for 'rarest' species.

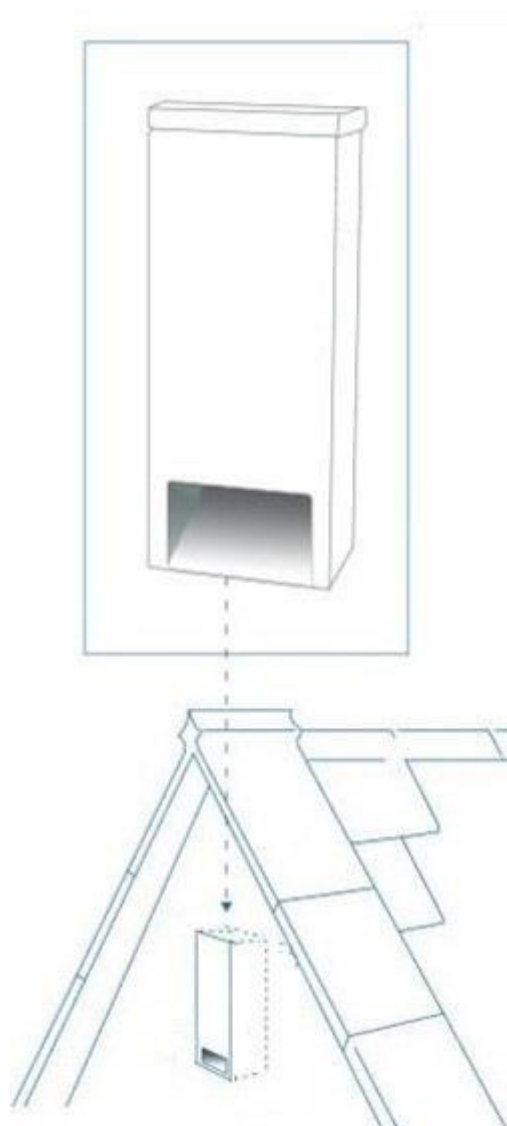
+ Minimal monitoring requirements has not been defined by NRW. On previous schemes this has been interpreted by NRW as checks being undertaken by the applicant (rather than the ecologist) for one year post-construction to ensure that the crevice-roosting opportunities still exist and have not been blocked up. Photographic evidence that the monitoring check has been undertaken should be provided to NRW.

Appendix 6: Raised Roof Tiles

Raising a roof tile by around 20mm will create a small space underneath that will be suitable for crevice-dwelling species such as common pipistrelles and soprano pipistrelles to enter and roost in the space created.



Appendix 7: Schwegler 1FR Bat Tube



Woodcrete Bat Tubes

These are a well-known brand that have a low visual impact on the development because they can be built into the exterior wall and then rendered or painted.

How Many to Install

Typically, one tube is recommended on sites where there are low numbers of bats and multiple groups of tubes are recommended on sites of high ecological significance.

Installation

The tubes should be built into the exterior wall of the building, typically at the gable apex. The tubes should be installed flush with the surrounding wall and can then be rendered or painted with breathable paint if required.

Schwegler 1FR and 2FR

These are two similar designs. The 1FR is designed to be used singularly (shown here) whereas the 2FR has transverse connecting holes that allow tubes to be collected together or lead into the cavity wall.

Specifications

Height	47.5cm
Width	20cm
Depth	12.5cm
Weight	9.8kg

Location

The tubes should be positioned at least 0.5m below the eave or gable apex to prevent predation by domestic cats. It is also recommended that where practical, the tubes are not positioned above windows or doors.



Tube not rendered



Tube rendered over

Appendix 8: Swallow Ridge Overhang Nest box

