



Report Type: Update of Ecological Appraisal
Bats and Birds

Client Name: Steggles Property Ltd

Site Address: Former Engedi Chapel
High Street
Brymbo
Wrexham
LL11 5BQ

Report Reference: 1649 2021R

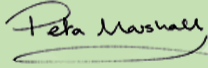
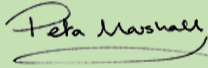
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The report should be read in its entirety.

Questions arising from the survey report should be directed to the author of the report who will be pleased to clarify any technical issues raised.

Whilst the surveyors make every reasonable effort, Greenscape Environmental Ltd cannot guarantee that all protected species have been identified and survey results are definitive. Many species are cryptic and transitional in habit.

Reports are considered valid for one year for planning purposes, after which time further survey information may be required.

Greenscape Environmental Ltd can provide advice and support for recommendations and planning conditions.

The use of this report or survey data for any form of formal submission to an NGO or other authority implicitly implies acceptance of the terms and conditions.

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1 Executive Summary

1.1 Purpose of the Report

Greenscape Environmental Ltd was commissioned by Steggles Property Ltd, to update the bat survey at the Former Engedi Chapel, in order to provide supporting information for an alteration of the approved planning permission currently in place.

The survey report has these principal aims:

- To identify potential ecological constraints relating to the development, and recommend measures to avoid, reduce or manage negative effects, and to provide a net ecological gain.

1.2 Methodology

The appraisal included reviews of other surveys previously conducted in the area by Greenscape Environmental and Mike Castle, and a site visit undertaken at the site, OS grid reference SJ29425387 on 14th September 2020 by P Marshall. Report reference 1649 001R.

1.3 Key Impacts and Mitigation Measures

The building has been surveyed sporadically, since 2007 and low numbers of lesser horseshoe bats had been recorded along with low numbers of brown long eared bats.

During the update of the survey in September 2020, along with emergence of one lesser horseshoe bat and one brown long eared bat, one soprano pipistrelle bat was recorded emerging. No other features on or around the buildings had significantly altered.

Low numbers recorded indicate the lack of a maternity roost in Sept 2020. As this survey was conducted late in the season, three activity surveys were conducted in 2021 between May and August to support the application and licence application.

Demolition of the building will result in the loss of these 3 day roosts.

- Day roost of a lone lesser horseshoe bat (*Rhinolophus hipposideros*)
- Day roost of a lone brown long eared bat (*Plecotus auritus*)
- Day roost of max 2 common pipistrelle bats (*Pipistrellus pipistrellus*)

Work will need to be conducted under Mitigation European Protected Species licence from Natural Resources Wales. A bat loft will need to be provided in a new building on site for provision for lesser horseshoe and brown long eared bats, and crevice opportunities made for pipistrelles and work must follow a rigid method statement. The work will be phased so there is always provision for bats on site.

Leaving the building in situ is not an option as it is deteriorating. It is not financially viable to convert the building as significant work needs to be undertaken. It is also understood that the former Chapel has been in a dangerous condition for some time. Suitable mitigation was recommended for the last scheme, however there have been no purchasers and the scheme would be very expensive to complete. An alternative design has therefore been agreed which takes into account the bat species at the site.

Table 1.1. Timing of Works

Action	Timing	Justification
Update emergence/re-entry survey	If demolition and construction to occur more than two seasons from 2021	To provide evidence within the previous 12 months for licence application
NRW licence application	Once planning permission has been granted	Work on demolishing or altering the buildings on site would constitute an offence

2 Introduction

This report has been compiled by Peta Marshall BSc (hons) MA who has over 10 years' experience conducting ecological appraisals. It has been reviewed in line with Greenscape's Quality Management System.

For full details of surveyors and licences please see Appendix A.

2.1 Project Background

Greenscape Environmental Ltd was commissioned by Leeza Steggles of Steggles Property Ltd to conduct a survey to determine the current status of bat species using the former Engedi Chapel, Brymbo. This forms part of the new planning application for the construction of dwellings and car port on the site, preceded by demolition of the former Engedi Chapel.

The site has previously been surveyed by M Castle and more recently by P Marshall of Greenscape Environmental. The details of the last previous survey are in 1649 001R. In summary this survey found:

- Day roost of a lone lesser horseshoe bat (*Rhinolophus hipposideros*)
- Day roost of a lone brown long eared bat (*Plecotus auritus*)

A dead brown long eared bat was recorded in the building in 2016, and a day roost of a common pipistrelle bat was observed.

It was concluded that demolition of the chapel would need to be conducted under Mitigation licence from NRW and provision for lesser horseshoe and brown long eared bats should be made in the replacement building.

2.2 Purpose of the Report

This report aims to update the survey information to allow an alteration of the approved plans.

2.3 Site Context and Location

The site is located in an urban area, OS grid reference SJ29425387. There is good connectivity to woodland and open water, with a tree lined corridor along lanes leading to Brymbo Pool approximately 600m to the west. Darnau Wood lies 2km to the west, and this has mature trees, former quarries and open water. All these features offer good foraging and roost opportunities for bats. Lighting around the town, particularly to the east of the building reduces the likelihood of bat species using this building.

3 Methodology

Broad methodologies for data collection and interpretation were informed by guidance outlined in CIEEM (2017). These were conducted in accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition, BCT, Collins (ed.) (2016).

3.1 Desk Study

The desk study provides contextual information such as the site's proximity to designated areas and known records of protected or notable species.

3.2 Field Survey

3.2.1 Date and Survey Conditions

Table 3.1. Survey conditions

Date	Time Start – End (Sunset Time)	Structure	Equipment Used	Weather
14/09/2020	18:00-21:00 (19:28)	Engedi Chapel	Anabat walkabout and Anabat SD2, torch and binoculars	Clear, dry conditions, 14°C
Comments	One surveyor used: Peta Marshall			
22/07/2021	21:10-23:00 (21:22)	Engedi Chapel	Anabat walkabouts and Anabat SD2, torch and binoculars	60% high cloud cover, dry conditions, 23°C WS F1-2
Comments	Surveyors used: Peta Marshall, Brian Marshall,			
03/08/2021	20:25-22:30 (21:03)	Engedi Chapel	Anabat walkabout and Anabat SD2, torch and binoculars	50-70% high cloud cover, dry conditions, 15°C WS F1-2
Comments	Surveyors used: Peta Marshall, Brian Marshall, Ruth Marshall			
24/08/2021	20:00-21:30 (20:16)	Engedi Chapel	Anabat walkabouts and Anabat SD2, torch and binoculars	46% high cloud cover, dry conditions, 17°C
Comments	Surveyors used: Peta Marshall, Brian Marshall, Ruth Marshall			

3.3 Species Survey - Bats

Features on site were assessed for potential for bat roosts, foraging and commuting. An update of the phase 2 surveys was conducted to confirm the presence/absence of any roosts and ascertain the nature of them. These were conducted in accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition, BCT, Collins (ed.) (2016).

3.4 Constraints of the Survey

The roof voids were not accessed on this occasion as access to the building is limited and scaffolding would need to be erected internally. The update survey was conducted late in the season for the assessment of bat species, but this was not considered a constraint because similar results were recorded as found since 2007 and in 2016 and further surveys conducted in 2020. No specific constraints have been identified.

The internal search revealed that the buildings had not been subjected to any form of specific cleaning and were in a natural redundant state.

The identification of calls and species using sonogram analyses are dependent on the clarity of the sonogram recording, which may be affected by the distance from the bat and background noise. Species of *Myotis* bats are identified to genus level on the basis of the inherent difficulty in distinguishing between species from their echolocation calls.

Only one surveyor was used for the update survey in September 2020 as this was an impromptu survey following a site meeting regarding new proposals for the site. This was not seen as a constraint as the results were typical of observations during previous surveys on the buildings. Further surveys were conducted in 2021 in line with current survey guidance.

4 Baseline Ecological Conditions

4.1 Nearby Features of Importance

4.1.1 Designated Sites

MAGiC

Engedi Chapel, Brymbo

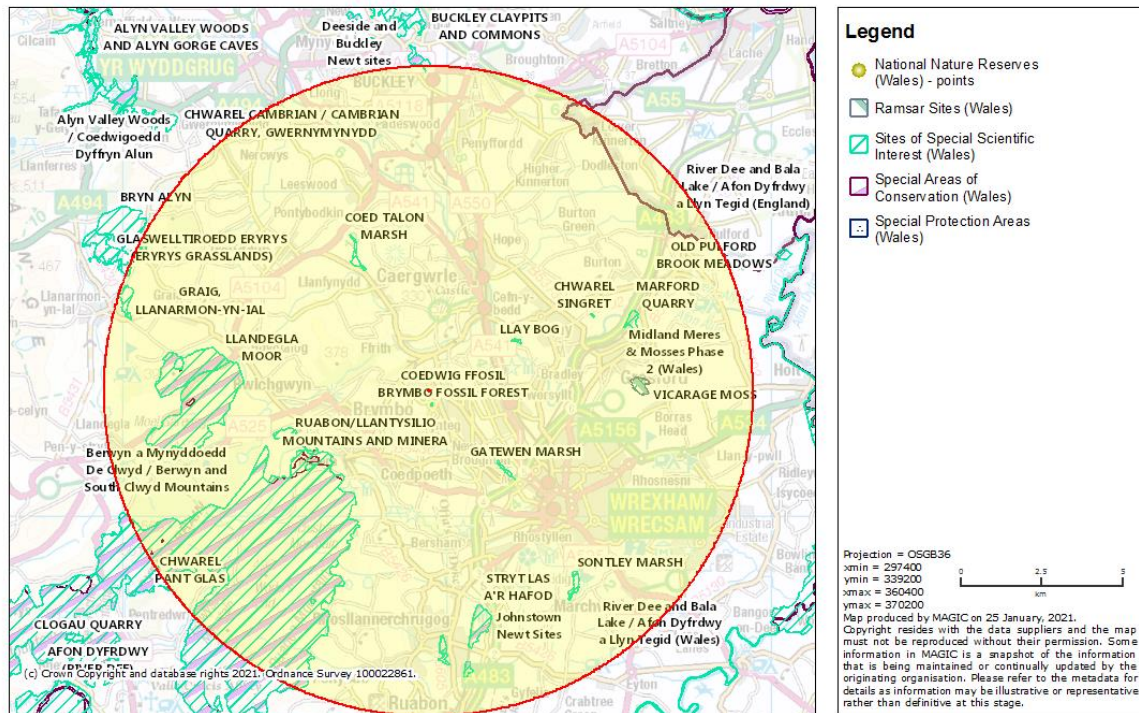


Figure 4.1. Identifying any designated areas near site, a 10km buffer is shown

The map from Natural England presented in Figure 4.1 indicated that the site within 10km of several designated areas, but only one that is notified for bat-related reasons. The Ruabon/Llantysilio Mountains and Minera SSSI includes mines that are used by overwintering bats, including lesser horseshoe bats.

4.2 Habitats on Site

The site comprises two conjoining buildings which take up most of the available land. To the south of the buildings is a small area of hardstanding which has become inundated with ruderal, particularly ash (*Fraxinus excelsior*) and silver birch (*Betula pendula*) saplings, old man's beard (*Clematis vitalba*) and rosebay willow herb (*Chamerion angustifolium*). There is a narrow gap to the rear of the site before the land rises to the car park of the neighbouring building. Saplings are colonising this area too.



Figure 4.2. Chapel from the south

The Main Chapel

The main chapel is typical of the Methodist style of the C19th, it is constructed of brick and stone with a large open area with relatively small loft. Human access to the loft is only accessible with scaffolding. To the east is a porch and to the west service rooms. The building has a slate roof which has failed in areas over the service rooms allowing significant water ingress. There is damage to the eastern window. This has increased since 2016 and provides increased potential bat access for lesser horseshoe bats and other bat species. It is understood the building is in a dangerous condition and building control personnel from the council have insisted on the erection of scaffolding for health and safety purposes.

There is a ventilation opening into the loft on both the western and eastern elevations. The opening on the western elevation is open into the loft area. The building has been scaffolded on the northern aspect due to the slipping slates. This was in place in 2016.



Figure 4.3. Openings in eastern window

To the rear of the building is a small basement which would once have been used for the heating system.

A significant amount of the building has a vaulted ceiling.



Figure 4.4. Interior of chapel

Former School Room

The former school room is a more modern brick addition, again a large open space with loft above. Windows have been boarded up following vandalism over years of being empty. This building has a concrete tiled roof in good condition. One broken tile is visible on the northern elevation which has occurred since 2016. Human access to the loft would also need to be from a scaffold tower.



Figure 4.5. Interior of school room

4.3 Bats

4.3.1 Records

Previous data records indicate bat species located in the area include:

Lesser horseshoe bats (*Rhinolophus hipposideros*),
 common pipistrelle (*Pipistrellus pipistrellus*),
 soprano pipistrelle (*Pipistrellus pygmaeus*),
 brown long-eared bats (*Plecotus auritus*),
 noctule (*Nyctalus noctula*),
 whiskered bats (*Myotis mystacinus*),
 Daubenton's bat (*M. daubentonii*),
 Brandt's bat (*M. brandti*) Natterer's bat (*M. nattereri*),
 Barbastelle bat (*Barbastella barbastella*),

Bats recorded using the building include one lesser horseshoe bat and one brown long eared bat in 2007.

In 2016, a day roost of common pipistrelle bat was recorded, and a day roost for a lesser horseshoe bat. A dead brown long eared bat was recorded within the building. Activity surveys were conducted and Anabats were extended on masts into the roof voids. No significant results were recorded on these. The best results were from direct observations.

There are consistent results from 2007 to 2016, surveyed by Mike Castle and Peta Marshall.

4.3.2 Field Observations 2020-21

Main Chapel

Bat droppings were seen on some of the window ledges. These are considered to be commensurate with pipistrelle bats.



Figure 4.6. Droppings on window ledges

A significant collection of bat droppings commensurate with lesser horseshoe bats was observed in the porch on the eastern elevation of the building. These have been observed in previous surveys at the site, and have not increased significantly in number since 2016, although some were clearly fresh. No bats were seen in this location in 2020 or 2021.



Figure 4.7. LHS bat droppings in eastern porch

No other droppings were observed in the building, but the lofts could not be safely accessed. This is not seen as a constraint as previous surveys inside the lofts had not revealed significant populations of bats. No bats or bat droppings were observed in the basement to the rear of the building.



Figure 4.8. Basement area

Former School Room

No evidence of recent bat activity was recorded in the former school room.

4.3.3 Phase 2 Activity surveys

14th September 2020

Date	Time Start – End (Sunset Time)	Structure	Equipment Used	Weather
14/09/2020	18:00-21:00 (19:28)	Engedi Chapel	Anabat walkabout and Anabat SD2, torch and binoculars	Clear, dry conditions, 14°C
Comments	One surveyor used: Peta Marshall			

An update of the phase 2 survey for bats was conducted on the evening of 14th September 2020. This is considered late in the season for bat surveys, but as there have been previous surveys on site, was deemed appropriate for the application.

Three bats were recorded emerging from the roof void over the chapel. These emerged from the ventilation access on the western aspect of the building.



Figure 4.9. Emergence point highlighted

The first bat to emerge was a lesser horseshoe bat, at 19:53, identified by its sonogram. This was followed with a soprano pipistrelle bat and then the brown long eared bat. The brown long eared bat was identified by sight. All three emerged quite early after dusk. They flew to the west along the tree line by the neighbouring building.

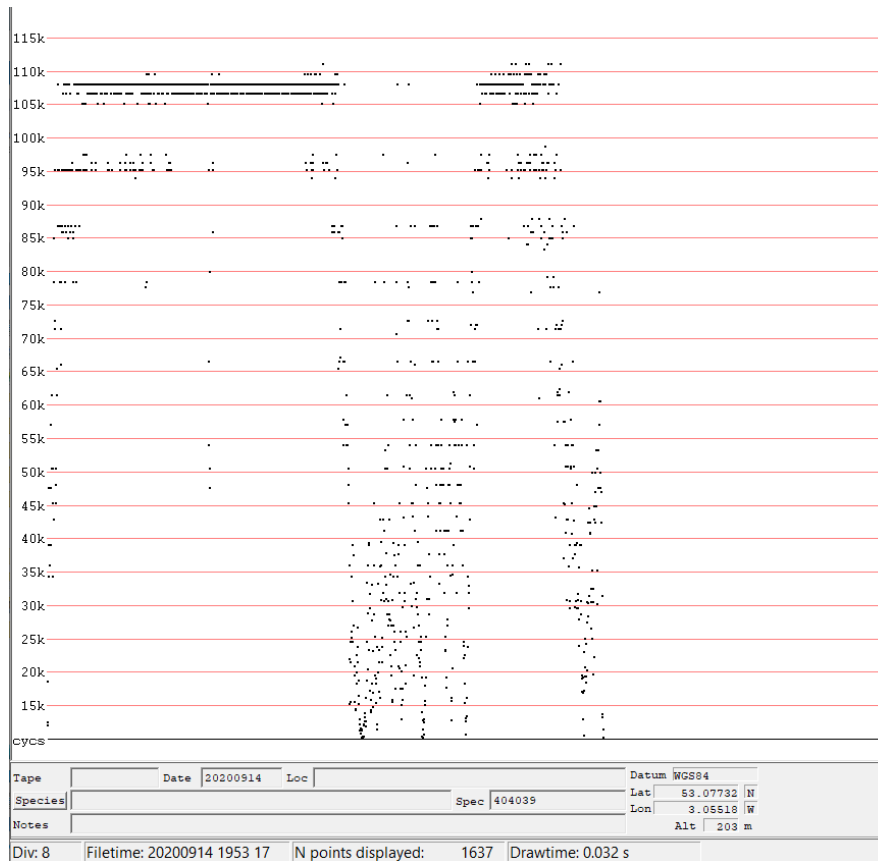


Figure 4.10. Lesser horseshoe bat

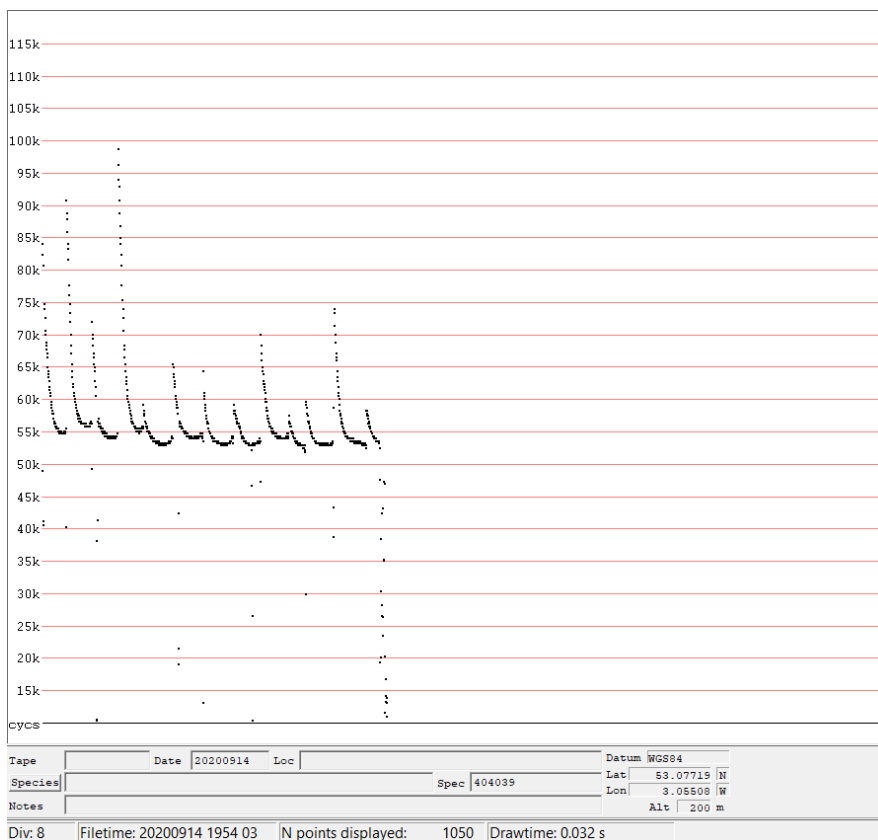


Figure 4.11. Soprano pipistrelle bat

22nd July 2021

Date	Time Start – End (Sunset Time)	Structure	Equipment Used	Weather
22/07/2021	21:10-23:00 (21:22)	Engedi Chapel	Anabat walkabouts and Anabat SD2, torch and binoculars	60% high cloud cover, dry conditions, 23°C WS F1-2
Comments	Surveyors used: Peta Marshall, Brian Marshall,			

Peta Marshall entered the Chapel to assess conditions from the previous survey in 2020. No significant alterations were observed. No bats were seen hanging in the Chapel or school House, but a lesser horseshoe bat was recorded in the Chapel at 21:20.

Two common pipistrelle bats were recorded at 21:42 to the western side of the Chapel. No emergence was recorded from here. No emergence of the lesser horseshoe bat was recorded.

A common pipistrelle bat was recorded emerging from the broken glass on the eastern elevation of the Chapel at 21:40.

A silent bat was recorded from the verge on the south-eastern elevation of the building at 21:50. No other emergence was recorded.

3rd August 2021

Date	Time Start – End (Sunset Time)	Structure	Equipment Used	Weather
03/08/2021	20:25-22:30 (21:03)	Engedi Chapel	Anabat walkabout and Anabat SD2, torch and binoculars	50-70% high cloud cover, dry conditions, 15°C WS F1-2
Comments	Surveyors used: Peta Marshall, Brian Marshall, Ruth Marshall			

Surveyors were situated so all elevations of the Chapel and School house could be observed. Significant plant growth reduces the visibility, but this is not seen as a constraint as general bat movement can be observed and previous access points observed.

At 21:10 a common pipistrelle was observed emerging from a roof of a house to the east of the Chapel.

At 21:36 a common pipistrelle was seen from the broken window of the Chapel.

At 21:35 a silent bat (presumed brown long eared bat was observed from the eaves of the building.

At 21:42 a bat was recorded from the opening on the western gable end. This was a lesser horseshoe.

Common pipistrelles were recorded foraging around the tree line to the west of the site for a significant part of the evening.



Figure 4.12: Emergence points

24th August 2021

Date	Time Start – End (Sunset Time)	Structure	Equipment Used	Weather
24/08/2021	20:00-21:30 (20:16)	Engedi Chapel	Anabat walkabouts and Anabat SD2, torch and binoculars	46% high cloud cover, dry conditions, 17°C
Comments	Surveyors used: Peta Marshall, Brian Marshall, Ruth Marshall			

Similar results were obtained, with a common pipistrelle emerging from the open glass on the eastern elevation at 20:27 and pipistrelles observed foraging around the car park to the west of the building and a silent bat emerging from the same point on the SE verge at 20:59.

No lesser horseshoe bat was recorded emerging.

Summary and assessment of status

Table 4.1. Evaluation of survey results

Structure	Species	Count	Roost Location	Site Status Assessment	Conservation Significance
Former chapel	Lesser horseshoe bat	1	In loft over chapel	Day roost	Low-moderate (locally common)
Former chapel	Lesser horseshoe bat	Low number	In eastern porch	Night roost	Low-moderate (locally common)
Former chapel	Soprano pipistrelle	1	In loft over chapel	Day roost	Low
Former chapel	Common pipistrelle	2	Accessed via windows	Day roost	Low
Former chapel	Brown long-eared bat	1	In loft over chapel	Day roost	Low

4.4 Birds

4.4.1 Records

No birds were recorded using the building in previous surveys.

4.4.2 Field Observations

No former house martin or swallow nests were observed on the exterior of the building.

4.5 Invasive Species

4.5.1 Records

No invasive species were previously recorded site.

4.5.2 Field Observations

The ruderal was checked for Japanese knotweed as a clump of the plant was observed on land close to the building. None was recorded on site.

5 Description of Proposed Development

The former chapel and school room are to be demolished and replaced with a building of four apartments and carports. Provision for the bats has been planned over the carport.



Proposed Site Plan
1 : 500



Figure 5.1. Proposed site plan

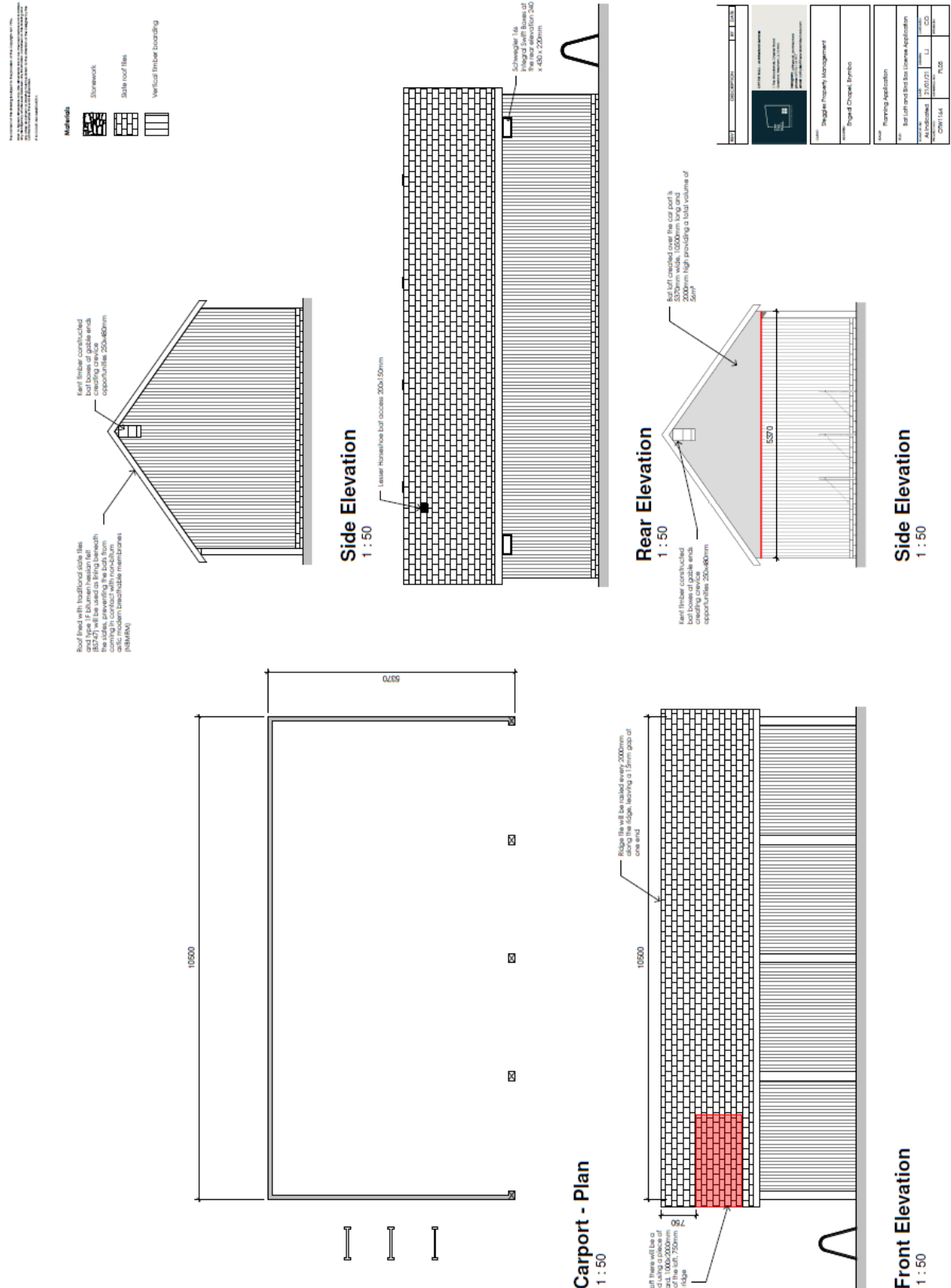


Figure 5.2. Biodiversity enhancement locations, drawing no PL05

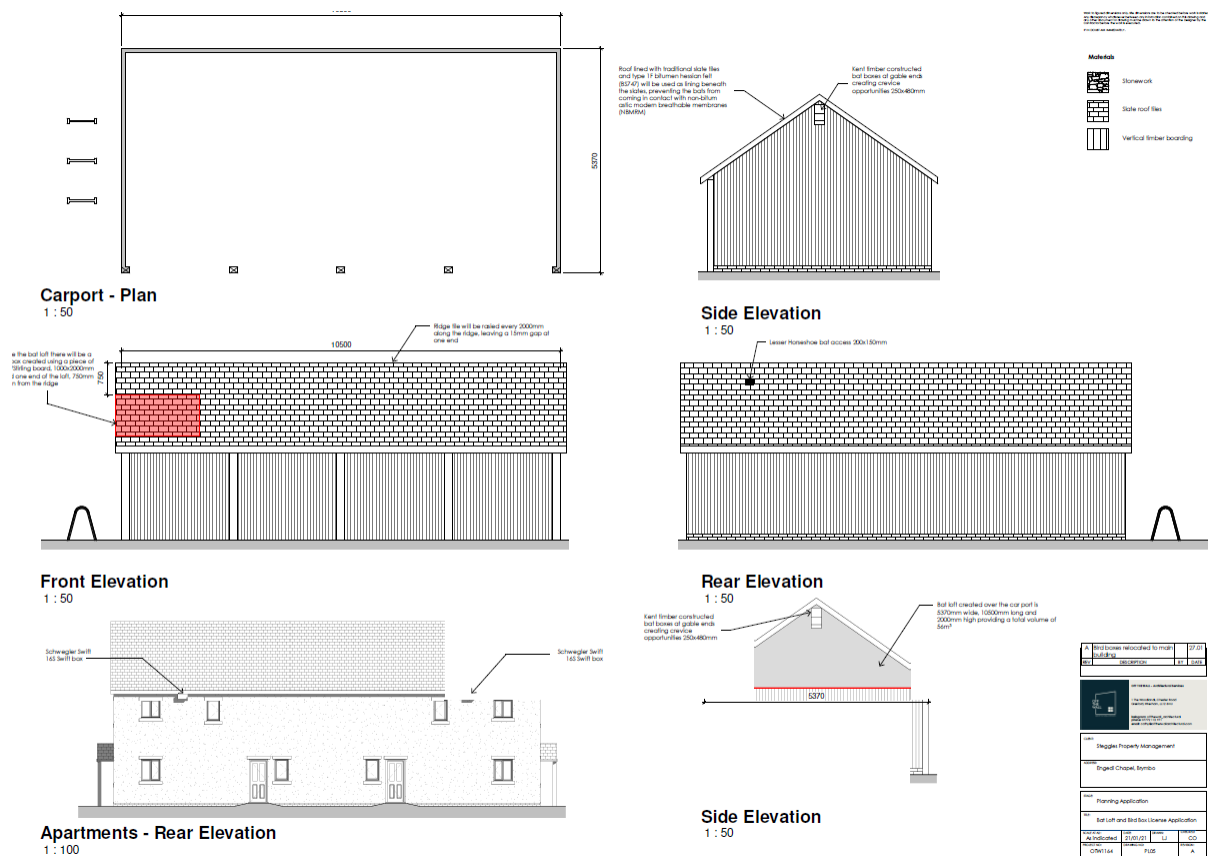


Figure 5.3. Showing bird box erection on rear of properties

6 Impacts, Enhancements and Mitigation

6.1 Bats

6.1.1 Impacts

Without consideration the demolition of the buildings would result in the loss of day roosts of three bat species and of night roosts of the same species.

There would be potential for death or damage of individual bats if these bats were disturbed without the demolition following a rigid method statement.

Low numbers of brown long eared bats and soprano pipistrelles and common pipistrelles are of low ecological significance. Low numbers of lesser horseshoe bats are of low to moderate ecological value as they are rarer nationally but are locally common. The loss of these roosts is likely to be of low ecological significance. Favourable conservation status of these species in the wider landscape is likely to be maintained even if these roosts are lost.

Determination of conservation significance of roosts was taken from Figure 4: Guidelines for proportionate mitigation (Bat Mitigation Guidelines P. 39).

The mitigation hierarchy has been taken into consideration

Avoidance

Leaving the building is not an option as there is no viable use for it in its current state. The development cannot proceed without having an impact on the bat species. Leaving the buildings is not an option as they are in poor condition and structurally unsound.

The alternative plan which has planning permission does not appear to be financially viable.

Converting the existing buildings has been considered and is not seen as a viable plan as there is no provision for parking and the existing buildings would not be easy to convert to another purpose

Minimise

The proposed plan provides for the bats on the site and is considered to provide a viable proposition for the site, whilst providing for the local population of bats. This should minimise the impacts to species as a result of the proposals and provide sufficient mitigation to allow favourable conservation status of the roosts. A bat loft will be provided and crevice opportunities for the crevice dwelling bats. This is proportionate to the site and species. Work will be timed to when bats are least likely to be impacted.

Compensate

Compensatory measures will include replacement bat roost opportunities.

Offset

Enhancement features for bats will be identified and proportionate ecological enhancement in line with both national and local policy.

6.2 Bat Conservation Plan

Work will need to be conducted under European Protected Species Licence from Natural Resources Wales. This licence will cover the demolition of the former chapel and school room.

6.2.1 Aims

The aims of the Conservation Plan (CP) are to:

- Protect habitats of ecological quality at the site.
- Conserve the species of ecological value at the site.
- Establish any maintenance and management responsibilities.

6.2.2 Objectives

The objectives of the CP are to:

- Minimise damage to adjacent habitats and protect habitats on site that are part of the final development.
- Ensure that no breach of British wildlife legislation occurs on site for the duration of the proposed development.

6.2.3 Ecological Issues and Legislation

The priority ecological issues, i.e. those that have legislative requirements or planning considerations and are relevant to the site and proposed works are as follows:

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – as listed in:

- Schedule 2. European protected species of animals

The Wildlife and Countryside Act (1981) – as listed in:

- Schedule 5. Protected animals

Countryside and Rights of Way Act (2000)

Natural Environment and Rurally Communities (NERC) Act (2006)

6.2.4 Control of Works

To ensure that the works are undertaken in accordance with the CP, a series of control measures will be utilised. The measures include:

1. Appointment of an ecological management team
2. Identification of ecologically sensitive areas and tasks using a traffic light risk zone

The application of the 'traffic light' system allows classification of the level of risk and ecological sensitivity of the ecological systems. There are three levels of risk; red, amber and green, with red being the highest risk areas or tasks. Works within all levels of risk will be controlled to some degree.

6.2.5 Ecological Management Team

The ecological management team will consist of the following posts:

- Ecological Clerk of Works (ECoW)
- Site Manager

The ecological management team will ensure that all site personnel are appropriately briefed on the ecological issues within the site. This will be undertaken through inclusion of ecological briefings within the toolbox talks given to all staff as part of the site induction process. The roles are detailed as follows:

Ecological Clerk of Works

- Develop method statements and site protocols.
- Provide guidance for the site team including legal and statutory requirements affecting works.
- Undertake toolbox talks and advise the site manager.
- Ensure site managers are aware of any changes.
- Monitor and report on the protective measures and habitats.
- Carry out audits to check for non-compliance with environmental legislation, consents, and objectives.
- Complete ECoW visit record sheet.

Site Manager

- Ensure the CP is developed and held on site and that it is implemented throughout all phases of the project.
- Ensure the site team and subcontractors comply with site protocols.
- Ensure the site and all stored materials and chemicals are safe and secure.
- Ensure the site is kept in a tidy and orderly fashion.
- Ensure all emergency protocols are up to date.
- Ensure all those that work on site have a site induction including briefing on environmental issues pertinent to the project and relevant toolbox talks.
- Ensure activities are carried out in accordance with the requirements of any associated method statements

6.2.6 Ecological Control of Works

Status	Task / Area	Control
Red	- Removal of the roofs - Removal of walls and timbers - Mechanical demolition of remaining building	- ECoW to provide method statements prior to work. - ECoW to give toolbox talk prior to works. - ECoW to ensure all ecological protection measures are in place prior to work commencing.
Amber	- Creating the compensation areas for bat species - Implementation of ecological enhancement features.	- ECoW to approve method statements prior to work commencing. - ECoW to give toolbox talk on proposed work and its impact on the ecology.
Green	Works outside of ecologically sensitive areas or after ecological mitigation works.	- Works to be carried out to ecological best practice. - ECoW to approve method statements prior to work commencing. - ECoW to certify the works have been carried out according to pre-agreed plans and method statements.

EPSL Working Method Statement

1. Demolition will need to follow a rigid method statement. It will need to be conducted under a Mitigation Licence (EPSL) for bats from NRW.
2. A suitably licensed ecologist will be employed as an Ecological Clerk of Works (ECoW) to oversee works in areas sensitive to bats and provide expert advice.
3. The licence can only be applied for when full planning permission has been granted.
4. A toolbox talk will be provided by the ECoW. The developer and the contractors will be made aware that there is a possibility that bats may be found during works and will be advised to work in a way to ensure bats are not harmed during work in areas sensitive to bats; particularly when the roofs are stripped. They will be provided with a simple emergency procedure to follow if bats are found at any stage of the work on site. It will be ensured that the method statement is retained on site at all times.
5. A pre-commencement check will be conducted by the ECoW using a strong torch and borescope where appropriate. Access will be provided into the roof voids.
6. Care needs to be taken to minimise any disturbance to bats during the critical hibernation period (which is November-February)- it cannot be safely ascertained that no bats may be present at this time.
7. The ECoW will be present on site when demolition is being conducted particularly in the area of the bat roosts, particularly around the ridges, gables, hips, valleys and verges. The ECoW will expect to be able to access these places for the demolition.
8. Demolition will be conducted either between Feb and the end of April or Sept to Nov when bats are least likely to be present, and not hibernating.
9. If a bat species is recorded that has not been previously recorded on site, all work will stop and the mitigation measures will be re-assessed. NRW will be contacted and an update of the licence made.
10. If a bat is found when the ECoW is not present, work will stop immediately and the ECoW contacted for advice.
11. The bat can only be handled by the ECoW or authorised person unless it is in immediate danger. The bat (brown long-eared or pipistrelle only) must be carefully placed in a well-ventilated lidded box with a small container (i.e. a plastic bottle lid) with water in it. The container must be kept in a quiet and safe place.
12. Care should be taken to avoid rousing the bat whilst transferring to a suitable location, such as a suitable roost box or alternative roost space that provides a safe, quiet environment with a stable cool temperature and relatively high humidity.
13. If the bat is underweight or injured it will be cared for by an experienced bat carer until such time that it is strong enough to be released into a suitable alternative replacement roost on site.

14. The bat compensation will be created following the instructions in the method statement and the client will agree that any bat box erected must stay in place for a minimum of five years post-development.
15. The removal of the roof will not take place if the temperature has been below 6°C for four consecutive days and nights.
16. A

Compensation Habitat/ timing of works

It is understood that it will be difficult to demolish the buildings and provide bat compensation features prior to the demolition occurring due to the constraints of the size of the project area. It is proposed therefore to phase the demolition so that there is as much compensation as possible prior to demolition of the chapel.

1. The former school house will be demolished first, with the openings to the chapel being closed off to preserve the bat roosts. This will not impact on any bat roosts or access points. There are no bat related timing constraints for this.
2. The bat loft over a garage (size 4mx5mx2m) will be constructed on site, and an integral bat box put into the gable end. This will make sure that there is bat provision prior to the bat roosts in the main chapel building being demolished.
3. The bat loft will be seeded with bat droppings to encourage bats to use the loft.
4. The chapel will then be demolished in line with the method statement. The loft can be used for placing any bats found during this process.
5. A second bat loft will be created over the next section of car port. This will result in a total bat loft provision of 5.37m wide, 10.5m long and 2m high providing a total volume of 56m³.
6. The roof is to be slate tiles. Type 1F bitumen hessian felt (BS747) will be used as lining beneath the slates, so bats cannot come into contact with non-bitumastic modern breathable membranes.
7. Access will be provided for bats on the rear elevation in a similar aspect to what they use currently.
8. The access will be suitable for lesser horseshoe, being 200mm wide, and 150mm high, lined with lead.

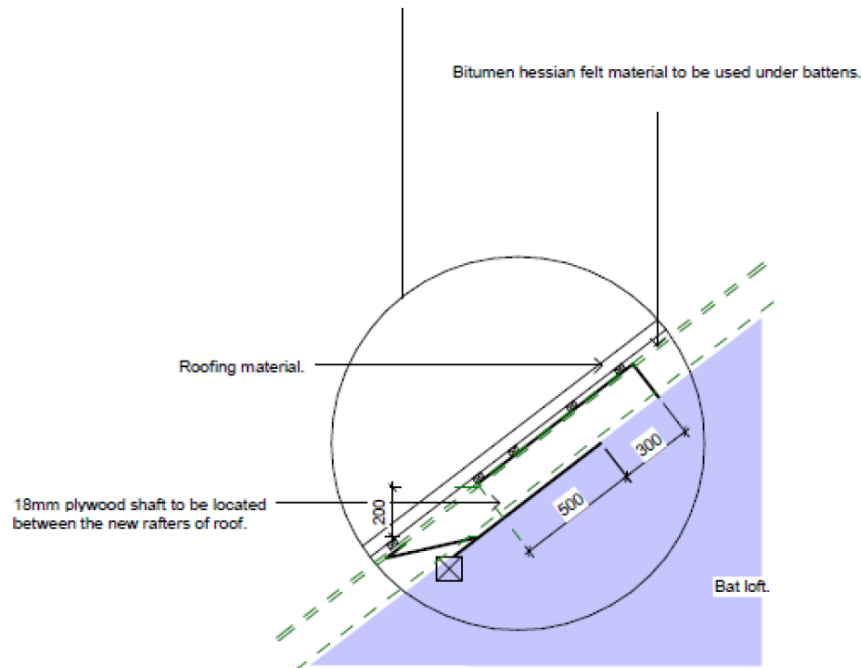


Figure 6.1. Access details



Figure 6.2. Lesser horseshoe access.

9. A ridge tile will be raised every 2m along the ridge, leaving a 15mm gap at one end.
10. Inside the bat loft there will be a hot box to create a warmer area for bats. This will be created using a piece of OSB/Stirling board, 1x2m fitted one end of the loft, 0.75m down from the ridge.
11. Crevice opportunities will be created using timber constructed Kent bat boxes at the gable ends.
12. Human access to the bat loft will be made by creating a 400mm² access which will not allow the loft to be used for storage but allow site checks to be undertaken.

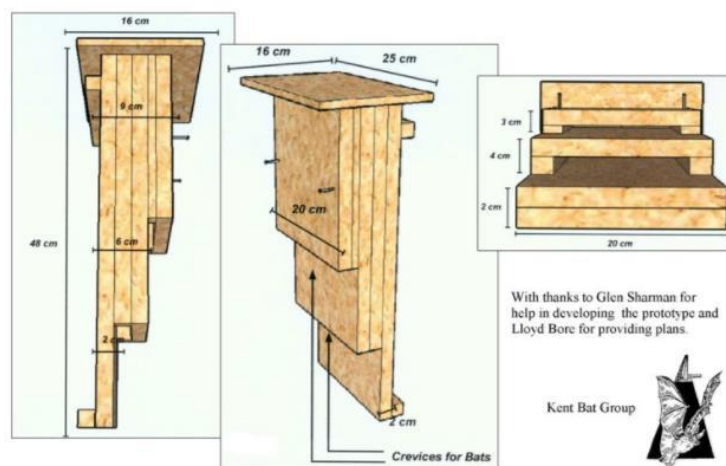


Figure 6.3. Kent bat box designs

13. An enclosed bat box will be built into the end of the dwelling.

Enclosed Bat Box (B and C)

- Designed specifically for the pipistrelle bat
- Available in all brick types
- Discrete home for bats
- Various sizes
- Several roosting zones are created inside the box
- Bats are contained within the bat box itself
- Maintenance free with entrance at the base
- Ideal for new build & conservation work



Bat Box B



Bat Box C

Eco Habitats for Bats	Sizes (mm)	Durability
Bat Box Type A	215 x 65	F2 S2 – Fully Frost Resistant
Bat Box Type B	215 x 215 or 215 x 290	F2 S2 – Fully Frost Resistant

Figure 6.4. Example integral bat box

14. Technically monitoring the roost will not be required as the numbers of species are of low ecological concern. However there will be a check post construction to ensure the loft is being used.

15. The temperature and humidity in the loft will be monitored over the first year.

Lighting

Lighting needs to be designed to have minimal impact on bats and their commuting and foraging areas. This results in the recommended use of downlights and the horizontal spread of lighting to be kept to a minimum.

The lighting to the west of the site will be reduced in particular.

Where it is not possible to reduce the horizontal spread of light, a 2700°K to 3000°K LED light bulb is recommended, which will provide a warm white light. This range has the least impact on bats and invertebrates.

1. All newly proposed external lighting will be directed away from any vegetated boundary features to retain dark corridors for commuting bats.
2. There will be no direct illumination of the bat loft or bat box.
3. All domestic lighting will be below 10 lux, orientated towards the ground and controlled by PIR (Passive Infra-red), set on a short timer.

6.2.7 Monitoring

A bat activity monitoring survey will be conducted in the summer following completion of the development. This is to identify locations, numbers, and species in the compensation features.

Key performance indicators will be the establishment of the bat roosts within the new buildings. If these have not become established then the results of the survey will inform any requirements to modify, enhance and or create roosting opportunities and continue monitoring as appropriate.



Figure 6.5. Showing position of integral bat box

6.3 Birds

6.3.1 Impacts

No negative impact on nesting birds is anticipated.

6.3.2 Enhancements

1. It is recommended that swift boxes are erected on the side of the new building to provide an enhancement, and a selection of the following would be appropriate.



Figure 6.6. Bird boxes

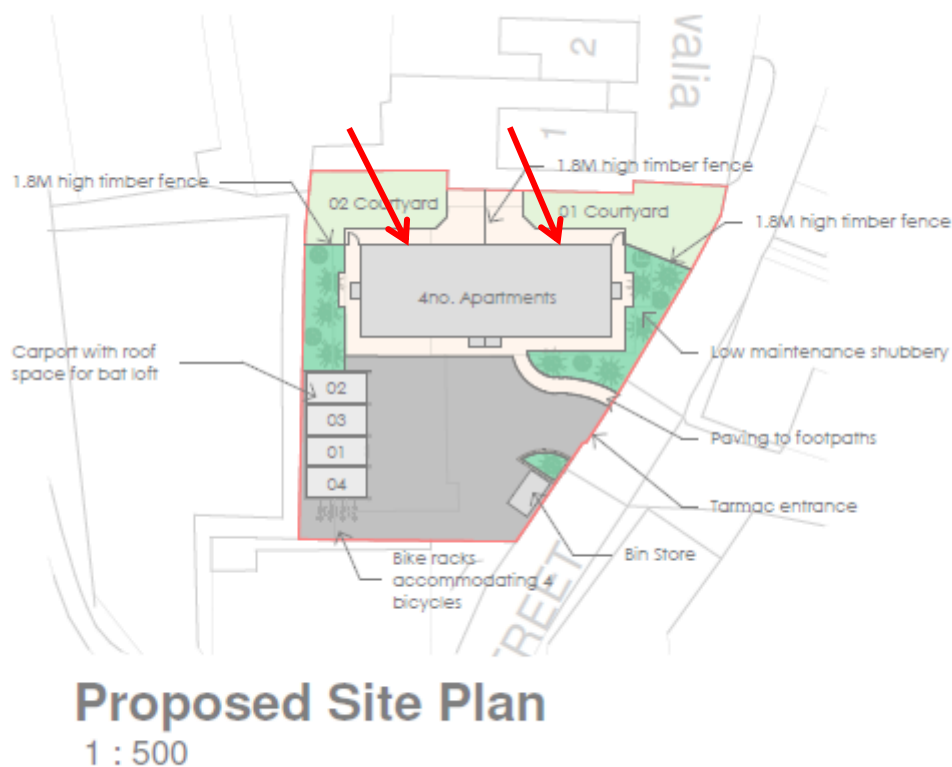


Figure 6.7. Showing position of swift boxes

6.3.3 Monitoring

Failing boxes or enhancements will be replaced at the cost of the developer if deterioration or damage is noted within five years post-development.

7 Concluding Remarks

The survey has focussed on the bat species known to be using the site for day and night roosts.

Four species have been recorded between 2020 and 2021. All these were in low numbers, but the roost sites will be lost when the building is demolished. Demolition will therefore need to be conducted under derogation licence from Natural Resources Wales and the work must follow a rigid method statement with the Ecological Clerk of works providing a toolbox talk and being on site to oversee the demolition of all areas where there may be bats.

Compensation will be created in a roof void over the car port for the new dwellings, and with the inclusion of an integral bat box. The demolition will be phased so there is always provision for bats on site.

Other than those listed above, there are no ecological constraints to the development as currently proposed.

Appendix A – Surveyor Details

Table A.1. Details of surveyors' experience and licences held

Name	Membership of associations/ experience	Licenses
Peta Marshall BSc(hons)MA	Principal Consultant MCIEEM PIEMA Peta has a degree in Applied Biology and has been working in commercial environmental assessment for over 10 years. She has 10+ years' experience surveying for protected species. As a member of the CIEEM she is bound by professional conduct.	Holder of survey licenses for bats and newts in England and Wales. Registered Consultant for Mitigation Class Licence for Bats <u>England:</u> Bats - 2015-12200-CLS-CLS BMCL - RC084 GCN - 2015-18939-CLS-CLS Dormice - 2017-29225-CLS-CLS <u>Wales:</u> Bats – S087133-1 GCN – S087606-1
Ben Jones BSc(hons) MSc	Lead Consultant Ben has a degree in Marine and Freshwater biology and a Master's degree in "Managing the Environment". He has 5 years' experience conducting environmental appraisals and phase 2 surveys for bats and newts in England and Wales.	Holder of survey licenses for bats and newts in England and Wales. <u>England:</u> Bats - 2017-29112-CLS-CLS GCN - 2016-25209-CLS-CLS <u>Wales:</u> Bats – S088669-1 GCN – S087992/1

Appendix B – Methodology

Desk Study

Table B.1. Data sources

Organisation/Resource	Information Assessed
MAGIC website	International statutory designations (1km) • Special Protection areas (SPA) • Special Areas of Conservation (SAC) • RAMSAR sites National statutory designations (1km) • Sites of Special Scientific Interest (SSSI) • National Nature Reserves (NNR) EPS Licenses for protected species (2km)

A search on Multi Agency Geographic Information for the Countryside (Magic Maps) determined nearby designated areas. The map is presented in Section 4.1.

A review of other surveys conducted in the area by Greenscape Environmental was also conducted. Survey reports include: 1649 001R.

Species Surveys

Bats

Methodology used is in accordance with recommendations by BCT, Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition, Collins (2016).

Features on site were assessed for potential for bat roosts, foraging and commuting.

An external assessment of all structures on site was undertaken to determine potential roost features (PRF) The potential suitability of the structures assessed was assigned a rating of low to high in accordance with table 4.1 of Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition, Collins (2016).

An internal assessment of all structures was undertaken by a suitably licensed surveyor for evidence of roosting bats such as droppings, feeding remains and staining. Bat lofts were not accessible.

Daytime surveys were conducted with the aid of a strong torch and a pair of close focus binoculars. Bat species may leave little evidence of their presence.

Evidence for the presence of bats includes:

- Holes, cracks and rot holes used as roosts, marked by streaks of urine and faeces.
- Smoothed, darkened edges where bats have rubbed and left natural body oils when entering and exiting a space.
- Faeces under a roof access point, a well-used feeding point or a resting spot.
- Feeding signs such as discarded insect wings under a feeding point.
- Lack of cobwebs around eaves, roof spaces, beams or ceilings where routes are kept clear by bats or presence of droppings in a cobweb.
- Presence of roosting or dead bats in or behind any object.

Phase 2 bat activity surveys were conducted to reinforce the findings using heterodyne and frequency division bat detectors (Anabat SD2, Anabat Walkabout,

Surveys were conducted when the weather conditions were suitable for bat activity, i.e. when the ambient temperature exceeded 10°C at sunset and when there was little or no rain. Dusk surveys were begun approximately 15mins prior to sunset and continued for 90-120mins following sunset depending on visibility and site conditions.

Activity surveys are conducted to establish the presence of bats within a structure, what species they are, approximately how many are present, and if possible, where they are exiting a roost.

Bats were identified from the characteristic echolocation calls using appropriate computer sonogram analysis software.

Birds

Searching for evidence of nesting birds, including barn owls, involved looking for:

- Presence of nests
- Collections of droppings and/or feathers
- Highly distinctive droppings or splats under roosting points.
- Presence of owl pellets/feathers
- Listening for bird song
- Recording bird activity

Appendix C – Policy

The following areas of policy and legislation are of relevance to ecology and provide context to the surveys conducted. Findings presented in this report are in line with the following:

The Conservation of Habitats and Species Regulations (2017) – as listed in:

- Schedule 2. European protected species of animals

The Wildlife and Countryside Act (1981) – as listed in:

- Schedule 1. Birds protected by special penalties at all times
- Schedule 5. Protected animals

Countryside and Rights of Way Act (2000)

Natural Environment and Rurality Communities (NERC) Act (2006)

Natural Environment and Rurality Communities (NERC) Act (2006)

Planning Policy Wales 2002, updated Dec 2018

Section 6.4 – Biodiversity and Ecological Networks

The Nature Recovery Plan for Wales – Setting the course for 2020 and beyond (2015)

Environment Act (Wales) (2016)

Section 7

Wrexham Unitary Development Plan – EC6 Biodiversity Conservation

Bats

All bat species are protected under the Conservation of Habitats and Species Regulations 2017 which implements the EC Directive 92/43/EEC in the United Kingdom. It is an offence, with certain exceptions, to:

- Deliberately capture or kill any wild animal of a European Protected Species.
- Deliberately disturb any such animal.
- Damage or destroy a breeding site or resting place of such a wild animal.
- Keep (possess), transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal or plant of a European Protected Species, or any part of, or anything derived from such a wild animal or plant.

A person found guilty of an offence is liable on summary conviction to imprisonment for a term not exceeding six months or to an unlimited fine or to both.

Seven bat species are on the UK Biodiversity Action Plan and are listed as Species of Principal Importance under the provisions of the Natural Environment and Rural Communities (NERC) Act 2006. The National Planning Policy Framework (NPPF) states that to minimise impacts on biodiversity and geodiversity, *"planning policies should... promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations"*.

To allow a development that might result in an offence, a derogation licence can be sought via the implementation of a European Protected Species Licence. This is provided by Natural Resources Wales.

Work can be conducted under a derogation licence from Natural Resources Wales providing suitable compensation and mitigation is provided and the "three tests" can be met. These are:

Regulation 55(2)(e) states: a licence can be granted for the purposes of "preserving public health or public safety" or other imperative reason of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.

Regulation 55(9)(a) States: the appropriate authority (Natural Resources Wales) shall not grant a licence unless they are satisfied "that there is no satisfactory alternative"

Regulation 55(9)(b) states that the appropriate authority shall not grant a licence unless they are satisfied "that the action licensed will not be detrimental to the maintenance of the population of the species concerned at favourable conservation status in its natural range."

The method statement in the EPS licence is a legally binding document which outlines the species, context of the colony, method of mitigating and compensating and ongoing habitat management for ensuring favourable conservation status.

Birds

Under Section 1 of the Wildlife and Countryside Act 1981 (as amended), birds, their nests and young are all protected from damage, particularly during the breeding season. The Act allows for fines or prison sentences for every bird, egg or nest destroyed. It makes it an offence to:

- Intentionally kill, injure or take any wild bird.
- Take, damage or destroy the nest of any wild bird whilst it is in use or being built.
- Take damage or destroy the egg of any wild bird.
- To have in one's possession or control any wild bird, dead or alive or egg or any part of a wild bird or egg.

Some bird species are included in the UK and local BAPS and are recognised as species of principal importance for nature conservation in accordance with section 41 of the NERC Act 2006.

Appendix D – Bat Survey Data

Table D.1. Survey results table

Date	Time Start – End	Species and Numbers	Roost Type	Structure	Roost Location	Access Points
14/09/2020	18:00-21:00	Lesser horseshoe bat	Day	Former chapel	Loft	Ventilation hole in western elevation
	18:00-21:00	Soprano pipistrelle	Day	Former chapel	Loft	Ventilation hole in western elevation
	18:00-21:00	Brown long eared bat	Day	Former chapel	Loft	Ventilation hole in western elevation
Summary	Three bats were seen emerging from the building, two were identifiable from their sonograms and one from its appearance and lack of sonogram					
22/07/2021	21:10-23:00	Lesser horseshoe bat	Day	Former chapel	Loft- seen in pre-emergence flight in former chapel area	Ventilation hole in western elevation
	21:10-23:00	Common pipistrelle bat	Day	Former chapel	Likely loft area- no evidence in main chapel area	Emergence seen from broken glass on eastern elevation
	21:10-23:00	Brown long eared bat	Day	Former chapel	Likely wall plate on chapel	Emergence form SE elevation of Chapel
Summary	Three bat species recorded, lesser horseshoe bat, common pipistrelle and brown long eared bat					
03/08/2021	20:25-22:30	Common pipistrelle bat	Day	Former Chapel	Likely loft area- no evidence of roost in main chapel area	Emergence seen from broken glass on eastern elevation
	20:25-22:30	Brown long eared bat	Day	Former Chapel	Likely wall plate on chapel	Emergence form SE elevation of Chapel
	20:25-22:30	Lesser horseshoe bat	Day	Former Chapel	Likely loft void over chapel	Emergence from ventilation hole on western elevation
Summary	Common pipistrelle, brown long eared bat and lesser horseshoe bat recorded emerging					
24/08/2021	20:00-21:30	Common pipistrelle	Day	Former Chapel	Likely loft area-	Emergence seen from broken glass on eastern elevation
	20:59	Brown long eared bat	Day	Former chapel	Wall plate over chapel	Emergence form SE elevation of Chapel
Summary:	Brown long eared and common pipistrelle bat observed emerging					

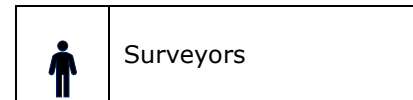
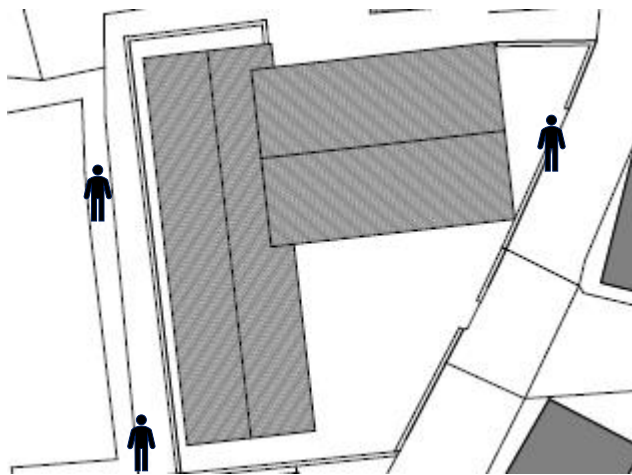


Figure D.1. Survey area

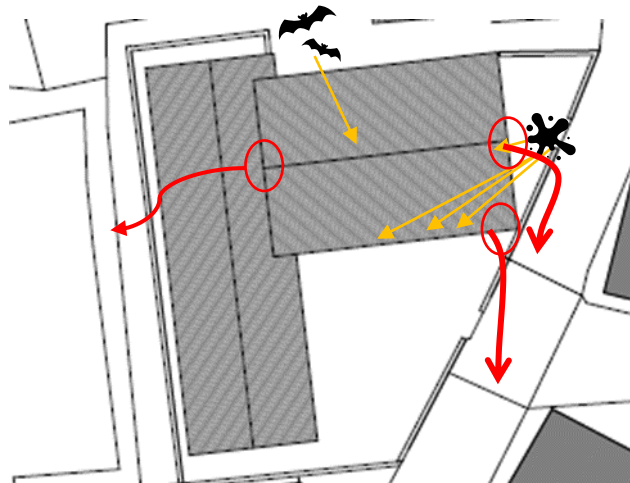


Figure D.2. Survey results

	Roost location
	Droppings location
	Flight paths
	Emergence point

Appendix E – Bibliography

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