Caewern House, Dwr Y Felin Road, Caewern, Neath, Neath Port Talbot, SA10 7RH

Bat Survey Report for Linc-Cymru Housing

A European Protected Species Licence <u>will be required</u>

for works to be undertaken on the property

Report type	Bat Survey Report
Report reference	IG2022CaewernHouse
Site	Caewern House, Dwr Y Felin Road, Caewern, Neath, Neath Port Talbot, SA10 7RH
Grid reference	SS 74627 98352
Client	Linc-Cymru Housing
Date(s)/time(s)/ type(s) of survey(s)	**Scoping survey:** 25th August 2022 **Dusk survey:** 25th August 2022 between 20:05 and 22:20 **Dawn survey:** 10th September 2022 between 04:40 and 06:45
Surveyor details	**Scoping survey:** Mr Iestyn Evans, Natural Resources Wales Licence number S090746/1 and Mr Glyn Lloyd-Jones, Natural Resources Wales Licence number S091520/1 **Activity surveys**: Mr Iestyn Evans, Natural Resources Wales Licence number S090746/1; Pete Watts; Greg Evans; Bonnie Illingworth; and Lewis Jones
Architect	Spring Design

Version	Status	Changes	Name	Position	Date
1	**Draft**	Sent for review on 16/11/22	Ceri Daugherty	Author	15/11/22

	Name	Position	Date
Reviewed by	Ceri Daugherty	Author	16/11/2022
Approved by	Iestyn Evans	Director	17/11/2022
Sent to Client	Iestyn Evans	Director	17/11/2022

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Executive summary

- Caewern House (the property) is a large, detached, up to three storey Victorian building constructed of stone walls with pitched slate roofs that is subject to proposed plans for demolition to create space for a residential development. The building was found to be in generally good structural condition with no cracks or crevices in the walls, although there are areas of raised flashing, raised ridge tiles and slipped slates. Attached to the northern end of the south-west elevation is a modern two storey extension constructed of rendered and stone faced/clay tile faced brick walls with a flat roof and a two storey metal clad fire escape. Minor gaps were noted between fascia boards and walls but no other potential bat roost features were noted. Pitched/monopitch, and flat roof single storey predominantly stone-built sections are attached to the north-east elevation and while the walls are in good condition there is a large hole in the roof in one section (due to vandalism). A shed with stone walls and a corrugated metal roof is also present within the grounds. External inspection identified the buildings as being generally in a good condition. The windows and doors on all areas are either closed or boarded over but ongoing vandalism has meant that there are a small number of windows with broken glazing which could enable access by bat and bird species. Slit windows are also present on the upper level of the original building but all of these are either grilled or bricked up.
- On 25th August 2022, I&G Ecological Consulting Ltd undertook a daytime bat scoping survey of the property. As a result of the finding a dusk activity survey was undertaken on 25th August 2022 and a dawn activity survey was undertaken on 10th September 2022. The weather conditions present were conducive to bat activity and access was available to all parts of the site.
- This report confirms the findings of those surveys, completed in accordance with current best practice (Collins, J. (Ed.) 2016) and conducted by an experienced, licensed ecologist and an experienced assistant. It is to be read in conjunction with the Bat Survey Report produced by Solty Brewster Ecology in 2016 which confirmed the presence of an individual **Common pipistrelle**.
- The property sits within the Caewern area of the town of Neath, approximately 1km north of the centre. **It is within close proximity to moderately favourable bat habitat but is not within 10km of any sites designated for their bat interest.**
- During the scoping survey no bats were found but droppings were found beneath a hole in the roof on the single storey section to the north-east, and the property was considered to have **confirmed** potential to support roosting bats, and a **confirmed** risk of bats using the features present. During the activity surveys up to **four Soprano pipistrelle** were seen to leave/enter a hole in the roof on a single storey section, and this species as well as **Common pipistrelle** were detected foraging and commuting on site.
- In relation to **Roost Characterisation Assessment,** from the evidence gathered it is considered that the property is being used by a small number **(four confirmed) of Soprano pipistrelle bats as a summer daytime roost** and has been used by an individual **Common pipistrelle bat as an occasional summer daytime roost.**
- **Mitigation measures will need to be implemented for bats, but no evidence of nesting birds or owl activity was found**. Biodiversity enhancement measures are also required to ensure the development complies with the Environment (Wales) Act 2016, Future Wales 2040, and PPW (Edition 11, February 2021). Recommendations are as follows (**any nests subsequently found are to be confirmed vacant before works commence**). See appendix 5 for proposed mitigation locations, and appendix 9 for examples and siting advice. **The final plans are to show all measures, including locations (and type of) access points as well as the position of any trees on which bat or bird boxes are to be erected – the proposed plans are to be updated to reflect this.**
  - ***Recommendation 1 (Enhancement)*:** Prior to works commencing, x 2 Improved Roost Maternity (or similar) Bat Box and 2 x Harlech Woodstone (or similar) bat boxes to be affixed to mature trees within the curtilage of the property.
  - ***Recommendation 2 (Mitigation):*** Bat access is to be provided on the new buildings through 1 x Vivaro Pro Build-in (or similar) bat box installed in each gable end wall (x 12 in total) of the new buildings.
  - ***Recommendation 3 (Broadscale Enhancement)*:** As shown in in the sketch site concept layout, there will be landscaping as part of the development. As part of this, all Cat B trees and RPAs are to be retained and there will be strategic landscaping. All new planting is to be of native species that offer benefit to wildlife and it is recommended that hedgehog/wildlife tunnels are provided in any boundary fencing/walls.
  - ***Recommendation 4 (Enhancement)*:** Prior to works commencing, x 2 open-fronted and x 2 small-holed bird boxes to be affixed to mature trees within the curtilage of the property.
  - ***Recommendation 5 (Enhancement)*:** x 1 Sparrow terrace to be affixed to each gable end wall of Type A Block buildings (x 2 in total) and x 1 House martin nest cup to be affixed at the apex of each gable end wall of Type B Block buildings.

Contents

1. Introduction

1.1 Scope and purpose of survey

1.1.1 Any sign of use of a site by bats is enough to confirm that the space has 'bat interest' and is enough to confirm the importance of the location to bat species. All species, as well as their resting places, are protected by law and the site is protected even when bats are not present. See appendix 1 for an introduction to bat surveys, including the aims of the scoping survey, appendix 2 for an overview of the legislation, and appendix 3 for information on roost types and survey timings. Appendix 4 lists all surveyors who undertake work for I&G Ecological Consulting Ltd and includes their experience.

1.1.2 This report confirms the results of, and conclusions and recommendations from, the surveys undertaken. It aims to provide the local planning authority with sufficient information to enable a full assessment of the potential ecological impacts of the proposed development. The CIEEM Guidelines for Ecological Report Writing (2017) state that it is important that the structure and content of a report should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. This report has therefore been written in line with these guidelines.

1.1.3 For the purposes of this survey report, the site boundary is defined as the buildings and surfaces within the overall site footprint.

1.2 Site characteristics and proposed works

1.2.1 Caewern House (the property) sits within the Caewern area of the town of Neath, approximately 1km north of the centre. Despite its position within a well-lit, predominantly residential area, it is within close proximity to moderately favourable bat habitat. The site itself includes mature trees and there are further woodlands within 2km, including the ancient woodlands of Dyffryn Woods to the west. In addition, within 1km are small agricultural fields which while predominantly improved and semi-improved do have some mature hedgerows that provide good connectivity as well as more unimproved upland areas of Mynydd Drummau to the west and Mynydd Marchywel to the north-east. In relation to waterbodies and watercourses, the Neath Canal is 550m to the south-east, beyond which is the River Neath while the partially wooded corridor of the River Clydach is 770m to the west.

1.2.2 The property is subject to proposed plans for demolition to create space for a residential development. Figure 1 shows an aerial view of the property while figure 2 on the following page is of the wider environment and figure 3 is a sketch site concept plan. Additional plans are included in appendix 5.

Figure 1: Aerial view of the property which is outlined in red (from Apple® Maps)

Figure 2: Map showing the wider environment. The site is indicated by a blue dot. (from Apple® Maps)

Figure 3: Sketch site concept layout plan (provided by the architect)

2. Desk study methods and results

2.1 Methods

2.1.1 A 2km search area is used which covers the predicted zone of influence of the proposed development. Where bats are found to be present, any sites within 10km which are designated for their bat interest will also be noted. The reasons for the site designations have also been considered when discussing potential impacts on the biodiversity of these sites. Multi-Agency Geographic Information for the Countryside (MAGIC) and Lle are both used to establish the proximity of National and International Statutory Designations, particularly in relation to designations for bat interest. Species searches are also conducted through the Local Records Centre (LRC) where appropriate. An online search of planning applications at the property is undertaken to understand its planning history, especially relating to bats.

2.2 Results

2.2.1 The property is not within or adjacent to any statutory or non-statutory protected features of ecological significance. Within 2km, 1.9km to the south is Eaglesbush Local Nature Reserve (owned by the Woodland Trust) which is not designated for its bat interest (but is known to support bats). In addition, within 2km are 22 areas of Ancient Semi Natural Woodland (ASNW), 28 Restored Ancient Woodland Sites, seven Plantations on Ancient Woodland Sites, and one Ancient Woodland Site of Unknown Classification; the closest being an ASNW 510m to the east. There are no Wildlife Trust Sites or National Nature Reserves within 2km. In relation to sites within 10km that are designated for their bat interest, there are no such sites.

2.2.2 The data search conducted in November 2022 reported 158 records for the following eight bat species within 2.3km:

- ***Pipistrellus* species**: 45 records, the closest being a 2010 record from 341m away (with a non-maternity roost within 400m).
- **Soprano pipistrelle (*Pipistrellus pygmaeus*):** 18 records, the closest being a 2018 record from 409m away.
- **Common pipistrelle (*Pipistrellus pipistrellus*):** 48 records, the closest being two 2008 records for a non-maternity roost from 416m away.
- **Noctule (*Nyctalus noctula*):** 21 records, the closest being a 2010 record from 742m away.
- **Unknown bat (*Chiroptera*):** 10 records, the closest being a 2002 record for a roost 850m away.
- **Brown long-eared (*Plecotus auritus*):** three records, the closest being a 2015 record for a roost 854m away.
- ***Myotis* species:** two records, the closest being a 2010 record from 1.1km away.
- **Serotine (*Eptesicus serotinus*):** two records from 2014 and 2016 from 1.16km away.
- **Daubenton's (*Myotis daubentonii*):** two records, the closest being a 2015 record from 1.4km away.
- **Natterer's (*Myotis nattereri*):** three records, the closest being a 2007 record from 1.63km away.
- **Whiskered (*Myotis mystacinus*):** four records from 2014 and 2015, from 1.93km away.

2.2.3 An online search found the following applications for the property:

- P2016/0649 for conversion of Caewern House (inc. demolition of existing extensions and outbuildings) to provide 8 No. 1 & 2 bed apartments. Construction of a detached two storey block providing 7 No. 1 bed apartments, plus 1 No. 2 bed detached bungalow and single storey

bins/buggies/cycles enclosure, associated drainage, landscaping and highway works. (additional information received Jan 2018 lighting.) was refused on 16 November 2018. A Bat Survey Report was produced by Solty Brewster Ecology in 2016 as part of the application process and details are included in 2.2.5.

- P2015/0740 for a non-material amendment to Planning Permission P2013/1042 (For the erection of a 60 bed nursing home) to allow the extension of the bin store in order to facilitate an emergency generator and storage area, with associated changes to footpath and fencing was approved on 11th August 2015.
- P2015/0686 for details pursuant to Condition 6 (external lighting) of Planning Permission P2013/1042 was approved on 5th August 2015.
- P2014/1113 for non-material amendment to Planning Permission P2013/1042 to amend the details approved under condition 5 to allow for the change to the external cladding to treated redwood. Amended car parking layout and surfacing approved under Condition 10(drawing No. 3315-47-002A), the provision of a vegetable store, and the removal of Conditions 2, 3 & 4 relating to BREEAM was approved on 10th December 2014.
- P2014/0717 for details pursuant to Condition 13 (Construction Method Statement) of Planning Permission P2013/1042 (Approved on the 05/03/2014) was approved on 11th March 2015.
- P2014/0644 for details pursuant to Condition 18 (Site Waste Management Plan) of P2013/1042 (Approved on the 5/3/14) was approved on 19th Aug 2014.
- P2013/1147 for prior notification of proposed demolition of former nursing home at Caewern Lower House was determined not to require prior approval on 22 Jan 2014.
- P2013/1042 for the demolition of the existing building and erection of a new 60-bed care home with ancillary car parking and engineering operations was approved on 5th Mar 2014. See 2.2.5 for information relation to the ecological reports produced.

2.2.5 Internal and external inspection of the buildings undertaken in May 2016 identified no evidence of roosting bats within any of the buildings (Soltys Brewster Ecology, 2016). However features of potential value to roosting bats such as gaps beneath fascia boards, slipped slates and raised ridge tiles were noted on a number of the buildings. Previous bat survey work undertaken by Rob Colley Associates at buildings to the southwest of the current site (which have since been demolished and re-developed) identified ***P. pipistrellus*** and ***P. pygmaeus*** bats foraging and commuting over the site (Rob Colley, 2012). The 2012 report also identified that staff at Caewern House had reported seeing bats re-entering the Victorian building within the current site. The modern two storey extension to the south-west and outhouse to the north-east were both identified as of low bat roosting potential and a dawn activity survey was undertaken on 22nd July 2016. The Victorian Building was identified as of moderate potential to support roosting bats; however, at the time of survey it was not to be demolished. All other outbuildings were assessed as being of negligible potential to support roosting bats and on this basis no further bat survey of the Victorian building or outbuildings was considered to be required. During the dawn survey a single ***P. pipistrellus*** was recorded re-entering an area of the building proposed for demolition in the southwest of the site. The bat was recorded to re-enter under a wall tile immediately above a window at 05.05, approximately 19 minutes prior to sunrise. No other bats were observed roosting within the building during the survey and low levels of bat activity recorded across the site with a total of twelve passes by ***P. pipistrellus*** and ***P. pygmaeus*** recorded during the survey. The majority of bat activity was recorded along the northern boundary of the site.

Of the previous surveys completed at the site or in immediately adjacent areas, the Phase I Habitat survey by Soltys Brewster (2013) identified that conditions were comparable to the existing type and distribution of habitats with a limited range recorded including buildings, hard standing, amenity grassland, introduced shrubs and mixed plantation woodland. An external/internal survey of the former Care Home in part of the site was undertaken as part of the 2013 survey and no evidence of bats was noted – this supported the findings of the survey undertaken in 2012 by Rob Colley Associates. Previous bat survey work undertaken by Rob Colley Associates at buildings to the south-west of the current site (which have since been demolished and re-developed) identified ***P. pipistrellus*** and ***P. pygmaeus*** foraging and commuting over the site (Rob Colley, 2012). The report also identified that staff at Caewern House had reported seeing bats re-entering the Victorian building within the current site. No evidence of use of this building by bats was noted during the current (2016) surveys.

3. Field survey methods and results

3.1 Methods

3.1.1 A Preliminary Roost Assessment (PRA) was undertaken on 24th August 2022 to identify Potential Roost Features (PRF). Details of the equipment used by I&G Ecological Consulting Ltd can be found in appendix 1. The survey was undertaken by Iestyn Evans and Glyn Lloyd-Jones.

3.1.2 In relation to survey limitations, many of the UK species of bat are crevice dwelling, and bats or signs of bats can be difficult to find within a building. In addition, there may be areas that are inaccessible to the surveyor. Externally, surveyors were able to access all parts of the property from ground level, noting that it is large and in some parts difficult to observe the roofs while internally, access was available to all areas. In addition, two activity surveys were undertaken in good weather conditions to provide confidence in the results, and to understand how bats are using the surroundings. Therefore, using the equipment available to them all areas were thoroughly surveyed by the surveyors to maximise effectiveness.

3.1.3 An Anabat was not deployed as no bats or their signs were found in the main part of the property and the single storey section where droppings were found has been subject to vandalism which meant it was not safe to deploy the machine.

3.1.4 As a result of the findings of the PRA, one dusk survey and one dawn survey were undertaken. The dusk survey was undertaken on 24th August 2022, and the surveyors were Iestyn Evans, Pete Watts, Greg Evans, Bonnie Illingworth, and Lewis Jones. Sunset was at 20:17, the survey started at 20:05 and ended at 22:20. The weather was dry throughout the survey with 35% cloud at the start, humidity was around 65%, there was a light south-westerly wind of 3mph, and the temperature started at 17.8°C and ended at 16.2°C.

3.1.5 The dawn survey was undertaken on 10th September 2022, and the surveyors remained as for the dusk survey. Sunrise was at 06:41, the survey started at 04:40 and ended at 06:45. The weather remained dry throughout the survey with 70% cloud at the end, humidity was 85%, there was a light northerly breeze of 2mph, and the temperature started at 15.4°C and ended at 14.5°C.

3.1.6 Figure 4 on the following page shows the position of surveyors during the activity surveys. Each surveyor had a Magenta 5 or an Elekon Batscanner bat detector to assist in identification and detection of bats and their behaviour.

Figure 4*:* Surveyor positions during the activity surveys. (from Apple® Maps)

3.2 Survey results

3.2.1 The PRA found that the property is a large, detached, up to three storey Victorian building constructed of stone walls with pitched slate roofs. The building was found to be in generally good structural condition with no cracks or crevices in the walls, although there are areas of raised flashing, raised ridge tiles and slipped slates. Attached to the northern end of the south-west elevation is a modern two storey extension constructed of rendered and stone faced/clay tile faced brick walls with a flat roof and a two storey metal clad fire escape. Minor gaps were noted between fascia boards and walls but no other potential bat roost features were noted. Pitched/monopitch, and flat roof single storey predominantly stone-built sections are attached to the north-east elevation and while the walls are in good condition there is a large hole in the roof in one section (due to vandalism). A shed with stone walls and a corrugated metal roof is also present within the grounds. External inspection identified the buildings as being generally in a good condition. The windows and doors on all areas are either closed or boarded over but ongoing vandalism has meant that there are a small number of windows with broken glazing which could enable access by bat and bird species. Slit windows are also present on the upper level of the original building but all of these are either grilled or bricked up. Internally, there are three voids with bitumastic felt lined timber framed roofs that have been insulated throughout. Internally no gaps in roofing material were noted and cobwebs were present throughout the roof voids. The corrugated metal sheet roof was in good condition with only a few wall top areas where shafts of light enter. However, in the single storey section where the large hole in the roof was found there were droppings on the debris below and DNA analysis confirmed that they were from ***P. pygmaeus***. The cellar was also inspected but was found to be accessible only from the interior of the building with no potential bat access points found. As a result of all the findings, the property is considered to have **confirmed** potential to support roosting bats and a **confirmed** risk of bats using the features present. Site survey images are included in appendix 6, and the DNA certificate is within appendix 7.

3.2.2 Figure 5 shows the flight lines of bats detected and includes the species seen/detected and the times they were detected. Flight activity follows:

Figure 5: Aerial map (from Apple® Maps) showing the flight lines of bats detected on the surveys

25/08/2022: Sunset was at 20:17, the survey started at 20:05 and ended at 22:20
10/09/2022: Sunrise was at 06:41, the survey started at 04:40 and ended at 06:45

- ***P. pygmaeus*:** On the dusk survey four bats were seen to leave a hole in the roof on the single storey section to the north-east with the first emergence at three minutes after sunset and the last at 12 minutes after sunset. Following the first emergence, bats remained on site for around 25 minutes after the last emergence, foraging and commuting to the north, south, and east and sporadic calls were subsequently heard to the north for around 30 minutes. Activity was lower during the dawn survey with only two seen to enter via the same gap at 26 and 23 minutes before sunset with activity on site starting 15 minutes before the first re-entry, although calls were heard to the north during the last hour.
- ***P. pipistrellus:*** No bats were detected on site on either survey but calls were heard to the south and west between 39 and 53 minutes after sunset on the dusk survey and 59 and 43 minutes before sunrise on the dawn survey.

3.2.4 **Activity summary:** During the activity surveys up to **four *P. pygmaeus*** were seen to leave or enter a hole in the roof on the single storey section to the north-east of the property, and this species and ***P. pipistrellus*** were also detected foraging and commuting within the surroundings.

3.2.5 **No evidence of nesting birds was found** and no signs of the presence of **Owl** was found.

4. Interpretation, conclusions and recommendations

4.1 Interpretation and conclusions

4.1.1 Using the findings of the desk study, it is concluded that the property is located within favourable bat habitat and is within 10km of two sites which are designated for their bat interest.

4.1.2 **Roost Characterisation Assessment:** from the evidence gathered it is considered that the property is being used by ***P. pygmaeus*** **(three confirmed) bats as a summer daytime roost and by an individual *P. pipistrellus* as an occasional summer daytime roost.** A summary of the evidence that led to the conclusions follows:

- ***P. pygmaeus:*** There are no sites within 10km that are designated for this species, but there are publicly accessible records for a non-maternity ***Pipistrellus*** **species** roost within 400m. No bats were found during the scoping survey but droppings were found on debris beneath the hole in the single storey section on the north-eastern side with the species being confirmed by DNA analysis. On the dusk survey four bats were seen to leave a hole in the roof on the single storey section to the north-east with the first emergence at three minutes after sunset and the last at 12 minutes after sunset. Following the first emergence, bats remained on site for around 25 minutes after the last emergence, foraging and commuting to the north, south, and east and sporadic calls were subsequently heard to the north for around 30 minutes. Activity was lower during the dawn survey with only two seen to enter via the same gap at 26 and 23 minutes before sunset with activity on site starting 15 minutes before the first re-entry, although calls were heard to the north during the last hour. The data confirm that a roost is present at the property, with the low number of droppings and number and timing of bats suggesting that it is not a maternity roost and is more likely to be a summer daytime roost**.**
- ***P. pipistrellus:*** There are no sites within 10km that are designated for this species, but there are publicly accessible records for a non-maternity roost within 500m. No bats or their signs were found during the scoping survey, and no bats were detected on site on either survey. However, calls were heard to the south and west between 39 and 53 minutes after sunset on the dusk survey and 59 and 43 minutes before sunrise on the dawn survey. However, on the 2016 survey an individual bat was seen to enter the modern two storey section on the dawn survey. The emergence and re-entry data confirm that a roost is present at the property, and the number and timing of bats suggest that it is not a maternity roost and is more likely to be an occasional summer daytime roost**.**

4.1.3 **Roost significance:** In relation to roost status and significance, the data included in the figure on p. 39 of the Bat Mitigation guidelines (Mitchell-Jones, A.J., 2004a) was used, and focus was placed upon the need for appropriate – but proportionate – mitigation.

- ***P. pygmaeus*** and ***P. pipistrellus*** are considered to be common bat species and are species of Least Concern onthe IUCN Red List of Threatened species. Nationally, they are a priority species (***P. pipistrellus*** in Wales only) and have been the subject of a Species Action Plan under the UK Biodiversity Action Plan, the population is considered to be stable and its conservation status is favourable. As a result, the **roost at the site is considered to be of low conservation significance.**

See appendix 8 which shows roost status and resulting mitigation/compensation requirements. In relation to timing and monitoring, there are no timing constraints and there is flexibility over provision of bat boxes, access to new buildings etc. Using this it can be considered that the proposed mitigation is considered suitable as it recreates roost spaces at the property as well as providing additional enhancement on site for all species detected using the site.

4.1.4 In relation to use of the property at other times of the year by those species considered to be roosting:

- In relation to ***P. pygmaeus*** **and** ***P. pipistrellus***, they will use small cracks and crevices within cavity walls in a church roof or bell tower,a quiet place in a large house, a hollow tree, or rock crevice where small groups will form clusters. The species has a relatively flexible winter hibernation strategy and will fly when the weather is mild. They will also use bat boxes to hibernate. It is therefore considered that there is **very low** potential for these bat species to be hibernating in the property.

However, the measures to be put in place (e.g., inspection prior to works commencing and timing to avoid sub-optimal weather conditions such as when bats may be in deep torpor) will ensure that any risk is minimised.

4.1.5 *Crevice-dwelling bats* such as ***P. pygmaeus*** and ***P. pipistrellus*** can crawl into roosts via small gaps in the range of 15–20mm high by 20–50mm wide. The roost area should maintain a crevice of this approximate size gap that the bats can roost between. The area this roost provision covers can be small but about $1m^2$ would be useful for summer nursery roosts. The height of entry can be from 2–7m. All bats and their roosts, irrespective of the number of bats, species, and whether bats are present or not, receive protection from the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended). As a result, in the absence of mitigation, the proposed works could result in the damage/destruction of a bat roost for one species of bat as well as the potential disturbance, killing and/or injury of bats. Destruction of a roost is an absolute offence under the above legislation and **therefore, an EPS derogation licence must be obtained from Natural Resources Wales for the works to be legally undertaken on the Barn at the property.**

4.1.6 Enforceable conditions of the EPS licence will require the maintenance of mitigation measures already incorporated to minimise the risk of disturbance, killing or injury of bats (i.e. timing and methods of demolition works), and compensation measures to ensure there is continued bat roosting provision at the site and that the site is enhanced for protected species. These are outlined in section 4.2 and detailed in 5.1.

4.1.7 There are not considered to be any survey limitations which would impact upon the findings and recommendations of this report.

4.2 Recommendations

4.2.1 As noted in section 4.1 above, all bats and their roosts are protected under the Conservation of Habitats and Species Regulations 2017, and the Wildlife and Countryside Act 1981 (as amended). An EPS licence must be obtained for the works to legally proceed.

4.2.2 ***P. pygmaeus*** and ***P. pipistrellus*** are species of principal importance. With regards to such species (Biodiversity Action Plan (BAP) species) in Wales, under section 42 of the Natural Environment and Rural Communities Act 2006, and sections 6 and 7 of The Environment (Wales) Act 2016 – the LPA must 'have regard' to the conservation of their biodiversity in considering the planning application. In the Environment (Wales) Act 2016 Section 6 *places a duty upon Local Authorities to enhance biodiversity and the resilience of ecosystems* and 7 to *Creating local biodiversity lists and a duty to take steps to maintain and enhance biodiversity*.

4.2.3 Measures will be required to help meet obligations within The Environment (Wales) Act 2016 and Planning Policy Wales 11th Edition (February 2021); as well as compensate for the loss of roosting opportunity. Excellent long-term enhancement can be delivered, see appendix 5 for proposed locations and appendix 9 for proposals and examples. Mitigation measures (against the

risk of disturbing, killing, or injuring bats during the works), and compensation measures (to provide continued bat roosting provision at the site) will need to be implemented as conditions of the licence. The recommendations are as follows:

- ***Recommendation 1 (Enhancement)*:** Prior to works commencing, x 2 Improved Roost Maternity (or similar) Bat Box and 2 x Harlech Woodstone (or similar) bat boxes to be affixed to mature trees within the curtilage of the property. See Putting up your box - Bat Boxes - Bat Conservation Trust (bats.org.uk)
- ***Recommendation 2 (Mitigation):*** Bat access is to be provided on the new buildings through 1 x Vivaro Pro Build-in (or similar) bat box installed in each gable end wall (x 12 in total) of the new buildings.
- ***Recommendation 3 (Broadscale Enhancement)*:** As shown in in the sketch site concept layout, there will be landscaping as part of the development. As part of this, all Cat B trees and RPAs are to be retained and there will be strategic landscaping. All new planting is to be of native species that offer benefit to wildlife and it is recommended that hedgehog/wildlife tunnels are provided in any boundary fencing/walls. See 17_bats_&_hedges_leaflet.pdf (hedgelink.org.uk) and developers-1.pdf (britishhedgehogs.org.uk)

4.2.4 An outline Method Statement has been included (see 5.1) to enable the LPA to have '*regard to the requirements of the Habitats Directive… in the exercise of their functions in considering the planning application'*. A full Method Statement will be prepared as part of an EPS licence application to be submitted to Natural Resources Wales.

4.2.5 All wild birds and their nests (when in use), eggs and dependent young are afforded protection under the Wildlife and Countryside Act 1981 (as amended), nesting season is generally from 1st March until 31st July and works cannot be conducted whilst birds are nesting. No evidence of nesting birds was found but enhancement recommendations are as follows:

- ***Recommendation 4 (Enhancement)*:** Prior to works commencing, x 2 open-fronted and x 2 small-holed bird boxes to be affixed to mature trees within the curtilage of the property. See Where To Put A Bird Box | Nestboxes - The RSPB
- ***Recommendation 5 (Enhancement)*:** x 1 Sparrow terrace to be affixed to each gable end wall of Type A Block buildings (x 2 in total) and x 1 House martin nest cup to be affixed at the apex of each gable end wall of Type B Block buildings.

4.2.6 This ecological **report will remain valid** for a period of 18–24 months from the date of the last survey (see bulletin from NRW) i.e. **until the period between 10/03/2024 and 10/09/2024** (CIEEM, 2019). A further scoping survey may be required to update the site information if planning is not obtained or works do not commence within that period, especially if the property to be developed has fallen into disrepair.

5. Outline method statement for planning and mitigation/ compensation measures

5.1 Outline method statement for planning and mitigation/compensation measures

5.1.1 As there are bats present at the at the property, an outline method statement for both the LPA and the licence application is required; this will inform the ecologist undertaking the licensing work. If bats are discovered during any stage then work must stop and NRW be called for advice/ guidance.

5.1.2 This Outline Mitigation Strategy will form the basis of the EPS Method Statement to be submitted to Natural Resources Wales following the receipt of planning permission. It aims to address the timing and methods of activities; provision of new bat roosts and site enhancement; impact on, and maintenance of, existing roosts; lighting and habitat provisions; and monitoring.

Timing and methods of activity

5.1.3 All contractors will receive a toolbox talk prior to the commencement of works to outline the status of the building, conditions of the licence and Method Statement. High risk works will be directly supervised by a licensed bat ecologist.

5.1.4 All roof/roofware works and blocking up of any gaps will be undertaken carefully by hand and in the presence of a licensed bat ecologist. Whilst bats were only seen to leave one roof gap on the single storey section, it is always possible that they may be using other areas.

5.1.5 It is not anticipated that any bats will need to be excluded or captured during the works. See table 1 on the following page for a provisional timetable of works.

Maintaining bat roost provision

5.1.6 As per ***recommendation 1 (Enhancement),*** prior to works commencing, x 2 Improved Roost Maternity (or similar) Bat Box and 2 x Harlech Woodstone (or similar) bat boxes to be affixed to mature trees within the curtilage of the property. See Putting up your box - Bat Boxes - Bat Conservation Trust (bats.org.uk) In addition, as per ***recommendation 2 (Mitigation),*** Bat access is to be provided on the new buildings through 1 x Vivaro Pro Build-in (or similar) bat box installed in each gable end wall (x 12 in total) of the new buildings.

5.1.7 Any new timbers/timber products must be checked to ensure that chemicals toxic to bats are not used (TIN 092) and the only lining membrane for the areas that bats may encounter is 1F traditional bitumen membrane. Research has demonstrated that **none** of the modern breathable membranes currently on the market are safe to use where bat roost mitigation is provided.

Lighting and Habitat provisions

5.1.8 **Lighting plans** for the property are not currently known but will be included on the final plans to be submitted. However, there will be no lighting shining on any of the bat access points. Should any lighting be proposed, it must be ensured that exterior lighting is kept to a minimum to prevent any adverse impacts on bats. In particular, external lighting around the recommended mitigation/enhancement must be carefully designed to avoid any impact upon bats (Institution of Lighting Professionals, 2018). Any external lighting scheme proposed for this application will need to demonstrate compliance with the lighting principles outlined within the guidance referenced above. This lighting plan must be agreed by the LPA Ecologist.

5.1.9 Where **external lighting** is necessary, this should utilise a number of key design points to limit any impact, as follows: Low level lighting pointed towards the ground; LED bulbs to be used of 2700 Kelvin (*p.18 of the lighting guidelines referenced above*) and below (warm white light and not daylight); use of light shields and hoods to direct the light downwards and prevent vertical and horizontal light spill; and use of passive infrared (PIR) motion sensors on timers to ensure lights only come on when necessary.

5.1.10 Habitat. There are no known plans to significantly alter the habitat at the property (some landscaping is proposed). Measures to support House martin and House sparrow have been provided as they are a UK BAP species. Suitable designs and measurements may be found within the publication '*Biodiversity for low and zero carbon buildings – a technical guide for new build*' (Williams, 2010). In addition, as per ***recommendation 3 (Broadscale Enhancement),*** as shown in in the sketch site concept layout, there will be landscaping as part of the development. As part of this,

all Cat B trees and RPAs are to be retained and there will be strategic landscaping. All new planting is to be of native species that offer benefit to wildlife and it is recommended that hedgehog/wildlife tunnels are provided in any boundary fencing/walls. See 17_bats_&_hedges_leaflet.pdf (hedgelink.org.uk) and developers-1.pdf (britishhedgehogs.org.uk)

Table 1: Provisional timetable of works

Stage	Dates	Works
0	From receipt of planning permission to receipt of EPS licence	• NO works to the property. Installation of the following: • ***Recommendation 1 (Enhancement)*:** Prior to works commencing, x 2 Improved Roost Maternity (or similar) Bat Box and 2 x Harlech Woodstone (or similar) bat boxes to be affixed to mature trees within the curtilage of the property. See Putting up your box - Bat Boxes - Bat Conservation Trust (bats.org.uk) • ***Recommendation 4 (Enhancement)*:** Prior to works commencing, x 2 open-fronted and x 2 small-holed bird boxes to be affixed to mature trees within the curtilage of the property. See Where To Put A Bird Box | Nestboxes - The RSPB ***The above are all to be inspected by the named ecologist on the EPS (Bats) Licence prior to any licensable works commencing.***
1	From receipt of EPS licence	• Toolbox talks. • Ecologist to be on site when all roof/roof ware works are taking place as well as during the blocking up of any potentially exploitable cracks/crevices. • ***Recommendation 2 (Mitigation):*** Bat access is to be provided on the new buildings through 1 x Vivaro Pro Build-in (or similar) bat box installed in each gable end wall (x 12 in total) of the new buildings. Non-licensable works to be undertaken as part of the development are as follows: • ***Recommendation 3 (Broadscale Enhancement)*:** As shown in in the sketch site concept layout, there will be landscaping as part of the development. As part of this, all Cat B trees and RPAs are to be retained and there will be strategic landscaping. All new planting is to be of native species that offer benefit to wildlife and it is recommended that hedgehog/wildlife tunnels are provided in any boundary fencing/walls. See 17_bats_&_hedges_leaflet.pdf (hedgelink.org.uk) and developers-1.pdf (britishhedgehogs.org.uk) • ***Recommendation 5 (Enhancement)*:** x 1 Sparrow terrace to be affixed to each gable end wall of Type A Block buildings (x 2 in total) and x 1 House martin nest cup to be affixed at the apex of each gable end wall of Type B Block buildings.
2	Completion of all works	• Monitoring check upon completion by named ecologist to confirm bat access points installed correctly and to inspect the bat and bird boxes. • Reporting to NRW/Welsh Government (by named ecologist) within 4 weeks of completion of works.

5.1.11 Monitoring. In line with mitigation guidelines, there are no conditions relating to timing or monitoring where small numbers of common bat species are present. However, a monitoring check will be undertaken upon completion by the named ecologist to confirm bat access points have been installed correctly and to inspect the bat boxes. Reporting to NRW/Welsh Government (by named ecologist) will be undertaken within four weeks of completion of works/monitoring.

5.1.12 Maintenance. The installation of bat mitigation and enhancement measures are to be completed prior to/during the development, and the patency and viability of any roosts will be examined and reported on as required. These will all be checked by the licensed ecologist as part of the agreed monitoring scheme within the EPS (Bats) Method Statement to be prepared as part of the licence application. Post development and monitoring, the bat measures will be retained and maintained by the owner, along with the surrounding vegetation. If ownership changes then the requirement to maintain any mitigation/enhancement measures is to be included in the relevant legal documents. The bat boxes are self-maintaining and do not require any management but are to be replaced if damaged, after discussion with a licensed bat ecologist/NRW.

Appendix 1: An introduction to bat surveys

A note on bat surveys

- All bats and their roosts, irrespective of the number of bats, species, and whether bats are present or not, are fully protected by the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended). Bats are the only mammal capable of true flight. They are notoriously difficult to survey for as they cannot be heard unaided and are difficult to see due to their nocturnal behaviour. They are also small and can live in the smallest of crevices, so may often be overlooked because of their size.

- Wales has relatively high numbers of most of the species that occur in Britain; the rural landscape with its abundance of wooded areas, river valleys and hedgerows means that buildings are commonly used as roosting sites by bats. This is particularly the case for older buildings (typically with stone walls and slate roofs) that are located close to good feeding areas, on the edge of settlements, or that are rarely disturbed.

- Bats may also change their resting and feeding places regularly throughout the year, depending on the time of year and weather conditions. Thus, other signs of use are also looked for such as their droppings or signs of feeding.

- To gain an understanding as to how bats are using a building, a survey may also involve dusk and/or dawn observations which may need to be repeated at different times throughout the year.

- The search buffers implemented as part of the survey are considered to more than adequately cover the predicted zone of influence of the proposed development. The reasons for the site designations have also been considered when discussing potential impacts on the biodiversity of these sites. If the sites are designated for their bat or bird interest, this will be mentioned.

- Survey methodologies are implemented as appropriate, based on the surveyors' assessment of the site features and with particular reference to the advice in Bat Surveys for Professional Ecologists: Good practice guidelines, 3rd edition (Collins, J. (Ed.), 2016) & The Bat Workers' Manual, 3rd edition. (Mitchell-Jones, A.J., & McLeish, A.P. (Ed.), 2004). Reports are written with reference to the CIEEM (2015) Guidelines as well as BS42020.

- A PRA visit (scoping survey) is used to identify all potential access and egress points for bats in the building, and to identify crevices and possible dwelling places. Internal and external inspections are aided using powerful binoculars and close-focussing monoculars, as well as ladders, high powered Cree flashlights and head-torches. We also have thermal imaging cameras and night vision devices at our disposal as well as full spectrum photographic cameras which can photograph a bat in complete darkness with an infrared flash. Exploitable crevices are also endoscoped with either a hand-held digital scope or a smart phone compatible scope. Digital thermometers and hygrometers are also at our disposal.

- The survey consists of a visual inspection of the interior and exterior of the building(s) for evidence of bat use, including droppings, smells, feeding remains, staining, and scratching around roost exit and entry points. Potential features conducive (but not necessarily predictive) to bat presence include voids in the stonework, wooden beams, any associated rot holes, gaps behind soffits or within walls and facia boards, raised tiles, any raised render, and any sufficiently large crevices. The general condition of the building(s) is examined, including the structure of the roof, condition of walls, the potential for disturbance, and the position of the building in relation to connectivity to good bat habitat.

- If positive bat signs are discovered, or the construction style suggests cryptic bats *may* be present, a passive bat recorder is commonly deployed within the space of the building surveyed (often depending upon site and building security). These commonly record all bats from within as well as to the exterior of a building as they have extremely sensitive microphones so clusters of calls or high frequency of calls over short periods that are repeated (not just a vocal (Chatty) bat passing the microphone once on a foraging /socialising expedition) may indicate a presence within the building. Supporting evidence is then needed to make a decision, such as bats seen during surveys, droppings and feeding signs as well as building suitability for a given species. For example, we have had clear sonograms for Serotine bats (*Eptesicus serotinus*) from a loft space deployed recorder where no gaps existed anywhere and no droppings from serotines were present. These large bats must have been present elsewhere on site or use the site for foraging.

- The outcomes have been used to specify whether further surveys are required, or to establish the need for, and extent of, any mitigation or compensation measures required as part of the proposed works.

- If positive signs of bat activity are found then it will be necessary to assess whether a licence is needed (damage and disturbance to the roost and harm to bats can be avoided through thoughtful and planned working practices), or whether a licence is recommended as damage, disturbance or harm are unlikely to be avoided.

Appendix 2: Overview of the legislation

- All bats and their roosts, irrespective of the number of bats, species, and whether bats are present or not, are fully protected by the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended).
- There is a risk that works could result in the damage or destruction of a bat roost or roosts, the disturbance of bats, and the potential killing or injury of bats, sufficient survey effort (where indicated) helps to minimise this risk.
- All wild birds, their nests, eggs, and dependent young are afforded protection under the Wildlife and Countryside Act 1981 (as amended), with the bird nesting season generally from 1st March until 31st August.
- Technical Advice Note (TAN) 5 (Welsh Government, 2009) specifically provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. The TAN provides advice for local planning authorities on the key principles of positive planning for nature conservation; nature conservation and Local Development Plans; nature conservation in development management procedures; development affecting protected internationally and nationally designated sites and habitats; and development affecting protected and priority habitats and species. Under Section 2.4 within the TAN 5, 'when deciding planning applications that may affect nature conservation local planning authorities should':
    - Pay particular attention to the principles of sustainable development, including respect for environmental limits, applying the precautionary principle, using scientific knowledge to aid decision making and taking account of the full range of costs and benefits in a long-term perspective;
    - Contribute to the protection and improvement of the environment, so as to improve the quality of life and protect local and global ecosystems, seeking to avoid irreversible harmful effects on the natural environment;
    - Promote the conservation and enhancement of statutorily designated areas and undeveloped coast;
    - Ensure that appropriate weight is attached to designated sites of international, national and local importance;
    - Protect wildlife and natural features in the wider environment, with appropriate weight attached to priority habitats and species in Biodiversity Action Plans;
    - Ensure that all material considerations are taken into account, and decisions are informed by adequate information about the potential effects of development on nature conservation;
    - Ensure that the range and population of protected species is sustained; and
    - Adopt a stepwise approach to avoid harm to nature conservation, minimise unavoidable harm by mitigation measures, offset residual harm by compensation measures and look for new opportunities to enhance nature conservation; where there may be significant harmful effects local planning authorities will need to be satisfied that any reasonable alternative sites that would result in less or no harm have been fully considered.
- Bats are listed under Schedule 5 and 6 of the Wildlife and Countryside Act 1981 and protected under sections 9 and 11 (as amended by the Countryside and Rights of Way (CRoW) Act 2000).

- The Environmental Damage (Prevention & Remediation) Regulations 2009 – A protected species and its habitat are protected under this legislation as well as others.

- The Conservation of Habitats and Species Regulations 2017 – (regulation 43) fully protects all bats and their roosts, making it **an offence** *to deliberately kill*, *injure or capture* (take) bats; *to* deliberately *disturb bats; damage or destroy bat roosts* or resting places (this is considered an 'Absolute Offence' as damage and destruction may detrimentally effect the Continuous Ecological Functionality of that roost/resting place); possess or transport a bat or any part of a bat; sell (or offer for sale) or exchange bats or parts of bats.

- Bats are also protected by: Appendix III of the Bern Convention; Appendix II of the Bonn Convention (including the Convention's Agreement on the conservation of Bats in Europe); Natural Environment and Rural Communities Act 2006 (in England); and The Environment (Wales) Act 2016: specifically, Sections 6 (*places a duty upon Local Authorities to enhance biodiversity and the* ***resilience of ecosystems***) and 7 (*Creating local biodiversity lists and a duty to take steps to* ***maintain and enhance biodiversity***).

- For any offence to occur a derogation or **European Protected Species (EPS) licence** must be gained from Natural Resources Wales. To gain an EPS Licence, they must be satisfied that;

  i. granting the licence would not be detrimental to the Favourable Conservation Status (FCS) of the populations of species concerned within its natural range;

  ii. the derogation (licence) is in the public interest of Health and Safety or for other reasons of over-riding public interest, including those of a socio-economic nature or will have a benefit of primary importance to the environment; and

  iii. there is no satisfactory alternative to the derogation which would allow the described development to proceed but which would avoid or reduce, the need for any adverse impact to the species.

- All bats are listed in Annex IV of The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and are therefore designated as *European Protected Species*. These *protected* species are afforded enhanced protection and more stringent licensing provisions than those protected by the Wildlife and Countryside Act (WACA) alone. There are also biodiversity obligations to be met within the Well-being of Future Generations (Wales) Act 2015 [WFG] and the seven well-being goals which include an emphasis on socio-economic resilience as well as protecting culture, heritage and the Welsh language. One Act does not take precedence over the other.

- Planning Policy Wales (11th Ed.) also emphasises the importance of ensuring – wherever possible – a net gain to biodiversity from any development. Future Wales (The National Plan 2040) highlights in the 10th of 11 outcomes that the aim is for a "Wales where people live…in places with biodiverse, resilient and connected ecosystems". Highlighting the importance for creating and enhancing resilient and diverse eco-systems.

- Future Wales – the National Plan 2040 states the following:

  - Outcome 10 focuses on places with biodiverse, resilient and connected ecosystems. As such, the variety of flora and fauna found across Wales make Wales a special place. Biodiversity underpins the functioning of healthy, resilient ecosystems and the multiple benefits they provide. While biodiversity has declined in recent decades, we will reverse these losses and enhance the resilience of ecosystems. The planning system will ensure wildlife is able to thrive in healthy, diverse habitats, both in urban and rural areas, recognising and valuing the multiple benefits to people and nature.

- Policy 9 is about Resilient Ecological Networks and Green Infrastructure. To ensure the enhancement of biodiversity, the resilience of ecosystems and the provision of green infrastructure, the Welsh Government will work with key partners to: • identify areas which should be safeguarded and created as ecological networks for their importance for adaptation to climate change, for habitat protection, restoration or creation, to protect species, or which provide key ecosystems services, to ensure they are not unduly compromised by future development; and • identify opportunities where existing and potential green infrastructure could be maximised as part of placemaking, requiring the use of nature-based solutions as a key mechanism for securing sustainable growth, ecological connectivity, social equality and well-being. Planning authorities should include these areas and/or opportunities in their development plan strategies and policies in order to promote and safeguard the functions and opportunities they provide. In all cases, action towards securing the maintenance and enhancement of biodiversity (to provide a net benefit), the resilience of ecosystems and green infrastructure assets must be demonstrated as part of development proposals through innovative, nature-based approaches to site planning and the design of the built environment.

Appendix 3: Types of bat roost and survey timings

As the mitigation guidelines state: The presence of a significant (important) bat roost… can normally be determined on a single visit at any time of year; providing that the entire structure is accessible and that any signs of bat activity have not been removed by others. The table below shows the applicability of survey methods. The table has been reproduced from Bat Mitigation Guidelines (table 5.2) (2004).

Season	Roost type	Inspection	Bat detectors and emergence counts
Spring (Mar – May)	Building	Suitable (signs, perhaps bats)	Limited, weather dependent
	Trees	Difficult (best for signs before leaves appear)	Very limited, weather dependent
	Underground	Suitable (signs only)	Static detectors may be useful
Summer (June – August)	Building	Suitable (signs and bats)	Suitable
	Trees	Difficult	Limited: use sunrise survey
	Underground	Suitable (signs only)	Rarely useful
Autumn (September – November)	Building	Suitable (signs and bats)	Limited, weather dependent
	Trees	Difficult	Rather limited, weather dependent; use sunrise survey?
	Underground	Suitable (signs, perhaps bats)	Static detectors may be useful
Winter (December – February)	Building	Suitable (signs, perhaps bats)	Rarely useful
	Trees	Difficult (best for signs after leaves have gone)	Rarely useful
	Underground	Suitable (signs and bats)	Static detectors may be useful

The table below shows the recommended survey timings and is reproduced from the Good Practice Guidelines (table 7.1) (3rd Edition, 2016). This is for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
May to August (structures) No further surveys required (trees)	May to September[a] with at least one of the surveys between May and August[b]	May to September[a] with at least two of the surveys between May and August[b]

[a] September surveys are both weather and location dependent. Conditions may become more unsuitable in these months, particularly in more northerly latitudes, which may reduce the length of the survey season.

[b] Multiple survey visits should be spread out to sample as much of the recommended survey period as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more, unless there are specific ecological reasons for the surveys to be closer together (for example, a more accurate count of a maternity colony is required but it is likely that the colony will soon disperse). If there is potential for a maternity colony then consideration should be given to detectability. A survey on 31 August followed by a mid-September survey is unlikely to pick up a maternity colony. An ecologist should use their professional judgement to design the most appropriate survey regime.

The table below shows the recommended minimum number of surveys to be carried out according to roost potential. It is reproduced from the Good Practice Guidelines (table 7.3) (3rd Edition, 2016).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry[a] (structures). No further surveys required (trees)	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey[b]	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[b]

[a]Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (as noted in section 5.2.9 of the guidelines). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

[b] Multiple survey visits should be spread out to sample as much of the recommended survey period (see table 7.1 above) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

Roosts required by bats

Hibernation sites (hibernacula). Sheltered areas with relatively stable winter temperatures.
Underground cavities, caves, mines, cellars, hollow trees and cavities and crevices in buildings or similar structures are examples.

Nursery roosts (maternity roosts). Places usually warm, where adult females of a colony gather to give birth and rear their young. These are often traditional sites with a history of such use and include roof voids, walls, soffit boxes, hollows and cracks/splits in trees and cavities in bridges and similar structures.

Night roosts/feeding perches. Places where bats may gather at night away from the day roost after initial feeding. These places are often quite exposed and may not be suitable for day roosting. They are often recognisable by deposits of droppings and insect remains.

Intermediate/dispersal roosts. Sites where small numbers of bats may gather after hibernation before taking up residence in the nursery roost. Bats may return to these sites after dispersal from the nursery roost and before entering hibernation.

Mating/male roosts. Places that an individual male may defend from other males and to which he will attempt to lure females. These will include small holes/cavities in trees, stonework, caves, mines and buildings.

Access, size of roost space and structure

• *Crevice-dwelling bats* (such as Soprano pipistrelles) can crawl into roosts via small gaps in the range of 15–20mm high by 20–50mm wide. The roost area should maintain a crevice of this approximate size gap that the bats can roost between. The area this roost provision covers can be small but about 1m^2 would be useful for summer nursery roosts. The height of entry can be from 2–7m.

• *Roof-void dwelling bats* require similar dimensions to access the roost but typically need timber joists or beams on which to roost. The height of entry can be from 2–7m.

• *Bats needing a flying area* require the same access dimension as mentioned above, 15– 20mm (h) x 20–50mm (w) situated over 2m in height. The roosting area should not be trussed, to allow flight, and should ideally (wherever possible) be of similar dimensions to the roost being replaced.

• *Horseshoe bats* need a larger access so that they can fly (instead of crawl) directly into the roost. Lesser horseshoe bats need an access of 300mm (w) x 200mm (h), while greater horseshoe bats need 400mm (w) x 300mm (h). As above, the roosting area should not be trussed, to allow flight, and should again (where possible) be of similar dimensions to the roost being replaced.

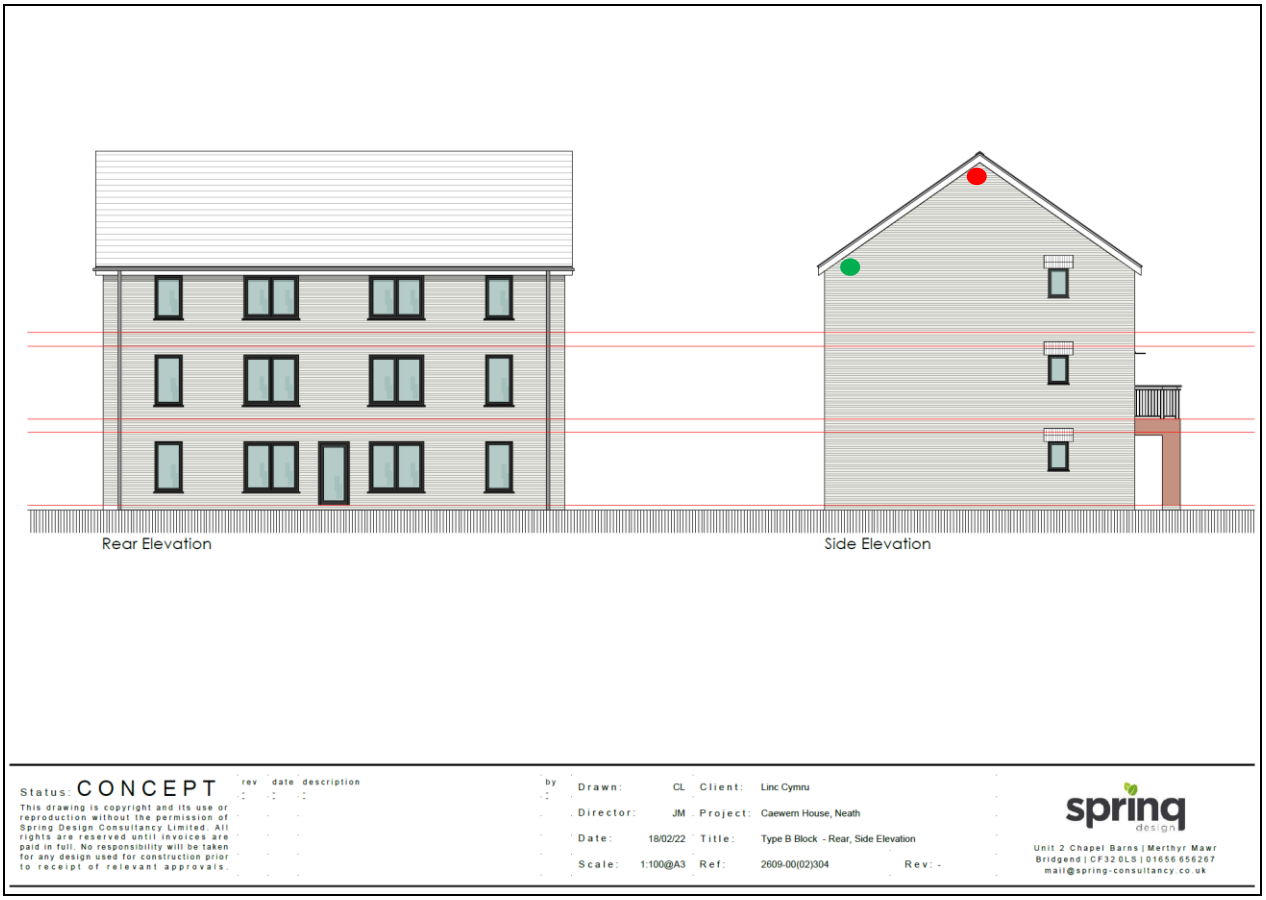
Appendix 4: List of surveyors

Surveyor	Licence	Experience/background
Mr Glyn Lloyd-Jones	Bats	Glyn has significant experience in survey skills and has assisted/worked with many other licensed bat surveyors as well as local bat groups over the past years. He possesses both a Bachelor's (with honours) and Master's degree in the biological sciences and is a Chartered Biologist & member of the Royal Society of Biology. He has worked for EAW, NRW and CCW for over a decade and has gained significant experience of working for regulators and conservation bodies. He also holds a Class 2 bat licence in England and has undertaken many badger, tree and herpetofaunal surveys. Natural Resources Wales Licence number S091520/1. I&G were shortlisted for a BCT roost award in 2021.
Mr Iestyn Evans	Bats	Iestyn has extensive experience in conservation, habitat improvement and management and has also worked with and assisted other licensed bat workers for many years. He has also helped with local bat group surveys and assisted in data gathering for the Beacon for Bats project undertaken by the Vincent Wildlife Trust. Iestyn has also assisted the Glamorgan Bat Group and will also help supervise and mentor (if needed) members of the newly incarnated Carmarthenshire Bat Group. Natural Resources Wales Licence number S090746/1.
Miss Ceri Daugherty	Bats	Ceri worked at Team Leader level within the SNCO for Wales for many years, dealing with customers and negotiating with landowners. She also has practical conservation management experience as both a Countryside Ranger and a conservation volunteer. She possesses a Master's degree in Environmental Impact Assessment and a Bachelor's degree (with honours) in the natural sciences. She is a member of the Carmarthenshire Bat Group. Natural Resources Wales Licence number S089483/1.
Mr Pete Watts	Trainee	Peter provides survey support with his keen eye for detail and vigilance. He has accompanied I&G Ecological Consulting Ltd on many surveys and is becoming a valuable and experienced surveyor.
Mr Greg Evans	Trainee	Greg attends dusk and dawn surveys to provide extra monitoring for possible entry and exit points for bats. He is currently building his experience in this area and is a keen amateur natural historian with an enthusiasm and affinity for bats.
Mr Mike Jones	Assistant	Whenever we need extra assistance in observing and recording bat activity on buildings, Mike provides an excellent and reliable service
Ms Sharon Doherty	Assistant	Whenever we need extra assistance in observing and recording bat activity on buildings, Sharon provides an excellent and reliable service.
Mr Lewis Jones	Assistant	A Graduate with a background in the biological sciences with an aptitude and passion for ecology. Lewis has undertaken courses in herpetology and phase 1 surveys and has a hunger to learn. With a fondness for bats and owls he's also keen to develop his survey skills in this area.
Ms Bonnie Illingworth	Assistant	Bonnie has been a member of the Kent Bat Group for a number of years and has undergone formal training in leading Bat Walks by Shirley Thompson, who set up The Young Batworkers group/magazine etc. She has led several educational sessions for the Scouts and local community groups. She has undertaken many bat activity surveys and has enjoyed conservation work with BCT.
Ms Wendy Larcombe	Assistant	Wendy has an Honours degree in Environmental Biology and over 17 years' experience working in conservation, including as a Planning Ecologist and a freelance Ecologist. She has a wide range of experience, which includes extended Phase 1 habitat surveys, building assessment for bats, bat/barn owl surveys , summer roost counts (Gower), and winter roost counts (Black Mountains. She has undertaken a range of training including bat ecology and surveying and is a valued member of the team.

Appendix 5: Site plans

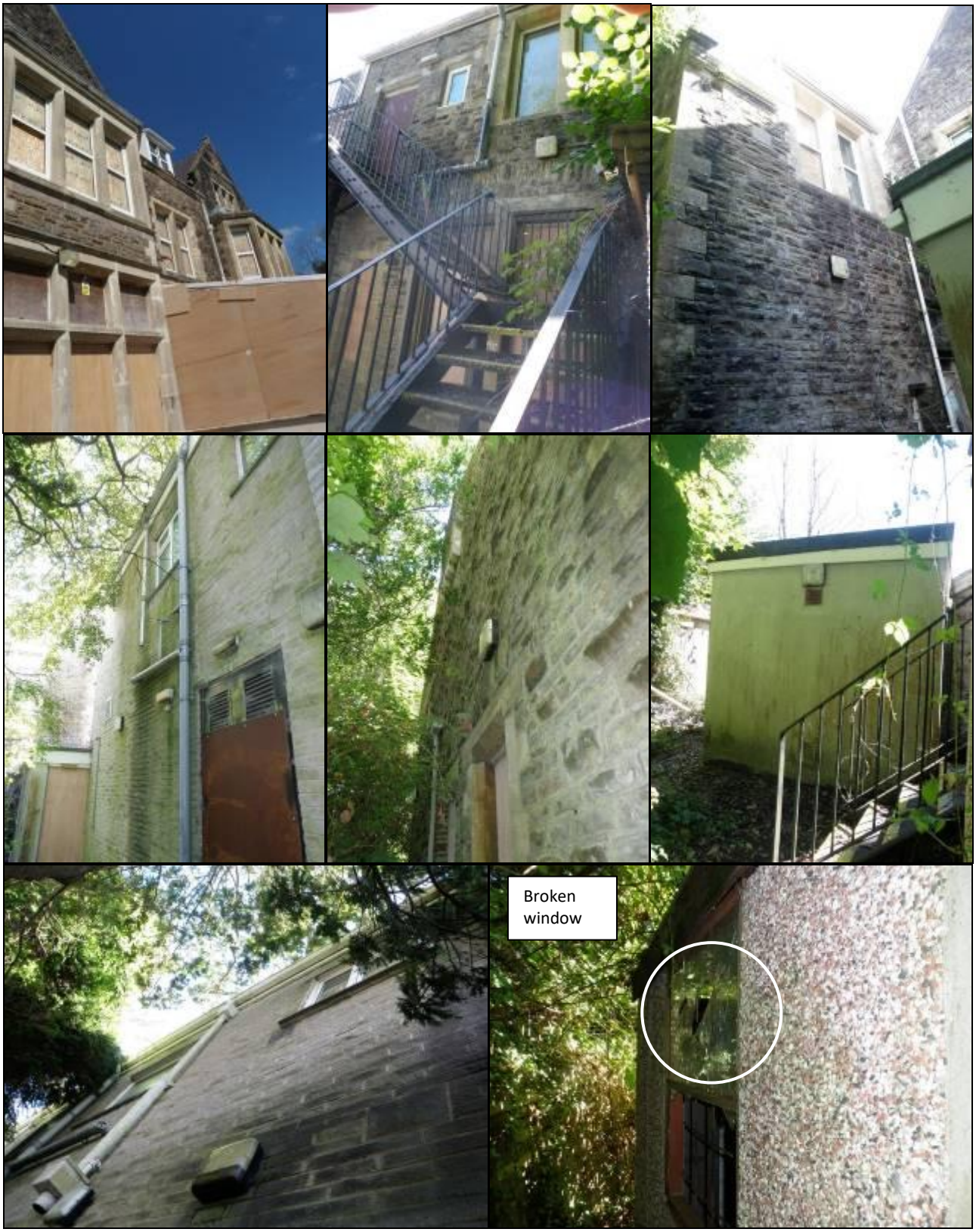
Above: Type A Block – proposed front and side elevations. **Below:** Type A Block – proposed rear and side elevations. The proposed locations for the Build-in bat boxes are shown by red dots, and the proposed location for the Sparrow terraces are shown by blue dots.

Above: Type B Block – proposed front and side elevations. **Below:** Type B Block – proposed rear and side elevations. The proposed locations for the Build-in bat boxes are shown by red dots, and the proposed location for the House martin nest cups are shown by green dots.

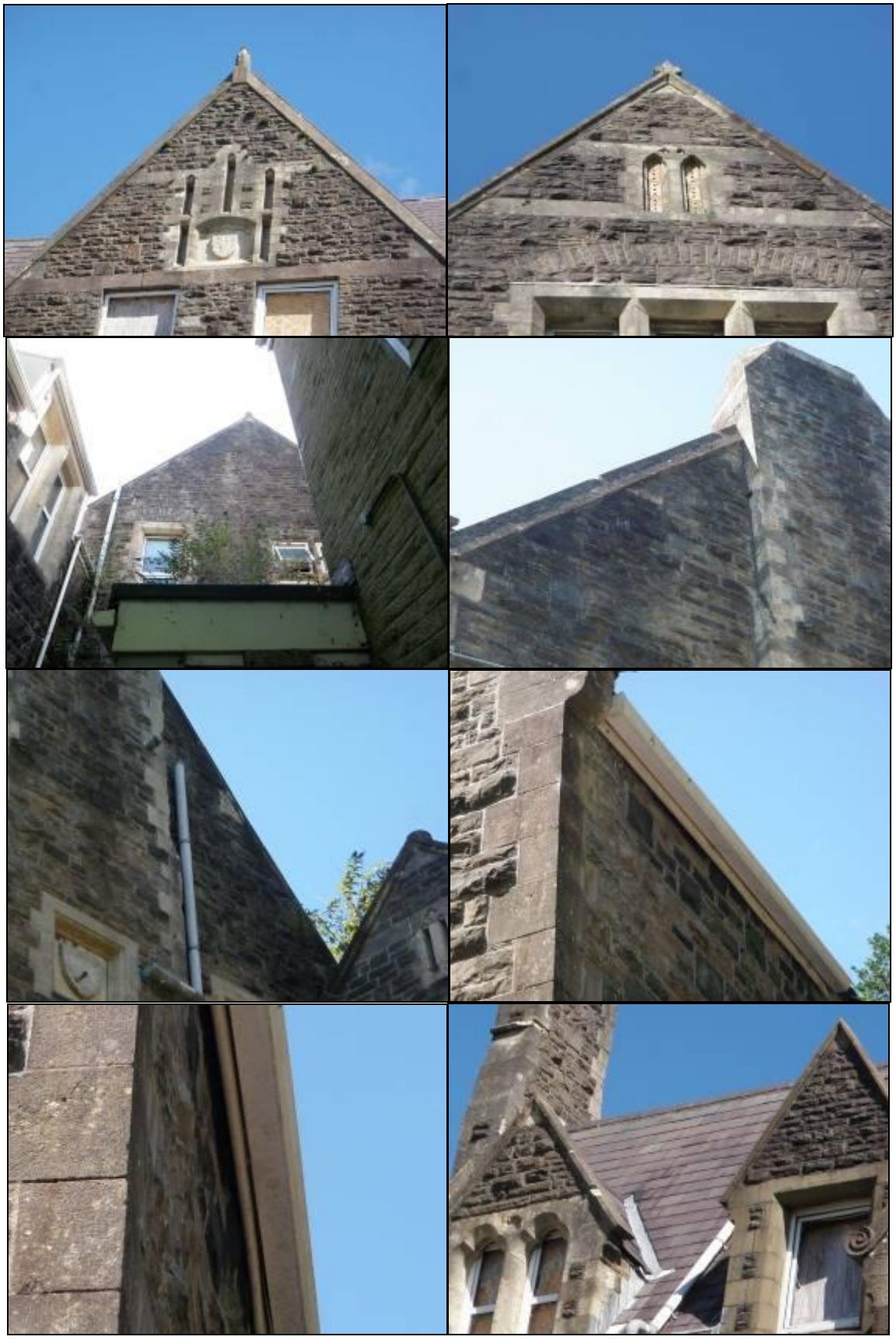


Appendix 6: Site survey images

The original part of the property is a large, detached, up to three storey Victorian building constructed of stone walls with pitched slate roofs. The building was found to be in generally good structural condition with no cracks or crevices in the walls, although there are areas of raised flashing, raised ridge tiles and slipped slates. Pitched/monopitch, and flat roof single storey predominantly stone-built sections are attached to the north-east elevation and while the walls are in good condition there is a large hole in the roof in one section (due to vandalism). A shed with stone walls and a corrugated metal roof are also present within the grounds. External inspection identified the buildings as being generally in a good condition.

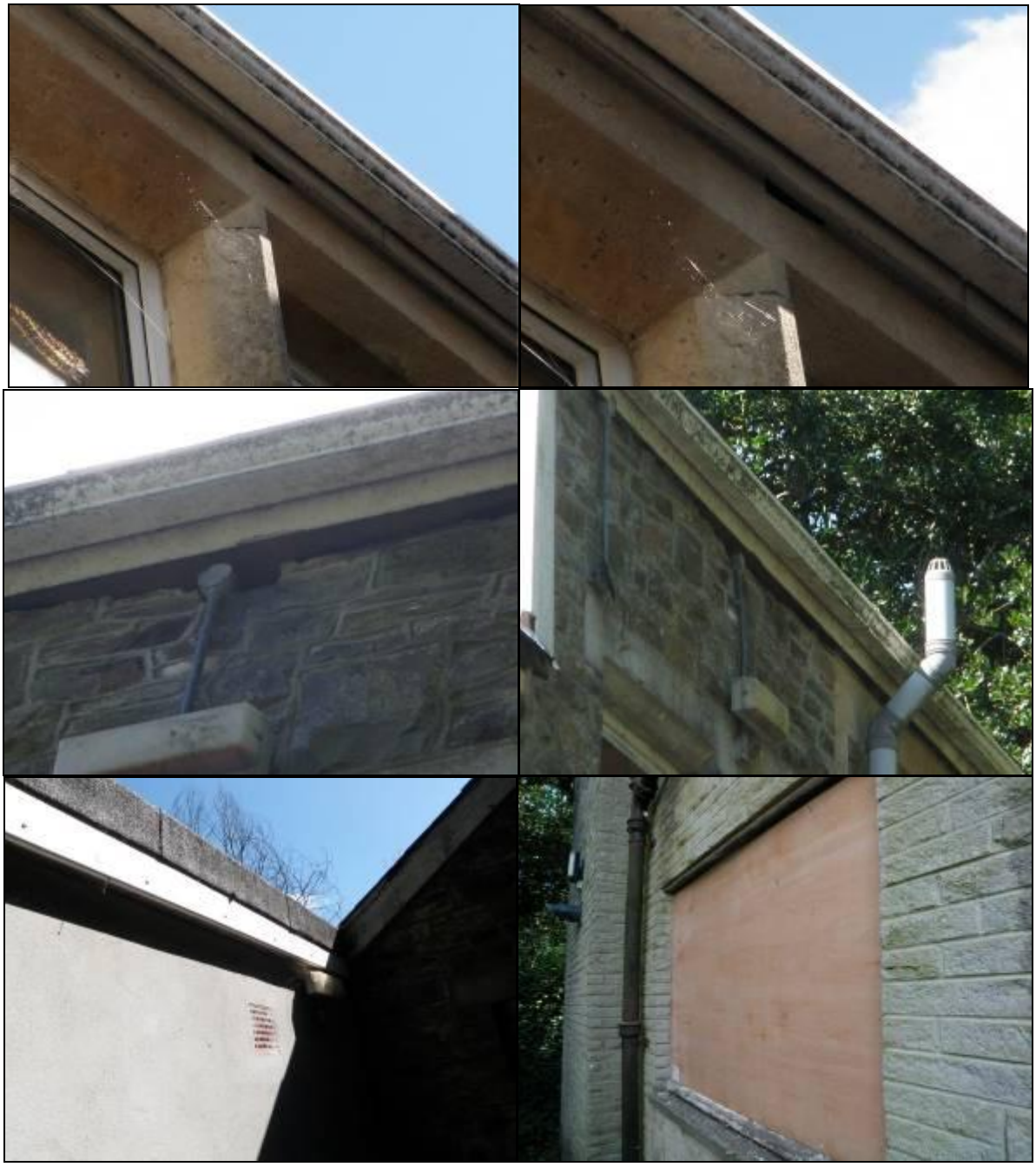


Additional exterior images.



Additional exterior images of the main part of the Victorian building.

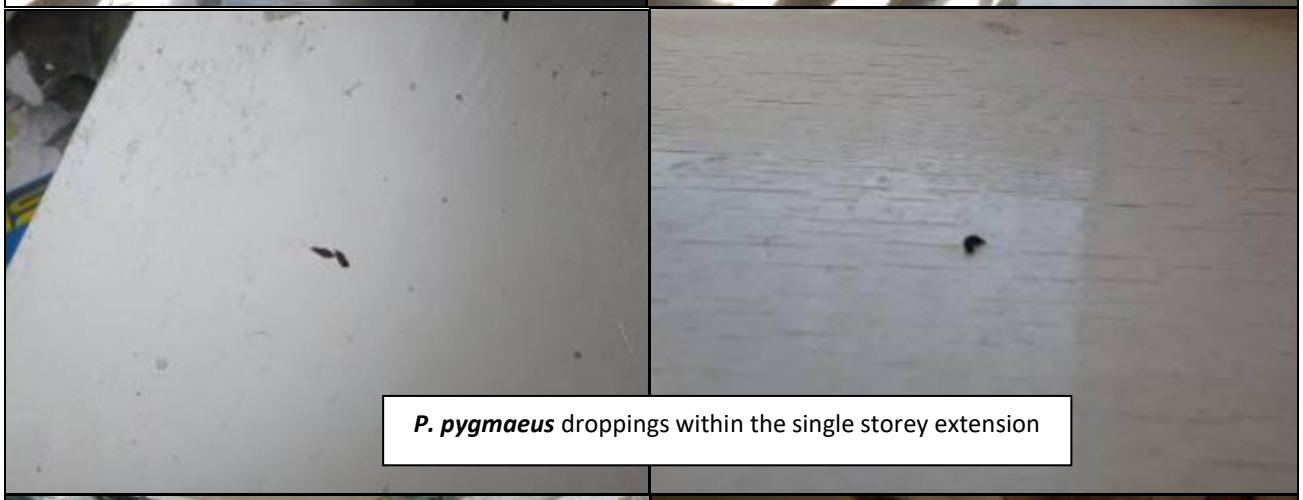
Attached to the northern end of the south-west elevation is a modern two storey extension constructed of rendered and stone faced/clay tile faced brick walls with a flat roof and a two storey metal clad fire escape. The modern flat roof two storey extension of brick construct with an associated metal clad fire escape. Minor gaps were noted between fascia boards and walls but no other potential bat roost features were noted.



The windows and doors on all areas are either closed or boarded over but ongoing vandalism has meant that there are a small number of windows with broken glazing which could enable access by bat and bird species. Slit windows are also present on the upper level of the original building but all of these are either grilled or bricked up.

Internally, there are three voids with bitumastic felt lined timber framed roofs that have been insulated throughout. Internally no gaps in roofing material were noted and cobwebs were present throughout the roof voids. The corrugated metal sheet roof was in good condition with only a few wall top areas where shafts of light enter.

Hole in the single storey roof– the droppings were found on debris below this



P. pygmaeus droppings within the single storey extension

Where the large hole in the roof was found there were droppings on the debris below and DNA analysis confirmed that they were from ***P. pygmaeus***.

The cellar was also inspected but was found to be accessible only from the interior of the building with no potential bat access points found.

Appendix 7: DNA certificate

Lab Sample ID.	Site Name	O/S Reference	Genetic Sequence	Common Name	Result	Sequence Similarity
B932	Caewern		CTTATGATCGGAGCCCCCGACATGGCCTTTCCTCGTATAAATAATATGAGTTTCTGACTTCTGCCCCCTTCTTTTCTACTACTACTAGCCTCATCTATAGTGGAAGCGGGAGCGGGTACGGGCTGAACAGTCTATCCCCC TCTA	Soprano pipistrelle	*Pipistrellus pygmaeus*	98.55%

Appendix 8: Roost status and mitigation

The figure below is taken from p. 39 of the Bat Mitigation guidelines (Mitchell-Jones, A.J., 2004a) and focus upon the need for appropriate, but proportionate, mitigation**.**

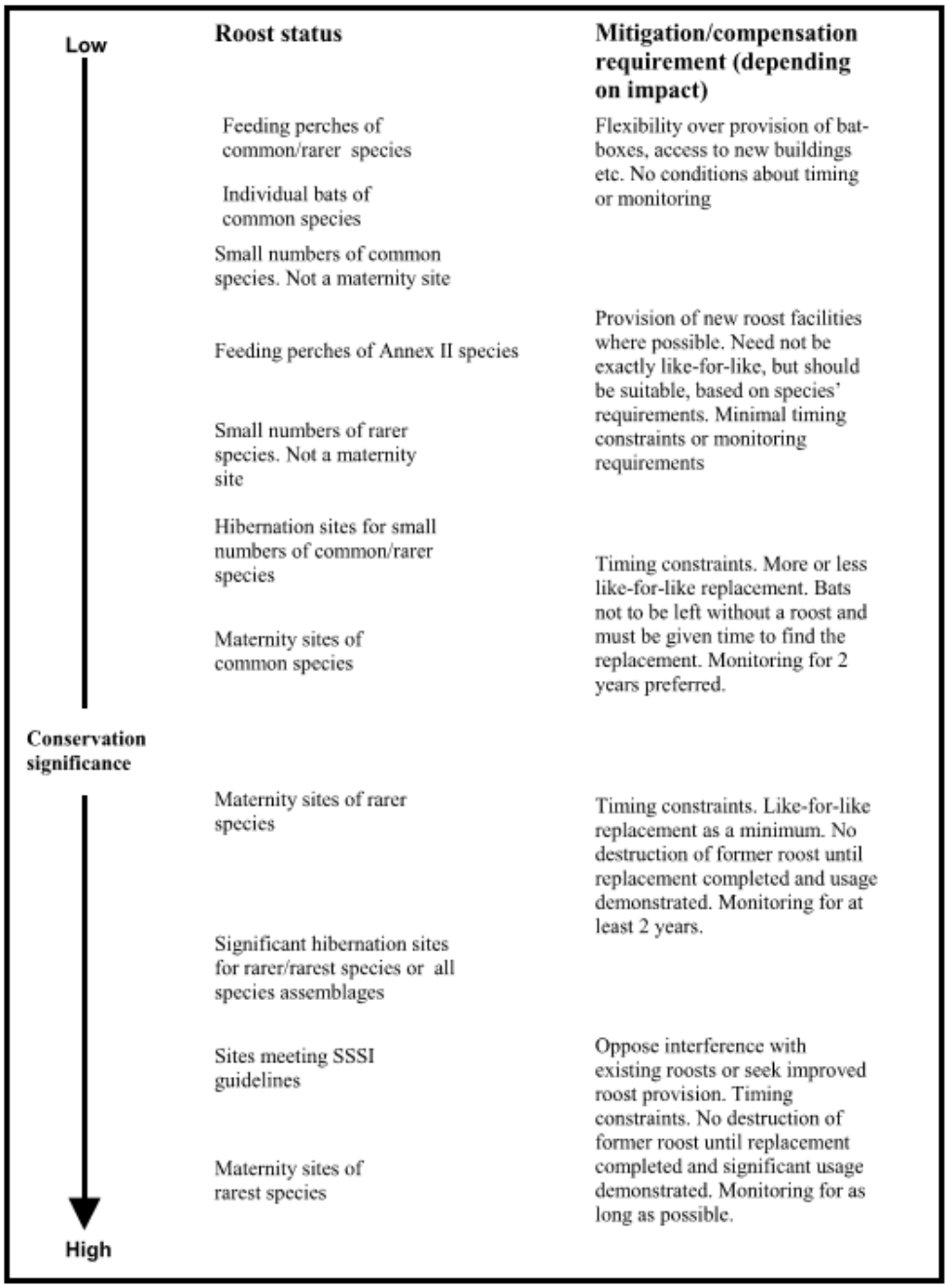


Figure 4. Guidelines for proportionate mitigation. The definition of common, rare and rarest species requires regional interpretation.

Appendix 9: Roost compensation & enhancement measures

Mitigation and enhancement recommendations:

- ***Recommendation 1 (Enhancement)*:** Prior to works commencing, x 2 Improved Roost Maternity (or similar) Bat Box and 2 x Harlech Woodstone (or similar) bat boxes to be affixed to mature trees within the curtilage of the property. See Putting up your box - Bat Boxes - Bat Conservation Trust (bats.org.uk)
- ***Recommendation 2 (Mitigation):*** Bat access is to be provided on the new buildings through 1 x Vivaro Pro Build-in (or similar) bat box installed in each gable end wall (x 12 in total) of the new buildings.
- ***Recommendation 3 (Broadscale Enhancement)*:** As shown in in the sketch site concept layout, there will be landscaping as part of the development. As part of this, all Cat B trees and RPAs are to be retained and there will be strategic landscaping. All new planting is to be of native species that offer benefit to wildlife and it is recommended that hedgehog/wildlife tunnels are provided in any boundary fencing/walls. See 17_bats_&_hedges_leaflet.pdf (hedgelink.org.uk) and developers-1.pdf (britishhedgehogs.org.uk)
- ***Recommendation 4 (Enhancement)*:** Prior to works commencing, x 2 open-fronted and x 2 small-holed bird boxes to be affixed to mature trees within the curtilage of the property. See Where To Put A Bird Box | Nestboxes - The RSPB
- ***Recommendation 5 (Enhancement)*:** x 1 Sparrow terrace to be affixed to each gable end wall of Type A Block buildings (x 2 in total) and x 1 House martin nest cup to be affixed at the apex of each gable end wall of Type B Block buildings.

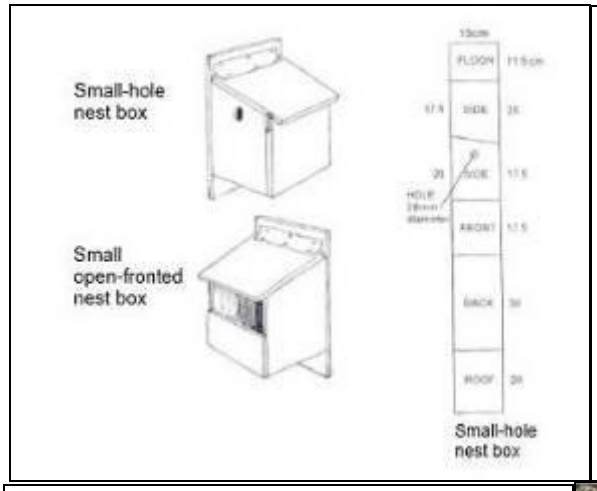
Left: The Improved Roost-Maternity Bat box is a large 3 crevice box suitable for larger roosts or maternity groups of the small British crevice-dwelling bats such as Pipistrelles. All external panels precision cut from 12mm Exterior Grade FSC plywood, for improved heat insulation. Exterior surface stained with black water based wood stain for improved thermal input, whilst avoiding any possibility of deterring use by bats due to vapour from the stain. Overhanging roof with additional internal insulation for protection from UK weather, and to seal crevices from internal airflow. 3 separate crevices each with different temperature characteristics. Wide entrance with accurately sized opening. Ideal for Pipistrelles and deters unwelcome birds etc. Internal ceramic heat sinks ensure improved temperature stability in crevices. Improved "Bat Ladder" at base of box facilitates bats landing and climbing into box. Ladder continues inside box, while textured internal surfaces ensure bats find it easy to move around inside box and hang in crevices. Ladder acts as "convector heater" for box - when sun shines on ladder, warm air rises into the box, but does not come out when the outside cools. Easy and safe to erect box on walls or trees - relatively light weight for its size, with 2 screw holes for fixing. Easy (1 screw) to remove roof for cleaning or inspection where permitted. Improved draught-proofing enhances temperature stability inside box. Rectangular back plate facilitates fitting boxes side to side to increase colony size. Improved aesthetics - looks good to humans as well as bats. Suits any building or tree. See Improved Roost-Maternity Bat Box | NHBS Practical Conservation Equipment.

Left: The Harlech WoodStone bat box offers excellent insulation with a minimum of condensation for roosting bats. WoodStone® is a mixture of sawdust from FSC wood sources and concrete, and it is designed to last for years. It is breathable so there will be no problems with condensation and Woodstone maintains a consistent temperature inside, providing excellent insulation for roosting bats. Height 24cm x width 19cm x depth 18cm; Weight 4.4kg; Colour: Black with White front panel; Hook for hanging; Removable front panel for inspection/cleaning; and 10 Year Manufacturers Guarantee.

Left: The Vivara Pro Build-in WoodStone Bat Box has been specifically designed to fit into the cavity of house walls. It features a slim sized entrance hole which can sit flush in a course of bricks to provide a discreet entry way for bats. It is manufactured from hard-wearing WoodStone and plywood with removable side panels so that several boxes can be placed side by side. Position the box at least 2m above ground level away from artificial light sources. WoodStone is a mixture of sawdust from FSC wood sources and concrete, and it is designed to last for years. It is breathable so there will be no problems with condensation and Woodstone maintains a consistent temperature inside, providing excellent insulation for roosting bats.

Lack of sunlight can cause bat box/house failure, and structures for summer roosting should be positioned where they are unshaded for most of the day. Summer maternity roosts (in the northern hemisphere) should have a southerly or westerly aspect.

Below: Examples of nest boxes. Siting advice can be found at [Where To Put A Bird Box | Nestboxes - The RSPB]



Examples of sparrow terraces, House martin nest cups, and Swallow nest cups. Siting advice can be found at [Where To Put A Bird Box | Nestboxes - The RSPB]

Appendix 10: I&G Ecological Consulting Ltd legal disclaimer

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We confirm that in preparing this report, we have exercised reasonable skill and care, taking into account the project objectives, the agreed scope of the work, and prevailing site conditions.

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All work undertaken in this report is the sole responsibility of I&G Ecological Consulting Ltd.

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