

Garth Farm
Pant
Merthyr Tydfil
CF48 2YA

A Supplementary Ecological Survey Report

Including Net Benefits for Biodiversity and a Green
Infrastructure Scheme

For

Nicola Harris

September 2024

Morgan Ecology

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Contents

1	Summary	1 – 2
2	Clarifications	2
3	Survey team experience	2 – 3
4	Assessment methodology	3
5	Building descriptions	3
6	Constraints or limitations	3 – 4
7	Survey results	4 – 6
8	Discussion	6 – 8
9	Recommendations	8 – 11
10	Conclusions	11
11	Acknowledgements	11 – 12
12	References	12
	Appendix I: Location and aerial layout photographs	13 – 16
	Appendix II: Site photographs	17 – 19
	Appendix III: Verified DNA analysis certificate	20
	Appendix IV: Bat activity tables	21
	Appendix V: Biodiversity enhancements	22
	Appendix VI: Ecology of bats	23
	Appendix VII: Legislation	24
	Appendix VIII: European protected species licences	25

Tables

Table	Content	Page
Table 1	Identities of surveyed buildings	2
Table 2	Equipment used in the 2024 assessment	3
Table 3	Survey and conditions	4
Table 4	Survey findings – house	4
Table 5	Survey findings – Building A	5
Table 6	Survey findings – Building B	5
Table 7	Survey findings – Building C	5 – 6
Table 8	Small garden tree and shrub species	10
Table 9	Tree and shrub species for the boundary	11
Table 10	Garth farm house – dusk observation results – 11 August 2024	21
Table 11	Building C – dusk observation results – 11 August 2024	21

Figures

Figure	Content	Page
Figure 1	Site location aerial photograph	13
Figure 2	Building location aerial photograph	14
Figure 3	Green infrastructure scheme planting	15
Figure 4	Locations of observers/NVA, on 11 August 2024	16
Figure 5	DNA certificate	20

Plates

Plates	Content	Page
Plate 1	Building C, north-western elevation	17
Plate 2	Building C, south-western elevation	17
Plate 3	Building C, south-eastern elevation	17
Plate 4	Building C, north-eastern elevation	17
Plate 5	Interior of Building C	17
Plate 6	Barn owl pellet in Building C	17
Plate 7	Building D, north-western elevation	17
Plate 8	Building D, south-western elevation	17
Plate 9	Building D, north-eastern elevation	18

Plate 10	Building D, south-eastern elevation	18
Plate 11	Building D, upper floor interior looking east	18
Plate 12	Building D, interior of western lean-to	18
Plate 13	Building D, interior of southern lean-to	18
Plate 14	Building C, infra-red image of south-western elevation	18
Plate 15	Building C, infra-red image of north-eastern elevation	18
Plate 16	House, infra-red image of south-eastern corner	18
Plate 17	House, infra-red image of north-western gable	19
Plate 18	Building B, southern gable showing common pipistrelle emergence point (circled red)	19
Plate 19	Building B, southern gable showing common pipistrelle emergence point (circled red)	19
Plate 20	Building B, southern gable showing common pipistrelle emergence point (circled red)	19
Plate 21	Building B, southern gable showing common pipistrelle emergence point (circled red)	19
Plate 22	House, western gable showing common pipistrelle emergence point (circled red)	19
Plate 23	Building C, southern gable showing common pipistrelle emergence point (circled red)	19
Plate 24	Schwegler 1FR bat tube	22
Plate 25	Integrated box being put in place	22
Plate 26	Example of small bird nest box	22
Plate 27	Example of hedgehog nest box	22

1 Summary

- 1.1 Application has been made to Merthyr Tydfil County Borough Council for planning consent to demolish several structures at Garth Farm, Pant, in order to construct a new family home for the property owner. Ecological assessment conducted in 2023, in the form of day survey and two dusk observations of two of the structures (the house and a small stone barn) failed to reveal any evidence of bats, and a SEWBReC record search commissioned at the time did not include any previous records of bats at the site.
- 1.2 When application was made for the proposed works in 2024, the Planning Ecologist correctly drew attention to privileged information, which indicated that the house and other structures had been subject to ecological survey by another consultancy in 2022, on behalf of a third party, and that the assessment at that time had found evidence of bats, although details were initially sketchy and to an extent, still are. A request was made by the Council for more information and an additional observation was carried out in August 2024 on the house and a nearby small stable, which had not been properly assessed in 2023 due to a lack of surveyor resources.
- 1.3 To meet the request for additional observations, and to provide sufficient information to formulate a Green Infrastructure Scheme – a requirement of Section 6 of Planning Policy Wales 12 – an additional appraisal of the site, in the form of a dusk observation was undertaken in late summer 2024. This document provides the results of the August 2024 survey effort, but also summarises the limited information it has been possible to gather regarding the 2022 site appraisal.
- 1.4 Before continuing, it is essential to point out that this document cannot be considered in isolation, and the original Morgan Ecology report (revised in July 2024) must also be consulted, as it includes the results of the original record search commissioned from the South-East Wales Biodiversity Record Centre (SEWBReC); provides some of the building descriptions; and other general background information, including proposals for Net Benefits for Biodiversity. The point is also made in that report regarding the importance of submitting biological records and having those records validated/verified.
- 1.5 Much of the discussion that has arisen around the need for additional survey was because of a failure to promptly submit the 2022 results to the local biological record centre, and to subsequently obtain validation of those records. This has still only partly been done, and most of the data relating to the 2022 assessment, whilst detailed here, has still to be verified. Further, a request for clarification of some points has not progressed, because the original consultancy have still to fully analyse the information they gathered. For that reason, the 2022 records cannot be stated to be wholly accurate until the verification process is complete. Records have been provided in good faith, and there is reason to expect that they will pass the verification process in due course.
- 1.6 When considering the 2022 data, the results of the 2023 appraisal process, and the planning application in 2024, different labels/names/references have been attached to structures at the former farmstead. Efforts have been made to combine the information gathered and reference the findings for each building under those made in the planning submission (e.g. Building A etc). The 2022 survey effort included several other nearby buildings where bats were found at that time, but the information pertaining to those structures is not generally included, as it will only serve to further confuse what is an already complex picture. However, where it is helpful to do so, particularly with respect to bat roost locations, reference is made to activity noted in 2022.
- 1.7 The most noteworthy outcome of all the survey effort is to confirm that to demolish the house, the stone barn (Building B), and the stables (Building C), the owner will need to obtain a European Protected Species licence from Natural Resources Wales. None of the structures were found to be particularly significant in nature conservation terms, and suitable mitigation and enhancement

can be provided within the property boundaries. As noted above, a Green Infrastructure Statement is included in this document in compliance with Planning Policy Wales 12.

2 Clarifications

- 2.1 Garth Farm lies above the community of Pant, at National Grid Reference (NGR) SO 064 095 at an altitude of some 353m Above Ordnance Datum (AOD). A description of the site was given in the original Morgan Ecology survey report (July 2024) following assessment of the property in summer 2023. Morgan Ecology undertook additional observations at the site in August 2024 which are included in this supplementary ecological report. In the interim, application has been made to Merthyr Tydfil County Borough Council for planning consent, and this is likely to be amended, following the outcomes of the various surveys and a review of the 2022 survey data provided by the Mott MacDonald consultancy.
- 2.2 Mott MacDonald undertook several surveys at the property in the summer of 2022, and in one instance, early 2023, on behalf of their client Dŵr Cymru Welsh Water. The background to the need for that survey effort remains confidential, but as the author can reasonably speculate (having previously been the ecologist for that company), it is likely that it relates to a significant water pipeline or other civil engineering project. In the undertaking of the Mott MacDonald assessment, they attributed to each structure at Garth farm, a code or identifying reference. To assist in reading further, Table 1 below, seeks to use the various terms used both by Mott MacDonald in 2022, and Morgan Ecology in 2023, so that readers of this document are clear on the identity of each building assessed.

Table 1: Identities of surveyed buildings

Planning Application Reference	Mott MacDonald Reference	Morgan Ecology Reference	Precise NGR
House	AD19	House	SO 06396 09531
Building A	330	Stone/brick sheds	SO 06387 09546
Building B	329	Stone barn	SO 06381 09540
Building C	AD20	Stables	SO 06381 09513
Building D	-	Roadside barn	SO 06410 09499

- 2.3 Buildings will be referred to by their planning application references from this point forward. It must be noted that Building D was not surveyed by Mott MacDonald in 2022, or by Morgan Ecology 2023, as it was not intended to include it in the original planning application. It has been necessary to include it now, as it will form part of the mitigation and enhancement package.
- 2.4 The house and four outbuildings are owned by the applicant of the planning application. Several buildings close by which form part of the original Garth Farm holding, are in other third-party ownership and they play no part in the application, or any proposed mitigation. Whilst Mott MacDonald have kindly provided information regarding these structures, they nonetheless have no direct bearing on the application being considered.
- 2.5 Again, for clarification, almost none of the information provided by Mott MacDonald has currently been independently verified/validated by the County Bat Recorder for Vice County 41: Glamorganshire, and there remains the possibility that records may be rejected.

3 Surveyor experience

- 3.1 Mott MacDonald have not provided information regarding the numbers, backgrounds, or experience of their surveyors in 2022. No assumptions are made hereafter regarding their knowledge, experience or skills.
- 3.2 Morgan Ecology, deployed three observers in 2023, and five for the single evening observation in August 2024. Details of the surveyors in 2023 are to be found in the original Morgan Ecology report (July 2024), but all three were NRW licenced, experienced ecologists with between them over seventy years of experience. The 2023 surveyors, were Phil Morgan, also author of this

report, Diane Morgan, and Nigel Isaksson. Joining the original three for the 2024 observation was Robert Morgan, an experienced, licenced ecologist, and Ro Twigger. Both have between them nearly 40 years of experience in undertaking bat emergence surveys.

4 Assessment methodology

- 4.1 No information is available on the methodologies employed by Mott MacDonald during their 2022 assessment of the buildings. However, it is known that they employed Night Vision Aids (NVA) and good quality detection equipment capable of making recordings of bat calls and providing sonograms for subsequent analysis. Where bat droppings were found, samples were taken for DNA analysis, and these samples were sent to the University of Warwick for sequencing.
- 4.2 The survey methodologies followed by Morgan Ecology during 2023 and 2024 were consistent, and described in the original survey report of July 2024. Additional equipment was employed during the 2024 observation as a greater extent of built structures were being assessed, and five surveyors were engaged in the process, rather than the original three.
- 4.3 Equipment utilised during the 2024 observation is detailed in Table 2 below. Prior to carrying out the dusk observation, the interiors of Building A, B, C and D were inspected for the presence of bats or evidence of nesting birds. Particular attention was given to Building D, which had not previously been included in any of the ecological appraisals.

Table 2: Equipment used in the 2024 assessment

Equipment items	Purpose used
Canon IXUS 100IS digital camera (1)	Taking photographs
Canon XA60 MP4 digital infra-red video camera (2)	Inspecting interiors of buildings and cavities
Ledlenser MH8 head lamp (2)	Filming bat emergence activity during dusk observation
Motorola Talkabout T82 handheld radios (2)	Communication between observers
Nightfox XB5 infra-red illuminator (2)	Increasing infra-red light during filming of dusk observation
Pettersson D-240x bat detectors (5)	Detecting and recording bats
Roland RO-5 digital recorders (5)	Recording bat calls detected
Sony CX-11 video-camera (2)	Filming bat emergence activity during dusk observation
Splenssy Model 81120B infra-red illuminator (2 x 2)	Increasing infra-red light during filming of dusk observation

5 Building descriptions

- 5.1 The house, and Buildings A, B and C are described in the original Morgan Ecology report (July 2024), and it is not proposed to repeat this information here. Building D however has not previously been described, and it is therefore appropriate to do so now.
- 5.2 Building D is located to the south-east of the house, and is built on a roughly north-west/south-east alignment. It is a detached, two storey structure with a pitched roof: walls are constructed mainly in stone, but with a single cement lintel on its north-eastern side above a roller shutter door at ground floor level. The timber A frame roof structure is clad with corrugated asbestos/cement fibre sheets, with asbestos cement ridges and no lining membrane. Two single storey mono-pitched roofed extensions on the north-west end, and south-west side elevation are clad with corrugated metal or corrugated asbestos/cement sheet roofs.
- 5.3 No rainwater goods are present on Building D, and most doors are timber, apart from the metal roller shutter door on the north-eastern, ground floor, elevation. A small timber framed window is present at the south-eastern gable end, at first floor level. Access to the first floor 'attic' area is via a substantial external stone stairway at the north-western gable end.

6 Constraints or limitations

- 6.1 Both the house, and Building C were subject to a dusk bat emergence/activity observation on the evening of Sunday 11 August 2024. Buildings B and D were also subject to day survey on this same

day. There were no access issues, and conditions at the time of assessment were excellent. Overall it is considered that there were no limitations to the latest survey process.

7 Survey results

- 7.1 This section details the combined survey efforts of both Mott MacDonald and Morgan Ecology of the buildings at Garth Farm from 2022 to the present date. Table 3 below describes the conditions under which the latest appraisal on Sunday 11 August 2024 were undertaken. Circumstances under which the Mott MacDonald surveys were undertaken are not available, and the conditions during the Morgan Ecology assessments in 2023 are set out in the report of July 2024. Wind speeds shown employ the Beaufort scale.

Table 3: Survey and conditions

Date	Survey type	Timing	Weather conditions
11/08/2024	Internal/external inspection of Buildings B, C and D (DM/PM); Dusk emergence/activity observation of house and Building C (NI/DM/PM/RM/RT)	19.30 – 22.35 hours British Summer Time (BST) (Sunset: 20.43 hours)	Air temperature: 21.6°C – 16.2°C Cloud cover: 0/8 oktas Conditions: Dry Wind speed: F2, light breeze
Surveyors	Nigel Isaksson (NI), Diane Morgan (DM), Phil Morgan (PM), Robert Morgan (RM), Ro Twigger (RT)		

- 7.2 Although the weather remained good at the survey location on the evening, thunderstorms could be seen to the south-west throughout the last 90 minutes of the observation period. They had no impact on the survey effort on the 11 of August 2024.
- 7.3 Hereafter each building is considered structure by structure. All surveys in 2022 are by Mott MacDonald, and generally, with one exception, those in 2023 and 2024 are by Morgan Ecology. A summary of the combined survey findings with respect to the house is given in Table 4.

Table 4: Survey findings – house

Date	Survey type	Roost findings	Roosting species (common name)
12/07/2022	Dusk emergence/activity observation	Single emergence from western gable	Common pipistrelle
10/08/2022	Dusk emergence/activity observation	Single emergence from western gable	Common pipistrelle
21/09/2022	Dusk emergence/activity observation	Single emergence from western gable	Common pipistrelle
27/07/2023	Internal inspection	No bats or evidence of bat	
28/07/2023	Dusk emergence/activity observation	No emergences	
20/08/2023	Dusk emergence/activity observation	No emergences	
11/08/2024	Dusk emergence/activity observation	No emergences	

- 7.4 None of the internal surveys of the house found evidence of bats, and no emergence activity was noted from any part of the house other than the southern slope of the roof on the western gable, where the bat was seen to emerge from the same precise location during each of the 2022 observations (see Plate 22). The 2022 survey data indicates that the house is a day roost for a common and widespread species – common pipistrelle bat (*Pipistrellus pipistrellus*). No bird nesting activity was recorded in relation to the house. The 2023 Morgan Ecology appraisal of the house found no evidence for bat presence.
- 7.5 As noted in Table 4, no bats were seen to emerge from the house on 11 August 2024. However, the observers watching the dwelling that evening noted a brown long-eared bat (*Plecotus auritus*) very early on in the survey, 21.01 hours, some eighteen minutes after sunset. Other species recorded included common pipistrelle, soprano pipistrelle (*Pipistrellus pygmaeus*), Daubenton's (*Myotis daubentonii*), and several recordings of unidentified myotis species. Many of the bats were simply heard, but not seen, and of those that were seen, most were commuting or foraging with activity slowly petering out with the last bat, an unidentified myotis, being heard at 22.18 hours, ninety-five minutes after sunset. Table 10 (see Appendix IV) gives more information regarding the bats noted during the observation of the house.

Table 5: Survey findings – Building A

Date	Survey type	Roost findings	Roosting species (common name)
22/06/2022	Dusk emergence/activity observation	No emergences	

- 7.6 This combination of small shed-like structures was subject to day time assessment by Mott MacDonald on 15 August 2022, and by Morgan Ecology on 27 July 2023. As shown in Table 5, no evidence of bats was found by either consultancy with respect to these poorly constructed buildings. During the dusk observation on 22 June 2022, a lesser horseshoe bat (*Rhinolophus hipposideros*), was seen nearby the structures, and briefly entered through the doorway facing the house, but was seen to immediately re-emerge. These structures are not considered to be bat roosts.

Table 6: Survey findings – Building B

Date	Survey type	Roost findings	Roosting species (common name)
19/05/2022	Dusk emergence/activity observation	No emergences	
29/07/2022	Dusk emergence/activity observation	Unknown bat flew in	Species not identified
15/08/2022	Internal inspection	Single bat dropping found on first floor and sent for DNA analysis	Lesser horseshoe
21/09/2022	Dusk emergence/activity observation	Four emergences from south-western gable	Common pipistrelle
27/07/2023	Internal inspection	No bats or evidence of bat	
28/07/2023	Dusk emergence/activity observation	No emergences, but common pipistrelle briefly flew inside first floor room and back out again	
20/08/2023	Dusk emergence/activity observation	No emergences	
11/08/2024	Internal inspection	No bats or evidence of bat	

- 7.7 During the internal inspection in August 2022 a single lesser horseshoe bat dropping was found in the first-floor room of Building B. This was sent for DNA analysis (see Figure 5). Having reviewed the data from Mott MacDonald, at no time did they find a lesser horseshoe bat day roosting in this structure, and the only evidence for the use by this species is the single bat dropping found on 15 August 2022. Table 6 details the findings of the various assessments carried out on this structure, but the Morgan Ecology observations and internal inspections found no evidence for the presence of lesser horseshoe bats – no actual animals or droppings. Based on the information obtained, Building B, is, rather tenuously, considered to be a night feeding perch or roost, used on a very occasional basis. Another possibility is that a single bat foraged briefly inside the building.
- 7.8 The 2022 survey effort noted the emergence of four common pipistrelle bats in late September from Building B. The species was not recorded using the building on any other date, either during 2022 or 2023, although the Morgan Ecology observation in July 2023 recorded a common pipistrelle bat briefly fly inside the first-floor room and back out again. The locations of the day roosts noted in 2022 are shown in Plates 18 – 21 (see Appendix II)
- 7.9 An unknown species of bat was seen to enter the first-floor doorway of Building B on 29 July 2022. The bat was not seen to emerge during the observation period, and as far as is known, none of the observers present entered the first-floor room to attempt to find and identify the bat. The status of the building with respect to this bat is not confirmed, but as a minimum, the building again qualifies as a night perch or roost.

Table 7: Survey findings – Building C

Date	Survey type	Roost findings	Roosting species (common name)
22/06/2022	Dusk emergence/activity observation	Single emergence from crevice on south-western gable end wall	Common pipistrelle
29/07/2022	Dusk emergence/activity observation	Myotis bat flew in and flew out again during the observation	
15/08/2022	Internal inspection	No bats or evidence of bat	
23/05/2025	Dusk emergence/activity observation	No emergences	
27/07/2023	Internal inspection	No bats or evidence of bat	

11/08/2024	Internal inspection	No bats or evidence of bats, but barn owl pellets noted	
11/08/2024	Dusk emergence/activity observation	No emergences	

- 7.10 Building C was the only structure at Garth Farm which was subject to assessment by Mott Macdonald in 2023 – see Table 7. The dusk observation in May 2023 found no evidence of bats and recorded no emergences. However, during 2022 they did record the emergence of a common pipistrelle bat from a crevice in the south-western gable of the building (see Plate 23). This was the only emergence activity record with relation to this structure, and indicates that Building C is a common pipistrelle bat summer day roost. The Morgan Ecology dusk observation on 11 August 2024 did not record any emergence activity with respect to the building.
- 7.11 None of the buildings within the application are considered to offer hibernation potential. The walls of the buildings are either solid stone, or single skinned. The ground floor extension at the western end of the house is more modern and will have a cavity. Its location, which would be relatively shaded in winter could be used if bats can access the cavity on the western and northern aspects. Lesser horseshoe bats can turn up in any location in autumn winter, provided there is access, and this will need to be considered and allowed for in the demolition process.
- 7.12 As noted in Table 7, internal survey discovered several (4) barn owl (*Tyto alba*) pellets inside Building C. None of the pellets were fresh, and were broken up and decomposing. Nonetheless, the pellets were the result of activity during 2024, likely in the early months of the year, and probably as a result of an individual animal foraging over the grassland south of the house when the grass was shorter in March to May.
- 7.13 Bat activity noted on the evening of 11 August 2024, in the vicinity of Building C is set out in Table 11 (see Appendix IV). No bats were seen to emerge from the building, and activity nearby was not particularly high. The first bat was heard faintly at 21.08 hours, some twenty-five minutes after sunset. The animal was not seen, and it wasn't possible to make an identification from the sonogram obtained – the recording being simply too indistinct. Bats recorded around the structure included common pipistrelle, brown long-eared, lesser horseshoe, whiskered (*Myotis mystacinus*), and several commuting passes by Daubenton's to the north of the building. The last recorded bat was at 22.05 hours, when a myotid bat was heard north-west of the of the building, so eighty-two minutes after sunset.
- 7.14 Building D was subject to day time inspection on 11 August 2024 by the two surveyors that arrived on site prior to the rest of the ecological team. The main structure of the building was found to be generally well sealed with no opportunities for access by bats. Focus was made of the roller shutter door/doorway, as bats have previously been found in such places by the surveyors. Nothing noteworthy was observed. When considering the two extensions to this structure, both were noted to have open doorways, enabling access by bats and/or birds.

8 Discussion

- 8.1 All of the evidence for bats in the buildings subject to the planning application come from the Mott MacDonald site appraisal in 2022 (and partly in 2023). Morgan Ecology failed to record any emergence activity, both in 2023 and 2024, from any of the structures, or find any evidence for bats in the form of droppings or other field signs.
- 8.2 The contrast between the survey results could not be more evident, but there is no clear reason or explanation as to why such differences have occurred. Both Mott MacDonald and Morgan Ecology's assessment of the site were broadly similar, using good quality detection equipment and Night Vision Aid's (NVA), but where bats or evidence for bats was found in 2022, this was absent in 2023/24.

- 8.3 With respect to the house, the difference in results may be related to human occupation of the dwelling. At least in part during 2022 the house was occupied, whereas it had been unoccupied during 2023 and 2024. The additional observation of the house in August 2024 provided no information that was not already known. Common pipistrelle bats do change roosts if conditions in the roost alter, and the change from a relatively warm dwelling, or a comparatively cool empty one, might explain the altered behaviour.
- 8.4 Nonetheless, demolition of the house will require the owner to obtain a European Protected Species (EPS) licence from Natural Resources Wales (NRW), which can only be done once planning consent has been granted. Obtaining a licence will require that mitigation is provided, but given that the house appears to be a relatively minor day roost, likely used by an individual animal, it is not expected that NRW would have cause to reject an application.
- 8.5 Building A, is a collection of poorly constructed sheds. None of the survey effort made by either consultancy found evidence of bats, and although a lesser horseshoe bat was briefly seen to fly in, and out again, that is no indication that it is a bat roost and there appears to be no reason why these structures cannot be taken down in due course without recourse to obtaining an EPS licence.
- 8.7 Rather like the house, Building B does not appear to be particularly significant. It is a day roost, used by common pipistrelle bats, but likely to be of most interest in autumn, and perhaps early spring. Again an EPS licence is required for its demolition, but mitigation is relatively straightforward with respect to this species
- 8.8 Building B is also the only structure where verification of a bat presence has been made. The DNA certificate (see Appendix III), confirms that a single lesser horseshoe bat dropping was found inside on one occasion in 2022, and no evidence for the presence of this species has been found since. Whilst it is technically a night roost, it seems to be a relatively insignificant one, particularly as there is a day roost nearby in third party ownership.
- 8.9 With regard to Building C, Mott MacDonald recorded the emergence of a single common pipistrelle bat from the south-west gable end in 2022. Although the building has a lower level of appraisal than the others, again it appears to be a minor day roost for a common and widespread species. An EPS licence will be required for its demolition.
- 8.10 Building C seems to have been used briefly as a perch by a barn owl, likely in the early part of 2024. Old pellets were found inside, but none of them was fresh and they were already in an advanced state of breaking down. No evidence was found of regular presence or nesting activity. Mitigation can be provided for this species within the development proposals.
- 8.11 It is not known why Mott MacDonald chose to ignore Building D in their deliberations. Although it is generally well sealed, and in good condition, the two lean-to structures have open doorways, and bats could enter or exit. Given that they considered Building A (which also had open doorways), it is puzzling that D was not assessed. Nonetheless, the latest appraisal of the structure in August 2024 failed to find signs of bats, or nesting birds. The building does however lend itself to providing an element of the mitigation package for bats.
- 8.12 Based on the 2022 evidence, which has yet to be verified, the house, Building B, and Building C are all determined to be day roosts for common pipistrelle, and this is a relatively straightforward species to mitigate for.
- 8.13 The verified DNA record of a single lesser horseshoe bat dropping in Building B has resulted in it being classified as a night roost, a determination that Mott MacDonald appear to have made. However, one dropping, is a very tenuous basis for making such a determination. Both consultancies recorded the presence of lesser horseshoe bats around the farmstead, and Mott MacDonald reportedly found a day roost nearby in third party ownership. Night roost provision for this species can be made in Building D, as part of mitigation package.

- 8.14 As more information has been made available it is important to revisit the mitigation package, not least to take into account the lesser horseshoe night roost provision and the discovery of barn owl presence. It is also appropriate to reconsider the Net Benefits for Biodiversity recommendations in light of the new information.
- 8.15 The original Morgan Ecology report (July 2024) did not include a Green Infrastructure Scheme, mainly because when it was originally written in 2023 there was no requirement in the legislation for such a Scheme. This document provides the opportunity to address this current requirement of Planning Policy Wales 12, and recommendations are accordingly made below.
- 8.16 In summary, when the nature conservation significance of the house, Building B, and Building C are considered against recognised criteria (*Bat Mitigation Guidelines 2004* and *Good Practice Guide: NRW Approach to Bats and Planning October 2015*), the nature conservation status of these structures is assessed to be low, due to the presence of day roosting common pipistrelle bats, and a lesser horseshoe night perch/roost.
- 8.17 Building C has been used by a barn owl(s), probably on an opportunistic basis as a night perch, and it is likely that any nesting site is elsewhere. No barn owls have been seen during any of the visits to the site, and it seems likely that the grassland below the house was of value as a hunting area early in the year (March – May), when the grass was not so rank. However, in the absence of a breeding location, mitigation can be relatively modest.

9 Recommendations

Bat mitigation

- 9.1 More detailed recommendations will be included within an Ecological Method Statement (EMS) to be provided to NRW as part of the EPS licence application process. For the development proposals to proceed, a robust Scheme of Mitigation is required to ensure that the Favourable Conservation Status (FCS) of the bat species is not adversely affected. The following broad principles must be followed within any Scheme of Mitigation of compensation at the site and will need to be delivered under the auspices of an EPS licence:
- bats must not be left without a place to roost;
 - major works must be timed to avoid periods of the year when bats are likely to be present;
 - any new roost structures provided as part of mitigation and compensation proposals must be suitable for the species of bat, and type of roost affected by the development;
 - any scheme must ensure that the 'action authorised will not be detrimental to the maintenance of the population of the species concerned at a FCS in their natural range', and;
 - post-development monitoring will be needed to comply with the EPS licence, and must form part of the Scheme of Mitigation for local authority planning procedures.
- 9.2 Considerable supporting documentation is needed including the licence application forms; a detailed Ecological Method Statement (EMS) (providing information on the survey effort with recent survey data not older than 18 – 24 months), and details of the local status of the species concerned; the duties of an independent experienced Ecological Clerk of Works (ECW); as well as the duties and responsibilities of the various contractors (e.g. builders, carpenters, electricians, plumbers etc), and the owner/developer of the site. Any pre-commencement conditions concerning ecology must be formally approved and signed off by the planning authority. Further guidance regarding EPS licence is given below (see Appendix VII).
- 9.3 Timing of works will be less important, given that only day roosts for small numbers of animals, of a common species will be implicated. Work to demolish the house, Building B, and Building C

can be undertaken at any time, provided that NRW grant a licence to do so. Work which will require the removal of roof coverings must be supervised by the ECW.

- 9.4 With respect to the new development, all lights, whether mounted on buildings or post on driveways etc, must consider the presence of nocturnal wildlife at the property. A Bat Conservation Trust study of the impacts of lighting on bats has considered the increased risk of the bats being preyed on in well illuminated areas. Lighting was also found to be harmful when present near woodland edges and hedgerows, as well as causing isolation of colonies and altering insect prey behaviour. If external security lights are to be fitted as part of the proposals, these must be installed no higher than 2.3m above ground level, and use low wattage bulbs. There must be no upward light spill and shrouds or deflector fittings are a simple way of avoiding this. Lights must be on timers to ensure that lights are extinguished within 30 seconds of movement ceasing. It is also desirable that internal lighting is sunk into ceilings, rather than pendant lights, as this appears to reduce external lighting impacts if curtains or blinds are not used.
- 9.5 Bats can be encountered unexpectedly during any development, and if this occurs, it is important to stop activity in the vicinity of the bat(s). It is possible that a bat will be in a torpid state and unable to fly off for several minutes or even up to 20 minutes. Advice must be sought from NRW, or if this is not possible, then from the appointed ECW, who holds a licence to disturb bats. To proceed without taking advice would be an offence under the provisions of the Wildlife and Countryside Act 1981 (as amended).
- 9.6 Dealing with more specific mitigation measures for the bats present at Garth Farm, an integrated bat box will be provided close to the apex at the western gable, as specified in the original Morgan Ecology report (July 2024). Given that additional roost locations are now appropriate, it is considered that a similar integrated box must also be provided at the eastern gable, as close to the proposed chimney as possible, and ideally on the southern side of the stonework. Temporary mitigation for bats found during works can be provided with Building D, which offers several aspects where a bat can safely be located. There are several 'off the shelf' products available currently, and ideally two Schwegler 1FR bat tubes will be built into the upper walls. Other designs can be used, and different types are illustrated in Appendix V, along with an example of an installation.
- 9.7 Building D is perfectly suitable as an alternative lesser horseshoe night perch/roost location, and modest changes to the three entrance doorways (i.e. upper floor western door, ground floor western lean-to entrance, and ground floor southern lean-to entrance) will provide the necessary mitigation. The building has good links along the eastern edge of the property, and lesser horseshoe bats will follow features in the landscape (i.e. hedges, walls, fences, embankments), such features are already present, and can be enhanced as part of the Green Infrastructure Scheme.
- 9.8 Modification to the upper floor door of Building D will include the provision of an entrance slot high up in the door, approximately 300mm (w) by 200mm (h) in size. Such a provision can easily be made by a competent carpenter, and can be carried out in short order, but certainly prior to any demolition works being undertaken. At the same time, the entrance doors to the two lean-to structures can be repaired or replaced, and similar sized access slots provided in both. Lesser horseshoe bats will therefore be able to exploit three different environments for roosting, as they desire. The night roost provision is also close to the identified day roost in a third-party property. A timescale cannot be provided because it is not known how long the application will be under consideration at this time, but it is realistic to consider that this provision can be made within 48 hours of instruction.
- 9.9 Breeding birds are protected under the provisions of the Wildlife and Countryside Act 1981 (as amended). An active bird nest cannot legally be disturbed or destroyed. Once a nest is established, the birds must be able to have access at all times until the young have fledged, and

the nest is no longer active. The bird breeding season commences as early as March, and continues into August for species which rear a second or third brood. If an active nest is found elsewhere, it must also be retained and protected. A cordon must be established for a safe working zone a suitable distance from the nest, and not until the chicks have fledged can the nest be destroyed.

- 9.10 A barn owl box must be provided at the southern corner of the site. This could either be on a tree near the former railway embankment, but could be mounted on a telegraph pole. The box must not be in full sunlight, and ideally would face out towards the grassland south of the house. This is an appropriate level of mitigation given the limited evidence for presence noted. Suitable box designs are shown in Appendix V.

Net benefits for biodiversity

- 9.11 The mitigation proposed above for bats and birds can be further enhanced by the provision of other measures. Wrens will readily nest in buildings and boxes and it is likely that they have previously done so with a possible nest noted in Building B. Although there is currently no product available specifically tailored for these small birds, their adaptability means that boxes will get used. It is therefore recommended that two small nest boxes are put up on posts in the garden, until the garden matures and provides suitable natural locations. An appropriate type is shown in Appendix V, and the boxes must have 25mm entrance holes, which prevents larger birds from exploiting them to the exclusion of the wrens.
- 9.12 Hedgehogs (*Erinaceus europaeus*) are likely to be present in the area, and a hedgehog hibernation box can be provided, with several designs available off the shelf. An example is shown in Appendix V.

Green infrastructure scheme

- 9.13 The green infrastructure scheme will help to integrate the mitigation proposals and generally enhance the property for wildlife. Most of the proposals involve planting of native tree and shrub species, but there are other opportunities which can be exploited. The provision of the new access drive will leave a triangular shaped area of ground immediately south of Building D. This will be planted with examples of the shrub species listed in Table 8. These shrubs will provide cover for lesser horseshoe bats close to this building, and planting in a random pattern will result in a natural edge to the drive and southern wall of Building D.

Table 8: Small garden tree and shrub species

Plant (common name)	Biodiversity benefits
Dog rose	Nectar for bees, and seeds for birds
Dogwood	Good for moths and caterpillars, birds
Elder	Nectar for insects, food for birds and small mammals
Field maple	Food for insects, birds and mammals
Hazel	Food plant for small mammals

- 9.14 Examples of small tree species will be planted along the opposite side of the drive away from the planting proposed above. Field maple is again a suitable species, as is rowan (also known as mountain ash), and holly. They will also provide cover along the edge of the drive for bats and birds.
- 9.15 The southern edge of the garden, and embankment of the former railway can also be planted with trees to strengthen this edge for wildlife and add a degree of privacy to this side of the property, as well as contributing to carbon sequestration. Table 9 lists several native tree and shrub species which can be planted along the embankment. Most are relatively low growing, so in addition, examples of larger species such as oak and poplar can be added to give height in appropriate locations.

Table 9: Tree and shrub species for the boundary

Plant	Biodiversity benefits
Alder	Nectar for bees, and seeds for birds
Blackthorn	Nectar for bees, and seeds for birds
Bird cherry*	Nectar for insects, and seeds for birds
Crab apple*	Nectar for insects, seeds for birds and small mammals
Dog rose	Nectar for insects, seeds for birds
Dogwood*	Good for moths and caterpillars, birds
Elder	Nectar for insects, food for birds and small mammals
Field maple*	Food for insects, birds and mammals
Goat willow	Good for insects
Hawthorn	Food for insects, birds and mammals
Hazel	Food plant for small mammals
Holly*	Food plant for insects and birds
Rowan (Mountain ash)*	Food plant for insects and birds
Silver birch*	Seeds and invertebrates for birds

- 9.16 It is important that trees are purchased from local suppliers to avoid plant diseases, which can be introduced with imported stock. It is expected that the owner will plant examples of as many as possible of the trees and shrubs listed.
- 9.17 Merthyr Tydfil is in a Buglife designated B-line area. A significant contributions can be made for bees as the development proposes to re-profile the grassland area below the house, and rather than plant this area with amenity grass species, it is proposed that it will be sown with a wildflower mix which benefits insects. A suitable seed mix is available from Emorsgate Seeds and their EM2F stand general purpose wildflower/grass mix would be appropriate to the property. Other seed mixes are available from other suppliers, but it is essential that only native, British seeds are used, and that any mix does not include imported species.
- 9.18 Two water butts, connected to rainwater downpipes must be provided to exploit the rain runoff from the roof of the new dwelling, and reduce the need to use a hosepipe to water any plants the owner may have during periods of dry weather, another increased risk of which will result from climate change.

10 Conclusions

- 10.1 It is considered that all available historic bat records have now been accessed, and although work remains to validate these records, the information to hand gives a reasonably accurate idea of the importance of each of the structures which are subject to application. Whilst bat roosts are present, none are particularly significant, and mitigation can be provided.
- 10.2 Provided planning consent, it is reasonable to suppose that NRW can issue an EPS licence for the required works, provided all the necessary documentation and mitigation package are available to them.
- 10.3 Development provides the opportunity to deliver Net Benefits for Biodiversity and a comprehensive Green Infrastructure Scheme provides additional advantages for a wide range of species, whilst contributing to carbon sequestration. Overall there is good reason to believe that there will be no long-term negative impacts for the protected species currently using the site, and that in due course positive benefits will accrue to wildlife at this property.

11 Acknowledgements

- 11.1 Several individuals and organisations must be acknowledged for their help in gathering the data required to compile this report. Dŵr Cymru Welsh Water's agreement to freely disclose the data gathered during the 2022 survey effort was most helpful and the fact that neither they, nor Mott MacDonald made a charge for providing the data, was very much appreciated. Mott MacDonald had much of the burden/workload in providing the data, and again, they are freely agreeing to do so, made the exercise financially feasible.

- 11.2 Amy Davies, Senior Ecologist with Mott MacDonald needs mention, as she went out of her way to prioritise the collation of their survey data over other in-house pressures – and for which the author is particularly grateful. Finally, Aaron Davies, the County Bat Recorder for Vice County 41: Glamorganshire is also acknowledged for his input and keeping the author informed regarding the verification/validation process for any records at Garth Farm. In the many duties the recorders are called upon to fulfil, his efforts are again greatly appreciated.

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Appendix I: Location and layout aerial photographs

Figure 1: Site location aerial photograph



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Figure 2: Building location aerial photograph

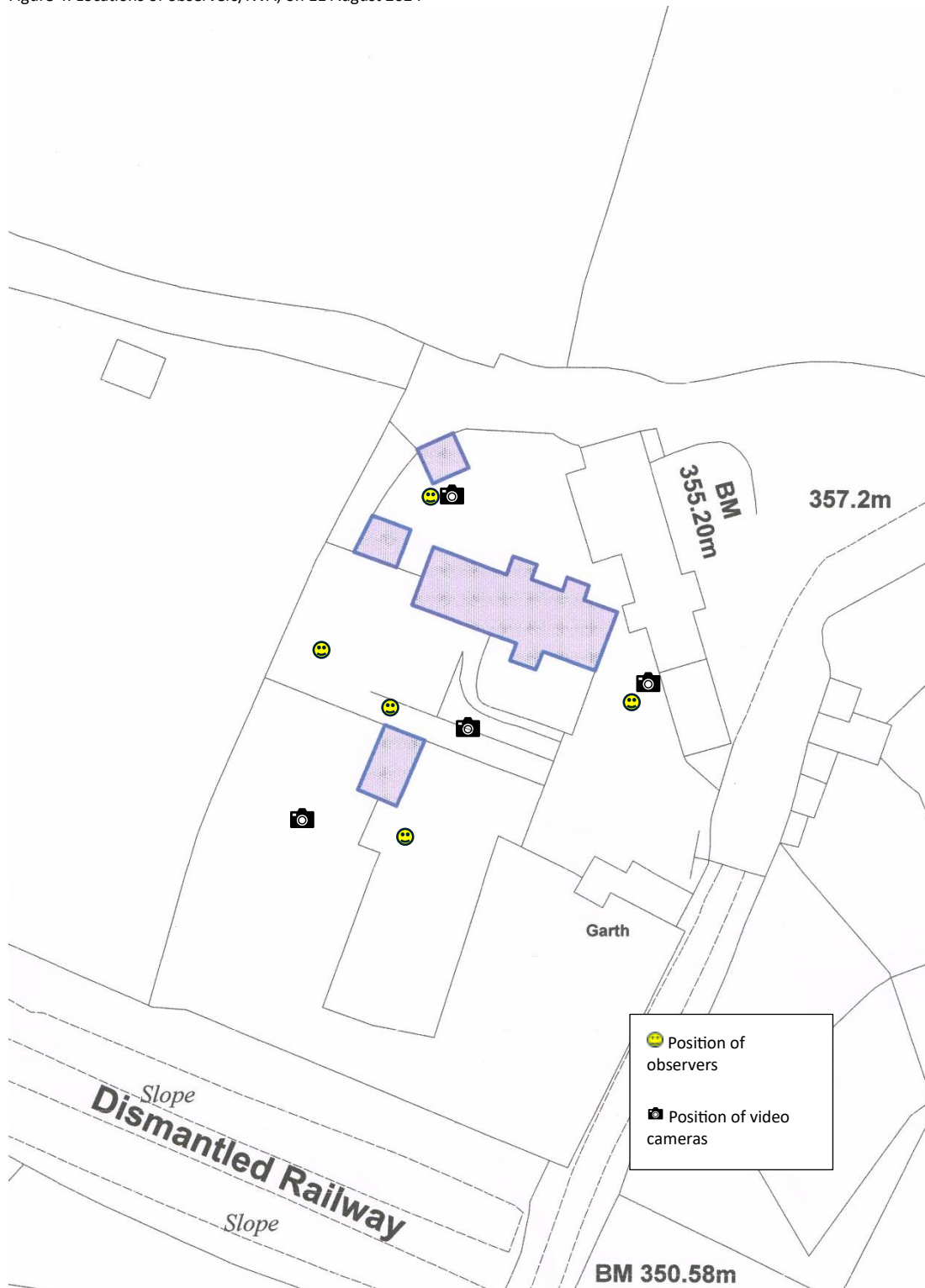


© Google satellite imaging 2024

Figure 3: Green infrastructure scheme planting



Figure 4: Locations of observers/NVA, on 11 August 2024



Appendix II: Site photographs

Morgan Ecology photographs 2024

Plate 1: Building C, north-western elevation



Plate 2: Building C, south-western elevation



Plate 3: Building C, south-eastern elevation



Plate 4: Building C, north-eastern elevation



Plate 5: Interior of Building C



Plate 6: Barn owl pellet in Building C



Plate 7: Building D, north-western elevation



Plate 8: Building D, south-western elevation



Plate 9: Building D, north-eastern elevation



Plate 10: Building D, south-eastern elevation



Plate 11: Building D, upper floor interior looking east



Plate 12: Building D, interior of western lean-to



Plate 13: Building D, interior of southern lean-to



Plate 14: Building C, infra-red image of south-western elevation



Plate 15: Building C, infra-red image of north-eastern elevation



Plate 16: House, infra-red image of south-eastern corner



Plate 17: House, infra-red image of north-western gable



Mott MacDonald photographs 2022

Plate 18: Building B, southern gable showing common pipistrelle emergence point (circled red)



Plate 19: Building B, southern gable showing common pipistrelle emergence point (circled red)



Plate 20: Building B, southern gable showing common pipistrelle emergence point (circled red)



Plate 21: Building B, southern gable showing common pipistrelle emergence point (circled red)



Plate 22: House, western gable showing common pipistrelle emergence point (circled red)

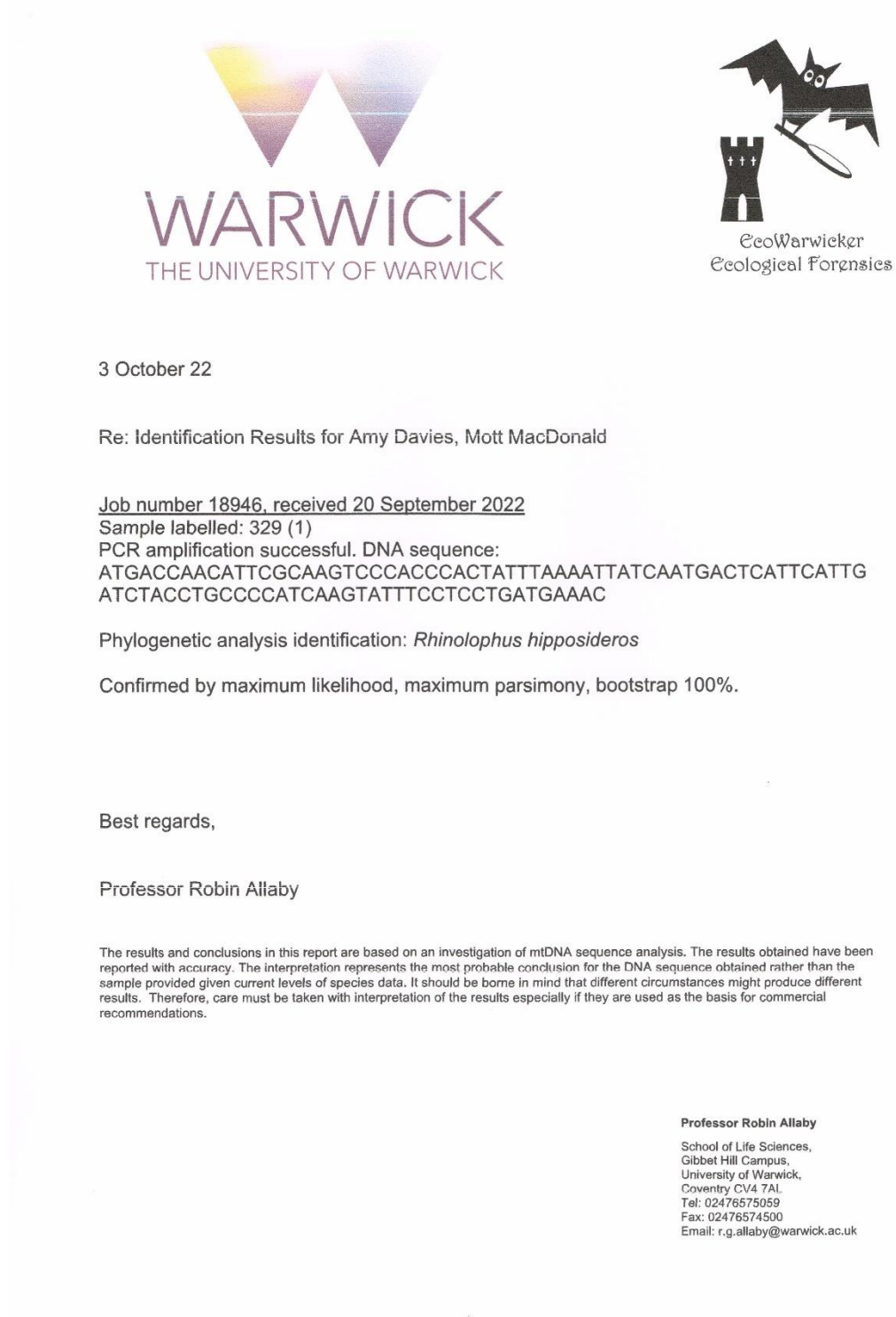


Plate 23: Building C, south-western corner, showing common pipistrelle emergence point (circled red)



Appendix III: Verified DNA analysis certificate

Figure 5: DNA certificate



Appendix IV: Bat activity tables

Table 10: Garth farm house – dusk observation results – 11 August 2024

Time (24-hours clock)	Species (common name)	Rec No.	Observed activity
21.01 hours	Brown long-eared	RT 1	Heard but not seen at southern corner of house
21.03 hours	Common pipistrelle	RM 1	Heard but not seen on north side of house
21.09 hours	Common pipistrelle	NI 1	Seen over green lane to west of Building B
21.11 hours	Common pipistrelle	RT 2 RM 2	Commuting from south and began doing foraging circles over lawn area behind house
21.12 hours	Common pipistrelle (x2)	RT 3 RM 3	Chasing from south to north on east side of house
21.12 hours	Common pipistrelle	NI 2	Heard but not seen to west of house
21.14 hours	Common pipistrelle	RM 4	Commuting from north-west, and foraged to north of house for several minutes
21.16 hours	Common pipistrelle	NI 3	From west, briefly foraged south of Building B, back west
21.17 hours	Soprano pipistrelle	NI 4	Commuting from north-west to south-east to west of house
21.22 hours	Common pipistrelle	NI 5	From west, briefly foraged south of Building B, back west
21.24 hours	Common pipistrelle	RT 4	Commuting down east end of house from north
21.26 hours	Common pipistrelle (x2)	RT 5 RM 5 NI 6	Commuting onto property from west and chased around house for several minutes
21.27 hours	Myotis sp.	RT 6	Heard but not seen at southern corner of house
21.29 hours	Common pipistrelle	RM 6 NI 7	From north-east, foraged around west side of house, close to Building B
21.30 hours	Common pipistrelle	NI 8	Commuting from west, then south across lower part of site
21.30 hours	Daubenton's	RT 7	Heard but not seen at southern corner of house
21.33 hours	Bat	RT 8	Briefly heard to south-east of house, poor recording
21.39 hours	Daubenton's	RM 8	Heard but not seen north of house
21.41 hours	Myotis sp.	RT 9 NI 9	Commuting west to east across southern elevation of house
21.42 hours	Soprano pipistrelle	RM 9	Heard briefly but not seen north of house
21.42 hours	Myotis sp.	RT 10	Commuting from north, past eastern gable of house
21.43 hours	Daubenton's	RM 10 NI 10	Commuting south to north past western gable of house
22.01 hours	Common pipistrelle	RM 11	Heard but not seen north of house
22.18 hours	Myotis sp.	RT 11 RM 12	Commuting south-east to north-west at rear of house

Table 11: Building C – dusk observation results – 11 August 2024

Time (24-hour clock)	Species (common name)	Rec No.	Observed activity
21.08 hours	Bat	PM 1	Heard but not seen south-east of Building C
21.16 hours	Common pipistrelle	DM 1	Heard but not seen north-west of Building C
21.20 hours	Common pipistrelle	PM 2 DM 2	Heard but not seen by both observers
21.22 hours	Common pipistrelle	DM 3	Heard but not seen north-west of Building C
21.24 hours	Common pipistrelle	PM 3	Heard but not seen south-east of Building C
21.24 hours	Daubenton's	DM 4	Commuting west to east north of Building C
21.25 hours	Daubenton's	DM 5	Commuting west to east north of Building C
21.28 hours	Whiskered	PM 4	Heard but not seen south-east of Building C
21.31 hours	Brown Long-eared	DM 6	Heard but not seen north-west of Building C
21.34 hours	Daubenton's	DM 7	Commuting west to east north of Building C
21.53 hours	Common pipistrelle	PM 5	Commuting from west to east south of Building C
22.02 hours	Lesser horseshoe	PM 6	Heard but not seen south-east of Building C
22.05 hours	Myotis sp.	DM 8	Heard but not seen north-west of Building C

Appendix V: Biodiversity enhancements

Plate 24: Schwegler 1FR bat tube



Plate 25: Integrated box being put in place



Plate 26: Example of small bird nest box



Plate 27: Example of hedgehog nest box



Appendix VI: Ecology of bats

During the evolution of life on Earth, as far as is known, only four groups of animals have achieved the ability to fly by their own means/physical powers. These groups include the long extinct Pterosaurs – flying dinosaurs; birds; insects (e.g. bees, butterflies, flies); and bats (the only flying mammals). This makes bats particularly special, and due to this ability to fly, they are widespread, with roughly 1400 different species found across the globe.

This diversity means that they have evolved to exploit many habitats and opportunities, from deserts to forests, and lakes, and cities. Only the open seas and oceans, and ice caps are devoid of bats, although crossings of seas by bats have been recorded on numerous occasions. Bats fall into two groups, the mega-chiroptera – the old-world fruit bats – and the micro-chiroptera – mostly smaller, mainly insect eating bats. Both groups evolved separately: the fruit bats from a lemur like ancestor, whilst the micro-chiroptera evolved from a shrew like ancestor, probably just before the dinosaurs became extinct – they are therefore a very ancient group of animals.

In Britain, there are some 18 species currently present and most of these are breeding in the country. They are all micro-chiroptera and eat only insects. Whilst there are many ‘old wives’ tales’ about bats, many of them are false, and bats are highly social animals with excellent eyesight, particularly in poor light. They are mammals, being warm blooded and giving birth to live young – usually only one baby at most – although twins are sometimes found in Scotland, where insect populations allow female bats to occasionally support more than one pup. They can also be long living, although typically smaller bats live for around five years. However, some species, such as Daubenton’s bat, have been recaptured over 21 years since they were originally encountered!

Whilst not unique, bats have evolved to see with sound – known as echo-location – something whales and dolphins can also do, as well as some birds, insects, and terrestrial mammals like shrews. In bats it is particularly refined, allowing them to detect moving objects and determine if an insect, such as a moth or gnat is good to eat.

British bats live in a variety of places, and following the last ice age, most lived in caves or rot holes on trees since bats have no means to gnaw or chew at wood, or make modifications to a structure. Today, with very little woodland left in Britain, bats have had to learn to exploit modern structures, and although some still rely on caves to hibernate, bats are good at finding access points around the roof features of buildings. Some like to roost within loft spaces, these loft dwelling species include the lesser horseshoe, and greater horseshoe bats, as well as the brown long-eared bats, although all bats are capable of exploiting roof spaces if necessary.

However, most bats exploit the verges or edges of the roof space and sometimes the walls of a building, and these animals are known as crevice roosters – including our most common species – the pipistrelle bats.

In the past 70 years modern agricultural practices, habitat fragmentation and the use of pesticides have resulted in a massive reduction in bat numbers, driving some to the edge of extinction, and for this reason all bats in Britain are legally protected.

Appendix VII: Legislation

All British bats, and their roosts (whether occupied or not) are legally protected. The main legislation is the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000). Protection is also afforded under the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019. Under the provisions of these legal protections, anyone found guilty of harming bats or damaging, destroying or denying access to a bat roost, can be subject to fines or custodial sentences.

In an effort to start to address the decline in bat populations, the Natural Environment and Rural Communities Act 2006, and the Environment (Wales) Act 2016 require all public authorities/bodies to have regard for the conservation of biodiversity – e.g. when considering planning applications. With regard to Wales, species and habitats of principal importance are listed in Section 7 of the Environment (Wales) Act 2016 which includes 8 bat species: common and soprano pipistrelles, noctule, brown long-eared, greater and lesser horseshoes, barbastelle, and Bechstein's bats.

A legal ruling (Woolley v. Cheshire East Borough Council) has set a precedent stating that it is necessary for a planning authority to be appropriately informed or aware of the presence (or absence) of legally protected species prior to considering the issues of a planning proposal. Good practice is to assess as soon as possible if bats are present at potential sites for development and possibly even before land is purchased. In some cases the period required for adequate survey work may span more than one calendar year. If a development, including demolition or change of use, is likely to impact on bats and their roosts then a derogation licence will usually be required. Adequate survey results are a necessary input to any licence application. If bats are not found until late in the development stage this may result in expensive delays while a derogation licence is sought and even in offences being committed.

The law with respect to dwellings and other structures is applied equally. Where disturbance is deemed likely to have a significant effect on bats to survive, breed and rear their young or will affect the local distribution and abundance of the species, a European Protected Species licence issued by Natural Resources Wales. A licence application must demonstrate that the development will not be detrimental to the maintenance and favourable conservation status of the species concerned.

All wild birds, their eggs and nests are protected by The Wildlife and Countryside Act 1981 (as amended). It is an offence, with certain exceptions, to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built;
- intentionally take or destroy the egg of any wild bird;
- sell wild birds or put them on display for sale;
- use traps or similar items to kill, injure or take wild birds; and
- intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Penalties that can be imposed for criminal offences in respect of a single bird, nest or egg contrary to the Wildlife and Countryside Act 1981 (as amended) is an unlimited fine, up to six months imprisonment or both. In exceptional cases NRW can issue a licence for a specific purpose, so that legitimate work may be undertaken without breaking the law. However, this is exceptional, and not something that is normally expected or done.

Appendix VIII: European protected species licences

Under the Conservation of Habitats and Species Regulations 2019 a licence can only be issued if NRW are satisfied that:

- there are imperative reasons of overriding public interest including those of a social or economic nature;
- there is no satisfactory alternative, and;
- the action authorised will not be detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range.

NRW will require a copy of the issued planning consent for the refurbishment/rebuilding of the dwelling, as well as an explanation of why there is a need to carry out the proposed work, and what alternative solutions have been considered (e.g. other sites) and why they have been discounted. The alternative of retaining the roost within the development must be considered. The last point will depend on the possibility of implementing appropriate mitigation and on assurances that it can be and will be carried out and maintained and the results monitored. NRW aim to process applications within 30 working days, but in practice licences often take longer depending on the number of applications being processed at any one time. NRW will now charge for the issuing of an EPS licence.

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This document is valid for a defined period, in compliance with National Guidelines, for a period of one year from the front cover date.

Details of the species recorded during this survey have been passed to the South East Wales Biodiversity Record Centre, using the iRecord process, to enable verification/validation of the species observed.

Morgan Ecology provides ecological services with respect to bats and terrestrial mammals, and is based in Mid-Wales. It specialises in providing affordable, and expert services on protected species, for a wide of clients.

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