

STOURBRIDGE HOUSE, LLYSWORNEY
Full Bat Survey
July 2014



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SUMMARY POINTS:

Bat Species:

- *The building under survey is a detached house built in 1978 in generally excellent condition with relatively few access points for crevice dwelling bat species.*
- *The SEWBRcC desktop survey provides only 8 records for bat species; this very small number of records demonstrates low observer activity in the area rather than providing an accurate picture of the local bat population.*
- *There was no evidence from a search of the building to indicate that bats have in the past utilised this building internally, with only a few droppings deposited on the walls of the open fronted garage/parking bay suggesting gleaning activity by bats.*
- *Although the attic had no bat droppings, there was extensive rodent sign (Mouse species).*
- *There was regular foraging activity by Soprano Pipistrelles (max. 2) in and around the garden of the property and the surrounding area; occasional passes by Common Pipistrelle, unspecified Pipistrelle, Brown long-eared, possible Noctule and unidentified Chiroptera sp. were also noted.*
- *On the first survey at dusk a single Soprano Pipistrelle entered the building via the box soffit and re-emerged approximately 13 minutes later.*
- *On the second survey at dawn swarming behaviour was noted but no bats entered the building.*
- *On the third visit at dawn a single Soprano Pipistrelle entered the gable end of the garage via the right-hand bargeboard. It is of note that a single Common Pipistrelle also entered the neighbouring property via the fascia board by the downpipe.*
- *It appears that small numbers of crevice dwelling bat species use this building complex adventitiously as summer day roosts. It is necessary to provide similar access at the eaves in the new building, i.e. to the soffits and behind bargeboards.*
- *It is likely that the client will need to apply for a European Protected Species Licence from NRW in order to proceed with the proposed demolition of the building.*
- *Removal of the roof must take place outside the maternity season for bats, i.e. September to April. This must be supervised by a licensed bat worker who will act as an Ecological Clerk of Works and handle and, if necessary, translocate any bats found.*

CONTENTS:

PAGE	CHAPTER	TITLE
p.2		SUMMARY POINTS
p.2		CONTENTS
p.3	1.0	POSITION OF BUILDING
p.4	2.0	PURPOSE OF SURVEY
p.6	3.0	HABITAT POTENTIAL
p.11	4.0	SURVEY METHODOLOGY
p.12	5.0	RESULTS/EVIDENCE OF USE
p.13	6.0	CONCLUSION & MITIGATION
p.14	7.0	PROPOSED SCHEDULE OF WORK
p.15	8.0	SURROUNDING HABITAT
p.15	9.0	REFERENCES
p.17	10.0	APPENDIX
p.37	11.0	SUITABILITY OF MBS SURVEYORS

1.0 POSITION OF BUILDING:

1.1 OS Map



Fig. 1 OS map

1.2 Map Reference and Elevation

OS X (Eastings) 296147
OS Y (Northings) 174253
Nearest Post Code CF71 7NQ
Lat (WGS84) N51:27:28 (51.457697)
Long (WGS84) W3:29:46 (-3.496167)
LR SS961742
mX -389191
mY 6669216
Mapcode GBR HH.MK8V

Elevation: 50 metres

1.3 Aerial Photograph



Fig. 2 Aerial photograph

2.0 PURPOSE OF SURVEY:

MBS has been commissioned by the client to survey the building for use by Bat Species and recommend mitigation, compensation and enhancement if required.

It is the intention of the client to demolish the existing dwelling and replace it with a new-build, while retaining some of the natural stone used in the current building to blend the new dwelling into its surroundings and ensure it is in-keeping with the character of the village.

2.1 Bat Species

There are 18 species known to breed in the UK with additional species recorded as migrants or vagrants. All of these species are insect eaters. Although occasionally seen in the day, they are predominantly nocturnal. Most bats are colonial. They roost usually in groups but sometimes singly in trees, buildings, cave systems, mines and other structures that provide the right environmental conditions for them.

Different species of bat have different life-cycle strategies and require different conditions. However, each requires:

- Hibernation roost sites, also known as Hibernacula: places where stable winter temperatures allow a period of winter torpor to conserve energy (e.g. underground sites such as caves and mines; built environments sometimes also offer similar conditions).

- Nursery/Maternity roost sites: where females gather in spring and early summer to give birth and rear their offspring (e.g. roof spaces, including cracks and crevices e.g. within dry stone walls, under roof tiles, between slates and roof felt, etc.). Hollows in mature trees and cliff faces may also be utilized. At the end of the summer these roosts are generally vacated, some times to another site in the same building!
- Individual roost sites for solitary males or small congregations of males that congregate during spring, summer and autumn. Similar habitat to Nursery roosts in chosen. These roosts are far less obvious than Maternal Roosts.
- The same colony may have different roost sites in various structures spread over several kilometres (or all within a single building!).
- An ecologically diverse feeding environment is needed. This environment should be insect rich.
- There is a poorly understood need for social gathering sites at certain times of the year for some or possibly all species (e.g. the autumn mating season and in early spring, males and females may gather together).
- Other roosts such as feeding perches, overnight roosts and transition roosts between summer and winter roost sites also occur. Therefore, even if a major Maternity Roost or Hibernaculum are not present, a site might still be important for a colony for other reasons at other times in the year or in different weather conditions.
- A roost is defined as any structure or place used by bats for shelter and/or protection. Bats frequently re-use roosts from year to year, so the roost is protected at all times, whether the bats are present or not.
- As a colony requires different types of roost at different times of year and for different purposes, all must be retained for the continued survival of the colony.
- Damage to a roost can include chemical treatment using some wood preservatives and also the use of insecticides and pesticides that might affect the bats or their roost.

2.2 Legislation for Bat Species

- Planning Authorities have an overarching duty to promote Nature Conservation and to protect and enhance biodiversity under the **Natural Environment and Rural Communities Act 2006**.
- All bat species currently resident in the UK are regarded as either **Species of Conservation Concern** or **Priority Species**.
- All are mentioned in **Appendix 2a or 4a** of the '*EC Habitats and Species Directive*'.
- All are listed in **Appendix 3** of the '*Bonn Convention 1979*'.
- All are listed in **Appendix 2 or 3** of the '*Bern Convention 1982*'.
- All British bat species are protected under the '*Wildlife and Countryside Act 1981*' (as amended). This requires consultation (in Wales) with NRW before carrying out any activities that might harm or disturb them. Amendments to this act in the '*Countryside and Rights of Way Act 2000*' also protect from reckless and/or intentional disturbance or damage.
- All bat species are listed in **Schedule 2** of the '*Conservation (Natural Habitats &c) Regulations 1994*' as modified 2010 which makes it an offence to damage or destroy a roost or to deliberately capture, kill or disturb a bat.
- A conservation license, issued by the **National Assembly for Wales**, is required for developments in Wales, which may compromise the protection afforded to '*European Protected Species*'. The same applies in England with **Natural England** being the relevant authority.

- Section 5.5.11 of *'Planning Policy Wales 2000'* and its English equivalent Paragraph 47 of *'PPG9'* also apply.
- A UKSAP has been produced for Common Pipistrelle and also for Barbastelle, Lesser Horseshoe and Greater Horseshoe Bats.

3.0 HABITAT POTENTIAL:

3.1 Building to be surveyed (External)

3.1.1 The building under survey is a detached two-storey house built in 1978, with an unusual layout. An adjoining open fronted garage/car-port and living accommodation and a single-storey building link the garage to the main two storied house. Overall, the building appears to be in very good condition with little apparent potential for bat access.

3.1.2 However, the garage/car-port looks to have the most likely sites of potential bat access; the walls are faced with natural stone which creates an uneven surface against which the soffits and bargeboards sit.



Fig. 3-7 Garage/parking bay and single-storey extension

3.1.3 The open-fronted garage is sheltered and a few degrees warmer than outside. There is a laid brick forecourt in front of the open-fronted garage with a gateway to the currently shared drive with the neighboring property. The gable end of the garage makes up part of the boundary wall to this drive which continues as a grassed lane.

3.1.4 There are a number of potential bat access points into the uPVC soffit boxes and behind the uPVC gable bargeboards and gable trim at each gable end.



Fig. 8-10 Potential bat access points into soffits of garage/extension

3.1.5 The rear of the garage extension has a veranda to a small terrace; this is the only part of the building which has fallen into disrepair; the sarking of the veranda is ripped and displaced allowing potential bat access directly into the space between the remaining sarking and the clay tiles. The gable end of this side of the extension has a covering of ivy which has grown up into the gaps between the stone walls and the box soffits.



Fig. 11-13 Potential access points on the garage extension/veranda

3.1.6 The upper half of the main section of the house is cement rendered and painted white while the lower half is faced with natural stone (see Fig. 14 to 18). All of this rendering is in excellent condition. The windows and doors are uPVC and are in good order; there are no gaps around the edges and the glass panes are intact.



Fig. 14-18 Views of main section of house

3.1.7 The soffits, bargeboards and fascias are uPVC with plastic guttering and downpipes. All are in good order. The box soffits are large and would allow ample roosting space for bats; however, the soffits appear close-fitting to the rendered walls with little apparent potential for bat access.



Fig. 19-21 Close fitting box soffits

3.1.8 The roof of the building is in good order; the clay roof and ridge tiles are intact and close-fitting with little potential for bat access. There are some small gaps underneath the lead flashing where it does not quite sit flush with the tiles and there are some potential access points at the edges of the roof behind the gable trim (Fig. 26). The chimney on the

roof of the extension has slits which have been faced with metal mesh on the inside to prevent bat and bird access.



Fig. 22-27 Ridge and roof tiles in good order

3.2 Building to be Surveyed (Internal)

3.2.1 Internally, the building is as well maintained as the outside. All rooms on the ground floor and in upstairs bedrooms are in excellent order although the décor is somewhat dated being typical of the style of the 1970's.



Fig. 28-30 Roof beams and sarking in good order

3.2.2 The attic is accessible via a trap door from the upstairs corridor. The soft wood roof beams and bitumen felt sarking are in excellent condition. There is a substantial and continuous layer of fiberglass insulation lining the attic floor.



Fig. 31 & 32 Mouse Droppings and Herald Moth Wing

3.2.3 What initially appeared to be a scattering of bat droppings and possible feeding remains were found on a plank on the floor the attic space during the daytime search of the building. However, closer examination proved all the droppings to be mouse droppings! Furthermore there were no tooth marks on the moth wing, therefore suggesting predation by spider instead of bat.

3.3 Surrounding Landscape

Stourbridge House is located in the village of Llysworney on the outskirts of Cowbridge. The property sits within a large garden which is bordered with mature shrubs and trees and there is a small stream running through one corner of the garden. A network of enclosed lanes and hedgerows connects the site to the wider landscape and provides bat species with ample foraging habitat. There are a number of linked fishing ponds fed by the stream nearby. The surrounding countryside comprises a patchwork of farmland dotted with small urbanisations and areas of woodland.

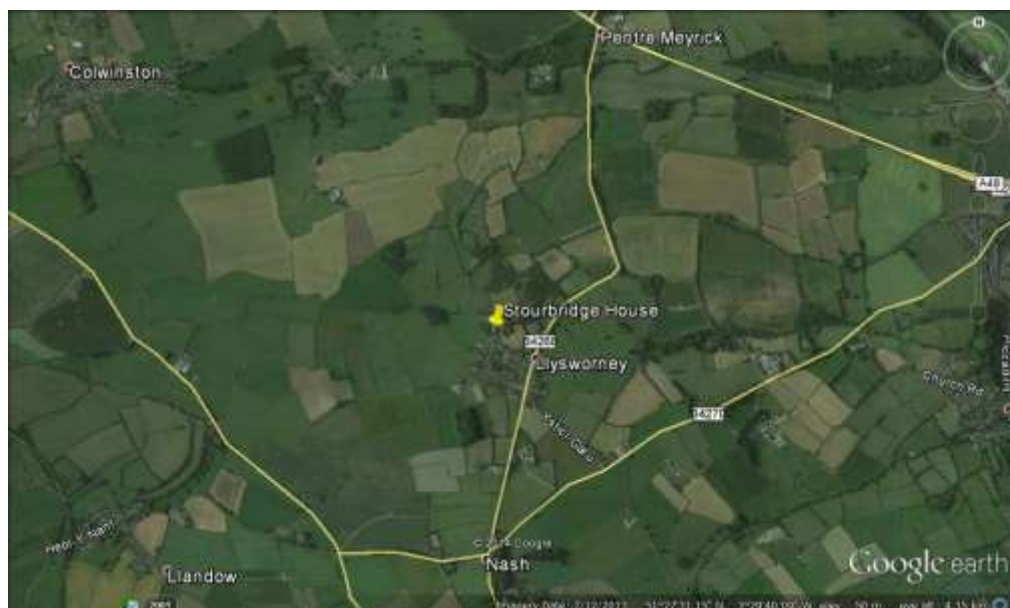


Fig. 33 Stourbridge House in the surrounding landscape

4.0 SURVEY METHODOLOGY:

4.1 Equipment (not utilised*)

- 1 Petterson D-240x Heterodyne Bat Detector, frequency range 10-120kHz
- 2 Batbox Duet Heterodyne and Time Expansion frequency range 7-120kHz
- Edirol R-09HR 24bit 96kHz Wave/MP3 Recorder
- Anabat SD1 CF Bat Detector*
- Clulite CB2 1,000,000 candlepower spotlight*
- 2 Petzl Head Torches
- 1 LED Lenser H5 Head torch
- 1 LED Lenser P14 Hand torch
- Panasonic Lumix DMC-TZ40 digital camera
- Zeiss Victor FL10x42 binoculars
- Optolyth 100APO Spotting Scope on a Manfrotto 129 Tripod*
- Garmin e-Trex Camo GPS
- Ridgid See-Snake Micro Inspection Camera Mk II 9.5m Endoscope
- Google Earth, Streetmap & Multimap OS Landranger 1:25,000 and 1:50,000 scales
- Silva Expedition 4 Compass*
- MBS Standardized Survey Paperwork and clipboards

4.2 SEWBReC Desktop Survey for Bats and Roof Nesting Birds

- A desktop survey was requested from SEWBReC for bat records within a 1km search buffer around the site and 500m for birds.
- There are 8 records for bats within the 1km search buffer.
- All 8 records date from a survey conducted by an ecological consultancy at a property nearby over the course of two days.
- There are no records for birds within the 500m search buffer.
- This very small amount of records demonstrates low observer activity in the area rather than providing an accurate picture of the local bat population.
- The search area **does not** fall within 10km of a SAC or SSSI that has been designated because of its bats.
- The results of the SEWBReC desktop search are shown in the table below:

Scientific Name	Common name	Number of Records
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	2
<i>Nyctalus noctula</i>	Noctule	2
<i>Plecotus auritus</i>	Brown Long-eared Bat	2
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	1
<i>Myotis sp.</i>	Unidentified Myotis Bat	1

Table 1 Interpretation of SEWBReC Data Set for Bats

4.3 Field Survey for Bats

The field survey methodology consisted of:

- A day visit to the site to take photographs and to identify potential entry/exit points for bats and to examine these possible exits for lack of spider webs, bat droppings, urine staining, smoothing of crack and joint edges etc.
- A bat emergence and re-entry survey using a Petterson D-240x Heterodyne Bat Detector with a frequency range of 10-120 kHz attached to an Edirol R-09HR 24bit

96kHz Wave/MP3 Recorder and a Batbox Duet Heterodyne and Time Expansion Bat Detector with a frequency range of 7-120 kHz.

4.3.1 One visit was made at dusk, on the 9th July, and two at dawn on the 10th July and the 15th July. On each dusk and dawn visit, note was made of the weather conditions, temperature and availability of suitable invertebrate food. See appendix for flight maps and tables of bat activity.

4.4 Limitations in survey methodology

All surveys are just a snapshot in time; this survey did not consider potential differences in seasonal use of the building and surrounding area by the bat population.

5.0 RESULTS/EVIDENCE OF USE:

- i. There was no evidence of bat occupation of the loft space although a number of mouse droppings initially suggested otherwise.
- ii. Droppings showing characteristics of Brown Long-eared Bats and also droppings showing characteristics of a Pipistrelle species had been deposited on the natural stone walls of the open fronted garage/parking bay, suggesting this area had been used by foraging bats e.g. gleaning spiders.
- iii. On the first visit at dusk there was regular Soprano Pipistrelle activity in the grounds of the property and the surrounding area, with a small number of passes by an unidentified Pipistrelle and suspected Noctule. A maximum of two Soprano Pipistrelles were seen foraging and interacting with each other over the property.
- iv. Approximately halfway through the first survey a Soprano Pipistrelle exhibited swarming behaviour in front of an upstairs window where a security light was situated (Fig. 34), then landed on the side of the window and stayed there for a short while before crawling up into the seemingly close-fitting box soffit above the window. Approximately 13 minutes later the bat emerged and continued foraging around the property.
- v. On the second visit at dawn there were occasional passes by single Soprano Pipistrelle, unidentified Chiroptera and a single pass by a Brown Long-eared bat. All three surveyors noted swarming behaviour but no bats entered the property.
- vi. On the third visit at dawn there was regular foraging activity in and around the garden of the property by a single Soprano Pipistrelle with additional bat activity in the neighbouring garden. There were also occasional passes by unidentified Chiroptera and Common Pipistrelle and a single Brown Long-eared Bat was observed foraging and gleaning from the hedgerow foliage.
- vii. A single Soprano Pipistrelle was observed exhibiting swarming behaviour around the area where entry and re-emergence had previously occurred (Fig. 34), before entering the west gable end of the garage of the property via the right-hand bargeboard (Fig. 35).
- viii. Swarming behaviour was also noted at the neighbouring property and a single Common Pipistrelle entered the property at the eaves via the fascia board by the down pipe (Fig. 36).



Fig. 34-36 Sites of three bat roosts at Stourbridge House and neighbouring property

6.0 CONCLUSION & MITIGATION:

- i. Droppings deposited on the walls of the open fronted garage suggest this area has been used by foraging bats, i.e. gleaning spiders. There is no evidence of bat usage of the attic.
- ii. A small numbers of crevice dwelling bat species (Soprano Pipistrelle) use this building adventitiously as summer day roosts, with single bats entering the gable of the garage and the box soffit above a rear window. There is also potential for Common Pipistrelle to do so as they utilise the adjacent property. A suitable form of mitigation would be the provision of a Schwegler 2FR bat tube inserted into the top of the rear gable wall of the replacement stone garage (Fig. 37) or access to the space behind fascias etc. There must be no access for bats into areas used by human inhabitants.



Fig. 37 Schwegler 2FR Bat Tube

- iii. There must be no exterior lighting on to the entrance of the any areas set aside as bat roost site/s. Dark routes must also be retained from the property to areas of foraging. Any security lights installed on site must be low intensity and low level to maintain these dark routes, for example from the bat tube entry point to the rear of the new garage out to the adjacent shared drive/lane with the neighbouring

property. This lane is lined with mature trees and bushes and leads to a pond, providing ideal foraging habitat for bats. A similar dark route to the stream and hedge is also advisable.

- iv. It is the responsibility of the client to ensure that the architects include the required mitigation in sufficient detail on any plans/schedules of work etc. to be submitted to inform planning.
- v. When planning has been granted the clients will need to apply for a Derogation Licence for European Protected Species from NRW in order to proceed with the proposed demolition of the building. The license application will require a detailed method statement to support the Derogation License application. MBS can provide a suitable method statement when required. A temporary translocation site for any bats found must be identified. The adjacent property already has suitable bat boxes on the gable end wall. It may be possible for the clients or their agents to negotiate the usage of these bat boxes with the neighbours. Failing agreement a suitable bat box must be provided and sited before demolition commences.
- vi. Roof removal must be supervised by a licensed bat worker who will act as an Ecological Clerk of Works. Prior to starting work, all workers should be informed by the Licensed Bat Worker overseeing the job of the possibility that bats may be found during the roof removal, and that if they are found, work must cease immediately until the Licensed Bat Worker can capture and, if necessary, translocate any bats found to the allocated bat boxes. *Note that only an inoculated and suitably experienced and licensed bat worker can handle any bats found.*
- vii. All materials used during the construction of the new dwelling should be 'Bat Friendly' i.e. they should be non-toxic or harmful to bats. Prior to the treatment of timber or the use of any chemical sprays, it is necessary for them to be checked and approved by Natural Resources Wales (NRW). Generally only **Permethrin** or **Cypermethrin** based timber treatment is advisable. The NRW approved chemical list can be found on the NRW Website. Pest control chemicals also need to be checked for their effects on bats before use.
- viii. Bitumen felt liner should be used in bat lofts as sarking in preference to modern plastic roof liner which is difficult for bats to grip. The new breathable woven sarking membranes are now also being found to cause major problems for bats as their claws can get tangled in the weave where they are then trapped and die. A suitable compromise will be to use meter wide strips of Bitumen Felt Sarking to BS747 Type 1F along the eaves and gables where the proposed bat roosts are to be provided as the only truly bat friendly option.

7.0 PROPOSED SCHEDULE OF WORK

- i. Application for a NRW Derogation license can take a minimum of 30 working days. Planning must be granted prior to this application.
- ii. Removal of the roof must take place outside the maternity season for bats, preferably during mid to late autumn or early spring, although it is possible to proceed through the winter months as long as a suitable winter roost box is provided.
- iii. However MBS is informed by the client that demolition is unlikely to begin until January 2015. Therefore the next breeding season is 1st May to 31st August 2015.

- iv. All work which may impinge on bats, such as removal of fascias, bargeboards soffits and roof coverings such as tiles, lead flashing, sarking and roof timbers must be completed before the start of the next maternity season on May 1st 2015. This work must be overseen by a licensed and experienced Bat Worker/Ecologist.
- v. Demolition work that does not impinge on bat roosts may continue after this deadline. However, a licensed and experienced bat worker must be on call if bats are then discovered during the remaining demolition work.

8.0 SURROUNDING HABITAT

- i. The area immediately around the site of the proposed new building is ideal foraging habitat with mature trees, a stream and a high degree of connectivity. There is therefore no need to modify the surrounding gardens specifically for bats. Maintenance of the current hedgeline, mature trees and stream will suffice.

9.0 REFERENCES:

9.1 Bat Information

- Bat Surveys; Good Practice Guidelines, **Editorial Panel**, Bat Conservation Trust 2007, ISBN 978-1-872745-99-2
- Bat Workers Manual, **Ed: T. Mitchell-Jones & A. P. McLeish**, JNCC 2001
- Bat Mitigation Guidelines **A.J. Mitchell-Jones**, English Nature 2004, ISBN 1 85716 781 3
- Providing Bat Roosting Places, **Phil Richardson**, National Trust Guidance Note No.: Bat 17, Sept 2003
- The Lesser Horseshoe Bat Conservation Handbook, **H.W.Schofield**, Vincent Wildlife Trust 2008 ISBN 978 0 946081 52 3
- Managing Landscapes for Greater Horseshoe Bat, **English Nature** 2000, ISBN 1 85716 536 5
- A Guide to the Identification of Pipistrelle Bats, **Henry Schofield**, unpublished report 2002
- The Bat Detective, **Brian Briggs & David King**, Stag Electronics Paperback & CD.
- A Guide to Bats of Britain and Europe, **Wilfred Schober & Eckard Grimberger**, Consultant Editor: **Dr. Robert Stebbings**, Hamlyn Publishing Group Ltd. ISBN 0 600 5642 4X
- Biodiversity: UK Steering Group Report Vol.2: Action Plans. Species Action Plans: Pipistrelle, Greater Horseshoe Bat, **UK Gov. (DEFRA)**, 1995, HSMO.
- Bats and Lighting in the UK: Bats in the Built Environment Series **BCT** Guidance for Bat Workers.
- Bats Buildings and Development, **Brecon Beacons National Park**. Planning Advice Note 20, October 2007.
- Ten 'Handy Hints' for obtaining a bat mitigation licence at first submission, **Natural England**, Guidance Note WML-G06 (09/08)
- Bats in Houses, **A.M. Hutson**, Reprinted 1993, Bat Conservation Trust, ISBN 1-872745-10-5
- Bats in Roofs, A guide for Building Professionals, **CCW** 2004, ISBN 1-861169-121-1

- Giving Bats a Good Innings, **Andrew Cowan**, A&E Arbour Ecology, Guidance Notes, Nov 2002
- Identification of Arthropod Fragments in Bat Droppings, **C. Shiel, C. McAney, C. Sullivan & J. Fairley**, The Mammal Society Occasional Publication 17: 1997 ISBN 0-906282-33-0

9.2 Legislation and Planning Guidance

i. Web Addresses for Legislation Texts

- NERC Act 2006 [http:// www.defra.gov.uk/rural/ruraldelivery/bill/](http://www.defra.gov.uk/rural/ruraldelivery/bill/)
- Conservation (Natural Habitats & c.) Regulations 1994: http://www.hmso.gov.uk/si/si1994/Uksi_19942716_en_1.htm
- Countryside & Rights of Way Act 2000: [http:// www.legislation.hmso.gov.uk/acts/acts2000/20000037.htm](http://www.legislation.hmso.gov.uk/acts/acts2000/20000037.htm)
- Habitats Directive: [http:// www.europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=en&numdoc=31992L0043&model=guichett](http://www.europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=en&numdoc=31992L0043&model=guichett)
- Bern Convention: [http:// www.nature.coe.int/english/cadres/bern.htm](http://www.nature.coe.int/english/cadres/bern.htm)
- Wildlife & Countryside Act 1981: [http:// www.incc.gov.uk/page-3614](http://www.incc.gov.uk/page-3614)

ii. Bat Species Action Plans

Status in Welsh Public Authority LBAP's:

- **Anglesey County Council:** Noctule & Lesser Horseshoe SAP's, Pipistrelle aggregate SAP.
- **Blaenau Gwent County Borough Council:** Lesser Horseshoe SAP, Pipistrelle aggregate SAP.
- **Brecon Beacons National Park** Lesser Horseshoe SAP, Pipistrelle aggregate SAP.
- **Bridgend County Borough Council:** Generic Bat SAP.
- **Caerphilly County Borough Council:** Generic Bat SAP.
- **Cardiff Council:** Generic Bat SAP.
- **Carmarthenshire County Council:** Greater & Lesser Horseshoe Bat SAP's, Pipistrelle aggregate SAP.
- **Ceredigion County Council:** *No Bat SAP's*
- **Conwy County Borough Council :** Lesser Horseshoe SAP
- **Denbighshire County Council:** Lesser Horseshoe SAP, Pipistrelle aggregate SAP.
- **Flintshire County Council:** Lesser Horseshoe SAP
- **Gwynedd County Council :** Lesser Horseshoe SAP
- **Merthyr Tydfil County Borough Council:** *No Bat SAP's*
- **Monmouthshire County Council:** *Draft SAP's for Lesser and Greater Horseshoe Bats and the Biodiversity and Development SPG also includes species advice notes on bats (SAN 6)*
- **Neath Port Talbot County Borough Council:** Greater & Lesser Horseshoe SAP's, Pipistrelle aggregate SAP
- **Newport City Council:** Lesser Horseshoe SAP, Pipistrelle Bats aggregate SAP
- **Pembrokeshire County Council & Coastal National Park:** Barbastelle, Common Pipistrelle, Soprano Pipistrelle, Greater & Lesser Horseshoe SAP's.
- **Powys County Council:** Lesser Horseshoe SAP, Pipistrelle aggregate SAP.
- **Rhondda Cynon Taf County Borough Council:** Pipistrelle aggregate SAP.
- **Snowdonia National Park:** Natterer's, Noctule & Lesser Horseshoe SAP's, Pipistrelle aggregate SAP
- **Swansea City and Borough Council:** Bechstein's, Greater & Lesser Horseshoe SAP's, Pipistrelle aggregate SAP
- **Torfaen County Borough Council:** Barbastelle, Greater & Lesser Horseshoe SAP's, Pipistrelle aggregate SAP
- **TREBAP** [Trunk Road Estate Biodiversity Action Plan]: Generic Bat SAP
- **Vale of Glamorgan Council:** Generic Bat SAP, Pipistrelle aggregate SAP.
- **Wrexham County Borough Council:** Lesser Horseshoe SAP

10.0 APPENDIX:

10.1 BCT Assessing Value of Habitat Features for Bats

Merlin Bio-Surveys Assessing Value of Habitat Features

Site: Stourbridge House, Llysworney	Date: 09/07/14
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Low

↑
Increasing habitat value for bats
↓

High

- No features that could be used by bats (for roosting, foraging or commuting).
- Small number of potential roosts, most likely less significant ones (i.e. probably not maternity roosts or hibernacula).
- Isolated habitat that could be used by foraging bats e.g. a lone tree or patch of scrub but not parkland.
- Isolated site not connected by prominent linear features (but if suitable foraging habitat is adjacent it may be valuable if it is all that is available).

- Several potential roosts in the buildings, trees or other structures.
- Habitat could be used by foraging bats e.g. trees, shrub, grassland or water.
- Site is connected with the wider landscape by linear features that could be used by commuting bats e.g. lines of trees and scrub or linked back gardens

- Buildings, trees or other structures (such as mines, caves, tunnels, ice houses and cellars) with features of particular significance for roosting bats.
- Habitat of high quality for foraging bats e.g. broadleaved woodland, tree-lined watercourses and grazed parkland.
- Site is connected with the wider landscape by strong linear features that would be used by commuting bats e.g. river/stream valleys or hedgerows.
- Site is close to known roosts.

Confirmed presence

- Evidence indicates a building, tree or other structure is used by bats e.g.:
 - bats seen roosting or observed flying from a roost or freely in the habitat;
 - droppings, carcasses, feeding remains, etc. found; and/or
 - bats heard 'chattering' inside on a warm day or at dusk.
- Bats recorded/observed using an area for foraging or commuting.

Extracted from: Bat Surveys Good Practice Guidelines, BCT (2007)

10.2 Bat Activity Flight Maps and Tables

i. Bat Activity Map 1a



ii. Bat Activity Table 1a

Merlin Bio-Surveys Bat Activity Table

Site: Stourbridge House, Llysworney H. Bracken	Date: 09/07/2014	Time: Dusk	Weather: overcast 14°C. 100% clear sky. Intermittent NE breeze. Insects flying.
	VP number: 1 A	From 21:15 To 23:15	

No. on Map	Species	Time	Count	Height	Observations
-	MYCTALUS SP.	21:56	1	-	V. brief unseen pass.
-	PIP SP.	21:56	1	-	V. brief unseen feeding buzz.
-	SOP. PIP	22:02	1	-	Unseen foraging nearby.
①	SOP. PIP	22:03	1	M	Bat appeared over ridge, foraging around lit window.
②		22:05	2	M	2 bats appeared then flying together. Flew beats up and down bracken then towards adjacent garden to the west.
As ① & ②	SOP PIP	22:10 to 22:50	1	M	Regular foraging around house every couple of minutes or so. Lots of unseen passes also. Activity reduced to passes and foraging every 4-5 minutes.

iii. Bat Activity Map 1b

Merlin Bio-Surveys Bat Activity Map

Site: Stourbridge House, Llyswoyney <i>S Thomas</i>	Date: 09/07/2014	Time: Dusk	Weather: 14°C. 100% clear sky. Intermittent NE breeze. Insects flying.
	VP number: 16	From 9.15 To 11.15	



iv. Bat Activity Table 1b

Merlin Bio-Surveys Bat Activity Table

Site: Stourbridge House, Llysworney S. Thomas	Date: 09/07/2014	Time: Dusk	Weather: 14°C. 100% clear sky Intermittent NE breeze. Plenty of moths + flying insect
	VP number: 1B	From 9.15 To 11.15	

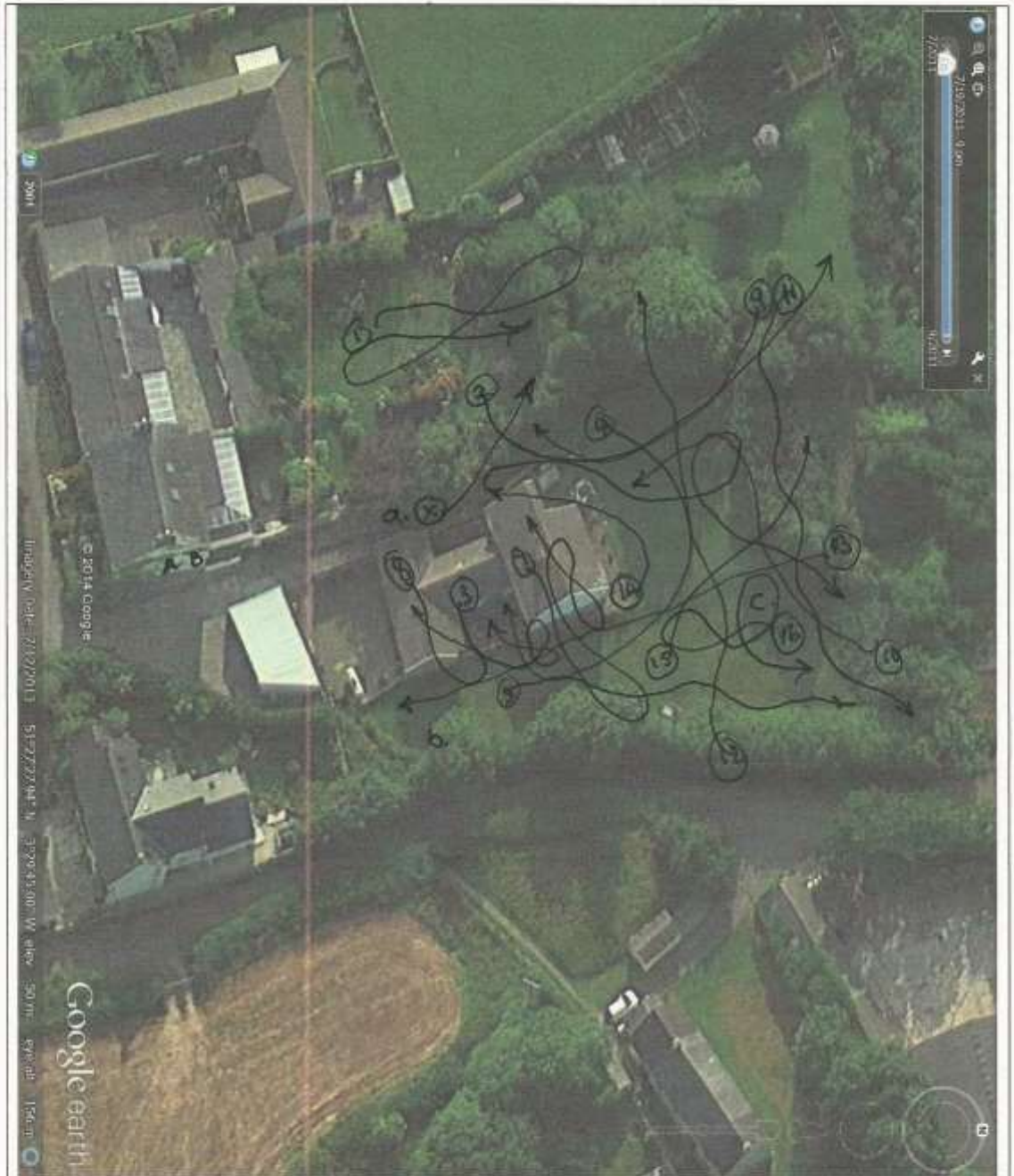
No. on Map	Species	Time	Count	Height	Observations
1	Com pip ??	9.55	1	H	Commuting over property - picked up common pip call but bat looked bigger
2	Pip sp	10.04	1	M	Brief + indistinct call - foraging activity when crossed garden
3	Sop pip	10.05	1	M	Foraging
4	Sop pip	10.06	1	M	Around corner - foraging
5	"	10.07	1	L	Foraging in garden
6	"	10.13	1	L	"
7	Sop pip	10.18	1 ↓ 2 ↓	M/H	Foraging over property - then foraging over patio - glearing spiders from soffit box
8	Sop pip	10.25	1		Briefly joined by another
9	"	10.26	1		Landed on wall by window + stayed for a (briefly over patio) minute or so then crawled up into the soffit box
10	"	10.29	1	M	Foraging around garden
11	"	10.32 ↓ 10.36	1	M	Possibly same bat circling property (on going foraging activity)
11	"	10.37	1	H/M	Some pattern of activity over patio and around corner
11	"	10.38	1	M	Emerged from soffit box
11	"	10.39	2	M	Interaction between the two
12	"	10.47	2	M	" " " over patio and garden
13	"	10.50	1	L/M	Same foraging activity in garden
14	"	10.55	1	"	"
		11.00	1	M	More activity over middle section of property + patio
		11.07 ↓ 11.11 ↓			Continued activity - less frequent

(for security reasons - on a timer probably)
 * N.B. There is a light on directly on the inside of the window where bat entered + emerged. Attracting moths too.

v. Bat Activity Map 1c

Merlin Bio-Surveys Bat Activity Map

Site: Stourbridge House, Llysworney G.F. Thomas	Date: 09/07/2014 VP number: 16	Time: Dusk P.M. From 09.15 To 11.15	Weather: 100% clear sky 14°C Insects flying. Intermittent NE breeze.
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⊗ Chiropteran noted in flight pre survey¹. No echolocation. 9.00 pm
 Note also that neighbour has two bat boxes on house wall (A + B)

vi. Bat Activity Table 1c

Merlin Bio-Surveys Bat Activity Table

Site: Stourbridge House, Lllysworney G.F. Thomas	Date: 09/07/2014	Time: Dusk p.m	Weather: 100% clear sky 16°C intermittent NE breeze. Insects flying
	VP number: 1 C	From 9.15 To 11.15	

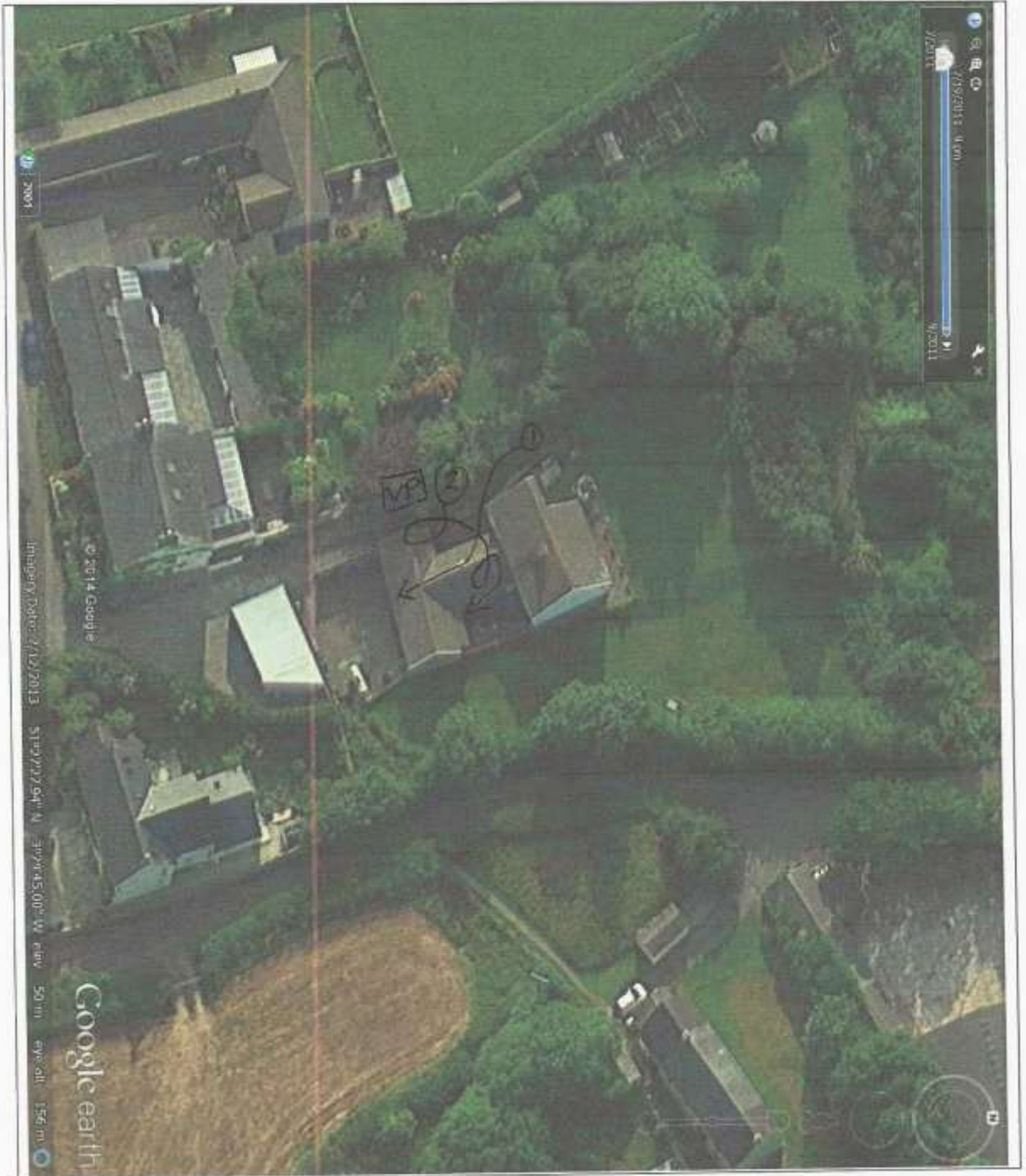
No. on Map	Species	Time	Count	Height	Observations
⊗	Chiroptera	9.00	1	L	no echolocation
①	"	9.55	2+	L	visible through gaps in trees.*
②	Sop. pip	10.00	1	L	commuting
3.	"	10.05	1	L	feeding buzz
4.	"	10.07	1	M	commuting from neighbouring garden
5.	"	10.10	1	M	commuting down hedge row
6.	"	10.15	1	unseen	distant ~ intermittently visible next door.
7.	"	10.21	1	H	foraging above roof.
8.	"	10.24	2	M	two interacting over garage roof.
9.	"	10.30	1	M	commuting
10.	"	10.31	1	L	foraging ~ feeding over lawn.
11.	"	10.32	1	M/H	along tree tops
12.	"	10.33	1	M	commuting over
13.	"	10.34	1	M/L	foraging over lawn below eaves
14.	"	10.35	1	M/L	" continuously.
15.	"	10.45			feeding buzzes frequent
16.	"	10.48	1	L	feeding just above my head.
17.	"	10.00 ↓ 11.00	1	?	commuting ~ much quieter ~ long periods of inactivity
		↓ 11.05	1		single pass ~ unseen
18.	pip 50kHz	11.07	1	?	" " "
No emergence or re-entry viewed from vantage point C.					
-	-	11.15	-	-	end of survey.

* next door has pond in garden with second pond in paddock beyond additional fishing ponds on other side of lane.

vii. Bat Activity Map 2a

Merlin Bio-Surveys Bat Activity Map

Site: Stourbridge House, Llysworney H. Brookes	Date: 10/07/2014	Time: Dawn From 03:15	Weather: CLEAR Insects flying. FORCE 1. NO PREC. S: 9°C F: 10°C
	VP number: 2A	To 05:15	



ix. Bat Activity Map 2b

Merlin Bio-Surveys Bat Activity Map

Site: Stourbridge House, Llysworney <i>S. Thomas</i>	Date: 10/07/2014	Time: Dawn From 3.15 To 5.15	Weather: 9°C. Nobreeds . 100% clear/sky. Insects flying.
	VP number: 26		



xi. Bat Activity Map 2c

Merlin Bio-Surveys Bat Activity Map

Site: Stourbridge House, Llysworney G.F. Thomas	Date: 10/07/2014	Time: Dawn From 3.15 To 5.15	Weather: No breeze. 9°C. 100% clear sky. Insects flying.
	VP number: 2C		



xii. Bat Activity Table 2c

Merlin Bio-Surveys Bat Activity Table

Site: Stourbridge House, Llysworney G.F. Thomas	Date: 10/07/2014 VP number: 2C	Time: Dawn From 03.15 To 05.15	Weather: No breeze. 9°C. (00%) clear sky. insects flying.
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No. on Map	Species	Time	Count	Height	Observations
1.	BLE	4.04	1	L	foraging low along front of house and along the hedge row.
-	Song Thrush	4.10	1	start of dawn choruses	
-	Swallow	4.19	1	-	-
r	Blackbird	4.22	1	-	brief alarm 'tak'
r	Robin	4.25	1	<	" ~ 'tik'
-	Wren	4.29	"	-	alarm than brief song.
2.	Sop Pip	4.40	1	H	around trees
-	Mistle Thrush	4.46	pr	f/o H	-
3.	Sop Pip	4.48	1	M	foraging
4.	Sop Pip	4.52	1	M	swarming behaviour? Didn't enter.
-	House Sparrow	5.01	many	-	
-	Collared Doves	5.05	2	-	
-	White Throat	5.14	1	-	distant

xiii. Bat Activity Map 3a

Merlin Bio-Surveys Bat Activity Map

Site: Stourbridge House, Llysworney H. Brookes	Date: 15/07/2014	Time: Dawn From 03:15 To 05:15	Weather: 7/8 CLOUD FORCE 4-5. No PREC. 5:15°C F:
	VP number: 3A		



xiv. Bat Activity Table 3a

Merlin Bio-Surveys Bat Activity Table

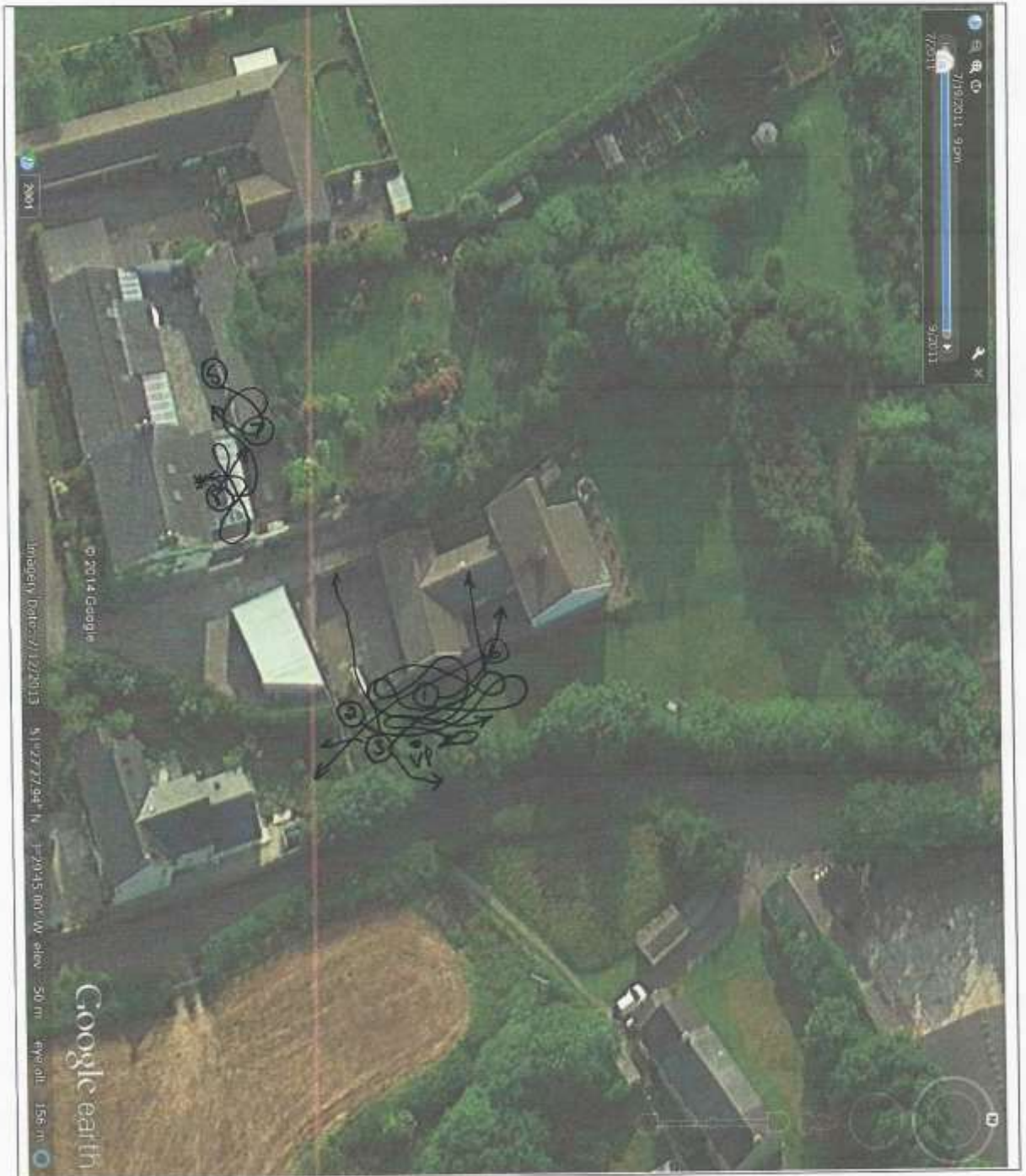
Site: Stourbridge House, Llysworney H. Brookes	Date: 15/07/2014	Time: Dawn	Weather: 7/8 CLOUD FORCE 4 wh. No PRECIPITATION S: 15°C F: H. BROOKES
	VP number: 3A	From 03:15 To 05:15	

No. on Map	Species	Time	Count	Height	Observations
-	CHIROPTERA SP.	03:46 to 04:10	1	-	Very brief detections of passes some where nearby, but weak signals.
-	C. PIP	04:15	1	-	Unseen brief foraging pass.
①	UNIDENTIFIED	04:34	1	M	Non-echolocating bat flew eastwards over house.
②	S. PIP	05:00	1	L	Entering into West gable end of garage under R-hand barge board.

xv. Bat Activity Map 3b

Merlin Bio-Surveys Bat Activity Map

Site: Stourbridge House, Llysworney S. Thomas	Date: 15/07/2014	Time: Dawn From 3.15 To 5.15	Weather: 15°C. 90% cloud cover. No breeze at start. Insects flying.
	VP number: 3B		



xvi. Bat Activity Table 3b

Merlin Bio-Surveys Bat Activity Table

Site: Stourbridge House, Llysworney S. Thomas	Date: 15/07/2014 VP number: 3B	Time: Dawn From 3.15 To 5.15	Weather: 15°C. 90% cloud cover. No breeze at start. Lots of midges/flying insects
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No. on Map	Species	Time	Count	Height	Observations
-	Sop pip	3.18	1	-	Unseen - pre-survey start
-	"	3.27	1	-	Unseen
-	"	3.33	1	-	- foraging close by in garden
1	"	3.36	1	M/H	Seen briefly Intermittent unseen foraging activity
2	"	3.41	1	-	Foraging in front of VP. feeding 'buzz'
3	"	3.43	1 (very!)	Low	Foraging low over VP
		3.46	1	V. Low	Continuous foraging activity overhead
		3.51			Some activity - sometimes flying down length of garden, sometimes over hedges of neighboring property/lane behind VP, sometimes over parking area/garage of property - always coming back to forage over VP - stream running behind VP in corner of garden - lots of midges!
		3.59			
		4.09			
		4.14...			last seen flying over mid-section of property
4	Chir sp.?	4.16	2	H	2 commuting - looked too small to be birds!! Seen briefly - possibly interacting No echolocation heard
-	Com pip	4.23	1	-	Unseen - brief
5	Chir sp.	4.30	1	M	No echolocation heard - over extension of neighboring property
6	Sop pip	4.33	1	L/M	Commuting
7	Chir sp.	4.59	1	M	Swarming behaviour? between flying over neighbour's extension
* 8	Com pip	4.47	1	M	Swarming behaviour, then entered under fascia board by down pipe

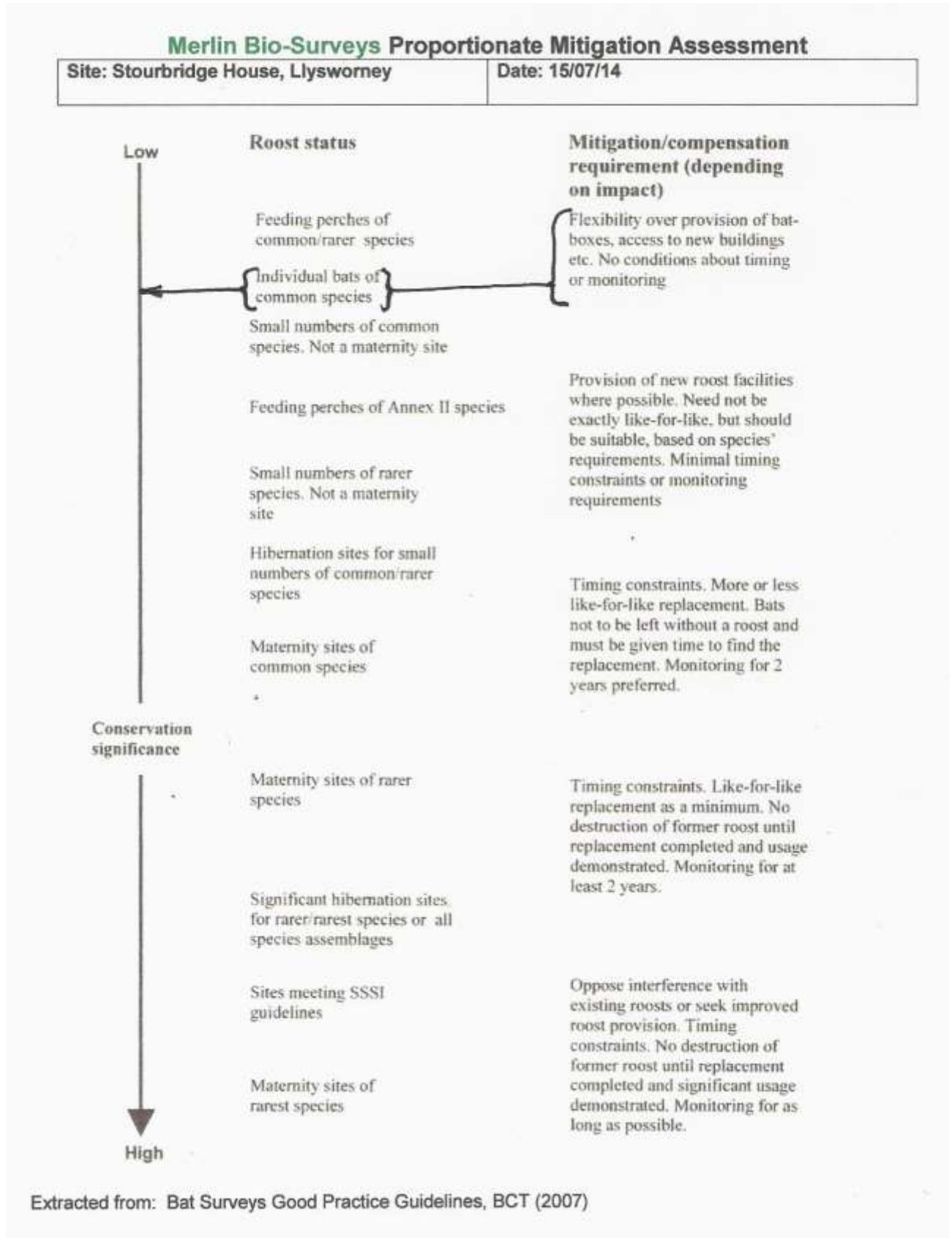
xvii. Bat Activity Map 3c

Merlin Bio-Surveys Bat Activity Map

Site: Stourbridge House, Llyswoerney G.F. Thomas	Date: 15/07/2014 VP number: 3c	Time: Dawn From 3.15 To 5.15	Weather: 90% cloud cover No breeze @ start 15°C. Insects flying
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xix. BCT Proportionate Mitigation for Bats



11.0 Suitability of MBS Surveyors

1. Sarah L. Thomas

- Administrative and Field Assistant.
- Trainee Bat Worker with 7 years experience of Emergence & Re-entry surveys with Merlin Bio-Surveys.
- Member of Valleys Bat Group.
- Experience of Bat Survey Report writing and data analysis.
- Series of inoculations against ELV up to date.

2. Geri F. Thomas B.Ed. Cert Ed.

- 14+ years' experience of Bat & Barn Owl Surveys and other surveys e.g. Tree and Hedgerow Surveys, Phase 1 Habitat Surveys, Ornithological Surveys, Herptile Surveys, Terrestrial Invert surveys, SoCC Surveys with particular reference to Dormouse, Otter and Water Vole.
- Retired County Bird Recorder for East Glamorgan.
- Wildlife Tour Guide for Eco-tourist Company; Celtic Bird Tours.
- Director of Merlin Bio-Surveys.
- Director of SEWBReC.
- Chairman of the Mid-Valleys SINC Review Panel.
- Chairman of South East Wales Local Wildlife Sites working party
- Chairman of Valleys Bat Group & Bat Carer.
- Experience of Hibernation and Maternity Roost Monitoring.
- Experience of Roost Construction and Enhancement.
- NRW Bat License to disturb and handle:
50958:OTH:CSAB:2013 valid until 31 Dec 2015.
- Additional schedule 1 licenses unrelated to this survey.
- Member of many local and national conservation organizations.

Geri Thomas (Director)

