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Working for the Client - Working with Wildlife

Rhyd Y Grug School, Aberfan, Merthyr Tydfil, CF48 4NT
AEUK 1598

Bat Survey and Assessment

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25th September 2024



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Project: Rhyd Y Grug School, Merthyr Tydfil

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Introduction

The site, Rhyd Y Grug School- Aberfan Merthyr Tydfil CF48 4NT national grid reference: ST073996 (what3words kilts.crop.desktops) (hereafter referred to as the “site”) has been assessed for bats based on the assessment criteria within the Bat survey guidelines 2023 and from undertaking a visual daytime inspection on 30th July 2024 and emergence surveys and breeding bird checks on 30th July 2024, 19th August 2024 and 10th September 2024. The total site size is approximately 4.494ha (1.819 acres) of school playing fields and standard trees, gardens with paving and school buildings and wooden out buildings.

The site is located in the village of Aberfan, Merthyr Tydfil and is set on the edge of a residential area surrounded on the north and west by residential properties and the south and east backs onto the wooded River Taff valley. The habitat is rural fringe and considered moderate/high quality for bat species but the school is well covered in municipal lighting reducing the opportunities for bats.

Proposed works

The project comprises the delivery of a new school block extension and internal works to the existing school – but no works proposed to the roof.

Objectives

The objectives of the ecological assessment were to:

- Identify if bats are roosting on site or have potential to roost/breed on site;
- Identify the presence or potential presence of bats a protected species whose disturbance may require consent under The Conservation of Habitats and Species Regulations, 2010 or The Environment (Wales) Act (2016);
- Identify the need for further targeted surveys on site;
- Identify any bat species which may require special mitigation during the works; and
- Identify any areas that may require special protection during the development.

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Map 1 showing the approximate ownership plot

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Figure 1 Existing site plan

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Figure 2 proposed works

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Methodology

Building Inspection bats

The methodology, surveyors and equipment used were undertaken in accordance with and guided by the BCT bat survey guidelines 3rd edition 2023.

Physical external/internal site inspection of the building was undertaken by the lead surveyor.

The surveyor conducted this inspection using the equipment described below to assist the inspection, and approximately a half day of search effort was expended. A 3.8m telescopic ladder was used to gain access to various points and a Led Lenser (2 million candlepower) searchlight fitted with a red filter was used to search dark areas for signs of bats. A Pro Vision 2100 Endoscope was utilised to assist inspection of internal spaces. Pentax 0.5m Papilio (8.5x21) close focusing binoculars were used to view areas inaccessible on foot. A telescopic inspection mirror was used to look on top of structures for evidence of bats.

The physical search includes a search for live animals and a search for other signs that give an indication of past or present occupancy as outlined below.

In the case of bats, typical indicators include droppings (which are characteristic and can often be speciated or at least be indicative of species type), signs of staining, urine splashing, characteristic odours, and accumulations of discarded prey remains.

In order to record and observe bats in the roosts if present a Fenix 1,000,000 torch with red filter was used along with a Guide IR 518 Thermal imaging camera and a Genysys NVs Discovery 5X PG Night vision scope with a 810NM infra-red illuminator was used to aid detection and identification. This enables bats to be pin pointed within buildings and enabled observation of bats in the roost if present.

Assessment of the Building for Bat Roosting Potential

The site was visited during the daytime on 30th July 2024 during which the assessment of the building for bat potential was undertaken.

The surveyor conducted a visual inspection. This consists of two parts. The first part (building assessment) was undertaken during this survey. The second part (emergence

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survey) was undertaken due to assessment potential recorded as moderate/high suitability for bats.

A DJI Mavic mini 2 drone was used to aid the survey of the roof of the property and areas around the building.

- Use close focusing binoculars to inspect the building from the ground to the roof inside and outside.
- Inspection of all aspects of the building.
- Look for features indicative of bat roosts cracks and crevices inside and outside building.
- Looking for signs of bat occupation both inside and outside the building and areas in close proximity.
- Use of a high powered torch to highlight cavities and shady areas of the building.

Evening emergence/activity bat detector surveys

Prior to the commencement of the acoustic survey the surveyors visually inspected the buildings for bats in known favoured roosting areas. On completion of this task the surveyors positioned themselves to allow for inspection of bats exiting/re-entering the buildings. Surveyors also positioned themselves to be able to see bat emerge inside the buildings prior to exiting the building to forage externally.

An Anabat SD1 detector with PDA attachment and a time expansion bat detector (Pettersson D240x) were used by both the lead surveyor and assistant. The time expansion bat detector was linked to a digital recorder (Roland Edirol R09) for subsequent sonogram analysis in the using 'Bat Sound V3.31' software to further increase the chance of accurate species identification. The Anabat detector with PDA records information directly into the device for computer analysis later using AnalookW bespoke software. The surveyors supplemented this active detector work with the use of passive Anabat SD1 remote detectors placed strategically around the site. The detectors were deployed in different locations during each survey. The data collected was analysed using AnalookW bespoke software to identify species recorded. All calls for both detector types were cross referenced to a call reference collection library of known bat species to confirm species presence

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Environmental variables

Table 1 Environmental variables

	Temp start	Temp end	Wind speed max	Wind speed ave	Cloud cover start	Cloud cover end	Relative Humidity	Precipitation
30th July	25.5°C	24.4°C	0.4mph	0.1mph	3/8	2/8	77.0%	None
2024					oktas	oktas		
19th	16.5°C	16.0°C	1.1mph	0.3mph	8/8	8/8	98.0%	None
August					oktas	oktas		but
2024								rained after survey was completed
10th	11.2°C	11.1°C	2.1mph	1.0mph	5/8	5/8	85.0%	None
September					oktas	oktas		
2024								

The Building inspection survey was carried out on 30th July 2024 emergence surveys on 30th July 2024, 19th August 2024 and 10th September 2024 in suitable weather conditions in accordance with Bat Conservation Trust (BCT) survey guidelines for building inspections.

Limitations

The survey was carried out at an optimal time of year for a building assessment and emergence bat surveys according to the Bat Conservation Trust Bat Survey good practice guidelines 2023 and an optimal time for breeding bird surveys. While no biological survey can guarantee that all cues and signs of protected or notable species will be recorded, Alder Ecology UK Ltd feel confident that all key indicators for bats and breeding birds were noted during this survey window. The survey at Rhyd Y Grug School- Aberfan Merthyr Tydfil CF48 4NT, was not constrained as full access was available at the site for the building inspection and emergence survey. The roof inspection was undertaken from the ground and aided with the use of a drone.

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Personnel

The survey and assessment on site was carried out and lead by Roger Martindale BA(Hons), MSc, CEnv, MCIEEM Principal Ecologist and Director of Alder Ecology UK Ltd who is a qualified and experienced professional Ecologist with over 25 years' experience, Chartered Environmentalist and full member of the Institute of Ecology and Environmental Management (CIEEM). Roger is an approved trainer for Bat Conservation Trust, Natural England and CIEEM and has recently ran the new Natural England Low Impact Bat Class licence training and a member of the technical review panel of the recently published 4th edition of the Bat survey guidelines. He currently holds a Natural Resources Wales survey licence to legally undertake such assessments on site (licence number SO93631/1). During the surveys Roger was assisted by Rachel Whatton, Jon Hill, Max Martindale all experienced bat surveyors who have worked as assistant's surveyors for several years.

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Photographic plates



Plate 1 Building being surveyed Rhyd Y Grug School looking south



Plate 2 west facing aspect at the side of the school showing location of river Taff

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Plate 3 Roof showing no actual roof voids within the school building



Plate 4 showing area of small soprano pipistrelle day roost behind lead flashing

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Plate 5 well maintained roof covering and weather boarding no opportunities for bats



Plate 6 some concrete panels had gaps but no evidence of use by bats

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Plate 7 showing gaps between concrete panels no evidence of use by bats



Plate 8 joints between roof areas had potential for use by bats but no evidence recorded during the survey

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Plate 9 bat dropping recorded on fascia and roost recorded behind lead flashing

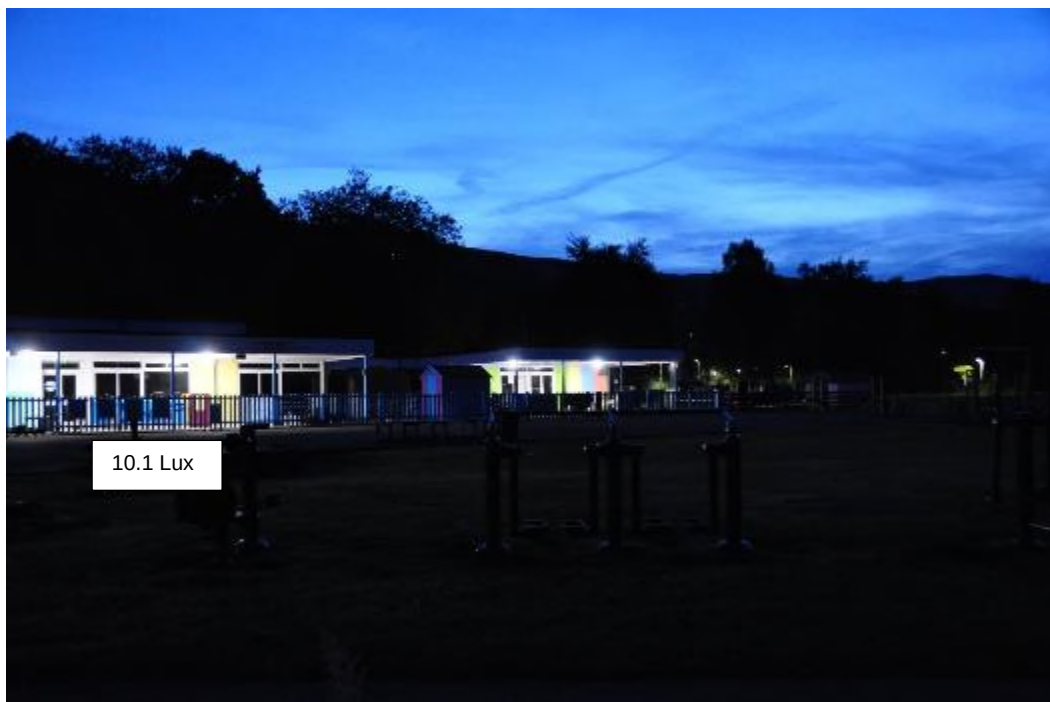


Plate 10 significant light spill from the property reduces quality of the site for bats

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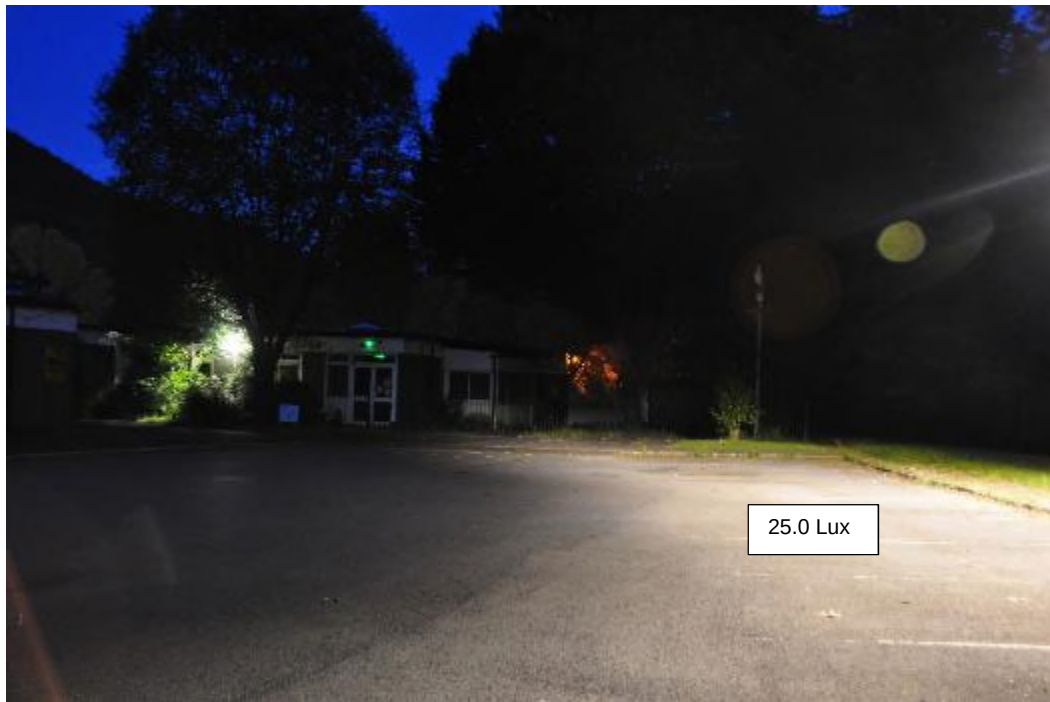


Plate 11 Security and column lights positioned around the property



Plate 12 showing significant light spill around the property, roost arrowed

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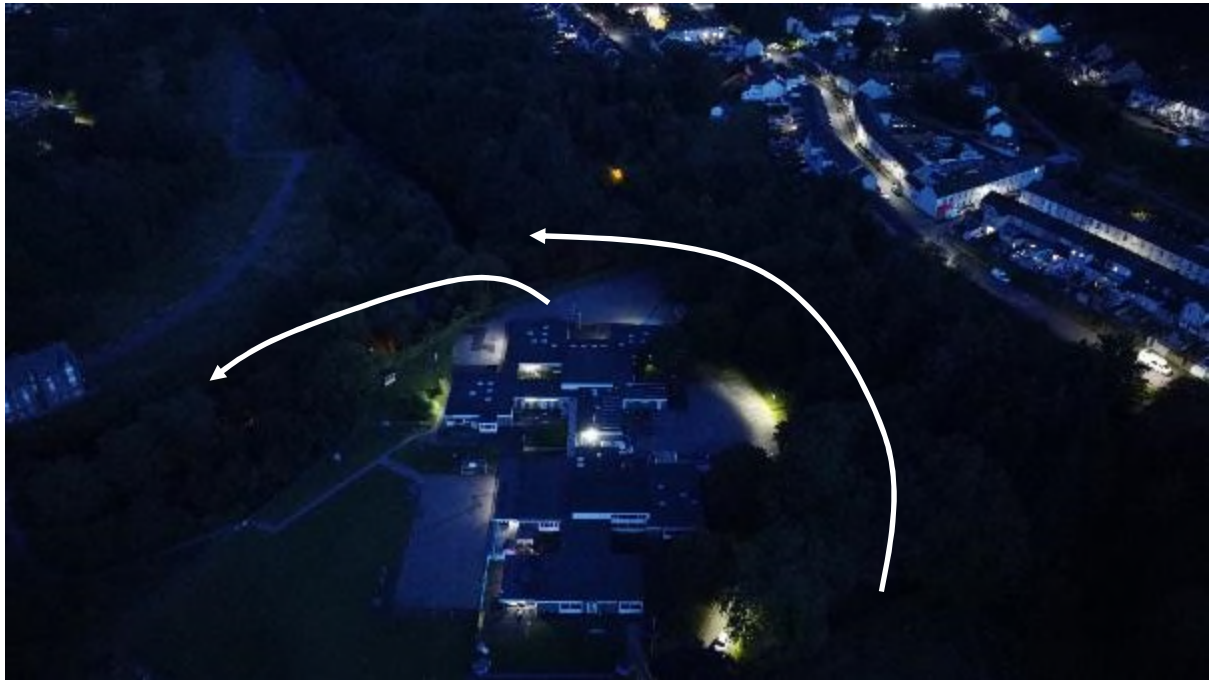


Plate 13 showing bat flight line around the site

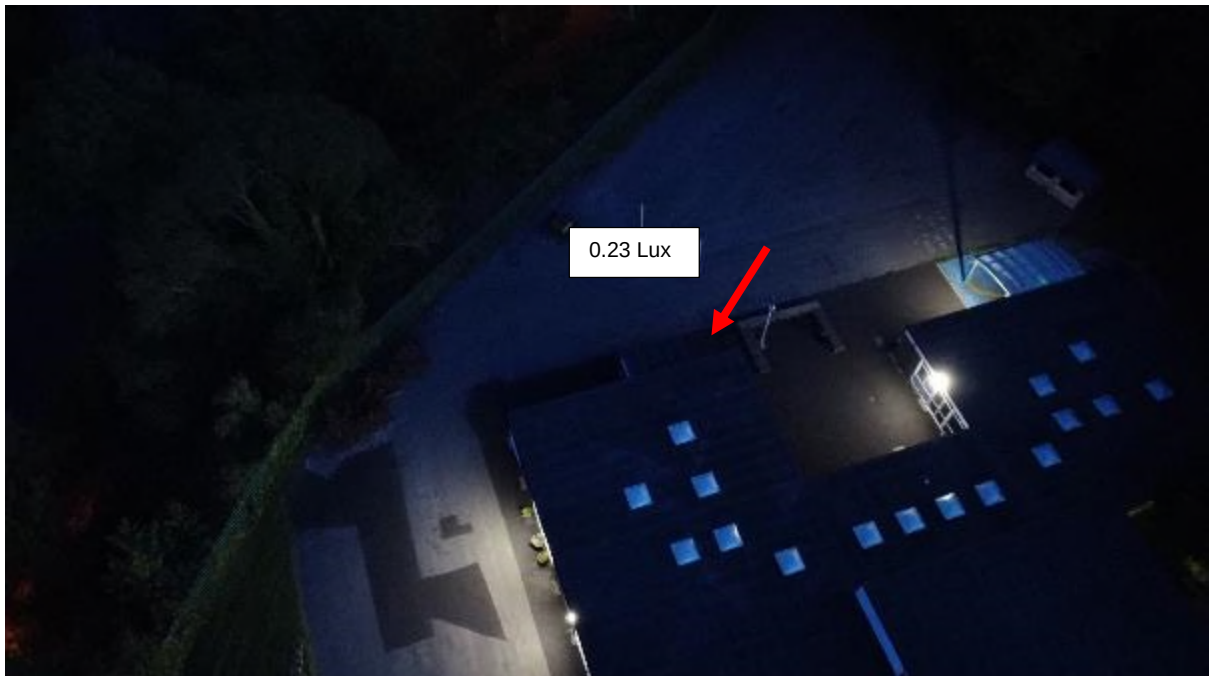


Plate 14 area of the roost with lower light levels.

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Results Data search

The general area around the school has a moderate biomass of bat species according to the data search but this is likely due to under recording and the area being low in the number of development projects.

Table 2 Bat records 5km radius CF48 4NT

Bat Species	Distance from site centre (km)
Bats	< 1km
58 records returned	> 5km
Brandt's bat	> 5km
2 records	
Brown Long eared	> 5km
3 records	
Common Pipistrelle	> 5km
18 records	
Daubentons bat	> 5km
7 records	
Greater Horseshoe bat	> 5km
1 record	
Natterers bat	> 5km
1 record	
Noctule bat	> 5km
15 records	
Serotine bat	> 5km
1 records	
Soprano pipistrelle	> 5km
10 records	

The wider area around the site has good habitats for bats and the numbers of bat species recorded with 5km of the site is moderate for the quality of habitats recorded.

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Results

Internal void assessment

The property contained no accessible internal voids and no voids suitable for roosting bats.

External assessment

The main school roof is a flat roof covered in roofing felt and maintained in very good condition as can be seen in plates 3, 4 and 5. There are no opportunities for roosting bats within the roof structure and it is assessed to be of negligible value to roosting bats.

The school building is extremely well maintained and structures are fitted tightly with very limited opportunities for bats to use the building as a bat roost. There are two main features bats could utilise, they are the gaps between the concrete panels shown in plates 6 and 7. These areas were investigated using both endoscopes and thermal imaging cameras but there was no recent or historic evidence of use and in many areas the gaps were covered in cobwebs showing no access had been gained into the space. The other areas of interest are the lead flashing jointing between roofing areas as shown in plates 8 and 9. These areas were also investigated using an endoscope and in all areas except one no evidence of use by bats was discovered. The one area shown in plates 9 and 12 bat droppings were discovered but despite looking no bats were observed although two did emerge from the area during the evening emergence surveys and it was a confirmed day roost for a peak count x2 soprano pipistrelle bats. The emergence surveys confirmed species composition and numbers.

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Emergence survey results

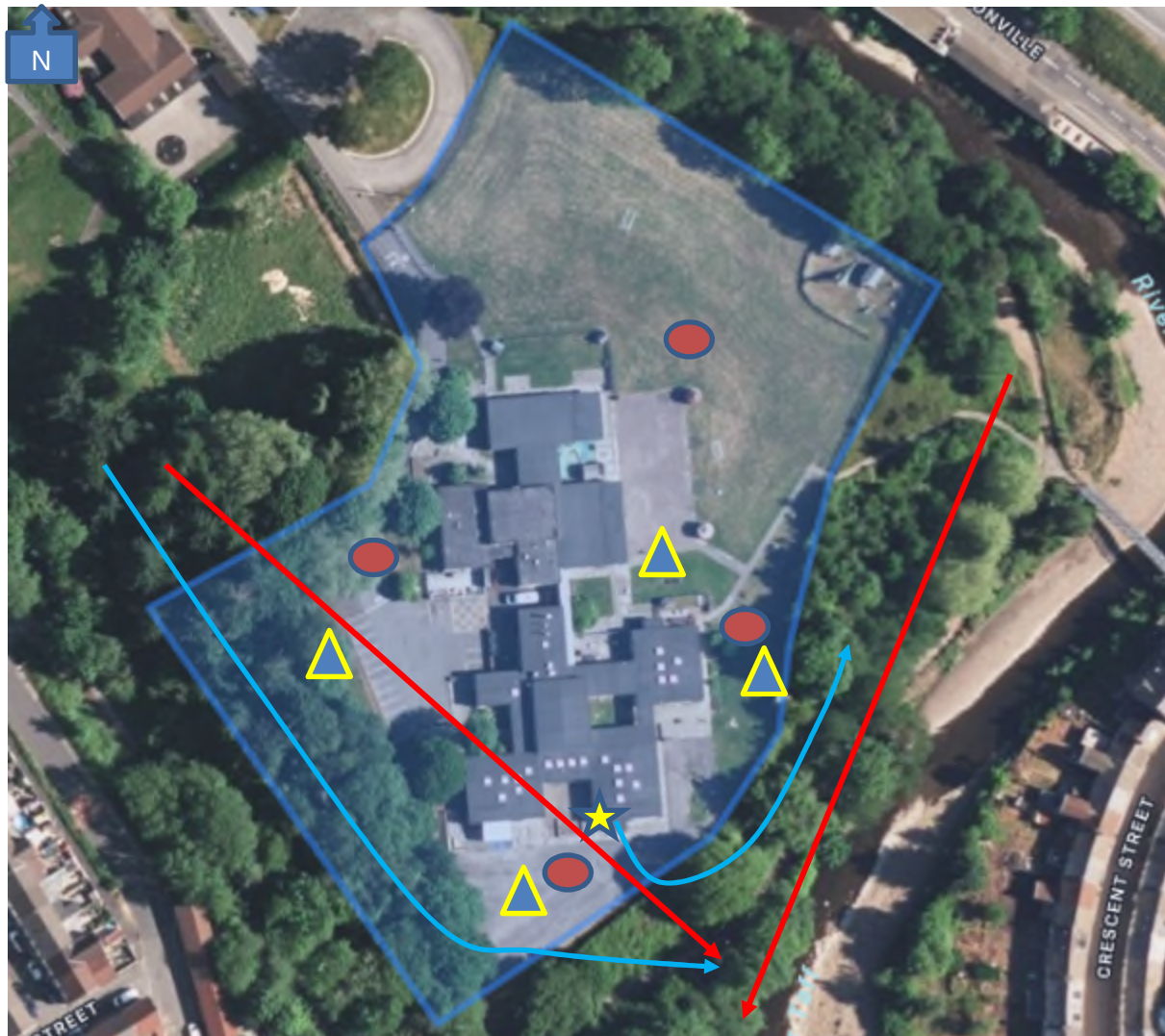
Survey 1- 30th July 2024 Sunset 2107hrs

During survey 1 the surveyors and equipment were located to observe all aspects of the property and specifically look for bats entering or exiting the site. Two bats, soprano pipistrelle emerged from the south facing porch shown in plates 9 and 12 and flew offsite to the south east towards the River Taff.

A noctule bat was recorded and observed on the west boundary at 2149hrs 42 mins after sunset flying along the west boundary towards the river corridor in the south. The first bat to emerge was a soprano pipistrelle on the south facing porch at 2152hrs followed by another soprano pipistrelle bat at 2154hrs both bats flew east off site south. The peak count was x2 soprano pipistrelle bats and the roosts were both day roosts. Only one other bat was recorded a noctule bat which flew adjacent to the site along the river corridor. A total of two species were recorded foraging and commuting in the area around the property during the survey they included: soprano pipistrelle and noctule bat. The activity levels were low which was surprising given the quality of the local habitats but not surprising around the school building as lux levels are high as can be seen in plate 12.

All surveys started 30mins prior to sunset and lasted for 3hrs due to the local presence of horseshoe bats.

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Map 2 **Survey 1** bat survey results blue soprano pip, noctule bat red, Surveyors red circle, Roost location yellow star. Passive detectors yellow triangle

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Survey 2- 19th August 2024 Sunset 2037hrs

During survey 2 the surveyors and equipment were located to observe all aspects of the building. A single soprano pipistrelle emerged from the south facing porch as it did in survey 1 and flew offsite to the south east following the pattern of survey 1.

The pattern was similar to survey 1 but with only one soprano pipistrelle bats x1 peak count and roost was still a day roost. The first bat emerged at 2101hrs from the south side and flew offsite. The only difference was there was more feeding activity in the rear (south) of the site over the river corridor with a total of three species recorded flying, commuting or foraging adjacent to the site. They included noctule bat, soprano pipistrelle bat and common pipistrelle bat, see sonograms in appendix 1.

All surveys started 30mins prior to sunset and lasted for 3hrs due to the local presence of horseshoe bats.

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Survey 3- 10th September 2024 Sunset 1931hrs

During survey 3 the surveyors and equipment were located to observe all aspects of the building. No bats emerged from the building during the survey period.

Once again the numbers of bats recorded was low with only two species being recorded or observed during the survey with only a two soprano pipistrelle bats recorded in the west and south of the site and none emerging from the building. The same noctule flight path was observed from offsite north to south and bats continued to be only recorded in the areas of lower lux levels around the boundaries.

All surveys started 30mins prior to sunset and lasted for 3hrs due to the local presence of horseshoe bats.

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Map 4 **Survey 3** bat survey results blue soprano pip, noctule bat red, Surveyors red circle, Roost location yellow star. Passive detectors yellow triangle

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Passive detector species composition results

30th July 2024 x2 nights

- Soprano pipistrelle
- Noctule bat

19th August 2024 x2 nights

- Soprano pipistrelle
- Noctule bat
- Common pipistrelle

10th September 2024 x2 nights

- Soprano pipistrelle
- Noctule bat

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Ecological lighting assessment method

Method

Ecological Lux level baseline for the site has been assessed taking readings 1hr 30mins after sunset. The site has been assessed using standard industry equipment the Minolta T10 Luminance meter with all readings taken in a horizontal plane.

The lighting outputs have first been recorded and mapped with all the luminaries both on and off site considered during this process including offsite light spill and light trespass.

Illuminance levels throughout the site and at the boundary have been produced so that the current site baseline is understood. The Lux levels on the map below shows current levels including light trespass from adjacent areas.

Light trespass has been assessed and the line of sight from neighbouring properties has also been considered in terms of impact on the site.

The Society of Light & Lighting guidance documents all apply a common Environmental Zoning system, which is summarised below.

Zone E1

Areas with intrinsically dark landscapes: National Parks, areas of outstanding natural beauty (where roads are usually unlit) Rural Environmental

Zone E2

Areas of 'low district brightness': outer urban and rural residential areas (where roads are lit to residential road standard) Urban Environmental

Zone E3

Areas of 'middle district brightness': generally urban residential areas (where roads are lit to traffic standard) Urban Environmental

Zone E4

Areas of 'high district brightness': generally urban areas having mixed recreational and commercial land use with night-time activity

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Results of the ecological lighting assessment

The site has a variation in light levels with high lux levels recorded close to the building and lower lux levels recorded closer to the site boundary. The site would classify as Zone E3 area of middle district brightness.



Map 5 showing site lux levels from ecological lighting assessment NOT A Full Professional lighting assessment. Roost locations yellow star.

*Notes: Lux levels recorded on site 30th July 2024

Luminance meter *Lux level taken using Minolta T10 Luminance meter in horizontal plane.

Moon phase *30st July 2024 Waning crescent moon 30% illuminated at 2/8 oktas cloud cover

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Conclusions

The survey concluded that the roof structure of the building had low potential for roosting bats and that no evidence recent or historic was recorded and it is assessed not to be a bat roost. The survey of the building exterior found the building to have moderate potential within the concrete panels and roof jointing with lead flashing. However, on close inspection the concrete panels showed no evidence of roosting bats and this potential was further decreased due to the high lux levels on site. The roof jointing with lead flashing confirmed one roost, a day roosts for a peak count of x2 soprano pipistrelle bats on the south side. One bat dropping was recorded stuck to the wall close to the roost. This area had lower lux levels which may have increased the potential of the area for bats. The area with the confirmed roost will not be directly or indirectly impacted by the proposed works which are due to take place on the north-west part of the site.

The general area had a low biomass of bats during the survey likely as a result of the high lux levels on site, but situations can change quickly with mobile species such as bats, if opportunities arise particularly as the site is close to good quality habitat and the River Taff. Therefore measures should be employed to prevent ingress by bats into the property during any work to prevent conflict between scheduled works and roosting bats or breeding birds if the work is undertaken during the active season for bats April to October when they fly and forage and can utilise opportunistic roosts which have become available or breeding season for birds March to September.

Therefore provided that work is undertaken according to the recommendations below and under ecological guidance if required the likely significant effects can be minimised and risk reduced to be proportionate with the likelihood of the presence of bats in the area of the proposed works which is assessed to be low according to the latest building inspection and emergence survey results.

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Recommendations

The following recommendations are provided:

- Bats are a protected species and a material consideration in the planning process. If a bat roost is impacted by a proposed scheme and will be damaged, destroyed, modified or the bats disturbed, suitable and proportionate mitigation and or compensations will be required to maintain the favourable conservation status of bats in their natural range or not impact their ability to attain favourable conservation status in the future.
- The main building Rhyd Y Grug School- Aberfan Merthyr Tydfil is a legally protected bat roost and remains legally protected whether bats are present or not according to British law.
- Any works to the building may require a derogation licence issued by Natural Resources Wales but only after planning permission is secured and if the work is extended to impact the area of the confirmed roost.
- If the roost cannot be retained then a compensation roost per species will be required. Due to the low numbers encountered bat boxes may be considered suitable and proportionate by Natural Resources Wales but the new roosts would need to be available for bats returning to the area in early spring of the following season after planning consent.
- Artificial bat boxes if used on the site should be erected at 2/3m in height south or west facing suitable for serotine and common pipistrelle bats.
- Maintain building integrity up and until the point of works to avoid occupation by bats or birds particularly as a high species composition has been locally recorded during the surveys.
- If any bats are encountered on site works will immediately stop and the ecologist will be called for advice. The bat expert will attempt to rescue bats if in immediate danger and hold them in accordance with the Bat Workers Manual and in a suitable handling box for release in the evening or continued roosting.
- Builders and contractors are explicitly forbidden from handling bats or disturbing breeding birds.
- All nesting birds are protected while breeding or making a breeding attempt. Should breeding birds be discovered advice must be sought from a qualified ecologist.

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- If breeding birds are discovered on site work will be delayed until the young birds have fledged (flown the nest). The area must be secured and birds left undisturbed.
- Any lighting of the property should be minimised to prevent light spill onto the adjacent habitats and if required should be activated using short timed motion sensors.
- Do not illuminate the site above baseline levels recorded on site and highlighted in this document or use short duration motion sensor lighting.

Ecologists contact details

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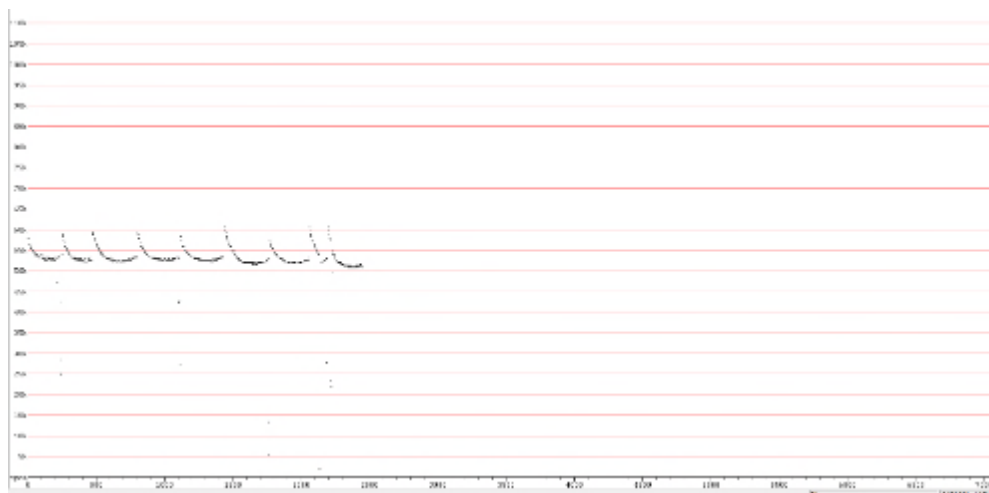
e-mail: rmartindale@btinternet.com

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Appendix 1 sonogram examples

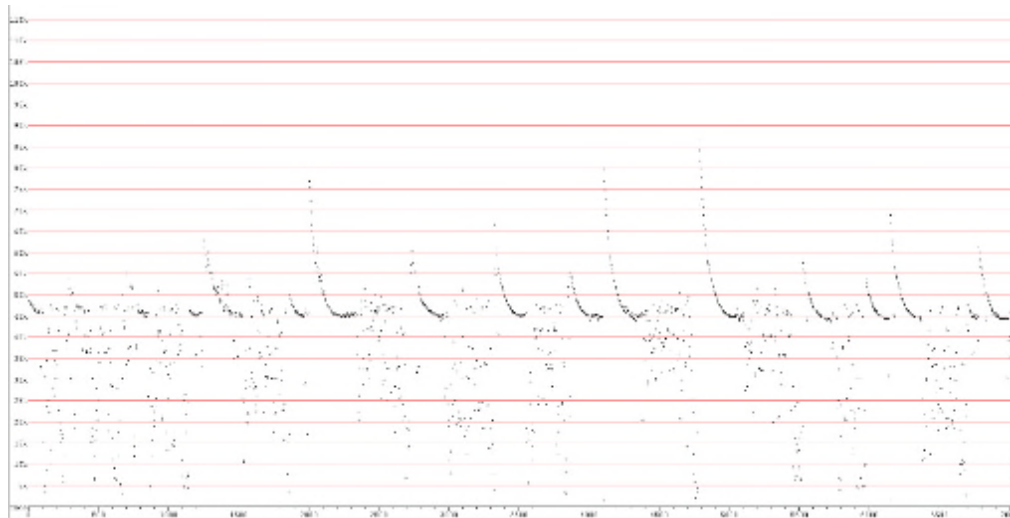


Noctule bat flying through the site north to south July 2024

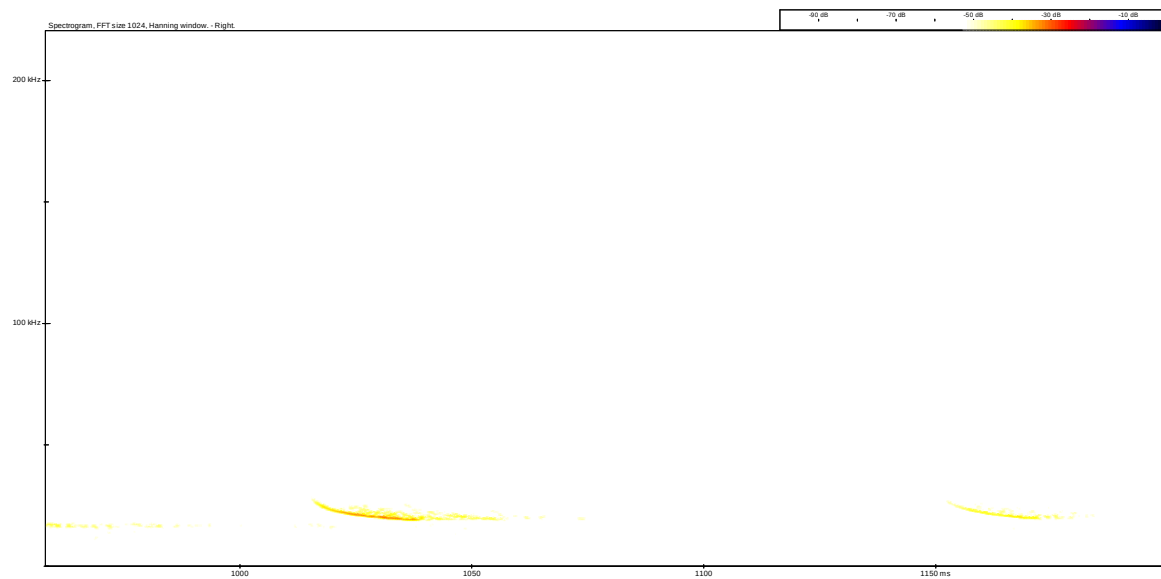


Soprano pipistrelle flying towards river Taff south July 2024

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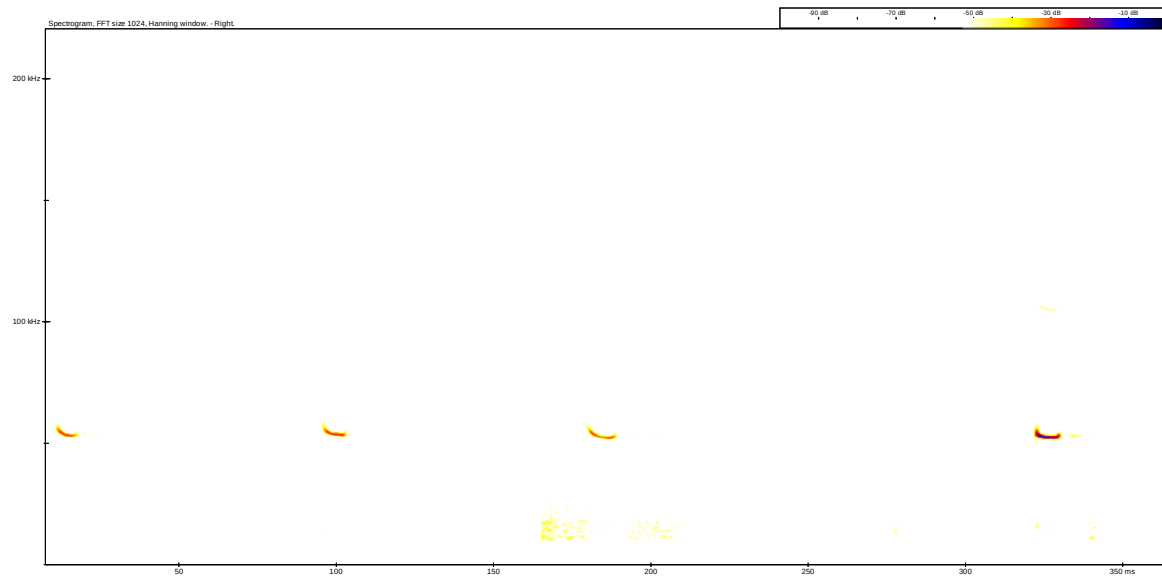


Common pipistrelle flying along the south boundary August 2024



Noctule west boundary august 2024

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Soprano pipistrelle by the south boundary September 2024