



**Bat Survey Report
for a proposed building development at
Alma Street, Llanarth, Ceredigion**

*******NOT FOR SUBMISSION. DRAFT VERSION ONLY*******

Client: Mr A. Evans
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EXECUTIVE SUMMARY

An assessment of bat potential was undertaken on a number of trees growing on land to the south of the A487 coast road in Llanarth, as part of an ecological assessment for a proposed housing development.

The daytime assessment highlighted four mature trees with high bat potential. A line of horse-chestnut trees had either low or medium bat potential.

A dusk emergence survey established an active bat roost in one of the high potential trees. The presence of bat roosts in the remaining three trees cannot be ruled out. It is recommended that these trees be retained within the development. The hedgerows bounding the A487 and the minor road adjacent to the primary school provide important feeding and commuting habitat for bats, and should be retained.

1 INTRODUCTION

1.1 Site Description

The proposed site comprises three fields with both dry and damp grassland. Hedges are found within and around the site, and individual mature trees are present on one boundary. It is adjoined by a wooded stream valley to the east, a large detached property set in wooded grounds to the south-west, an improved field to the south-east, the main road and associated housing to the north, and a school to the west.

1.2 Proposed Works

The proposal is for a housing development, to cover the majority of the site. No specific design details were available prior to survey.

1.3 Aims of Survey

The aims of the survey were to:

- establish whether the trees are being used by or have the potential to be used by bats;
- assess the potential impacts on bats of the proposed works;
- provide mitigation in the case of bats being found.

2. METHODS

2.1 Summary of survey methods

The study methodology follows the guidelines set out in the Bat Conservation Trust document, '*Bat Surveys for Professional Ecologists, Good Practice Guidelines, 3rd Edition*' 2016.

A daytime inspection was carried out of the trees within the development parcel, and the surrounding area was assessed for its likelihood to support bat interest.

2.2 Pre-survey data search

A search was undertaken through the West Wales Biological Information Centre with regard to existing records of bats within a search area of 5 kilometres of the site.

2.3 Surveyor information

The survey was undertaken and reported by Mike Jenkins who holds a bat licence with Natural Resources Wales (72995:OTH:CSAB:2016). Mike is an active member of both Carmarthenshire Bat Group and Glamorgan Bat Group, and has an in depth experience of roost inspection and emergence surveys. He is a professional ecologist of 20 years standing.

He was assisted by Matt Sutton, an employee of CCW (now NRW) for 15 years, during which time he held a bat licence and was responsible for numerous roost inspection visits, development of mitigation measures for bat roosts, flight-lines and foraging habitats, and assessments of survey programmes by consultant ecologists. As a freelance consultant ecologist for the last 6 years, Matt has completed numerous bat scoping reports for building developments and wind-turbine proposals.

The third surveyor was Lowri Jenkins who has assisted in a wide range of surveys both for development purposes and as part of Glamorgan Bat Group.

2.4 Field surveys

An initial assessment of bat potential was undertaken by Matt Sutton as part of the extended Phase 1 Survey undertaken on 22nd July 2014.

A daytime tree assessment was carried out by Mike Jenkins on 23rd May 2017.

An activity survey was led by Mike Jenkins on the evening of 25th May 2017, with assistance from Matt Sutton and Lowri Jenkins, targeting those trees initially identified in the extended Phase 1 with bat potential.

During the daytime inspection the trees were examined closely for bat roosting opportunities (*Fig. 1*) and signs of bat use, including evidence such as staining around a hole, caused by natural oils in the bats fur; stains beneath a hole, caused by bat urine; scratch marks around a hole, caused by bat claws; bat droppings beneath a hole; audible squeaking from within a hole, especially on hot days or at dusk; insects (especially flies) around a hole.

The daytime inspection was carried out with the aid of close focusing binoculars and a 1,000,000 candlepower spot lamp.

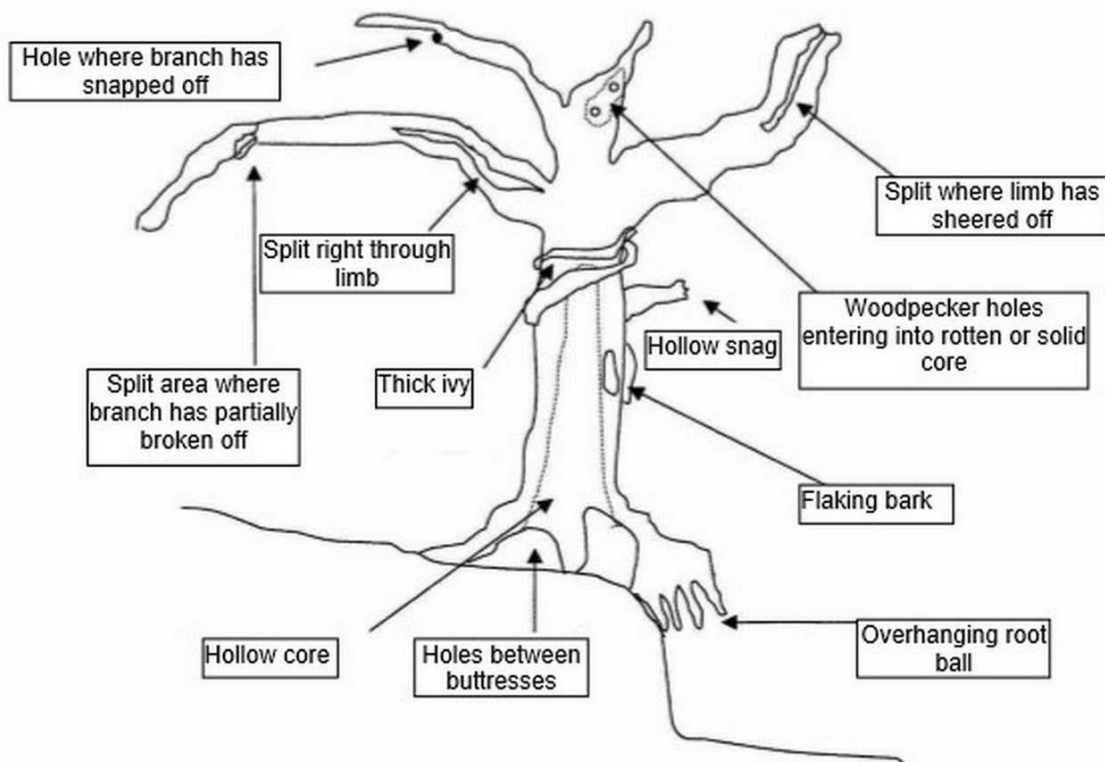


Fig. 1 Bat roosting opportunities

Trees were classified as either Low, Medium or High Potential

High Potential

- Woodpecker Holes
- Cracks Or Crevices
- Loose Or Flaking Bark
- Medium – Dense Ivy Cover
- Deadwood In Canopy Or Stem
- Snagged Branches
- Hollow Stem Or Limb
- Hole B/T Buttresses/Hollow Core

Medium Potential

- Few Small Cracks/Crevices
- Low Ivy Cover
- Deadwood In Canopy Or Stem

Low Potential

- No Cracks/Crevices
- No Flaking Bark
- Low/No Ivy Cover

3. RESULTS

3.1 Data Search

The data search from West Wales Biodiversity Information Centre returned records of Daubenton's (*Myotis daubentonii*), whiskered (*Myotis mystacinus*), Natterer's (*Myotis nattereri*), noctule (*Nyctalus noctula*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and brown long-eared (*Plecotus auratus*) within 5km of the site.

The following species were recorded within 2km of the site: noctule, Natterer's, brown long-eared, long-eared species, common pipistrelle, soprano pipistrelle, whiskered and other *Myotis* species. The latter three were from within 100m of the site, recorded as a roost in 2012.

3.2 Daytime Assessment

The daytime inspections focussed on two areas where trees with potential were highlighted for removal –

- 1) A large oak tree at the field entrance to the lower field, and a line of horse-chestnut trees inside the roadside hedge fronting the A487 (Fig. 2).
- 2) Two large oaks and a mature ash on the upslope boundary of the upper field, although not proposed for removal, were surveyed because of their potential to support roosts (Fig. 3).

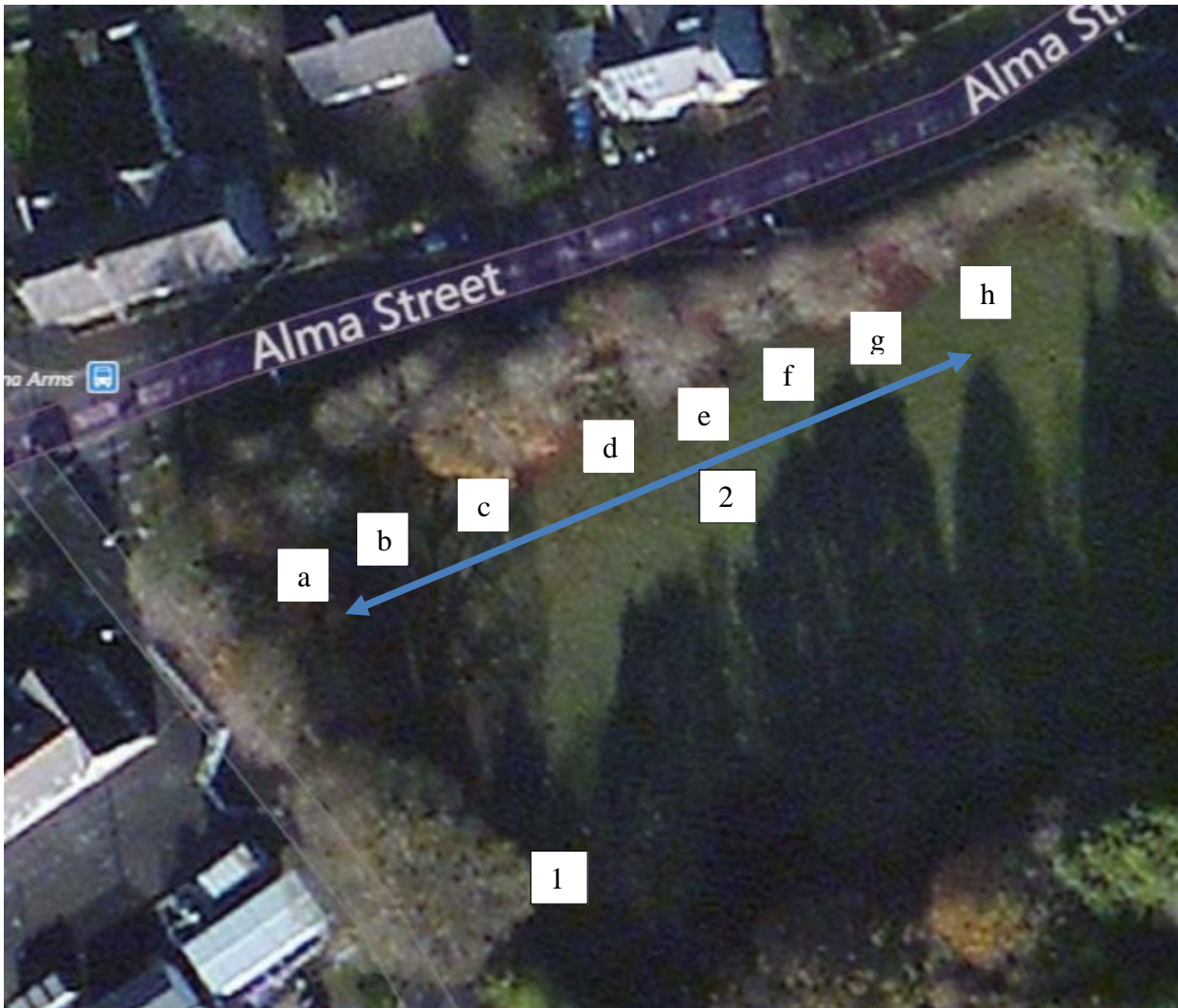


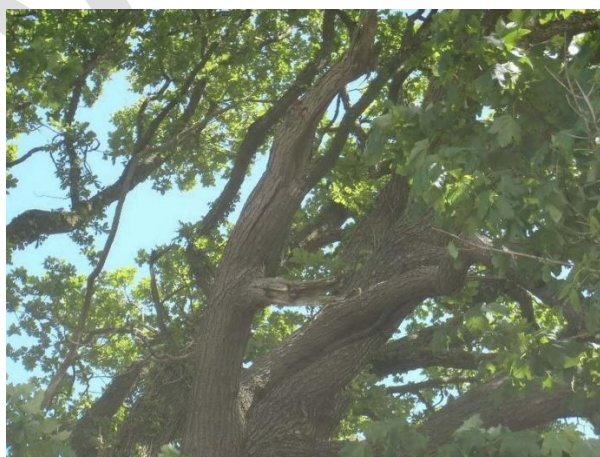
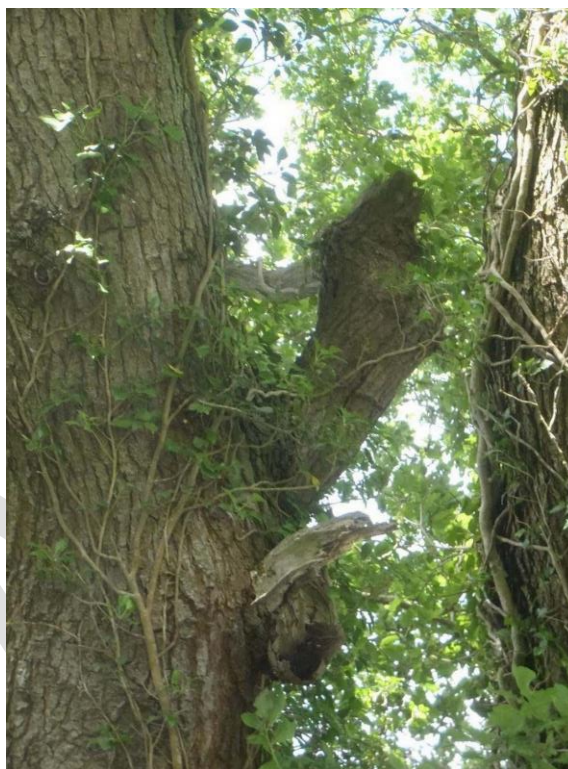
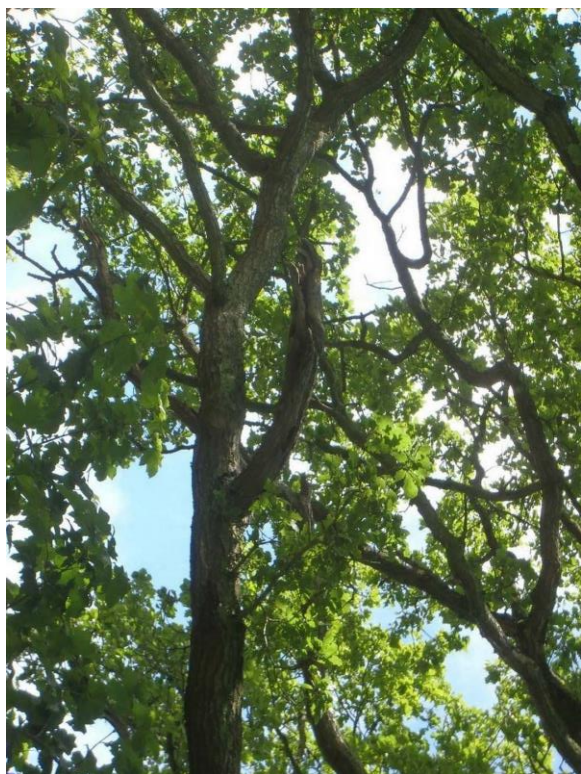
Fig. 2 Trees assessed for bat potential on lower field

1. Mature Oak



This tree scoped out as having **HIGH** Bat Roost Potential due to a number of features including -

- Cracks & Crevices
- Loose & Flaking Bark
- Deadwood in Stem
- Snagged Branches
- Hollow Limb
- Hole in Buttresses



2. Line of Horse-chestnuts



2a Semi-mature horse-chestnut

This tree scoped out as having **LOW** Bat Roost Potential. The tree is in generally good condition with no obvious voids or cracks.



2b Dead Semi-mature horse-chestnut

This tree scoped out as having **MEDIUM** Bat Roost Potential due to the lifting bark on the lower stem.



2c Semi-mature horse-chestnut

This tree scoped out as having **LOW** Bat Roost Potential. The tree is in generally good condition with no obvious voids or cracks. The damage at the base of the tree has not progressed into rot or hollows.



2d Dead Semi-mature horse-chestnut

This tree scoped out as having **MEDIUM** Bat Roost Potential due to the lifting bark on the stem, but the likelihood of bats is lowered by its recumbent position



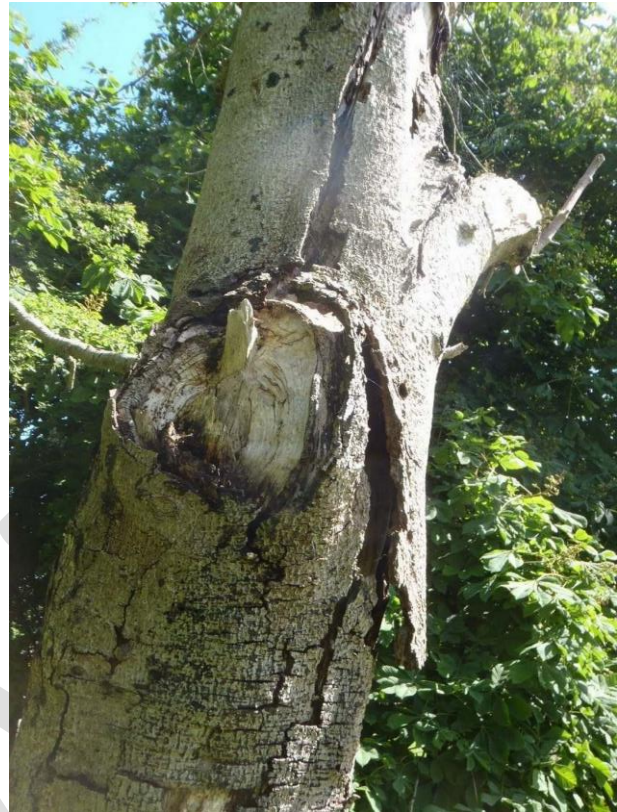
2e Semi-mature horse-chestnut

This tree scoped out as having **LOW** Bat Roost Potential. There is some die-back in the stem in the finer branches but an absence of cracks, hollows or lifting bark



2f Dead Semi-mature horse-chestnut

This tree scoped out as having **MEDIUM** Bat Roost Potential due to the lifting bark on the lower stem.



2g Semi-mature horse-chestnut

This tree scoped out as having **LOW** Bat Roost Potential. Tree generally health with no open cracks or lifting bark



2h Semi-mature horse-chestnut

This tree scoped out as having **MEDIUM** Bat Roost Potential due to a number of features including -

Few Small Cracks/Crevices

Deadwood In Canopy Or Stem



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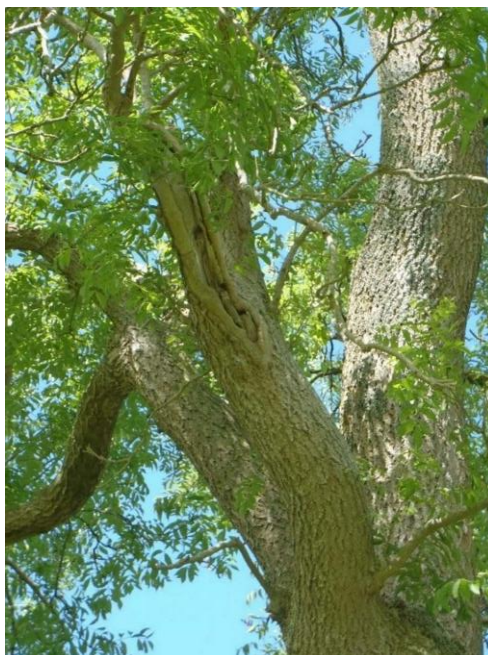


Fig. 3 Trees assessed for bat potential on upper field

3. Mature Ash tree

This tree scoped out as having **HIGH** Bat Roost Potential due to a number of features including -

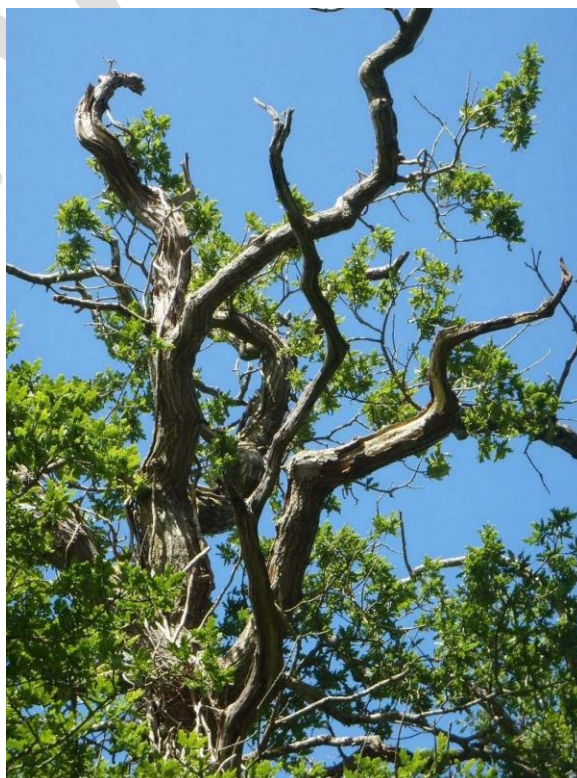
- Cracks & Crevices
- Loose & Flaking Bark
- Deadwood in Stem
- Snagged Branches
- Hollow Limb
- Hole in Buttresses



4. Mature oak tree

This tree scoped out as having **HIGH** Bat Roost Potential due to a number of features including -

- Woodpecker Holes
- Cracks & Crevices
- Loose & Flaking Bark
- Deadwood in Canopy and Stem
- Snagged Branches
- Hollow Limb
- Hole in Buttresses

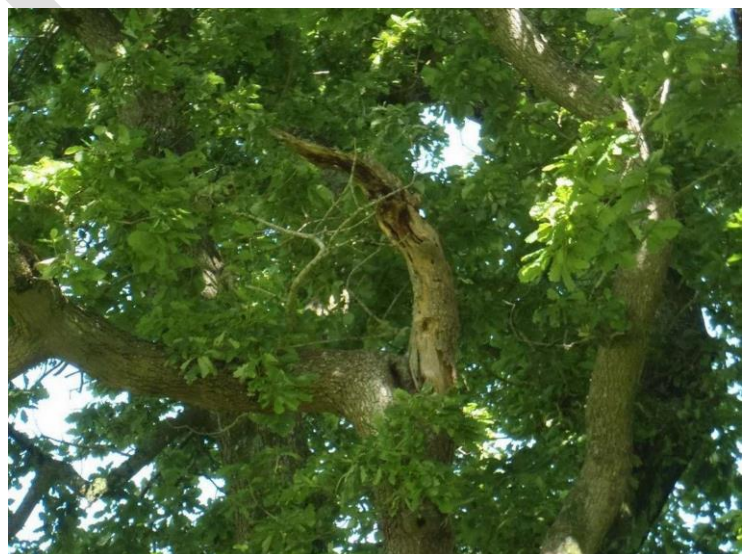




5. Mature oak tree

This tree scoped out as having **HIGH** Bat Roost Potential due to a number of features including -

- Cracks & Crevices
- Loose & Flaking Bark
- Deadwood in Stem
- Hollow Limb



3.3 Activity Survey

Dusk emergence survey

The evening emergence observation took place on 25th May 2017. The conditions at the time of the observations are detailed below in Table 1:

Date	Survey type	Times	Weather conditions
25/05/2017	Dusk emergence	2100 – 2240 sunset @ 2120	Fine, clear 20°C. Dry F2 E light breeze

Table 1: Weather Conditions for dusk observation

Common pipistrelle (*P. pipistrellus*) were first detected at 2125 commuting from houses across the road (Fig. 4). Shortly after there were passes from soprano pipistrelle (*P. pygmaeus*) at 2129. Both species were recorded regularly feeding along the hedge-line fronting the A487/ Alma Street and the hedge-line along the minor road up to the oak tree with occasional foraging over the field itself. No bats were seen to exit the oak tree or the horse-chestnut trees.

Both soprano and common pipistrelles emerged from an oak tree on the bank at the south-eastern site boundary, at SN42445735 (tree 4 in daytime assessment, above). First emergence was at 2136, and a total of 6 (2 sopranos and 4 common) were noted emerging up until 2151. Most flew north-east to the adjoining woodland; one flew south-west towards the wooded grounds of the adjoining property. An individual was also recorded potentially emerging from the larger adjoining oak to the north-east (tree 5 in daytime assessment, below). Regular passes of noctules (*Nyctalus noctula*) and three of a *Myotis* species were recorded by the two oaks and single ash here, with feeding and commuting taking place in both south-westerly and north-easterly directions. It is possible that these species could use these trees for roosting in addition to the pipistrelles.

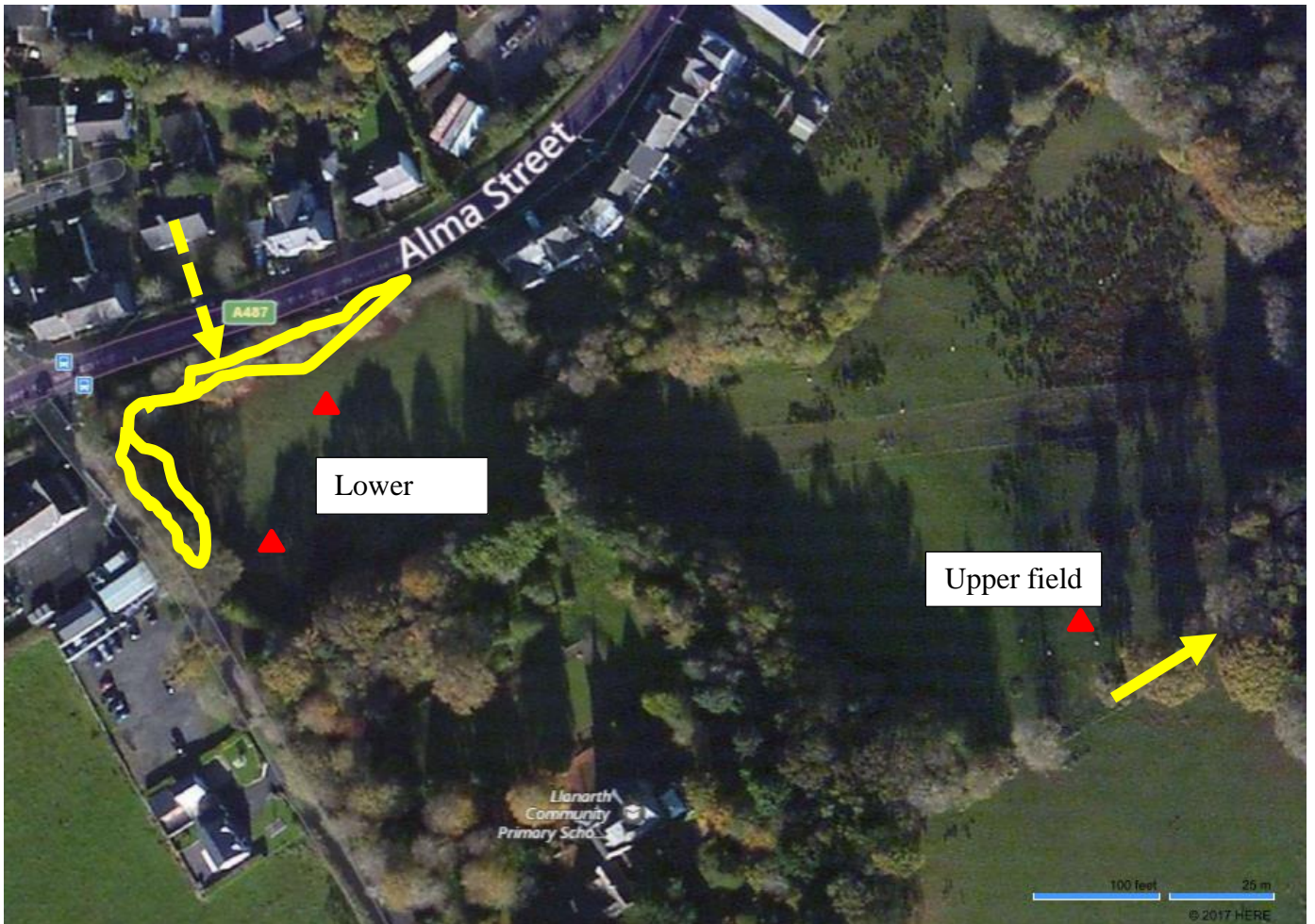


Fig. 4 Activity survey Surveyors ▲ Activity →

4 ASSESSMENT

4.1 Constraints on survey information

No re-entry surveys have been undertaken to date. It is considered that a dawn survey is unlikely to add more information to inform mitigation proposals.

4.2 Constraints on equipment used

None

4.3 Potential impacts of development

Of the sixteen bat species in the UK, thirteen are known to roost in trees. Some bat species rely exclusively on trees for roost sites, whilst others use them for part of the year. All sixteen species forage in woodland and along woodland edges and hedgerows.

Any tree can be used as a bat roost, as long as it provides shelter, e.g. in the form of splits, cracks, holes and cavities in the trunk and branches, loose bark and ivy cover (*Fig. 1*).

The daytime survey established that all three trees on the upper boundary (*Fig. 3; Trees 3,4 & 5*) and the large oak by the gateway entrance to the lower field (*Fig. 2; Tree 1*) had High bat roost potential.

The horse-chestnut trees (*Fig. 2; Treeline 2*) have either Low or Medium bat roost potential.

The dusk activity survey established the presence of a soprano and common pipistrelle roost in the smaller oak tree (*Fig. 4; Tree 4*) on the upper field boundary. Given the small number of adults emerging from the roost and the time of year, it is unlikely that this is a maternity roost. Loss of this roost would have an impact, and would require EPS licensing. The loss of the surrounding pasture to development would reduce foraging habitat for the bats.

The dusk activity survey established that both the hedgerows in the lower field were utilised as feeding and commuting pathways for common and soprano pipistrelle (*Fig. 4*). Loss of the trees and hedgerow would constitute a loss of important bat habitat at a local level.

4.4 Legislation and policy guidance

British bats are protected under the Wildlife and Countryside Act 1981. Schedule 5 of this act makes it illegal to intentionally kill, injure or take any British bat. It is also an offence to intentionally damage or destroy their place of rest (the roost).

Further all bat species are protected under Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora (The Habitats Directive) as amended which requires the United Kingdom government to provide bats with strict protection.

The Habitats Directive is transcribed into England and Wales Law by The Conservation of Habitats and Species Regulations 2010. This legislation states in Part 3, Protection of Species, paragraph 41(1) that a person who:

- (a) deliberately captures, injures or kills any wild animal of a European protected species,
- (b) deliberately disturbs wild animals of any such species,
- (c) deliberately takes or destroys the eggs of such an animal, or

(d) damages or destroys a breeding site or resting place of such an animal, is committing an offence.

Further, with regard to disturbance of EPS, Paragraph 41(2) that disturbance is an act which is likely to:

(a) to impair their ability—

(i) to survive, to breed or reproduce, or to rear or nurture their young, or

(ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or

(b) to affect significantly the local distribution or abundance of the species to which they belong.

In the case of a development involving the loss or modification of a building which may affect bats the above legislation must be considered and it may be necessary to apply to the Welsh Assembly Government for a European Protected Species Licence EPSL.

The introduction of the Conservation of Habitats and Species Regulations 2010, has removed the defence of killing or injuring a protected species during a lawful operation, thus even in an instance where planning permission is granted, the presence of bats must be considered and mitigated for prior to commencement of works. Under the above regulations, a WAG licence can only be given if three tests are satisfied:

- The action proposed is in the interest of preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance to the environment;
- That there is not a satisfactory alternative;
- That the action proposed will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Failure to satisfy the regulations and obtain an EPSL where required is likely to result in prosecution and can lead to severe fines of up to £5000 per bat and possible imprisonment.

Eight species of bat are are Listed under section 42 of the Natural Environment and Rural Communities Act (2006) (NERC) as Species of Principal Importance for Biological Conservation in Wales. This is a list of species considered at threat within Wales and in need of conservation management to maintain and enhance population numbers.

A duty is placed on the Local Authority by the Welsh Assembly Government to maintain and enhance populations of species listed in Section 42.

5 RECOMMENDATIONS and MITIGATION

The two hedgerows provide important foraging and commuting habitats for bats and should be retained. Appropriate hedgerow management through trimming and laying of the hedge while retaining the mature hedgerow trees will retain the bat interest while ensuring the longevity of the hedge and balance the needs of the development.

The majority of the horse-chestnut trees have little or no bat roost potential and can be felled with no further survey work or consultation required.

Works can proceed with caution for the trees identified as having medium potential, and best practice for tree surgery works should be followed.

These trees should be sectionally felled around areas of interest eg sections of lifting bark or cavities, lowered to the ground by rope if appropriate, stacked and left in a safe place for 48 hours for any bat to escape.

The best time of year to carry out work on trees with potential bat roosts is spring (mid-March to end of April), or autumn after the young are weaned and independent (September to late October), but before hibernation. However, these times are very climate related and can vary from year to year.

A competent/licensed bat worker should be available for consultation/advice. Should a bat be found during the tree works, they must cease immediately, and advice sought from Natural Resources Wales on how to proceed.

The four trees identified as having High bat potential should be retained and protected. The oak tree supporting a roost is protected under the Wildlife & Countryside Act 1981 and the Conservation of Habitats & Species Regulations 2010. Any works that could impact upon the tree or roost will require an application for a European Protected Species licence. It is also important that adequate foraging habitat and flight paths are retained in the vicinity of the roost.

The three remaining trees with High potential would require further survey effort to ensure that there were no bat roosts present, as even unoccupied bat roosts are protected by law. This is likely to entail an aerial inspection of holes/cracks/splits etc., using an inspection camera/endoscope.

6 SUMMARY

An extended Phase 1 survey of the two fields at Llanarth identified a number of trees with potential to support roosting bats.

A follow up daytime assessment and a dusk activity survey were undertaken by a licensed bat worker.

A mature oak tree on the southern boundary of the site was found to support an active common and soprano pipistrelle roost, and two nearby trees had High roost potential.

A veteran oak tree at the site entrance opposite the Primary school was also assessed as having High roost potential.

The line of horse-chestnut trees inside the hedge boundary fronting the A487 had low to medium bat potential.

It is recommended that the 4 High potential trees (including that supporting a common and soprano pipistrelle roost) be retained within the development and protected.

Should any works be required to, or in the vicinity of the oak tree confirmed as a bat roost, then an EPS Licence will need to be applied for.

Any works to the remaining 3 High potential trees, including tree surgery, limbing or felling will need further survey effort to ensure that no bat roost is present.

The line of horse-chestnut trees can be felled following best practice

Pipistrelle bats were utilising the boundary hedgerows in the lower field for commuting and foraging. These hedgerows should be retained.

7 REFERENCES

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