



**Land at Tudor Drive,
Penley, Wales LL13 0JN**

Tree Bat Roost Survey for Almar Construction

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Author:	Dr David Hackett <i>BSc (Hons) MLD PhD MCIEEM CEnv</i>
Checked + approved by:	Mr Richard Castell <i>BSc, Senior Ecologist</i>
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This report is based on survey data gathered in October at this site off Tudor Drive, Penley, Wales LL13 0JN

1.0 SUMMARY

- 1.1 Solum Environmental Ltd was appointed by James Bennett of Greenspace architects Ltd on behalf of Almar Construction to address the following: *'no part of the development shall commence until a further survey and method statement in relation to the presence of bats together with an appropriate scheme of mitigation has been submitted and approved in writing'*, in satisfaction of condition 10 of the outline permission (MAE P/2014/0738) for residential development of 7 No. detached dwellings on Land off Tudor Drive, Penley, Wales LL13 0JN.
- 1.2 The following is an appraisal of the potential for bat roosts in trees on an application site (proposed residential development) off Tudor Drive, Penley, Wales. The site covers an area of approximately 0.3 ha.
- 1.3 Survey aimed to:
- Examine trees and their features with potential for supporting bat roosts and to determine whether there was apparent potential for use by bats.
 - Determine the impact of the proposed development scheme on bat species within and/or adjacent to the site
 - Advise on any mitigation or licensing requirements where development is likely to impact bats
- 1.4 No evidence of and very little potential for bat roosts was found, and no further action needs to be taken with regards impacts on bat roost sites.
- 1.5 Reference is made to the recommendations set out in the Solum (2014) Report *Preliminary Ecological Appraisal – Tudor Drive (Ref: SE0647 H 01B)*.

2.0 INTRODUCTION

2.1 Background and Commission

- 2.1.1 Solum Environmental Ltd was appointed by James Bennett of Greenspace architects Ltd on behalf of Almar Construction to address the following: *'no part of the development shall commence until a further survey and method statement in relation to the presence of bats together with an appropriate scheme of mitigation has been submitted and approved in writing'*, in satisfaction of condition 10 of the outline permission (MAE P/2014/0738) for residential development of 7 No. detached dwellings on Land off Tudor Drive, Penley, Wales LL13 0JN.
- 2.1.2 The proposed development site comprises approximately 0.3 ha, of which approximately 200 m² is to be enhanced and managed specifically for the benefit of Great Crested Newts *Triturus cristatus*, to ensure maintenance of the favourable conservation status of Great Crested Newts (GCN) at this location.
- 2.1.3 The site is bounded by Tudor Drive with a small housing estate beyond to the south, by woodland to the west, open fields to the north and a detached house and gardens, to the east.

2.2 Legislation

- 2.2.1 All species of bats are European Protected Species and their breeding and resting sites are given a high degree of legal protection under the terms of the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010 (as amended). In addition, all bats are the subject of a UK-wide Biodiversity Action Plan (BAP).
- 2.2.2 Barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, Noctule *Nyctalus noctula*, Soprano pipistrelle *Pipistrellus pygmaeus*, Common Pipistrell *Pipistrellus pipistrellus*, Brown long-eared *Plecotus auritus*, Greater horseshoe *Rhinolophus ferrumequinum* and Lesser horseshoe *Rhinolophus hipposideros* bats are also listed under Section 42 of the NERC Act.
- 2.2.3 This combined legislation offers bats, their roost sites and resting places strict protection from intentional or reckless disturbance. It should be noted that, under the legislation, a bat roost is defined as any structure or place which is used by bats to shelter, breed or rest. It is also a strict offence (i.e. regardless of intent or reckless behaviour) to destroy or damage a bat roost.
- 2.2.4 As bats tend to reuse the same roosts, all roosts are legally protected, whether the bats are present at the time or not. Where bats are present at a proposed development site it is usually possible to continue with the proposed project, but only upon receipt of a site-specific licence to derogate from the Regulations issued by the statutory body – in England this statutory body is Natural England. Any licence applications must include a suitable mitigation strategy that ensures that the favourable conservation status of the bat population will be maintained and creates a **like-for-like replacement for any roosts lost to development**. The licence must include suitable mitigation strategies for:
- replacement of the existing roost on a like-for-like basis
 - protection of any bats potentially present at this site during the proposed works
- 2.2.5 Foraging and commuting routes are not protected under the Regulations, however preserving these key features ensures the maintenance of the favourable conservation status of bat species within a site. Loss of areas of foraging habitat within the site should be mitigated for by provision of suitable landscape design, using insect-attracting plants, and creating sheltered areas within the residential gardens.
- 2.2.6 Government planning policy guidance throughout the UK requires local planning authorities to take account of the conservation of protected species when determining planning applications. This makes the presence of a protected species a material consideration when assessing whether a proposed development would be likely to result in harm to the species or its habitat, and subsequently in determining the outcome of the planning application. The developer is responsible for ensuring that sufficient detailed, optimal-survey data is provided with a planning application to allow local authorities to determine whether bats will be impacted by the proposed application, regardless of whether it is at outline or detailed planning stage.
- 2.2.7 Best practice in relation to actions affecting bats and trees is set out by the Bat Conservation Trust (BCT) in the following [http://www.bats.org.uk/data/files/publications/Bats Trees.pdf](http://www.bats.org.uk/data/files/publications/Bats%20Trees.pdf)

2.3 Aims of the Survey

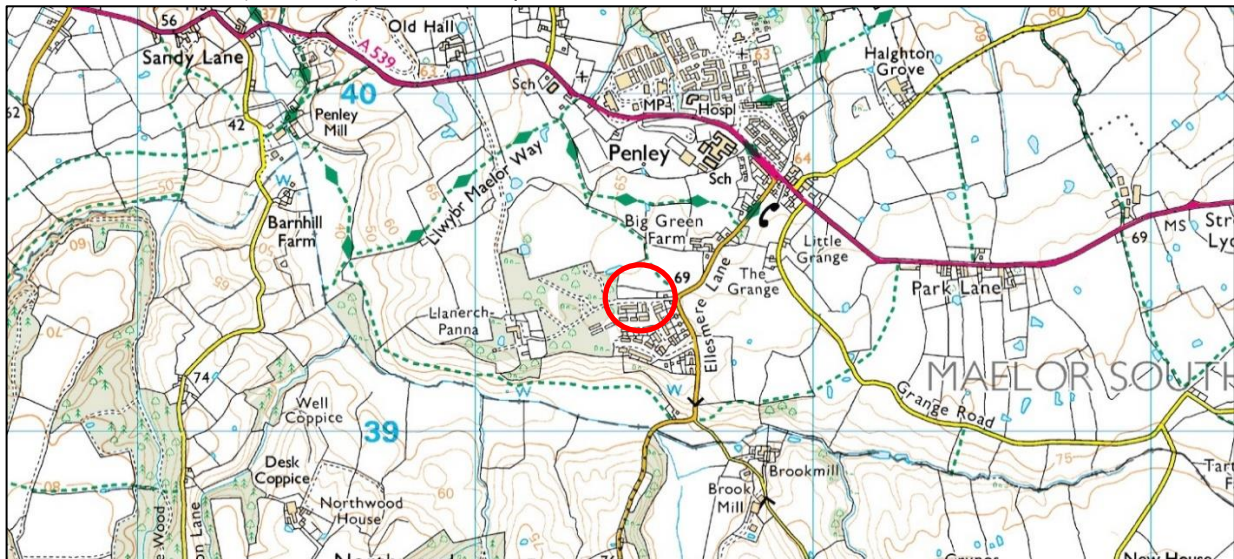
2.3.1 Survey aimed to:

- Examine trees and their features with potential for supporting bat roosts and to determine whether there was apparent potential for use by bats.
- Determine the impact of the proposed development scheme on bat species within and/or adjacent to the site
- Advise on any mitigation or licensing requirements where development is likely to impact bats

2.4 Site Context

2.4.1 The proposed development site comprises a grazed field, approximately 0.3 ha, off Tudor Drive, Penley, Wales (Plan 1). The site sits: behind tall, native-species hedgerow immediately north of Tudor Drive, with a small housing estate beyond; south of open, grazed fields; to the west of a small cottage and gardens and to the east of a small broad-leaved woodland.

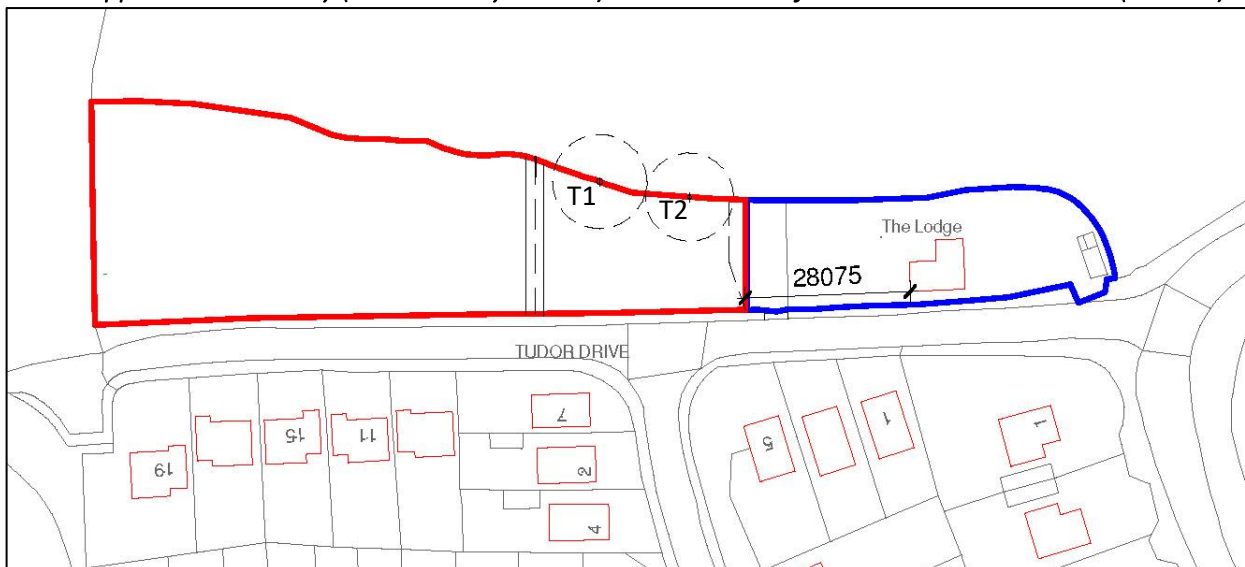
Plan 1: Site Location (red circle) and Landscape Context



2.4.2 There are a small number of mature trees within the hedgerow along the north of the site and there are several ponds in the wider, relatively flat, rural landscape surrounding the site and housing estate (Plan 1).

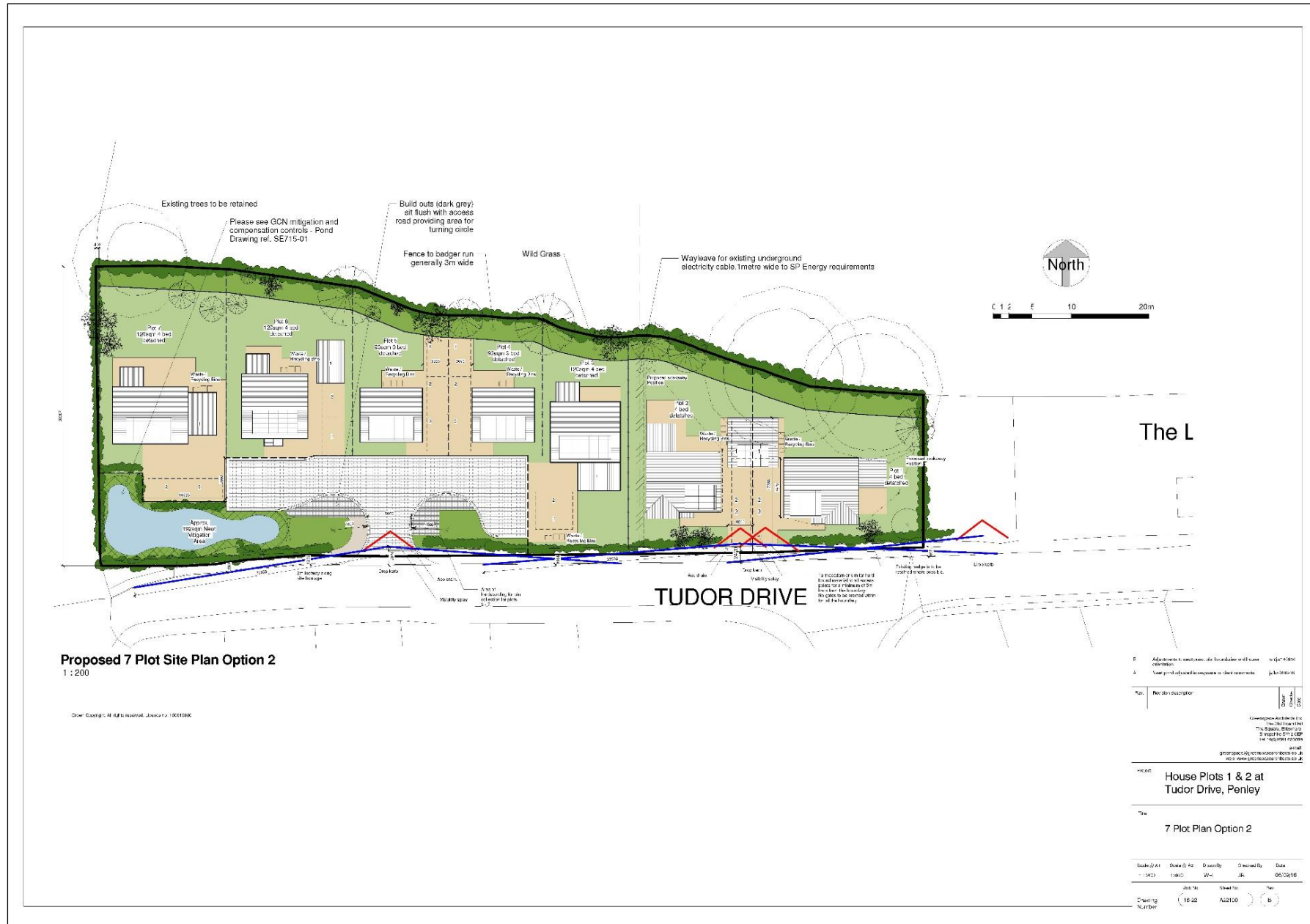
2.4.3 The trees surveyed are those along the northern and western boundary of the site, with particular reference to semi-mature oaks to the north-east corner of the development (Plan 2). These trees had previously been assessed as holding 'BCT Category 2' potential for roosting bats. (Solum Environmental SE0647 Tudor Drive Preliminary Ecological Appraisal Report, 2014).

Plan 2: Application Boundary (delineated by red line) and Trees Identified as Potential Roost Sites (T1 & T2)



2.4.4 The proposed residential development and GCN mitigation area is illustrated in Plan 3 below.

Plan 3: Development Proposals, Including GCN Mitigation Area (not to scale)



3.0 SURVEY METHODOLOGY

3.1 Field Survey

3.1.1 All trees on or immediately adjacent to the application boundary were searched using 8 x 40 Olympus binoculars, and by use of telescopic ladders to get into the canopy and close to main branches to search for potential roost features including:

- Loose bark
- Woodpecker holes
- Splits and cracks
- Dense, mature ivy cover

And signs of bat activity:

- Urine staining
- Wear around holes
- Bat droppings
- Absence of cobwebs over recessed voids

3.1.2 The potential of each tree to support roosting bats was categorised, based on suitable roosting features identified, according to the most recent guidelines produced by the Bat Conservation Trust (BCT)¹. Roost potential categories for trees are presented below:

NEGLECTABLE: Negligible habitat features on site likely to be used by roosting bats.

LOW: A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.

MODERATE: A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only - the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).

HIGH: A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

3.2 Survey Constraints

3.2.1 The trees were in full leaf, limiting the extent of visibility. Survey was limited to non-invasive examination of the potential features observed.

3.3 Survey Personnel

3.3.1 **David Hackett** BSc MLD PhD MCIEEM CEnv has managed this project in-house for Solum Environmental. David is a founding Director of Solum, a highly experienced ecologist and project manager with over 20 years' professional experience. David regularly project manages and co-ordinates teams of ecologists conducting surveys for multiple protected species to inform planning applications, Environmental Impact Statements, Natural England and Scottish Natural Heritage licences and conditions discharge. For the past nine years David has project managed ecology for a 1000-ha redevelopment site in Bishopton, Renfrewshire, during a fifteen-year phased re-development of a contaminated brownfield site to a new village with approximately 3,000 houses. David is a full member of the Chartered Institute of Ecology and Environmental Management, a Chartered Environmentalist and a member of Cheshire Bat Group. He is highly experienced in designing and conducting bat surveys and in preparing bat mitigation packages for licence applications.

3.3.2 **Joe Gough** BSc (Hons) is an Assistant Ecologist at Solum Environmental. He has worked in the ecological sector for two years developing experience in bat survey.

¹ COLLINS, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition)*. Bat Conservation Trust, London

4.0 SURVEY RESULTS AND ASSESSMENT

4.1 Field Survey

4.1.1 All trees were fully accessible from the paddock.

4.1.2 Only two trees (T1 and T2, Plan 1) were identified as having features with potential for bat roosting.

4.2 Assessment

4.2.1 Findings of detailed inspection of tree carried out in July 2016 are set out in **Table 1** below.

Table 1: Trees Surveyed, Features Observed and Bat-roost Potential

Potential Feature	Species	Photographs	Features observed	Potential for bat roost
BR1 (tree to left)	<i>Quercus robur</i>		Hollow on clear stem approximately 5 m from ground. Some ivy cover lower down	Low Closer inspection of the cavity showed it to be very shallow (< 10 cm) and horizontal. Ivy cover thin and insufficient to provide cover for roosting.
BR2 (tree to right)			Hollow on clear stem approximately 5 m from ground. Some ivy cover lower down.	Low Closer inspection of the cavity showed it to be very shallow (< 10 cm) and horizontal. Ivy cover thin and insufficient to provide cover for roosting.

4.2.2 There was no evidence for bat roosts in any of the trees on or immediately adjacent to the site. The two trees closely examined retain a LOW potential under current best practice guidance².

² 'A tree of sufficient size and age to contain PRF (Potential Roost Features) but with none seen from the ground or features seen with only very limited roosting potential. Collins (2016)

5.0 RECOMMENDATIONS

- R1** *Disturbance to the trees within the application boundary (the two oak on the northern boundary) that were assessed to have 'LOW' bat roost potential should be avoided where possible in order to comply with best practice guidance.*
- R2** *While there was no evidence of roosting bats on site, the proximity of good feeding habitat (woodland edge) and hedgerows suggest that the site is likely to be significant for commuting/foraging bats. Reference is made to the recommendations made in the initial PEA (SE0647 H 01B Tudor Drive PEA Report, 2014) with regards this feature.*
- R3** *Hedgerows on site (with the exception of the front facing boundary hedge which is to remain unaltered) should be enhanced with additional native species to improve their value to bats further.*

It would be best practice to enhance the potential of this site to support bats. These measures should include specifically:

- incorporating bat-friendly external lighting throughout the proposed re-development (suitable guidance is provided by the Bat Conservation Trust at http://www.bats.org.uk/pages/bats_and_lighting.html), see also Appendix 1);*
- including in the detailed planting scheme a number of native, insect-attracting shrubs, which will in turn enhance foraging areas for bats at this site (NB: a list of suitable species is provided at Appendix 2); and*
- erection of a minimum of two summer bat boxes on new buildings or mature trees at a suitable height and aspect (under the guidance of a bat ecologist) to encourage bat species to roost at this location.*

6.0 REFERENCES AND BIBLIOGRAPHY

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APPENDIX 1: BCT Guidance on Sympathetic Lighting Designs for Bats

GENERAL

Type of lamp (light source)

The impact on bats can be minimised by the use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics.

Luminaire and light spill accessories

Lighting should be directed to where it is needed and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only. Planting can also be used as a barrier or manmade features that are required within the build can be positioned so as to form a barrier.

Lighting column

The height of lighting columns in general should be as short as is possible as light at a low level reduces the ecological impact. However, there are cases where a taller column will enable light to be directed downwards at a more acute angle and thereby reduce horizontal spill. For pedestrian lighting this can take the form of low level lighting that is as directional as possible and below 3 lux at ground level. The acceptable level of lighting may vary dependent upon the surroundings and on the species of bat affected.

Predicting where the light cone and light spill will occur

There are lighting design computer programs that are widely in use which produce an image of the site in question, showing how the area will be affected by light spill when all the factors of the lighting components listed above are taken into consideration. This should be a useful tool to inform the mitigation process.

Light levels

The light should be as low as guidelines permit. If lighting is not needed, don't light.

Timing of lighting

The times during which the lighting is on should be limited to provide some dark periods. Roads or trackways in areas important for foraging bats should contain stretches left unlit to avoid isolation of bat colonies. These unlit stretches should be 10 metres in length either side of commuting route.

SECURITY LIGHTING

Power

It is rarely necessary to use a lamp of greater than 2000 lumens (150 W) in security lights. The use of a higher power is not as effective for the intended function and will be more disturbing for bats.

Movement sensors

Many security lights are fitted with movement sensors which, if well installed and aimed, will reduce the amount of time a light is on each night. This is more easily achieved in a system where the light unit and the movement sensor are able to be separately aimed.

Timers

If the light is fitted with a timer this should be adjusted to the minimum to reduce the amount of 'lit time'.

Aim of light

The light should be aimed to illuminate only the immediate area required by using as sharp a downward angle as possible. This lit area must avoid being directed at, or close to, any bats' roost access points or flight paths from the roost. A shield or hood can be used to control or restrict the area to be lit. Avoid illuminating at a wider angle as this will be more disturbing to foraging and commuting bats as well as people and other wildlife.

Alternatives

It may be a better solution for security lighting on domestic properties to use a porch light.

APPENDIX 2: Specification for Native, Insect-attracting Plant Species

Planting to enhance a site for bats should aim to provide a habitat rich in insects, and with the potential for alternative roosting sites. The following are examples of plant species, which can be used where appropriate, to enhance a landscape for bats.

Night-scented Flowers

As bats usually feed at dusk and dawn it is advantageous to use night-scented flowers which will attract moths and other night-flying insects.

Re-seeding

Where re-seeding is to take place the choice of a 'conservation mix' of grass seed would be preferential. The management of grassland areas as hay meadows, without use of herbicides/fertilisers and allowing the grass to go to seed prior to cutting is beneficial in allowing larval stages of the insects to develop.

English Name	Latin Name
Trees and Shrubs (of local provenance where possible)	
Oak	<i>Quercus robur</i>
Ash	<i>Fraxinus excelsior</i>
Silver Birch	<i>Betula pendula</i>
Field Maple	<i>Acer campestre</i>
Hawthorn	<i>Crataegus monogyna</i>
Alder	<i>Alnus glutinosa</i>
Goat Willow	<i>Salix caprea</i>
Guelder Rose	<i>Viburnum opulus</i>
Hazel	<i>Coryllus avellana</i>
Blackthorn	<i>Prunus spinosa</i>
Elder	<i>Sambucus nigra</i>
Night-scented flowers	
Nottingham Catchfly	<i>Silene nutans</i>
Night -flowering Catchfly	<i>S. noctiflora</i>
Bladder Campion	<i>S. vulgaris</i>
Night-scented Stock	<i>Matthiola bicornis</i>
Dame's-violet	<i>Hesperis matronalis</i>
Common Evening-primrose	<i>Oenothera biennis</i>
Soapwort	<i>Saponaria officinalis</i>
Scented herbs	
Chives	<i>Allium schoenoprasum</i>
Sage	<i>Salvia officinalis</i>
Marjoram	<i>Origanum vulgare</i>
Borage	<i>Borago officinalis</i>
Mint	<i>Mentha sp.</i>
Climbers	
Honeysuckle (native)	<i>Lonicera periclymenum</i>
Traveller's-joys	<i>Clematis vitalba</i>
Dog-rose	<i>Rosa canina</i>
Sweet-briar	<i>R. rubiginosa</i>
Field-rose	<i>R. arvensis</i>
Ivy	<i>Hedera helix</i>
Bramble	<i>Rubus fruticosus agg</i>