



**Blossom Garage**

**Pencader**

**Preliminary Ecological Appraisal**

**August 2018**

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# Acer Ecology

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## Document Verification Table

Blossom Garage, Pencader Preliminary Ecological Appraisal				
Revision	Date	Prepared by	Checked by	Verified by
1.0	21 August 2018	Alastair Krzyzosiak Ecologist 	Rory Jones MCIEEM Senior Ecologist 	Paul Hudson MCIEEM Principal Ecologist 

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# Acer Ecology

## Summary

<b>Site Location</b>	Acer Ecology Ltd was instructed by C2 Architects to conduct a preliminary ecological appraisal of land at Blossom Garage, Davies Street, Pencader, Carmarthenshire (Ordnance Survey Grid Reference centred at: SN 44600 35880).
<b>Development Proposals</b>	The development proposals are yet to be finalised at the time of the preliminary ecological appraisal. However, future developments are likely to involve clearance of part of the site to facilitate the construction of residential housing.
<b>Statutory and Non-Statutory Nature Designations</b>	The Afon Teifi SSSI and SAC lies 375m to the north-east of Blossom Garage. It is designated for several bat species. It is considered unlikely that a development would impact this designated site, however, as the survey has been undertaken in the absence of specific development proposals, this assumption should be reviewed once more detailed development proposals are made available.
<b>Impacts on Habitats of Value</b>	No habitats on site are considered likely to be greater than site ecological value. Whilst the loss of the on-site habitats would be unlikely to have a significant impact outside of the context of the site, it would nevertheless be desirable that the impacts be either minimised or appropriately mitigated where possible.
<b>Impacts on Protected and Notable Species</b>	The proposed development could potentially have adverse impacts of varying degrees on a range of legally protected species, including nesting birds, bats, common reptiles, and dormouse. It is considered essential, therefore, that appropriate mitigation measures are set in place to avoid or minimise impacts to these species (see Section 5).
<b>Invasive Non-native Species</b>	Several patches of Himalayan balsam were recorded on the site.
<b>Requirements for Additional Survey</b>	<p>The following additional surveys are required:</p> <ul style="list-style-type: none"> <li>• Bat Transect Surveys: The habitats on the site are assessed as having 'moderate suitability for bats'. Survey guidance specifies that such sites should be subject to a transect and remote detector survey, with one survey visit undertaken in each season month from April to October, in appropriate weather conditions for bats. The site will be subject to a remote/static detector survey with one location per transect and data collected on five consecutive nights per season; and</li> <li>• Reptile Survey comprising seven return visits.</li> </ul> <p>Additionally, if any trees require felling or arboricultural works, a full preliminary ground level roost assessment should be carried out on any affected trees, between December and March.</p>
<b>Licensing Requirements</b>	None required.
<b>Recommendations</b>	<p>The following provisional recommendations have been developed based on the development proposals available at the time of writing:</p> <ul style="list-style-type: none"> <li>• Further surveys for bats and reptiles;</li> <li>• Avoidance measures;</li> <li>• Precautionary measures; and</li> <li>• Outline Mitigation measures, compensation and enhancement measures.</li> </ul> <p>Full details of recommendations for mitigation, compensation and enhancement measures can only be supplied on submission of more detailed development proposals, and following completion of the further surveys set out in Section 5, so that a full assessment of potential development impacts can be carried out and the need for any additional surveys deduced.</p>

## **1. Introduction**

### **1.1. Brief**

Acer Ecology Ltd was instructed by C2 Architects to conduct a preliminary ecological appraisal of Blossom Garage, located on Davies Street, Pencader, Carmarthenshire, SA39 9HA, within the boundary of Carmarthenshire County Council (Ordnance Survey Grid Reference centred at: SN 44600 35880).

The purpose of the assessment was to document the baseline ecological condition of the survey area, which comprises the red line boundary shown in Plan 1. This included identification of any designated sites or habitats that could be affected by the proposed works, and identification of potential for protected and/or otherwise notable species of conservation interest that could be affected. Potential ecological constraints were identified, and subsequent recommendations developed.

This assessment will provide initial recommendations in the absence of detailed development proposals. They should be revised once the final scope of the potential development is realised.

### **1.2. Site Description**

The site measures approximately 0.5 hectares in extent and is situated in a small village. There is a small area of scrub/woodland immediately to the east of the site and a pasture field to the south. Residential dwellings lie to the north and west. The rural landscape around the site contains areas of woodland, rivers, pasture and arable fields.

### **1.3. Proposed Works**

The development proposals are yet to be finalised at the time of the preliminary ecological appraisal. However, future developments are likely to involve clearance of part of the site to facilitate the construction of residential housing.

### **1.4. Scope of the Study**

The study comprised the following:

- A desk study to identify existing information on statutory and non-statutory sites of nature conservation interest, and records of notable or protected habitats or species within the site and its environs;
- A Phase 1 Habitat Survey of the site, extended to search for evidence of, and potential for, protected fauna; and
- Identification of potential ecological constraints to the proposed works at the site and assessments of impacts including appropriate mitigation measures where necessary.

## **1.5. Reporting**

This report aims to:

- Outline the methodology used during the survey;
- Present the results of the survey;
- Provide an ecological evaluation of on-site habitats, including an assessment of the potential for protected species;
- Provide an assessment of the potential impacts of the development proposals on ecological receptors identified through the desk and field study;
- Provide an assessment of the potential ecological constraints to the proposals; and
- Provide recommendations for further survey, avoidance, mitigation and enhancement where appropriate.

## 2. Methods

The survey was undertaken following standard methods as described in the Chartered Institute of Ecology and Environmental Management (CIEEM) Preliminary Ecological Appraisal 2016 guidelines, and the Phase 1 Habitat Survey methodology (Joint Nature Conservation Committee, 2010). The methodology utilised for the survey work comprised a desk study, habitat survey and a survey of protected and notable species.

### 2.1. Desk Study

#### 2.1.1. Protected Sites, Habitats and Species

Information on designated sites and protected species was obtained from the following sources. The legislation and policy relating to statutory and non-statutory designated sites can be found in Appendix 1.

Table 1: Sources of Data

Source	Data	Radius of Search
Quantum Geographical Information Systems (QGIS) Layer	Statutory and non-statutory nature conservation designated sites  Ancient Semi-Natural Woodland (ASNW)	RAMSAR/Special Areas of Conservation (SACs)/ Special Protection Areas (SPAs)/Sites of Special Scientific Interest (SSSIs)/National Nature Reserves (NNRs)/Local Nature Reserves (LNRs) – 2km <sup>1</sup> . SACs (designated for bats) - 10km.  ASNW - 2km.
West Wales Biodiversity Information Centre (WWBIC)	Protected species records  Sites of Importance for Nature Conservation (SINCs)	1km and 2km for bat records.  1km.

All available records of bat roosts were considered. For other species, only records collected within the last 10 years were considered relevant.

#### 2.1.2. Landscape Context

The site and wider landscape was assessed and characterised using aerial images, Ordnance Survey maps and QGIS. The presence of off-site features and habitats, which add to the ecological value within the wider area (for example, ponds within 500m of the site) were identified. Where appropriate, such features were scoped into the detailed assessment of impacts presented in Section 4 below.

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<sup>1</sup> The citations of all the SSSIs and SACs within 2km of the site were consulted to determine if any of them had features or species which could be affected by the development proposals.

## 2.1.3. Ancient Woodland

Although ancient woodland is not a designated site as such, it is often listed as a designated site due to its ecological significance and associated protection. Ancient woodland has therefore been included within the non-statutory designated site Section of this report.

## 2.2. Field Study

### 2.2.1. Personnel

The field survey was undertaken in good weather on the 9<sup>th</sup> August 2018 by Alastair Krzyzosiak<sup>2</sup>.

### 2.2.2. Vegetation and Habitats

The vegetation and habitat types present within the survey area were categorised and mapped in accordance with the standard<sup>3</sup> Phase 1 Habitat assessment methodology (Joint Nature Conservation Committee, 2010), dominant and conspicuous plant species were recorded for each habitat. Target notes were used to record information on features of ecological interest, such as evidence of, or habitats with potential to support protected species. Following the completion of the survey, a colour-coded habitat plan was digitised using QGIS to show the extent and distribution of the different habitat types present within the site (see **Error! Reference source not found.**<sup>4</sup>).

Any hedgerows within the site were not formally assessed against the definitions within the Hedgerow Regulations 1997 as this was beyond the scope of the assessment.

The presence of invasive plant species listed on Schedule 9<sup>4</sup> of the Wildlife and Countryside Act 1981 (as amended), such as Himalayan balsam (*Impatiens glandulifera*), giant hogweed (*Heracleum mantegazzianum*) and Japanese knotweed (*Fallopia japonica*) were also noted during the survey, if present.

### 2.2.3. Protected and Notable Species

During the survey, emphasis was placed on searching for evidence of, and habitats with, potential to support protected or notable species, especially species meeting any of the following criteria:

- Listed under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended);
- Listed under Section 7 of the Environment (Wales) Act 2016 as being of principal importance for maintaining and enhancing biodiversity in Wales;
- Listed as a local priority for conservation, for example in the relevant local Biodiversity Action Plan (BAP);

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<sup>2</sup> Alastair is employed by Acer Ecology and is experienced in undertaking preliminary ecological appraisals. He graduated with an MSc in Ecological Consultancy from Newcastle University and has 3 years of postgraduate experience. He has undertaken extensive training in protected species assessment and phase 1 habitat surveys. He holds Welsh and English licences for bats and great crested newts.

<sup>3</sup> Some additional categories were also used if applicable e.g. hard standing and Japanese knotweed.

<sup>4</sup> Schedule 9 species of plants and animals are ones that do not naturally occur in Great Britain but have become established in the wild and represent a threat to the natural fauna and flora.

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- Red Listed using International Union for the Conservation of Nature (IUCN) criteria (e.g. in one of the UK Species Status Project<sup>5</sup> reviews, in the Species of Conservation Concern Red List<sup>6</sup>, Birds of Conservation Concern in Wales<sup>7</sup>, or, where a more recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book);
- Listed as Near Threatened or Amber Listed e.g. in one of the UK Species Status Project reviews, in Birds of Conservation Concern in Wales or in the Species of Conservation Concern Amber List;
- Listed as a Nationally Rare or Nationally Scarce species (e.g. in one of the Species Status Project reviews) or listed as a Nationally Notable species where a more recent assessment of the taxonomic group has not yet been undertaken; and/or
- Endemic to a country or geographic location (it is appropriate to recognise endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place).

It should be noted that only those species with potential to be present on site are mentioned within this report. The methodologies used were as follows:

## ***Birds***

Any birds observed during the field survey were recorded, in addition to features capable of supporting nesting birds (e.g. trees, hedgerows, buildings, bramble, ruderal vegetation and rough grassland etc). The site was also assessed for its actual and potential suitability to support Wildlife and Countryside Act 1981 (as amended) Schedule 1 species.

A comprehensive bird survey, such as a breeding bird survey, was not undertaken as this was beyond the scope of the assessment.

## ***Bats***

### Daytime Internal and External Building Inspection

A systematic search was made of the exterior and interior of the buildings looking for features that bats could use for entry/ exit and roosting<sup>8</sup> and to search for the presence of bats or evidence of bat use, such as droppings, feeding remains, urine staining, scratch marks and the remains of dead bats. A high-powered torch (Clulite), an endoscope (Snake vision), binoculars and a ladder were used as appropriate during the survey. The location of the buildings are shown on **Error! Reference source not found.**

### Terrestrial Habitat Assessment

A preliminary assessment of the value of the site for bats (and any potential roost sites therein) was made in accordance with Table 4.1 of the Bat Surveys for Professional Ecologists (Collins, 2016) (see Appendix

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<sup>5</sup> The Species Status project is the successor to the JNCC's Species Status Assessment project, providing up-to-date assessments of the threat status of various taxa using the internationally accepted Red List guidelines (<http://jncc.defra.gov.uk/page-1773>)

<sup>6</sup> Eaton et al. (2015) Birds of conservation concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. British Birds 108: 708-746.

<sup>7</sup> Johnstone, I. and Bladwell, S. (2016) Birds of Conservation Concern in Wales 3: the population status of birds in Wales. Birds in Wales 13 (1).

<sup>8</sup> Bats may utilise gaps as small as 8mm by 20mm (Bat Conservation Trust, Cluster flies leaflet)

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4). The assessment was based on the relative abundance and quality of habitat features within the site, and surrounding landscape, suitable for roosting, foraging and commuting bats.

## ***Dormice***

The site was assessed for its suitability to support dormice (*Muscardinus avellanarius*) with reference to guidance such as The Dormouse Conservation Handbook (Bright, Morris & Mitchell-Jones, 2006). The structure and composition of vegetation was assessed with respect to the presence of flower, fruit or nut-bearing food-plants such as hazel (*Corylus avellana*) (a favoured food-plant of dormice), oak (*Quercus* sp.), honeysuckle (*Lonicera periclymenum*), bramble (*Rubus fruticosus* agg.), sycamore (*Acer pseudoplatanus*), as well as other trees and shrubs listed in Bright, Morris & Mitchell-Jones (2006) as being of value to dormice. In addition, connectivity to other areas of suitable habitat in the wider landscape, such as hedgerows and woodland, was assessed.

Very limited hazel was present on site and, therefore, it was not possible to undertake a search for hazelnut shells to determine if they had been opened by dormice. Similarly, a full nest tube/box survey was not undertaken as this was beyond the scope of the assessment.

## ***Great Crested Newts***

Great crested newts occur only scarcely in Carmarthenshire and there are no records in the immediate vicinity of the site (WWBIC data, 2017). Nonetheless, the survey area was appraised for its suitability to support great crested newts (*Triturus cristatus*). The assessment was based on guidance outlined in the Herpetofauna Workers' Manual (Joint Nature Conservation Committee, 2003) and the Great Crested Newt Conservation Handbook (Langton, Beckett & Foster, 2001). Areas of scrub and vegetation around the periphery of the site were found to be potentially suitable for great crested newts during the terrestrial phase of their lifestyle. However, the majority of the site comprising buildings, hard standing and bare ground is entirely unsuitable for the species. Ordnance Survey maps and aerial images of the land surrounding the site were consulted to determine if any water bodies were present within the site or 500m of it; none were found. No observations of great crested newts were made and no suitable aquatic habitat is present on the site. Furthermore, no suitable ponds are located within 500m of the site. The site is therefore considered to contain negligible habitat for this species which is not mentioned further in this report.

## ***Badgers***

Earth embankments, wooded copses, hedgerows, dense bramble beds are habitat features that often contain evidence of badger (*Meles meles*). Where present these and other suitable habitat features were searched for such evidence. Where present, the location of badger signs such as setts, runs, dung pits or latrines, prints, hair and foraging snuffle holes were recorded. However, a full badger survey was not undertaken as it was beyond the scope of this assessment.

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## ***Reptiles***

An assessment of the suitability of on-site habitats to support reptiles was made. Reptiles require a diverse range of habitats to meet their needs such as hedgerows, scrub, rough grassland, wood piles, rubble, banks and compost heaps. The potential of the site to provide hibernation opportunities and spring/summer/autumn habitat was also assessed, with reference to guidance provided in the Herpetofauna Workers' Manual (Joint Nature Conservation Committee, 2003), the Reptile Management Handbook (Edgar, Foster & Baker, 2011) and the Reptile Mitigation Guidelines Technical Note TIN 102 (Natural England, 2013). The following factors were considered: vegetation type and structure; insolation (sun exposure); slope aspect; topography; surface geology; habitat connectivity; habitat size; prey abundance; refuge opportunity; hibernation opportunity; egg-laying potential for grass snake (*Natrix natrix*); public pressure; percentage of shade; levels of disturbance and management regime.

A targeted presence/likely absence reptile survey was not undertaken as it was beyond the scope of this assessment.

## **Other Species**

General habitat suitability and incidental sightings of other animal species were also noted.

### **2.2.4. Assessment of Ecological Value**

The value of the habitats and features of the site have been provisionally evaluated and graded in accordance with a geographical frame of reference as detailed in Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland (CIEEM, 2016). The level of value of specific ecological receptors is assigned using a geographic frame of reference, i.e. international value being most important, then national, regional, county, district, local and lastly, within the immediate zone of influence of the site only. Brief descriptions of how Acer Ecology interprets these categories are set out in Appendix 3.

### **2.2.5. Constraints and Limitations**

#### General Temporal Constraints

Any ecological survey can only identify what was present on site at the time the survey was conducted and habitat usage by species can change over time.

#### Incomplete Survey Information

Full surveys for the protected species listed previously have not yet been carried out. For some species of fauna for which evidence has been found or which are considered likely to occur on site, further targeted survey is advisable at a more appropriate time of year (see Section 5 below).

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## Access

Due to the presence of dense scrub and brambles, summer foliage on the trees, as well as access restrictions onto the land adjacent to the site, it was not possible to undertake a full preliminary ground-level roost assessment of the trees around the periphery of the site. This constraint is not considered to have significantly affected the results of the site assessment, as the trees in question are not likely to require felling or arboricultural works in order to facilitate a future development on the site, particularly if avoidance measures as set out in Section 5 are followed.

The presence of thick vegetation also made looking for signs of badgers difficult around the edges of the survey area. Again, this is not considered to be a significant constraint as badger signs are usually conspicuous, and none were recorded elsewhere on the site proposed for development.

## Floor Covered with Detritus

The floor of B1 (the main garage) was covered with detritus and mud, making the observation of bat droppings difficult.

## 3. Results

### 3.1. Desk Study

#### 3.1.1. Statutory Nature Conservation Designated Sites

##### Statutory Sites (SACs or SSSIs) Designated for Bats within 10km of Site (Afon Teifi SSSI and SAC)

The proposed development site lies within 10km of one SSSI and SAC which is specifically designated for bats. The Afon Teifi at its closest point lies 375m to the north-east of Blossom Garage. This river runs through Carmarthenshire, Ceredigion and Pembrokeshire and is designated as the river corridor (including bank side tree cover, bridges and other structures) provides valuable feeding habitat and some roosting habitat for up to eleven species of bat including Daubenton's bat (*Myotis daubentonii*), greater horseshoe bat (*Rhinolophus ferrumequinum*) and lesser horseshoe bat (*R. hipposideros*).

##### Other Protected Sites Within 2km

There are no other statutory designated sites such as SACs, SSSIs, National Nature Reserves (NNRs) or Local Nature Reserves (LNRs) within 2km of the proposed development site.

#### 3.1.2. Non-statutory Nature Conservation Designated Sites

##### Site of Importance for Nature Conservation (SINC)

There are currently no SINC designated by Carmarthenshire County Council.

##### Ancient Woodland

There are three areas of Ancient Semi-Natural Woodland (ASNW) and five Restored Ancient Woodland Sites (RAWS) located within 2km of the site. These ancient woodland sites were accessed via the NRW GIS dataset. The nearest area of ancient woodland is an unnamed area of RAWS, located 310m to the west of the site.

### 3.2. Field Survey

#### 3.2.1. Habitats and Vegetation

The results of the general survey of habitats and vegetation are shown on Plan . A botanical species list is given in Appendix 2.

### 3.3. Habitat Descriptions

#### 3.3.1. Dense Scrub (A2.1)

A stand of dense scrub encircles the site, mainly around the eastern edges. This habitat grades into the surrounding tree lines and off-site habitats, as well as the patches of brambles (*Rubus fruticosus* agg.) and

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tall ruderal vegetation described below. Willow (*Salix* sp.) and hawthorn are locally dominant, with a single apple (*Malus pumila*), a single cotoneaster, and occasional blackthorn (*Prunus spinosa*), hazel and young sycamore saplings. The habitat parcel is very dense and impassable in places.

### **3.3.2. Scattered Scrub (A2.2)**

Several small patches of scattered willow scrub are situated about the site. These are patchy successional habitats, generally growing over areas of hard standing or bare ground in the shade of the adjacent buildings.

### **3.3.3. Scattered Trees (A.3)**

A line of mature scattered trees lies around the eastern periphery of the site. Oak (*Quercus robur*) is the most frequently occurring species, followed by scot's pine (*Pinus sylvestris*), ash, and occasional sycamore.

### **3.3.4. Tall Ruderal Vegetation (C3.1)/Bramble (A2.1)**

A dense stand of rosebay willowherb (*Epilobium angustifolium*) and bramble dominated vegetation lies to the south of the survey area on a slightly raised bank.

### **3.3.5. Amenity Grassland (J1.2)**

A small patch of amenity grassland is situated along the westernmost site boundary, adjacent to the main road. The short sward is dominated by perennial rye grass (*Lolium perenne*) with locally dominant patches of white clover (*Trifolium repens*), frequent dandelions (*Taraxacum officinale* agg) and occasional ribwort plantain (*Plantago lanceolata*).

### **3.3.6. Ephemeral and Short Perennial (ESP) (J1.3) /Tall Ruderal Vegetation**

As the site has been largely unmanaged for some years, extensive areas of ESP have established over areas of bare ground and are growing through areas of hard standing. Locally dominant patches of red bartsia (*Odontites vernus*) occur around the edges of these habitat parcels, as well as frequent common ragwort (*Senecio jacobaea*), creeping buttercup (*Ranunculus repens*) and ox-eye daisy (*Leucanthemum vulgare*). Other plants present include occasional groundsel (*Senecio vulgaris*), cat's ear (*Hypochaeris radicata*) and grasses such as sweet vernal grass (*Anthoxanthum odoratum*) and cock's foot (*Dactylis glomerata*). ESP vegetation frequently grades into the surrounding areas of tall ruderal vegetation.

### **3.3.7. Building (J3.6)**

Four buildings (numbered B1, B2, B3 and B4, see Plan 4) are located within the survey area, two large garages, a toilet block and a temporary office. Detailed descriptions are provided in Section 3.4.2 and Table 5.

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## 3.3.8. Bare Ground (J4)

An access road/track comprising compacted earth/dust/gravel encircles B4. Vegetation is largely absent except where it grades into the surrounding ephemeral short perennial vegetation.

## 3.3.9. Hard Standing

Much of the survey area comprises hard standing tarmac, including a large parking/waiting area at the site entrance and the access road into the back of the site.

## 3.3.10. Himalayan Balsam Stand

A dense stand of Himalayan balsam is located in the south of the survey area. Several smaller patches of small Himalayan balsam plants are scattered around the site.

Table 2: Photos of Habitats

Photo 1: Dense Scrub (Right) and Bare Ground



Photo 2: Scattered Scrub and Hard Standing



Photo 3: Scattered Trees, Tall Ruderal and Himalayan Balsam (Background)



Photo 4: Amenity Grassland and Hard Standing



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Photo 5: ESP and Dense Scrub



Photo 6: Building (B4) and Hard Standing



### 3.3.11. Notable Plant Species

#### Data Trawl Results

WWBIC returned 12 records of bluebell (*Hyacinthoides non-scripta*) from within 1km of the proposed development site. However, none of the records provided relate to the proposed development site.

#### Field Survey Results

No plant species were recorded on the site, which individually are considered to be of either of national, regional or local significance.

### 3.4. Protected and Notable Species

#### 3.4.1. Birds

##### Desk Study Results

WWBIC provided two records for song thrush (*Turdus philomelos*) and one of red kite (*Milvus milvus*) within 1km of the site.

##### Field Survey Results

A low number of common birds were recorded on site, including those marked with an asterisk in the table overleaf which shows nesting birds associated with habitats present on site and their conservation status.

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Table 3: Bird Records from Within 1km of Proposed Development

Species		Schedule 1	Section 7 list – Environment Act Wales	Red list <sup>9</sup>	Amber list <sup>10</sup>
Coal tit*	<i>Periparus ater</i>				
Great tit*	<i>Parus major</i>				
House sparrow*	<i>Passer domesticus</i>		Yes	Yes	
Song thrush	<i>Turdus philomelos</i>		Yes	Yes	
Starling*	<i>Sturnus vulgaris</i>		Yes	Yes	
Swallow*	<i>Hirundo rustica</i>				
Red Kite	<i>Milvus milvus</i>	Yes			

## 3.4.2. Bats

### Desk Study Results

The data search returned a total of nine records of bat roosts within 2km of the site. This includes seven records of bat roosts of unknown species. This includes a record of up to 80 individual bats, recorded in 2000, approximately 620m from the proposed development site, as well as a variety of smaller roosts evidenced by the presence of bat droppings. The closest roost was recorded in 1999 and is located approximately 170m from the proposed development site. Two pipistrelle (*Pipistrellus* sp.) roosts were also recorded less than 400m from the site. In addition to the roosts, 34 records of the following species were also returned by WWBIC:

- Common pipistrelle (*Pipistrellus pipistrellus*);
- Pipistrelle species (*Pipistrellus* sp.);
- Soprano pipistrelle (*Pipistrellus pygmaeus*);
- Noctule (*Nyctalus noctula*);
- Whiskered bat (*M. mystacinus*);
- Daubenton’s bat;
- Unidentified Myotis species (*Myotis* sp.); and
- Unidentified bats.

### Field Survey Results

There are four buildings located within the survey area (shown on Plan 4). These were assessed externally and internally for their suitability to support roosting bats, as set out in Table 4. None of the buildings are currently in regular use and no evidence of bats roosting or utilising the buildings was recorded.

<sup>9</sup> Bird species of high conservation concern, such as those whose population or range is rapidly declining, recently or historically, and those of global conservation concern.

<sup>10</sup> Bird species of medium conservation concern, such as those whose population is in moderate decline, rare breeders, internationally important and localised species and those of unfavourable conservation status in Europe.

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Table 4: Building Inspection

Building	Description	Roosting Potential	Hibernation Potential
<b>B1</b>	The main garage building, constructed with sheet metal walls and metal frame with corrugated asbestos roof. Various holes in the roof provide bat access but also significant light and water ingress. The floor is very muddy with bird droppings throughout.	Negligible	Negligible
<b>B2</b>	A small toilet block with rendered block walls and mono-pitched asbestos sheet roof. Bat access is possible via small gaps at the top of one of the walls, however, there are no suitable roosting locations inside.	Negligible	Negligible
<b>B3</b>	A small temporary office building with timber walls and flat plywood roof which has rotten throughout. Bat access is possible via a raised sheet of plywood but the roof is very damp and there are no suitable roosting locations inside the building.	Negligible	Negligible
<b>B4</b>	A second garage building with sheet metal walls, metal frame and corrugated asbestos roof. Clouded windows provide light ingress. There is a small office at the rear of the building with timber joists and floorboards. Bat access into the building is possible via a narrow gap at the top of a metal roll top door.	Negligible	Negligible

Table 5: Building Photos

Photo 1: B1, Outside



Photo 2: B1, Inside

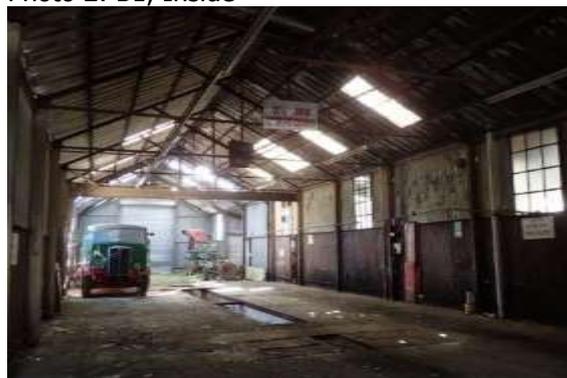


Photo 3: B2, Outside



Photo 4: B3, Outside



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Photo 5: B4, Outside



Photo 6: B4, Inside



The site is collectively considered to provide moderate quality foraging and commuting habitat for bats. The trees and scrub around the site boundary are connected to an area of scrub woodland immediately to the east of the site. These habitats form a continuous network connecting the site to the wider landscape via hedgerows that could be used by bats for foraging and commuting. Connectivity in the other directions (particularly north and west) is somewhat restricted by the village, however, housing and buildings within the village are at a relatively low density, often with gardens. This contributes to the moderate quality assessment of the surrounding habitat.

## Trees

A detailed assessment of all of the trees within the survey area was not undertaken (for reasons detailed in Section 2.2.5). However, a visual inspection from within the confines of the site indicated that the trees may have some potential to contain features that could be utilised by roosting bats. The scots pines are generally considered to be sub-optimal and did not appear to contain any potential roost features.

### **3.4.3. Dormice**

#### Desk Study Results

WWBIC did not return any published records of dormice from within 1km of the site.

#### Field Survey Results

The majority of the site is unsuitable for dormice (buildings, hard standing, scattered scrub, etc.). Stands of scrub and trees were recorded around the site boundaries which superficially could provide some areas of suitable dormouse habitat. The eastern site boundary is relatively well connected to scrub woodland and to the hedgerow network within the surrounding landscape to the east. However, the site is encircled by the village to the north and west, reducing connectivity and increasing site disturbance. Furthermore, there are few extensive stands of woodland to the east. The scrub woodland to the east of the site is patchy and unlikely to provide sufficient structure to allow for arboreal movement. Some food plants favoured by dormice were present on the site, however, hazel (a favoured foodplant of this species and arguably the most important food-plant) was very limited in extent. Honeysuckle (another highly valuable food item

which is also utilised for nest building) was not recorded. On balance, it is considered unlikely that dormice will occur on the site.

#### **3.4.4. Badgers**

##### Desk Study Results

The data search returned one badger record within 1km of the site, recorded in 1988.

##### Field Survey Results

No evidence of badgers was recorded on site during the survey. The areas of dense scrub and other areas of vegetation may provide suitable foraging habitat for badgers.

#### **3.4.5. Reptiles**

##### Desk Study Results

The data search returned no records of reptiles within 1km of the site. However, the lack of records is most likely a result of under-recording within the area, as all four common species occur frequently throughout the county.

##### Field Survey Results

No reptiles or evidence of reptiles (e.g. sloughed skins<sup>11</sup>) were incidentally recorded during the survey, although a targeted reptile survey was not undertaken.

The survey area comprises a mixture of optimal and sub-optimal habitats for reptiles. The areas of hard standing and bare ground are generally unsuitable due to a lack of vegetative cover. However, the interfaces between the habitats found within the survey area such as scrub, brambles, tall ruderal vegetation and ESP could be utilised by reptiles. These transitional zones, or ecotones, generally contain a greater diversity of plant species and habitat structure, and hence a range of microhabitats and microclimates favoured by reptiles and many other species. In addition, the scrub/woodland to the east of the survey area provides potential opportunities for reptiles to colonise the site from the wider landscape. There is some potential for hibernating reptiles, for examples underneath dense scrub patches. However, the site generally seems to lack burrows and the hard/dense nature of the substrate is likely to restrict hibernation opportunities.

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<sup>11</sup> The outer layer of skin is shed, or 'sloughed' in all reptiles. This occurs most frequently in juveniles but adults also go through the process several times a year (Beebee and Griffiths 2000).

## **3.4.6. Other Mammals**

### Desk Study Results

WWBIC returned four records of other mammals within 1km of the site, comprising one record of common hedgehog (*Erinaceus europaeus*) and polecat (*Mustela putorius*) and two of weasel (*Mustella nivalis*) within 1km of the site. The nearest of which was the polecat, recorded approximately 230m from the proposed development site in 2015.

### Field Survey Results

No incidental records of mammals were recorded.

## **3.4.7. Invertebrates**

### Desk Study Results

The data search returned two historic records of notable invertebrates, comprising marsh fritillary (*Euphydryas aurinia*), recorded in 1905; and wall brown (*Lasiommata megera*), recorded in 1984.

### Field Survey Results

Speckled wood butterfly (*Pararge aegeria*) was recorded during the survey. However, generally low numbers of invertebrates were observed.

## **4. Ecological Evaluation, Legislation and Impact Assessment**

The ecological value of the *in-situ* habitats and the potential/actual presence of protected species are discussed in this section, along with a summary of relevant legislation and planning policies relating to habitats and species. Potential impacts on protected sites, *in-situ* habitats and protected or notable species arising from the proposed development, are identified including both direct and indirect impacts, and those associated with construction and operational stages.

### **4.1. Statutory and Non-Statutory Designated Sites**

Legislation and policy relating to protected sites is summarised in Appendix 1.

#### **4.1.1. Protected Site – Afon Teifi**

##### Assessment of Ecological Value

All SACs and SSSIs are ecologically valuable at a European level by virtue of their designation as Natura 2000 sites.

##### Assessment of Potential Development Impacts

Given the lack of specific development proposals at this preliminary stage, a full assessment of potential impacts on the Afon Teifi SSSI/SAC cannot be undertaken. However, given the distance between the sites and the likely small scale of a residential development, any direct impacts or significant effects are not anticipated to be significant, and a Habitats Regulations Assessment (HRA) is therefore unlikely to be required.

The Afon Teifi SSSI/SAC is designated for bats, is moderately well connected to the proposed development site, and lies a relatively short distance away (approximately 375m). As lesser horseshoe bats (for which the SAC is partly designated) are known to forage up to 10km from their roosts, and given the ecological connectivity of the area, there is potential that future developments could impact on foraging habitat for bat populations for which the SAC has been designated. Any potential development works at the site, therefore, may result in negative impacts to individual horseshoe bats utilising both the SAC and frequenting the survey area. Impacts could be via artificial lighting disrupting commuting routes or by direct habitat loss. Outline recommendations are detailed in Section 5.

### **4.2. Assessment of Ecological Value of On-site Section 7, LBAP and SINC Habitats**

No habitats within the site boundary are listed in Section 7 as a 'habitats of principal importance for conservation of biological diversity in Wales' (Environment Wales Act 2016; Wales Biodiversity Partnership, 2016).

### **4.3. Assessment of Ecological Value of On-site Habitats Which Do Not Qualify as Section 7, LBAP and SINC Habitat**

#### Assessment of Ecological Value

Areas of hard standing, bare ground and the buildings are considered to be of negligible value to wildlife. The other habitats within the site (scrub, ESP, tall ruderal vegetation etc.) have collectively been evaluated as being of site value for ecology as they are of limited conservation value and are common and widespread in the wider region.

#### Assessment of Potential Development Impacts

Given the lack of specific development proposals at this preliminary stage, it is not possible to undertake a full assessment of the extent of potential impacts on the site as a result of a future development. However, a total site clearance to facilitate the construction of a residential development will inevitably eliminate all ecological features from the site. This would be significant at site level but of low significance regionally, given the widespread nature of the habitats found within the survey area. Recommendations for avoiding certain features of greater ecological interest are set out in Section 5.

### **4.4. Assessment of Impacts of Invasive Species**

#### Presence of Himalayan Balsam on-site

One relatively small stand of Himalayan balsam and several smaller patches of a few individual plants are growing on the site.

#### Legislation

Himalayan balsam is listed under Schedule 9 of the Wildlife and Countryside Act (1981), as amended. This act specifically prohibits the reckless or deliberate spreading of this species.

#### Assessment of Potential Development Impacts

Development of the site could potentially result in the further spread of Himalayan balsam, through the accidental distribution of soils containing root fragments or rhizomes during earthworks, haulage etc. The spread of this species should be prevented through the implementation of appropriate mitigation measures. The eradication of Himalayan balsam from the site would be desirable if possible.

## 4.5. Protected and Notable Species

### 4.5.1. Birds

#### Assessment of Ecological Value of Site for Birds

Scrub interfaces and dense scrub/bramble provide nesting potential for scrub and ground-nesting birds such as, house sparrow and song thrush. The site provides nesting and foraging opportunities for a range of common scrub and ground nesting birds. B1 (the main garage) has large openings which could potentially be utilised by barn owls (*Tyto alba*), however, no evidence (pellets or droppings) was found. As a whole, the site is considered to be of local value to birds. It contains individual features that provide moderate foraging, nesting and feeding habitats for a range of species, but all these features are widespread and common in the surrounding landscape.

#### Legislation

All wild British birds (while nesting, building nests and sitting on eggs), their nests and eggs (with certain limited exceptions) are protected by law under Section 1 of the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act 2000. Included in this protection are all nests (at whatever stage of construction or use) and all dependent young until the nest is abandoned and the young have fledged and become independent. Particularly rare species such as barn owl (*Tyto alba*) are listed on Schedule 1 which gives them additional protection from disturbance whilst nest building, whilst near a nest with eggs or young, or from disturbing the dependant young.

#### Impact Assessment of Proposed Development on Birds

It is likely that clearance of the site to facilitate a residential housing development would result in the loss of much of the suitable bird nesting habitat from the site, particularly the scrub habitat. This would be considered of a large magnitude at site level but of low regional significance given the widespread nature of the habitats on-site. Recommendations (including avoidance measures) are set out in Section 5 in order to reduce the potential impacts to nesting birds within the site.

### 4.5.2. Bats

#### Assessment of Ecological Value of Site for Bats

##### Buildings

The four buildings on the site are considered to have negligible potential to support roosting bats. No evidence of bats was recorded, and therefore, demolition of the buildings would have a negligible impact on bats.

##### Trees and Potential Foraging and Commuting Habitat

Numerous records of bats and bat roosts are located within 1km of the proposed development site and it is considered likely that bats will utilise roosts in buildings within the adjacent village. The scattered trees

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and scrub around the site boundary are likely to provide commuting and foraging opportunities for these bats and others. The scrub and trees also contribute to linear habitat features, extending beyond the site boundary, which could be used by commuting bats.

While a full preliminary ground-level roost assessment of the trees was not undertaken due to access restrictions, the broad-leaved trees are mature specimens and are considered likely to contain some potential roost features. Pine trees are not usually associated with roosting bats and are considered to be of value only as landscape features aiding in foraging and commuting behaviour.

## Legislation

All species of bats and their roosting sites are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. All species of UK bats are designated as 'European protected species'. Seven species of bat (soprano pipistrelle (*Pipistrellus pygmaeus*), barbastelle (*Barbastella barbastellus*), Bechstein's (*Myotis bechsteini*), noctule (*Nyctalus noctula*), brown long-eared (*Plecotus aurita*), lesser horseshoe and greater horseshoe bats are listed under Section 7 of the Environment (Wales) Act 2016 as being of principal importance for maintaining and enhancing biodiversity in Wales. At species occurring in are also included in the LBAP, with suitable habitat creation for these species a priority.

## Impact Assessment of Proposed Development on Bats

The potential conversion of the site into residential housing will bring about a change of land use, with likely increases in human disturbance and artificial lighting which may reduce the attractiveness of the site to foraging bats, as well as potentially disturbing roosting bats which could potentially be present within the trees around the site boundary. The anticipated clearance and development of these areas would result in a loss of foraging habitat for bats, although it is not currently possible to accurately gauge the level of bat activity in the immediate vicinity of the site. In the absence of detailed development proposals, it is difficult to fully assess the potential impacts on bats.

Increased lighting during construction and operational phases of the development may negatively impact 'light-sensitive' horseshoe species which are present in the nearby SSSI/SAC and are likely to forage in the local area. A sensitive lighting plan will be implemented to avoid such impacts. This strategy will be developed following the completion of the further surveys set out in Section 5.

While there are currently no plans to fell any of the trees or undertake arboricultural works, recommendations for the trees retention are given in Section 5, as well as additional measures to protect the retained trees. Therefore, provided that additional precautionary measures are implemented (as set out in Section 5), no adverse impacts on potential bat roosts in the trees around the site boundary is anticipated.

Development of the site is likely to be of a type listed within Box 1 of Section 1.2.3.2 of Bat Surveys for Professional Ecologists (Collins, 2016) and consequently, it is considered that bat surveys should be undertaken on the site. The following factors confirm the need for such surveys:

- Potential for artificial lighting; and
- A change of use of the site.

Section 8.6 of Collins (2016) states that the level of survey effort should be proportionate to the likely use of the site by bats and the potential effects of the proposed development on the species present. Recommendations for further surveys are detailed Section 5. However, given the lack of detailed development proposals for the site, these recommendations may require updating in light of any new information. Similarly, this impact assessment should be re-visited in light of detailed development proposals being made available.

### **4.5.3. Dormice**

#### Assessment of Ecological Value of Site for Dormice

Dormice live at much lower population densities than other woodland small mammals like wood mice and bank voles. Typically, there are between five and 10 adult dormice per ha, even in the best woodland habitats (Morris, 2004). This means that small or relatively isolated areas of habitat (such as the one surveyed), have small dormouse populations that are vulnerable to chance events and annual variations in reproductive success. The long-term viability of any resident population is therefore significantly lower than in a larger area of habitat, or one which is connected to adjacent dormouse habitat.

A lack of dormouse records and no areas of mature woodland nearby also significantly reduce the probability of dormice being present on-site.

#### Legislation

Dormice are a 'European protected species' and afforded full protection under both UK and European legislation. Dormice are listed under section 7 of the Environment (Wales) Act 2016 as being of principal importance for maintaining and enhancing biodiversity in Wales. It is included in the Carmarthenshire County Council Local Biodiversity Action Plan.

#### Impact Assessment of Proposed Development on Dormice

While the presence of dormice from the site cannot be ruled out entirely, the likelihood of dormice being found on the site is considered to be low due to the low incidence of good quality habitat within the wider area.

Any vegetation clearance and/or tree felling around the perimeter of the site has potential (albeit very low potential) to negatively impact on dormice, either through direct killing, injury or disturbance, or through habitat loss and (limited) fragmentation. In order to prevent such an occurrence, measures should be taken

to avoid works of this nature. Development plans should retain these habitats where practicable (see Section 5.2.1). If this is not possible, the removal of vegetation around the periphery of the site must be carefully considered and potentially supervised by an ecological consultant and cleared using a two-staged approach, as outlined in Section 5.3.2.

#### **4.5.4. Badgers**

##### Assessment of Ecological Value of Site for Badgers

Although no evidence of badgers was recorded on site, there is considered to be some limited potential for them to venture onto the site from the surrounding landscape to forage sporadically.

##### Legislation

Badgers are protected under the Protection of Badgers Act 1992. Protection applies both to the animal itself and to its nesting burrows (setts), and current interpretation of the Act also confers some protection to key foraging areas.

##### Impact Assessment of Proposed Development on Badgers

Badgers may pass through the proposed development site occasionally when foraging or commuting. As badgers are nocturnal, it is considered unlikely that any resident badgers will be encountered on site during works, which will be undertaken during daylight hours. Certain construction methods are recommended in Section 5 to ensure that no badgers moving through the site are injured during the construction phase of the development.

#### **4.5.5. Reptiles**

##### Assessment of Ecological Value of Site for Reptiles

The periphery of the site (particularly around the eastern part of the site which links to woodland/scrub and nearby hedgerows) contains a mosaic of habitats that could be utilised by reptiles and provides a dispersal route to/from the site. Reptiles are often under-recorded and so a lack of nearby records does not provide conclusive evidence of absence from the site. It is considered likely that reptiles may utilise the site.

##### Legislation

With the exception of smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*) (which are afforded greater protection), common reptiles are protected under Schedule 5 the Wildlife and Countryside Act 1981 (as amended). They are given so called 'partial protection', which prohibits the deliberate killing or injury of individuals. The habitats of common reptiles are not specifically protected. These species are listed as priority species in Wales Under Section 7 of the Environment (Wales) Act 2016.

## Impact Assessment of Proposed Development on Reptiles

The presence of reptiles on the site cannot be ruled out and therefore any vegetation clearance around the site boundary has potential to result in the loss of potential reptile habitat and may therefore result in the accidental killing or injury of reptiles. Recommendations for further work are outlined in Section 5.0.

### **4.5.6. Hedgehog**

#### Assessment of Ecological Value of Site for Hedgehogs

Hedgehogs are considered likely to forage within the site, and could potentially nest and hibernate within the scrub and bramble beds. The loss of these habitats could lead to negative impacts upon this species, if present.

#### Legislation

Hedgehogs are afforded partial protection under the Wildlife and Countryside Act (1981) and are listed as priority species under Section 7 of the Environment (Wales) Act 2016. It is also listed in the Carmarthenshire County Council LBAP in light of dramatic population declines. The legislation afforded to hedgehogs in the Environment Wales Act (2016) requires all public bodies including Local Authorities to have regard for biodiversity conservation<sup>12</sup> when carrying out their functions.

#### Impact Assessment of Proposed Development on Hedgehogs

Any vegetation clearance which is required to facilitate a future development has potential to kill individual hedgehogs and remove suitable habitat. Mitigation measures are recommended to enable the requirements of the local planning authority to be met, namely the restoration or enhancement of hedgehog habitat.

### **4.5.7. Invertebrates**

#### Assessment of Ecological Value of Site for Invertebrates

A low number of invertebrates were noted during the survey and it is not considered to be of high value to invertebrates given the widespread nature of the habitats on-site.

#### Assessment of Development Impacts of Proposed Development on Invertebrates

A development on the site would be likely to reduce opportunities for invertebrates by reducing the availability of flowering plants and other habitats such as scrub. Recommendations are set out in Section 5.

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<sup>12</sup> Biodiversity conservation in respect to hedgehog is interpreted as a commitment to restoring or enhancing their population.

## 5. Required Actions

The following recommendations have been developed in the absence of detailed development proposals. It should be noted that any recommendations made may be subject to change upon receipt of the final project design. The implementation of these recommendations will ensure compliance with the Planning Policy Wales (Welsh Government, 2016) and help to avoid or minimise adverse impacts on the environment and protected species, mitigate and compensate for losses where damage is unavoidable.

When more detailed development proposals are available, these recommendations should be re-assessed. Consultation with the local authority ecologist is recommended in order to progress the project and to agree the scope of further work.

### 5.1. Further Survey Work

Works should not commence until the surveys below have been carried out. Results from these surveys will inform and allow for targeted recommendations for the avoidance (timing of works), future mitigation and compensation measures required as part of the development.

#### 5.1.1. Bats

##### Trees

In the unlikely event that any of the mature trees around the site boundary require felling or arboricultural works, these should be subject to a full preliminary ground-level roost assessment (however, ideally trees should be retained, see Section 5.2.1). The survey will be undertaken in accordance with the Bat Conservation Trust's Survey Guidelines (Collins, 2016) and would comprise an inspection whereby close-focusing binoculars will be used to inspect trees from ground level to look for features indicative of bat roosts (holes, cracks/splits in limbs, loose bark, hollows and cavities etc) as well as actual signs (staining and scratching, bat droppings etc). The survey will be undertaken during the winter months (between December and March) when leaves are absent and ground flora has died back allowing for greater access. Access to adjacent land will be secured to allow for an inspection from all angles of the trees.

##### Transects

The site was considered suitable for foraging and commuting bats, and may be of value to Annex II Habitats Directive species (lesser and greater horseshoe bats) that are likely to occur nearby and in the nearby SAC/SSSI. Table 8.3 of the Bat Survey Guidelines (2016) states that habitats with 'moderate suitability for bats' should be subject to a transect and remote detector survey. However, without detailed development proposals, it is difficult to fully determine the specific survey requirements.

Assuming the majority of the site will be cleared to facilitate the development (except for a buffer around site boundary including the trees surrounding dense scrub, see Plan 5), the site should be subject to one survey visit per month (April to October), undertaken in appropriate weather conditions for bats. At least one of the surveys should comprise dusk and pre-dawn surveys within one 24-hour period.

In addition, moderate suitability sites should also be subject to a remote detector survey. Given the small size of the site, it is considered that one remote detector will provide adequate data. Data should be collected on five consecutive nights per month (April to October) in appropriate weather conditions for bats.

If sufficient data can be gathered in a shorter period of time to that stated above, fewer survey visits may be deemed sufficient.

Bat transects and remote detector surveys will allow for the formulation of a detailed lighting plan, as well as formulation of a more thorough strategy for maintenance of dark corridors and habitat retention (where required).

## **5.1.2. Reptiles**

Surveys to determine the presence/likely absence of reptiles should be carried out between April and September – ideally in the months of April, May, June or September (Natural England Technical Information Note TIN 102). The survey will need to follow the advice provided by the Herpetofauna Workers' Manual (Gent and Gibson, 2003), and comprise a 'direct search' and the monitoring of artificial and naturally occurring refugia placed in areas of the site assessed as being most attractive to reptiles.

A variety of different types of refugia should be used. Refugia will comprise primarily of squares of roofing felt, carpet tiles, corrugated metal tins and corrugated bitumen-based roofing felt of varying sizes but at least 60 x 60cm in size. Naturally occurring refugia including discarded logs, timber and large rocks etc. will also be checked. Where possible, artificial refugia should be laid in south-facing positions in areas deemed least likely to attract human interference. Refugia will be left undisturbed on site for two weeks, prior to commencement of the survey to allow the reptiles on the site sufficient time to find and start utilising them. The refugia will then be checked on at least seven separate occasions, non-consecutively, in suitable weather conditions (warm, overcast periods with low wind speeds) to record any reptile species beneath or basking upon them.

The survey results will determine whether reptiles are present on the site, and if so will provide the basis for designing and implementing a reptile mitigation strategy prior to the start of the development.

## **5.2. Avoidance Measures**

### **5.2.1. Retention of Trees and Boundary Vegetation**

To avoid any direct impacts to potential bat roosts within trees around the site boundary, as well as reducing potential for negative impacts on nesting birds, dormice and other fauna, felling of these trees should be avoided completely. The trees should be retained within the landscape framework of the development, with suitable management plans for the benefit of wildlife implemented. Retained trees should be securely fenced-off to prevent accidental damage, prior to the commencement of any construction work and treated in accordance with British Standard BS5837 (2012) *Trees in Relation to Design, Demolition and Construction*

– *Recommendations.* Fences will aim to prevent accidental harm or damage to the trees, for example from the compaction of soil over the roots which may otherwise be caused by heavy vehicles tracking too close to the trees, oil spills onto the soil, collision damage to the bark and boughs etc. The temporary fences referred to above should be left in place and maintained until development of the site has been completed. In the unlikely event that any of the trees require felling, additional surveys will be required (as detailed in Section 5.1).

Consideration will also be given to retaining a 10m buffer zone (see Plan 5) around the site boundary in order to maintain ecological connectivity, maintain biodiversity on the site and to reduce potential light spill. Further surveys for bats (see Section 5.1) are required before details can be finalised.

## **5.3. Precautionary Measures**

### **5.3.1. Good Construction Practices for Badgers and Hedgehogs**

In line with good practice, any open trenches and excavations associated with the development will either be closed at night or a means of escape provided (e.g. plank at no greater angle than 45°) to help any badgers, hedgehogs or other trapped animals escape.

If there is a significant delay to development of the site (i.e. more than 12 months) an updated badger survey should be undertaken to determine if any new active setts have been created within the site.

Full details of vegetation clearance methods which will limit the potential for killing and injury of mammals such as hedgehogs and dormice will be made available on completion of the reptile surveys. The results of the reptile survey will have some bearing on the exact recommendations, however, any refugia will be searched for hedgehogs before the area is cleared and a two-phased directional approach will likely be required for vegetation clearance.

These methods will also help to ensure that potential harm to amphibians, small mammals and great crested newts is avoided (in the unlikely event that any individual newts are found on site). In the event of great crested newts being encountered during any of the activities on site, then all works should stop immediately and the advice of an appropriately-qualified ecologist sought.

### **5.3.2. Vegetation Clearance**

#### Birds

To avoid adverse impacts to nesting birds, the clearance of vegetation including trees, scrub, bramble beds and tall ruderal vegetation will be undertaken from September to February outside of the bird breeding season (March to August inclusive). Alternatively, any works undertaken from March to August will be subject to a check for nesting birds by a suitably qualified ecologist immediately prior to removal of such

habitats. If any active nests are found these will be protected, along with an appropriate buffer zone of 5m, until the nesting is complete and the young have fledged<sup>13</sup>.

## Dormice

Natural England Standing Advice<sup>14</sup> (last updated 29th July 2015) states that dormouse surveys can be limited to visual searches for nests and opened nuts if the work only involves losing a small amount of habitat, for example, gaps in hedgerows and removing a small amount of bramble scrub. As the proposed development is likely to involve such works, it is recommended that a visual search of this type is undertaken before any scrub, hedgerows or bramble beds are cleared. In the unlikely event that dormice are found during the proposed works, all works should stop immediately and advice sought from NRW and/or a licenced ecological consultant. If the development cannot be amended, a European Protected Species Mitigation Licence from NRW may be required.

As an extra precautionary measure, any sections of hedgerow or bramble beds to be cleared will first be coppiced or cut back during the winter months (November – March inclusive). Hand tools will be used to minimise ground disturbance. The subsequent removal of the remaining vegetation and stumps (if required) will not be undertaken until late April/ early May, so that any dormice present will have emerged from hibernation and will be able to disperse into neighbouring areas of woodland, scrub and hedgerow. This phased approach is timed to avoid disruptive works when these animals are hibernating at ground level and are less able to escape the area of works. On the northern site boundary, works will begin at the existing site entrance/gate and progress in a linear fashion eastwards and westwards so that any animals present can move to safer areas. These recommendations also provide a means for ensuring reptiles are not harmed as a result of the development. Further recommendations are detailed below.

## **5.4. Mitigation, Compensation and Enhancement Measures**

Full details of mitigation, compensation and enhancement measures will be determined following the completion of the further surveys detailed in Section 5.1. This will include the following, and may include additional measures:

- A sensitive lighting strategy for bats;
- Retention/enhancement of some areas of habitat for the benefit of wildlife, for example, botanical enhancement, bat/bird boxes and an insect tower;
- Restrictions on the timing of vegetation clearance; and
- Species deterrence measures.

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<sup>13</sup> Some bird species, especially raptors and owls remain dependent upon the nesting site after fledging and so depending upon the species the nest site may need to be protected for a period of time after fledging.

<sup>14</sup> NE guidance is used because no Welsh equivalent is available.

## **5.4.1. Treatment of Himalayan Balsam**

Himalayan balsam will be eradicated from the site as far as possible and appropriate measures implemented to prevent the accidental spread of this species during the development. Invasive plant material is considered a 'controlled waste' and must be disposed of in accordance with, and environmental permit issued under, the Environmental Permitting (England and Wales) Regulations 2007.

## **5.5. Longevity of Report**

If development works do not begin within two years of the date of this report, an update survey is likely to be required in accordance with guidance from Natural Resources Wales (NRW)<sup>15</sup> and BS 42020:2013<sup>16</sup>, to determine if conditions have changed since those described in this report.

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<sup>15</sup> As set out in Point 5 of the NRW *Bat Surveys - Frequently Asked Questions* and Point 4 of the guidance included within the NRW European Protected Species Development Application Form.

<sup>16</sup> As set out in Section 6.2.1, point 7 which states that ecological information should not normally be more than two/three years old, or as stipulated in good practice guidance).

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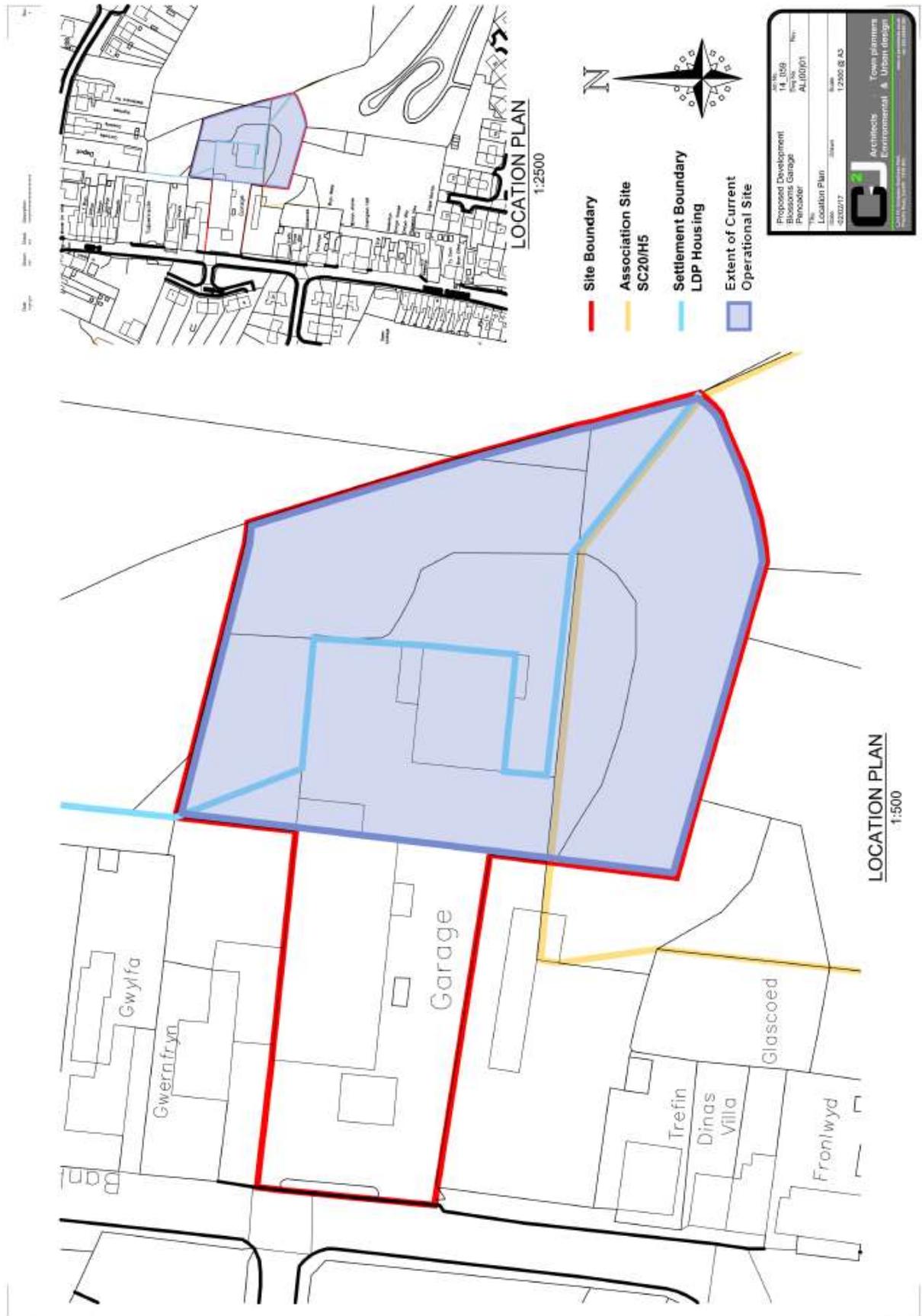
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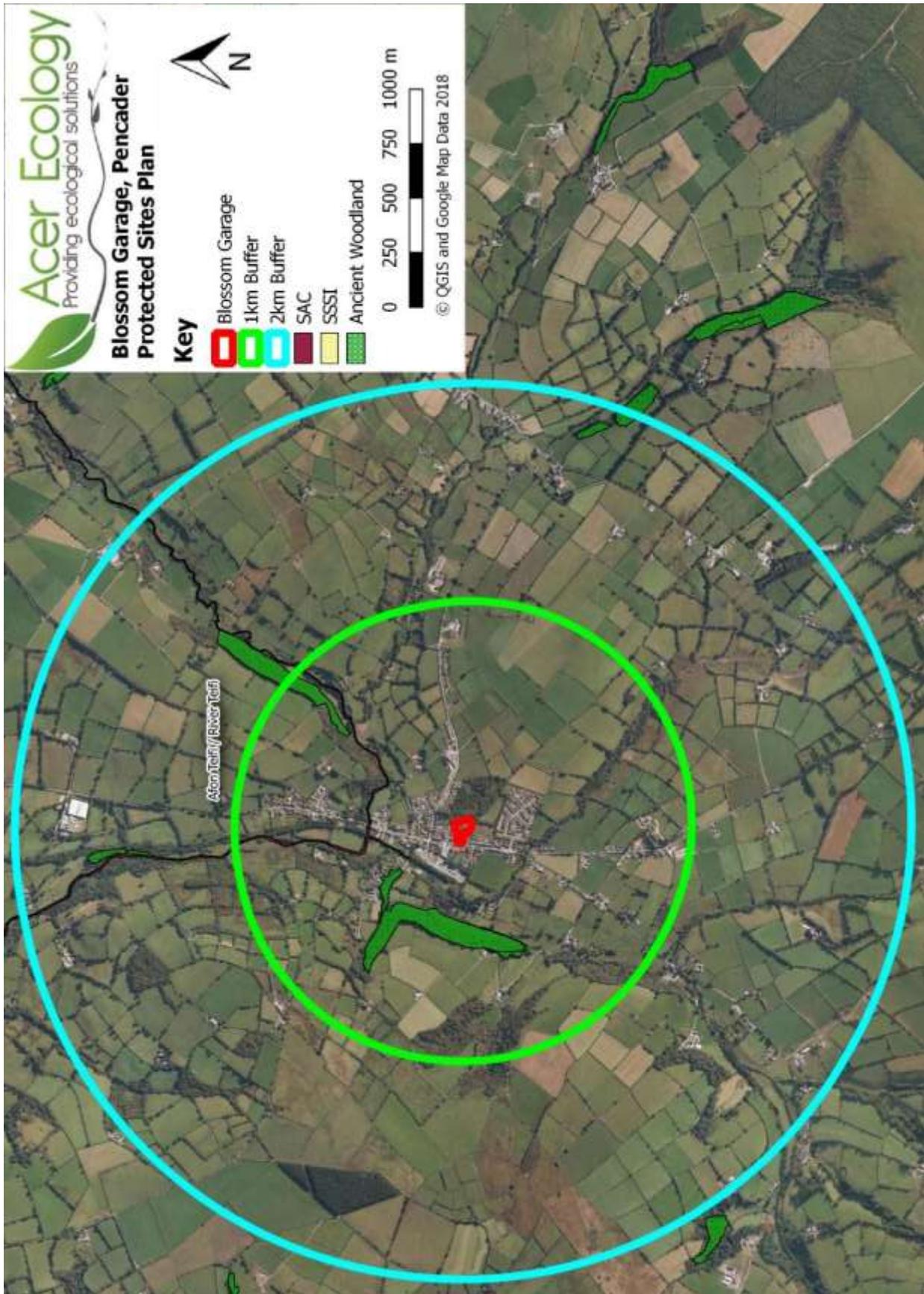
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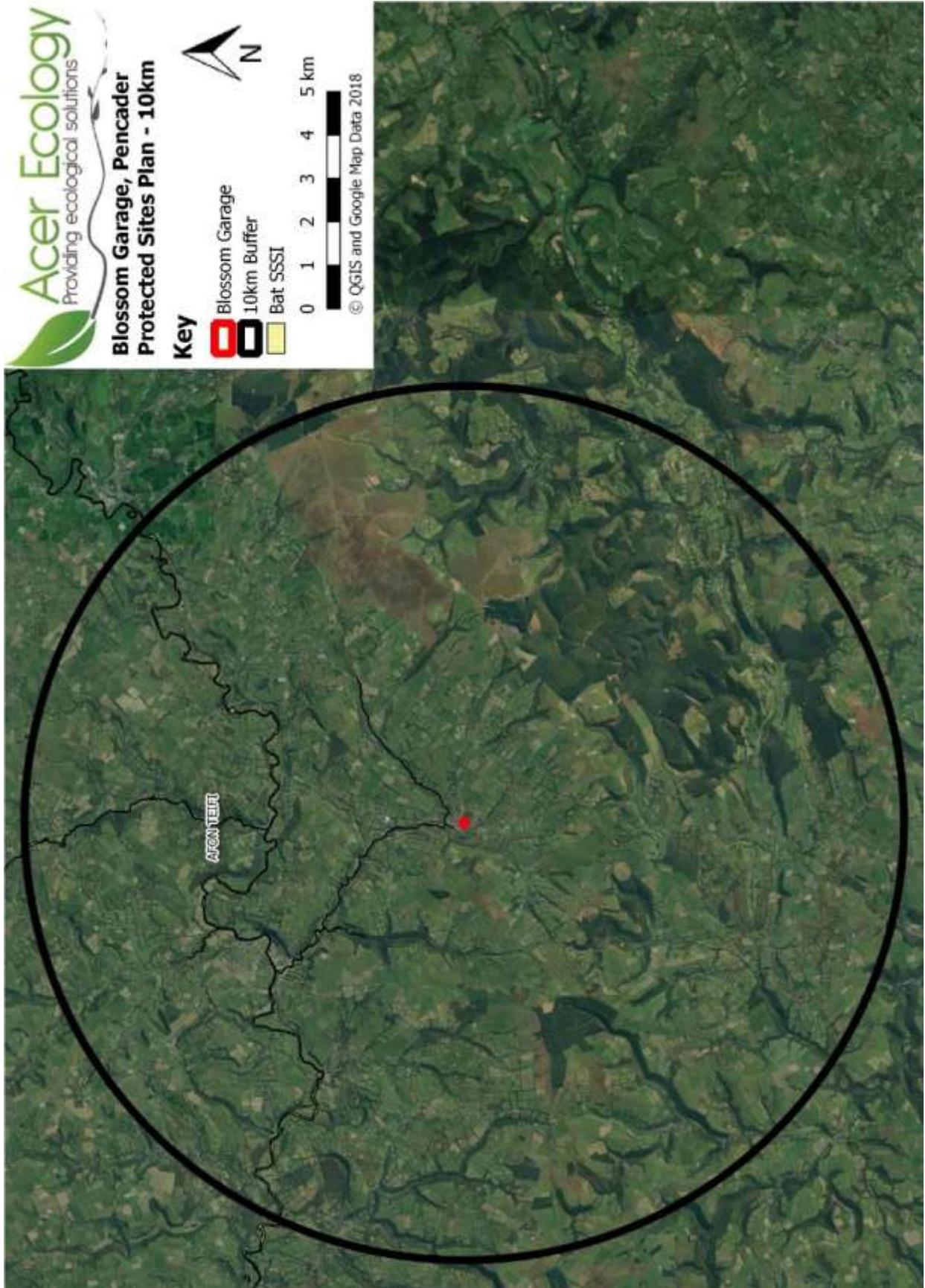
Plan 1: Location Plan



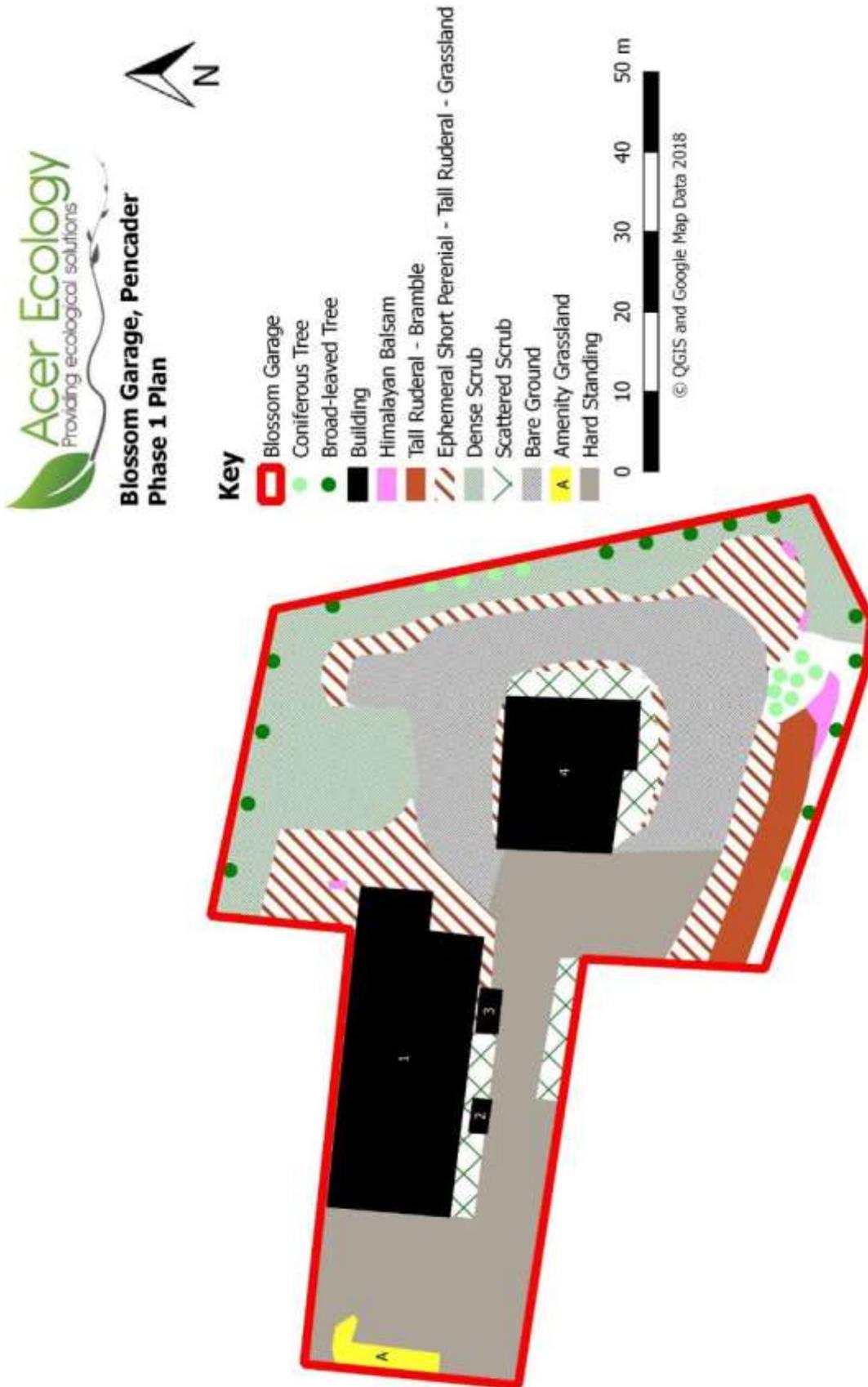
## Plan 2: Site Location and Protected Sites Plan (2km Buffer)



## Plan 3: Site Location and Protected Sites Plan (10km Buffer)



## Plan 4: Habitats and Vegetation



## Plan 5: Proposed 10m Buffer



## **Appendix 1: Legislation and Policy Relating to Statutory and Non-Statutory Designated Sites**

### **SACs**

SACs are strictly protected sites designated under the EC Habitats Directive. Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds). Of the Annex I habitat types, 78 are believed to occur in the UK. Of the Annex II species, 43 are native to, and normally resident in, the UK.

Development proposals within 10km of an SAC may need to be subject to Habitats Regulations Assessment's (HRA). If the LPA determine that a significant effect is likely then it will be necessary to undertake an Appropriate Assessment<sup>17</sup>.

### **SSSIs**

SSSIs are important as they support plants and animals that find it difficult to survive elsewhere in the countryside, and they represent the country's best wildlife and geological sites. SSSIs are legally protected under the Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006, and are of national (second tier) biodiversity significance and form the essential building blocks of the United Kingdom's protected areas for nature conservation. Many are also designated as Natura sites i.e. internationally (first tier) designated sites. It is an offence for any person to intentionally or recklessly damage the protected natural features of a SSSI.

### **ASNW and Woodland**

The UK is a sparsely wooded country: 11.5% of Great Britain is covered with trees. Only 1.2% of the UK is ancient semi-natural woodland, a valuable and irreplaceable natural resource. Ancient semi-natural woodland, and plantations on ancient woodland sites, are a priority for conservation (JNCC).

The Welsh Assembly has recognised that areas of ancient woodland are declining and becoming increasingly fragmented and emphasises the importance of conserving ancient woodland and its value as a biodiversity resource through the publication of Planning Policy Wales (2016). Furthermore, the UK Biodiversity Action Plan (UKBAP) includes objectives to conserve, and, where practicable, enhance: • the quality and range of wildlife habitats and ecosystems; • the overall populations and natural ranges of native species; • internationally important and threatened species, habitats and ecosystems; • species, habitats and natural and managed ecosystems characteristic of local areas; and • biodiversity of natural and semi-natural habitats where this has been diminished over recent decades.

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<sup>17</sup> For more information, consult 'Assessing Projects Under the Habitats Directive' David Tyldesley (2011) for CCW

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Paragraph 5.2.9: "Trees, woodlands and hedgerows are of great importance, both as wildlife habitats and in terms of their contribution to landscape character and beauty. They also play a role in tackling climate change by trapping carbon and can provide a sustainable energy source. Local planning authorities should seek to protect trees, groups of trees and areas of woodland where they have natural heritage value or contribute to the character or amenity of a particular locality. Ancient and semi-natural woodlands are irreplaceable habitats of high biodiversity value which should be protected from development that would result in significant damage."

Paragraph 5.2.10: "Local planning authorities should, as appropriate, make full use of their powers to protect and plant trees to maintain and improve the appearance of the countryside and built up areas."

## **Environment (Wales) Act 2016**

The Environment (Wales) Act 2016 dictates that Local authorities have a duty to have regard to the conservation of biodiversity in exercising their functions. The duty affects all public authorities and aims to raise the profile and visibility of biodiversity, to clarify existing commitments relating to biodiversity, and to make it a natural and integral part of policy and decision making. Part 1 Section 7 of the Act provides a list of the living organisms of principal importance for maintaining and enhancing biodiversity in Wales.

In Caerphilly County Borough, woodland, hedgerows and trees are also afforded protection under policy CW6 of the Adopted Local Development Plan.

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## Appendix 2: Species Recorded

Species	Common name	LM	CG	PMR	PIL	Status
<b>Trees and Shrubs</b>						
<i>Acer pseudoplatanus</i>	Sycamore					Alien
<i>Corylus avellana</i>	Hazel					
<i>Crataegus monogyna</i>	Common hawthorn					
<i>Fraxinus excelsior</i>	Ash					
<i>Malus pumila (Malus domestica)</i>	Garden apple					Alien
<i>Pinus sylvestris</i>	Scot's pine					Alien
<i>Prunus spinosa</i>	Blackthorn					
<i>Quercus robur</i>	Pedunculate oak					
<i>Rosa canina agg</i>	Dog-rose					
<i>Rubus fruticosus agg</i>	Bramble					
<i>Salix cinerea</i>	Grey willow					
<b>Herbaceous Plants</b>						
<i>Anthoxanthum odoratum</i>	Sweet vernal-grass					
<i>Bellis perennis</i>	Daisy					
<i>Centaurea nigra</i>	Common knapweed	LM	CG			Rct sap
<i>Epilobium angustifolium</i>	Rosebay willowherb					
<i>Cirsium arvense</i>	Creeping thistle					
<i>Cirsium palustre</i>	Marsh thistle					
<i>Dactylis glomerata</i>	Cock's-foot					
<i>Epilobium hirsutum</i>	Great willowherb					
<i>Filipendula ulmaria</i>	Meadowsweet			PMR		
<i>Holcus lanatus</i>	Yorkshire fog					
<i>Hypericum maculatum</i>	Imperforate st john's-wort	LM				
<i>Hypochaeris radicata</i>	Common cat's-ear	LM				
<i>Juncus effusus</i>	Soft rush					
<i>Juncus inflexus</i>	Hard rush					
<i>Lathyrus pratensis</i>	Meadow vetchling	LM				
<i>Leucanthemum vulgare</i>	Ox-eye daisy	LM				
<i>Lolium perenne</i>	Perennial rye-grass					
<i>Persicaria maculosa</i>	Redshank					
<i>Odontites vernus</i>	Red bartsia					
<i>Plantago lanceolata</i>	Ribwort plantain					
<i>Plantago major</i>	Greater plantain					
<i>Potentilla anserina</i>	Silverweed					
<i>Prunella vulgaris</i>	Self-heal					
<i>Ranunculus repens</i>	Creeping buttercup					
<i>Rumex obtusifolius</i>	Broad-leaved dock					
<i>Senecio jacobaea</i>	Common ragwort					
<i>Senecio vulgaris</i>	Groundsel					
<i>Taraxacum officinale agg</i>	Dandelion					
<i>Trifolium pratense</i>	Red clover	LM				
<i>Urtica dioica</i>	Common nettle					

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<b>'Habitat Indicator Species' Totals (Wales Biodiversity Partnership 2008<sup>18</sup>)</b>	0	6	1	0	1	0	0
	<b>W</b>	<b>LM</b>	<b>CG</b>	<b>LDA</b>	<b>PMR</b>	<b>PIL</b>	<b>TF</b>

<b>'Primary' and 'Contributory' Totals (Wales Biodiversity Partnership 2008)</b>	0	0
	<b>Primary Species</b>	<b>Contributory Species</b>

## **Key to Indicator Species (Wales Biodiversity Partnership 2008<sup>19</sup>)**

W - Woodland, LM – Lowland meadow, CG - Calcareous Grassland, LDA – Lowland Dry Acid Grassland, PMR Purple moor-grass and rush pasture, PIL – Post Industrial Land, TF Species-rich Tillage Fields and Margins – PS – Primary Species, CS – Contributory Species

## **SINC Selection**

Sites which support one primary species or five contributory species; or habitats which support eight lowland meadow, eight calcareous grassland, seven lowland dry acid grassland, twelve purple moor-grass and rush pasture or eight tillage field and margins indicator species, should be considered for SINC selection. Post-industrial sites supporting 20 or more indicator species from the combined post-industrial land, acid, neutral, calcareous and marshy grassland lists should be also considered for selection.

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<sup>18</sup> Wales Biodiversity Partnership (2008) Wildlife Sites Guidance Wales: A Guide to Develop Local Wildlife Systems in Wales. Wales Biodiversity Partnership/Welsh Assembly Government.

## Appendix 3: Definitions of Site Value

### International Value

Internationally designated or proposed sites such as Ramsar Sites, Special Protection Areas, Biosphere Reserves and Special Areas of Conservation, or non-designated sites meeting criteria for international designation. Sites supporting populations of internationally important species or habitats.

### National Value

Nationally designated sites such as Sites of Special Scientific Interest (SSSIs), or non-designated sites meeting SSSI selection criteria (NCC 1989), National Nature Reserves (NNRs) or Nature Conservancy Review (NCR) Grade 1 sites, viable areas of key habitats within the UK Biodiversity Action Plan. Sites supporting viable breeding populations of Red Data Book (RDB) species (excluding scarce species), or supplying critical elements of their habitat requirements.

### Regional Value

Sites containing viable areas of threatened habitats listed in a regional Biodiversity Action Plan, comfortably exceeding Site of Importance for Nature Conservation (SINC) criteria, but not meeting SSSI selection criteria. Sites supporting regionally significant areas of BAP habitats or large and viable populations Nationally Scarce species, or those included in the Regional Biodiversity Action Plan on account of their rarity, or supplying critical elements of their habitat requirements.

### County Value/District Value

Site identified as a Site of Importance to Nature Conservation (SINC) at the district level; meeting South Wales Wildlife Sites Partnership (SWWSP) 2004 published designation criteria, but falling short of SSSI designation criteria, whether designated as a SINC or not. Ancient woodlands and sites supporting regionally significant areas of UK BAP habitat. Large scale examples of BAP habitats or areas supporting small populations of protected, UK BAP/ LBAP or threatened species (other than badger).

### High Local

Habitats which just fail to meet Regional value criteria, but which appreciably enrich the ecological resource of the locality. Sites supporting species which are notable or uncommon in the county; or species which are uncommon, local or habitat-restricted nationally, and which might not otherwise be present in the area. Moderate scale examples of BAP habitats or areas supporting small populations of protected, UK BAP/ LBAP or threatened species.

### Local Value

Old hedges, woodlands, ponds, significant areas of species-rich grassland, small scale examples of BAP habitats or areas supporting small populations of protected, UK BAP/ LBAP or threatened species. Undesignated sites or features which appreciably enrich the habitat resource in the context of their immediate surroundings, parish or neighbourhood (e.g. a species-rich hedgerow). Rare or uncommon species may occur but are not restricted to the site or critically dependent upon it for their survival in the area.

### Site value (within the immediate zone of influence)

Low-grade and widespread habitats. Woodland plantations, structured planting, small areas of species-rich grassland and other species-rich habitats not included in the UK or Local BAP.

### Negligible

No apparent nature conservation value.

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## Appendix 4: Guidelines for Assessing Potential Suitability of a Proposed Development Site for Bats <sup>20</sup>

Suitability	Description of Roosting Habitat	Commuting and Foraging Habitat
Negligible (All Buildings)	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting and foraging bats.
Low	<p>A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection appropriate conditions<sup>21</sup> and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity) or hibernation<sup>22</sup>.</p> <p>A tree of sufficient size and age to contain PRFs but with none seen from the ground<sup>23</sup>.</p>	<p>Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.</p> <p>Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.</p>
Moderate (Site)	A structure or 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 conservation status, which is established after presence is confirmed.	<p>Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.</p>
High	A structure or 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.	<p>Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge.</p> <p>High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland.</p> <p>Site is close to and connected to known roosts.</p>

<sup>20</sup> Table 4.1 in Collins (2016)

<sup>21</sup> For example, in terms of temperature, humidity, height above ground levels, light levels or levels of disturbance.

<sup>22</sup> Evidence from the Netherlands, shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for large numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

<sup>23</sup> This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

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## Appendix 5: Recommended Number of Bat Activity Surveys to Achieve a Reasonable Survey Effort in Relation to Habitat Suitability (Collins 2016)

Survey Type	Negligible Suitability Habitat for bats	Low Suitability Habitat for Bats	Moderate Suitability Habitat for Bats	High Suitability Habitat for Bats
Transect/ Spot County/ Timed Search Surveys	No survey required.	One survey visit per season (Spring – April/ May, Summer – June/ July/ August – Autumn – September/ October) inappropriate weather conditions for bats. Further surveys may be required if these survey visits reveal higher levels of bat activity than predicted by habitat alone.	One survey visit per month (April to October) in appropriate weather conditions for bats. At least one of the surveys should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period.	Up to two survey visits per month (April to October) in appropriate weather conditions for bats. At least one of the surveys should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period.
<b>AND</b>				
Automated/ Static Bat Detector Surveys	None required.	One location per transect, data to be collected on five consecutive nights per season (Spring – April/ May, Summer – June/ July/ August – Autumn – September/ October) in appropriate weather conditions for bats.	Two locations per transect, data to be collected on five consecutive nights per month (April to October) in appropriate weather conditions for bats.	Three locations per transect, data to be collected on five consecutive nights per month (April to October) in appropriate weather conditions for bats.