



Bat Survey - Preliminary Roost Assessment

23 Gravel Hill, Emmer Green, Reading RG4 8QN

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Executive summary

Arbtech Consulting Ltd. undertook a Preliminary Roost Assessment at 23 Gravel Hill, Emmer Green, Reading RG4 8QN on 9th January 2019. The aim of the assessment was to consider the value and suitability of the structures for roosting bats.

The development proposals are for *'Demolition and erection of new enlarged garage. Demolition of existing conservatory and erection of single storey rear extension. New porch, side extension and creation of first floor over existing bungalow'*. A planning application has been submitted to Reading Borough Council (planning Ref. 182127).

Recommendations - This is work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent.

Survey feature	Recommendations
B1 and B2 – Bats Negligible habitat value.	In the highly unlikely event that bats are unexpectedly found during any stage of the development, work should stop immediately and a suitably qualified ecologist should be contacted to seek further advice.
B1 and B2 – Birds No evidence of birds nesting	No further survey work required.

For full justification of these recommendations, please go straight to section [4.0 Conclusions, Impacts and Recommendations](#). Otherwise, the full report starts below.

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1.0 Introduction and Context

1.1 Background

Arbtech were commissioned by Tracy Saiao to undertake a Preliminary Roost Assessment (PRA) at 23 Gravel Hill, Emmer Green, Reading RG4 8QN. The assessment is informed by the Bat Conservation Trust Publication *Bat Surveys for Professional Ecologists – Good Practice Guidelines* (Collins, J. (Ed) 2016).

No previous reports have been produced for this site by Arbtech Consulting Ltd.

1.2 Site Context

The site is located at National Grid Reference SU 7112 7678 and covers an area of approximately 0.1ha. There are two buildings on site. Two buildings were surveyed as these will be affected by the proposed development. The site lies in a residential area in Emmer Green, within approximately 115m of woodland which provides foraging resources for bats.

1.3 Scope of the report

This report provides a description of all features suitable for roosting bats and evaluates those features in the context of the site and wider environment. It further documents any physical evidence collected or recorded during the site survey that establishes the presence of roosting bats. It provides information on constraints to the proposals as a result of roosting bats, and summarises the requirements for any further surveys, to inform subsequent mitigation proposals, achieve Planning or other statutory consent, and to comply with wildlife legislation.

The aim of the assessment was to determine the presence or evaluate the likelihood of the presence of roosting bats, and to gain an understanding of how they could use the site. To achieve this, the following steps have been taken:

- A desk study has been carried out, including a request for information from Berkshire and South Buckinghamshire Bat Group (BSBBG).
- A field survey has been undertaken, including an external survey and internal inspection where possible.
- An outline of likely impacts on any known roosts has been provided, based on current development proposals.
- Recommendations for further survey and assessment have been made, along with advice on European Protected Species Mitigation Licensing if appropriate.

A survey plan is presented in Appendix 1, the proposed Project Plan is included in Appendix 2 (where available), desk study results are provided in the Appendix 3 and a summary of relevant legislation can be found in Appendix 4.

1.4 Project Description

This report is prepared in support of a planning application that has been submitted to Reading Borough Council (planning Ref. 182127). The development proposals are for '*Demolition and erection of new enlarged garage. Demolition of existing conservatory and erection of single storey rear extension. New porch, side extension and creation of first floor over existing bungalow*'. The proposed site plan is included in Appendix 2 (where available).

2.0 Methodology

2.1 Desk Study methodology

Existing bat records relating to the site and a surrounding 2km radius (the study area) are required to conform with national guidelines and these have been obtained from Berkshire and South Buckinghamshire Bat Group (BSBBG) by the client. The data search is confidential information that is not suitable for public release.

A review of the following information sources has also been undertaken to inform the assessment:

- Landscape structure using aerial images from Google Earth and OS maps
- Designated sites, habitat and granted EPSL records held on Magic.gov.uk.

2.2 Site Survey methodology

The survey was undertaken by Joe Slade, Ecological Consultant (Natural England bat licence 2017-32515-CLS-CLS) on 09/01/2019.

All features that will be impacted by the project proposals were assessed for their bat roosting and/or commuting habitat. The surveyor systematically surveyed all features suitable for bats and signs of bat activity.

For any surveyed buildings:

A non-intrusive visual appraisal from the ground using binoculars, inspecting the external features of the building for potential access/egress points, and for signs of bat use. An internal inspection of the building was also made, including the living areas of derelict or abandoned buildings and the accessible roof spaces of all buildings, using an endoscope, torch and ladders. The surveyor paid particular attention to the floor and flat surfaces, window shutters and frames, lintels above doors and windows, and carried out a detailed search of numerous features within the roof space.

For any surveyed trees

A visual inspection from ground level using binoculars and where accessible an internal inspection of suitable roosting features using an endoscope, torch and ladders.

2.3 Breeding birds and other incidental observations

The surveyor also made note of any other ecological constraints observed during the survey, notably the likelihood of presence or signs of breeding birds, and the suitability of the site for barn owls *Tyto alba*.

2.4 Suitability Assessment

All affected survey features on site were categorised according to the likelihood of bats being present, in line with best practice guidelines (Collins, J. (ed) 2016). The features that dictate the likelihood of roosting bats are summarised in Tables 1 and 2 below. Roost suitability is classified as high, moderate, low and negligible and dictates any further surveys required before works can proceed.

Table 1: Features of a building that are correlated with use by bats

Likelihood of bats being present	Feature of building and its context
Higher	Buildings/structures with features of particular significance for roosting bats e.g. mines, caves, tunnels, icehouses and cellars. Habitat on site and surrounding landscape of high quality for foraging bats e.g. broadleaved woodland, tree-lined watercourses and grazed parkland. Site is connected with the wider landscape by strong linear features that would be used by commuting bats e.g. river and or stream valleys and hedgerows. Site is proximate to known or likely roosts (based on historical data).
Lower	A small number of possible roost sites/features, used sporadically by more widespread species. Habitat suitable for foraging in close proximity, but isolated in the landscape. Or an isolated site not connected by prominent linear features. Few features suitable for roosting, minor foraging or commuting.

Table 2: Features of a tree that are correlated with use by bats

Likelihood of bats being present	Feature of tree and its context
Higher	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.
Lower	A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential.

2.5 Limitations – evaluation of the methodology

It should be noted that whilst every effort has been made to describe the features on site in the context of their suitability for roosting bats, this does not provide a complete characterisation of the site. This survey provides a preliminary view of the likelihood of bats being present. This is based on suitability of the habitats on the site and in the local area, the ecology and biology of bats as currently understood, and the known distribution of bats as recovered during the desk study.

There were no specific limitations to the survey.

3.0 Results and Evaluation

3.1 Desk Study Results

A summary of desk study results is provided below; full details are included in Appendix 3.

3.2 Designated sites

There are two statutory designated sites within the study area and no known non-statutory sites. The site is situated in a Site of Special Scientific Interest (SSSI) Impact Risk Zone due to Highlands Farm Pit SSSI located approximately 5.6km north-east of the site. There will be no foreseen impacts on the SSSI due to the scale of the development and the distance from the SSSI.

Table 3: Designated sites within 2km radius of the site

Designated Site Name	Distance from Site (approx.)	Reasons for Notification from Natural England
Statutory Sites		
Clayfield Copse Local Nature Reserve (LNR)	1.2km north-east	Ancient woodland with service trees and a wild pear tree, bluebells, common orchids and wood anenomes. There are ancient boundary banks and ditches and plough baulks can be seen in the woodland.
Chilterns Area of Outstanding Natural Beauty (AONB)	1km north-west	The Chilterns contain an important diversity of habitats ranging from chalk grassland and to the country's most extensive areas of beech woodland, with the finest stretches protected <i>under EU legislation as Special Areas of Conservation</i> . The landscape contains many prehistoric traces including the great dyke of Grim's Ditch and the ancient Ridgeway and Icknield Way
Non-statutory Sites		
None known		

3.3 Landscape

A review of the designated sites, aerial photographs (Figure 1), the Magic database and OS maps has been undertaken. Collated together, the site's local bat habitat is described below:

The local landscape offers valuable resources for bats including well connected areas of deciduous and ancient woodland. Other priority habitats within 2km of the site include National Forest Inventory woodland, traditional orchard, woodpasture and parkland, lowland dry acid grassland, good quality semi-improved grassland and lowland calcareous grassland, all of which provide key habitats for bats. There is good connectivity via tree lines and hedgerows to further woodland and water bodies in the local landscape.

Priority habitats within 2km of the site are listed in Table 4 (below).

Table 4: Priority Habitat Inventory within 2km (Magic.gov.uk):

Habitat	Closest distance from site (approx.)
Deciduous woodland	115m south-west
Ancient woodland	380m north-east
National Forest Inventory woodland	115m south-west
Woodpasture and parkland	1.1km south-east
Traditional orchard	1.2km south-east
Lowland dry acid grassland	1.4km east
Good quality semi-improved grassland	460m south-west
Lowland calcareous grassland	700m north-west



Figure 1: Aerial photo of site, showing landscape structure

3.4 Historical records

The local bat group (BSBBG) has provided bat records for within 2km of the site. These can be provided on request and are summarised in Table 5. The biological records show that there are roosts of common crevice dwelling and void dwelling bat species present within the study area.

Table 5: Historical records of bats within 2km of the site

Common name	Scientific binomial	Number of records	Number of roost records	Maternity roost records
A bat species	<i>Chiroptera</i>	5	0	0
Brown long-eared bat	<i>Plecotus auritus</i>	29	11	1
Unidentified long-eared bat	<i>Plecotus sp.</i>	14	10	0
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	66	14	1
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	57	15	0
Nathusius's pipistrelle	<i>Pipistrellus nathusii</i>	2	1	0
Unidentified pipistrelle	<i>Pipistrellus sp.</i>	13	7	1
Noctule bat	<i>Nyctalus noctula</i>	48	10	1
Leisler's bat	<i>Nyctalus leisleri</i>	2	0	0
Natterer's bat	<i>Myotis nattereri</i>	2	1	0
Serotine	<i>Eptesicus serotinus</i>	6	1	0
Daubenton's bat	<i>Myotis daubentonii</i>	43	5	1
Whiskered bat	<i>Myotis mystacinus</i>	1	0	0
Whiskered/Brandt's bat	<i>Myotis mystacinus/brandtii</i>	1	0	0
Unidentified myotis bat	<i>Myotis sp.</i>	7	0	0

A search of the Magic database for granted European Protected Species Mitigation Licences (EPSMLs) for bats within a 2km radius found two licenced sites.

Table 6: Granted EPSMLs (bats) within 2km of the site

Case reference of granted application	Approx. distance from site	Bat Species Effectuated	Licence Start Date:	Licence End Date:	Impacts allowed by licence
2014-1343-EPS-BDX	1.9km south	S-PIP	01/10/2014	30/10/2014	Destruction of a resting site.
EPSM2011-3175	1.9km south-east	C-PIP	10/07/2011	31/08/2012	Destruction of a resting site.
EPSM2013-6025	478m north-east	BLE	26/07/2013	31/12/2013	Destruction of a resting site.
EPSM2012-4078	1.2km north-east	BLE; DAUB; NATT	05/10/2012	30/01/2014	Destruction of a resting site.
2017-32046-EPS-MIT	1.4km north-east	S-PIP	01/11/2017	30/04/2018	Destruction of a resting site.
EPSM2012-4727	1.6km north	C-PIP; S-PIP; BLE	16/10/2012	31/10/2012	Destruction of a resting site.
EPSM2012-4292	1.3km north-west	C-PIP; S-PIP; BLE	18/04/2012	31/10/2014	Destruction of a resting site.
2017-28760-EPS-MIT	1.4km north-west	BLE, C-PIP	09/05/2017	02/05/2022	Destruction of a resting site.
2015-18560-EPS-MIT	1.6km south-west	BLE, S-PIP	25/01/2016	31/01/2021	Destruction of a resting site.
2014-2980-EPS-MIT	1.7km south-west	C-PIP, S-PIP	12/09/2014	01/10/2015	Destruction of a resting site.

The EPSM licences in the surrounding area demonstrate that there are five species (common pipistrelle, soprano pipistrelle, Daubenton's bat, Natterer's bat and brown long-eared bat) that have undergone recent roost destruction within 2km of the site. The destruction of a roost located approximately 478m away could have caused the bats to relocate to nearby buildings and trees.

3.5 Field Survey Results

There are two survey buildings, designated as B1 and B2, this is illustrated in the map in Appendix 1. The environmental variables recorded at the time of the survey are shown in Table 7.

Table 7: Environmental variables during the survey

Date: 09/01/19	
Temperature	9°C
Humidity	77%
Cloud Cover	60%
Wind	1.6 mph
Rain	None

3.6 Site Feature descriptions and photos

B1 – front/south-western elevation (pictured opposite).

B1 is a detached single-storey brick-built bungalow with a cross-pitched hipped and gabled roof clad in concrete interlocking roof tiles. The roof tiles are in excellent condition with no raised or missing tiles.

All windows and doors are UPVC framed and are in excellent condition with no gaps in which bats could roost.

There is a small porch with a flat roof at the front of the building. The flat roof is bitumen felt lined and is in very good condition.

There is timber cladding on the south-western gable end which is in very good condition with no damaged or raised sections in which bats could roost.

B1 – rear/north-eastern elevation (pictured opposite).

There are timbers soffits around the eaves of the building which are in very good condition with no damaged areas in which bats could roost.

The brickwork around the building is in excellent condition with no damaged sections which could lead to presumed cavities.

At the rear of the building is a flat-roof conservatory which is in good condition with no gaps or raised sections in which bats could roost.



B1 – rear/north-eastern and north-western elevations (pictured opposite).

There is a single brick chimney that protrudes through the roof of B1. The brickwork on the chimney is in excellent condition and the lead flashing around the base of the chimney is tight-fitting with no gaps.



B1 – south-eastern elevation (pictured opposite).

The roof tiles are tight-fitting with no raised or slipped tiles in which bats could roost.



Interior

B1 – loft space (pictured opposite).

The roof structure is built from modern timber beams including the ridge beam. The roof is lined with bitumen felt which is in good condition with no gaps that bats could use to enter the loft space.

There are stored items on the floor of the loft space. These made it easier to search for evidence of bat activity because when present, bat droppings can accumulate on the stored items.

B1 – loft space (pictured opposite).

There is floor to ceiling cobweb throughout the loft space which indicates a lack of recent flying activity from void dwelling bats, such as brown long-eared bats. The loft space is well sealed with no daylight entering.

Approximate internal dimensions: 9m long x 9m wide x 2m high (floor to ridge height).

Internal conditions: temperature 18°C, humidity 55%.

Evidence of bats

No live bats or secondary evidence of bat activity i.e. droppings or insect remains was found internally or externally on the building.



B2 – south-western and south-eastern elevations (pictured opposite).

B2 is a single-storey concrete-built garage with a pitched and gabled roof. The roof is constructed from corrugated asbestos which is in good condition with no raised or damaged sections in which bats could roost. There is timber cladding on the gable ends which is in good condition with no gaps that are suitable for bat roosting. There is a metal garage door which is tight-fitting with no gaps around the sides that bats could use to enter the building.



B2 – south-eastern and north-eastern elevations (pictured opposite).

The building has pebble dash rendered walls which are in excellent condition with no cracks which could lead to presumed cavities.

The doors and windows are timber framed and are in very good condition.



Interior

B2 – interior, facing south (pictured opposite).

The structure of B2 is constructed from concrete and metal. A significant amount of daylight enters the building through the windows. As such, there are no dark areas which are suitable for bat roosting. There are stored items on the floor of the garage. These made it easier to search for evidence of bat activity because when present, bat droppings can accumulate on top of the stored items.

Approximate internal dimensions: 8m long x 4m wide x 3m high (floor to ridge height).

Internal conditions: temperature 11°C, humidity 60%.

Evidence of bats

No live bats or secondary evidence of bat activity i.e. droppings or insect remains was found internally or externally on the building.

Breeding birds and other incidental observations

There was no evidence of nesting birds located internally or externally on the survey buildings.



4.0 Conclusions, Impacts and Recommendations

4.1 Informative guidelines

Bats are protected under the Wildlife and Countryside Act and Conservation Regulations; see Appendix 3 for a summary of legislation protecting bats in the UK. Legislation protects all wild birds whilst they are breeding, and prohibits the killing, injuring or taking of any wild bird or their nests and eggs. Certain species of bird, including the barn owl, are subject to special provisions; it is an offence to disturb any bird or their young during the breeding season.

There are three possible outcomes of this survey, each with specific recommendations. These are outlined below:

Confirmed bat roost

Best practice survey guidelines (Collins, 2016) recommends additional surveys for confirmed roosts. Three further surveys are required to characterise the bat roost present including species, roost type and access points to inform a European Protected Species Mitigation Licence (EPSML) application with Natural England. Surveys must be completed during the active bat season (May – September). At least two of the surveys should be completed during the optimal survey period mid-May to August, and at least one of the surveys should be a dawn re-entry survey (Collins, J. 2016).

Low, moderate or high likelihood of a bat roost present

Best practice survey guidelines (Collins, 2016) recommends additional surveys for features assessed as having low to high suitability for roosting bats. One, two or three further surveys are required to confirm presence/likely-absence of a bat roost, based on a low, medium or high roost likelihood evaluation. Surveys must be completed during the active bat season (May – September). If more than one survey is recommended, at least one of them should be completed during the optimal survey period mid-May to August, and at least one of the surveys should be a dawn re-entry survey (Collins, J. 2016). The survey effort recommended at this stage is iterative (if less than three) and if bats are recorded emerging from the buildings, a further survey will be required to provide sufficient information to inform an EPSML application to Natural England.

Negligible likelihood of a bat roost present

Buildings assessed as comprising negligible suitability for roosting bats do not normally require further surveys. However, if bats are found during any stage of the development, work should stop immediately and a suitably qualified ecologist should be contacted to seek further advice.

Appropriate justification for this assessment is provided in Section 3 and Tables 1 and 2 of this report.

4.2 Evaluation

Taking the desk based assessment and site survey results into account, the following value for roosting bats has been placed on each site survey feature.

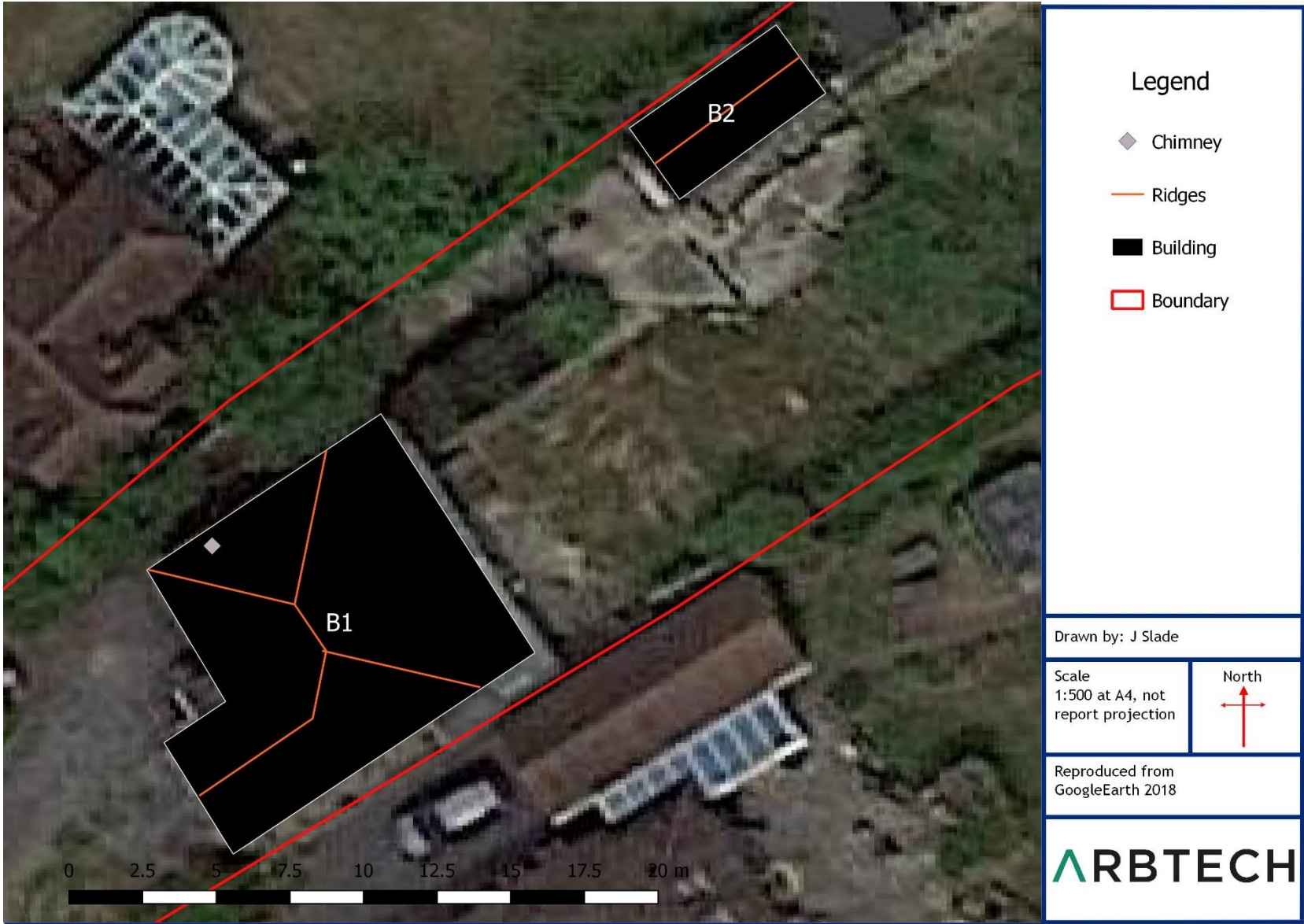
Table 7: Evaluation of buildings on site

Ref	Survey assessment conclusions (with justification)	Foreseen impacts	Recommendations	Enhancements
				The Local Planning Authority has a duty to ask for enhancements under the NPPF and circular 06/2005: Biodiversity and Geological Conservation. Para.99
Bats B1	This building has negligible habitat value for bats . The building is in very good condition with no damaged sections in which bats could roost. The loft space is well sealed with no gaps that bats could use to enter the loft.	No foreseen impacts	No further survey work required.	The installation of a bat box on a mature tree within the site boundaries will provide additional roosting habitat for bats e.g. 1FF Schwegler Bat Box Chillon Woodstone Bat Box Bat boxes should be positioned 3-5m above ground level facing in a south/south-westerly direction with a clear flight path to and from the entrance.
Bats B2	This building has negligible habitat value for bats . The building is in very good condition with no damaged sections in which bats could roost.	No foreseen impacts	No further survey work required.	
Birds B1 and B2	The site provides negligible habitat value for barn owls . There was no evidence of birds nesting internally or externally on the survey building.	No impacts foreseen.	No further survey work required.	Install one Schwegler bird box on a retained tree on site e.g. Schwegler 1SP, Schwegler 1B nest boxes or Schwegler 2H Robin Boxes. Nest boxes should be positioned approximately 3m above ground level where they will be sheltered from prevailing wind, rain and strong sunlight. Small-hole boxes are best placed approximately 1-3m above ground on an area of the tree trunk where foliage will not obscure the entrance hole.

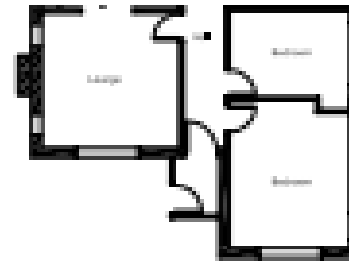
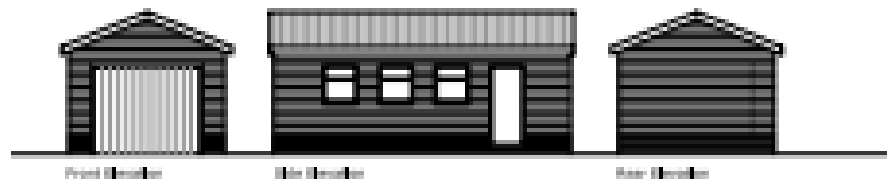
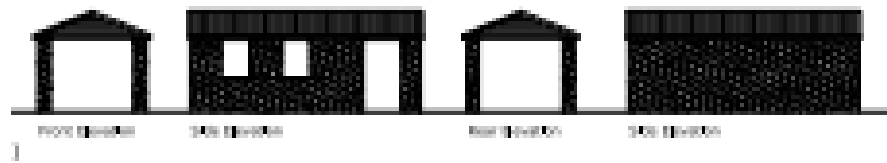
5.0 Bibliography

- British Trust for Ornithology (2016) www.bto.org/about-birds/nbw/putting-up-a-nest-box
- Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists — Good Practice Guidelines, 3rd edition, Bat Conservation Trust, London.
- Garland & Markham (2008) Is important bat foraging and commuting habitat legally protected?
- Google Earth (2019) accessed on 11/01/19.
- Magic database (2019) <http://www.magic.gov.uk/MagicMap.aspx> accessed on 11/01/19.
- Mitchell-Jones, A.J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough.

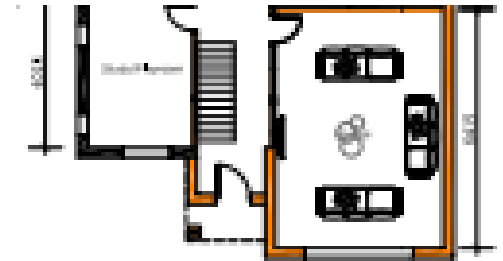
Appendix 1: Survey Plan



Appendix 2: Proposed Site Plan



Existing Ground Floor plan (1:100)



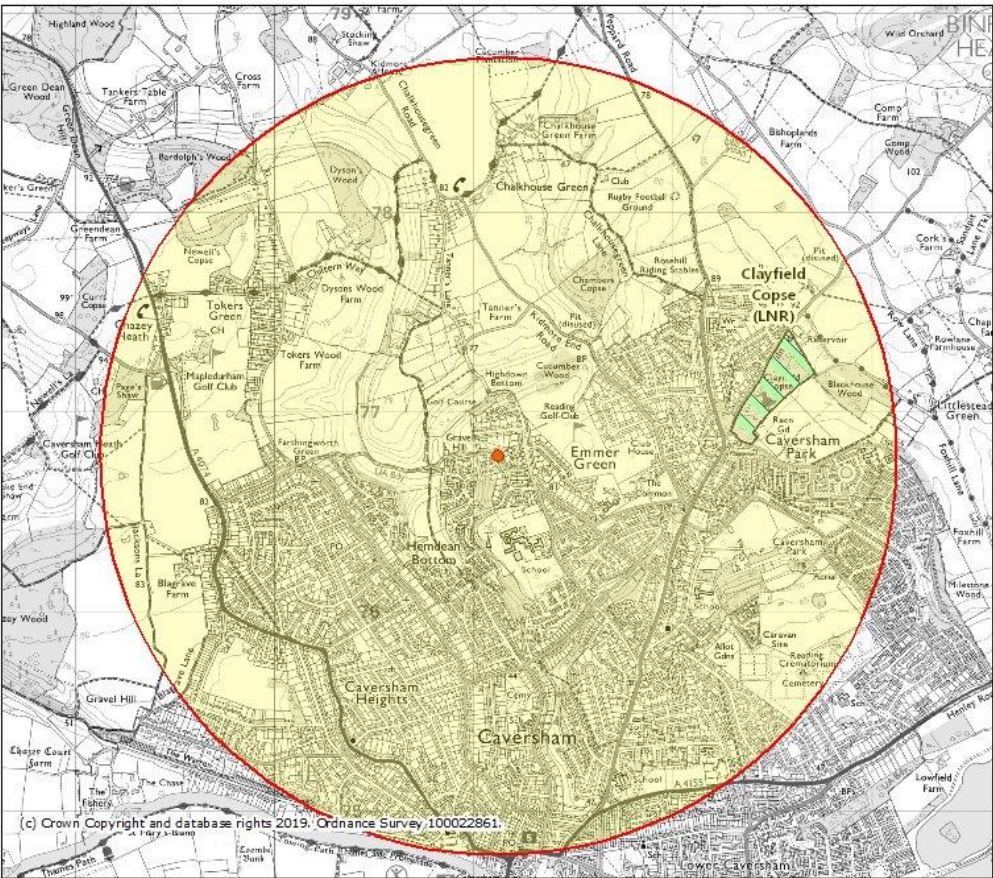
Proposed Ground Floor plan (1:100)



Appendix 3: Desk Study Information
Designated sites within 2km:

MAGiC

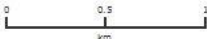
Magic Map



Legend

Local Nature Reserves
(England)

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xmin = 466600
ymin = 174800
xmax = 475600
ymax = 178900

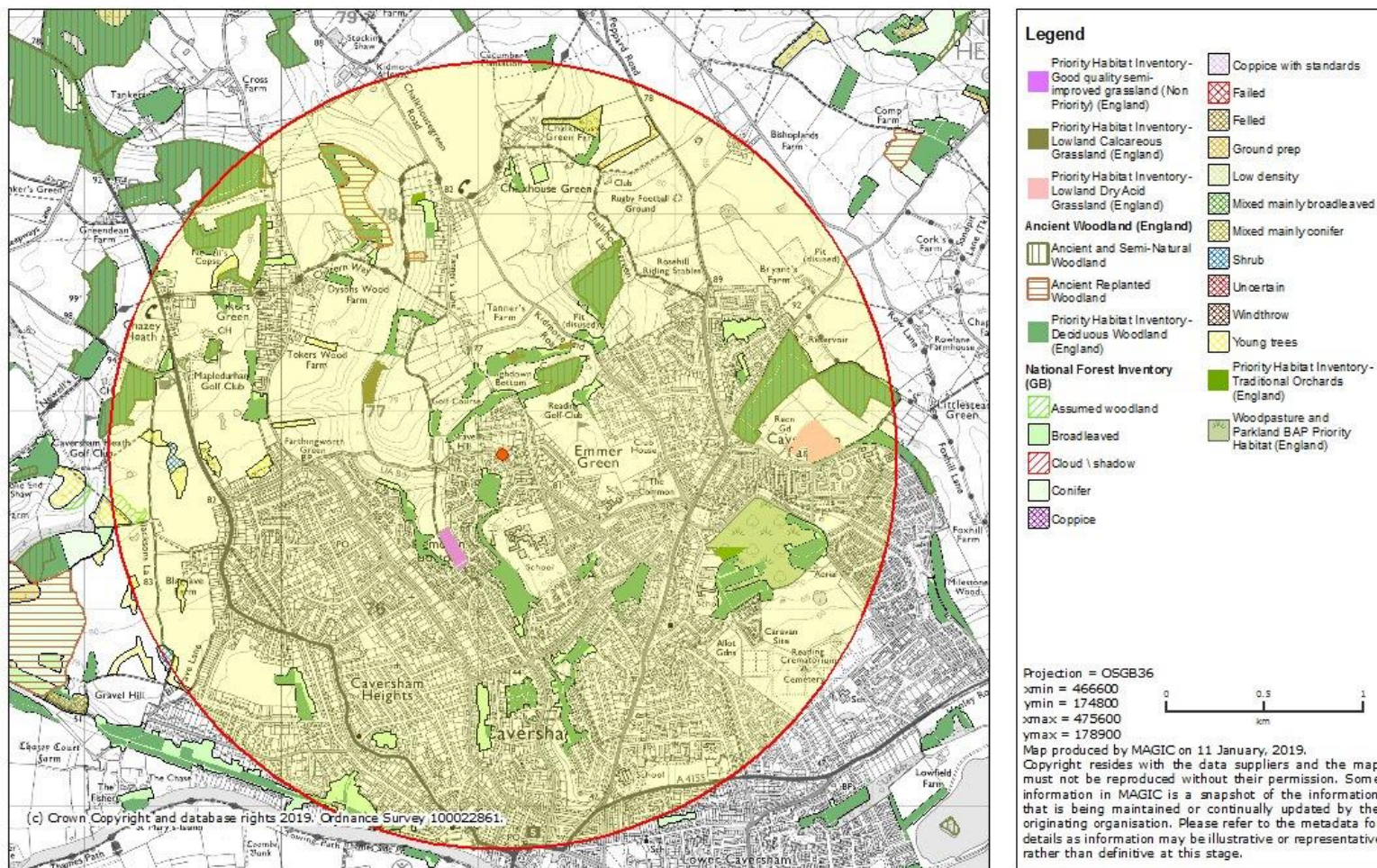


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that is being maintained or continually updated by the
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details as information may be illustrative or representative
rather than definitive at this stage.

Priority habitats within 2km:

MAGiC

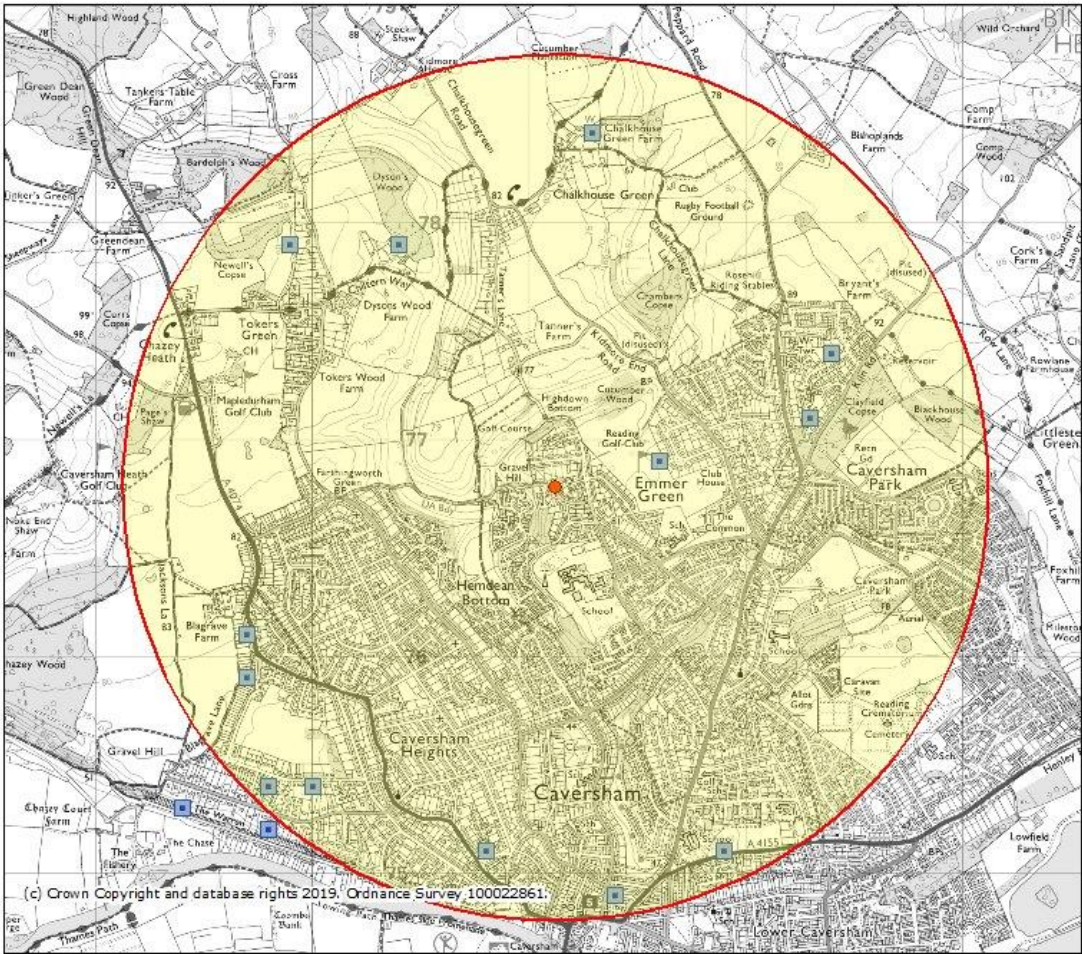
Magic Map



EPSL's within 2km:

MAGIC

Magic Map



Legend

Granted European Protected Species Applications (England)

- Amphibian
- Bat
- Cetacean
- Invertebrate
- Other Mammal
- Plant
- Reptile

Projection = OSGB36
xmin = 466600
ymin = 174800
xmax = 475500
ymax = 178900
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Appendix 4: Legislation and Planning Policy related to bats

LEGAL PROTECTION

All species of bat are fully protected under The Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2.

Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species (e.g. all bats)
- Deliberate disturbance of bat species as:
 - a) to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young
 - (ii) to hibernate or migrate
 - b) to affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

Bats are also protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale

Effect on development works:

A European Protected Species Mitigation (EPSM) Licence issued by the relevant statutory authority (e.g. Natural England) will be required for works likely to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficiency/success to be monitored.

The legislation may also be interpreted such that, in certain circumstances, important foraging areas and/or commuting routes can be regarded as being afforded *de facto* protection, for example, where it can be proven that the continued usage of such areas is crucial to maintaining the integrity and long-term viability of a bat roost (Garland & Markham, 2008).

NATIONAL PLANNING POLICY (ENGLAND)***National Planning Policy Framework***

The National Planning Policy Framework promotes sustainable development. The Framework specifies the need for protection of designated sites and priority habitats and species. An emphasis is also made on the need for ecological infrastructure through protection, restoration and re-creation. The protection and recovery of priority species (considered likely to be those listed as UK Biodiversity Action Plan priority species) is also listed as a requirement of planning policy.

In determining a planning application, planning authorities should aim to conserve and enhance biodiversity by ensuring that: designated sites are protected from harm; there is appropriate mitigation or compensation where significant harm cannot be avoided; opportunities to incorporate biodiversity in and around developments are encouraged; and planning permission is refused for development resulting in the loss or deterioration of irreplaceable habitats including aged or veteran trees and also ancient woodland.

The Natural Environment and Rural Communities Act 2006 and the Biodiversity Duty

Section 40 of the Natural Environment and Rural Communities (NERC) Act, 2006, requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'.

Section 41 of the Act (Section 42 in Wales) requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity.' This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.