



Preliminary Roost Assessment Survey

1, Sylvan Walk, Reading, Berkshire, RG30 3HJ

Ms. Ross Green

Status	Issue	Name	Date
Draft	1	Josephine McCarthy, Consultant (Natural England bat licence number: 2019-41480-CLS-CLS).	10/03/2021
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Final	1.2	Josephine McCarthy, Consultant (Natural England bat licence number: 2019-41480-CLS-CLS).	10/03/2021

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Executive summary

Arbtech Consulting Limited was commissioned by Ms Ross Green to carry out a Preliminary Roost Assessment, (PRA) at 1, Sylvan Walk, Reading, Berkshire, RG30 3HJ. The survey was completed on 10th March 2021. The aim of the assessment was to search for bats/field signs of bats and to consider the value and suitability of the structures for roosting bats. 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.

Project description

The development proposals are for 'Part one, part two storey side and rear extension'. A planning application is being prepared for submission to Reading Borough Council.

Summary of Recommendations - This is work you will need to commission (if any) to obtain planning permission and comply with legislation.

Building Ref:	Summary	Recommendations
B1 -	In line with Good Practice Guidelines (Collins, J. (Ed) 2016, the building was assessed to have a negligible habitat value for supporting roosting bats. This is due to a lack of suitable external features for crevice dwellings species and no points of entry for void dwelling species. No evidence of bat use was found, inside or out. As a result, bats are very unlikely to be roosting within B1. Field survey results are on page 11. For a complete justification please go straight to Table 7, section 4.0 Conclusions, Impacts and Recommendations, (p.16).	No further surveys required. In the unlikely event that bats are found during any stage of the development, work should stop immediately and a suitably qualified ecologist should be contacted for advice. New lighting schemes for the developed site should follow guidance from the Bat Conservation Trust. (See, recommendations, p16). The creation of additional habitat for bats is recommended in line with the local authorities' duty to ask for enhancements under the NPPF, (Feb 2019).

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1.0 Introduction and Context

1.1 Background

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 by Arbtech.

1.2 Site Context

The site is located at National Grid Reference SU 6928 7175 and has an area of approximately 0.1ha. There is one building within the survey boundary, a semi-detached dwelling, designated B1 in this report. This building was surveyed as it will be affected by the proposals.

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.
- 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 the requirements of a European protected species mitigation Licence (EPSML) application if appropriate.

The site location is shown in Appendix 1, site plans and proposed plan in Appendix 2, (where provided) and desk study results in Appendix 3. Relevant legislation is presented in Appendix 4.

1.4 Project Description

The development proposals are for 'Part one, part two storey side and rear extension'. A planning application is being prepared for submission to Reading Borough Council.

2.0 Methodology

2.1 Desk Study methodology

The desk study included a 2km radius review of statutory and non-statutory designated sites, Biodiversity Action Plan (BAP) Priority Habitats and granted EPSML records for bats held on Magic database. An assessment of the surrounding landscape structure was also completed using aerial images from Google Earth and OS maps.

Existing bat records relating to the site and a surrounding 2km radius are required to conform to national guidelines. The data search is confidential information that is not suitable for public release and has been analysed and summarised for presentation in this report.

2.2 Site Survey methodology

The survey was undertaken by Josephine McCarthy (Natural England bat licence number: 2019-41480-CLS-CLS).

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(s) 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 and safe to do so, an internal inspection of potential 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

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 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.

Limitations:

Internal: Direct access to the eaves is restricted due to stored items and the steep overhang of the roof. However, it was possible to look down into the eaves with a high-powered torch from the centre of the void. No daylight was observed to enter. The external survey found no gaps of bat value in the corresponding roof tiles or soffits.

3.1 Desk Study Results

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

3.2 Designated sites

Details of any statutory and non-statutory designated sites within a 2km radius of the survey site, including their reasons for notification, are provided in Table 3 below.

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

Designated Site Name	Distance from Site (approx.)	Reasons for Notification from Natural England and/or BRD or LPA policy maps
Statutory Sites		
Lousehill Copse, LNR	~300m north-west	<i>'Semi-ancient woodland surrounded by housing. Mature oak and hazel woodland with some coppice. There are many bluebells and other spring flowers, streams, relics of old ponds and boggy areas. The site is on sand and gravel. There is an open meadow with gorse and broom in the northern section with sandy soil which children use as a digging area.'</i>

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

Habitat	Closest distance from site
Coastal and Floodplain Grazing Marsh	Adjacent to south boundary
Deciduous Woodland	~30m south-west
Woodpasture and Parkland	~600m north-west

3.3 Landscape

The local landscape provides excellent resources for urban species of bat. The site is located on the boundary of suburban development and natural, dark-sky habitat with numerous large lakes and water courses nearby. These include Holly Brook and the River Kennet, both within 500m of the site. The aquatic habitats will support abundant insect populations for foraging bats and building oriented species of bat will seek out roosting opportunities within nearby development.

Landscape



Figure 1: Aerial photo of site, showing landscape structure

3.4 Historical records: *Records from the past 10 years

The client was advised by Arbtech that local bat records from Berkshire Bat Group are unlikely to contribute to the assessment, in this instance, owing to the negligible habitat value of the building to support roosting bats. A search of the Magic database for granted European protected species mitigation licences (EPSMLs) within a 1km radius of the site has been completed. Displaced bats from Licenced sites <1km away from the survey site will find alternative habitat either within the mitigation measures implemented as part of the Licence, or will relocate to other known roosts sites in close proximity to the Licenced site. The EPSML records show that one record occurs within 1km. (Three bat roosts have been destroyed within 2km). The nearest record is dated 2017-2018. The records confirm that common bat species are known to use local development for roosting. Given the combination of urban structures and good-quality habitat for bats adjacent to the south, this is likely to be an underrepresentation of the local bat population and a higher number of bat roosts are likely to occur in unmolested structures within the search area.

Table 5: Granted EPSMLs (bats) within 2km of the site

Case reference of granted application	Approx. distance from site	Bat Species Effected	Licence Start Date:	Licence End Date:	Impacts allowed by licence
EPSM2010-2590	~700m north-east	S:PIP	28/10/2011	31/08/2014	Destruction of a breeding site.
2015-14868-EPS-MIT	~1,400m south-east	BLE, C-PIP	10/12/2015	30/11/2018	Destruction of a resting place.
2015-15548-EPS-MIT	~1,700m south-east	C-PIP, S-PIP	02/11/2015	30/10/2020	Destruction of a resting place.
2017-32379-EPS-MIT	~1,900m north-east	C:PIP	04/12/2017	29/11/2022	Destruction of a resting place.

3.5 Field Survey Results

The weather conditions recorded at the time of the survey are shown in Table 6.

Table 6: Weather conditions during the survey

Date: 10/03/2021	
Temperature	11.2°C
Humidity	99%
Cloud Cover	90%
Wind	9mph
Rain	Occasional light rain

3.6 Site Feature descriptions and photos

B1 - west elevation (front).

B1 is a semi-detached, brick-built dwelling with a gable roof formed of concrete-mix tiles. A single-storey, flat roofed addition is present on the south-east.

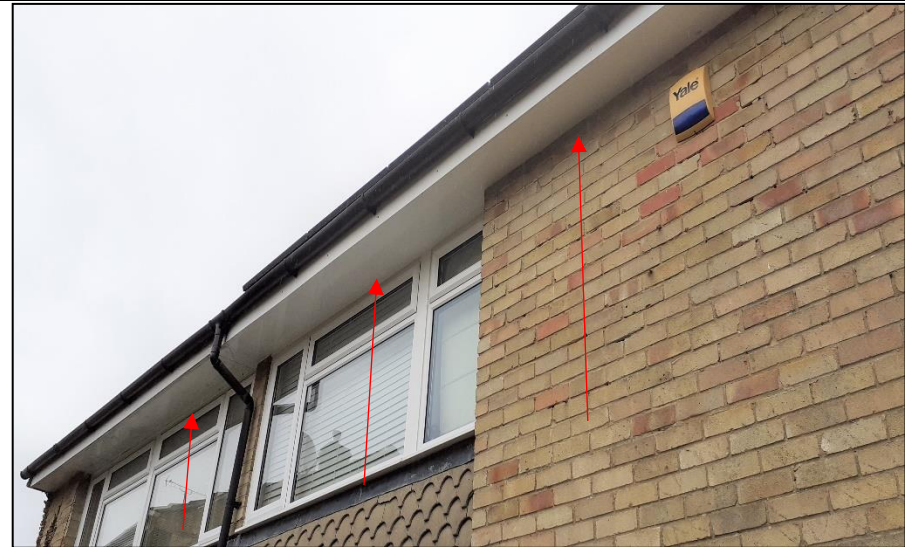
The roof contains a central chimney stack and mounted solar panels on the west elevation, (pictured opposite).

The roof tiles, where seen, including the rear roof pitch, appear in excellent condition throughout with no missing, loose or raised examples. The ridge, verge and end tiles are well mortared with no suitable gaps for roosting bats.

Although the tiles below the panels cannot be viewed directly, it is evident from the internal inspection that there are no bat access points to the void via the tiles. A limited inspection was conducted below the solar panels and no suitable bat habitat was identified.

**B1 - west elevation (front).**

The PVCu soffits and fascia appear in excellent condition throughout with no gaps along their join with the brickwork and no points of entry for bats identified. The picture opposite shows the front elevation which is representative of their condition throughout.



B1 – south gable.

The verge and apex tiles are well mortared with no points of entry for bats identified.

**B1 – West elevation, (front).**

Hanging tiles occur on the front and rear elevations. The tiles are concrete-mix, machined tiles which sit flush to the tile walls. There are no loose, missing or raised examples which bats could exploit. (example pictured opposite).



B1 – south-east corner

The roof felt on the single storey addition is tight-fitting to the fascia on all elevations. The lead flashing along its join to the house is also well sealed to the brickwork. No suitable gaps for bats were identified.

**B1- Internal – looking north at the north gable end.**

The void is formed of modern timbers (with a central ridge) and is lined with bitumen. The liner appears in a good condition throughout with one minor hole noted on the eastern pitch. (No daylight enters the hole and there are no gaps in the roof tiles above to provide crawl space for bats or bat access). The eaves appear to be closed with tight-fitting soffits. Although the overhang is steep and access to the eaves is restricted due to stored items, the void is small and it was possible to look down into the eaves with a high-powered torch. No daylight enters the void and no points of entry for bats were identified. The void floor and the flat surfaces of the stored items were inspected for evidence of bats, e.g., bat droppings and feeding remains. Approximate internal dimensions: 4m length x 4m width x 1.5m height, (floor to ridge height). Internal conditions: temperature: 13.7°C, relative humidity: 53%



B1 –Showing the south gable wall.

The ridge beam and the floor below the ridge where easily inspected for evidence of bat use and it was possible to reach both gable walls.

**B1 – Looking South-east corner, (rear).**

Showing an example of the closed eaves on the west. The arrow opposite is pointing down to the soffits which appear to be tight-fitting to the brickwork externally. No daylight enters and no ingress/egress points for bats were identified at the eaves.



4.0 Conclusions, Impacts and Recommendations

4.1 Informative guidelines

Bats are protected under the Wildlife and Countryside Act and Conservation Regulations (see Appendix 4 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). If two or one further survey is recommended these surveys must be completed during the optimal survey period (mid-May to August). For low and moderate roost likelihood evaluation the survey effort recommended at this stage is iterative and if bats roosts are confirmed in the building, a further survey will be required to provide sufficient information to inform an EPSML application to Natural England.

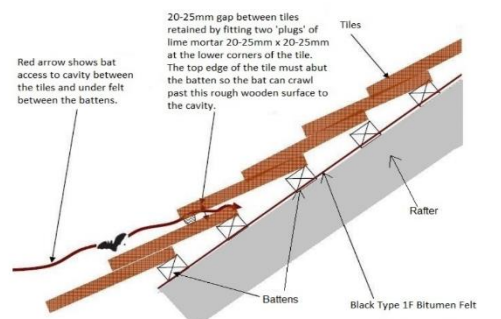
Negligible likelihood of a bat roost present

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 for further advice.

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
B1	In line with Good Practice Guidelines (Collins, J. (Ed) 2016, the building was assessed to have a negligible habitat value for supporting roosting bats. The roof tiles, where seen appear in an excellent condition with no gaps to support crevice dwelling species of bat. The eaves are closed on all elevations with tight-fitting soffits and no points of entry to the roof-void were identified. No evidence of bat use was present, inside or out. It is highly unlikely the building is host to a bat roost. The dwelling is adjacent to riparian habitat and bats are likely to commute and forage in close proximity increasing the likelihood that bats could commute across the site Any changes to existing lighting schemes could impact on bat commuting routes.	No direct impacts on bats are foreseen as a result of the development works. No further surveys are recommended for this site. Research shows that development and its associated artificial lighting can impact on bat habitat and foraging areas. In order to avoid an increase in local levels of light pollution, any new lighting scheme should follow guidance from the Bat Conservation Trust.	No further survey required. In the unlikely event that bats are found during any stage of the development, work should stop immediately and a suitably qualified ecologist should be contacted for advice. Lighting Low impact lighting strategies will be adopted from the guidance outlined in the new Bats and Lighting Publication produced by the Institution of Lighting Professionals and the Bat Conservation Trust "Guidance Note 08/18 Bats and artificial lighting in the UK Bats and the Built Environment series publication: http://www.bats.org.uk/news.php/406/new_guidance_on_bats_and_lighting. The lighting on the site will: • Use narrow spectrum light sources to lower the range of species affected by lighting • Use light sources that emit minimal ultra-violet light • Avoid white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are required in order to manage the blue shortwave length content they should be of a warm / neutral colour temperature <4,200 kelvin. • Not use bare bulbs and any light pointing upwards. The spread of light will be kept in line with or below the horizontal. Light spill will be reduced via the use of low-level lighting used in conjunction with hoods, cowls, louvers and shields. Lights will also be	The Local Planning Authority has a duty to ask for enhancements under the NPPF (Feb 2019) The new roof tiles can be laid in such a way as to create suitable gaps for crevice dwelling bats. This can be achieved by maintaining a 20-25mm gap below occasional tiles. The gaps can be created using mortar at the corners to lift the tile, as pictured below.   Alternatively, integrated bat boxes, including bat bricks and bat access tiles, can also be incorporated into the new roof/walls during construction to provide additional roosting habitat on site. Integrated products can be obtained from:

			directional to ensure that light is directed to the intended areas only. External lighting will be on PIR sensors that are sensitive to large objects only (so that they are not triggered by passing bats) and will be set to the shortest time duration to reduce the amount of time the lights are) and will be set to the shortest time duration to reduce the amount of time the lights are on. Wall lights and security lights will be 'dimmable' and set to the lowest light intensity settings. There are several products on the market that allow the control of the light intensity and the duration that the lights are on. All lighting on the developed site will make use of the most up to date technology available.	http://www.habibat.co.uk/integrated-products https://www.wildcare.co.uk/integrated-eco-bat-box-crevice.html The wider site can be enhanced for a variety of species by installing of a minimum of one bat box on trees in, or around the site boundaries e.g. Schwegler 2F Bat Box Schwegler 1FF Bat Box Schwegler 2FN Bat Box Improved Cavity Bat Box Bat boxes should be positioned 3-5m above ground level facing south or south-westerly with a clear flight path to and from the entrance. Bat boxes should also be positioned away from any artificial light sources.
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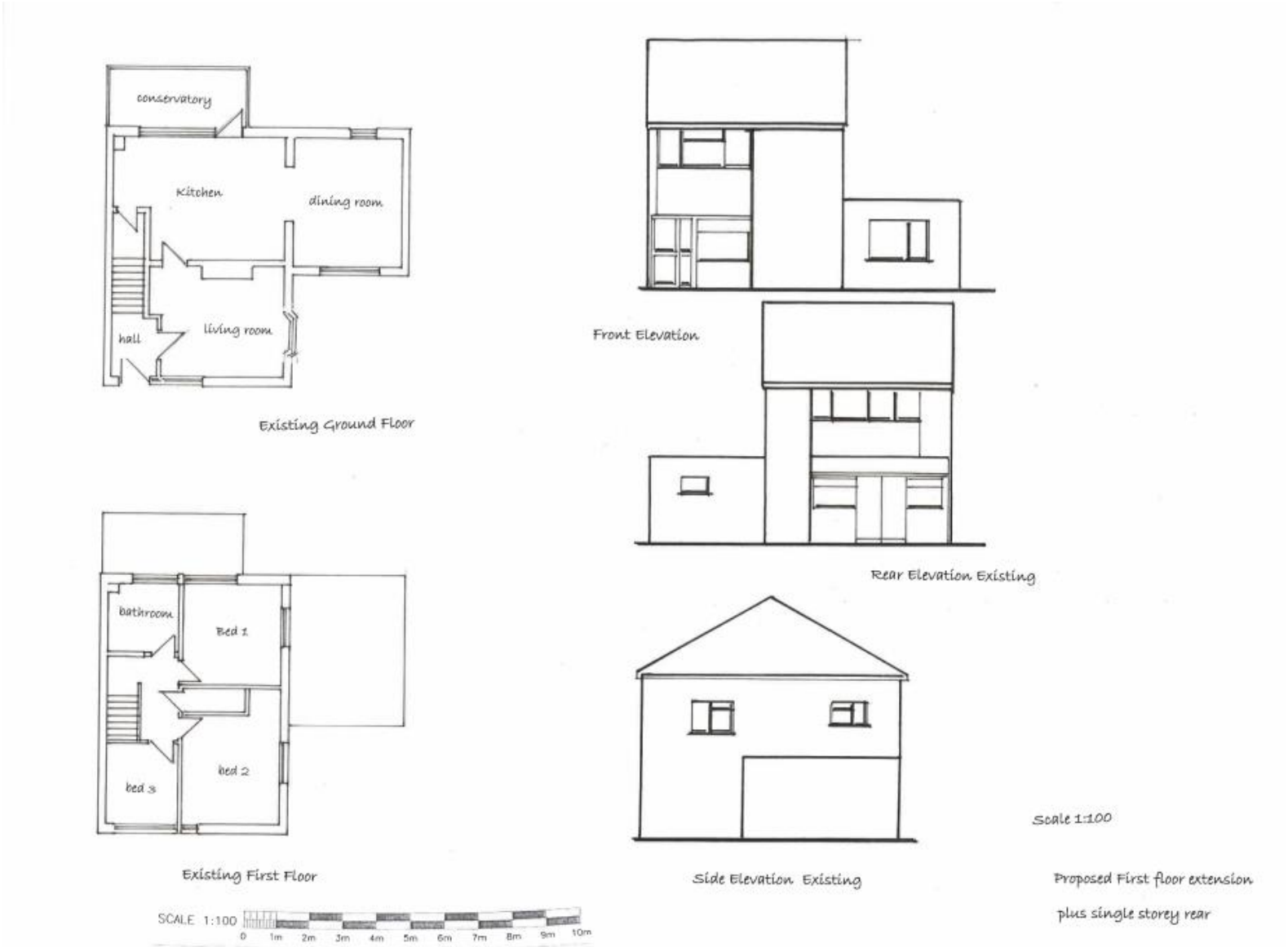
5.0 Bibliography

- 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 2021.
- Magic database (2019) <http://www.magic.gov.uk/MagicMap.aspx> accessed 2021.
- Mitchell-Jones, A.J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough.

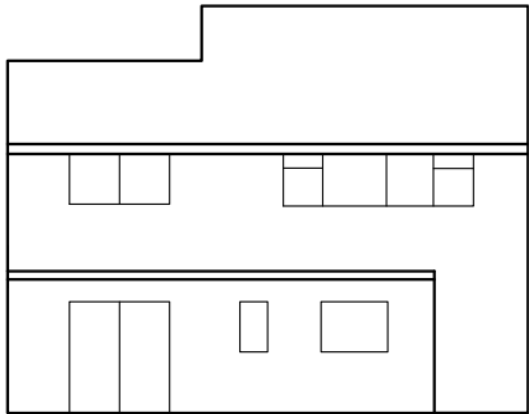
Appendix 1: Site Location



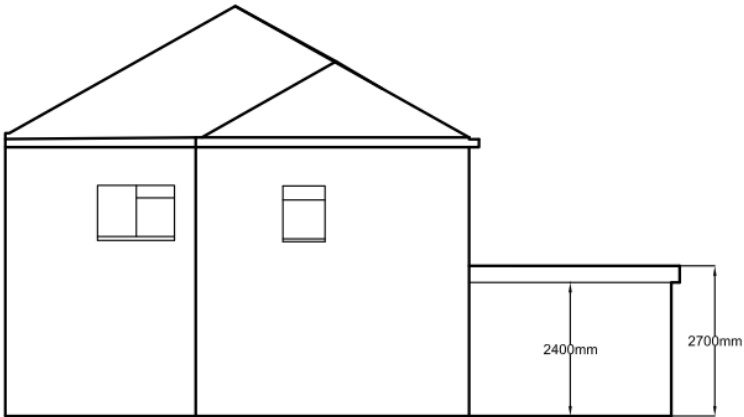
Appendix 2: Existing Elevations



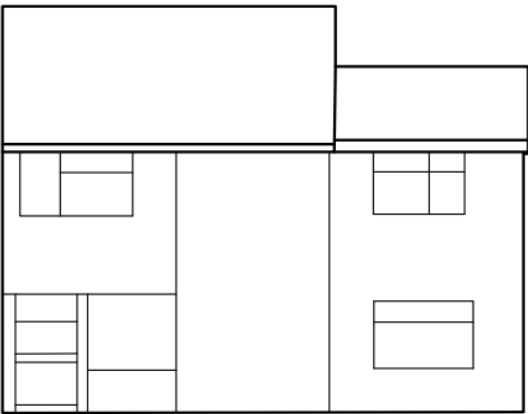
Proposed Elevations



Proposed Rear Elevation



Proposed Side Elevation



Proposed Front Elevation



Scale 1:100 @ A3

First Floor Side & Single Storey Rear Extension

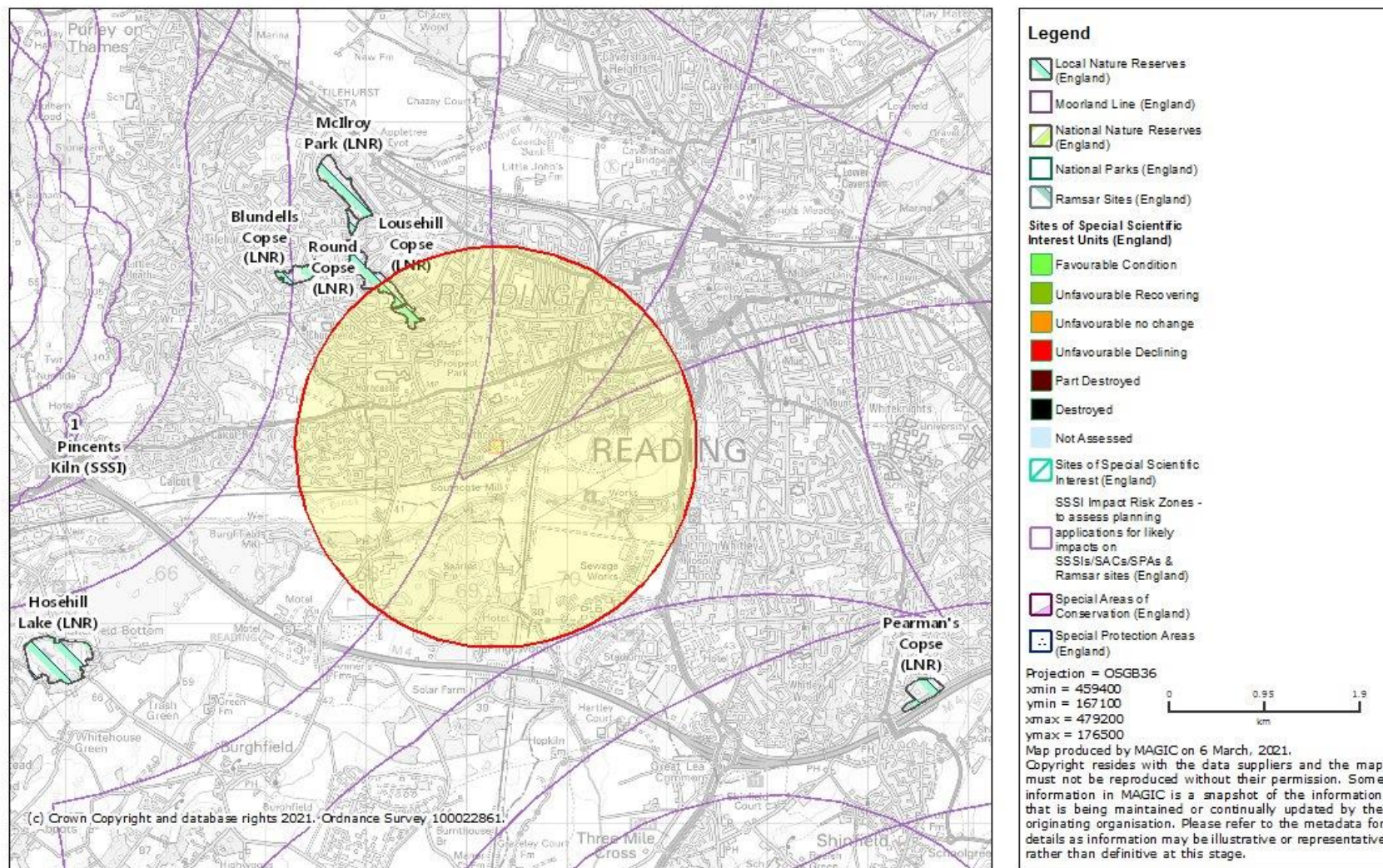
1 Sylvan Walk, Reading, RG30 3HJ

Drwg RG-002

Appendix 3: Desk Study Information

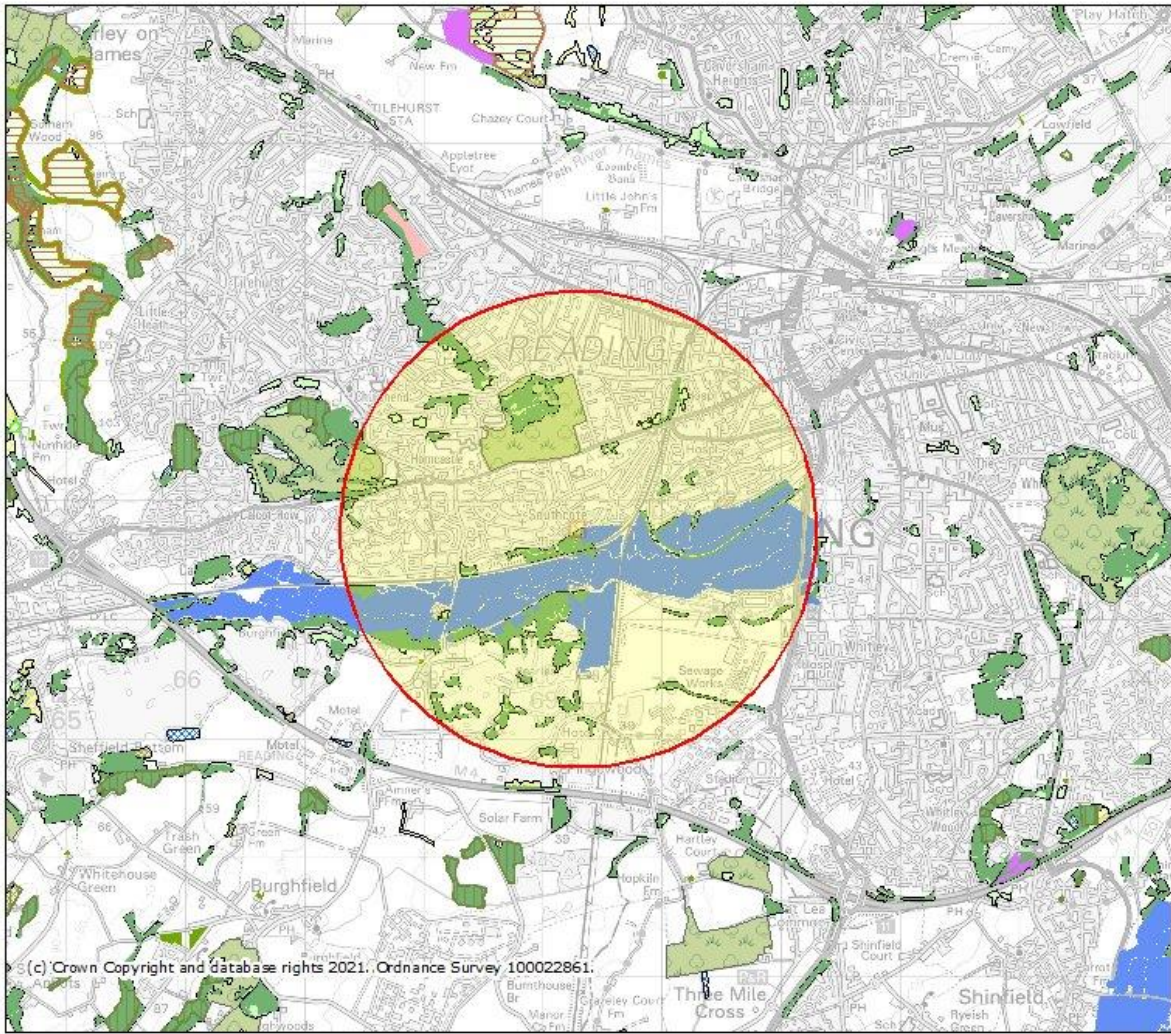
MAGiC

Designated sites



MAGiC

Habitats



Legend

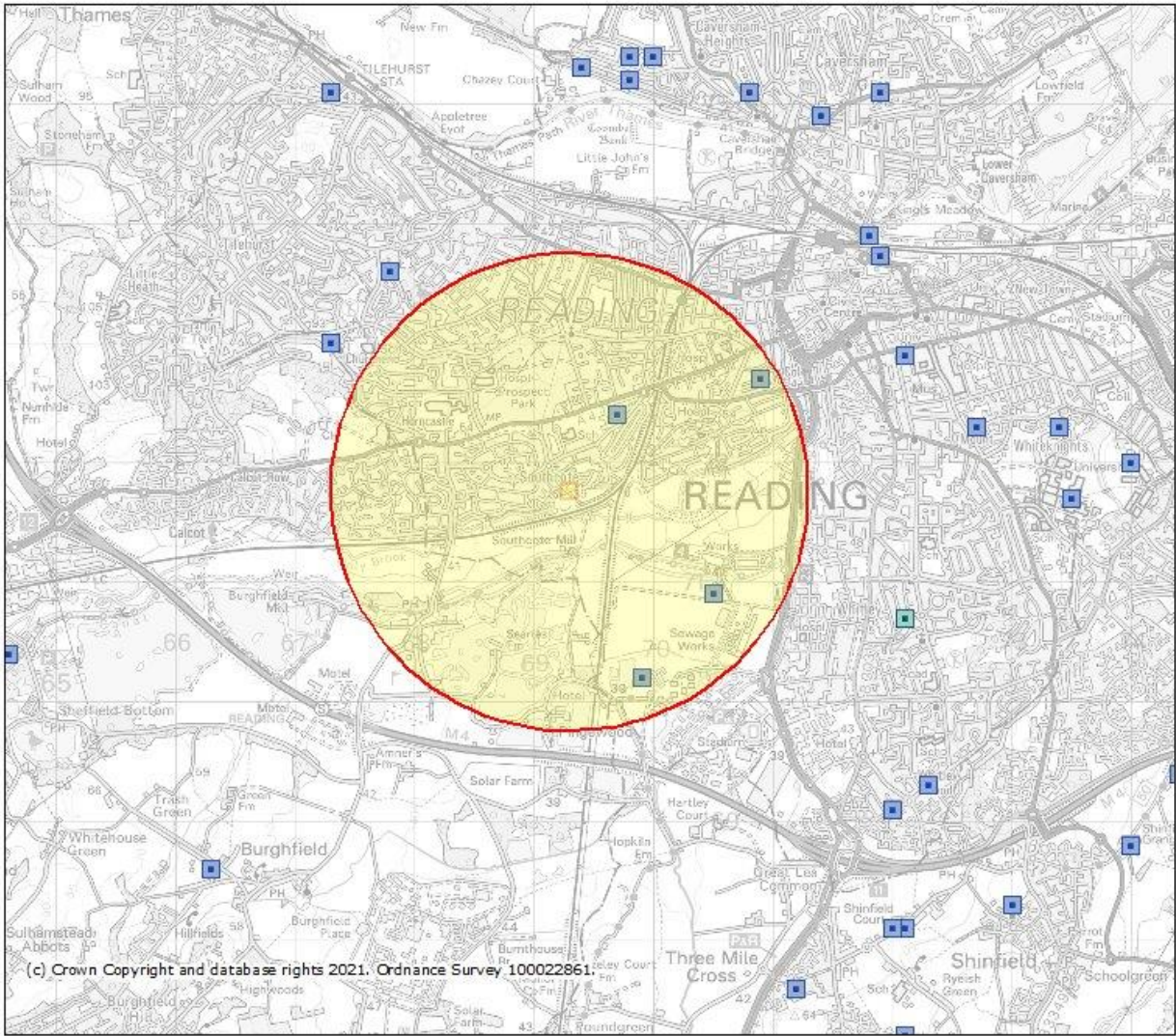
Priority Habitat Inventory - Coastal Saltmarsh (England)	Priority Habitat Inventory - Lowland Calcareous Grassland (England)
Priority Habitat Inventory - Coastal Sand Dunes (England)	Priority Habitat Inventory - Lowland Dry Acid Grassland (England)
Priority Habitat Inventory - Coastal Vegetated Shingle (England)	Priority Habitat Inventory - Lowland Meadows (England)
Priority Habitat Inventory - Maritime Cliffs and Slopes (England)	Priority Habitat Inventory - Purple Moor Grass and Rush Pasture (England)
Priority Habitat Inventory - Mudflats (England)	Priority Habitat Inventory - Upland Calcareous Grassland (England)
Priority Habitat Inventory - Saline Lagoons (England)	Priority Habitat Inventory - Upland Hay Meadows (England)
Saline Lagoons (Wales)	Priority Habitat Inventory - Lowland Heathland (England)
Saltmarsh (Wales)	Priority Habitat Inventory - Mountain Heaths and Willow Scrub (England)
Sand Dunes (Wales)	Priority Habitat Inventory - Upland Heathland (England)
Priority Habitat Inventory - Calaminarian Grassland (England)	Priority Habitat Inventory - Limestone Pavements (England)
Priority Habitat Inventory - Coastal and Floodplain Grazing Marsh (England)	
Priority Habitat Inventory - Good quality semi-improved grassland (Non Priority) (England)	

Projection = OSGB36
xmin = 459400
ymin = 167500
xmax = 479400
ymax = 176200

Map produced by MAGiC on 6 March, 2021.
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MAGiC

EPSL's



Legend

Granted European Protected Species Applications (England)

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

Projection = OSGB36
xmin = 459500
ymin = 167100
xmax = 479500
ymax = 175900
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Appendix 4: Legislation and Planning Policy related to bats

LEGAL PROTECTION

New legislation (2020)

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 came into force when Britain left the European Union on 31st January 2020. It covered amendments relevant to this survey to:

Wildlife and Countryside Act 1981: England and Wales (x1 amendment)

Conservation of Habitats and Species Regulations 2017 (x29 amendments)

All species of bat are fully protected under ***The Conservation of Habitats and Species Regulations 2017*** through their inclusion on Schedule 2.

Regulation 43: Protection of certain wild animals - offences

(1) A person is guilty of an offence if they:

- (a) Deliberately captures, injures or kills any wild animal of a European protected species,
- (b) Deliberately disturbs wild animals of any such species,
- (c) Deliberately takes or destroys the eggs of such an animal, or
- (d) Damages or destroys a breeding site or resting place of such an animal,

(2) For the purposes of paragraph (1) (b), disturbance of animals includes in particular any disturbance which is likely—

- (a) To impair their ability:
 - (i) To survive, to breed or reproduce, or to rear or nurture their young; or
 - (ii) In the case of animals of a hibernating or migratory species, to hibernate or migrate; or
- (b) To affect significantly the local distribution or abundance of the species to which they belong.

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

NATIONAL PLANNING POLICY (ENGLAND)

National Planning Policy Framework 2017

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 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.

Effect on development works:

A European protected species mitigation (EPSM) Licence issued by 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).

There are 17 species of bat breeding in England and Natural England issues licences under Regulation 55 of the Habitats Regulations to allow you to work within the law.

Licences are issued for specific purposes stated in the Regulations, if the following three tests are met:

- The purpose of the work meets one of those listed in the Habitats Regulations (see below);
- That there is no satisfactory alternative;
- That the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status (FCS) in their natural range

The Habitats Regulations permits licences to be issued for a specific set of purposes including:

- 1. include preserving public health or public safety or other imperative reasons of over-riding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;***
2. scientific and educational purposes,
3. ringing or marking
4. conserving wild animals

Development works fall under the first purpose and Natural England issues bat mitigation licences for developments.