Greene King Commercial Investments Limited

The Former George and Dragon

Preliminary Ecological Appraisal and Bat Roost Assessment Report

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Author	Jake M. Robinson PhD MCIEEM MRSB	**Technical reviewer**	Sarah Harmer
Signature		Signature	
Date:	1st August 2022	Date:	02/08/2022
Project manager	Eleanor Holloway MSc	**Quality reviewer**	Prof. Richard (Dez) Delahay PhD MCIEEM CEcol.
Signature		Signature	
Date:	02/08/2022	Date:	04/08/2022

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Switchboard: +44 (0)330 223 1074 Company contact: Enquiries@biocensus.co.uk

EXECUTIVE SUMMARY

1. This report presents the results of a preliminary ecological appraisal, comprising:
    - a background data search
    - a Phase 1 habitat survey
    - an assessment for protected species.

    It also presents the results of a Preliminary Roost Assessment of the buildings on site and a Ground Level Tree Assessment (for bats). The survey was carried out on 26th July 2022. This report will support a planning application for proposed development at the Former George and Dragon amenity restaurant / public house on Bath Road, Reading, RG30 2HA. The appraisal was based on the red line boundary plan of the development site (see *Figure 1*).
2. The site comprises a large amenity restaurant / public house building with hard-standing (car park), dense scrub and broadleaved trees around the margins, and a mix of tall ruderal vegetation and amenity grassland to the immediate north and east of the amenity restaurant / public house. The site is situated in an urban area approximately 3 km west of Reading city centre. There are large areas of agricultural land and broadleaved woodland copses to the south (1 km) and west (2.5 km).
3. The building has high bat roosting potential. The tall ruderal and dense scrub vegetation give some cover and therefore could be used by a range of animals. These include nesting birds (multiple priority species are locally present), small mammals, invertebrates and herpetofauna (there are suitable refugia, though the biological data search returned very few records of amphibians or reptiles).
4. One tree (a mature sycamore) could not be assessed for roosting bat potential because of its age, size and dense ivy coverage, potentially obscuring significant features.
5. The linear dense hazel scrub on site contributes to connecting habitats in the wider landscape to the east and west.
6. There is one statutory protected site within 1 km, namely Lousehill Copse (approximately 900 m north). In addition, there are four non-statutory designated sites within 1 km, namely Prospect Park, Medway Fringe, Lousehill Copse, and Holy Brook, all of which contain NERC S41 priority habitats (Lowland Mixed Woodland, Wet Woodland, and Chalk River, respectively) that are recognised as being of local ecological value and national conservation importance. However, the proposals are small-scale and located at a sufficient distance that no significant impacts on these sites are predicted.
7. No invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded during the survey.
8. Priority invertebrate species are locally present, including the small blue butterfly and the stag beetle, although no suitable habitat was found on site.
9. Further surveys are needed to determine the extent of potential constraints and to inform the planning decision, as follows:

- The building has High bat roost potential owing to the presence of suitable features and inability to access a potentially suitable roof space. Hence, presence/absence surveys are required to confirm (or otherwise) the presence of roosting bats. To demonstrate the absence of bats requires two survey visits between May and August in optimal survey conditions. If no bat activity is recorded during these visits, the roosting potential can be downgraded to Moderate. If survey conditions are sub-optimal, or if bats are recorded during either visit, then a third survey would be required to indicate how bats are using the building (numbers, species etc.).
- A mature sycamore on site may be suitable for roosting bats because of its size and age, but it was not possible to determine its potential from the ground because of dense ivy. Therefore, a tree climbing (aerial inspection) survey is required to identify any features used by (or likely to be used by) bats.

10. Mitigation measures required to reduce impacts on ecology include:
    - Any vegetation clearance should be conducted outside the breeding bird season (March to August inclusive) to protect potentially nesting birds.
    - The results of the bat surveys will determine the level of mitigation required for bats. However, protection measures during construction and a bat-friendly lighting scheme will also be required to reduce potential impacts on bats.
    - It is recommended that the linear dense hazel scrub habitat is retained to maintain habitat connectivity.
11. Enhancement opportunities are suggested to meet any requirement for biodiversity net gain, including:
    - Bird and bat boxes integrated into the new building and features across the site.
    - Using wildlife-friendly plants within the proposed landscaping scheme.
    - Provision of deadwood habitat on site.

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1.0 INTRODUCTION

1.1 Purpose of this report

1.1.1 This report presents the results of a preliminary ecological appraisal (PEA) at the Former George and Dragon amenity restaurant / public house on Bath Road, Reading, RG30 2HA (Grid Ref: SU 68196 72166), comprising the following:

- a background data search;
- a Phase 1 habitat survey; and
- an assessment for protected or otherwise notable species.

In addition, surveys included a Preliminary Roost Assessment of the building on the site (the amenity restaurant / public house) and a Ground Level Tree Assessment of all trees within 50 m of the site.

1.1.2 The survey area included the land within the red-line boundary (the site), plus adjacent land up to 50 m (see *Figure 1*).

1.1.3 This report identifies ecological constraints relevant to the project, specifies any further survey or mitigation requirements (e.g. for any Ecological Impact Assessment), gives recommendations for avoidance and protection, and suggests opportunities for ecological enhancement. The appraisal was carried out on behalf of Greene King Commercial Investments Limited.

1.2 Landscape context

1.2.1 The 0.25 ha site comprises a large amenity restaurant / public house building with hard-standing (carpark), dense scrub, broadleaved trees around the margins, and a mix of tall ruderal vegetation and amenity grassland to the immediate north and east of the restaurant. The site is situated in an urban area approximately 3 km west of Reading city centre. There are large areas of agricultural land and broadleaved woodland copses to the south (1 km) and west (2.5 km).

1.3 Development proposals

1.3.1 Demolition of existing pub/ restaurant and erection of one Drive Thru retail / bakery unit (Class E) including erection of supporting structures, together with alterations to means of access, car parking, landscaping and associated works.

1.3.2 Thirty-three car parking spaces will be created, including two disabled, two waiting bays and ten EVC charging bays.

2.0 METHODS

2.1 Overview

2.1.1 The PEA was undertaken in line with guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017); it therefore included:

- A desk study (here called a background data search (BDS)), which included a search for statutory designated sites of national and international importance within 2 km of the survey area, plus details of any non-statutory designated sites and protected and priority species records within 1 km of the survey area (centroid).
- Thames Valley Environmental Records Centre (TVERC) provided the biological data on the 25th of July 2022. The desk study also included a review of aerial photographs; obtaining information from the DEFRA and JNCC websites and the local authority website; and,
- A field survey informed habitat mapping, an assessment of the possible presence of protected or priority species and the likely importance of habitat features.

2.1.2 The PEA report includes an ecological description of the site and information about species that may occur there. Notes and mapping of any incidental sightings of invasive non-native plant species and protected or priority fauna species are also provided.

2.1.3 The survey was carried out on 26th July 2022 by Jake M. Robinson PhD, MCIEEM, MRSB. Kate Robinson MSc, assisted in the survey. Jake is a suitably qualified and experienced ecological consultant, a full member of CIEEM, and experienced in conducting preliminary ecological appraisals and protected species surveys (Bat Class 1 licence number: 2018-33783-CLS-CLS).

2.1.4 The weather conditions were: 20°C, 90% cloud cover, no wind, dry, and good visibility.

2.2 Background data search

2.2.1 A search was conducted on 24th July 2022 for relevant reference data (see *Table 1* for sources).

Table 1 Data sources

Information obtained	Available from
Protected and noteworthy species-records	Thames Valley Environmental Records Centre (TVERC) : www.tverc.org/cms
MAGIC (the Multi-Agency Geographic Information website) to view statutory designated nature conservation sites	www.magic.gov.uk [NB: this site is included for convenience as a viewer, but data to create maps for any figures used is extracted from Open Source data provided by the SNCBs]
Nationally designated site locations and citations	Thames Valley Environmental Records Centre (TVERC) : www.tverc.org/cms

Information obtained	Available from
European and internationally designated site locations and citations	Joint Nature Conservation Committee (JNCC) website
Local Designated site locations and citations	Thames Valley Environmental Records Centre (TVERC) : www.tverc.org/cms
Designations and legal protection of noteworthy species	Joint Nature Conservation Committee (JNCC) website
Details of species and habitats listed on the LBAP	Local biodiversity action plan website
Local planning guidance and policies	Reading Borough Council
Aerial photography	As a viewer only, sources include: www.google.com; www.bing.com; Google earth. Where reproduced as figures, sources vary and be licensed through ArcGIS, as stated.

2.2.2 A search was undertaken for the following international and national statutory designated sites of ecological importance within 2 km of the site boundary: Ramsar sites, Special Areas of Conservation (SAC), Special Protection Areas (SPA)[1], and for Sites of Special Scientific Interest (SSSI) and their associated risk zones.

2.2.3 A search was also conducted for non-statutory designated (often important in a local context) within 2 km of the site boundary.

2.2.4 Records were also collated for any notable species within 1 km of the site boundary, and which might constrain the proposed development. Species included in the search were:

- European protected species (listed on Schedules 2 and 5 of The Conservation of Habitats and Species Regulations 2017 (as amended));
- nationally protected species under Schedules 1, 5 and 8 of The Wildlife & Countryside Act 1981 (as amended) and The Protection of Badgers Act 1992;
- species listed as critically endangered, endangered or vulnerable based on the IUCN Red List Categories and Criteria 2001;
- all species listed on the RSPB's Birds of Conservation Concern 5 (Stanbury *et al.,* 2021) as red' or 'amber';
- nationally rare or nationally scarce species;
- notable[2] invertebrates; and
- species of principal importance listed under The Natural Environment and Rural Communities (NERC) Act 2006 or priority species under the relevant local biodiversity action plan.

[1] SACs and SPAs were formerly called 'European Sites' and part of the Natura 2000 network; post-'Brexit', they are now considered part of the UK's 'national site network'. Ramsar sites are sites of international importance. See Appendix A for details. Note that SPAs, SACs and Ramsar sites are also underpinned by SSSI designations whose citations/boundaries may be slightly different.

[2] Appendix C includes a description of 'notable' as used in this context.

2.3 Plants and habitats

Phase 1 habitat survey

2.3.1 The field survey was based on the UK habitats (UK Hab) survey methodology (Version 1.1; Butcher *et al*. 2020), as extended for use in environmental impact assessment (Institute of Environmental Assessment 1995). The UK Hab classification system is the habitat classification that underpins the DEFRA Biodiversity Metric and is, therefore, the favoured approach where surveys may need to inform a Biodiversity Net Gain (BNG) calculation.

2.3.2 This field survey was undertaken in line with CIEEM (2017) guidance and involved the following elements:

- Habitat mapping using a set of standard colour codes to indicate habitat types on a habitat map (*Figure 2*); and
- A description of features of possible ecological or nature conservation interest in notes relating to numbered locations on the habitat map, called 'target notes'.

2.3.3 Vascular plant species were recorded during the survey. However, no attempt was made to produce an exhaustive species list (additional species would almost certainly be found during more detailed surveys or repeat surveys at various times of the year).

2.3.4 Plant nomenclature in this report follows Stace (2019) for native and naturalised species of vascular plants, and mosses and liverworts follow Hill *et al*. (2008). Introduced species and garden varieties were identified using relevant Floras.

Invasive non-native species (INNS)

2.3.5 Phase 1 habitat survey does not involve exhaustive surveying for individual plant species, and some invasive species may be little in evidence at various times of year. A survey seeking to identify habitat types cannot, therefore, be relied upon to provide definitive information on the presence or extent of any INNS. However, any INNS or invasive non-native species of animals would have been noted had they been seen.

2.4 Protected and notable animals

General

2.4.1 The site was assessed for its suitability to support protected or otherwise notable species likely to occur in the area. Taking into account the results of the BDS, the geographic location, connectivity to natural habitats in the broader landscape, the nature and extent of habitats at the site, and the proposed development, a specific assessment was also carried out for the species/species groups below.

Invertebrates

2.4.2 The site was assessed for its suitability to support notable species and/or assemblages of invertebrates, but no specific surveys were undertaken. Consideration was given to the presence of features and habitats that might be suitable for the notable species identified in the BDS.

Great crested newts

2.4.3 Although standing water is essential for their breeding, great crested newts (*Triturus cristatus*) are terrestrial for most of the year and have been recorded up to 500 m from their breeding ponds. Ordnance Survey maps and aerial imagery was reviewed to identify any ponds within 500 m of the site boundary, and the site was assessed for its suitability for terrestrial and breeding great crested newts.

Reptiles

2.4.4 The site was assessed for its suitability for the four most widespread reptile species, with particular attention given to features that provide suitable basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, piles of rotting vegetation) and opportunities for foraging (e.g. rough grassland and scrub).

Birds

2.4.5 The site was assessed for its suitability to support breeding and non-breeding birds, with an emphasis on those species that are listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended), the red and amber lists of the RSPB's Birds of Conservation Concern 4 (Stanbury *et al.,* 2021) and other notable species recorded in the BDS, including any species that are qualifying features of nearby designated sites.

2.4.6 Nests or signs of nest building were recorded if present, and buildings were surveyed for their suitability for barn owls and other species and to search for signs.

Bats

2.4.7 Habitats were assessed for their suitability for foraging and commuting bats, in line with Collins (2016). Areas of particular interest vary between species, but generally include sheltered areas and habitats with good numbers of insects, such as woodland, scrub, rivers and species-rich or rough grassland.

Preliminary roost assessment (PRA) of built structures

2.4.8 Buildings were inspected externally and internally to assess their suitability for roosting bats, taking account of the following factors:

- Surrounding habitat: whether there are potential flight-lines and bat foraging areas nearby.

- Construction detail: the type and construction of architectural features such as attics, soffit boxes, lead flashing and hanging tiles that could be used by roosting bats.
- Building condition: the level of disrepair will influence availability of potential bat-access points.
- Internal conditions: bats favour sheltered locations with a stable temperature regime, protection from the elements and little wind/light/rain penetration.
- Potential bat-access points: whether there is flight and crawl access.
- Potential roosting locations: descriptions of all bat-accessible voids, cracks and crevices.

2.4.9 The building's potential to support roosting bats was then classified according to criteria in *Table 2.*

Table 2: Categorisation of the suitability of buildings or trees for roosting bats (Collins 2016)

Category (Potential to support roosting bats)	Description
Negligible suitability	Negligible habitat features on site likely to be used by roosting bats.
Low suitability	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 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). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.
Moderate suitability	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 for a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High suitability	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.
Confirmed roost	Bats or evidence of bats *actually recorded* during the initial inspection surveys or during dusk/dawn surveys. A confirmed record (supplied by records centre/local bat group) would also apply.

2.4.10 The buildings were systematically examined for bats and evidence of their presence. The following internal and external features were inspected:

- roof slopes and the ridge;
- wall, window and door surfaces;
- window and door frames;
- wall bases;

- wall ledges and wall tops;
- cracks, crevices and sheltered voids; and
- external features such as soffits and lead flashing.

2.4.11 Evidence of roosting bats includes droppings, urine stains, staining from fur-oils, wear marks, feeding remains, dead bats, odour, squeaking and chattering, and in some cases the absence of cobwebs. Bat droppings can prove beyond doubt that bats use a building and can help to identify roosting locations because piles often accumulate beneath roosting sites or entrance points.

Ground-Level Tree Surveys

2.4.12 Trees were surveyed from ground level. Features that might be used by roosting bats were described and classified according to accepted guidelines (Collins, 2016). Each tree was allocated to a category (see *Table 2*) based on its potential for roosting bats.

2.4.13 Trees were classified as having *unknown potential* if the surveyor's view of the tree was obscured (e.g. by dense ivy or other vegetation).

Badgers

2.4.14 An initial assessment was carried out to identify areas that might be used by badgers (*Meles meles)* for commuting, foraging or setts within 30 m of all areas potentially affected by works (where access was possible). The area was systematically searched for signs of badgers including setts, foraging signs, paths (runs) and latrines.

Other species of Principal Importance

2.4.15 The UK countries are obliged by their individual laws to maintain lists of species and habitats of principal importance for biodiversity conservation. In England, this obligation derives from the Natural Environment and Rural Communities (NERC) Act 2006. An assessment of the suitability and likelihood of the site supporting such species was made (e.g. hedgehog (*Erinaceus europaeus*)).

2.5 Constraints and limitations

2.5.1 The majority of plants present were confidently identified, and the survey was sufficient to make a broad assessment of the habitats present on the site.

2.5.2 This preliminary appraisal as to whether protected or otherwise notable species might occur on the site is based on the suitability of habitat, the known distribution of relevant species in the local area (from online sources and desk study), and any signs of the relevant species. It does not constitute a full and definitive survey of any protected species group.

2.5.3 Field signs for protected or otherwise notable species are often difficult to find or absent, even when the species is present. The survey conducted was not intended to be a comprehensive presence/absence survey for all species, but

rather to provide an indication of the likely presence of such species based on the field signs found, and the nature of the habitats present.

2.5.4 Access was not made to adjacent residential land, and therefore it remains possible that a badger sett (or other evidence of protected or notable species) beyond the site boundary could have been missed. Much of the site was also covered by dense bramble scrub, which prevented a full survey for signs of badgers and nesting birds. The peripheries of all such areas were, however, extensively searched, providing a high level of confidence in the results and assessment provided.

2.5.5 There were no onsite access or weather-related constraints.

3.0 RESULTS

3.1 Background Data Search

Statutory designated sites

3.1.1 There are four statutory designated sites within 2 km of the site boundary, all of which are Local Nature Reserves (LNR) distributed between 0.9 km – 1.9 km to the north of the site (see *Table 3*).

Table 3: Statutory sites within 2 km of the development site boundary

Site name	Reasons for designation	Approximate distance (m) and direction from site
Lousehill Copse LNR: 13.03 ha	Semi-ancient woodland. Mature oak and hazel woodland with coppice. There are many bluebells (*Hyacinthoides non-scripta)* 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 (*Ulex* species) and broom (*Cytisus scoparius)* in the northern section with sandy soil: as set out in citations	900
Blundells Copse (Part of West Reading Woodlands) LNR: 5.5 ha	Ancient woodland with a stream. There are large alder (*Alnus glutinosa)*, cherry (*Prunus sp.),* willow (*Salix sp*.) and coppiced willow, hazel (*Corylus avellana)* with oak (*Quercus* species*)* and ash (*Fraxinus excelsior)*. There is opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium)*, marsh marigold (*Caltha palustris),* and fools watercress (*Atriplex cordulata)*. Animals incl. bats and hedgehogs: as set out in citations	1,700
Round Copse LNR: 1.66 ha	Adjacent to and joining McIlroy Park, Round Copse is a dense woodland with a variety of birdlife, incl. all three species of woodpecker (*Dryobates minor, Dendrocopos major*, *Picus viridis)*, as well as nuthatch (*Sitta europaea)*, treecreeper (*Certhia familiaris)*, and thrushes (*Turdus* species.*)*: as set out in citations.	1,800
McIlroy Park LNR: 11.98 ha	An extensive natural park with good views over the River Thames. It is mostly grassland with heather (*Calluna sp.)* and broom. The semi-ancient woodland, mostly around the edges of	1,900

Site name	Reasons for designation	Approximate distance (m) and direction from site
	the site, has bluebell, wood anemone (*Anemone nemorosa)* and butchers' broom (*Ruscus aculeatus)*. The site has a sunken ancient track "Gypsy Lane" lined with beech (*Fagus sylvatica)*. Romany Lane bounds the eastern side. There are old chalk pits in the west woodland area from the old clay extraction industry. A possible Saxon mound is at the entrance from Weald Way.	

Non-Statutory Sites

3.1.2 There are fourteen non-statutory designated sites within 2 km of the site boundary, all of which are local wildlife sites (LWS) (see *Table 4*).

Table 4: Non-statutory designated sites within 2 km of the development site boundary

Site name	Reasons for designation	Approximate distance (m) and direction from site
Prospect Park (incl. Rookery) (LWS): 24.1 ha	This site consists of Prospect Park and includes The Rookery. Prior to the notification of Prospect Park the Rookery was already a Local Wildlife Site. The Rookery is a small area of lowland mixed deciduous woodland sitting on a small plateau raised above the surrounding Prospect Park to the south. The canopy is largely oak dominated and even aged in some areas the canopy is joined by occasional other trees including ash, horse chestnut (*Ausculus hippocastanum)*, beech, sycamore (*Acer pseudoplatanus)* and common lime (*Tilia x europaea)*. The understorey has occasional hazel, blackthorn (*Prunus spinosa)* and hawthorn (*Crataegus monogyna)*, but is largely sparse and open. The ground flora is dominated by creeping soft grass (*Holcus mollis)*, areas of bramble (*Rubus fruticosus agg.)* and common nettle (*Urtica dioica)* and areas of cow parsley (*Anthriscus sylvestris)* and cleavers (*Galium aparine)* with only the occasional species of interest including locally abundant patches of bluebell, locally frequent wood anemone and	400

Site name	Reasons for designation	Approximate distance (m) and direction from site
	rare wood millet (*Milium effusum)* and wood melick (*Melica uniflora)*. 14 Ancient Woodland Indicators species are recorded. The site includes Section 41 Habitat of Principal Importance: Lowland Mixed Deciduous Woodland and Lowland wood pasture and parkland.	
Meadway Fringe (LWS): 2.13 ha	**Woodland** A strip of broad-leaved woodland interspersed with some Scot's pine and larch, squeezed between housing and a road. In spite of heavy use and misuse, it retains a good vertical structure and a good range of woodland plants including ancient woodland indicators. **Unimproved grassland** The section of unimproved, species-rich neutral grassland lies between garden fences and the car park for Meadway Precinct shopping centre and had both southerly and easterly aspects. It is at the top of a steep slope leading down to the car park, with the soil left undisturbed and nutrient-poor, evidence of which was provided by numerous ant-hills and a great diversity of herbs including cowslip and bird's-foot trefoil. Incl. Section 41 Habitat of Principal Importance: Lowland Mixed Deciduous Woodland	700
Lousehill Copse (LWS): 14.91 ha	Lousehill Copse consists of three parcels of lowland mixed deciduous woodland within the urban area of Reading. The woodland lies on an escarpment south of the Thames with London Clay overlying Reading Beds and there are some steep slopes dipping north-east. The clays have been worked for bricks and tiles in this area and the woodlands contain excavations indicating this past use. Section 41 Habitat of Principal Importance: Lowland Mixed Deciduous Woodland and Wet Woodland	800
Holy Brook (LWS): 4.5 km	This site was originally designated as a number of separate sites which have now been combined. These were the stretch south of Berkley Avenue and the stretch between	900

Site name	Reasons for designation	Approximate distance (m) and direction from site
	Berkley Avenue and the Reading Inner Distribution Road. The Holy Brook is a stream that carries water from and emptying back into the River Kennet, a chalk river. Alder and willows line the banks and a variety of wetland species are found along the banks with stands of reed sweet-grass (*Glyceria maxima),* hemlock waterdropwort (*Oenanthe crocata)* and occasional water dock (*Rumex hydrolapathum)*. Water-crowfoots (*Ranunculus aquatilis/fluitans)* were recorded in the Brook in 1987 and 1994. A number of notable invertebrates have been recorded in Holy Brook and water vole has been recorded in the central and western sections. Section 41 Habitat of Principal Importance: Chalk River.	
Fobney and Kennet Valley Meadows Complex (LWS): 154 ha	This site is located south of reading and north of the Kennet and Avon Canal and comprises a series of meadows within the Fobney & Kennet valley floodplain. Habitats range from mesic grassland through wetter grasslands to swamps and are dissected by drainage ditches variously associated with hedgerows and trees. It is largely bounded in the north by the railway and Holy Brook, the Kennet and Avon Canal in the south, the A33 in the east and a minor road in the west. To the north are residential properties while to the east are retail parks. To the south and west are agricultural fields and gravel lakes. There is limited public access except by footpaths that cross the site. Section 41 Habitat of Principal Importance: Floodplain grazing marsh. Wet woodland. Lowland fens	1,100
River Kennet / Kennet and Avon Canal (LWS): 9.48 ha	This stretch of the River Kennet and the Kennet and Avon Canal runs from Southcote Lock, south-east of Reading, to Waterloo Meadows (adjacent to Edgar Road), near the centre of Reading. The river is an important wildlife corridor running into Reading and provides valuable riverine habitat. It is known to support a population of water vole (2020) and a rich invertebrate assemblage. Section 41 Habitat of	1,200

Site name	Reasons for designation	Approximate distance (m) and direction from site
	Principal Importance: River (marginal vegetation with elements of Lowland Fen).	
Small Copse at Burghfield Mill (LWS): 1.1 ha	A small, damp, semi-natural broad-leaved woodland with a stream. It was dominated by ash, hawthorn and elder (*Sambucus nigra)*, with nettle and ivy dominating the drier parts and water forget-me-not (*Myosotis scorpioides)* and water mint (*Mentha aquatica)* in the wetter areas. The wet ditch supported fool's watercress (*Atriplex cordulata)* and yellow water lily (*Nuphar lutea)*. Many fungi were present. Section 41 Habitat of Principal Importance: Lowland Mixed Deciduous Woodland	1,700
Blundell's Copse and The Moor (LWS): 5.48 ha	This site includes lowland mixed deciduous woodland and wet woodland habitats within a highly urban environment. It is located in a shallow valley which has a wide range of plant species characteristic of long-established woodland. The valley crosses the boundary between the London Clay to the underlying Reading Beds and the stream drains to the north-east. In the valley the soils are sticky and waterlogged in the upper reaches but gravels are exposed in the low banks at the eastern end. Section 41 Habitat of Principal Importance: Lowland Mixed Deciduous Woodland and Wet Woodland.	1,700
Burghfield Mill Island (LWS): 2.11 ha	Burghfield Mill Island is a small nature reserve found just south of Reading and located in the middle of the Kennet and Avon Canal. The site is left as non-intervention wet woodland.	1,700
Curtis Wood (LWS): 7.73 ha	This site lies within Calcot Golf Course. The majority of the site is ash woodland with oak, hazel coppice, hawthorn and some hornbeam and birch. The ground flora varies, but in the areas where the canopy is dense, bare ground and ivy are common. Where the light does come in, generally along the boundaries, the ground flora is more diverse. Most of the site is recorded on the ancient woodland inventory. Species associated with long established woodland were recorded here during the last	1,700

Site name	Reasons for designation	Approximate distance (m) and direction from site
	survey include wood melick, wood millet, bluebell, wood spurge (*Euphorbia amygdaloides),* yellow archangel (*Lamium galeobdolon)*, three-nerved sandwort (*Argyroxiphium grayanum),* primrose (*Primula vulgaris)* and sanicle (*Sanicula europaea)*. Violet helleborine (*Epipactis purpurata)* and wood anemone have also been recorded.	
Burghfield Gravel Pits (LWS): 177.7 ha	An extensive area of gravel pits with well-developed wooded areas, islands and marginal vegetation. This area attracts a good variety of wildfowl and other birds including Wildlife and Countryside Act Schedule 1 species as well as uncommon passage migrants.	1,800
Theale Gravel Pits (LWS): 220.4 ha	An extensive area of disused gravel pits with large areas of open water, islands, marginal wetland vegetation and wooded areas. The site consists of Theale Main Pit west of the motorway and Moatlands Pit to the east. The area attracts a wide range of bird species including good numbers of overwintering wildfowl and uncommon passage migrants. It also supports a good population of nightingales (*Luscinia megarhynchos).*	1,800
McIlroy (LWS): 14.9 ha	McIlroy Park is a hilltop park in Tilehurst, East Reading with views of the surrounding town. The site comprises a large grassland field surrounded by lowland mixed deciduous woodland, including a parcel of ancient woodland in the northern section (Kentwood Grove). The site slopes down on all sides and is entirely surrounded by residential development. It also encompasses two Local Nature Reserves; McIlroy Park and Round Copse. Incl. Section 41 Habitat of Principal Importance: Lowland Mixed Deciduous Woodland	1,800
Fobney Island (LWS): 11.17 ha	The main part of the site is the area of land (island) between the Kennet and Avon Canal and the Kennet overflow. The habitats on the island comprise created standing water bodies bounded by grassland and tall ruderal based habitats and a wetland mosaic dedicated to	1,900

Site name	Reasons for designation	Approximate distance (m) and direction from site
	wildlife. The neutral grassland has affinities to MG1 communities.	

Habitats

3.1.3 An area of ancient woodland (Churchend Copse (6.31 ha)) is situated ~900 m north-west of the site (record obtained via the Defra MAGIC tool).

3.1.4 Several other Section 41 Habitats of Principal Importance lie within 1 km of the site, including the Holy Brook Chalk River (~900 south), the Lousehill Copse Lowland Mixed Deciduous Woodland and Wet Woodland (~800 m north), the Meadway Fringe Lowland Mixed Deciduous Woodland ~700 m north), the Prospect Park Lowland Mixed Deciduous Woodland and Lowland wood pasture and parkland (~400 m northeast) (records obtained via the TVERC BDS). There is also a large Biodiversity opportunity Area (a golf course), approximately 500 m to the west of the site.

Protected and Notable Species

3.1.5 At least 1,289 protected and notable species are recorded within 1 km of the site boundary. Noteworthy species include species of principal importance that are listed under Section 41 of The Natural Environment and Rural Communities (NERC) Act 2006.

3.1.6 Of these records, three are amphibians, one is a reptile, 1,008 are birds, 11 are fish, 141 are invertebrates, 111 are mammals (46 of which are bats) and 14 are plants. Species that are protected by law under Schedules 2 and 5 of The Conservation of Habitats and Species Regulations 2017 (as amended), Schedules 1, 2, 5 and 8 of The Wildlife and Countryside Act 1981 (as amended) or The Protection of Badgers Act 1992 recorded in the search area are highlighted in the full species list in *Appendix B.* Those of relevance to the site and the current proposals are discussed in Section 3.3.

3.2 Plants and habitats

Phase 1 habitat survey

3.2.1 The Phase 1 habitat map is shown as *Figure 2* and full description for each of the target notes is given in *Appendix D*. The site comprises the following:

Other neutral grassland (g3c)

3.2.2 Degraded but herb-rich neutral amenity grassland is present (0.1 ha) in the block of land to the immediate east of the amenity restaurant / public house building (Photo 1). Species include abundant perennial ryegrass (*Lolium perenne)*, with yarrow (*Achillea millefolium)* (dominant herb), common hawkbit (*Leontodon hispidus)*, ribwort plantain (*Plantago lanceolata)*, broadleaved dock (*Rumex*

obtusifolius), red deadnettle (*Lamium purpureum)*, ragwort (*Jacobaea vulgaris)*, mare's tail (*Equisetum arvense)*, herb Robert (*Geranium robertianum)*, creeping thistle (*Cirsium arvense)*, oxeye daisy (*Leucanthemum vulgare)*, field bindweed (*Convolvulus arvensis)*, white deadnettle (*Lamium album)*, barley grass (*Hordeum vulgare)*, dandelion (*Taraxacum officinale)*, creeping buttercup *(Ranunculus repens)*, and common nettle *(Urtica dioica)*.

3.2.3 The intermittent herbs and bare ground (providing warm areas) make this habitat suitable for butterflies (a meadow brown (*Maniola jurtina)* was observed here) and other invertebrates. The BDS revealed eight records of the NERC S41 priority species small blue butterfly (*Cupido minimus)* (700 m south). However, no kidney vetch (*Anthyllis vulneraria)* was found and as this is the small blue's sole food plant, the grassland habitat is unlikely to support this species.

3.2.4 Similar patches of 0.013 ha and 0.004 ha grassland occur to the immediate north of the amenity restaurant / public house building (Photo 2), with the addition of tall ruderals plants including common mallow (*Malva sylvestris)*, spear thistle (*Cirsium vulgare)*, hogweed (*Heracleum sphondylium)*, ivy (*Hedera helix*), and the garden escape green alkanet (*Pentaglottis sempervirens)*.

Dense scrub (h3)

3.2.5 A 0.021 ha area of dense scrub exists to the immediate north-east of the amenity restaurant / public house building (Target Note 2; Photo 3). This habitat was too dense to inspect comprehensively, comprising dense thickets of bramble with a scattering of common nettle, mare's tail, and sycamore saplings. The BDS returned several records of red listed and/or NERC S41 priority bird species within 1 km of the site (e.g., marsh tit (*Poecile palustris)* x 4, dunnock (*Prunella modularis*) x 54, house sparrow (*Passer domesticus)* x 26, and mistle thrush (*Turdus viscovuscus)* x 40). These include passerines that would potentially feed and nest in dense scrub habitat.

Other hazel scrub (h3b6)

3.2.6 Along the northern boundary of the site (top of the carpark), there is a line of dense scrub dominated by hazel (Photo 4). This habitat is approximately 5 m wide and stretches for 45 m and then down the western boundary of the site by 15 m (60 m in total). Other species in this habitat included garden shrubs such as *Pyrocantha sp*., and possibly Mexican orange blossom (*Choisya ternate)*, together with ash, sycamore and bramble. The hazel trees have produced a large number of nuts this year, which would provide food for many species.

Trees

3.2.7 There are four larger trees on the site (with the addition of several young/scrub-stage trees). These include a mature sycamore to the immediate north of the amenity restaurant / public house building (Target Note 1; Photo 5), two semi-mature sycamores to the immediate south-east of the mature sycamore, and a semi-mature crab apple tree (*Malus sylvestris)*, to the immediate west of the mature sycamore. The BDS returned 46 records of bats within 1 km of the site, including two confirmed brown long-eared (*Plecotus auratus)* roosts (one 600 m north-east

of the site) and a common pipistrelle (*Pipistrellus pipistrellus)* roost. Bats could potentially roost in the mature sycamore tree if suitable features are present.

Invasive Non-native Species

3.2.8 No invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded. However, buddleia (*Buddleja davidii)* was scattered around the hardstanding (carpark), which is an undesirable non-native that can quickly spread. The BDS returned two records of Himalayan balsam (*Impatiens glandulifera)* and one record of Japanese knotweed (*Fallopia japonica)* but all are >1 km from the site (and both from 2012). It is unlikely that these species are present on the site.

3.3 Protected and notable animals

3.3.1 *Figure 2* includes target notes showing the location of particular features with suitability for protected and notable animals, and referred to in the text below (see *Appendix D* for details).

Invertebrates

3.3.2 The BDS returned a range of protected or otherwise notable invertebrates within 1 km of the site, predominantly associated with the priority habitats listed in *Section 3.1* above. These include the small blue butterfly (*n* = 8) and the stag beetle (*Lucanus cervus)* (*n* = 114).

3.3.3 The habitats present were considered likely to support a common assemblage of invertebrate species, typical of bramble scrub and amenity grassland, although the intermittent herbs and bare ground in the g3c habitat do improve the quality for invertebrates compared to standard amenity grassland. The accessible habitat is generally unsuitable for the NERC S41 species listed above (e.g., due to a lack of kidney vetch and rotting wood). However, during any vegetation clearance of the dense scrub, a suitably qualified ecologist should carefully check for stag beetle habitat (e.g., log piles) and advise accordingly.

Great crested newts

3.3.4 The BDS did not reveal any records of great crested newts within 1 km of the site boundary. Habitats within the site, the tall ruderal vegetation and scrub (and refugia) to the north of the amenity restaurant / public house buildings provide suitable terrestrial habitat for this species but no ponds were present on site. Based on a review of maps and aerial images, there are also no ponds within a 500 m radius of the site and hence no potential breeding habitat for great crested newts. This species is therefore very unlikely to be present on site.

Reptiles

3.3.5 There was only a single reptile record (a grass snake in 2009) returned from the 1 km BDS area. As the site consists of only small amounts of suitable habitat (e.g., scrub with refugia) but is surrounded by physical urban barriers, reptiles are

unlikely to be present, and no further survey or mitigation is proposed for this group.

Birds

3.3.6 There is one previous record of peregrines (*Falco peregrinus*) within 1 km of the site, although no suitable nesting habitat is present on site. Peregrines require extensive open terrain for hunting, which is also not present and so it is unlikely that the site is used by this species.

3.3.7 The buildings and scrub on site could be used by nesting birds, and there are some opportunities for ground-nesting in the tall ruderal vegetation and other bare ground.

3.3.8 The BDS returned 1,008 records of 51 protected and notable bird species from the 1 km radius around the site, with many being associated with the woodlands and riverine/marsh habitats in the wider landscape.

3.3.9 Priority species identified by the BDS that could use habitats within or immediately adjacent to the site include song thrush (*Turdus philomelos*), dunnock, house sparrow, and grasshopper warbler (*Locustella naevia*).

3.3.10 House sparrows may nest in the building, though no active or old nests were observed during the survey.

3.3.11 The scrub habitats, tall ruderal vegetation and trees are all suitable nesting habitat for birds.

3.3.12 Five red kites (listed on Annex 1 of the EC Directive 79/409/EEC on the Conservation of Wild Birds) were recorded hovering over and around the site during the survey visit. However, there are unlikely to be significant nesting or feeding opportunities for red kites on site.

Bats

3.3.13 The BDS returned records of the following bat species within 1 km of the site:

- Noctule bat (*Nyctalus noctule)* (2 records located 800 m north of the site);
- Daubenton's bat (*Myotis daubentoniid)* (2 records; closest being at 800 m from the site); and
- Serotine bat (*Epseticus serotinus)* (4 records; closest being 1 km southwest of the site).
- Common pipistrelle (14 records; closest being 800 m north of the site, including a roost)
- Soprano pipistrelle (*Pipistrellus pygmaeus)* (10 records and 9 unidentified *Pipistrelle sp.* Within 1 km of the site)
- Brown long-eared (2 records; 600 m northwest of the site, including a roost)

Ground Level Tree Assessment

3.3.14 One tree (a mature sycamore approx. 12 m high and 50 cm diameter at breast height (DBH); Target Note 1; Photo 5) was classified as having **Unknown** bat roosting potential due to its suitable age/size and dense ivy coverage. This ivy prevented a comprehensive ground-based assessment and may obscure suitable roosting features (e.g., crevices and hollows).

3.3.15 The other two sycamores (8-9 m high and 25 cm DBH) were semi-mature (Photo 6) and not of the size and age to provide significant roosting features for bats. These were classified as having **Negligible** roosting potential.

3.3.16 The other tree on site (6 m high and 25 cm DBH crab apple) is also semi-mature and has no significant features to support roosting bats. This tree was also considered to have **Negligible** roosting potential.

3.3.17 Trees outside but close to the site include a row of London planes (*Platanus x hispanica)* on the south side (opposite side of Bath Road; Photo 7), and two London plane and three sycamore trees to the immediate west of the site (Photo 8). All these trees were classified as having **Negligible** roosting bat potential owing to the absence of appropriate features. All these trees were between 9-13 m high (all between 20 – 40 cm DBH) and in good condition.

3.3.18 The surrounding woodlands and open habitats to the west and south of the site are likely to provide good quality foraging areas, commuting routes and roost sites for bats.

Building (u1b5) Bat Roost Assessment

3.3.19 The Former George and Dragon amenity restaurant / public house is a two-story (predominantly red brick) building with roof spaces (Photo 9).

Roof spaces

3.3.20 The roof space above the upstairs kitchen (eastern end of the building, near the road) was approximately 10 m x 3.5 m x 2 m (high) and was well-sealed. The brickwork was in good condition as was the roof lining, and there was no daylight or evidence of bats (Photo 10).

3.3.21 The roof space at the furthest eastern part of the property (to the back) was very small (4 m x 2 m x 1.5 m high). It was well-sealed with good brickwork and lining with no daylight, and no evidence of bats.

3.3.22 The main roof space towards the western side of the building (access at the top of the stairs) was approximately 8 m x 5 m x 2.5 m high. It was also well-sealed and the brickwork and lining were in good condition with no daylight, and no evidence of bats.

3.3.23 A further roof space on the lower central part of the building (the roof above the main pub floor) was inaccessible at the time of the survey as it was boarded up and damaged (dangerous) flooring/ceiling). Therefore, this roof space was not inspected, and an assessment of its suitability for bats was not possible.

Upstairs: main rooms

3.3.24 The upstairs kitchen was 5 m x 4 m, well-sealed with no crevices for bats (Photo 11). The windows were also well-sealed.

3.3.25 The upstairs living area was 7 m x 6 m x 2 m high and was also well-sealed. The windows were not inspected due to metal coverings. One window was smashed but boarded up from the outside. No evidence of bats and no potential for roosts were noted.

3.3.26 The room that appears to be an old bedroom at the back (north) of the property was 5 m x 4 m x 2.5 m high and was well-sealed with no evidence of bats. This was also the case for the bathroom.

3.3.27 In the hallway (towards the west of the building), the windows are well-sealed and boarded up and no roosting features were recorded.

3.3.28 At the western end of the property, the double room with a broken ceiling (8 m x 6 m x 2.5 m high) had no suitable roosting features or evidence of bats. This was also the case for the old security room (5 m x 5 m), which had a boarded-up window and was well-sealed.

3.3.29 Downstairs, the security/mains area had a skylight but was well-sealed with no evidence of bats. At the northern part of the property, the hallway had two small rooms to the left (6 m x 6 m) which were generally well-sealed (a small amount of daylight visible through a damaged wall) and no evidence of bats or significant bat-entry points. The small room to the right (3 m x 2 m) was also well-sealed with no evidence of bats.

3.3.30 The large kitchen (7 m x 12 m x 2.5 m high) was well-sealed with no daylight visible The windows were boarded up and no evidence of bats or significant entry points were recorded.

3.3.31 The main pub area was approximately 14 m x 30 m x 2.5 m high. The rooms were generally well-sealed with no evidence of bats (Photo 12). The 14 large windows (ranging from 1 m x 2m to 2 m x 3 m) were all boarded up. The door facing the street was wooden with glass panels and was well-sealed, as was the door to the carpark near the front of the property. However, the door (at the carpark and garden area) to the bar was poorly-sealed, leaving gaps of 3-5 cm into the building – potentially allowing bats to enter (Photo 13). This doorway also leads to the main bar area with the uninspected roof space and the damaged ceiling (potentially providing bats with access to the roof space).

3.3.32 The toilets were all well-sealed with no evidence of bats. The basement (7 m x 9 m x 2 m high) was well-sealed with no daylight visible. The room was in poor condition and was waterlogged, but no evidence of bats was found.

Building exterior

3.3.33 With regards to the building exterior, there were several potential entry points and roosting opportunities for bats (Target Notes 3-11).

3.3.34 The single-storey pitched roof facing the carpark (west) had large grey slates and was 12 m (perpendicular to the road) x 2 m x 2 m (to the ridge). This roof had five

lifted tiles and two missing tiles, which could lead to the roof space that could not be accessed for inspection (Target Note 3; Photo 14). This roof also had missing ridge tile pointing creating gaps that could be used by bats.

3.3.35 A roadside-facing single-storey roof (6 m wide) had missing ridge tile pointing and gaps of 30 cm x 4 cm (Target Note 4; Photo 15). The opposite roof (to the north) had six lifted tiles and one broken/missing tile (Target Note 5; Photo 16). These features could be potential entry points or suitable for crevice-dwelling bat species such as *Pipistrelle spp*.

3.3.36 The bricks on the carpark-facing building were well-sealed and in good condition. There is a gap in the soffit box where a light is missing (Target Note 6; Photo 17) which may lead to roosting space (to the left of the main porch/door). This feature is 5 cm x 5 cm. There is another small hole (2 cm x 2 cm) in the soffit around the corner to the right of the porch.

3.3.37 The rear-facing single (north) single-storey building is 2-4 m high and 11 m long and is well-sealed. There is no obvious damage to the building, but there is a small crevice at the top right of the adjoining outbuilding (15 cm x 2 cm). This is currently covered in cobwebs with no evidence of bats.

3.3.38 The second-storey roof facing the carpark (west) was 7 m x 2.5 m. There was no obvious damage although the lower left tiles are slightly lifted. The walls are well-sealed with no obvious crevices. This is also the case for the 2nd storey from the rear (north) – the walls are in good condition. However, there is some missing ridge pointing near the chimney (which is in good condition).

3.3.39 The second-storey central building with the flat roof and vertical slated walls (6 m) has damage in the bottom right (Target Note 7; Photo 18): at least two large slates are broken with potential for bats to enter or crevice-dwellers to roost. The other roof (red slated; 6 m x 2.5 m) to the east of the flat roof has a missing tile at the connection to the flat roof, and one lifted tile. The brickwork and chimney are in good condition.

3.3.40 To the front of the building (road-facing; south), the lower single-storey brickwork is in good condition. The main two-storey building has gaps (20 cm wide x 3 cm deep x 5 gaps) above the top left window where the brickwork meets the soffit (Target Note 8; Photo 19). This could provide suitable roosting features for crevice-dwelling species. Otherwise, the brickwork is in a slightly worn but good condition.

3.3.41 The roof (7 m x 2.5 m) is missing some tiles and ridge pointing. This is also the case for the lower middle roof (7 m x 3.5 m), which has missing tiles and slipped tiles on the left/west (Target Note 9; Photo 20). There also appears to be a whole section of ridge tiles missing on the right side (east). The chimney is in good condition.

3.3.42 The eastern pitched roof with grey slates (5 m x 2 m) has missing ridge pointing but the tiles are in relatively good condition. However, the front-facing flat apex has a missing red slate tile on the right.

3.3.43 The eastern lower building (5 m x 2 m) has slipped ridge tiles and missing pointing. There is a crevice under the ridge (15 cm x 3 cm) and potentially lifted slates on the rear-facing pitch (2.5 cm x 2.5 cm gaps) (Target Note 10; Photo 21).

3.3.44 The two-storey main building facing east has slipped tiles in the bottom left (red-slate roof), otherwise it is in good condition.

3.3.45 The front-facing south) red slate roof (2 m x 4 m) is generally in good condition with a small gap on lower tiles. The chimney is also in good condition.

3.3.46 Near the apex of this building, there is a missing ventilation cover (Target Note 11; Photo 22). This could potentially be a suitable feature for roosting bats.

3.3.47 In summary, there are **moderate-high** roosting opportunities and potential entry points on all aspects (N, S, E, W) of the amenity restaurant / public house buildings.

Badgers

3.3.48 Thirty-eight records of badger were returned during the BDS, including recent records (<3 years) and setts within 800 m of the site. Badgers and their setts are protected under the Protection of Badgers Act 1992.

3.3.49 No badger setts, tracks, latrines, snuffle holes, hairs on boundary fences or other signs of badger activity were noted during a thorough investigation of the site (although the dense scrub area in the north-east was not all checked). The site has limited potential for sett-building and negligible foraging opportunities and so badgers are considered unlikely to use the site.

Other species

3.3.50 The field survey did not record the presence of any other animals of nature conservation importance or associated habitats. However, habitats within the site, including the linear scrub and grassland were suitable for European hedgehogs.

3.3.51 Multiple records of hedgehogs within 1 km of the site were identified during the BDS (recent records within 500 m). Hedgehogs occupy a range of lowland habitats with enough cover to allow nesting; they are common in parks in urban and suburban environments, farmland and gardens. Scrub and amenity grassland on the site provide suitable foraging habitat for hedgehogs. There may be opportunities for hedgehogs to hibernate in the dense scrub within the northern part of the site and they are likely to be present

4.0 EVALUATION

Internationally Designated Sites

4.1.1 No SAC or Ramsar sites are within 2 km of the site boundary and none are hydrologically connected to the development site. Therefore, water pollution is not anticipated. There are no other potential impact pathways of relevance, and therefore any SAC and Ramsar sites lie outside of the zone of influence of the proposed development.

4.1.2 No significant adverse effects are therefore anticipated on any internationally designated sites, all of which fall outside of the zone of influence of the proposed development, and they are therefore not considered further.

Sites of Special Scientific Interest (SSSI) – Impact Risk Zones

4.1.3 The site intersects with impact risk zones for two SSSIs in the wider area (Sulham and Tidmarsh Woods (4.2 km northwest) and Meadows and Pincents Kiln (3.2 km southwest)). However, the proposed works do not in this case meet any of the criteria (specific to and published for each SSSI individually) that trigger a requirement for the planning authority to consult with Natural England before determining a planning application.

Non-statutory designated sites

4.1.4 There are four non-statutory designated sites within 1 km of the development site boundary (Prospect Park, Meadway Fringe, Lousehill Copse, and Holy Brook), all of which contain NERC S41 priority habitats (Lowland Mixed Woodland, Wet Woodland, and Chalk River, respectively) that are recognised as being of local ecological value and of national conservation importance.

4.1.5 Routing construction traffic along the A4 where possible, and avoiding the use of Holyend Lane, Tilehurst Road, Langley Hill, New Lane Hill, and Liebenrood Road would avoid any impacts on non-statutory designated sites that might arise from construction traffic (e.g. dust or pollution). Avoiding working at night would reduce the risks of disturbing the rookery and other wildlife in the Prospect Park LWS and the West Reading Woodlands (Biodiversity Opportunity Area). Any lighting-scheme (during construction and post-construction) should be wildlife-sensitive.

Habitats and plants

4.1.6 The habitats at the site are not species-rich and have little intrinsic botanical value given the coverage. They are common and widespread in the surrounding landscape.

4.1.7 There are no habitats of principal importance (being listed under Section 41 of the NERC Act 2006) on the site. However, the site likely provides an important linkage between the Biodiversity Opportunity Area (500 m to the west) and the Prospect Park LWS (400 m to the east). In particular, the dense hazel scrub linear habitat (h3b6) contributes to the connectivity of the wider habitat (to the east and west of

the site) (Target Note 12; Photo 4). This linear feature provides good-quality habitat (albeit in a small amount) that is likely to be of ecological importance in a local context. This habitat should be a focus for protection and enhancement for ecological purposes and for achieving biodiversity net gain for the proposed development.

Protected and other notable species

Invertebrates

4.1.8 The site provides includes areas of suitable habitat for invertebrates, which should be enhanced where possible.

Birds

4.1.9 Small areas of suitable habitat for nesting and feeding birds are present on site, and there are over 1,000 records of protected and notable bird species within a 1 km distance. Retaining as much scrub habitat as possible and replacing any vegetation that is removed with biodiverse assemblages that favour locally and nationally important breeding birds would retain and possibly enhance the value of the site for birds.

Bats

4.1.10 The main amenity restaurant / public house buildings have high potential for supporting roosting bats, particularly crevice-dwelling species (Target Notes 3-11). It is understood that the building will be demolished, and that significant development work is planned for the site. Therefore, without measures to protect them, any bats roosting in the building are likely to be harmed. Further surveys are necessary to confirm the presence or likely absence of roosting bats, as outlined in Section 5 below.

4.1.11 The mature sycamore tree could support roosting bats and so a tree climbing survey is required to rule out or confirm whether it is suitable and whether bats are present or absent.

4.1.12 Bats are afforded protection through the Conservation of Habitats and Species Regulations 2017 (as amended) as well as the Wildlife and Countryside Act 1981 (as amended) (refer to Appendix A for further details). Mitigation may therefore be necessary to ensure compliance with this legislation. This is outlined further in Section 5 below.

Other species

4.1.13 The site provides suitable habitat for hedgehogs, and it is connected to other suitable habitats, such as residential gardens. Precautionary measures are therefore required during the works to prevent any negative impacts on hedgehogs., as described in Section 5 below.

4.1.14 The site could be enhanced for stag beetle, small blue butterfly, birds, bats and hedgehogs, as outlined in Section 5.

4.2 Validity of Data

4.2.1 Unless the site changes significantly, the surveys carried out for this report should remain valid for at least 18-months, and potentially up to 3 years (CIEEM 2019).

5.0 RECOMMENDATIONS

5.1 Key constraints to design and construction

Sites

5.1.1 The potential for likely significant effects (LSE) from the proposed development on SAC, SPA and Ramsar sites is very low, given none of these designated sites are present within 2 km of the site.

5.1.2 The potential for significant disturbance of the non-statutory designated LWS and Biodiversity Opportunity Area can be avoided by timing the works to occur in the daytime, avoiding certain roads surrounding these sites (see 4.1.6) and installing a wildlife-sensitive lighting scheme.

5.1.3 The linear dense scrub habitat on site (Target Note 12; Photo 4) provides connectivity between habitats to the east and west, including the BOA and LWS. This feature should be protected and enhanced for ecological purposes and for achieving biodiversity net gain for the proposed development.

Invertebrates

5.1.4 The potential for likely significant effects on invertebrates is low. The site has small amounts of invertebrate habitat, which should ideally be enhanced to support locally present priority species such as the small blue butterfly and stag beetle. The dense scrub to the immediate north-east of the site should only be removed in the presence of an ecologist to ensure any potential stag beetle habitat (i.e. not previously identified due to inability to access all the scrub) is protected.

5.1.5 Considerations for invertebrates do not represent a significant constraint to the proposed development.

Birds

5.1.6 Any scrub and other nesting bird habitat should only be removed outside of the bird nesting season (i.e. outside of the period March to August inclusive). If this is not possible, then these areas will have to be checked for nests by an ecologist immediately prior to clearance. If nests are found, they must be retained (with a suitable, species-specific buffer from works established) and protected from damage or abandonment until the young have fledged.

5.1.7 Considerations for breeding birds do not represent a significant constraint to the proposed development.

Bats

5.1.8 It is possible that the buildings and the mature sycamore tree support roosting bats. Bats are protected under the Habitats Regulations and the Wildlife and Countryside Act 1981 (as amended) (see Appendix A). Further surveys are required to identify if any bats are roosting in these locations, and if so, what

mitigation measures may be required as part of the design proposals. If roosting bats are present, demolition of buildings and/or removal of the tree would need to be undertaken under licence, and there may be restrictions on timing dependent on the status of any roost.

5.1.9 While it is unlikely that the site represents a critical foraging or commuting resource for bats, a wildlife-sensitive lighting scheme should be maintained during construction and after development to maintain dark commuting corridors, particularly to maintain linkages between the Biodiversity Opportunity Area in the west and the LWS in the east.

Habitat alteration

5.1.10 Site clearance to facilitate construction will result in the loss of small areas of dense scrub, grassland/tall ruderal vegetation (see Figure 2), and trees. This small-scale habitat loss and the loss of a small number of trees is not significant in the context of the surrounding habitat. The clearance works themselves could, however, result in adverse effects on animal species which *may* be present, including nesting birds, bats and hedgehogs.

5.2 Further surveys required

Bats

5.2.1 Although no direct evidence was found, the amenity restaurant / public house buildings have high potential to support roosting bats. The building will therefore require further surveys to inform an assessment of likely impacts and mitigation requirements for the proposed development.

5.2.2 Presence/absence surveys are required to give confidence in a negative result at the high roost suitability level (comprising three separate visits between May and September, two of which should be carried out between May and August). However, if no bat activity is recorded during the first two survey visits, then the third survey will not be required – on the proviso that the surveys are conducted during optimal conditions.

5.2.3 These surveys will require five observers to watch and listen for bats emerging from the building at dusk or re-entering at dawn during warm and dry conditions. The methods should follow current Bat Conservation Trust guidelines (Collins, 2016). This information will be required to support a licence application if bats are found to be roosting on site. Surveyors will be positioned to cover all aspects of the building (due to the number and distribution of roosting opportunities and potential entry points; Target Notes 3-11), including two covering the front (south) aspect (Figure 2).

5.2.4 The majority of trees on site do not have features suitable for roosting bats. However, the mature sycamore is classified as of ‘unknown potential’ and will need to be climbed to clarify its suitability for roosting bats. This will involve the aerial inspection of any suitable features using tree climbing techniques and an endoscope to look for bats or evidence of bats. If, on inspection, a feature is

identified as having moderate or high potential for roosting bats, then further surveys will be necessary. If features are found to have low potential, the tree can be felled under precautionary measures (Collins, 2016). If tree climbing is not possible, emergence surveys will be required, the scope of which will be dependent on the value of each feature.

5.3 Mitigation requirements

General

5.3.1 The proposed works will be constrained by the legislative protection afforded to nesting birds and bats.

5.3.2 However, further surveys to confirm the absence of bird species are considered disproportionate to the risk of encountering them during the proposed works, which will occupy a small area and be short in duration. For this reason, the following precautionary mitigation measures are proposed.

Invertebrates

5.3.3 If the dense scrub in the north-east of the site needs to be removed, this should be done in the presence of a suitably qualified ecologist. The ecologist should check for potential features that may support stag beetles (e.g., rotten log piles). Any suitable features for stag beetles should be carefully moved and retained in a safe place elsewhere on site.

Birds

5.3.4 All active bird nests, regardless of species, are protected by UK law. A nest is deemed to be active even if it is in the process of being built and does not yet contain eggs or young. To avoid impacts on nesting birds, suitable vegetation should be removed outside the nesting season (which runs from March to August inclusive). If this is not possible then, it will need to be checked for nests by an ecologist immediately prior to clearance. If nests are found, they must be retained (with a suitable, species-specific buffer from the works) and protected from damage or abandonment until the young have fledged.

5.3.5 If at any point a bird's nest is discovered, the works should cease immediately, and the advice of an ecologist should be obtained.

Bats

5.3.6 Further surveys (as detailed in Section 5.2) will be required to determine the extent of any impacts on bats, and the data gathered used to determine appropriate impact avoidance, mitigation or compensation measures and inform a licence application.

5.3.7 This licence will require a detailed method statement that will set out how to avoid injuring or killing bats. The mitigation strategy must be demonstrably proportionate to the number of bats and diversity of species affected, as well as

being appropriate for the level of disturbance or damage that will be caused to the bat roost as a result of development.

5.3.8 The use of site lighting/working in the hours of darkness should be avoided.

Hedgehogs

5.3.9 To minimise the risk of trapping animals such as hedgehogs, the following measures should be adopted:

- employ an ecological clerk of works to oversee site clearance works, conduct searches during site clearance
- time the works to avoid the hedgehog hibernation period of October/November to March/April
- avoid working at night
- avoid leaving excavations open overnight, or place 'escape ramps' in excavations left open overnight to prevent the inadvertent trapping of animals.

5.3.10 Enhancements within the proposed development to support urban hedgehogs and other species can include unlit hedgerows and holes in fences to improve habitat connectivity ('hedgehog highways') (PTES, 2019). The use of pesticides, herbicides and rodenticides should be avoided on the site.

5.3.11 No further surveys for other animals such as hedgehog are considered necessary.

5.4 Opportunities for enhancement

Nest/Roost boxes

5.4.1 Bird and bat boxes and/or bricks should be incorporated into the development design, including those suitable for a range of bat species, swift, house sparrow and/or starling, which are all species of conservation concern and are likely to be present within 1 km of the site. These features would provide additional roosting/nesting sites for these species and help offset impacts associated with habitat loss.

Log piles and 'hedgehog highways'

5.4.2 Log piles could be incorporated into site landscaping to offer deadwood refuge for hedgehogs and invertebrates (including the locally present stag beetle). Ideally, they should be located in quieter parts of the site and created using any logs generated from vegetation clearance.

5.4.3 Provision of 'hedgehog highways' (holes approx. 13 cm^2) in any fencing on site would improve habitat connectivity for hedgehogs.

5.4.4 The following biodiversity enhancement measures could be incorporated

- Creation of new native species boundary hedgerows along the western and eastern boundaries to strengthen habitat connectivity and/or provide habitats or food sources for birds, bats and mammals.
- Install bat and/or bird boxes on retained buildings and trees within the site to provide additional roosting/nesting locations for these species.
- Any retained grassland can be enhanced by seeding with locally present native species. The addition of kidney vetch would provide opportunities for the protected NERC S41-listed small blue butterfly.

6.0 CONCLUSIONS

6.1.1 The site contains habitat that could support protected species including bats and birds. There are several designated and non-statutory designated sites within 2 km of the site and locally present priority species. The linear scrub habitat contributes to connecting the habitats in the wider landscape (to the east and west), including a BOA and LWS.

6.1.2 Further surveys for bats are required to inform a detailed assessment and a planning application. These will include three presence/absence surveys (between May-September) of the buildings and a mature sycamore tree (via aerial inspection). To ensure adequate coverage a total of five surveyors will be needed for each survey visit.

6.1.3 Measures will need to be taken when clearing vegetation to protect nesting birds and potential stag beetle habitat. This will involve clearing vegetation outside of the breeding bird season (which runs from March to August, inclusive) and in the presence of a suitably qualified ecologist. The dense hazel scrub should be retained.

6.1.4 Various habitat enhancement measures are also recommended (see 5.4).

6.1.5 Unless the site changes significantly, the surveys carried out for this report should remain valid for at least 18-months and potentially up to 3 years (CIEEM 2019).

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FIGURES

Figure 1 Site Location Plan

NOTES

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Do not scale off this drawing.

REVISIONS DATE

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LOCATION

DRAWING DESCRIPTION
LOCATION PLAN

JOB TITLE
GEORGE AND DRAGON
162 BATH STREET ROAD
READING RG30 2HA

CLIENT
GREENE KING

DRAWN BY JAA
SCALE 1:1250
DATE JULY 2022
DRAWING NO. 2136 - 00
REVISION
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FAX : 0161 683 4106
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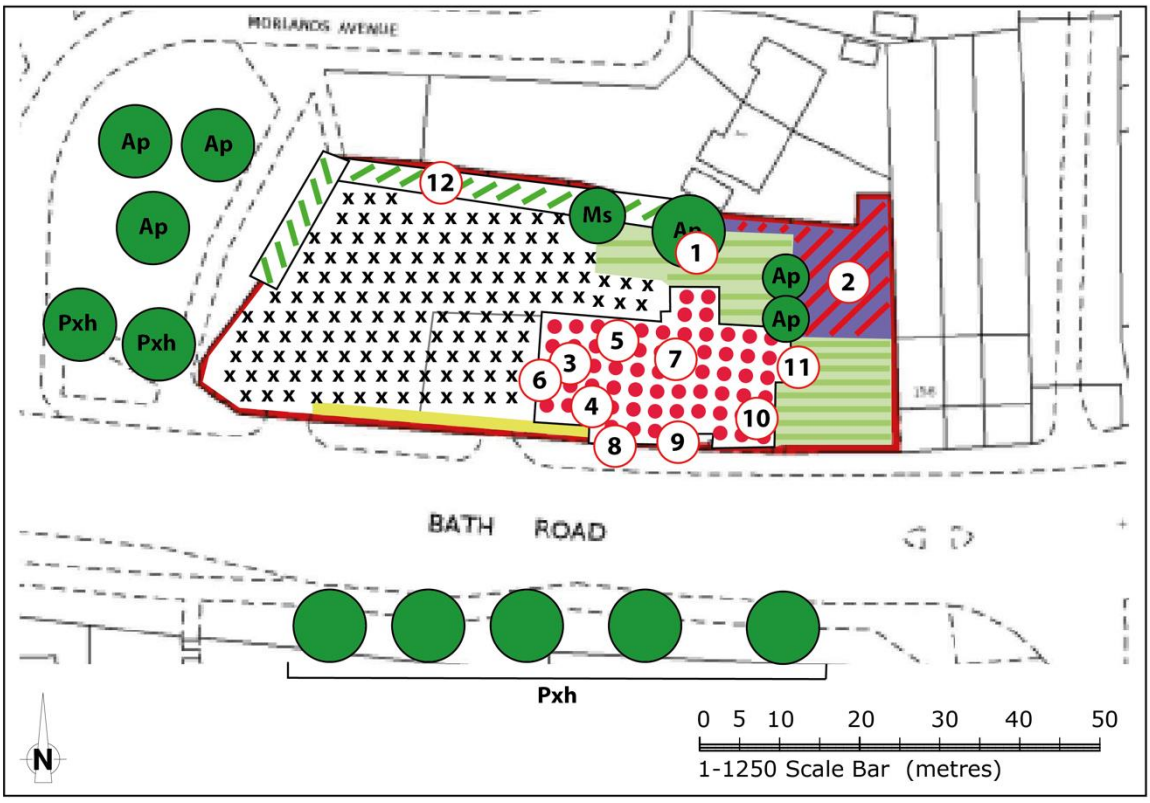
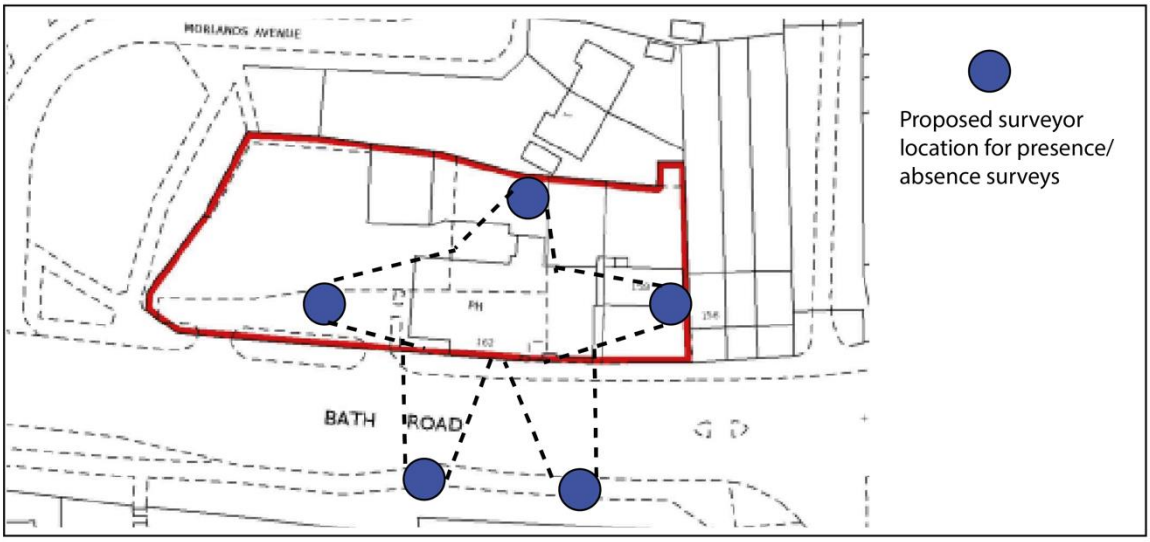
Figure 2 Habitat Map (with target notes (see Appendix D) and proposed bat surveyor locations).



Key:

	Site boundary		Building (u1b5)	1	Target notes
	Dense scrub (h3)		Broadleaved tree		Proposed surveyor location for presence/ absence surveys
	Other hazel dense scrub (h3b6)	Ap	Sycamore		
	Other neutral grassland (g3c)	Phx	London plane		
	Hardstanding (carpark) (ub1)	Ms	Crab apple		



APPENDIX A – NATURE CONSERVATION LEGISLATION AND POLICY

International Legislation

The following international conventions and directives apply to biodiversity protection in the UK. Post-'Brexit', even though European Union (EU) directives no longer directly apply to the UK, the provisions therein are enshrined in both domestic legislation and international agreements. Legislation has been enacted to ensure the regulations derived from these remain in force[3].

The Convention on Biological Diversity 1992 *et seq.*

This multilateral treaty (https://www.cbd.int/doc/legal/cbd-en.pdf), signed by 150 government leaders at the 1992 Rio Earth Summit, has three main goals, of which one is the conservation of biological diversity. Article 6 requires countries to develop national biodiversity strategies, plans or programmes. In response, the UK developed the UK Biodiversity Action Plan (BAP) 1994 (https://jncc.gov.uk/our-work/uk-bap/) as well as county-specific BAPs. Subsequent to this, parties of the convention agreed the supplementary Nagoya Protocol 2010 (available at https://www.cbd.int/abs/doc/protocol/nagoya-protocol-en.pdf), adopting the Strategic Plan for Biodiversity 2011-2020. The purpose of this Strategic Plan was to provide a framework for establishing national and regional biodiversity targets (https://www.cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-EN.pdf).

Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (Birds Directive) 2009
https://www.legislation.gov.uk/eudr/2009/147

The Birds Directive 2009 relates to the conservation of all species of naturally occurring birds in their wild state in the territory of the EU Member States (MSs) to which the treaty applies. Under the Birds Directive, the most suitable areas of conservation of the Annex I species are to be designated as Special Protection Areas (SPAs), as part of the European Natura 2000 network. Post Brexit, SPAs are no longer considered part of Natura 2000 and are instead components of the UK's 'national site network', but their highly protected status is unchanged. Maintaining a coherent network of protected sites with overarching conservation objectives is still required in order to fulfil the commitment made by government to maintain environmental protections and continue to meet the UK's international legal obligations.

Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) 1992
https://www.legislation.gov.uk/eudr/1992/43

The Habitats Directive 1992 requires EU MSs to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of community interest, which are listed

[3] Further information relating to England and Wales can be found here: https://www.gov.uk/government/publications/changes-to-the-habitats-regulations-2017/changes-to-the-habitats-regulations-2017. A similar exercise has been undertaken in Scotland and Northern Ireland.

under Annex I, II, IV and/or V. Species listed under Annex IV are known as 'European Protected Species' (EPS), and have retained their protected status in UK domestic legislation post-Brexit.

Under the Habitats Directive, EU Member States are required to contribute to the Natura 2000 network through the designation of Special Areas of Conservation (SACs) for natural habitat types listed in Annex I and habitats of species listed in Annex II. Post Brexit, SACs are no longer considered part of the European Natura 2000 network and are instead components of the UK's 'national site network', but their highly protected status is unchanged.

The Convention on Wetlands of International Importance Especially as Waterfowl Habitat 1971: the Ramsar Convention

Accessible via https://jncc.gov.uk/our-work/ramsar-convention/

The Ramsar Convention is an intergovernmental treaty focused on the conservation and sustainable use of wetland, primarily as habitats for water birds. Under the convention, each ratified country is required to identify and designate sites (Ramsar sites) that meet the criteria for identifying a wetland of international importance, i.e. containing representative, rare or unique wetland types. In addition, the convention promotes international co-operation to promote the wise use of all wetlands and their resources.

Habitats Regulations Assessment (HRA): a note

There is a requirement under the EU nature directives, and enshrined in country-specific domestic legislation[4] (see below), to undertake a screening exercise to determine whether any sites that form part of the 'national site network' (formerly Natura 2000) are likely to be significantly affected by any proposal (project or plan). The assessment must consider the proposals alone and also in combination with other plans and projects, if they result from activities that are not directly connected with, or necessary to, the management of the designated sites. If significant effects are likely, an Appropriate Assessment (AA) will need to be carried out. The screening, any AA, and any subsequent assessment, are collectively known as a Habitats Regulations Assessment (HRA). The HRA needs to take into account each of the 'Qualifying Features' (habitats or species) that justified the site being designated. Ramsar sites are treated in the same way as SACs and SPAs in HRAs, as are sites which have not been fully adopted i.e. candidate SACs (cSACs) and potential SPAs (pSPAs).

The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979

Accessible via**:** https://jncc.gov.uk/our-work/the-convention-on-the-conservation-of-migratory-species-of-wild-animals/#convention-summary

The Bonn Convention was adopted in 1979 and came into force in 1985. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix I of the Convention), concluding multilateral agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix II), and by undertaking cooperative

[4] In England and Wales: the Conservation of Habitats and Species Regulations 2017 (as amended).
In Scotland: the Conservation (Natural Habitats &c.) Regulations 1994 (as amended).
In Northern Ireland: the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended). .
In the UK offshore area: the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended).

research activities. The UK Government ratified the Bonn Convention in 1985. The current legally-binding Agreements under the Convention include EUROBATS[5].

The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1979
https://www.coe.int/en/web/bern-convention

The principal aims of the Bern Convention 1979 are to ensure the conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species) listed in Appendix III. To this end, the Bern Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1,000 wild animal species. The UK Government ratified the Bern Convention in 1982.

National Legislation

The following pieces of domestic legislation apply to biodiversity protection in the UK.

The Wildlife and Countryside Act (WCA) 1981
https://www.legislation.gov.uk/ukpga/1981/69

The Wildlife and Countryside Act 1981 (as amended) is the primary piece of legislation relating to nature conservation in the UK, though it has been adapted in different ways in the devolved administrations. It was initially enacted to implement the Bern Convention, Bonn Convention and the Birds Directive (described above).

The act is supplemented by provisions in the Countryside and Rights of Way (CRoW) Act 2000 and the Natural Environment and Rural Communities (NERC) Act 2006 and extended in Scotland by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2011). Its equivalent in Northern Ireland is the Wildlife (Northern Ireland) Order 1985 (as amended and similarly extended). In addition to the Habitat Regulations (described below), the WCA provides protection for species listed in Schedules 1 (birds), 5 (other animals) and 8 (plants) of the Act. It provides for the notification and confirmation of Sites of Special Scientific Interest (SSSIs) in England and Wales[6]. It also sets out, in other schedules, important and invasive species which are legally protected or require management.

All species of bird are protected under the WCA. The legislation makes it an offence to intentionally:

a) kill, injure or take any wild bird;
b) take, damage, or destroy the nest of any wild bird while that nest is in use or being built; or
c) take or destroy an egg of any wild bird.

Those species of birds listed on Schedule 1 of the WCA are afforded additional protection, which deems it an offence to intentionally or recklessly:

[5] More information available at https://jncc.gov.uk/our-work/agreement-on-the-conservation-of-populations-of-european-bats-eurobats

[6] Duty replaced by the Nature Conservation (Scotland) Act 2004 (as amended) and the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 (as amended) in those countries.

a) disturb any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or
b) disturb dependent young of such a bird.

Under Section 9 of the WCA, for animals listed on Schedule 5, it is an offence in England and Wales to intentionally or recklessly:

- kill, injure or take any wild animal listed on Schedule 5*;
- possess or control any live or dead those wild animals or anything derived from it*;
- damage or destroy any structure or place which wild animals listed on Schedule 5 uses for shelter or protection*;
- disturb any such animal while it is occupying a structure or place of shelter or protection;
- obstruct access to any structure or place used by any such animal for shelter or protection; and
- sell, offer or expose for sale, or have in their possession or transports for the purpose of sale, any live or dead wild animal listed on Schedule 5 or any part of, or anything derived from such an animal.

As noted above, there are minor differences between the offences in England and Wales outlined above, and those in Scotland / Northern Ireland. The three clauses marked with asterisks do not apply to EPS in England and Wales, as these offences are included in the 'Habitats Regulations' (see below). In addition, the Wildlife and Countryside Act 1981 is no longer relevant to EPS in Scotland or Northern Ireland, which instead are afforded full protection by the 'Habitats Regulations' (see below).

In addition to EPS, species commonly found on development sites include water voles (*Arvicola amphibius*) and widespread species of reptiles: common lizard (*Zootoca vivipara*); slow-worm (*Anguis fragilis*); grass snake (*Natrix helvetica*); and adder (*Vipera berus*). These four reptile species receive partial protection, which prevents the intentional or deliberate killing and injuring of reptiles or offering them for sale.

Section 14(2)[7] states that it is an offence to plant or otherwise cause to grow any plant in the wild at a place outside its native range.

There is no provision within the Act for derogation licences to be issued for the purposes of development, although Section 10 provides a defence in cases that may be considered to be: *"the incidental result of a lawful operation and could not reasonably have been avoided"* if certain conditions are met.

Section 16(i) of the Act does make provision for derogation licences to be issued *"for the purposes of preserving public health or public … safety"*. For confirmation of this, it would be appropriate to consult the relevant statutory nature conservation body (SNCB)[8].

[7] In Scotland, as amended by Section 14 of the Wildlife and Natural Environment (Scotland) Act 2011.

[8] SNCBs are - in England: Natural England; in Wales: Natural Resources Wales; in Scotland: NatureScot; in Nortern Ireland: Department of Agriculture, Environment and Rural Affairs (DAERA).

The Conservation of Habitats and Species Regulations (Habitat Regulations) 2017
https://www.legislation.gov.uk/uksi/2017/1012 England and Wales

Countryside and Rights of Way Act 2000
https://www.legislation.gov.uk/ukpga/2000/37

The Countryside and Rights of Way (CRoW) Act 2000 provides for public access on foot to certain land types, amends the law for public rights of way, increases protection for SSSIs, and strengthens wildlife enforcement legislation. It applies only in England and Wales.

The Hedgerows Regulations 1997
https://www.legislation.gov.uk/uksi/1997/1160/made

The Hedgerows Regulations 1997 provide protection for 'important' hedgerows for which replanting is not a substitute. The 'importance' of a hedgerow depends upon several archaeological, wildlife and landscape criteria (which are outlined in the Regulations). The regulations deem it an offence to remove an 'important hedgerow' without prior notification to the relevant local planning authority.

Protection of Badgers Act 1992
https://www.legislation.gov.uk/ukpga/1992/51

Badgers and their setts are protected under the Protection of Badgers Act 1992 (England, Wales and Scotland). The key part of this legislation in relation to the proposed development are in Section 3, which deems it an offence to:

a) damage a badger sett or any part of it;
b) destroy a badger sett;
c) obstruct access to, or any entrance of, a badger sett;
d) disturb a badger when it is occupying a badger sett,
e) intend to do any of those things or be reckless as to whether those actions would have any of the consequences listed above.

Derogation licences may be obtained from the relevant SNCB[8] under Section 10 of the Act for the purpose of development, to permit activities which would otherwise be unlawful.

Note: there are additional provisions relating to badgers under the WCA Section 11 (Prohibition of certain methods of killing or taking wild animals).

The Wild Mammals (Protection) Act 1996
https://www.legislation.gov.uk/ukpga/1996/3

All wild mammals are protected by The Wild Mammals (Protection) Act 1996 (as amended). This makes it an offence to mutilate, kick, beat, nail, or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal.

Invasive Alien Species (Enforcement and Permitting) Order 2019
(https://www.legislation.gov.uk/uksi/2019/527/contents/made)

The Invasive Alien Species (Enforcement and Permitting) Order applies principally in England and Wales and the UK's offshore marine area, but also controls imports and exports from the UK (including Scotland and Northern Ireland). It lists species of concern which cannot be imported, kept, bred/grown, transported, sold, used, allowed to reproduce, or released into the environment.

This Order replaces some elements relating to invasive species in the Wildlife and Countryside Act 1981 (as amended).

National, regional and local policy and guidance of relevance

Planning policy relating to ecology and nature conservation is set out below.

National Planning Policy Framework 2021

Access via: https://www.gov.uk/government/publications/national-planning-policy-framework--2

The National Planning Policy Framework (NPPF) sets out the Government's planning policy in England at the national level. It does not contain specific policies for nationally significant infrastructure projects, which are determined in accordance with the decision-making framework in the Act and relevant National Policy Statements for major infrastructure, as well as any other matters that are relevant (which may include the NPPF). Section 15 (paragraphs 174-188) of the NPPF specifies the requirements for conserving and enhancing the natural environment through the planning and development process to minimise impacts on habitats and biodiversity.

Planning Practice Guidance

Accessed via: https://www.gov.uk/government/collections/planning-practice-guidance

The Planning Practice Guidance is a web-resource to support the NPPF, including guidance for Environmental Impact Assessments (https://www.gov.uk/guidance/environmental-impact-assessment) and the Natural Environment (https://www.gov.uk/guidance/natural-environment). The guidance for the Natural Environment explains key issues in implementing the NPPF to protect and enhance the natural environment, including local requirements. The guidance outlines what evidence needs to be taken into account in preparing planning applications to identify and map local ecological networks. It also outlines how biodiversity can be taken into account in preparing a planning application.

Government's 25-Year Environment Plan 2018

Accessed via: https://www.gov.uk/government/publications/25-year-environment-plan

The Government's 25-Year Environment Plan 2018 sets out how the UK Government intends to improve the natural health of the UK through improving land, air and water quality, as well as setting out how the effects of climate change will be tackled. The plan promotes the creation or restoration of wildlife-rich habitat outside the protected site network and seeks to recover threatened, iconic or economically important species of animals, plants and fungi, and where possible to prevent human induced extinction or loss of known threatened species in England. The plan sets out a number of goals and corresponding policies that look at managing land sustainably, improving and enhancing landscapes and biodiversity for both marine and terrestrial environments, improving resource efficiency and reducing waste and pollution, whilst also examining the UK's contribution to improving the global environment.

Technical Advice Note 5, Nature Conservation and Planning (2009)

https://gov.wales/technical-advice-note-tan-5-nature-conservation-and-planning

Provides guidance on how the land use planning system in Wales should contribute to protecting and enhancing biodiversity and geological conservation. It gives advice on developments affecting

designated sites and habitats, in addition to protected or priority habitats and species. It identifies protected species as a material planning consideration, discusses protection of EPS, as well as birds, badgers, other animals and plants, and provides guidance on habitats and species of principal importance for biodiversity in Wales.

APPENDIX B – NOTEWORTHY SPECIES RECORDS

Table 5 displays noteworthy species records that are located within 1 km of the site boundary. These species records were obtained from Thames Valley Environmental Records Centre (TVERC). The scientific and common names for species are given as well as their level of designation. A glossary defining abbreviations used in the table is given in *Table 6*, Appendix C. If a species is not included in the table below it does not necessarily mean the species is absent from the search area, but that data-holding organizations do not have records of it in these locations.

Table 5: Noteworthy species records within 1 km of the site boundary

Scientific name	Common name	Designation	Number of records	Most Recent
Plants				
Hyacynthoides non-scripta	Bluebell	WCA-8	9	2015
Oxalis acetosella	Wood-sorrel	RL-Eng-post2001-NT	1	2015
Valeriana officinalis	Common Valerian	RL-Eng-post2001-NT	1	2012
Solidago virgaurea	Goldenrod	RL-Eng-post2001-NT	1	1997
Briza media	Quaking-grass	RL-Eng-post2001-NT	1	2010
Fragaria vesca	Wild Strawberry	RL-Eng-post2001-NT	1	2006
Invertebrates				
Bombus rupestris	Hill Cuckoo bumblebee	Notable-B	1	2013
Hippodamia variegata	Adonis ladybird	Notable-B	1	2013
Scolytus mali	Large Fruit Bark Beetle	Notable-B	1	2003
Lucanus cervus	Stag beetle	NERC-S41; Notable-B	114	2020
Cupido minimus	Small blue	WCA5; NERC-S41; RL-GB-post2001-NT	8	2004
Satyrium w-album	White-letter Hairstreak	WC5; NERC-S41; RL-GB-post2001-NT	1	2019
Rhyacophila septentrionis	Caddis fly	Notable	1	1995
Gomphus vulgatissimus	Common club-tail	RL-GB-post2001-NT	1	2017
Sympetrum striolatum	Common darter	RL-GB-post2001-NT	1	1997
Baetis fuscatus	Mayfly	RL-GB-post2001-NT	3	1994
Baetis niger	Southern iron blue	NERC-S41	1	1994
Pseudanodonta complanata	Depressed River mussel	NERC-S41; RL-Global-post2001-VU	2	2013

Scientific name	Common name	Designation	Number of records	Most Recent
Gyraulus acronicus	Thames ramshorn	NERC-S41; RL-GB-post2001-VU	1	1992
Tyria jacobaeae	Cinnabar	NERC-S41	1	1997
Lygus pratensis	True bug	RL-GB-pre94-R	1	1997
Herpetofauna				
Rana temporaria	Common frog	Hab-Dir-A4; WCA5	2	2010
Lissotriton vulgaris	Smooth newt	WCA5	1	2018
Natrix helveticus	Grass snake	WCA5; NERC-S41	1	2009
Birds				
Tytus alba	Barn owl	WCA1	4	2016
Branta leucopsis	Barnacle goose	BirdsDir-A1	1	2015
Chroicocephalus ridibundus	Black-headed gull	Bird-Amber	93	2017
Pyrrhula pyrrhula	Bullfinch	NERC-S41; Bird-Amber	8	2016
Cettia cetti	Cetti's warbler	WCA1	2	2020
Larus canus	Common gull	Bird-Amber	12	2017
Acanthis flammea	Common redpoll	Bird-Amber	1	1997
Sterna hirundo	Common tern	Bird-Amber	5	2013
Cuculus canorus	Cuckoo	NEWRC-S41; Bird-Red	25	2017
Prunella modularis	Dunnock	NERC-S41; Bird-Amber	54	2017
Turdus pilaris	Fieldfare	WCA1; Bird-Red	10	2017
Regulus ignicapilla	Firecrest	WCA1	5	2015
Locustella naevia	Grasshopper warbler	NERC-S41; Bird-Red	4	2016
Larus marinus	Great Black-backed gull	Bird-Amber	4	2015
Motacilla cinerea	Grey wagtail	Bird-Red	12	2016
Anser anser	Greylag goose	Bird-Amber	3	2015
Larus argentatus	Herring gull	NERC-S41; Bird-Red	34	2017
Falco subbuteo	Hobby	WCA1	3	2014
Delichon urbicum	House martin	Bird-Amber	16	2017
Passer domesticus	House sparrow	NERC-S41; Bird-Red	26	2016
Falco tinnunculus	Kestrel	Bird-Amber	18	2017
Alcedo atthis	Kingfisher	BirdsDir-A1; WCA1; Bird-Amber	11	2017
Vanellus vanellus	Lapwing	NERC-S41; Bird-Red	2	2014
Larus fuscus	Lesser black backed gull	Bird-Amber	88	2017
Acanthis cabaret	Lesser redpoll	NERC-S41; Bird-Red	11	2016
Dryobates minor	Lesser spotted woodpecker	NERC-S41; Bird-Red	3	2017

Scientific name	Common name	Designation	Number of records	Most Recent
Egretta garzetta	Little egret	BirdsDir-A1	9	2018
Charadrius dubius	Little ringed plover	WCA1	1	2018
Anas platyrhynchos	Mallard	Bird-Amber	28	2016
Poecile palustris	Marsh tit	NERC-S41; Bird-Red	4	2016
Anthus pratensis	Meadow pipit	Bird-Amber	1	2014
Turdus viscivorus	Mistle thrush	Bird-Red	40	2020
Cygnus olor	Mute swan	Bird-Amber	1	2014
Luscinia megaryhynchos	Nightingale	Bird-Red	2	2016
Falco peregrinus	Peregrine	Birds-Dir-A1; WCA1	1	2016
Ficedula hypoleuca	Pied flycatcher	Bird-Red	3	2004
Milvus milvus	Red kite	BirdsDir-A1; WCA1; RL-Glbal-post2001-NT	111	2020
Tringa totanus	Redshank	Bird-Amber	1	2016
Turdus iliacus	Redwing	WCA1; Bird-Red	41	2017
Emberiza schoeniclus	Reed bunting	NERC-S41; Bird-Amber	33	2017
Alauda arvensis	Skylark	NERC-S41; Bird-Red	2	2012
Gallinago gallinago	Snipe	Bird-Amber	9	2017
Turdus philomelos	Song thrush	NERC-S41; Bird-Red	31	2020
Muscicapa striata	Spotted flycatcher	NERC-S41; Bird-Red	5	2017
Sturnus vulgaris	Starling	NERC-S41; Bird-Red	68	2017
Columba oenas	Stock dove	Bird-Amber	93	2017
Apus apus	Swift	Bird-Amber	33	2017
Strix aluco	Tawny owl	Bird-Amber	20	2018
Anas crecca	Teal	Bird-Amber	1	2003
Streptopelia turtur	Turtle dove	NERC-S41; Bird-Red	2	2011
Saxicola robetra	Whinchat	Bird-Red	1	2014
Phylloscopus trochilus	Willow warbler	Bird-Amber	10	2017
Larus michanhellis	Yellow-legged gull	Bird-Amber	1	2020
Mammals				
Erinaceus europaeus	Western European hedgehog	NERC-S41; RL-GB-post2001-VU	22	2020
Arvicola amphibius	Water vole	WCA5;NERC-S41; RL-GB-post2001-VU	1	2009
Lutra lutra	Otter	HabReg-Sch2; NERC-S41	1	2012
Meles meles	Badger	Badgers-1992	38	2021
Lepus europaeus	Brown hare	NERC-S41	2	1999

Scientific name	Common name	Designation	Number of records	Most Recent
Pipistrellus pymaeus	Soprano pipistrelle	HabDir-A4; HabReg-Sch2; WCA5; NERC-S41	10	2020
Epseticus serotinus	Serotine	HabDir-A4; HabReg-Sch2; WCA5	4	2018
Nyctalus noctula	Noctule	HabDir-A4; HabReg-Sch2; WCA5; NERC-S41	2	2018
Myotis daubentonii	Daubenton's bat	HabDir-A4; HabReg-Sch2; WCA5	2	2018
Pipistrellus pipistrellus	Common pipistrelle	HabDir-A4; HabReg-Sch2; WCA5	14	2020
Plecotus auritus	Brown long-eared bat	HabDir-A4; HabReg-Sch2; WCA5; NERC-S41	2	2017

APPENDIX C – ABBREVIATIONS

Table 6 displays abbreviations of protected species legislation.

Table 6: Glossary of abbreviations used in this report

Code	Full Title	Explanation
Amber	Amber list	Amber listed species have a population status in the UK of medium conservation concern.
BAP	Biodiversity action plan	A plan that identifies threats to significantly important species and habitats, and sets out targets and actions to enhance or maintain biodiversity.
BOA	Biodiversity opportunity area	Extensive areas where improved habitat management, as well as efforts to restore and re-create Priority habitats will be most effective in enhancing connectivity to benefit recovery of Priority species in a fragmented landscape.
DA	The Deer Act 1991	All wild deer with the exception of Muntjac (*Muntiacus reevesi*) and Chinese Water deer (*Hydropotes inermis*) are protected by a closed season.
ENG BSBI RDB	A Vascular Plant Red List for England	A list published in 2014 by the Botanical Society of Britain and Ireland of the red list status of plants in England. Measured against standardised IUCN criteria.
ENG BSBI RDB(CR)	Critically endangered	A BSBI Red List designation for species at an extremely high risk of extinction.
ENG BSBI RDB(EN)	Endangered	A BSBI Red List designation for species at a very high risk of extinction.
ENG BSBI RDB(VU)	Vulnerable	A BSBI Red List designation for species at high risk of extinction.
EPS (Sch 2)	European protected species (Schedule 2)	European protected species of animals, listed on Schedule 2 of The Conservation of Habitats and Species Regulations 2017.
EPS (Sch 5)	European protected species (Schedule 5)	European protected species of plants, listed on Schedule 5 of The Conservation of Habitats and Species Regulations 2017.
GB RDB	Red data book species	Species identified in one of the UK Red Data 2001.
GB RDB(CR)	Critically endangered	An IUCN Red List designation for species at an extremely high risk of extinction.
GB RDB(EN)	Endangered	An IUCN Red List designation for species at a very high risk of extinction.
GB RDB(VU)	Vulnerable	An IUCN Red List designation for species at high risk of extinction.
HAP	Habitat action plan	A plan that identifies threats to a priority habitat and sets out targets and actions to enhance or maintain that habitat.
IUCN	International Union for Conservation of Nature and Natural Resources	A worldwide partnership and conservation network to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.
LBAP	Local biodiversity action plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in Species Action Plans and Habitat Action Plans to enhance or maintain biodiversity at the county or regional level.
LHAP	Local habitat action plan	A plan that identifies threats to a locally important priority habitat and sets out targets and actions to enhance or maintain that habitat.
LSAP	Local species action plan	A plan that identifies threats to locally important species, and sets out targets and actions to prevent losing that species from the local area.
Notable	Scarce and threatened invertebrates	Invertebrate species which are estimated to occur within the range of 16 to 100 10km squares but subdivision into Notable A and Notable B categories is not possible as there is insufficient information available).
Notable: A	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in 30 or fewer 10km squares of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties.

Code	Full Title	Explanation
Notable: B	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in between 31 and 100 10km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties.
NN	Nationally notable	Designation for invertebrate taxa that are thought to be notably important in the UK.
NR	Nationally rare	Species in 15 or fewer hectads in Great Britain.
NS	National scarce	Species in 16-100 hectads in Great Britain.
OSPAR	OSPAR	Species listed on The Convention for the Protection of the Marine Environment of the North-East Atlantic
Red	Red list	Red listed species have a population status in the UK with high conservation concern.
SAP	Species action plan	A plan that identifies threats to significantly important species, and sets out targets and actions to prevent losing that species to extinction.
S41	Species of principal importance	Species of Principal Importance in England under The Natural Environment and Rural Communities (NERC) Act (2006)
UKBAP	UK biodiversity action plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in species action plans and habitat action plans to enhance or maintain biodiversity in the UK.
WCA	The Wildlife and Countryside Act 1981 (as amended)	Containing 4 Parts and 17 Schedules, the Act covers protection of wildlife (birds, and some animals and plants), the countryside, National Parks, and the designation of protected areas, and public rights of way.

APPENDIX D – TARGET NOTES

Target Note 1: Sycamore tree (with 'unknown potential' to support roosting bats). This is located to the immediate north of the building and requires an aerial inspection.

Target Note 2: Dense scrub. This habitat was not comprehensively surveyed due to inaccessibility. Any clearance will require the presence of a suitably qualified ecologist. The scrub is dominated by bramble.

Target Note 3: Missing tiles/pointing on roof – potential roosting/entry points for bats.

Target Note 4: Missing tiles/pointing on roof – potential roosting/entry points for bats.

Target Note 5: Missing tiles/pointing on roof – potential roosting/entry points for bats.

Target Note 6: Holes in the soffit board – potential roosting/entry points for bats – these include a hole where a light is supposed to be (to the right of the main garden doorway) and a smaller hole around the corner (towards the road).

Target Note 7: Damaged/missing tiles on wall – potential roosting/entry points for bats. These tiles a vertically positioned on the wall of the building with a grey flat roof. The damaged tiles are in the bottom right corner.

Target Note 8: Gaps between the wall and the soffit board (top of wall) – potential roosting/entry points for bats. This feature is on the upper floor of the main amenity restaurant / public house building, facing the road (south).

Target Note 9: Missing tiles/pointing on roof – potential roosting/entry points for bats.

Target Note 10: Missing tiles/pointing on roof – potential roosting/entry points for bats.

Target Note 11: Missing ventilated cover, exposing a hole on the wall – potential roosting/entry points for bats.

Target Note 12: Dense hazel scrub – linear feature. This contributes to connecting the habitats in the wider landscape (incl. the BOA and LWS).

APPENDIX E – SITE PHOTOGRAPHS

Photo 1: Other neutral grassland (g3c)

Photo 2: Other neutral grassland (g3c) with tall ruderal vegetation

Photo 3: Dense scrub to the northeast (h3)

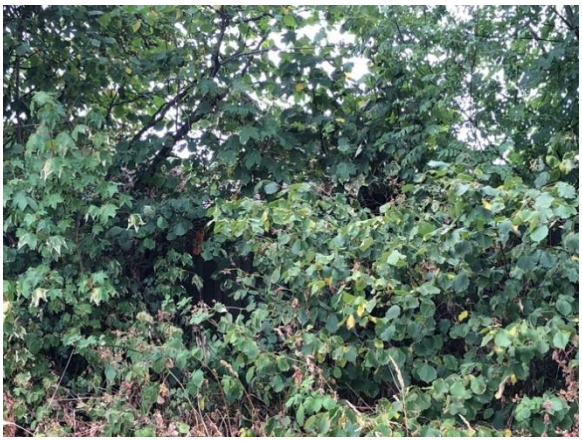


Photo 4: Dense hazel scrub (h3b6)

Photo 5: The mature sycamore to the immediate north of the building.

Photo 6: Semi-mature sycamore trees with negligible bat roosting potential.

Photo 7: Row of London plane trees on the opposite side of Bath Road

Photo 8: Two London planes and three sycamore trees to the immediate west of the site

Photo 9: The front view of the Former George and Dragon amenity restaurant / public house.

Photo 10: One of the roof spaces – well-sealed with no daylight.

Photo 11: Upstairs kitchen – well-sealed.

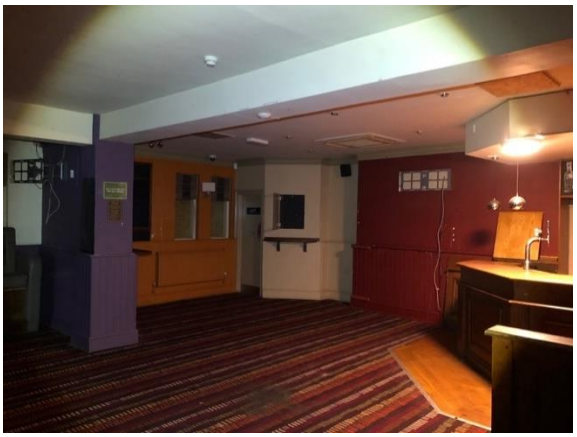


Photo 12: The main pub (ground floor)

Photo 13: The door leading to the carpark/garden – with 3-5 cm gaps. This room leads to the uninspected roof space and the damaged ceiling.

Photo 14: Slipped tiles and missing pointing on the roof.

Photo 15: Missing ridge tile pointing and lifted slates.

Photo 16: Some of the missing tiles on the north-facing roof.

Photo 17: Hole in the soffit box where a light should be. Another hole around the corner to right of this feature is also present.

Photo 18: Missing / damaged slates (wall) on the upper floor with the flat roof (north facing).

Photo 19: Gaps between the brickwork and soffit on the front left (upper) wall/window – road-facing.

Photo 20: Location of several missing slates on the front (south-facing) of the building.

Photo 21: Potential features on the eastern side of the building – slipped ridge tiles and a hole in the wall.

Photo 22: The missing ventilation cover.

RSK Biocensus is owned by RSK Environment Ltd
Registered office
Spring Lodge, 172, Chester Road, Helsby, Frodsham, England, WA6 0AR, UK
Registered in England No. 04364279
www.rsk.co.uk

RSK biocensus
EXPERTS IN ECOLOGY

18 Frogmore Road,
Hemel Hempstead,
Hertfordshire,
HP3 9RT
UK

Telephone: +44 (0)1442 437500
Fax: +44 (0)1442 437552
www.rsk.co.uk

Shane McNulty
Greene King Developments
Sunrise House
Ninth Avenue
Burton-upon-Trent
Staffordshire
DE14 3JZ

17 August 2022

Our reference: 2484266 – George & Dragon Tree Climbing Survey Letter Report

Dear Shane,

GEORGE & DRAGON TREE CLIMBING SURVEY

RSK Biocensus were instructed by Greene King Developments to undertake a Tree Climbing Survey in relation to proposed development at the George & Dragon, Reading in Berkshire (RG30 2HA). We understand that this development will require the removal of trees on site. A mature sycamore (*Acer pseudoplatanus*) tree on site was identified during the original preliminary ecological appraisal (conducted by RSK Biocensus on 26th July 2022) as having unknown suitability for supporting roosting bats due to the dense coverage of ivy. It was therefore recommended that the tree be inspected to determine the presence or likely absence of roosting bats.

Methods

Tree climbing survey

Two suitably experienced and licensed tree climbers, Richard Moulds (Utilitree Arb) and Keir Parsons (Pennant Ecology), carried out the survey on the 8th of August 2022. Both surveyors hold a valid Natural England bat licence permitting the inspection of potential roost features using artificial light, endoscopes, and hand-held static nets. Both climbers hold valid climbing and LOLER certification for climbing and aerial rescue.

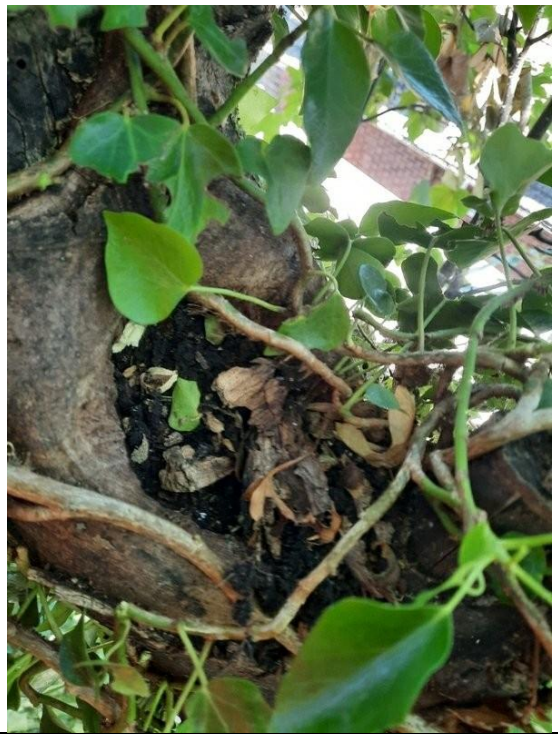
Where possible, our ecologists used ladders or tree climbing techniques to access features such as holes, cracks, and cavities to assess their true potential for roosting bats and to search for bats or evidence of bats, including droppings, staining marks etc. Endoscopes and torches were used where necessary, to aid inspection.

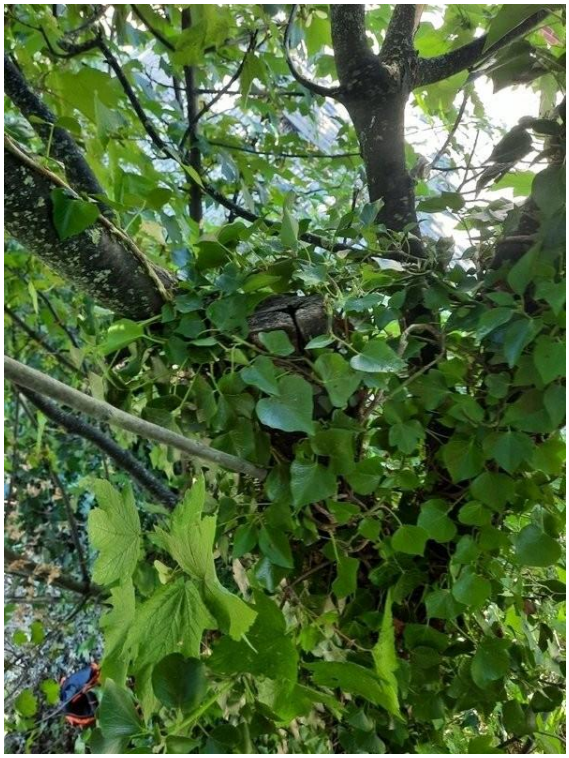
Results

None of the features previously identified in the original PEA were determined to have roosting potential during this climb. These features have therefore been given a negligible bat roost potential

rating. *Table 1* summarises the results of the single tree climbing survey with photographs of the features identified. A total of six potential roosting features (PRFs) were assessed during the survey.

Table 1. Results of tree climbing survey of a single mature sycamore.

Feature Number	Photograph	Description and Bat Roost Potential
PRF1 ivy cover		Ivy stems less than 50 mm in diameter and no matted sheets present so no roosting potential between the stems and not sufficiently dense to provide any roosting potential within the foliage. **Negligible Potential**
PRF2 - 6 rot holes		Multiple superficial cavities at point of previous topping cuts throughout the crown at approximately 10 m height. Many obscured from ground level view by the ivy cover. None with any roosting suitability. Multiple, superficial cavities developing at the point of previous topping cuts, where the remaining branch has decayed, and wound wood formation is developing. Cavities all open and shallow and very exposed with no roosting suitability **Negligible Potential**

Feature Number	Photograph	Description and Bat Roost Potential
		

Feature Number	Photograph	Description and Bat Roost Potential

During the survey an active wood pigeon (*Columba palumbus*) nest was discovered on the tree (Photo 1).

Photo 1. Active pigeon nest with juvenile present.

Evaluation and Conclusions

These survey results indicate that bats are unlikely to be using this tree for roosting. Therefore, no further surveys or a European Protected Species Mitigation Licence are required in relation to bats and this tree.

All active birds' nests are protected by law. A nest is deemed to be active even if it is in the process of being built and does not yet contain eggs or young. As such, this tree cannot be felled until the young have fledged. Ideally the felling of this tree would occur outside the breeding bird season (October and February). If it is necessary to remove the tree during the breeding season, this will require a watching brief by an ecologist no more than 48 hours before the tree is removed to ensure the chicks have fledged and that no other active nests are present within the tree.

If you have any further questions, then please do not hesitate to contact me via email Eleanor.Holloway@rsk.biocensus.com.

Yours sincerely,

Eleanor Holloway, MSc
Assistant Ecologist

Technical Review by

Prof. Richard (Dez) Delahay PhD MCIEEM CEcol.
Director

Greene King Plc
Sunrise House
Ninth Avenue
Burton-upon-Trent
Staffordshire
DE14 3JZ

Via email: shanemcnulty@greeneking.co.uk

Office Address
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

28 June 2023

Our reference: 2484266 – George Dragon Reading Emergence Surveys Addendum 2023

Dear Shane,

George Dragon Reading Emergence Surveys Addendum 2023

This letter documents the findings of the bat emergence survey carried out at the Former George and Dragon amenity restaurant / public house on Bath Road, Reading (RG30 2HA) on the 21st June 2023. This additional survey was requested by the client in June 2023 upon review of the bat report by the Berkshire county ecologist to determine the function of the building as a maternity roost in accordance with bat conservation trust best practice guidance[1].

The letter-report is an addendum to a previous report of a survey at the same location: *RSK Biocensus, (2022). The Former George & Dragon, Reading – Bat Report.*

Project Background

A preliminary roost assessment (PRA) of the Former George and Dragon amenity restaurant / public house building was completed by RSK Biocensus on 26th July 2022. The building was found to have moderate to high bat roost potential owing to the presence of multiple suitable features (e.g. roost access points) and therefore required at least two emergence and/or re-entry surveys to be carried out between May and September to confirm (or otherwise) the presence of roosting bats. Two surveys were undertaken on 8th August and 31st August 2022.

Surveys identified the building as a potential day roost noting an emergence from the southern aspect on the 8th and re-entry through the western aspect of the building by a suspected soprano pipistrelle (*Pipistrellus pygmaeus*). An additional survey was requested by the client in June 2023 to determine the function of the building as a maternity roost.

[1] Collins, J. (2016), *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edition). The Bat Conservation Trust, London.

Method

A single bat emergence (dusk) survey was carried out using Batlogger M, which have integrated digital recorders. Surveys were conducted during suitable weather: when the temperature was above 10°C, with low wind speeds and no rain. The dusk survey started 15 minutes before sunset and continued for 90 minutes after sunset. When bats emerged from the building, their calls were recorded and later analysed using computer software to aid the identification of species.

The survey was led by Andrew Oliver (Consultant Ecologist, RSK Biocensus), assisted by Ellis Perry (Consultant Ecologist, RSK Biocensus), Abi Woodman (Consultant Ecologist, RSK Biocensus) and Louis Cartledge (Consultant Ecologist, RSK Biocensus). Andrew has seven years of experience undertaking bat emergence surveys.

Results

Andrew Oliver was located in the parking area of the site and covered the western aspect of the building with an infra-red (IR) camera. Other locations included: Abigail Woodman (northern aspect), Ellis Perry (eastern aspect) and Louis Cartledge (southern aspect). The positions (*Figure 1*) gave the best view of the features and roost locations noted in 2022. The results of the survey are presented below in *Table 1*.

Figure 1. Surveyor locations

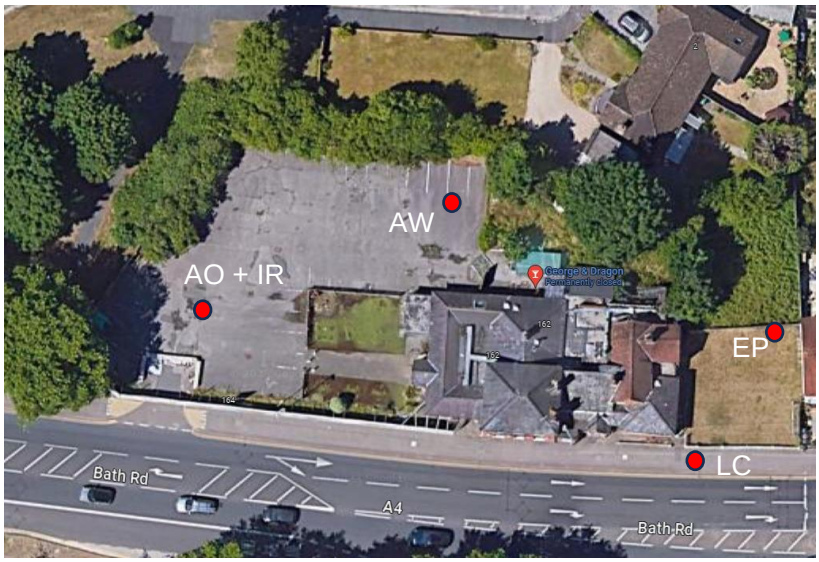


Table 1: Results of bat survey

Date	Surveyors	Time	Weather Conditions	Notes
21/06/2023	Andrew Oliver, Ellis Perry, Abigail Woodman and Louis Cartledge	Start: 21:10 Sunset: 21:25 End: 22:55	Dry, Wind: 1, Temp at start: 21 °C, Temp at end: 20 °C, Rain: N/A	One bat was recorded emerging (21:47) from the northern side of the building between the soffit and window. This bat flew north but did not call. From infrared camera imagery and other activity close to this period the species is believed to be a pipistrelle (likely common pipistrelle). There were two other possible emergences of individual bats at 21:54 and 21:55 but these were not able to be confirmed by the infrared camera footage. Little activity was recorded on the western side of the building. More activity was recorded along the eastern and northern aspects. However, this was mostly commuting bats moving across Bath Rd, over the parking area or along the tree line to the north of the site. Common pipistrelle – initial contact at 21:44 Soprano pipistrelle – initial contact at 21:40

Limitations

Dense vegetation in the garden section to the north of the building prevented access. This was not a limitation in the previous surveys. The vegetation prevented the placement of a surveyor in this area as per the previous survey. However, this is not deemed a significant limitation for the survey as a complete view of the building's roosting features and the previous roosts was achieved without access to this area.

Conclusion and Evaluation

One confirmed emergence and two possible emergences were recorded on the northern side of the building, no emergences were noted on the southern side of the building or elsewhere. The emergence on the northern aspect of the building is consistent with activity from our previous findings but appeared from a different location within the building. However, low numbers of bats were confirmed emerging (one) and so it is likely that the building remains a daytime roost as per the previous report[2] and a maternity roost is not considered to be present.

As this building is a confirmed roost, any work will require a European protected species licence (EPSML) for the disturbance, modification and destruction of the roosts. As outlined in the original report, as the building is to be demolished, an EPSML and some form of mitigation and compensation will be required.

[2] RSK Biocensus, (2022). *The Former George & Dragon, Reading – Bat Report*. 2484266

If you require and further information about this report, please contact Eleanor Holloway (project manager) on 07435 982100 or email at Eleanor.holloway@rskbiocensus.com.

Yours sincerely,

Ellis Perry
Consultant Ecologist

On behalf of RSK Biocensus

Reviewed by

Ruth Morton
Principal Ecologist

Greene King Commercial Investments Limited

The Former George & Dragon, Reading

Bat Report

2484266

SEPTEMBER 2022

RSK biocensus
EXPERTS IN ECOLOGY

RSK GENERAL NOTES

Project No.: 2484266

Title: The Former George & Dragon, Reading – Bat Report

Client: Greene King Commercial Investments Limited

Date: September 2022

Office: Hemel

Status: Rev00

Author	Eleanor Holloway BSc MSc	**Update**	Maya Griffin BSc (Hons)
Signature		Signature	
Date:	15/09/2022	Date:	27/09/22
Project manager	Eleanor Holloway BSc MSc	**Technical and quality reviewer**	Prof. Richard (Dez) Delahay PhD MCIEEM CEcol.
Signature		Signature	
Date:	15/09/2022	Date:	27/09/22

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This work has been undertaken in accordance with the quality management system of RSK Biocensus.

Switchboard: +44 (0)330 223 1074 Company contact: Enquiries@biocensus.co.uk

EXECUTIVE SUMMARY

1. This report summarises the findings of the bat surveys carried out in connection with the proposed demolition of existing pub/ restaurant and erection of one Drive Thru retail / bakery unit (Class E) including erection of supporting structures, together with alterations to means of access, car parking, landscaping and associated works at the Former George and Dragon amenity restaurant / public house on Bath Road, Reading (RG30 2HA).
2. The site comprises a large amenity restaurant / public house building with hard-standing (car park), dense scrub and broadleaved trees around the margins, and a mix of tall ruderal vegetation and amenity grassland to the immediate north and east of the amenity restaurant / public house. The site is situated in an urban area approximately 3 km west of Reading city centre. There are large areas of agricultural land and coppiced broadleaved woodland to the south (1 km) and west (2.5 km).
3. A preliminary roost assessment (PRA) of the building was completed by RSK Biocensus in July 2022. The building was found to be suitable for roosting bats and required at least two emergence and/or re-entry surveys (RSK, 2022).
4. The dusk emergence survey and dawn re-entry survey were completed by RSK in August 2022. During the surveys, one common (*Pipistrellus pipistrellus*) and one possible soprano pipistrelle (*Pipistrellus pygmaeus*) were recorded emerging and re-entering the building, respectively. The common pipistrelle emerged from a roost in the southern aspect of the building and the soprano re-entered a roost in the western aspect. These were determined to be two separate roosts rather than multiple entrances to a single roost. As only one bat was observed per roost, they were considered to be day roosts.
5. Three species of bat were recorded foraging and commuting in the vicinity of the building during the dusk survey and two species were recorded during the dawn survey.
6. It was decided that no further information about the roosts could be gained from a third survey and so only two survey visits were made.
7. Due to the observed emergence and re-entry of the pipistrelles, the building is a confirmed bat roost; used by common and possibly soprano pipistrelles as two separate day roosts.
8. Any work on the building will therefore require a Natural England European Protected Species Mitigation Licence (EPSML). Appropriate mitigation and compensation options are discussed.
9. The results and recommendations in this report are valid for a maximum of two years. If the redevelopment works are to start after this period, then the surveys will need to be repeated to ensure contemporary information is available to support the development.

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1.0 INTRODUCTION

1.1 Purpose of this report

1.1.1 This report presents the results of dusk and dawn emergence and re-entry surveys carried out at the Former George and Dragon amenity restaurant / public house in Reading (*Figure 1*), on 8th August 2022 and 31st August 2022, respectively. The surveys were completed on behalf of Greene King Commercial Investments Limited.

1.2 Landscape context

1.2.1 The 0.25 ha site comprises a large amenity restaurant / public house building with hard-standing (carpark), dense scrub, broadleaved trees around the margins, and a mix of tall ruderal vegetation and amenity grassland to the immediate north and east of the amenity restaurant / public house. The site is situated in an urban area approximately 3 km west of Reading city centre. There are large areas of agricultural land and broadleaved woodland coppice to the south (1 km) and west (2.5 km) of the site.

1.3 Development proposals

1.3.1 The development proposals comprise the demolition of the Former George and Dragon amenity restaurant / public house to accommodate a new drive-thru, which will include one 186 m^2 brick building with adjacent outdoor dining areas and a 33-space car park including two disabled, two waiting bays and 10 electric vehicle charging bays. This development also involves the removal of several trees and the planting of ornamental flowers and shrubs around the margins of the site.

1.4 Background

1.4.1 A preliminary roost assessment (PRA) of the Former George and Dragon amenity restaurant / public house building was completed by RSK Biocensus on 26th July 2022. The building was found to have moderate to high bat roost potential owing to the presence of multiple suitable features (e.g. roost access points) and therefore required at least two emergence and/or re-entry surveys to be carried out between May-September to confirm (or otherwise) the presence of roosting bats. To ensure adequate coverage of the building a total of five surveyors were determined to be necessary for each survey visit (RSK, 2022).

2.0 METHODS

2.1 General

2.1.1 The surveys were carried out in accordance with the Bat Conservation Trust (BCT) good practice guidelines (Collins, 2016). Specifically, they followed the methodology described for undertaking bat emergence/re-entry surveys.

2.2 Emergence and re-entry surveys

2.2.1 Dusk emergence and dawn re-entry surveys were carried out by Daniel Fellman, John Daw, Bethany Turner, Steven Phillips, Charlotte Rose, Kathryn Skinner, Ruby Hill, Andrew Lewis, Louis Cartledge and Eleanor Holloway. All surveyors have experience in undertaking evening emergence and dawn re-entry surveys and are suitably qualified. They are all members of the Chartered Institute of Ecology and Environmental Management (CIEEM). Daniel holds class 2, 3 and 4 licences to survey for bats (licence references: 2015-10403-CLS-CLS, 2018-35857-CLS-CLS and 2018-35858-CLS-CLS) and John holds class 2, 3 and 4 licences to survey for bats (licence references: 2017-28491-CLS-CLS, 2017-28492-CLS-CLS and 2018-37686-CLS-CLS).

2.2.2 Surveyors were positioned in locations with a good view of potential roost access-points identified during the PRA (Figure 2). The dusk emergence survey started 15 minutes before sunset and continued for 90 minutes after, and the dawn re-entry survey started 90 minutes before sunrise and continued for 15 minutes after.

2.2.3 Electronic equipment capable of detecting and recording the ultrasonic echolocation calls of bats in flight was used to record bat activity (Elekon Batlogger M or Peersonic RPA3 bat detectors). Species were identified from the characteristics of their calls (including peak frequency, minimum and maximum frequency, call duration, and inter-pulse interval). In addition, an infra-red camera (Canon XA11 infra-red video camera with additional external infra-red spotlight) was used to monitor the most suitable bat roosting features on the dawn survey.

2.2.4 The surveys were carried out in weather suitable for bat activity (i.e. dry, no strong wind and sunset air temperature 10°C or above: see Table 1).

Table 1: Emergence and re-entry survey weather conditions

Date	Survey type	Sunset / sunrise time	Start / end time	Temperature (°C)	Wind (Beaufort)	Cloud (Octas)	Precipitation
08/08/22	Dusk emergence	20:41	20:26 22:11	21	0	0	None
31/08/22	Dawn re-entry	06:15	04:30 06:30	14	0	0	None

2.3 Survey constraints

2.3.1 The street lights along Bath Road remained on throughout both surveys. These lights run along the southern side of the building. Bath Road was also busy with traffic throughout the night. The noise and light disturbance may have interfered with the detectors and surveyors.

3.0 RESULTS

3.1 Emergence and re-entry surveys

3.1.1 The results of the surveys are presented in Table 2 below.

Table 2: Emergence and re-entry survey results

Survey Date	Notes
08/08/2022 (Emergence) Surveyors: John Daw Kathryn Skinner Stephen Phillips Charlotte Rose Louis Cartledge	At 21:26 a single bat was observed to emerge from the southern side of the building and fly south towards the trees across the road (Roost 1, Figure 3), based on the calls recorded at that time, the bat is most likely to have been a common pipistrelle (*Pipistrellus pipistrellus*). It was suspected to have emerged from the eave where a gap is present between the soffit and external wall, however the exact exit point could not be determined. Common pipistrelles, soprano pipistrelles (*Pipistrellus pygmaeus*) and noctules (*Nyctalus noctula*) were frequently recorded foraging and commuting around the pub gardens to the north of the building throughout the survey. The first bat recording was of a common pipistrelle observed foraging around the north-west of the site, 19 minutes after dusk (at 21:00). The first soprano pipistrelle was recorded foraging at 21:04. The first noctule was recorded flying high overhead at 21:24. The last bat was a common pipistrelle heard at 22:08.
31/08/2022 (Re-entry) Surveyors: Daniel Fellman Andrew Lewis Eleanor Holloway Bethany Turner Ruby Hill	At 05:33 a single bat was observed to fly south-west from the north-east, over the roof then circled east and entered a roost in the western side of the building (Roost 2, Figure 3), the exact entry point could not be determined. This bat was not picked up by any of the surveyor's detectors, therefore the species cannot be confirmed, but it was most likely to be a pipistrelle based on its re-entry within the hour of light before dawn, which may also explain why it didn't need to echolocate. From the acoustic data recorded around that time (± 10 min) by all the detectors present, the bat observed to re-enter the building is more likely to be soprano than common pipistrelle, but this is inconclusive. A total of four bats were recorded throughout the entire survey, all suspected to be pipistrelles. The first bat recording was of a common pipistrelle heard 72 minutes before dawn (at 05:03), and no other common pipistrelles were recorded during the survey. The first soprano pipistrelle was recorded at 05:22 and observed to fly from the east towards the southern side of the building, and another was heard at 05:27.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 Emergence and re-entry surveys

4.1.1 Pipistrelle bats were found to be using the building as a day roost. One bat emerged from the southern aspect, most likely a common pipistrelle (Roost 1) and the other entered the western aspect of the main building, possibly a soprano pipistrelle (Roost 2) (Figure 3). From the structure of the building, it is clear that these are two separate roosts, each supporting at least one bat. Given the small number of bats recorded, they are thought to represent day roosts and are insufficient to be considered maternity roosts. The building therefore supports two confirmed pipistrelle roosts and the proposed demolition of the main building will require a Natural England European Protected Species Mitigation Licence (EPSML) for the destruction of the roosts.

4.2 Mitigation and compensation

4.2.1 An EPSML will be required for the demolition of the building to take place legally. The EPSML will require some form of mitigation and compensation measures to reduce the impact of the lost roosts on the local bat population. Three possible approaches are provided below, in order of preference:

- Bat boxes (e.g. Schwegler 1FF bat boxes) mounted onto the new building or integrated bat structures (e.g. Schwegler 1FR bat tubes) incorporated into the fabric of the new building. The new building would need to be made of suitable materials to support functional roosting structures; glass and metal do not provide landing areas with sufficient grip for bats to gain entry and have limited capacity for the incorporation of integrated bat structures. Although the development proposal indicates that the building will be brick, the presence of cladding or the size and placement of windows have yet to be specified.
- Bat boxes mounted onto any suitable retained mature trees on site. Note that the use of mature trees close to the development but outside of the site boundary would require permission from the landowner (e.g. the local council).
- Bat boxes mounted onto posts erected in the circumferential areas of scrub or hedgerow within the site boundary.

4.2.2 At least four such boxes/structures would be required to compensate for the loss of the two day roosts. The replacement structures should be at heights of at least 4 m and positioned on the southern and western aspects of the new building (two per side) to replicate the approximate positions of the destroyed roosts (Figure 3), to encourage re-occupation by the impacted bats.

4.2.3 The development proposals should include a lighting strategy that takes account of the bats and their commuting routes. This strategy should follow the guidance provided in Guidance Note 8 Bats and Artificial Lighting, issued by the Institute of Lighting Professionals (2018). The strategy should ensure that any lighting introduced during both the construction and operation of the new site does not surpass the current on-site levels of illumination by more than 1 lux. The following mitigation measures should be applied to minimise disturbance caused by artificial lighting:

- Avoid illumination of retained boundary features and buildings, including sections of the building not currently undergoing demolition, and the surrounding trees and scrub. Barriers may be required if lighting near these features cannot be avoided.
- No direct illumination of potential roosting features on buildings.
- Use light sources that emit minimal UV light and avoid white or blue wavelengths.
- Individual lamps should be hooded and directed where needed to avoid unnecessary light spillage.
- Night working should be avoided.

4.3 Validity of data

4.3.1 Unless the site changes significantly, the surveys carried out for this report should remain valid for at least 18 months, and potentially up to 3 years (CIEEM, 2019).

REFERENCES

Chartered Institute of Ecology and Environmental Management (2019), *Advice Note on the Lifespan of Ecological Reports & Surveys*. CIEEM, Winchester, Hampshire.

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FIGURES

Figure 1: Site Location Plan

Figure 2: Surveyor Positions

Figure 3: Roost Locations

APPENDIX – LEGISLATION

All species of British bat are protected by The Wildlife and Countryside Act 1981 (as amended) extended by the Countryside and Rights of Way Act 2000. This legislation makes it an offence to:

- intentionally kill, injure or take a bat;
- possess or control a bat;
- intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- intentionally or recklessly disturb a bat while it occupies a bat roost.

Bats are also European Protected Species listed on Schedule 2 of The Conservation of Species and Habitats Regulations 2017 (as amended). This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats, including 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) hibernate or migrate, where relevant; or (b) to affect significantly the local distribution or abundance of the species to which they belong;
- damage or destroy a breeding site or resting place of a bat; and
- possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

All bat roosting sites receive legal protection even when bats are not present.

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Registered office
Spring Lodge, 172, Chester Road, Helsby, Frodsham, England, WA6 0AR, UK
Registered in England No. 04364279
www.rsk.co.uk