

High Ridge, Upper Warren Avenue, Caversham Ecological Report

Prepared for Mr & Mrs S.Bartlett

November 2020

Revision 01

TURNSTONE ECOLOGY LIMITED

Project Number TT3013

Title High Ridge, Upper Warren Avenue, Caversham

Document Number R01-Ecological Report-Rev01

Client Mr & Mrs S.Bartlett

Issue Date 11 November 2020

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1 INTRODUCTION

1.1 Purpose of Report

This Ecological Report has been completed in connection with the proposed demolition and rebuilding of a residential dwelling (into another residential dwelling) and associated landscaping in the front and rear garden at High Ridge, Upper Warren Avenue, Caversham, Reading, RG4 7ED (OS Grid Reference SU 6971 7525). The location of the proposed development site is shown in *Figures 1 and 2* and the proposed development plans are fully detailed in *Section 4*.

A site survey was carried out on 6th August 2020 by Turnstone Ecology Ltd and consisted of a Phase 1 Habitat Survey, protected species habitat suitability assessment and a Preliminary Roost Assessment (PRA) survey. A subsequent visit was carried out on 19th of August to assess the suitability of a pond in the neighbouring garden for Great Crested Newts. Based on the initial PRA, bat surveys were deemed necessary and have been subsequently carried out on the 24th of August and 10th of September.

This report details survey and assessment methodology and the results of a desk-based study and on-site surveys. It also provides an assessment of potential ecological impacts and appropriate mitigation to offset any ecological impacts associated with the proposal and to satisfy national and local planning policies.

Figure 1. Location of proposed development

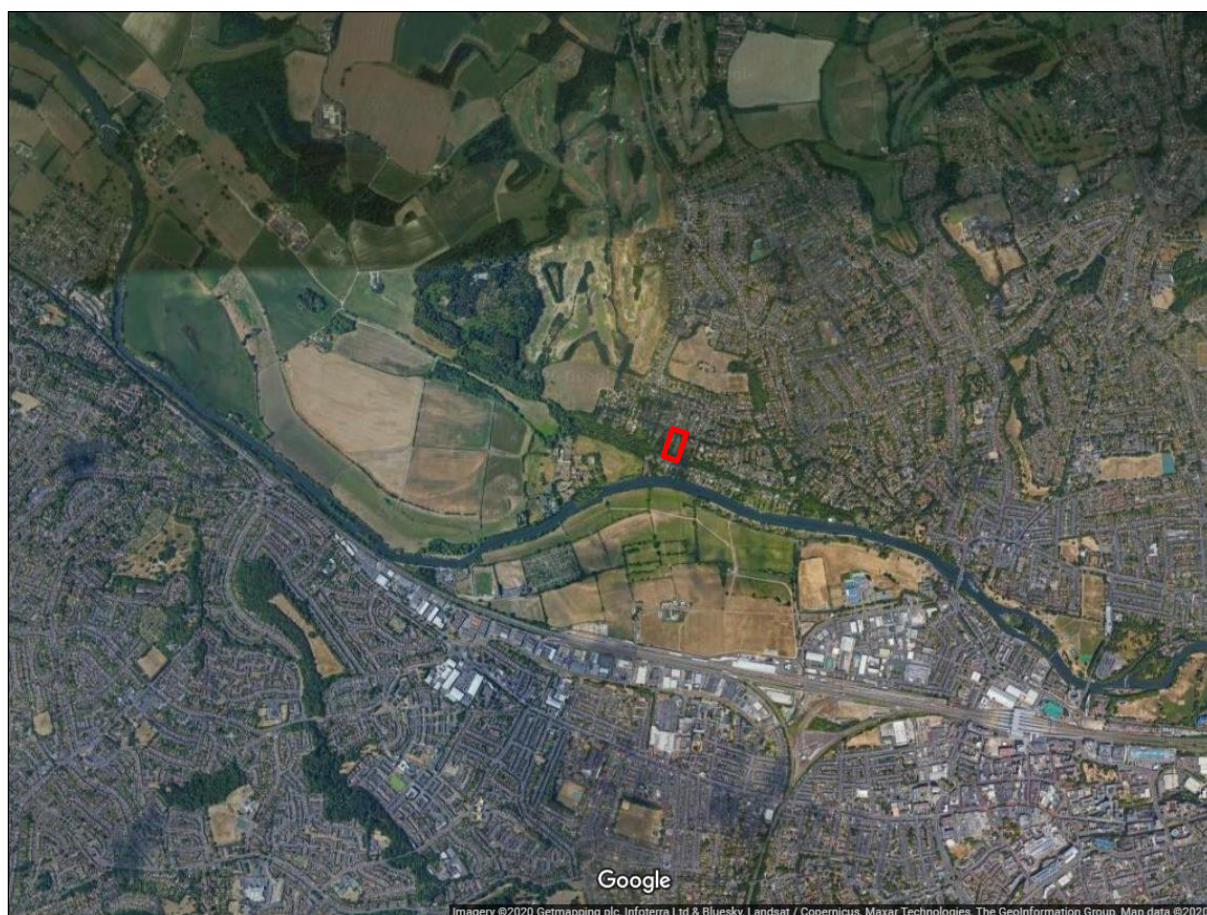


1.2 Ecological Context

The site consists of a residential dwelling and associated garden. There are areas of hardstanding that comprise a driveway, parking area and access paths around the house. The site is immediately bordered by residential dwellings and associated gardens to the east and west, Upper Warren Avenue to the north and a wooded escarpment to the south.

The wider area is dominated by residential areas, particularly to the northeast, many of which have associated gardens. The area to the northwest is less built up and gives way to farms and Chazey Wood, which is situated to the west of the site, approximately 880m away at its closest point. The river Thames is present to the south of the site, approximately 115m away at its closest point, and is surrounded by more open areas, predominantly farmland. Beyond these areas to the south lies the main city of Reading.

Figure 2. Overview of the proposed development site and surrounding area



2 METHODS

2.1 Desk-based Study

Information relating to designated sites, sites where European Protected Species (EPS) Licences have been granted between 2009 and 2018 and historic records of protected species within 2 km of the proposed development site were updated for this report and obtained from Magic (www.magic.gov.uk) and other freely available information on the internet, such as planning portals.

Any species-specific historic records are detailed within the relevant species accounts in the *Results* section.

2.2 Phase 1 Habitat Survey

The survey methods were based on the Phase 1 Habitat Survey approach (Joint Nature Conservation Committee 2003), which is a standardised method to survey main habitat types. Plant nomenclature in this report follows Rose (*Revised Edition 2006*) for native, naturalised and garden varieties of vascular plant. Introduced species and garden varieties are not always identified.

2.3 Protected Fauna Survey and Assessment

The habitats on site were assessed for suitability for protected fauna that occur in the region and obvious signs and incidental sightings of protected species were noted where present. Taking into consideration the geographical region and habitat types on and adjacent to site, the protected species and species groups that could be encountered are listed below.

- Badger
- bat species
- nesting birds
- Great Crested Newts
- reptile species

Details of initial survey methods for each relevant species are given below.

2.3.1 Badger

Where access allowed a comprehensive assessment was carried out to identify areas that are used by Badgers (*Meles meles*) for foraging and sett digging. Signs of Badgers including setts, foraging signs, paths and latrines, were recorded where present.

2.3.2 Bats

Habitats within and immediately adjacent to site were assessed for their suitability for use by foraging or commuting bats. Areas of particular interest vary between species, but generally include sheltered areas and those habitats with good numbers of insects, such as woodland, scrub, hedges, watercourses, ponds, lakes and more species-rich or rough grassland.

Preliminary Roost Assessment

A detailed inspection was made of the exterior and interior of the house and shed within the existing property boundary for any evidence of bat use, such as live or dead bats, droppings, scratch marks, staining and prey remains, and in some cases the absence of cobwebs. Large quantities of cobwebs in roof voids or at access points tend to be suggestive of no bat use, although this evidence is not conclusive. The trees are also inspected for features suitable for use by roosting bats.

Buildings and trees are categorised according to their suitability for roosting bats as follows (taken from Bat Survey Guidelines, 3rd Edition)¹:

Negligible – Habitat features on site with very low suitability to be used by roosting bats.

Low – 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).

Moderate – A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only).

High – A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. They could be suitable for maternity roosts or hibernation sites.

Confirmed – Roosting bats confirmed as being present, either by the discovery of live or dead bats, droppings, prey remains, scratching or fur-staining.

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

Activity surveys

Dusk Emergence and Dawn Re-entry surveys are the primary methods for locating roosts in trees, buildings or built structures, as bats are not always found by internal and external inspection surveys (*e.g.* if the bats roost in areas that cannot be searched and/or leave little or no visible trace). Dusk Emergence and Dawn Re-entry surveys can also give a reasonable estimate of the number of bats present and help understand how bats are using a site for foraging and commuting.

The activity surveys were carried out by experienced ecologists from Turnstone Ecology, with the site being surveyed on two occasions. Full survey details are shown in the Tables below. The surveyors used Echo Meter Touch 2 Pro, Batbox Duet and Batbox Baton bat detectors and recording equipment. Surveyors were positioned so that all potential exit/re-entry points could be viewed. During the surveys bat activity was recorded on to survey forms including information on time, species recorded and behaviour. Continual recording was undertaken for the duration of each survey to ensure all bat activity was recorded. Audio tracks were downloaded and assessed using the BatSound and Kaleidoscope software packages to confirm the identity of bats recorded during the surveys.

The surveys at the proposed development site have been based on methods outlined in the Bat Survey Guidelines (BCT 2016) and covered the appropriate timings (up to 0.25 hours before sunset until 1.5 hours after sunset and 1.5 hours pre-dawn to just after sunrise). The surveys were carried out during appropriate weather conditions (details presented in *Table 1*.)

Table 1- Weather Conditions

	Survey Visit 1 24/08/2020 PM		Survey Visit 2 10/09/2020 PM	
	Start	End	Start	End
Time	20:00	21:40	19:15	21:03
Temp	18	17.5	16	13
Wind	2	1	0	0
Cloud	7	8	0	6
Precipitation	None		None	
Sunset/rise	20:06		19:29	

2.3.3 Nesting birds

Habitat that might be used by nesting birds was identified and actively nesting birds or evidence of nesting birds noted where present.

Different bird species use buildings, trees and shrubs, undergrowth or even open fields for nesting and suitability of the site for use by a range of nesting bird species was considered.

2.3.4 Great Crested Newt

The suitability of any aquatic and terrestrial habitat on the site, and in the immediate vicinity, was assessed for suitability for use by Great Crested Newts (*Triturus cristatus*). Great Crested Newts are known to travel up to 500m between breeding ponds and suitable terrestrial habitat, however, are only likely to travel up to 250m away from a breeding pond if there is suitable terrestrial habitat within that distance. Therefore, a desk-based search was undertaken for any ponds up to 250m from the site using OS maps and aerial imagery. The terrestrial habitat between the site and these ponds, and therefore connectivity to the site, was also considered.

Waterbodies were assessed to determine whether they were suitable for Great Crested Newt using the Habitat Suitability Index (HSI) assessment developed by *Oldham et al. (2000)*, which is derived from systems developed by the US Fish and Wildlife Service. It is a numerical index, between 0 and 1, where 0 indicates unsuitable habitat and 1 represents optimal habitat. The HSI for the Great Crested Newt uses ten factors (suitability indices (SI) 1 to 10) which are thought to affect Great Crested Newts, as follows:

- geographic location (SI 1);
- surface area (SI 2);
- hydrology (drying) (SI 3);
- water quality (SI 4);
- shade (SI 5);
- presence of water fowl (SI 6);
- presence of fish (SI 7);
- number of adjacent water features (SI 8);
- terrestrial habitat (SI 9); and
- macrophyte cover (SI 10).

Each factor is scored using field and desk-based survey. These ten scores are then converted to SI scores using a scale from 0.01 to 1 from graphs given in *Oldham et al. (2000)* and an HSI result is calculated using the following formula:

$$HSI = (SI1 \times SI2 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/10}$$

Further research by Brady (unpublished) has developed a system for using HSI scores to define pond suitability for Great Crested Newts according to the following categories:

- HSI < 0.5 = poor
- HSI 0.5 – 0.59 = below average
- HSI 0.6 – 0.69 = average
- HSI 0.7 – 0.79 = good
- HSI > 0.8 = excellent

HSI cannot guarantee the presence or absence of Great Crested Newts however, there is a positive correlation between HSI scores and presence and abundance. Generally, ponds with high HSI scores

are likely to support larger populations. The relationship is however not sufficiently precise to conclude that any pond with a high HSI will support newts in high populations, or that any pond with a low score will support low numbers of newts or no newts at all.

2.3.5 Reptiles

The site was assessed for suitability for use by widespread species of reptiles, with particular attention paid to those features that could be used as basking areas (*e.g.* south-facing slopes), hibernation sites (*e.g.* banks, walls, piles of hardcore) and opportunities for foraging (*e.g.* rough grassland and scrub). The site was assessed for its suitability for the commoner reptile species which have broadly similar habitat requirements, but more specific requirements include those shown below (Beebee & Griffiths 2000).

- Common Lizards (*Zootoca vivipara*) use a variety of habitats from woodland glades to walls and pastures, although one habitat they use is brownfield sites;
- Slow-worms (*Anguis fragilis*) use similar habitats to Common Lizards, and are often found in rank grassland, gardens and derelict land;
- Grass Snakes (*Natrix natrix*) have broadly similar requirements to Common Lizards but with a greater reliance on ponds and wetlands, where they prey on amphibians;
- Adder (*Vipera berus*) use a range of fairly open habitats with some cover but are most often found in dry heath.

2.4 Constraints

August is an ideal time to be undertaking Phase 1 surveys and all areas of the building could be accessed, as such there were no restraints on the initial surveys.

2.5 Criteria for Assessment

The scientific value of habitats for nature conservation is assessed according to widely accepted criteria of which the most important are naturalness, extent, rarity, and diversity.

The assessment of impacts is based on the principles within Chartered Institute of Ecology and Environmental Management (CIEEM) Environmental Impact Assessment (EIA) Guidance (2018) which assesses the impacts of the proposal on ecological receptors taking into consideration extent, duration, reversibility, timing, frequency and certainty.

Mitigation and enhancement are designed to reduce the level of impact upon receptors and provide ecological enhancement in order to meet current legislation and planning policy. The information below has therefore been considered during assessment.

- Criteria that have been developed to assist in the identification of statutory Sites of Special Scientific Interest (SSSIs) (JNCC 2013)

- Habitats and species of Principal Importance included under Section 41 (England) and Section 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006
- The legal status of habitats and species according to the EU ‘Habitats’ Directive 1992
- CIEEM Guidelines (2018) for assessing the value of ecological receptors within a defined geographical context using the following categories: international (*i.e.* Europe); UK and national (England); regional; county; Unitary Authority; local or parish; and zone of influence. Receptors are identified as ‘important’ at these levels, or as ‘not important’
- Species protected by European directives
- Species protected by the *Wildlife and Countryside Act 1981* (as amended)
- Other species listed as scarce or notable in literature issued by conservation organisations or learned societies *e.g.* vascular plant species listed in Stewart *et al.* (1994) and Red and Amber List Birds of Conservation Concern (Eaton *et al.* 2015)
- Local Wildlife Site selection criteria
- National Policy Planning Framework (NPPF), 2019
- BS42020:2013 – Biodiversity Code of practice for planning and development
- Protected species handbooks and best practice guidelines
- The Reading Biodiversity Action Plan (BAP) has currently expired and is in the process of being rewritten and approved. In 2020 this is expected to move away from being habitat and species focussed to being focussed on “Themes for Action”. These “themes” include; Legislation; Designated Sites; Planning and Building Control; Woodlands, Trees & Hedgerows; Grassland and Road Verges; The Two Rivers, their floodplains and other watercourses.

3 RESULTS

3.1 Desk Study

3.1.1 Statutory Designated Sites

There are two designated sites within 2 km of the development:

- The Chilterns Area of Outstanding Natural Beauty is 325m northwest at its nearest point.
- McIlroy Park Local Nature Reserve (LNR), approximately 1.97 km southwest of the development, is designated for a heather and broom grassland with semi-ancient woodland and old chalk pits.

3.1.2 European Protected Species Licence Sites

Eight Natural England EPS mitigation licences have been granted for development sites within 2 km of the proposed development between 2009 and 2018:

- 2014-1343-EPS-BDX was granted in 2014 for a site approximately 1.72 km to the south-east of the proposed site for the damage and destruction of roosts (resting places) of Soprano Pipistrelle (*Pipistrellus pygmaeus*).
- 2016-27061-EPS-MIT was granted in 2017 for a site approximately 1.08 km to the east of the proposed site for the destruction of roosts of Common Pipistrelle (*Pipistrellus pipistrellus*) and Brown Long-eared Bats (*Plecotus auritus*).
- 2014-2980-EPS-MIT was granted in 2014 for a site approximately 320m north-east of the proposed site for the destruction of roosts of Common Pipistrelle and Soprano Pipistrelle.
- 2015-13539-EPS-MIT was granted in 2015 for a site approximately 95m south-east of the proposed site for the and destruction of roosts (resting places) of Common Pipistrelle.
- 2017-29064-EPS-MIT was granted in 2017 for a site approximately 150m north-east of the proposed site for the damage and destruction of breeding and resting places of Soprano Pipistrelles.
- 2015-14137-EPS-MIT was granted in 2015 for a site approximately 290m west of the proposed site for the damage and destruction of resting places of Common and Soprano Pipistrelles.
- 2014-3600-EPS-MIT was granted in 2014 for a site approximately 640m north of the proposed site for the damage and destruction of resting places of Common Pipistrelles.
- 2015-18560-EPS-MIT was granted in 2016 for a site approximately 825m north of the proposed site for the damage and destruction of resting places of Soprano Pipistrelles and Brown Long-eared Bats.

3.2 Ecological Surveys

Phase 1 habitat types that were recorded within and immediately adjacent to the proposed development sites are listed below and can be seen in *Figure 4*.

- Amenity Grassland
- Tall Ruderals
- Hedgerow and Trees
- Bare Ground
- Buildings and hard-standing

The site or immediately adjacent areas contain habitat suitable for the protected species listed below.

- Badger
- Bats
- Nesting birds
- Great Crested Newt
- Reptiles

Figure 3. Habitats recorded on site



3.3 Phase 1 Habitat Survey

The site comprises a residential dwelling with hardstanding and gardens consisting of amenity grassland, bare ground, ruderal vegetation, hedgerows with trees and a shed. The front garden is largely made up of tall ruderals growing through loose hardcore. This area has had a large amount of earth removed which appears to have been moved to the rear garden. Adjacent to the rear of the building is an area of recently strimmed amenity grassland. Also in the rear garden there is an area of bare ground where an

embankment has been dug into and earth from the front garden has been moved, towards the bottom of the garden is an area of overgrown grassland and ruderals. The site is bordered by hedgerow with trees on all sides.

3.3.1 Amenity grassland

Amenity grassland makes up the majority of the rear garden (*Plates 1 & 2*). The grassland is overgrown and comprises a number of species including: Cranesbill (*Geranium sp.*), Sunspurge (*Euphorbia helioscopia*), Selfheal (*Prunella vulgaris*), Comfrey (*Symphytum officinale*), Field Bindweed (*Convolvulus arvensis*), Common Nettle (*Urtica dioica*), Red Dead-nettle (*Lamium purpureum*), Yarrow (*Achillea millefolium*), a Hawksbeard (*Crepis sp.*), Ragwort (*Jacobea vulgaris*), Mouse-ear Hawkweed (*Pilosella officinarum*), Lords & Ladies (*Arum maculatum*), Green Alkanet (*Pentaglottis sempervirens*), Buddleia (*Buddleja davidii*), Thistle (*Cirsium sp.*), Woody Nightshade (*Solanum dulcamara*), Iris (*Iris sp.*), Fleabane (*Erigeron sp.*) and Common Daisy (*Bellis perennis*).

Plate 1. Upper section of the rear garden (looking southeast)



Plate 2. Lower section of the rear garden (looking east)



3.3.2 Tall ruderals

There are ruderal species present within an area of loose hardcore that make up the majority of the front garden (*Plate 3*) with species including Buddleia, Silver Birch saplings (*Betula pendula*), Ash saplings (*Fraxinus excelsior*), Hawksbeard, Selfheal, Ragwort, Black Medic (*Medicago lupulina*), Lesser Trefoil (*Trifolium dubium*), Scots Pine saplings (*Pinus sylvestris*), Snowberry (*Symphoricarpos albus*), Herb Robert (*Geranium robertianum*), Yellow Toadflax (*Linaria vulgaris*), Cow Parsley (*Anthriscus sylvestris*) and Pink Sorrel (*Oxalis articulata*). Around the north and east of this area there is a raised level due to the excavation (*Plate 4*), this is dominated by Aaron's beard (*Hypericum calycinum*).

Plate 3. Front garden (looking southeast)



Plate 4. Raised bank around the front garden (looking southeast)



3.3.3 Hedgerows and trees

The site is bordered by outgrown hedgerow with mature trees present (Plates 5-7). There is an area adjacent to the southern end of the site with denser tree cover. Species include Laburnum (*Laburnum anagyroides*), Sycamore (*Acer pseudoplatanus*), Yew (*Taxus baccata*), London Plane (*Platanus x hispanica*), Lime (*Tilia x europea*), Ash, Scots Pine, Hazel (*Corylus avellana*), Prunus (*Prunus sp.*), Privet (*Ligustrum vulgare*), Laurel (*Laurus nobilis*), Ivy (*Hedera helix*), Pyracantha (*Pyracantha sp.*) and Bramble (*Rubus fruticosus*).

Plate 5. Trees in the front garden (looking east)



Plate 6. Trees in the rear garden (looking west)



Plate 7. Trees in the rear garden (looking south)



3.3.4 Bare ground

There is an area of loose hardcore with ruderal vegetation, consisting of the same species found elsewhere on the site, that makes up the majority of the front garden (*Plate 3*). There is also an area of excavated earth in the middle of the rear garden (*Plate 8*).

Plate 8. Bare earth in the rear garden (looking north)



3.3.5 Buildings and hard-standing

A large, derelict residential dwelling is located slightly to the north and east of the centre of the site. Just south of the area of bare ground in the rear garden is a wooden garden shed. These are detailed further in *Section 3.4.2* below.

Areas of hardstanding include paths around the house, a driveway and a patioed area immediately adjacent to the rear of the house. There is some ruderal vegetation (of species present elsewhere in the gardens) growing in these areas, where it hasn't been managed recently.

Plate 9. Driveway (looking south)



3.4 Protected Fauna

3.4.1 Badger

There is a badger sett present adjacent to the southern end of the garden, on the tree-covered escarpment (*Plate 10*). There was evidence of active use by badgers including the recent use of a latrine site on the escarpment, just west of the sett, (*Plate 11*) and the sett holes being cleared of debris. There were trails extending into the garden which the badgers likely use for commuting and foraging.

The garden provides habitat suitable for commuting, foraging and sett creation by Badgers.

Plate 10. Hole of the badger sett



Plate 11. Badger latrine



3.4.2 Bats

There are records of Common Pipistrelle, Soprano Pipistrelle and Brown Long-eared bats within 2km of the proposed development site. The garden is suitable for use by foraging bats and is directly linked to tree lines that would allow them to commute to and from the garden.

House

The house (*Plates 12 to 15*) is a derelict detached property set into the slope of the land such that it has 2 floors, one level with the higher ground elevation on the north and a basement that opens onto the lower elevation on the south. The house is constructed of building block and brick with some wooden walls. The roof is flat and consists of bitumen-type felt. The windows are currently boarded up with steel sheeting. The interior of the house has been stripped out leaving exposed brick and cavities in multiple places. There is a sizeable area in the ceiling that is leaking.

There are minimal external roosting features for bats but there are multiple potential access points to the interior, these include:

- The southern lower level is currently open (*Plate 16*), and an open staircase leads inside the building (*Plate 17*);
- Metal roof lip (*Plate 18*);
- Gap over wooden cladding leading into a small cavity (*Plate 18*);
- Gaps around the boarding of broken windows;
- Gaps around the garage door;
- Gaps in the roof.

Internal roosting features include:

- Dark, derelict rooms with exposed cement or brickwork in the lower storey (suitable for hibernation) (*Plate 19*);
- Gaps and pipework in the walls and ceiling, particularly in the lower floor (*Plate 20*);
- A light fitting (this feature had droppings characteristic of Brown Long-eared bat associated with it) (*Plate 21*);
- Internal electronics boxes and cavities (*Plates 22 & 23*);
- Exposed wall and ceiling cavities from weather damage or stripping of the interior (*Plates 24 & 25*).

Bat droppings consistent with Brown Long-eared bats were found throughout the building.

Plate 12. Front (northern aspect) of the House



Plate 13. Rear (southern aspect) of the house



Plate 14. Western side of the house



Plate 15. House extension on the east side (southern aspect, looking north)



Plate 16. Main current access point to house, through open end of the lower level at the rear



Plate 17. Open staircase leading to upper levels



Plate 18. Gap above wooden cladding where panelling is missing and gaps under metal roof lip



Plate 19. Section of the lower level/basement area of the house



Plate 20. Example of potential roosting features in the lower level of the house



Plate 21. Light fitting directly above Brown Long-eared bat-type droppings, potentially used as a roosting feature



Plate 22. Potential roosting feature in the upper level of the house



Plate 23. Potential roosting feature in the upper level of the house



Plate 24. Access to wall cavities



Plate 25. Access to ceiling cavities



The house is considered to have *Moderate* to *High* suitability for use by roosting bats. The lower levels of the building have potential for hibernating bats.

Garden Shed

The shed in the rear garden (*Plate 26*) is in reasonable condition but has access for bats. There are no features suitable for use by roosting bats inside the shed.

Plate 26. Shed in the rear garden



The shed is considered to have *Negligible* suitability for use by roosting bats.

Activity Surveys

Based on the levels of evidence present and potential roosting locations up to three bat activity surveys were recommended at the property. Two have currently been completed, on the evenings of 24th August and 10th September 2020.

During the surveys no emergences were detected. On the 24th of August 2020 only Soprano Pipistrelles were identified, with the first bat being recorded at 20:19. On the 10th of September Pipistrelle (*Pipistrellus* sp.) and Brown Long-eared bats were recorded, with the first bat at 19:38. A static detector was placed in the house between the two surveys and recorded for nine nights (24/08/20-01/09/20), with no bats recorded during this period.

3.4.3 Birds

The hedgerow has suitability for nesting birds, but the size of the site makes the presence of large or important breeding bird assemblages unlikely.

3.4.4 Great Crested Newt

There is one pond apparent within 250m of the site, located in the neighbour's garden to the east (*Plate 27*). The pond was assessed for suitability using a Habitat Suitability Index (HSI) and found to have *Poor* suitability for Great Crested Newts (*Table 2*). This is largely due to it being maintained as an ornamental fish pond and thus having a high density of fish and being devoid of pond vegetation, as well as being of relatively low size and water quality.

Plate 27. Pond in the eastern neighbour's garden



Table 2. HSI scores of the pond adjacent to proposals

Date HSI assessment undertaken	19/08/2020
SI1 – Location	1
SI2 - Pond area	0.05
SI3 - Pond drying	0.9
SI4 - Water quality	0.33
SI4 – Shade	1
SI6 – Fowl	1
SI7 – Fish	0.01
SI8 – Ponds	0.1
SI9 - Terrestrial habitat	0.33
SI10 – Macrophytes	0.3
HSI score	0.26 Poor

The site has some suitability for use by terrestrial phase Great Crested Newts with hedgerows and overgrown grassland providing cover for foraging and commuting.

3.4.5 Reptiles

Reptiles species are known to be within 2 km of the site, this includes Slow Worm which were found by Turnstone Ecology during a survey of a nearby site. The garden has habitat suitable for use by reptiles with areas of overgrown grassland and ruderal plants, as well as outgrown scrubby hedgerows that provide cover and areas of bare ground and hardstanding and the shed provide basking opportunities.

4.3 Habitats

4.3.1 General

The proposed development will directly affect a building and a garden with areas of amenity grassland, hedgerows and trees, none of which are listed as priority habitats in this area.

The extent and quality of these habitats are of limited ecological importance. In order to protect habitats of note and maintain and increase biodiversity of the site, the following mitigation measures and safe working methods will need to be incorporated into the proposals.

4.3.2 Mitigation

The proposed areas of groundworks will need to be confined to areas that will not impact on the root systems of the existing and retained trees. An appropriate buffer (as detailed in BS5837:2012) will be established and maintained.

Landscaping and planting will involve a mix of native broadleaved species and plants appropriate for the area. If possible, these will be from locally sourced stock.

4.4 Protected Fauna

4.4.1 General

Evidence of badgers and bats and potential for nesting birds and reptiles was found within the site of proposed development footprint during the survey.

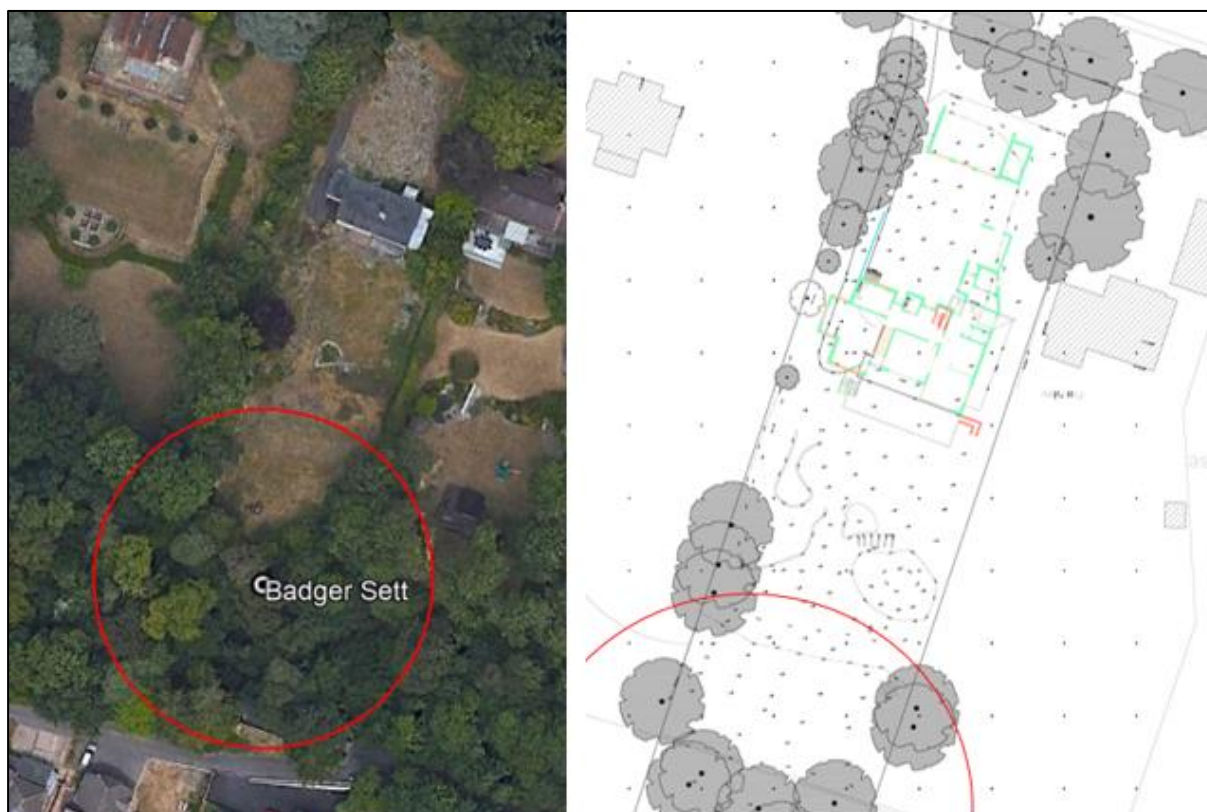
4.4.2 Badger

A badger sett was identified adjacent to the proposed development site, with trails leading into the site boundary, suggesting it is frequented by badgers.

There is habitat that is suitable for use by Badger for foraging and commuting and signs of activity within the site boundaries, however better quality habitat and connectivity is available further down the escarpment.

To minimise the chance of damage and disturbance to the sett a buffer area of 30m around it should be established (*Figure 5*). All currently planned works are well outside of this buffer area, however should future work, such as landscaping and works associated with mitigation and enhancement within the garden, take place within this buffer it should be carried out using hand tools.

Figure 5. Badger Sett location and 30m buffer



The loss of a small area of amenity grassland and ruderals is unlikely to have a significant negative impact on foraging Badgers, however, it is recommended a precautionary pre-works check for setts prior to the start of works is completed and if required appropriate mitigation carried out which may involve application for a licence from Natural England to be able to undertake any work on site. To ensure foraging Badgers do not become trapped within any excavation works these should either not be left uncovered overnight or ways of escape for Badgers provided (wooden planks or graded earth banks).

4.4.3 Bats

There are records of Common Pipistrelle, Soprano Pipistrelle and Brown Long-eared bats within 2km of the proposed site boundary.

The hedgerows and tree lines on site provide good commuting opportunities for bats and there are multiple areas of good foraging habitat nearby including gardens and the river. Suitable foraging and commuting habitats on site are unlikely to be negatively impacted by the proposed development and some landscaping may be of benefit. The retained and enhanced hedgerows and trees around the site will ensure suitable bat foraging and commuting habitat and connectivity is maintained.

The house been classified as having *Moderate* to *High* suitability for use by roosting bats, as there are internal features suitable for use by roosting bats, as well as access from the exterior of the building and limited exterior roosting opportunities. The wooden shed has been classified as having *Negligible*

suitability for use by roosting bats. Therefore, it was appropriate to have further surveys of the house to confirm if the building was being used or not.

No bats were identified emerging from, or entering, the house during the activity surveys and no bats were recorded on the static detector over nine nights.

Destruction of bat roosts can only occur under a European Protected Species (EPS) from Natural England, which will need to include an agreed safe working methods and mitigation plan. All agreed methods will be included in the licence application and appropriate mitigation and safe working methods can only be confirmed upon agreement of the licence. The methods (which may be updated upon confirmation of an accepted Licence application) are likely to include;

- Works to only commence following receipt of a EPS licence from Natural England and started outside of the hibernation period (November to February, inclusive).
- To provide alternative roosting pre, during and post conversion works
- Long term bat roosting provision will be incorporated as mitigation and/or enhancements and include a Schwegler WI box built into the shadier side of the new building and a Schegler 1FF fixed onto a tree within same land ownership. Schwegler WI bat boxes provide integral roosting provision that is both discreet and secure, creating a self-contained unit that does not provide access into the wall cavity. The bat box can be covered with a fascia of the same material of the building wall so that is virtually unnoticeable yet still provides access for bats.
- A wooden bird boxes should be placed adjacent to bat box in the tree to help ensure it remains open for use by bats.
- Prior to the start of works a suitably qualified ecologist will deliver a tool box talk to contractors and staff on site, informing them of the likelihood of encountering bats, what to do if they find bats and give a brief overview of the licence documents.
- Pre-works check by a licenced ecologist of all known and potential roosting locations around the property. If the entirety of a feature can be searched and found to be empty these will be blocked. If the feature cannot be fully searched it will be excluded using folded acetate or similar to allow bats to leave the feature but not re-enter. If exclusions are used, they will be left in place for a minimum of 5 nights in suitable weather conditions. Following this they will be permanently filled using the same methods as above (newspaper or expanding foam).
- If bats are found during works they will be caught by a licensed ecologist who will be wearing suitable gloves. The bat will be placed into a cloth bag and carefully placed into the temporary box.
- Pre-exclusions, any scaffolding erected around the dwelling should not obstruct access into or out of the suitable bat roosting features, such as gaps at wall tops.
- Breathable roofing membranes (BRM) must **not be used** in the construction of the new roofs where roosting features could be created due to issues with bat entanglement and reduced membrane performance if used in areas of bat use. 1F bitumastic felt should be used instead.

- No lighting directed on known, potential or newly created bat roost access points and roosting features and only movement activated timed security lighting used outside of potential roosting locations.
- A lighting plan showing the location and specification for any proposed lights on the site will be produced. The lighting plan will reflect the Bat Conservation Trust Bats and Lighting in the UK guidance (2018) and will include directing lighting away from all retained hedgerows and trees around the boundaries of the site and the use of downlighting to ensure that suitable roosting features and foraging and commuting habitats remain unlit.

4.4.4 Birds

The garden provides habitats with the potential to support a limited range of garden nesting birds, but the size of the site makes the presence of large or important breeding bird assemblages unlikely.

Changes to suitable nesting bird habitat will be completed outside of the breeding bird season (March to August inclusive) or after a pre-works survey/search by a suitably experienced ecologist.

Habitat creation, enhancement and management, such as the planting of native trees, would help provide compensation for nesting birds at the site. Two nest boxes appropriate for use by House Sparrow (*Passer domesticus*) should be erected/installed on the new building and a bid box positioned immediately next to the bat box in the tree on site.

4.4.5 Great Crested Newt

The habitats on site have some suitability for use by Great Crested Newts, with overgrown grassland and hedgerows providing limited opportunities for foraging and commuting. There is one pond within 250m of the site that scored as *Poor* suitability for Great Crested Newts using the HSI matrix. This low score in part owing to it being maintained as an ornamental fishpond. The high volume of fish and low levels of egg laying material make the pond unsuitable for use by this species.

Taking into consideration that there are no other ponds in close proximity to the site it is considered that Great Crested Newts will not be present on site. Therefore, no specific mitigation is proposed for them. However, all work on site will be undertaken with a precautionary approach and a under a detailed method statement for reptiles as detailed in section 4.4.6 meaning that in the extremely unlikely event of an individual being found works would cease.

4.4.6 Reptiles

The habitats on site are suitable for foraging, basking and hibernating reptiles. Due to the potential presence of reptiles on site safe working methods will be put in place to ensure there is no impact on them during the proposed work.

Reasonable Avoidance Measures (RAMs) will be undertaken to minimise the risk of reptiles being on site and the risk of an offence occurring which will include:

- All methods to be undertaken with regard to and within the requirements of any other species mitigation;
- An experienced Ecological Clerk of Work (ECoW) present at the start of works to deliver a toolbox talk to all site staff, conduct a search for reptiles, and oversee the initial works that may impact potential reptile habitat and toolbox talks to be given to all site staff;
- Vegetation that will be removed will be cut down and maintained at 100 mm for a minimum of six months prior to the commencement of the development and up to the start of construction. This will be undertaken using only hand tools and in the winter months (November to February) when reptiles are least likely to be active and present on site;
- Removal of the hardcore in the front garden will also be conducted during the winter months using hand tools;
- No open excavations to be left overnight (*i.e.* back filled or covered), no excavated material to be stored within 5m of the site boundaries and all building materials to be stored a minimum of 5m away from site boundaries and raised on pallets; and
- In the event of a reptile being found during works when an ecologist is not present, all work must stop immediately. An ecologist should be contacted, and an appropriated course of action agreed before works continue. The site must be left safe for reptiles and other animals. Natural England will be consulted about further action to be taken, which can likely involve obtaining a mitigation licence for further work.

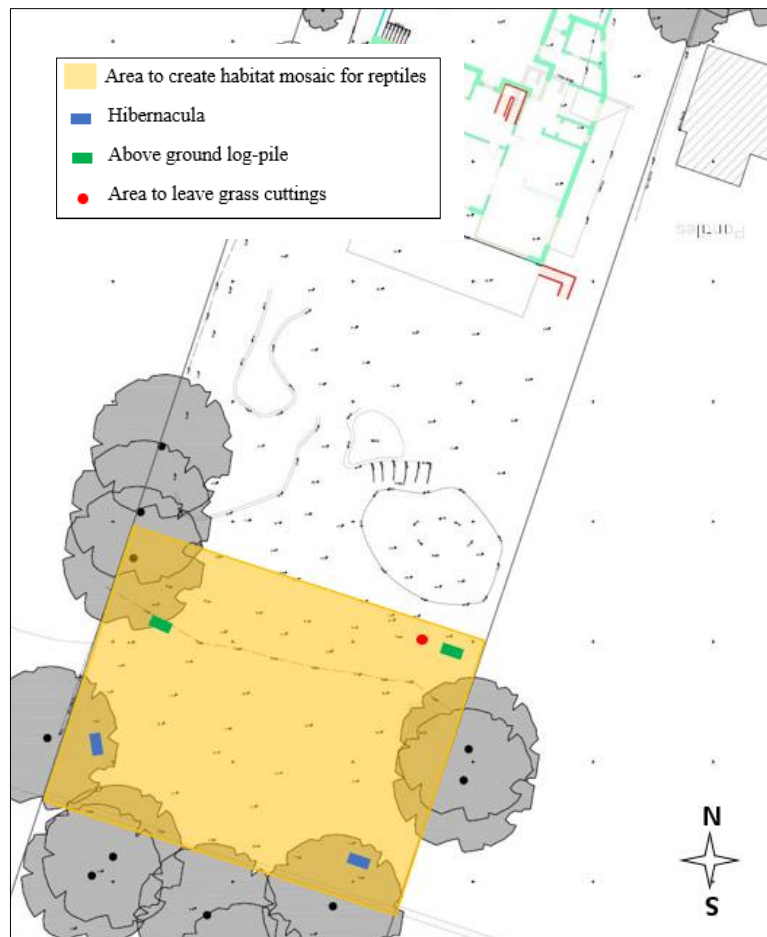
As mitigation for the loss of reptile habitat on site, new habitats will be created and specifically maintained for wildlife in the new garden of the proposed site. This enhancement will take place in the southern portion of the site on a south facing bank (*Plate 28*).

This area will be allowed to grow long with paths cut through to provide a variety of longer grass and bare basking areas with more structure at the borders. Any grass cuttings will be positioned in a pile in the sun to create potential Grass Snake breeding habitat over time. The area will include two hibernacula and log piles. Works in this area will be undertaken using hand tools and with awareness of risks to the local Badger Sett.

Plate 28. Southern facing slope area for proposed reptile enhancement



Figure 6. Proposed reptile enhancement



5 LEGAL PROTECTION

This section briefly describes the legal protection afforded to the protected species referred to in this report. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation but summarises the salient points.

5.1 Badger

Badger is protected in Britain under the *Protection of Badgers Act 1992* and *Schedule 6 of the Wildlife and Countryside Act 1981* (as amended).

The legislation affords protection to Badgers and Badger setts, and makes it a criminal offence to:

- wilfully kill, injure, take, possess or cruelly ill-treat a Badger, or to attempt to do so;
- interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a Badger sett; or
- to disturb a Badger when it is occupying a sett.

5.2 Bats

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 whilst it occupies a bat roost.

Bats are also European Protected Species listed on *Schedule 2 of the Conservation of Habitats and Species Regulations 2017* under *Regulation 41*. This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats in such a way as to be likely to (a) impair their ability to: (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or b), to affect significantly the local distribution or abundance of the species to which they belong; and
- 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.

Where it is necessary to carry out an action that could result in an offence under the *Conservation of Habitats and Species Regulations 2010 (SI 2010/490)* it is possible to apply for a European Protected

Species (EPS) licence from Natural England (NE). Three tests must be satisfied before this licence (to permit otherwise prohibited acts) can be issued:

- Regulation 53(2)(e) states that licences may be granted to “preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.”
- Regulation 53(9)(a) states that a licence may not be granted unless “there is no satisfactory alternative”.
- Regulation 53(9) (b) states that a licence cannot be issued unless the action proposed “will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range”.

5.3 Nesting Birds

All species of bird are protected under *Section 1* of the *Wildlife and Countryside Act 1981* (as amended). The protection was extended by the CRow Act.

The legislation makes it an offence to intentionally:

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

Certain species of bird are listed on *Schedule 1* of the *Wildlife and Countryside Act 1981* (as amended) and receive protection under *Sections 1(4)* and *1(5)* of the Act. The protection was extended by the CRow Act. The legislation confers special penalties where the above mentioned offences are committed for any such bird and also make it an offence to intentionally or recklessly:

- disturb any such bird, whilst building its nest or it is in or near a nest containing dependant young; or
- disturb the dependant young of such a bird.

5.4 Great Crested Newt

Great Crested Newt is listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receive full protection under *Section 9*. These species are also listed as European Protected Species on *Schedule 2* of the *Conservation of Habitats and Species Regulations 2017* which gives them full protection under *Regulation 41*. Protection was extended by the *Countryside and Rights of Way Act 2000* (the CRow Act).

Under the above legislation, it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;

- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

The Great Crested Newt is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as a species of principal importance for the conservation of biological diversity in England under *Section 74* of the CRow Act.

5.5 Common Reptile Species

Common Lizard, Grass Snake, Slow-worm and Adder are listed under *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), in respect of *Section 9(5)* and part of *Section 9(1)*. This protection was extended by the CRow Act.

Under the above legislation, it is an offence to:

- intentionally or deliberately kill or injure any individual of such a species; or
- sell or attempt to sell any part of the species alive or dead.