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Preliminary Ecological Appraisal

Land Adjacent to Yewcroft,
The Bothy,
Wargrave on Thames,
Berkshire,
RG10 8JE

November 2023
(Amended December 2025)

Darwin Ecology Ltd
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QUALITY CONTROL		
The information which we have prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct.		
Prepared by	Ecologist Abigail Harrington BSc (Hons)	8th November 2023
Reviewed by	Principal Ecologist Olatz Gartzia BSc MSc ACIEEM	14th November 2023
Updated by	Senior Ecologist Rebecca Carter-Whitehead BSc (Hons), MCIEEM	9th December 2025
Reviewed by	Senior Ecologist Amanda Honour BSc MSc ACIEEM	9th December 2025
This report remains valid for 12 months from date of issue. The survey results provided in the report are valid for 12 - 18 months from date of survey.		

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living creatures are capable of migration and whilst protected species may not have been located during the survey duration, their presence may be found on site at a later date.

The views and opinions contained within the document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental

1. EXECUTIVE SUMMARY

1.1. Darwin Ecology Ltd was commissioned to undertake a Preliminary Ecological Appraisal (PEA) of the site Land adjacent to Yewcroft, The Bothy, Wargrave on Thames, Berkshire, RG10 8JE[1]. The assessment was required to support a planning application for the clearance of the site and the construction of a new residential dwelling and associated landscaping and was informed by a desk study and UKHab habitat survey.

1.2. During the survey work undertaken, areas of dense bramble scrub, sparsely vegetated urban land, hedgerows, scattered trees, garden and household waste piles, three derelict sheds and a greenhouse were identified within the site. In addition, the site boundaries are made up of fences and a stone wall on the northern site boundary.

1.3. Under the current development proposals, the works will largely be confined to the bramble scrub area, sparsely vegetated urban land, and buildings, with the removal of several trees. The hedgerows and the majority of mature trees around the perimeter will be retained.

1.4. Recommendations for replacement planting have been made to ensure that the biodiversity value of the site and its suitability to support protected species is maintained.

1.5. Due to the presence of suitable habitat within the development that could support bats, reptiles, amphibians, hedgehog *Erinaceus europaeus*, badger *Meles meles* and birds. Recommendations have been made to ensure that these species groups are protected during any proposed vegetation clearance and construction works.

1.6. The derelict sheds and greenhouse were not found to provide any roosting potential for bats, but have potential to provide nesting habitat for birds given their overgrown nature.

1.7. Reptile presence/absence surveys conducted in 2019 identified a high population of slow worms *Anguis fragilis* within the site. Further survey work is required to update previous data, as the translocation was never completed and the reptile fencing is in disrepair. The reptile mitigation plan[2] written in 2023 is still suitable for this site, and a full translocation is required.

1.8. Outline mitigation, compensation and enhancement recommendations have been made to ensure that opportunities are available for protected species post development, and that the ecological value of the site is enhanced in the long-term.

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[1] Ordnance Survey (OS) grid reference SU 78683 78960.

[2] Darwin Ecology Ltd (2023) *Reptile Mitigation Strategy: Land adjacent to Yewcroft, The Bothy, Wargrave on Thames, Berkshire, RG10 9JE.*

2. INTRODUCTION

Background

2.1. Darwin Ecology Ltd was commissioned to undertake an updated Preliminary Ecological Appraisal (PEA) of the site Land adjacent to Yewcroft, The Bothy, Wargrave on Thames, Berkshire, RG10 8JE[3] (hereafter referred to as 'the site'). The assessment was required to support a planning application for the clearance of the site and the construction of a new residential dwelling and associated landscaping.

2.2. The habitat walkover survey followed the Chartered Institute for Ecological and Environmental Management (CIEEM) Guidelines for Preliminary Ecological Appraisal (2017). Habitats on site were broadly mapped to a minimum of $25m^2$ in accordance with current guidance from *UK Habitat Classification Version 2.0 UKHab Ltd (2023).*

2.3. The internal and external building inspection followed the Bat Conservation Trust (BCT) Good Practice Guidelines (2023).

2.4. The proposed drawings on which this assessment is based are provided at **Appendix 1, Proposed Plans**.

2.5. The subsequent Ecological Impact Assessment (EcIA) follows the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (2018).

Site Overview

2.6. The proposed development site is located on the north-western edge of Wargrave, 110m east of the River Thames. It is surrounded by other residential properties and their amenity gardens (**Figure 1**).

2.7. The site comprises areas of bramble scrub, ruderal vegetation, hedgerows, scattered trees and manmade structures/features (see **Figure 1**).

2.8. The wider landscape comprises areas of residential housing to the south and east, with a large amenity garden to the north and agricultural land beyond (**Figure 2**).

Scope of Assessment

2.9. The process of EcIA aims to identify, quantify and evaluate the potential effects of development-related or other proposed actions on habitats, species and ecosystems.

2.10. Potential effects on the following ecologically sensitive receptors have been considered during the PEA of Land adjacent to Yewcroft:

- Statutory and non-statutory designated sites;
- On-site habitats of intrinsic importance (such as priority habitats); and

[3] Ordnance Survey (OS) grid reference SU 78683 78960.

- Habitats with the potential to support protected species, including bats, dormice *Muscardinus avellanarius*, great crested newt *Triturus cristatus* and other common amphibians, common reptiles, birds, badger, otter *Lutra lutra*, water vole *Arvicola amphibious* and invertebrates.

2.11. The aim of this report is to:

- Identify and describe ecologically sensitive receptors within the site;
- Carry out an impact assessment of the proposed works and how they will directly / indirectly affect the ecological receptors identified;
- Outline the relevant legislation and protection afforded to protected species present at the site; and
- Provide avoidance, compensation, mitigation and enhancement measures recommended to avoid harm / injury to protected species.

Figure 1: Site location within the context of the local landscape (copyright Google Earth Pro, 2025).

Figure 2: Site location within the context of the wider landscape (copyright Google Earth Pro, 2025).

3. LEGISLATION & POLICY

General Wildlife Legislation

3.1. Wildlife in the United Kingdom (UK) is protected through European and national legislation, supported by national and local policy and guidance. Development can contribute to conservation and enhancement goals outlined by these various legislation and policy by retaining and protecting the most valuable ecological features within a site and incorporating enhancements to provide biodiversity net gain.

3.2. This section provides a brief summary of the principle legalisation and policy that triggers the requirement for EcIA in the UK. The presence of protected species within a site are a material consideration during the planning process. Protected species and habitat surveys provide an ecological baseline for a site and evaluation of the potential impact of proposals.

3.3. It is the responsibility of those involved with development works to ensure that the relevant legislation is complied with at every stage of a project. Such legislation applies even in the absence of related planning conditions or projects outside the scope of the usual planning process (i.e. permitted development projects or projects requiring Listed Building Consent only).

Relevant Legislation

3.4. The principal pieces of legislation relating to wildlife and of relevance to this report are:

1. *EU Habitats Directive (1992);*
2. *EU Birds Directive (1979);*
3. *Conservation of Habitats and Species (Amendment) Regulations 2017;*
4. *The Wildlife and Countryside Act 1981 (as amended);*
5. *The Natural Environment and Rural Communities Act 2006;* and
6. *The Protection of Badgers Act 1992* (extended under *The Hunting Act 2004*).

3.5. The above legislation aims to protect sites and species and give detailed descriptions of exactly how these features are protected and what actions would constitute an offence.

National Planning Policy

3.6. The *National Planning Policy Framework (2024)* aims to minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity. Chapter 15 'Conserving and enhancing the natural environment' details what local planning policies should seek to consider with regard to planning applications.

3.7. Planning policies and decisions should contribute to and enhance the natural and local environment by:

174 a) Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

174 b) Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

174 d) Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

175) Plans should: distinguish between the hierarchy of international, national and local designated sites; allocate land with the lease environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries;

176) Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural beauty which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and Broads. The scale and extent of development within all these designated areas should be limited, while development within their settings should be sensitively located and designed to avoid or minimise adverse impacts on the designated area.

3.8. Specific policies regarding habitats and biodiversity comprise:

179) To protect and enhance biodiversity and geodiversity, plans should:

a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation and

b) Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species and identify and pursue opportunities for securing measurable net gains for biodiversity.

180) When determining planning applications, local planning authorities should apply the following principles:

a) If significant harm to biodiversity resulting from a development cannot be avoid (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b) Development on land within or outside of Sites of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the feature of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) Development whose primary objective is to conserved or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around development should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

181) The following should be given the same protection as habitats sites:

a) Potential Special Protection Areas and possible Special Areas of Conservation;

b) Listed or proposed Ramsar sites; and

c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

3.9. *Circular 06/05: Biodiversity and Geological Conservation* provides guidance on the application of the law relating to planning and nature conservation and complements the *National Planning Policy Framework*.

3.10. *Biodiversity 2020: A strategy for England's wildlife and ecosystem services* provides the *UK Biodiversity Action Plan* and country level biodiversity strategies for England, based on the list of habitats and species listed on *Section 41* of the *Natural Environment and Rural*

Communities Act 2006. These are considered the habitats and species of principal importance requiring conservation action.

Local Planning Policy

3.11. The local planning policy for the site is the Wokingham Borough Council Core Strategy, with relevant policies comprising:

CP7 - Biodiversity

Sites designated as of importance for nature conservation at an international or national level will be conserved and enhanced and inappropriate development will be resisted. The degree of protection given will be appropriate to the status of the site in terms of its international or national importance.

Development:

A) Which may harm county designated sites (Local Wildlife Sites in Berkshire), whether directly or indirectly, or

B) Which may harm habitats or, species of principle importance in England for nature conservation, veteran trees or features of the landscape that are of major importance for wild flora and fauna (including wildlife and river corridors), whether directly or indirectly, or

C) That compromises the implementation of the national, regional, county and local biodiversity action plans will be only permitted if it has been clearly demonstrated that the need for the proposal outweighs the need to safeguard the nature conservation importance, that no alternative site that would result in less or no harm is available which will meet the need, and: i) Mitigation measures can be put in place to prevent damaging impacts; or ii) Appropriate compensation measures to offset the scale and kind of losses are provided.

CP8 - Thames Basin Heaths Special Protection Area

Development which alone or in combination is likely to have a significant effects on the Thames Basin Heaths Special Protection Area will be required to demonstrate that adequate measures to avoid and mitigate any potential adverse effects are delivered.

Berkshire Biodiversity Action Plan

3.12. The Biodiversity Action Plan is the key pillar of the natural environment theme of our Environment and Climate Strategy, which seeks to protect and enhance the natural environment, green our towns and urban areas and increase awareness of biodiversity. Therefore, the overarching approach is based on those objectives. The overarching vision for our Biodiversity Action Plan is:

'To reverse the decline in our natural environment and through better data, partnerships and direct action to increase biodiversity across the borough'.

3.13. In support of this, we will work with the other Berkshire Authorities to support the Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT) 'Wilder' target to have **30% of land for nature by 2030**. We will also support the national commitment that has been made to well-connected and effectively managed systems of Protected Areas which are protected to support the recovery of nature.

3.14. This Biodiversity Action Plan features the following Habitat Action Plans (HAPs) covering broad habitat types. These were developed and agreed in partnership with our key stakeholders and community groups:

1. Woodland HAP
2. Grassland HAP
3. Farmland HAP
4. Waterways HAP
5. Standing Water HAP
6. Urban HAP

Wokingham Biodiversity Action Plan

3.15. The local biodiversity action plan relevant to the site is the Wokingham Biodiversity Action Plan. It aims to set out a long-term strategy for biodiversity conservation within Wokingham and provide a series of objectives and actions for achieving successful conservation of habitats and species across the county.

3.16. The new Wokingham Biodiversity Action Plan retains the structure of the former plan, featuring the five Habitat Action Plans (HAPs) including a Communities, Towns and Villages HAP, Woodland HAP, Grassland and Hedgerow HAP, Wetland HAP and Heathland HAP.

3.17. All the HAPs include targets for the protection, management/enhancement and creation of their respective broad habitats types across the Borough. The management/enhancement elements of the HAPs will be measured through the statutory national indicator on management of Local Wildlife Sites (LWS), known as Single Data List 160. The HAPs will set a target to achieve 60% of LWS in appropriate management by 2024.

3.18. The targets for habitat creation have been set with regard to SDL SANG proposals that are likely to come forward within the plan period.

4. METHODOLOGY

Desk Study

4.1. A desk study was undertaken for designated sites and bat species and habitat records within 2km of the site:

- The MagicMap website was reviewed, to obtain information on any designated sites of nature conservation interest within 2km of the site and details of any EPS licences issued within 2km;
- The Wokingham Borough Council Planning Portal was searched for past and pending planning applications that may have associated ecological documents detailing results of bat surveys; and
- A data search was requested from Thames Valley Environmental records Centre for non-statutory designated sites, and protected and notable species within 1km, increased to 2km for bats; and
- Google Maps and Ordnance Survey (OS) Leisure Maps was utilised to view aerial photographs, maps and mapnik data, and to assess the ecological context of the site within the wider landscape.

4.2. Natural England has developed a tool to help assess the potential risks to Sites of Special Scientific Interest (SSSIs) by proposed developments. These are known as 'Impact Risk Zones' (IRZs) and they define the area around a SSSI that could be sensitive to development, considering the particular sensitivities of the feature for which the site is designated.

4.3. The IRZs help inform whether a development proposal may affect a SSSI and if so, whether it is necessary for the Local Planning Authority (LPA) to seek pre-application advice from Natural England. Information on the IRZs was determined from the MAGIC website to determine if the LPA is required to seek consultation for the current development.

Habitat Walkover Survey

4.4. Senior Ecologist Rebecca Carter-Whitehead BSc (Hons), MCIEEM conducted a walkover survey at the site on 4th December 2025. The weather conditions at the time of the survey were dry a light breeze and approximately 5°C.

4.5. The walkover survey assessed habitats present within the application red line boundary for their potential to support protected species, including:

- Bats;
- Great crested newts *Triturus cristatus* and common amphibians;
- Reptiles;
- Dormice *Muscardinus avellanarius*;

- Other terrestrial mammals, including hedgehog and badger;
- Otter *Lutra lutra* and water vole *Arvicola amphibius*;
- Breeding birds; and
- Invertebrates.

4.6. As there is no running water within the site, in combination with their nationally sparse distribution, it is considered highly unlikely that white clawed crayfish *Austropotamobius pallipes* would be using the site and they are therefore not considered further in this report.

4.7. Otter *Lutra lutra* and water vole *Arvicola amphibious* are not considered further in this report due to the lack of running water on site and within the wider area. The site also does not offer any suitable habitat for these species.

4.8. The site was also searched for non-native, invasive plant species, with particular care to search for the most commonly occurring and problematic species, such as Japanese knotweed *Fallopia japonica*, Indian balsam *Impatiens grandiflora* and giant hogweed *Heracleum mentegasianum*.

Building Inspection

4.9. Senior Ecologist Rebecca Carter-Whitehead BSc (Hons), MCIEEM conducted a internal and external building inspection at the site at the site on 3rd December in accordance with the following methodology:

External Survey

4.10. An investigation was carried out of external features with potential for use by roosting bats, such as gaps under roof and ridge tiles, gaps at soffit boxes or fascias. A search for bat droppings was made beneath each potential entry/exit point identified where accessible. The surveyor used binoculars and powerful, low-heat LED torch.

Internal Survey

4.11. An investigation was carried out of the roof void (including the floor and walls) for signs of bats roosting and the access potential into the roof void for bats. The surveyor looked for bats, bat droppings, likely access points, signs of feeding, dead bats, scratch marks and staining, and made a suitability assessment of the structure of the roof.

Potential to support roosting bats

4.12. Each building was assessed for its potential to support roosting bats as detailed in **Table 1** below which is taken from the Bat Conservation Trust 2023 guidelines Table 4.1, Table 7.1 and Table 7.2.

Table 1: Roost classification from the Bat Conservation Trust (2023) guidelines.

Category	Description of roosting habitat	Number of surveys required
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No further surveys
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No further surveys
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis by large numbers of bats.	Single survey between May to August
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, condition and surrounding habitat but unlikely to support a roost of high conservation status.	Two surveys with at least one survey between May to August.
High / Confirmed	A structure with one or more potential roost sites that are obviously suitable for use by a larger number of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts.	Three surveys with at least two surveys between May to August.

Great Crested Newt Habitat Suitability Index (HSI)

4.13. A Habitat Suitability Index (HSI) assessment was carried out on the waterbodies within the site. The HSI score gives an indication of the likelihood of presence of great crested newts (GCN) within a water body. The assessment can be performed at any time of year, although ideally between March and the end of September.

4.14. Generally, ponds with a higher score are more likely to support GCN than those with a lower score and there is a positive correlation between HSI scores and ponds in which GCN are recorded. Ten suitability indices (SI) are assessed for each pond to calculate the suitability of the ponds to support this species: Geographic location; Pond area; Desiccation rate; Water quality; Shade; Number of fowl; Number of fish; Number of linked ponds; Terrestrial habitat; and Macrophyte cover.

4.15. A total score of between 0 and 1 is calculated and pond suitability is then determined according to the scale shown in **Table 2** below:

Table 2: HSI scores and pond suitability for great crested newts

HSI Score	Pond Suitability
< 0.5	Poor
0.5 - 0.59	Below average
0.6 - 0.69	Average
0.7 - 0.79	Good
> 0.8	Excellent

Limitations

4.16. Ecological surveys are limited by factors that affect the presence of plants and animals such as the time of the year, weather, migration patterns. The update habitat walkover survey was undertaken in December, which is a sub-optimal period for identifying many native plant species as many plant species have not grown into recognisable growth forms. Considering the context of the site, the urban nature of the site (residential gardens), and the habitats to be impacted by the proposals, it is considered unlikely that this would have a significant impact on the reliability of the survey results or conclusions.

4.17. Ecological data is typically deemed valid for 18 months. This report remains valid for 2 years from the date of the survey, however, a walkover survey after 18 months may be required to demonstrate whether or not the habitats have remained as described.

4.18. No other limitations were encountered, or assumptions made during either the desk study or the field survey and it is considered that with the access gained and recording undertaken an accurate assessment of the site's ecological importance has been made.

4.19. The buildings on site were not easily accessible due to their location within the dense bramble scrub and they were all in a state of disrepair. The surveyor did not enter the buildings but evaluated their condition and potential for use by protected species from a safe location.

5. SURVEY RESULTS

Desk Study

Designated Sites

5.1. No statutory designations are present within 2km of the application site.

5.2. The site does not fall within any IRZs or buffer zones for designated sites.

Priority Habitats

5.3. There are several areas of priority deciduous woodland site, the closest of which is an unnamed area approximately 170m northwest of the application site. This area of woodland is also registered on the National Forest Inventory 2000 (Woodland - Broadleaved).

5.4. Further priority habitats an area of woodpasture & parkland BAP adjacent to the site on the northern boundary and small pockets of traditional orchards are present within 1km of the site.

5.5. There are no areas of areas of ancient woodland within 1km of the application site. The closest area of ancient woodland is Blakes Wood, located approximately 1.2km east of the site.

Habitat Walkover Survey

5.6. This section is to be read in conjunction with **Figure 3. Table 3** below outlines the summary of habitats identified on site, as well as their applicable secondary codes. During the survey walkover habitats identified on site include dense bramble scrub, sparsely vegetated urban land, species-poor hedgerows, scattered trees, manmade structures/features and bare earth.

Table 3: Habitat applicable codes

Primary Habitat	UK Hab Primary Code	Applicable Secondary Code(s) used	Secondary Code(s) description
Bramble Scrub	h3d	200	Individual tree
Non-Native and Ornamental Hedgerow	h2b	-	-
Other Coniferous Woodland	w2c	33	Line of trees
Sparsely Vegetated Urban Land	u1f	81	Ruderal or ephemeral
		200	Individual tree
Buildings	u1b	-	-

Bramble scrub (Secondary Code: 200)

5.7. A large section of scrub was present in the middle of the site (Target Note 1). This area was fairly extensive and dense, dominated by bramble *Rubus fruticosus* and common ivy *Hedera helix* with some hazel *Corylus avellana* saplings.

5.8. Dead wood branches were also present in scrub areas where trees had been historically pruned and the arisings left on site.

Sparsely Vegetated Urban Land *(Secondary Codes: 81, 200)*

5.9. Surrounding the scrub on the outskirts of the site, swathes of ruderal herbs were present. Species present include common nettle *Urtica dioica,* nipplewort *Lapsana sp.,* herb Robert *Geranium roberantium,* dock *Rumex sp.,* and Yorkshire fog *Holcus lanatus*. Non-native ornamental species present include ivy-leaved cyclamen *Cyclamen hederifolium* and Italian arum *Arum italicum.*

5.10. Around the edge of the site were scattered trees of varying ages from saplings to mature trees. The most abundant and dominant species included whitebeam *Sorbus aria* at the western end of the site, pedunculate oak *Quercus robur* along the southern edge and a small group of young sycamores *Acer pseudoplatanus* within the scrub section of the site. Other species present included beech *Fagus sylvatica* and silver birch *Betula pendula*.

Non-Native and Ornamental Hedgerow

5.11. Two hedgerows are present on the site. The southern boundary bordering the driveway to a neighbouring property comprises a small managed Box *Buxus sp.* hedge. Another short section of box hedge is present in the centre of the site, near the greenhouse.

Other Coniferous Woodland (Secondary Code: 33)

5.12. The western boundary neighbouring the same property has a tall Yew *Taxus sp.* line of trees.

Buildings

5.13. The site boundaries were made up of fences with a brick wall extending the length of the northern boundary approximately 2.5m high.

5.14. Two areas of garden and household waste are located centrally within the site. The garden waste pile (Target Note 2) included a large area of compost and previously pruned tree branches. The area of house hold waste (Target Note 3) included kitchen appliances, fence panels as well as various plastics and metals.

5.15. Four buildings were identified on site within the scrub area including three timber panelled sheds with corrugated metal roofs and a brick and glass greenhouse.

Habitat Walkover Photos

Image 1: Dense bramble scrub within the site and boundary trees.

Image 2: The bramble scrub preventing access to one of the derelict buildings.

Image 3: Box hedgerow on the southern boundary.

Image 4: The line of yew trees on the western boundary.

Image 5: The greenhouse.

Image 6: One of the dilapidated sheds on site.

Protected Species

Bats

5.16. TVERC returned 346 records of bat within 2km of the site within the last 10 years. Species recorded include common pipistrelle *Pipistrellus pipistrellus*, brown long-eared bat *Plecotus auritus*, lesser noctule *Nyctalus leisleri*, Nathusius's pipistrelle *Pipistrellus nathusii,* Daubenton's bat *Myotis daubentonii*, Natterer's bat *Myotis nattereri*, serotine *Eptesicus serotinus*, soprano pipistrelle *Pipistrellus pygmaeus*, whiskered bat *Myotis mystacinus*, and bats of unspecified *Myotis* and *Plecotus* species. The majority of records were from bats flying over surveyors using bat detectors in the field with a number from guano DNA analysis or confirmed sighted emergences and/or re-entry into roosts. Records of note are:

- The closest record to the site is a single common pipistrelle day roost, approximately 0.2 km south of the site.
- A Daubenton's bat maternity roost identified in a willow tree rot hole, approximately 0.3 km northwest of the site.
- One brown long-eared bat found in a loft void with 1000+ droppings approximately 1.7 km northeast.

5.17. There are records on MagicMap of nine EPS licences for works impacting bats within 2 km of the application site including:

- EPS mitigation licence (EPSM2012-4004) to allow for the destruction of a resting place for soprano pipistrelle, approximately 0.8km northwest.
- EPS mitigation licence (2015-7819-EPS-MIT) to allow for the destruction of a resting place for common pipistrelle and soprano pipistrelle, approximately 1km northwest.
- EPS mitigation licence (2015-7768-EPS-MIT-1) to allow for the destruction of a resting place for soprano pipistrelle, approximately 1.3km northwest.
- EPS mitigation licence (2015-7300-EPS-MIT) to allow for the destruction of a resting place for common pipistrelle, soprano pipistrelle and brown long-eared bat, approximately 1.3km northeast.
- EPS mitigation licence (2019-43232-EPS-MIT) to allow for the destruction of a resting place for soprano pipistrelle, approximately 1.5km northwest.
- EPS mitigation licence (2017-29718-EPS-MIT) to allow for the destruction of a resting place for soprano pipistrelle and brown long-eared bat, approximately 1.5km northwest.
- EPS mitigation licence (2018-35667-EPS-MIT) to allow for the destruction of a resting place for common pipistrelle, approximately 1.7km southeast.

- EPS mitigation licence (2015-10500-EPS-MIT) to allow for the destruction of a resting place for common pipistrelle, approximately 1.9km northwest.
- EPS mitigation licence (EPSM2012-4843) to allow for the destruction of a resting place and a breeding site for soprano pipistrelle, approximately 2km northwest.

5.18. A search of Wokingham Borough Council Planning Portal shows no relevant planning applications with associated ecological documents regarding roosting bats within the last two years in the nearby area.

5.19. The habitats on site provide good foraging grounds for bats, although bats are more likely to utilise the open fields and trees in the surrounding areas to the north. The tree line along the north, just outside the site's boundary, is likely to be used as a commuting route by bats.

5.20. All of the trees within the site were assessed as having negligible bat roosting potential. No PRFs were identified.

Buildings

5.21. The three sheds on site were of timber construction covered with corrugated metal. All windows and doors were missing and the timber panels were coming away from the main frame. This meant that the structures were no longer enclosed and were open to the elements. Ivy had encroached the structures and heavy leaf litter covered each roof.

5.22. The derelict outbuildings were identified as providing '**negligible' roosting potential** for bats due to an absence of crevice features and lack of enclosed space.

5.23. The greenhouse was predominantly of glass construction with a brick base and timber frame. This structure was assessed as providing **'none' roosting potential** for bats.

Great Crested Newt and Common Amphibians

5.24. A search by TVERC returned a low number of historical records of common frog *Rana temporaria*, common toad *Bufo bufo* and smooth newt *Lissotriton vulgaris* within the search area in the last 20 years. There were no records of great crested newt. These records were mostly obtained from reptile refugia checks at Mumbery Field and Wargrave Chalk Pit approximately 0.8km southeast and 0.7km south respectively with one record from a residential location approximately 0.5km east.

5.25. There are no records of EPS licences regarding works impacting great crested newt, great crested newt pond surveys 2017 - 2019, or great crested newt class licence returns on Magic Maps within 1km of the site.

5.26. The dense bramble scrub, sparsely vegetated urban land, hedgerows and roots of mature trees within the site provided good terrestrial habitat for great crested newts and common amphibians. The garden and household waste piles are considered to provide suitable refugia for this group.

5.27. There is some suitable habitat to the north of the site in the form of priority habitat woodpasture & parkland, however, the grassland appears to be managed as part of the Wargrave Estate and any terrestrial activity would likely be restricted to the tree lines or longer grassland associated with these linear features.

5.28. There are no ponds within the application boundary and there are two ponds within 500m of the site. Pond 1 (P1) is a small ornamental pond, surrounded by hardstanding and is located approximately 200 m north. Pond 2 (P2) is a large pond located approximately 230 m northeast of the site. These ponds were assessed with the Habitat Suitability Index (HSI) tool in 2023. P1 was determined to have "Poor" suitability to support a great crested newt population and P2 was determined to have "Below Average". The full HSI calculations are presented in **Table 4**.

Table 4: ARGUK GCN HSI Calculator

	Pond Name	P1	P2
SI No	**SI Description**	**SI Value**	**SI Value**
1	Geographic location	*1.00*	*1.00*
2	Pond area	*0.05*	*0.80*
3	Pond permanence	*0.90*	*0.90*
4	Water quality	*0.33*	*0.67*
5	Shade	*1.00*	*1.00*
6	Water fowl effect	*1.00*	*0.10*
7	Fish presence	*1.00*	*0.67*
8	Pond Density	*0.50*	*0.50*
9	Terrestrial habitat	*0.01*	*0.67*
10	Macropyhyte cover	*0.30*	*0.40*
HSI Score		**0.34**	**0.58**
Pond suitability (see below)		*Poor*	*Below Average*

Categorisation of HSI Score by Lee Brady

HIS Score	**Pond Suitability**
< 0.50	Poor
0.50 - 0.59	Below average
0.60 - 0.69	Average
0.70 - 0.79	Good
> 0.80	Excellent

Based on ARGUK advice note 5 - Great Crested Newt Habitat Suitability Index

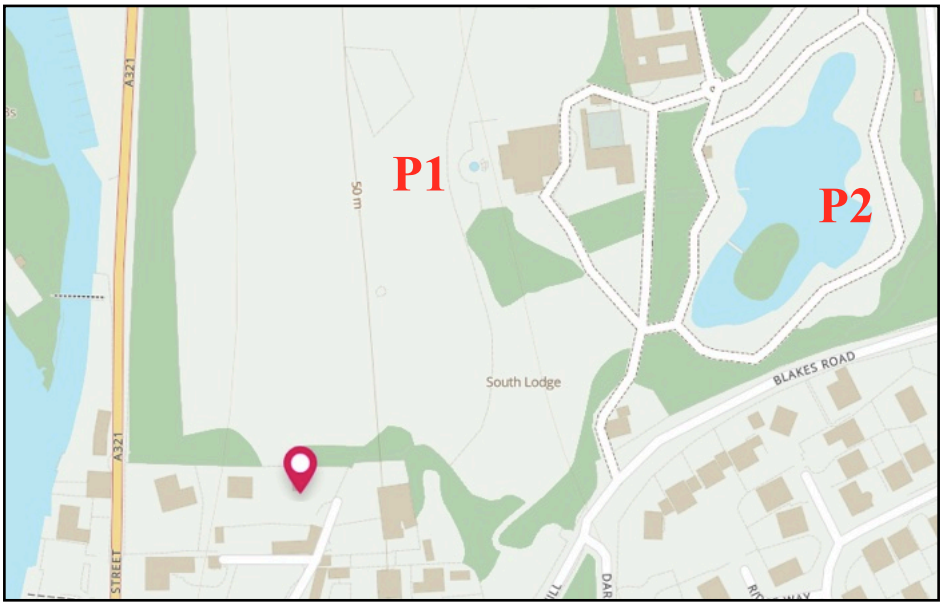

Figure 4: Ponds within 500m of the application site.

Reptiles

5.29. TVERC returned records of grass snake *Natrix helvetica* and slow worm *Anguis fragilis* within the search area. Seven records of grass snake were recorded across Mumberry Nature Reserve approximately and Mumberry Field approximately 0.8km southeast and the Mumberry Chalk Pit approximately 0.7 km south, with a peak count of 1 individual seen each time. Reptile surveys conducted in 2019 within the application site recorded a peak count of 31 sub-adult slow worm.

5.30. Areas of bramble scrub, sparsely vegetated urban land, hedgerows and roots of mature trees within the site provided a suitable mosaic of habitats for common reptile species. In addition, the garden and household waste piles are considered to provide suitable hibernation, basking and resting habitat for this species group.

5.31. There is suitable habitat in the wider area comprising priority habitat woodpasture & parkland and arable land to the north and northeast of the site.

5.32. Presence / absence surveys conducted at Land adjacent to Yewcroft during the 2019 survey season identified a high population of slow worms *Anguis fragilis* using the site. Standard 60cm reptile exclusion fencing was installed around the entire construction footprint, however a reptile translocation of the site never occurred. Remnants of the reptile fencing remain on site, however it is in a large state of disrepair and missing in large swathes, and so it cannot be guaranteed that the site has not been recolonised by local reptile populations.

Dormice

5.33. There are no records of EPS licences for licensable works impacting dormouse within 1km of the application site and TVERC returned no records of dormouse in the search area.

5.34. No evidence of dormice was found during the habitat walkover. The trees and scrub along the site boundaries and within the site itself (Target Note 1) contained a number of species of ecological value to dormice, including hazel and bramble. The site connected to offsite habitat of elevated value to this species, although, suitable habitat in the wider landscape was not extensive.

Other Terrestrial Mammals

5.35. TVERC returned four records of west European hedgehog within the search area in the last 20 years. The most recent record was from 2021 approximately 0.8km northwest in a residential garden.

5.36. The hedgerows, bramble scrub, sparsely vegetated urban land, and garden waste piles offer the dense structured habitats required by hedgehogs, and they are likely to utilise the site for foraging and nesting. Access to habitats to the north is restricted by the presence of a wall, however access can be gained via other routes. Potential foraging habitats can also be found in the gardens of the adjacent houses.

5.37. TVERC returned 27 records of badger within the search area. The majority of these were sightings of dead badger with some identified setts. The locations of these however have been kept confidential.

5.38. No badger activity e.g. latrines, snuffle holes, or sett entrances were recorded on site during the survey or within 30m of the site boundary. However, habitats within the surrounding area such as small areas of woodland and tree lines do offer foraging opportunities for this species and it is considered possible that they pass through the site on occasion.

Breeding Birds

5.39. TVERC returned historical records for 43 protected and/or BAP species within the search area including swift *Apus apus,* marsh tit *Poecile palustris,* barn owl *Tyto alba,* house martin *Delichon urbicum*, and skylark *Alauda arvensis*.

5.40. The trees, bramble scrub, sparsely vegetated urban land, hedgerows and overgrown buildings within the site provided good foraging and nesting opportunities for a variety of bird species which may be found in the local area.

5.41. No active birds nests were found during the walkover survey.

Otter and Water Vole

5.42. TVERC returned two records of otter within 1km of the site in the last 20 years. One was a record of a spraint in 2022 found approximately 1km southwest of the site on the banks of the River Loddon. The other was a record from 2019 of an individual otter, although, this sighting was only given to the nearest 1km.

5.43. The site is located approximately 130m east of the River Thames, and there is some suitable foraging habitat for otter within the site boundary including the scrub and tree line. However, the A321 lies between the river and the site, therefore, it is considered that otter would not utilise the site.

5.44. TVERC returned no records of water vole within the search area. Habitats on site include trees, bramble scrub and sparsely vegetated urban land are not suitable for water vole. Due to the small size of the site and lack of suitable habitat, therefore it is considered highly unlikely that water voles are present within the site and are not mentioned further.

Invertebrates

5.45. TVERC returned 46 records of stag beetle *Lucanus cervus* within the last 20 years in the search area. The most recent was a residential record in 2022 located approximately 0.8km southeast.

5.46. The majority of habitats on site provided opportunities to a common assemblage of invertebrates only, however, some mature trees were present within the boundaries of the site which could support stag beetle.

6. IMPACT ASSESSMENT

Designated Sites

6.1. It is not anticipated that the proposed works will impact any statutory designated sites, priority habitats or ancient woodlands through land take, other direct effects of the development, or increased footfall due to the location of the closest designated site, Harpsden Wood Site of Special Scientific Interest (SSSI), approximately 2.6km northwest.

6.2. The site does not lie within any buffer zones for designated sites that would require further assessment.

6.3. Given the above, it is considered likely that there will be no residual impacts on designated sites.

Habitats

Baseline

6.4. Dense bramble scrub and sparsely vegetated urban land on site comprise common and widespread species, however, are of elevated ecological value in the context of the site. The overgrown nature of the site supports suitable habitats for a range of protected species.

6.5. Mature trees present on site are of a high ecological value.

Potential Impacts

6.6. Under the current development proposals, the large areas of bramble scrub and sparsely vegetated urban land will be lost.

6.7. Several trees will need to be removed to accommodate the footprint of the new building, however, the proposals have been designed to ensure that the majority of mature trees are to be retained.

6.8. Hedgerows will be retained and enhanced through the proposals to ensure the connectivity and ecological functionality of the site in maintained.

Mitigation

6.9. All trees that are to be retained and remain unaffected by the development, including trees adjacent to the site boundary, should be protected throughout the development in accordance with British Standards BS 5837:2012. Root protection areas should be 12 x the diameter at breast height (DBH) or the reach of the longest branch (whichever is greater), unless otherwise advised by a qualified arboriculturist. Trees located off site but with their roots on site should also be protected. No materials should be allowed to be stored within these root protection areas and no heavy machinery should run over them.

Compensation

6.10. Trees to be lost will be replaced by those of native origin, or those known for their benefits for native wildlife. Under the current proposals, a number of apple and cherry trees will be planted as compensation, and will provide valuable forage opportunities for invertebrates, small mammals and birds. Trees should be selected from local provenance.

6.11. Where new planting along the western boundary is considered in the plan, native species should be used such as hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa* and spindle *Euonymus europaeus*, along with complementary species such as honeysuckle *Lonicera periclymenum* and dog rose *Rosa canina*. These will help to enhance the ecological value of the site and will provide new shelter and forage opportunities for protected species.

6.12. An area of rough grassland will also be established in the western end of the site to provide structural diversity.

6.13. Given the above mitigation and compensation strategies, it is considered likely that there will be no residual impacts on habitats.

Bats

Baseline

6.14. The habitats within the site, including the trees and dense scrub, provided suitable opportunities for foraging and commuting bats, although it is considered that bats are more likely to frequently utilise the open fields and trees in the surrounding areas to the north. The tree line to the north, just outside the site's boundary, is likely to be used as a commuting route by bats.

6.15. The buildings and trees within the site were assessed as lacking suitability to support roosting bats.

6.16. A variety of bat species are known to be roosting and foraging in the local area.

Potential Impacts

6.17. Vegetation clearance and tree removal will result in a loss of foraging habitat for bats, however, given the small size of the site and extensive suitable habitat in the wider landscape the loss is not anticipated to have a significant impact on bat activity.

6.18. Any new lighting incorporated within the new development has the potential to impact bats using the application site or adjacent habitats, and specifically, those species that are considered to be most light-sensitive. Bats are sensitive to light and could potentially avoid the area if access points or the surrounding areas become further lit.

Mitigation

6.19. Any new external lighting must be directed to avoid light spillage onto the retained trees and hedgerow. Upward lighting will be avoided by fitting lights with downward facing baffles

and fixtures to ensure no light spillage above an angle of 70°. Lighting will be triggered by motion sensors using a short timer where possible and in compliance with building regulations. Warm white LEDs will be used in preference to bright white LEDs. Light can be restricted by fitting hoods which direct the light below the horizontal plane, at an angle less than seventy degrees. Limiting the height of lighting columns and directing light at a low level away from vegetation reduces the ecological impact of the light.

6.20. The lighting plan should be designed by a lighting engineer with direct consultation from a licensed bat ecologist and can be secured by pre-commencement condition. The lighting plan will then be approved and signed off by a licensed bat ecologist prior to finalising the plan, to ensure the scheme is suitable for bats. See the **Appendix** for further information on designing lighting to minimise impacts on bats.

6.21. Habitats: A wildlife friendly landscaping scheme is recommended to enhance the site for bats and other wildlife.

6.22. Given the above mitigation strategies, it is considered likely that there will be no residual impacts on bats using the application site for foraging and commuting.

Great Crested Newt and Other Common Amphibians

Baseline

6.23. At the time of the walkover survey, the site provided suitable foraging, shelter and hibernation habitat for great crested newt and common amphibians in their terrestrial phase.

6.24. However, the data search by TVERC returned no records of great crested newt and the two ponds within 500m of the application site are considered unlikely to support a breeding population due to their "poor" (P1) and "below average" (P2) HSI score. In addition, the brick wall along the northern boundary and roads surrounding the site would act as a barrier to movement. It is considered that great crested newt are absent from the site and no further survey work is required.

6.25. Due to known records of common amphibians to the south of the site within the last 3 years, it is considered that small populations are likely to be supported in the local area and may access the site.

Potential Impacts

6.26. Vegetation clearance and construction works associated with the build of the main dwelling have the potential to injure/kill common amphibians should they be present at the time of works.

6.27. Vegetation clearance will result in a loss of suitable habitat which should be compensated for in the proposals.

Mitigation

6.28. Vegetation clearance works and removal of garden and household waste piles will by done by hand and only occur during the key active season (March-end of September, inclusive). Weather should be 9 degrees or higher, and dry with no strong winds. This will allow active amphibians to move to more suitable habitat nearby, if they are present within the working area.

6.29. The vegetation will be cleared in a two stage cut. Vegetation will be cut to a height of 1 m with the following cut done the following day. All clearance will be carried out from the centre of the working area towards retained areas of habitat along the boundaries. The arisings should be completely removed from the working area to prevent the creation of potential refuge areas.

6.30. Reasonable avoidance measures (RAMs) will be implemented on site during construction works to avoid injury/killing of reptiles, to include:

- Open excavations should be sloped to prevent entrapment;
- Any excavations left over night will be covered during the night to prevent amphibians from being stuck in them.
- Any materials brought to the site should be stored in a secure store, raised on pallets or stacked as far as possible from the development area to prevent animals from using these areas for hibernation or refuge.

6.31. In the unlikely event that a great crested newt is encountered during the development works, all works must immediately cease, and a suitably qualified ecologist must be contacted for advice.

Compensation

6.32. As part of the proposed plans, an area of grassland will be allowed to become tussocky and overgrown which will create structural diversity within the site. In addition, the western and northern boundaries of the site have been designated for new planting to provide opportunities for forage and shelter.

6.33. To provide new resting and hibernating habitat for amphibians, small deadwood piles or hibernaculum features will be incorporated at appropriate areas of the site (see the **Appendix** for further details).

6.34. Given the above mitigation strategies, it is considered likely that there will be no residual impacts on great crested newt and other common amphibians.

Common Reptiles

Baseline

6.35. The site provided suitable habitat for reptiles and biological records show that the site has historically been used by slow worms, with additional records of grass snake and slow worm in the wider landscape. Remnants of the reptile fencing remain on site, however it is in a large state of disrepair and missing in large swathes, and so it cannot be guaranteed that the site has not been recolonised by local reptile populations.

Potential Impacts

6.36. In the absence of mitigation, the vegetation clearance and construction works have the potential to injure/kill individual reptiles using the site.

6.37. Vegetation clearance will result in a loss of suitable habitat which should be compensated for in the proposals.

Further Surveys

6.38. Repair of the fence and commencement of the reptile translocation will be required to ensure reptiles are not present on the site prior to vegetation removal to facilitate construction. This can take place between April to September inclusive.

Mitigation

6.39. A suitable mitigation plan has been produced following the results of the reptile surveys, but as mentioned above, the translocation of the reptiles needs to be repeated.

Dormice and other Terrestrial Mammals

Baseline

6.40. The site provided some suitability for dormice, however, due to a lack of dormouse records within 1km of the application site, and the limited extent of habitat in the wider landscape, it is considered that dormice are likely absent from the site. They will not be considered further in this report.

6.41. Records from TVERC indicate that badger and hedgehog are present in the wider area and there is suitable woodland and hedgerow habitat in close proximity to the site. These species groups may pass through the site on occasion.

Potential Impacts

6.42. Should badger and hedgehog be present during the proposed works, they may be injured due to the destructive activity or trapped in any excavations.

Mitigation

6.43. It is considered that the mitigation measures outlined above with respect to **great crested newt and other amphibians** will also be suitable to safeguard hedgehog and badger in the event that they are present within the site during the development works.

6.44. Given the above mitigation strategies, it is considered likely that there will be no residual impacts on terrestrial mammals.

Birds

Baseline

6.45. The trees, hedgerows and scrub on site provided suitable nesting and foraging potential for birds.

Potential Impacts

6.46. Areas of suitable nesting and foraging habitat including the scrub and some trees are to be removed as part of the plans. The loss of these habitats should be compensated for.

Mitigation

6.47. Trees are within the site are to be retained where possible and it is recommended that any trees to be removed are replaced with suitable native planting in order to ensue that opportunities for this species group remain following the completion of the development.

6.48. Breeding birds are protected by law and must not be disturbed until the chicks have fledged or the nest has failed. If vegetation removal or the demolition of the buildings is required during the breeding bird season (February - August), a pre-works check by a suitability qualified ecologist will be conducted to ensure that no active nests are present. If active nests are recorded, a suitable buffer will be retained around these until all chicks have fledged (to be confirmed by a suitably qualified ecologist).

Compensation

6.49. Two Bird boxes will to be installed to ensure that there is breeding bird habitat onsite. Boxes suitable for blue tits and other common garden birds are recommended and can be fitted on mature trees or on the new building. Further details of bird boxes are provided in the **appendix**.

6.50. A wildlife friendly landscaping scheme is recommended to enhance the site and provide suitable foraging habitat for birds. New planting in the western section of the site should preferably include native fruit bearing species.

6.51. Given the above mitigation and compensation strategies, it is considered likely that there will be no residual impacts on birds.

Invertebrates

Baseline

6.52. The site likely supports an assemblage of common invertebrates and there are some opportunities for stag beetle.

Potential Impacts

6.53. The habitats which will be lost, including scrub and ruderal vegetation, have ecological value to invertebrates and the loss of habitat should be compensated for.

Compensation

6.54. An area of rough grassland will be created in the western section of the site which will increase the structural diversity of the site and be attractive to invertebrates.

6.55. Where new planting is considered in the plan, native tree and shrub species should be used to enhance the ecological value of the site. Examples of these species include apple, box, heather, common poppy, cornflower, and oregano.

6.56. Given the above compensation strategies, it is considered likely that there will be no residual impacts on invertebrates.

7. ENHANCEMENT RECOMMENDATIONS

7.1. National planning policy states that all developments should seek to enhance onsite biodiversity whether impacts on protected species are recorded or not. Incorporating enhancement features into new or renovated buildings, and landscaping proposals, should be carefully considered. These features can be simple and inexpensive, please see below for specific recommendations.

Habitats

7.2. Landscape planting should seek to enhance biodiversity, improve connectivity to the surrounding habitats and provide food and shelter for a wide range of wildlife. All amenity planting and formally landscaped areas should be designed using a variety of plant species beneficial for wildlife. These do not necessarily have to be native but should be chosen for their ability to provide nectar or fruit and should be non-invasive species. There are a number of specialist seed mixes available specific to certain soil types, growing conditions and designed to benefit different groups of species such as bees or butterflies and moths.

7.3. All habitats should be managed in a suitable way to encourage a wide variety of insects and other wildlife to use the site.

7.4. The western hedgerow will be enhanced by planting the northern end with hazel *Corylus avjllana* and field maple *Acer campestre* and the southern hedgerow will be infilled with box to maintain continuity.

Bats

7.5. Integrated bat boxes can be incorporated into the new building within the site or tree mounted bat boxes can be installed on suitable mature trees within the application site. These boxes will remain on site in perpetuity. The location will be determined by a licensed bat ecologist to ensure likelihood of repeated use is increased. The bat boxes will be installed at a height of at least 4m, preferably on a southern un-cluttered aspect with good connectivity to linear features such as other mature trees and hedgerows (see the **Appendix** for further details).

7.6. It is recommended that bitumen roof felt type 1F is used as lining in the new building, which meets building regulations. If the proposed new tile type is one that will allow access to bats then breathable roofing membrane should be avoided as it is proven to cause entanglement and will lead to fatalities within bat roosts for a prolonged period.

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APPENDICES

APPENDIX 1 - PROPOSED BLOCK PLAN

Proposed site plan @ 1:200

0m 5m 10m 15m 20m
1:200

N

Block Plan @ 1:500

0m 5m 10m 15m 20m 25m 30m
1:500

DO NOT SCALE from this drawing (printed or electronic versions) other than for planning purposes. Contractors must check all dimensions on site.

Discrepancies and / or ambiguities within this drawing, between it and information given elsewhere, must be reported immediately for clarification prior to proceeding with works on site.

All works are to be carried out in accordance with the latest British Standards and Codes of Practice, unless specifically directed otherwise in the specification.

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KEY

- Existing retained No. as tree survey
- Tree removed No. as tree survey
- New tree replacing
- Shelter & forage planting
- Herbaceous plantir g/ climbers

REV:	DESCRIPTION:	BY:	DATE:
STATUS:	Sketch		

CHANNEL ARCHITECTURE

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Mobile: 07703441179

SITE: Land adjacent to Yewcroft
Wargrave, RG10 8JE

PROJECT : New Build

DRAWING TITLE: Proposed Site & Block Plan

SCALE:	DATE:	DRAWN:	CHECKED:
As noted @A3	13/11/2025	KO	

PROJECT NO:	DRAWING NO:	REVISION:
193	DR-A-080-002	

APPENDIX 4 - BATS AND LIGHTING

DARWIN ECOLOGY
integrating nature conservation

Bats & Lighting

THE IMPACT OF LIGHTING ON BATS

Bats favour a dark environment for both roosting and foraging as they are adapted to low-light conditions. Artificial lighting will disturb bats if the lighting covers roost access points, flight paths or foraging habitats.

The main peak of nocturnal insect abundance occurs at dusk and a delay in emergence results in a lower foraging rate for bats.

Artificial lighting creates a 'vacuum effect' for nocturnal insects. During the night nocturnal insects use the light of the moon* to navigate. However, artificial lighting and even sky glow above cities obscures the natural moonlight as it is closer and radiates light in multiple directions.

Some species of bats have been recorded foraging around street lights such as Pipistrelle species and Nyctalus species. However, species that are less tolerant of artificial light are at a disadvantage when foraging as insects are drawn away from these species usual foraging grounds into the zones of artificial light.

Lighting must be considered in context to any development as increased lighting may cause roost abandonment, reduced reproductive success, and reduced foraging. Mitigation to reduce the impacts of lighting for bats is therefore of great importance in bat conservation.

Table 1: Summary of predicted impact of lighting for each species/genus

Impact / Behaviour	High	Medium	Low
Maternity roost	All species	-	-
Night roost	*Rhinolophus hipposideros* *Rhinolophus ferrumequinum* *Myotis* spp. *Plecotus* spp.	*Pipistrellus* spp. *Nyctalus* spp. *Eptesicus serotinus* *Barbastella barbastellus*	-
Emergence	All species	-	-
Foraging	*Rhinolophus hipposideros* *Rhinolophus ferrumequinum* *Myotis* spp. *Plecotus* spp.	-	*Pipistrellus* spp. *Nyctalus* spp. *Eptesicus serotinus* *Barbastella barbastellus*
Commuting	*Rhinolophus hipposideros* *Rhinolophus ferrumequinum* *Myotis* spp. *Plecotus* spp.	-	*Pipistrellus* spp. *Nyctalus* spp. *Eptesicus serotinus* *Barbastella barbastellus*
Swarming	All species	-	-
Hibernation	All species	-	-

*For more information see Warrant, E., and Dacke, M. (2016) Visual Navigation in Nocturnal insects. *Physiology*, 31, 182-196.

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Bats & Lighting

Sources of light that can disturb bats include; light spill via windows, sport floodlighting, car headlights, roadside lighting, security lighting, aesthetic lighting of waterways, and aesthetic illumination of buildings. Glare will affect bats over greater distance than the target area directly illuminated.

Avoidance is the most effective method, but if this is not possible the following measures should be considered.

What lighting should I use?

- Low pressure sodium lights or 'warm' LEDs
- Wavelength above 540nm
- Colour temperature below 2700K
- Shielded lights that prevent light spill above a 70 degree angle
- Passive infrared (PIR) motion sensors

What to avoid:

- Lighting roost entrances, flightpaths, and foraging or commuting routes
- Reflective surfaces beneath lighting
- High level lights
- Non-directional lighting

Lighting should be considered at an early stage allowing impacts to be minimised through the design of the site.

Key Points

- Keep lighting intensity to the minimum level required
- Limit the times that lights are on to provide some dark periods (e.g. switching installations off between midnight and 5am)
- Dim lighting according to demand
- As an alternative to lighting pathways use paving materials that reflect moonlight
- Low level lighting allows darkness to be retained within higher vegetation
- Set dark habitat buffers - lighting should always be a minimum of 25m from vegetated margins and 40m from waterbodies
- Incorporate dark corridors within the site
- Compensate for the loss of dark areas by enhancing other dark areas
- Consider building design - install internal lighting away from windows

Bat Conservation Trust guidance note 08/18 'Bats and artificial lighting in the UK & http://www.cost-lonne.eu/recommendations/

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