



**Garden Room at Wargrave Manor, Wargrave Hill,
Wargrave, Berkshire RG10 8JL**

Ecological Impact Assessment

January 2026

on behalf of Royal Estate Affairs

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Client	Royal Estate Affairs c/o Neil Tomlinson Architects Limited
Job name	Garden Room at Wargrave Manor, Wargrave Hill, Wargrave, Wokingham, Berkshire RG10 8JL
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1 Executive Summary

Site Details	Wargrave Manor, referred to as the 'site' for the purpose of this report, is located to the western side of Wargrave Hill, to the north of the village of Wargrave in Berkshire RG10 8JL. The approximate Ordnance Survey grid reference for The Garden Room is SU 788 791. The proposed development is considered to fall under the exemption criteria of 'householder applications' and Statutory Biodiversity Net Gain (defined by the Environment Act 2021) is not considered applicable.
Proposals	The proposals include the erection of an extension to the existing Garden Room building.
Methodology	An Extended UKHab survey was undertaken on 9th January 2024 by professional ecologist Reuben Hayden <i>MSc ACIEEM</i>. Photo evidence of the site in its current form has been provided from August 2025.
Results	• The site comprises an area of developed land; sealed surface with an existing Garden Room building. The site is accessed via a driveway off Wargrave Hill. • The Garden Room building is assessed as having 'negligible' roosting potential for bats. • The habitats to be impacted by proposals are considered to be of negligible ecological value. • The habitats within the site are entirely unsuitable for amphibians during their terrestrial phase, however, amphibians may be migrating/commuting through the site given the presence of ponds within the local area.
Impact Assessment	• The proposals will result in the loss of developed land; sealed surface, a habitat of negligible ecological value. • There are no foreseeable impacts on habitats of 'principal importance', as listed within Section 41 of the NERC Act 2006. • With the implementation of a precautionary working method statement, there are no foreseeable impacts on amphibians including great crested newts. • There are no foreseeable impacts on roosting bats. • New external lighting has the potential to affect bat behaviour.

Recommendations	Recommendations are made with species-specific enhancements including bird/bat boxes. A precautionary working method statement is recommended to protect amphibians during the construction phase. Careful work practices are recommended to protect badgers and hedgehogs during the construction phase.
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2 Introduction

2.1 Site Description & Context

Wargrave Manor, referred to as the 'site' for the purpose of this report, is located to the western side of Wargrave Hill, to the north of the village of Wargrave in Berkshire RG10 8JL. The approximate Ordnance Survey grid reference for The Garden Room is SU 788 791.

The site comprises an area of developed land; sealed surface (covered by astroturf) with an existing Garden Room building. The site is accessed via a driveway off Wargrave Hill.

The site is located within the Wargrave Manor estate which comprises a Grade II listed manor building, gardens, a lake, a horse track as well as wood pasture and parkland. Habitats within the wider landscape are dominated by residential development associated with Wargrave to the south, arable land to the east, the River Thames to the west, and pockets of woodland, a golf course and arable land to the north.

Photographs of the site are presented in Appendix 1. Appendix 2 illustrates the location of the site and provides an aerial photograph of the site within the surrounding landscape.

2.2 Proposals

The proposals include the erection of an extension to the existing Garden Room building.

Existing and proposal plans are presented in Appendix 3.

2.3 Aims of Study

The aims of this study are to describe and evaluate the habitats present within the site and to assess the potential for the site to support protected and notable species. The report discusses the likely impacts of the proposed development on the ecology of the site, on valued habitats and on protected/notable species. The study also makes recommendations for appropriate mitigation measures and habitat enhancement with regard to habitats and species. The need for further ecological survey work is discussed in light of the impact assessment.

2.4 Biodiversity Statement

2.4.1 Exemption

The proposed development will be covered by a householder planning application.

Given this, the proposed development is considered to fall under the exemption criteria of 'householder applications' (<https://www.gov.uk/guidance/biodiversity-net-gain-exempt-developments>) and Statutory Biodiversity Net Gain (defined by the Environment Act 2021) is not considered applicable.

It is of note that paragraph: 020 Reference ID: 74-020-20240214 on the government guidance (<https://www.gov.uk/guidance/biodiversity-net-gain>) states:

"Decision makers should not give weight to local policy which requires biodiversity gains for types of development which would now be exempt under the statutory framework. Other local biodiversity policies which require specific enhancements to support biodiversity would continue to apply to these applications where appropriate."

Given this, it is considered that the proposed development is exempt from Statutory Biodiversity Net Gain (BNG) and any local policy (Wokingham Borough Council) regarding a measurable biodiversity net gain is not applicable.

2.5 Bat Ecology

Bats are the only mammals to have developed the ability of true flight. At present, over 1,100 species of bat are recognised worldwide, making bats the second largest mammal group after rodents. As well as flight, bats have evolved a system of navigation and orientation using echolocation which has allowed many species to become nocturnal. There are 18 species of bat that occur within the British Isles, of which 17 are known to breed here. More species occur in the south and west of the country, with species numbers declining towards the north and into Scotland.

All bat species in the UK are nocturnal and feed exclusively on insects (they are insectivorous) which they catch in flight during their night-time activity, using echolocation to locate and home-in on their prey. Bats will roost during the daytime and seek out dark, enclosed and undisturbed places in which to do so, often using a variety of roosting sites within their home range. Different roost sites are used for different purposes (such as mating, giving birth and hibernation) and at different periods of a bat's life cycle.

During the summer, female bats will gather together in a maternity or breeding roost. In the UK, this starts to occur towards the end of May and the females will seek out a warm and undisturbed site in which to give birth. Because maternity roosts require a particular set of environmental attributes (such as location, temperature, orientation and size), breeding bats tend to return to roost and breed in the same locations year after year. Given that bats live a relatively long time (anywhere from 10-20 years), and only give birth to one pup a year, maternity colonies are crucial to the reproduction and survival of the local population and can be very sensitive to environmental change.

Relatively little is known about hibernation roosts, as tracking and locating hibernating bats is very difficult. However, many species (particularly those within the genera *Myotis* and *Rhinolophus*) have been found within underground sites such as caves, mines and cellars, where the temperature remains constant and low throughout the winter allowing the bats to remain in a state of torpor. The spring and autumn are periods of transition and bats can use a number of different locations on a temporary basis, often moving between roosts as environmental conditions change and temperatures fluctuate. In the autumn, bats will mate, and it has been shown that male and female bats will gather at particular locations (such as a building, cave or tree) to meet, socialise and copulate.

Bats choose to roost in a number of different locations, depending on the species, their activity pattern and the period of their lifecycle. Certain species, such as the pipistrelles, favour crevices and small cavities for roosting and will use features such as cracks, crevices and small rot holes in the boughs and trunks of trees and within certain features of buildings such as boxed eaves, gaps under roof tiles, hanging tiles and soffit boards. Other species favour large, uncluttered roof spaces and lofts within buildings where they can hang up on the underside of the roof and use the interior space for flying prior to emergence. Hollow trees, cellars, caves, barns, churches and cavity walls can also all be used for roosting, given suitable access. Certain species, such as the noctule, favour roosting sites within trees whilst others tend to favour buildings. Roost sites may be used by only a very small number of bats, such as solitary males, or may offer shelter to tens or hundreds of bats within maternity and hibernation roost sites.

The suitability of roosting sites is also highly influenced by the location or context of a tree, building or cave. Roost sites are most often favoured when they are within close proximity to foraging habitats and where those habitats are connected to one another within the landscape by features such as hedgerows, woodlands, rivers or sunken lanes along which bats disperse and 'commute' from place to place. Suitable foraging habitats are any places where insect prey is diverse and abundant such as woodlands, ponds, lakes, rivers, scrub, hedgerows and unimproved grassland or pasture. Thus, the ecological context of a site is very important for determining if bats may be present within a roost and the potential for a roost to be present tends to be much higher within rural or village locations.

2.6 Great Crested Newt Ecology

Great crested newts are the largest of the three species of newt that occur in the UK. They are distinctive due to their relatively large size, dark colour and yellow or orange-coloured undersides covered in large black blotches. Males can be distinguished from females by the presence of a blue/grey flash on the tail and a jagged crest during the breeding season.

Great crested newts tend to spend the majority of their time on land, moving to ponds and pools to breed during the spring and summer (March to July), although some individuals can spend considerably longer within aquatic habitats. The female lays two or three eggs a day between March and mid-July, until a total of 200 to 300 eggs have been laid. The eggs are laid on submerged aquatic vegetation, each carefully wrapped in a leaf.

The larvae (or efts) hatch after about three weeks and live in the pond as aquatic predators until they metamorphose into adult newts. They are vulnerable to fish predation, and water bodies containing fish are rarely used for breeding (this means that they do not usually use running water or larger lakes or ponds where fish are present).

After metamorphosis into air-breathing juveniles at about four months old, they live a terrestrial life until old enough to breed, which is at about two or three years of age. Both the juvenile newts and the adults (outside the breeding season) live in terrestrial habitats with dense cover such as scrub, rough grass and woodland, usually within about 200-300 metres of the breeding pond. They rest during the day beneath rocks, logs or other shelters.

Larval newts usually feed on tadpoles, worms, insects and insect larvae. Adults hunt in ponds for other newts, tadpoles, froglets, worms, insect larvae and water snails. They also hunt on land for insects, worms and other invertebrates. During the winter months, the newts hibernate under logs and stones. The newts normally return to the same breeding site each year, and can live as much as 25 years, although up to about 10 years is more usual.

3 Methodology

3.1 Desk Study

The Multi-Agency Geographic Information for the Countryside (www.magic.gov.uk) website was searched for information regarding internationally protected sites (e.g. Special Areas of Conservation) within 5km of the survey area and statutory sites of nature conservation importance (e.g. Sites of Special Scientific Interest) within a 1km radius of the site.

Other Internet resources interrogated as part of the desk study include:

- Bing Maps - www.bing.com/maps
- Google Earth - www.earth.google.co.uk
- Google maps - www.google.co.uk/maps

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 was also consulted to gather information pertaining to priority habitats and species for conservation action at the national and local level.

Aerial photography interpretation is used to place the site into an ecological context and to provide information on the nature of the habitats beyond the site boundary. The information gathered is used to provide a baseline to the habitat assessment.

3.2 Field Surveys

3.2.1 *Extended UKHab Survey*

An Extended UK Habitat (UKHab) Classification Survey was undertaken on 9th January 2024 by Reuben Hayden *MSc ACIEEM*. A walkover of the site was conducted, and a description of the habitats present was prepared using standard UKHab Survey methodology (UKHab, 2023). Habitats were also assessed for their potential to support protected and/or notable species.

Target notes were also prepared on features of particular ecological interest, and an assessment was made of the site's potential to support protected and notable species (such as species listed under Section 41 of the NERC Act 2006) as well as invasive species (listed on Schedule 9 of the Wildlife & Countryside Act 1981).

3.2.1.1 *Weather Conditions*

The weather during the survey was dry and cold (2°C) with clear skies (10% cloud cover) and a moderate breeze (Beaufort Scale 4).

3.2.2 *Update Survey Data (2025)*

Photo evidence of the current site layout was provided to Windrush Ecology from August 2025. This ascertained that an area of developed land; sealed surface (covered by astroturf) has since been removed and a Garden Room building has been erected between June 2024 to June 2025. The remaining developed land; sealed surface within the site has been retained.

3.2.3 *Preliminary Roost Assessment*

A Preliminary Roost Assessment (PRA) of The Garden Room building (using photo evidence from August 2025) was undertaken.

Based off photo evidence from August 2025, the building was assessed for its potential to support roosting bats.

The PRA was undertaken according to best practice guidelines published by the Bat Conservation Trust (Collins, 2023) and the Bat Workers Manual (JNCC, 2012).

The study also takes into account the nature of the building and the ecological context of the site, including the following factors which may increase the likelihood of roosting bats being present (Collins, 2023):

- Age of the building (pre-20th Century or early 20th Century construction)
- Nature of construction; traditional brick, stone or timber construction
- Large and complicated roof void with unobstructed flying spaces
- Large (>20 cm) roof timbers with mortise joints, cracks and holes
- Entrances and gaps for bats to fly and crawl through
- Poorly maintained fabric providing ready access points for bats into roofs, walls; but at the same time not being too draughty and cool
- Roof warmed by the sun, south-facing roofs in particular
- Weatherboarding and/or hanging tiles with gaps
- Undisturbed roof voids
- Buildings and built structures in proximity to each other providing a variety of roosting opportunities throughout the year
- Buildings or built structures close to good foraging habitat, in particular mature trees, parkland, woodland or wetland, especially in a rural setting

Potential Suitability	Description of Roosting Habitats in Structures
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).
Negligible ^a	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.
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, shelter, protection, appropriate conditions ^b 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 and not a classic cool/stable hibernation site, but could be used by individual hibernating bats ^c).
Moderate	A structure 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, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after the presence is confirmed).
High	A structure 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 habitats. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.
^a Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute), but it is unlikely that they actually would (due to another attribute). ^b For example, in terms of temperature, humidity, height above ground level, light levels or level of disturbance. ^c Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten <i>et al.</i>, 2016 and Jansen <i>et al.</i>, 2022). Common pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.	

In addition to the bat survey, the building was checked for evidence of nesting birds.

3.2.4 Great Crested Newt Habitat Assessment

On 9th January 2024, an ornamental lake within the south-eastern area of the Wargrave Manor estate was assessed for its suitability to support great crested newts *Triturus cristatus* according to the criteria and method developed by Oldham *et al.* 2000. The work by Oldham, and others, hypothesises that the likely presence of breeding great crested newts can be predicted by a number of habitat features such as pond size, location, shading, the presence of fish, wildfowl and aquatic plants.

These data are used to calculate a Habitat Suitability Index (HSI); represented as a number from 0 to 1. The higher the number, the more likely the pond is to be occupied by breeding great crested newts. Following Oldham's study, further work by Dr Lee Brady has resulted in a categorical scale for using HSI scores to define pond suitability for great crested newts. This scale is shown below:

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

The studies by Oldham and Brady indicate that great crested newts tend to avoid ponds with low HSI scores. Ponds with relatively low HSI scores (poor to below average) typically only support great crested newt when they are located close to another occupied pond. Low scoring ponds are therefore only likely to support great crested newts in areas of high pond density. Ponds with relatively high HSI scores (good - excellent) frequently support great crested newts and survey work undertaken in England indicates that great crested newts are present in more than 90% of 'excellent' ponds.

3.3 Ecological Impact Assessment

The ecological appraisal of the proposed development is undertaken in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* version 1.3 (CIEEM, 2018).

The following principles underpin Ecological Impact Assessments EcIA:

- **Avoidance:** seek options that avoid harm to ecological features (for example, by locating on an alternative site).
- **Mitigation:** negative effects should be avoided or minimised through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.
- **Compensation:** where there are significant residual negative ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.
- **Enhancement:** seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

3.3.1 Determining Important Ecological Features & Value

The CIEEM guidelines recognise one of the key challenges in (EcIA) is to decide which ecological features (habitats, species, ecosystem and their functions/processes) are important and should be subject to detailed assessment. Such ecological features are those that are considered to be important and potentially affected by the project. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable.

However, efforts should still be made to safeguard biodiversity in its entirety, as emphasised by the Convention on Biological Diversity and developed in the EU Biodiversity Strategy 2020. The EU Strategy and national policy documents emphasise the need to achieve no net loss of biodiversity and enhancement of biodiversity.

The EcIA should demonstrate how a proposal will comply with statutory requirements and policy objectives for biodiversity.

The importance of an ecological feature should be considered within a defined geographical context. In this report, habitats are assigned to a value relating to their geographic frame of reference, using the following scale:

- International

- UK
- National (England)
- Regional (South East)
- County (Berkshire)
- District (Wokingham)
- Local or parish (Wargrave)
- Immediate zone of influence of the site (Site)
- Negligible

Regarding protected and notable species, an assessment of habitat suitability and potential presence of species has been undertaken, given the results of the desk study and field survey.

3.3.2 *Characterising Ecological Impacts*

When describing ecological impacts and effects, reference should be made to the following characteristics as required:

- Positive or negative
- Extent
- Magnitude
- Duration
- Frequency and timing
- Reversibility

The assessment only needs to describe those characteristics relevant to understanding the ecological effect of the impacts and determining its significance.

3.3.3 *Determining Ecologically Significant Effects*

The CIEEM guidelines define an 'ecologically significant effect' as an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Significant effects should be qualified with reference to an appropriate geographic scale. However, the scale of significance of an effect may not be the same as the geographic context in which the feature is considered important.

Significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution). A significant effect is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project.

Regarding protected and notable species, an assessment of habitat suitability and potential presence of species has been undertaken given the results of the desk study and field surveys.

3.4 **Limitations on Survey Data**

There are no significant limitations on the survey data, and all areas of the site could be surveyed thoroughly and safely.

As with any survey undertaken on a certain date, the data presented within this report provide information at particular points in time and present a 'snap-shot' of the ecological status of the site. Ecosystems and species behaviour/activity are dynamic and can change over time.

Whilst this report presents a characterisation and evaluation of habitat and species status at the time of the study, it should not be taken as an exhaustive representation of the ecological status of the site either at present or into the future.

A full desk study (through the Local Records Centre) was not considered necessary for this study. This is due to the nature of the proposals, which are of small scale (approx. 100m²). Obtaining species records is unlikely to make a significant difference to the evaluation of habitats within the site or the conclusions of the ecological impact assessment in this instance.

With updated photo evidence of the site obtained from August 2025, it is not considered necessary for there to be an updated walkover survey. The habitats within the site include developed land; sealed surface with The Garden Room building being built between June 2024 to June 2025. Given the modern build of the building, a Preliminary Roost Assessment (for bats) of the building has been conducted using photographic evidence. This is considered sufficient for the low scale development proposals and modern build of the building.

4 Results

4.1 Ecological Context

4.1.1 Sites of Nature Conservation Importance

4.1.1.1 Statutory Sites

There are no sites of international nature conservation importance, such as a Special Area of Conservation (SAC), located within a 5km radius of the site. The closest site of international nature conservation importance is the Chiltern Beechwoods SAC, which is located approximately 8km north-east of the site.

There are no sites of national nature conservation importance, such as a Site of Special Scientific Interest (SSSI), located within a 1km radius of the site. The closest site of national nature conservation importance is Harpsden Wood SSSI, situated approximately 2.8km north-west of the site.

Chiltern Beechwoods SAC

Annex I habitats that are a primary reason for selection of this site and Asperulo-Fagetum beech forests. The Chilterns Beechwoods represent a very extensive tract of Asperulo-Fagetum beech forests in the centre of the habitat's UK range. The woodland is an important part of a grassland-scrub-woodland mosaic. A distinctive feature in the woodland flora is the occurrence of the rare coralroot *Cardamine bulbifera*.

Other important features include semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) and stag beetle *Lucanus cervus*.

4.2 Habitats

The UKHab codes for the habitats within the site are presented within Table 1.

Table 1. UKHab habitat codes for the site.

Primary Code	Secondary Codes	Description
u1b5	-	Developed land; sealed surface (buildings)
u1b6	-	Developed land; sealed surface (other developed land)

4.2.1 Developed Land; Sealed Surface (buildings)

4.2.1.1 Garden Room

The Garden Room building is a single-storey detached building, with wooden/glass walls and a mansard style roof of slate tiles, being erected between February and June 2024. The building has no loft spaces or cellars. The building has no eaves, and the guttering extends up to the roof-wall junction.

Given the very modern build, the external walls and roof are of excellent condition with no notable signs of disrepair which could create roosting opportunities for bats. There are no obvious ways that bats could access the fabric or structure of the building and there are no loft spaces or cellars which bats could utilise.

Bats will choose to roost within different locations within the summer and winter periods (see Figure 1), favouring dark, enclosed, humid and cool locations for hibernation such as caves and cellars. These locations must maintain a constant low temperature (2-8°C), but temperatures must also not go below freezing. In addition, bats favour places that are undisturbed and retain relatively high humidity during the winter period. The building is not considered suitable for hibernation as there are no external potential roosting features and the building is unlikely to maintain the constant low temperatures, and high humidity, that are required for hibernation.

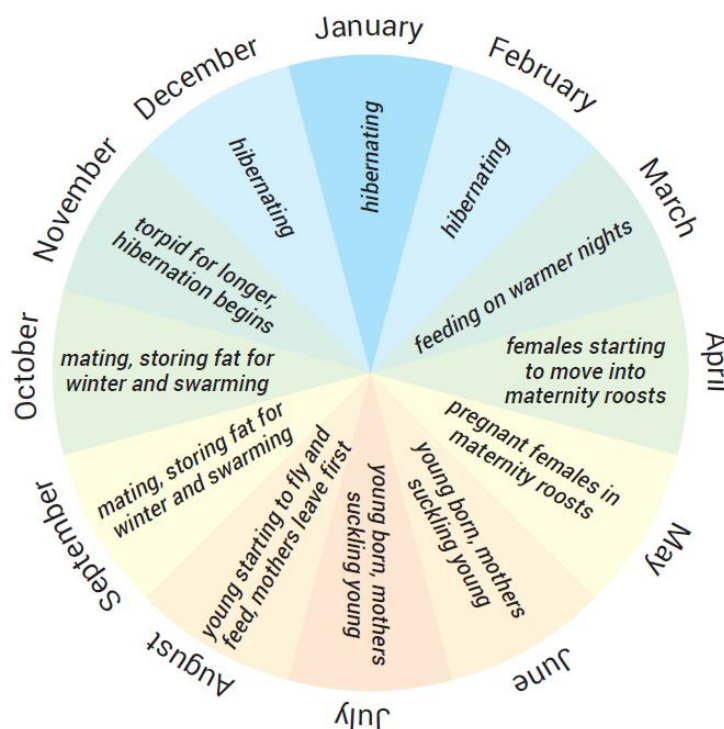


Figure 1. Diagram showing the yearly life cycle of a bat. Taken from the Good Practice Guidelines (4th Edition) by Collins (2023).

The site is located within the Wargrave Manor estate which comprises a Grade II listed manor building, gardens, a lake, a horse track as well as wood pasture and parkland. The habitats within the immediate surroundings of the site (gardens and lawn) are not considered of high quality for bats, however, the local area is likely to provide high quality habitat for bats in the locality.

Given the above discussion, the building is assessed as having '**negligible**' potential (Collins, 2023) to offer shelter to roosting bats.

4.2.2 Developed Land; Sealed Surface (other developed land)

The entire site includes an area of developed land; sealed surface (patio) which has been covered by astroturf.

Areas of hard-standing are considered of **negligible** ecological value.

4.2.3 Boundary Habitats

4.2.3.1 Vegetated Garden

Surrounding the site, there are habitats of managed vegetated garden which include modified grassland (lawn), scattered trees and introduced shrub. Species noted within these habitats include cherry laurel *Prunus laurocerasus*, yew *Taxus baccata*, sycamore *Acer pseudoplatanus*, holly *Ilex aquifolium*, Portuguese laurel *Prunus lusitanica* and horse chestnut *Aesculus hippocastanum*. The trees are young to semi-mature with a maximum height of approximately 8m.

4.3 Species

4.3.1 Plants

No rare or scarce plants are present within the site.

4.3.2 Reptiles

The site is not considered to provide suitable habitat for reptiles, as there is a lack of suitable habitat, such as tussocky grassland, that could support adequate prey numbers and shelter. The areas of hard-standing which dominate the site are completely unsuitable for reptiles, offering no shelter. There are no shelter or hibernacula features within the site.

Given the above, it is considered that reptiles are absent from the site.

4.3.3 Amphibians

The distribution of amphibians during their terrestrial phase is largely dictated by availability of suitable breeding habitat, with all native species requiring an aquatic environment within which to breed. It is believed that great crested newts can disperse up to 500m from a breeding pond, however the majority of individuals will typically be located within 250m. Research by Creswell and Whitworth (2004) located that the majority of great crested newts are located within approximately 50m of a breeding pond, given sufficient suitable habitat in close proximity, and they also located a significant drop-off in newt capture rates beyond 100m of a pond.

There is an ornamental lake located approximately 100m south-east of the site which was assessed for its potential to support breeding great crested newts. The result of the HSI calculation for the lake was an index of 0.40, indicating that the pond has 'poor' suitability for breeding great crested newts. The lake scores low on the index mainly due to the presence of fowl and fish, as well as poor nature of the surrounding habitats (managed vegetated garden).

The full results of the HSI assessment of the lake are presented in Table 2.

Table 2. HSI assessment of the ornamental lake.

Characteristic	Score
SI ₁ Location	1
SI ₂ Pond Area	0.8
SI ₃ Pond Drying	0.9
SI ₄ Water Quality	0.67
SI ₅ Shade	1

Characteristic	Score
Sl ₆ Fowl	0.01
Sl ₇ Fish	0.3
Sl ₈ Ponds	0.6
Sl ₉ Terrestrial Habitat	0.33
Sl ₁₀ Macrophytes	0.35
Habitat Suitability Index	0.40
Suitability	Poor

There is also a swimming pool which is found approximately 35m north of the site. This pool is not considered suitable for breeding amphibians as it lacks any vegetation suitable for egg laying and is covered by a plastic lining when not in use.

There is only one other waterbody, as shown on standard Ordnance Survey maps, within a 500m radius of the site, being located approximately 320m west of the site. This pond is however connected to the River Thames and is likely to be unsuitable for breeding amphibians due to increased water flow and presence of fish.

It is of note, however, that the site is found within a 'Green Impact Risk Zone' as defined by NatureSpace. The 'Green Impact Risk Zone' comprises moderate habitat suitability in which great crested newts may be present.

Terrestrial habitats within the site are considered to be entirely unsuitable for amphibians, being dominated by developed land; sealed surface which offer no cover or shelter. Although the habitats are unsuitable for amphibians, there is potential for amphibians to be present within the wider landscape, given the presence of waterbodies.

4.3.4 Birds

No nesting birds are considered present within The Garden Room building.

The site is unsuitable for ground nesting bird species such as skylarks.

4.3.5 Bats

4.3.5.1 Bats & Buildings

The Garden Room building is assessed as having 'negligible' roosting potential for bats.

4.3.5.2 Bats & Habitats

There are no habitat features on site likely to be used by any commuting or foraging bats at any time of the year and as such the habitats are considered of 'none' potential for commuting and foraging bats (Collins, 2023).

4.3.6 Invertebrates

Habitats within the site are of limited botanical diversity and are considered unlikely to support a diverse or uncommon assemblage of invertebrates.

4.3.7 Other Species

No badger setts are present within the site, and no evidence of badger activity was noted during the survey in 2024. Badgers may however be present within the wider landscape and commute through Wargrave Manor.

The habitats within the site are considered entirely unsuitable for otters and no evidence of otters was noted during the survey in 2024.

The habitats within the site are considered entirely unsuitable for hedgehogs, however, the species is likely to be present within the wider landscape and commute through Wargrave Manor.

4.3.7.1 *Invasive Species*

No non-native invasive species were noted within the site.

5 Discussion

5.1 Relevant Legislative & Policy Guidance

5.1.1 *Special Areas of Conservation*

Special Areas of Conservation (SACs) are strictly protected sites designated under the EC Habitats Directive. Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the habitat types and species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds).

The legal requirements relating to the designation, protection and management of SACs in England are set out in the Conservation of Habitats and Species Regulations 2017 (often referred to as 'the Habitats Regulations'). All terrestrial SACs in England are also Sites of Special Scientific Interest (SSSIs).

The Habitats Regulations require that any plans, projects or activities which are proposed and require a permission of some kind and may significantly affect a SAC must be subject to special scrutiny and first require a detailed 'appropriate assessment'. The decision-making authority may only permit or undertake the proposals if the assessment concludes that there would no adverse effect on the integrity of the SAC. Where it cannot reach this conclusion, the project can then only proceed in particular circumstances. This process allows those proposals which clearly will not impact upon the special European wildlife interest of a SAC to proceed.

5.1.2 *Bats*

As with many animal species within the UK, declines in the abundance and distribution of many bat species have been documented through recent decades. The reasons for these declines are various and complex but it is considered that the major factors are changes in land use and agriculture, the loss of woodlands and hedgerows and the loss of suitable roosting sites.

Bats are particularly sensitive to human activity due to the fact that they roost within buildings, trees and underground structures such as mines, and the availability of suitable roost sites is considered to be a key factor in the conservation of bats within the UK. As a consequence, all species of bat and their roost sites are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) and under The Conservation of Habitats and Species Regulations 2017, as amended. Taken together, these make it an offence to:

- (a) Deliberately capture or intentionally take a bat
- (b) Deliberately or intentionally kill or injure a bat
- (c) To be in possession or control of any live or dead wild bat or any part of, or anything derived from a wild bat

- (d) Damage or destroy a breeding site or resting place of such an animal or intentionally or recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection
- (e) Intentionally or recklessly disturb any wild bat while it is occupying a structure or place that it uses for shelter or protection
- (f) Deliberately disturb any bat, in particular any disturbance which is likely
 - to impair their ability;
 - (i) to survive, breed, reproduce or to rear or nurture their young; or
 - (ii) in the case of hibernating or migratory species, to hibernate or migrate; or
 - to affect significantly the local distribution or abundance of the species to which they belong

A bat roost may be any structure a bat uses for breeding, resting, shelter or protection. It is important to note that since bats tend to re-use the same roost sites, current legal opinion is that a bat roost is protected whether or not the bats are present at the time.

Although the law provides strict protection to bats, it also allows this protection to be set aside (derogation) under The Conservation of Habitats and Species Regulations 2017 through the issuing of licences. Where a lawful operation is required to be carried out but which is likely to result in one of the above offences, a licence may be obtained from Natural England (the statutory body in England with responsibility for nature conservation) to allow the operation to proceed. However, in accordance with the requirements of The Conservation of Habitats and Species Regulations 2017, a licence can only be issued where the following requirements are satisfied:

- The proposal is necessary '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';
- 'There is no satisfactory alternative';
- The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range'.

These three criteria are often referred to as the 'three tests' of the Regulations. All three must be satisfied in order for a licence to be granted.

5.1.3 Great Crested Newts

Great crested newts *Triturus cristatus* and their habitat are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) and under The Conservation of Habitats and Species Regulations 2017. Taken together, these make it an offence to:

- (a) Deliberately capture or intentionally take a great crested newt
- (b) Deliberately or intentionally kill or injure a great crested newt
- (c) To be in possession or control of any live or dead wild great crested newt or any part of, or anything derived from a wild newt
- (d) Damage or destroy a breeding site or resting place of such an animal or intentionally or recklessly damage, destroy or obstruct access to any place that a wild great crested newt uses for shelter or protection
- (e) Intentionally or recklessly disturb any wild great crested newt while it is occupying a structure or place that it uses for shelter or protection
- (f) Deliberately disturb great crested newts, in particular any disturbance which is likely
 - to impair their ability;
 - (i) to survive, breed, reproduce or to rear or nurture their young;
 - (ii) to hibernate;

- to affect significantly the local distribution or abundance of the species to which they belong

Although the law provides strict protection to great crested newts, it also allows this protection to be set aside (derogation) under The Conservation of Habitats and Species Regulations 2017 through the issuing of licences (referred to as European Protected Species Licences or EPSL). Where a lawful operation is required to be carried out but which is likely to result in one of the above offences, a licence may be obtained from Natural England (the statutory body in England with responsibility for nature conservation) to allow the operation to proceed.

However, in accordance with the requirements of The Conservation of Habitats and Species Regulations 2017, a licence can only be issued where the following requirements are satisfied:

- The proposal is necessary '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';
- 'There is no satisfactory alternative';
- The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range'.

These three criteria are often referred to as the 'three tests' of the Regulations. All three must be satisfied in order for a licence to be granted.

5.1.4 *The Natural Environment and Rural Communities Act 2006*

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on the Secretary of State to publish, review and revise lists of living organisms and types of habitat in England that are of principal importance for the purpose of conserving English biodiversity.

It also requires the Secretary of State to take, and promote the taking of, steps to further the conservation of the listed organisms and habitats. This is important in the context of planning decisions as the National Planning Policy Framework affords planning policy protection to the habitats of species listed by virtue of Section 41.

There are no habitats listed within Section 41 of the NERC Act 2006 that are considered to be relevant to the site.

There are no species listed within Section 41 of the NERC Act 2006 that are considered to be potentially relevant to the site.

5.1.5 *The National Planning Policy Framework (NPPF)*

The National Planning Policy Framework was revised in response to the proposed reforms to the NPPF and other changes to the planning system consultation on 12th December 2024 and sets out the government's planning policies for England and how these are expected to be applied. This revised framework replaces the previous Nation Planning Policy Framework published in March 2012, revised in July 2018, updated in February 2012, revised in July 2021, updated in September 2023, and revised in December 2023.

The NPPF states that planning policies and decisions should contribute to and enhance the natural and local environment by:

- 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);

- 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;
- maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least 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.

To protect and enhance biodiversity and geodiversity, plans should:

- 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
- 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.

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

- If significant harm to biodiversity resulting from a development cannot be avoided (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;
- Development on land within or outside a Site 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 features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- 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
- Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments 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.

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 a habitats site, (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitat's site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

5.1.6 *Environment Act 2021*

On 15th October 2019, the government introduced a new Bill to Parliament; The Environment Bill. This Bill was given Royal Assent on 9th November 2021 thereby passing the Environment Act 2021. This legislation will help ensure that England maintains and improves its environmental protection.

The Act details a legal requirement for all developments to ensure that a minimum of 10% net gain in Biodiversity is delivered. The Environment Act 2021 will help deliver the government's commitment to halt species decline by 2030.

Under the statutory framework for biodiversity net gain, subject to some exceptions, every grant of planning permission is deemed to have been granted subject to the condition that the biodiversity gain objective is met ("the biodiversity gain condition"). This objective is for development to deliver at least a 10% increase in biodiversity value relative to the pre-development biodiversity value of the on-site habitat. This increase can be achieved through on-site biodiversity gains, registered off-site biodiversity gains or statutory biodiversity credits.

The biodiversity gain condition is a pre-commencement condition: once planning permission has been granted, a Biodiversity Gain Plan must be submitted and approved by the planning authority before commencement of the development. There are exemptions which disapply the condition from certain planning permissions, as well as special modifications for planning permissions for phased development and the treatment of irreplaceable habitats.

5.2 **Impact Assessment**

5.2.1 *Sites of Nature Conservation Importance*

Impacts of the proposed development are likely to be limited to the bounds of the site and it is considered that there are no foreseeable direct impacts on sites of nature conservation importance.

The Chiltern Beechwoods SAC is located approximately 8km north-east of the site. Recent research has shown that indirect impacts (such as an increase in visitor pressure, trampling etc.) are having an impact on the habitats of the SAC and that residential development within a 12.6km 'zone of influence' may add to these adverse impacts, both in isolation and in combination with other residential developments.

Local Planning Authorities are legally required through the Habitats Regulations Assessment to ensure the integrity of the SAC is not adversely affected by new planning proposals.

The proposals do not include residential development or an increase of liveable accommodation. Given this, the proposed extension to The Garden Room is not considered to bring new residents into the zone of influence of the Chiltern Beechwoods SAC.

5.2.2 Habitats

The proposals will result in the loss of developed land; sealed surface. This will not result in any significant ecological impacts with regard to habitats.

There are no foreseeable impacts on habitats of 'principal importance', as listed within Section 41 of the NERC Act 2006.

The NPPF and local planning policy state that planning policies and decisions should contribute to and enhance the natural and local environment by minimising impacts to existing habitats and providing net gains for biodiversity. It is considered the recommendations made in section 6 will contribute to a net gain at the site.

5.2.3 Species

5.2.3.1 Plants

There are no foreseeable impacts on rare or protected plant species.

5.2.3.2 Reptiles

There are no foreseeable impacts on reptile species or their habitats.

5.2.3.3 Amphibians

Although the development is not predicted to have a significant impact on local amphibian populations including great crested newts, it is recommended construction works are carried out in a sensitive manner to avoid any potential of inadvertent killing or injury.

5.2.3.4 Birds

There are no foreseeable impacts on nesting birds.

5.2.3.5 Bats

Bats & Buildings

The Garden Room building is assessed as having 'negligible' potential for roosting bats (Collins, 2023).

Given that the proposals will not directly impact on any roost location/s and there is no predicted increase in disturbance that is likely to result in a significant impact on bats or the places that they use for breeding, shelter and/or protection (roosts), no specific compensation measures are considered necessary (Reason and Wray, 2023).

Since no significant impacts on bats are predicted under The Conservation of Habitats and Species Regulations 2017, a European Protected Species (bat) licence will not be required for the proposed works to proceed. Since there are no predicted impacts on bats or their habitats, it is not necessary to consider the 'three tests' of The Conservation of Habitats and Species Regulations 2017 in this instance.

Bats & Habitats

There are no foreseeable impacts on foraging or commuting habitat for local bat populations.

External lighting can have an impact on bats by affecting their activity and behaviour. Certain species of bat have been shown to be attracted to mercury vapour lamps which emit light over a very broad-spectrum including UV light to which insects are particularly sensitive. Insects can be attracted in large numbers to mercury lamps and so can bats of the genera *Nyctalus* and *Pipistrellus*, including noctules *N. noctula* and common pipistrelles *P. pipistrellus* (Rydell and Racey, 1993). Lighting has

shown to have an opposite effect on certain other species, such as the lesser horseshoe bat *Rhinolophus hipposideros*, which have been shown to avoid areas of artificial light (Stone *et al.*, 2009).

New external lighting could therefore have an adverse effect on foraging or commuting bats, partially foraging and dispersal behaviour along the site boundaries. Although disturbance by lighting is unlikely to result in significant impacts under the legal protection afforded to bats (and thus will not require a Bat Licence), lighting may result in a change in bat activity which is not desirable.

5.2.3.6 Invertebrates

There are no foreseeable impacts on rare or protected invertebrates.

5.2.3.7 Other Species

Without mitigation measures, there is a possibility that badgers and hedgehogs are at risk of injury and trapping due to inadvertent pitfall hazards.

6 Recommendations

6.1 Further Surveys

No further surveys are considered necessary.

6.2 Habitats

6.2.1 Protection of Existing Habitats

6.2.1.1 Trees

It is recommended that trees found adjacent to the development areas are protected in accordance with British Standard 5837:2012, through the establishment of appropriate root protection zones.

6.3 Species

6.3.1 Amphibians

The following Precautionary Working Method Statement will be followed in order to ensure that potential harm to amphibians is avoided during site preparation and construction works.

6.3.1.1 Storage of Machinery, Materials & Tools

Machinery, materials and tools should be stored on areas of hard-standing or raised off the ground on pallets. This includes any retained spoil or rubble produced during ground excavations. Waste materials should be removed off site immediately or stored in skips so as to avoid creating refugia for amphibians.

6.3.1.2 Ground Works

All excavations and trenches should be covered overnight or be provided with shallow sloping ramps to allow any trapped animals to escape. Excavations and working areas should be managed so as not to create temporary waterbodies which may attract amphibians into the working area.

6.3.1.3 Vigilance and Sympathetic Working

All on-site staff should be made aware of the possibility that common amphibians may be encountered. Vegetation clearance should proceed in a careful and sensitive manner with vigilance for these native species maintained throughout. This Precautionary Working Method Statement should be made available to all on-site operatives.

6.3.1.4 Discovery of Amphibians

If any common amphibians are found during vegetation clearance or within the working zone, they should in the first instance be given the opportunity to vacate the area to a safe location under their own power.

If they are unable to escape, or show no inclination to do so, then they should be carefully removed by hand and relocated directly to a suitable location, preferably dense vegetation or well away from the working zone. Amphibians should be moved to a terrestrial habitat rather than being placed in a stream or other waterbody.

Amphibians should be lifted gently by placing fingers under their body, rather than grasping their limbs. Care should be taken to avoid allowing an animal to escape whilst in transit and fall onto hard surfaces. Handling should be kept to a minimum with non-latex gloves used where possible.

In the unlikely scenario that a brumating/hibernating amphibian is discovered, they should be covered over, and advice sought from an ecologist as to how to proceed.

If a great crested newt (see Figure 2) is encountered; all work should stop, and advice sought from a suitably qualified and experienced ecologist.

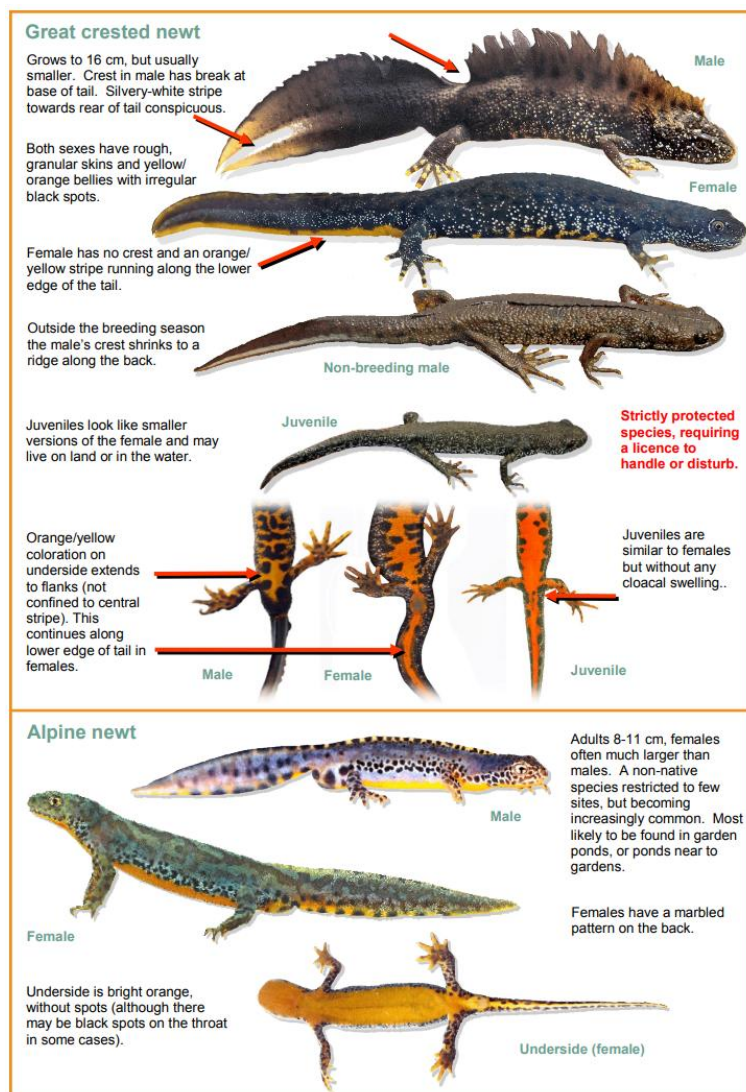


Figure 2. Great crested newt on land. Source: ARG UK Amphibian ID Guide revised 2019.

6.3.2 Birds

6.3.2.1 Enhancements

The erection of bird nesting boxes is recommended in order to provide suitable nest sites for species within the local area, as nest boxes can be excellent substitutes for the nesting potential of trees. Over 60 species are known to adopt nest boxes including blue tits, great tits, starlings, robins and sparrows.

The location and nature of the nest box depends on the species it is designed for; boxes for tits, sparrows or starlings should be fixed two to four metres up a tree or a wall; open-fronted boxes for robins and wrens need to be low down, below 2m, and well-hidden in vegetation. Unless there are trees or buildings which shade the box during the day, boxes should be faced between north and east, thus avoiding strong sunlight and the wettest winds. Swift boxes should be located at least 5m above the ground with the box having unobstructed access.

Boxes can either be integrated into new buildings or erected on the exterior of buildings and trees.

It is recommended that bird boxes are erected/installed on the proposed extension or trees within the wider landholding.

Recommended integrated boxes are:

- Vivara Pro WoodStone House Sparrow Nest Box
- Vivara Pro Build-In Half Open Nest Box

Other recommended boxes are:

- Vivara Pro Seville 32mm WoodStone Nest Box
- Vivara Pro Barcelona WoodStone Open Nest Box

6.3.3 Bats

6.3.3.1 Enhancements

To provide an enhancement to the current situation, it is recommended that bat bricks/bat boxes are erected/integrated on the exterior of the proposed extension. Bat brick (sometimes also referred to as 'bat tubes') features can be obtained prefabricated and integrated directly into the fabric of the exterior walls of a building.

The bat tubes have an external entrance slot which leads to an internal cavity for roosting (e.g. the Vivara Pro Build-in Woodstone Bat Tube). The bat tube can be concealed behind external cladding, brickwork, stonework or render. For example, bat tubes can easily be installed into traditional or modern buildings with external wooden weatherboarding; the tube being concealed behind the overlapping wooden boards with access via a gap under a lifted board which leads to the entrance slot of the tube. Bats can fit through very small gaps and so a crevice of 2-2.5cm should be sufficient to allow access to the slot of the bat tube.

Alternatively, conventional bat boxes could be installed; these could be traditional wooden boxes, or longer-lasting woodcrete boxes (Schwegler bat box or Woodstone bat boxes) specifically designed for buildings and houses (e.g. the Schwegler 1FQ or 1WQ bat boxes). If these boxes are adopted, it is recommended that they are installed as high as possible on the exterior walls, just under the eaves. The boxes and/or bricks should be orientated to face garden planting wherever possible and south-

facing façades should be favoured. Bat boxes could also be erected on mature trees within the wider landholding.

6.3.3.2 Lighting

It is recommended that external lighting is avoided within the site, unless it is necessary for reasons of security and safety. In particular, lighting should be avoided around any new bat roosting features and vegetated habitats such as trees/hedges.

The key in the first instance is to maintain or reduce existing light levels, and reduce blue content to protect the bat species present; this is in line with the mitigation hierarchy where impacts are avoided in the first instance by being planned out (Bat Conservation Trust, 2023).

If lighting is required, it should be kept at low level and at low intensity (Bat Conservation Trust, 2023 and Emery, 2008).

Light sources, lamps, LEDs and their fittings come in a myriad of different specifications which a lighting professional can help to select. However, the following should be considered when choosing luminaires and their potential impact on key habitats and features:

- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability
- A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012)
- Internal luminaires can be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges
- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered
- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt
- Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand
- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues.
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

6.3.4 *Badgers & Hedgehogs*

Badgers and hedgehogs are likely to be found within the local landscape and if they are passing through the site during the construction phase of development are at risk of injury and trapping due to inadvertent pitfall hazards. This is particularly the case when foundations are being excavated. It is therefore recommended that no ground works take place outside of daylight hours and at night any pits on site are appropriately covered over/fenced off, or that a ramp is put in place via which badgers and hedgehogs can escape.

7 References

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8 Appendix 1. Photographs



Photograph 1. The site viewed from the north-west.



Photograph 2. The Garden Room building viewed from the west.



Photograph 3. The ornamental lake.

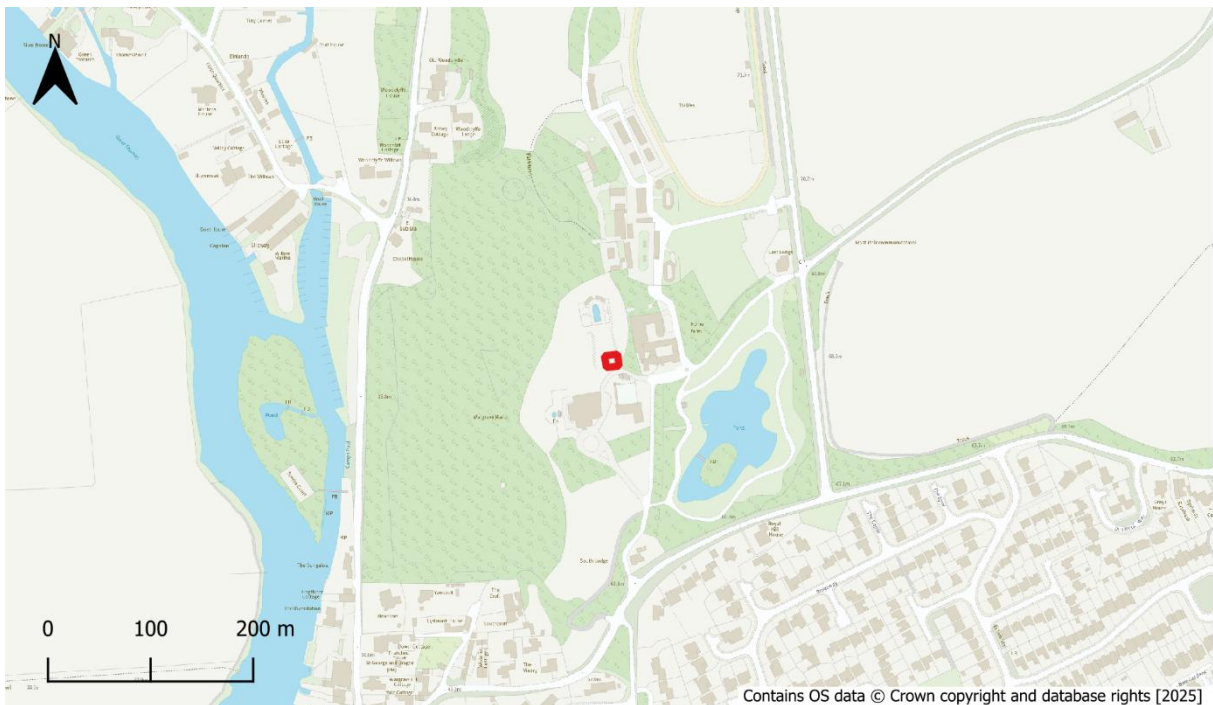


Photograph 4. The swimming pool.

9 Appendix 2. Site Location Plans



Aerial photograph showing the location of the site, outlined in red. Source: *Google Satellite*



Map showing the location of the site, outlined in red, within the local area. Source: *OSM Standard*

10 Appendix 3. Existing & Proposal Plans

