CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

GREEN ISLE
WARGRAVE ROAD
HENLEY ON THAMES
WOKINGHAM
RG9 3JD

Client: Shaun Paice
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Author: Justine Whitehead Qualifying CIEEM
Checked by: Giles Sutton MCIEEM CEnv
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Tel: 01189 759387
Email: info@gsecology.co.uk
Web: www.gsecology.co.uk

GS Ecology Ltd - Registered in England and Wales - No: 7025591
Registered Office: 119 Highgrove Street, Reading, Berkshire, RG1 5EJ

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1.0 Background

The development site

1.1 Planning permission was granted by Wokingham Borough Council on 13 November 2024 for a:

> *"Householder application for proposed raising of the roof to create habitable accommodation along with raising of the floor plus replacement and modification of the existing roof structure, erection of a two storey front extension to create a porch and steps, replacement of the existing side/rear conservatory to include a roof terrace plus changes to fenestration."*

1.2 At 'Green Isle, Wargrave Road, Remenham, Wokingham, RG9 3JD'.

1.3 The planning application number is 241509.

1.4 The application was approved subject to 5 planning conditions, one of which, Condition 4, requires that a Construction Environmental Management Plan (CEMP) be submitted to and approved in writing by the local planning authority. The wording of the condition is given below:

> *4. CEMP – No development shall take place (including demolition, ground works, vegetation clearance) or material or machinery brought onto the site until a construction environmental management plan (CEMP: Biodiversity) has been submitted to and approved in writing by the local planning authority. The CEMP (Biodiversity) shall include the following.*
>
> *a) Risk assessment of potentially damaging construction activities.*
>
> *b) Identification of 'biodiversity protection zones'.*
>
> *c) Practical measures (both physical measures and sensitive working practices) to avoid or reduce impacts during construction (may be provided as a set of method statements).*
>
> *d) The location and timing of sensitive works to avoid harm to biodiversity features.*
>
> *e) The times during construction when specialist ecologists need to be present on site to oversee works.*
>
> *f) Responsible persons and lines of communication.*
>
> *g) The role and responsibilities on site of an ecological clerk of works (ECoW) or similarly competent person.*
>
> *h) Use of protective fences, exclusion barriers and warning signs.*
>
> *The approved CEMP shall be adhered to and implemented throughout the construction period strictly in accordance with the approved details, unless otherwise agreed in writing by the local planning authority. All protective fencing and warning signs will be maintained during the construction period in accordance with the approved details.*
>
> *Reason: To ensure that biodiversity, protected and priority species are not adversely affected by the proposals. Relevant policy: NPPF paragraph 191 Section 15 (Conserving and Enhancing the Natural Environment), Core Strategy policies CP1, CP3 and CP11 and Managing Development Delivery Local Plan policy TB23.'*

1.5 This document, a CEMP, is to be submitted to Wokingham Borough Council to discharge Condition 4. The plan shall thereafter need to be adhered to.

2.0 Structure of this Construction Environmental Management Plan (CEMP)

2.1 Planning condition 4 refers to the elements listed below.

2.2 These are all referred to in this CEMP but for ease of reference the sections in which they are covered are shown in in [parenthesis]:

a) Risk assessment of potentially damaging construction activities.

2.3 [A risk assessment has been provided in Appendix 2]

b) Identification of "biodiversity protection zones".

2.4 [See Section 4.8 & 4.9]

c) Practical measures (both physical measures and sensitive working practices) to avoid or reduce impacts during construction (may be provided as a set of method statements).

2.5 [See section 3.11-3.12 and section 5]

d) The location and timing of sensitive works to avoid harm to biodiversity features

[See section 4]

e) Measures to ensure that nesting birds are not disturbed

2.6 The habitats to be affected by the proposals (the building) is unlikely to be used by nesting birds, and they are unlikely to be affected by the proposals.

f) The times during construction when specialist ecologists need to be present on site to oversee works.

2.7 [see section 4]

g) Responsible persons and lines of communication.

2.8 [See section 4.2 to 4.6]

h) The role and responsibilities on site of an ecological clerk of works (ECoW) or similarly competent person.

2.9 [See section 4.2 – 4.6]

I) Use of protective fences, exclusion barriers and warning signs. The approved CEMP (Biodiversity) shall be adhered to and implemented throughout the construction period strictly in accordance with the approved details, unless otherwise agreed in writing by the local planning authority.

2.10 [See section 4.19]

Figure 1 – Site location plan

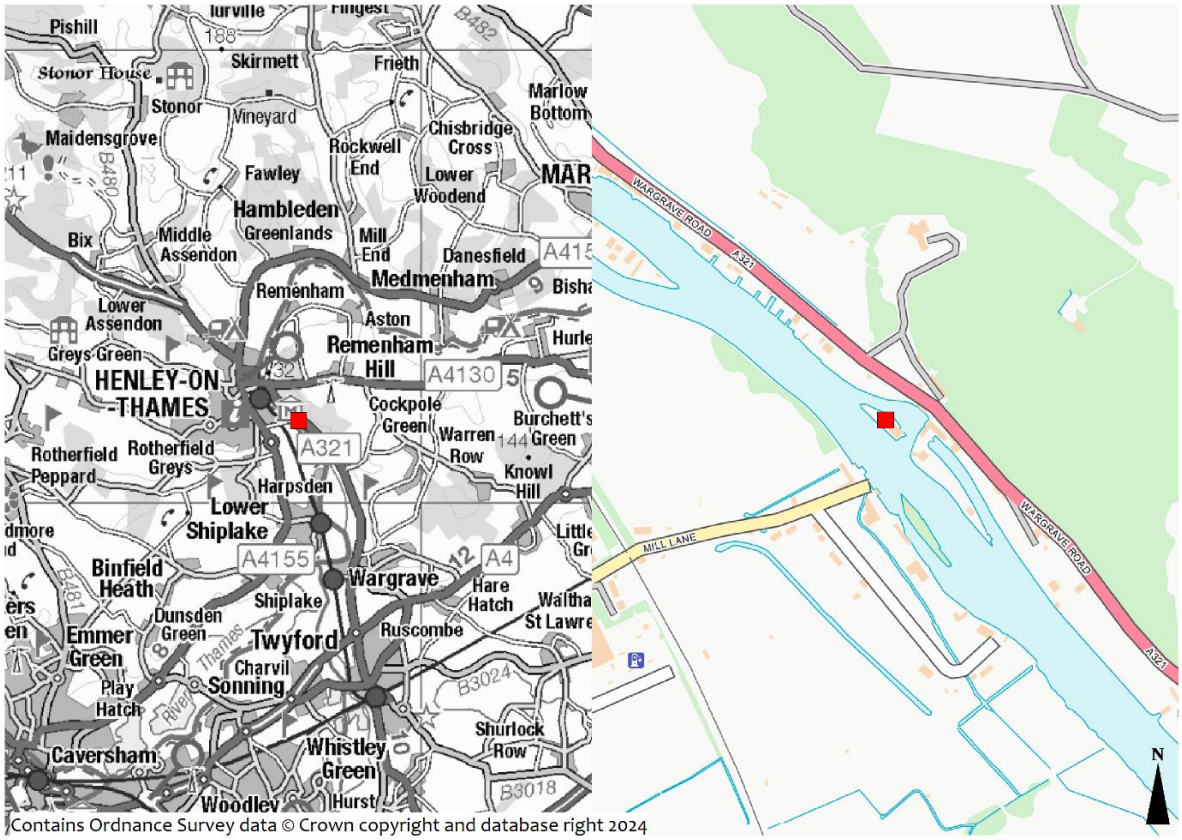

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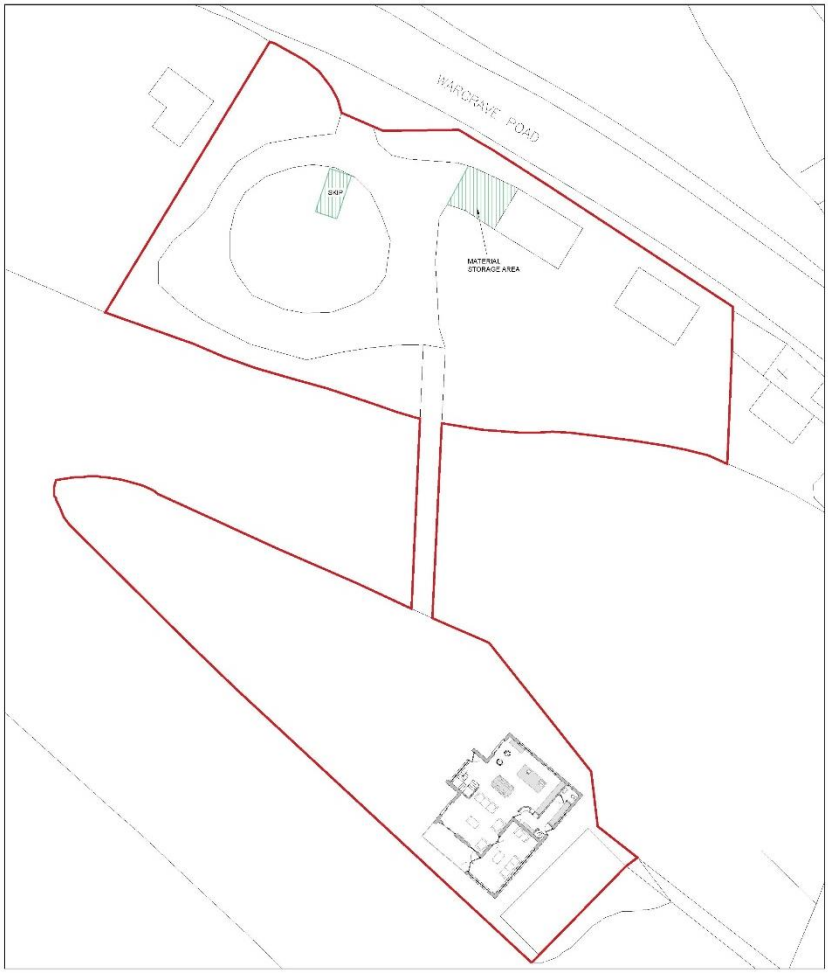
Figure 2 – Construction site plan



3.0 Ecological baseline

Ecological surveys

3.1 To inform the development proposals, the following surveys and assessments were carried out:

- A desk study data search (July 2024)
- A preliminary bat roost assessment (July 2024)
- Bat dusk emergence surveys (July to September 2024)

Surrounding habitats

3.2 The development site is located on an island in the River Thames of Wargrave Road (A321), a part rural, part residential road running between Henley-on-Thames and Wargrave. The River Thames runs northwest-southeast through the island. Along both riverbanks to the north and south are residential properties and their associated gardens with trees in places.

3.3 Across the river to the northeast and east is an extensive area of woodland spanning approximately 1.7km northwest and 1km southeast.

3.4 Along the western riverbank of the River Thames is the Marsh Meadows, a local park with a large area of amenity grassland and scattered trees and strips of woodlands in places.

Sites of importance for nature conservation and Ancient Woodland

3.5 There are no statutory sites of importance for nature conservation within 500m of the development site, all of which will be unaffected by the development.

3.6 There are four areas of woodland listed on Natural England's Ancient Woodland Inventory within 500m of the application site. These are situated approximately 20m northeast, 200m northeast, 240m north and 460m southeast of the application site, and will all be unaffected by the development.

Habitats on the development site

3.7 The application site comprises a detached one and two-storey house on an island in the River Thames and the associated garden.

3.8 The garden surrounding the main house comprises a well-maintained, short cut lawn with shrub borders and a number of scattered trees.

Bats – Roosting

3.9 The house was assessed as having 'high' potential to host a bat roost due to the house having a number of features potentially suitable for use by roosting bats. Three dusk emergence surveys were undertaken between July and September 2024, where no bats emerged from, or went to roost in the building.

Bats – Foraging

3.10 The River Thames is an important foraging habitat for bat species, with numerous Daubentons bats observed foraging over the river during the dusk surveys.

4.0 CEMP: Biodiversity

General provisions

4.1 The development site comprises a detached one and two-storey house and its associated garden on an island in the River Thames which has a footbridge connecting to the eastern riverbank.

Responsible persons and lines of communication.

4.2 Orange Key Limited are the contactors for the project.

4.3 GS Ecology have been appointed to advise on ecological issues and to act as the Ecological Clerks of Works (EcoW). In this capacity we will oversee any elements of the scheme that could have adverse impacts on ecology.

4.4 Key contacts are:

- Orange Key - Graham Leftwich (director)
- GS Ecology – Giles Sutton (director)

4.5 A contact list including relevant phone numbers and emails will be drawn up by the Project Manager and circulated to the team.

4.6 GS Ecology will visit the site a minimum of once every two months to check that this CEMP: Biodiversity is being complied with and will inform the site manager from Orange Key Limited if they are not and ask them to rectify the situation.

Construction details

4.7 The building is to comprise raising the roof to create habitable accommodation. The floor level will be risen as a flood prevention measure and the roof will be modified and replaced, with the addition of a two-storey extension to the front elevation to create a porch and steps.

Biodiversity protection zones

4.8 The planning condition refers to "biodiversity protection zones".

4.9 This refers to the River Thames, which is an important habitat for bats (and other wildlife). This CEMP will ensure that is it protected from harmful construction activities.

Risk assessment

4.10 A risk assessment has been provided in Appendix 2.

Toolbox talk

4.11 An ecology toolbox talk will be given to the site manager and relevant contractors prior to works commencing. It will detail what measures will be implemented to minimise the risk of harm to wildlife. The toolbox talk will explain:

1) That the River Thames is an important wildlife habitat and hosts a number of important species
2) That noise levels will be kept to a minimum
3) That refuelling and storage of materials will only take place on the mainland, as shown in the site plan (Figure 2)
4) That Himalayan balsam is present in one area of the site and that this will be removed by GS Ecology before it sets seed in May.

5) If contractors have questions about wildlife-related matters, they will report this to the site manager (who will contact GS Ecology) or contact GS Ecology directly (Tel: 01189 759387)

Other provisions

4.12 A copy of this CEMP will be kept in the site office and made available to contractors and staff on request.

4.13 If any ecological concerns arise, GS Ecology Ltd will be contacted on 01189 759387.

4.14 If a pollution event occurs, spill kits will be immediately deployed, and the Environment Agency's Pollution Hotline called on 0800 80 70 60. GS Ecology will be contacted, and a log of the event is to be kept by the site manager.

4.15 Appendix 3 provides further details on protected species ecology and legal status.

The River Thames

4.16 The River Thames could be affected by the works due to pollution, including litter, dust, and excess noise. The following actions will be taken to minimise the likelihood of adverse impacts occurring:

Pollution

4.17 When not being deployed all construction materials will be stored in the mainland material storage area, away from the river.

4.18 Tools and machinery will be refuelled in the mainland material storage area, as shown in Figure 2. Spill kits will be available to use on the site.

4.19 The access bridge will be boarded up with plywood boards (on the sides and floor), to ensure no materials can fall into the river when being transported across.

4.20 Cutting of materials will where practicable be undertaken on the mainland to avoid dust spilling into the river.

Litter

4.21 To ensure that litter does not enter the River Thames, a daily litter pick (at the end of the day) will be undertaken. The site manager will be responsible for ensuring that this is done.

4.22 Bins for contractors will be provided on the site.

4.23 If contractors are found littering they will be asked to leave the site.

Disturbance to Wildlife

4.24 To reduce noise impact on wildlife, the following measures will be implemented:

1. Loud radios will not be used
2. When machinery is not in use it will be turned off

Machinery and materials

4.25 Given the sensitive nature of the site and the challenges of transporting heavy machinery, only essential work will be carried out on the island. Additionally, access to the site is limited to a small wooden bridge, restricting the equipment and materials that can be brought onto the island.

4.26 As such, all non-essential machinery will all be kept on the mainland, away from the river (see site plan, Figure 2). Concrete for the foundations will be mixed on the mainland, and pumped in a tube across the bridge once the foundations and slab have been prepared. This will minimise the risk of spillage into the river.

4.27 Cement for brick work will be mixed using a cement mixer on the driveway and wheelbarrowed across the bridge to the site.

4.28 The foundations will be dug by hand, and the spoil will be wheel-barrowed across the footbridge to the mainland, and stored in the materials storage area away from the river.

Roosting bats

4.29 No bats emerged from the building during the dusk surveys, however there is a small risk that bats may use the building roost.

4.30 Therefore, the roof tiles will be removed by hand, and ridge and verge tiles will be removed under the supervision of an ECoW. If any bats are found in the building at any stage during development, works that could disturb bats will stop until any requisite license from Natural England has been obtained.

Foraging bats

4.31 If lighting is left on overnight, it could illuminate the river and the adjacent habitats and deter bats (and other species) from using it.

4.32 As such lighting during construction will be kept to a minimum. If any lighting is required, it will be switched off by 8pm. If any security lighting is required, it will be PIR operated.

Invasive non-native species

4.33 A single stand of Himalayan balsam was observed during the preliminary survey (see photo below). This is a common plant along river-banks, which can be easily pulled up.

4.34 In the spring/early summer prior to works beginning, a site walkover will be undertaken, and if any stands are found they will be pulled up and left in a pile away from the river and any damp ground to rot down, this is to prevent it from seeding, spreading it further.

Appendix 1 – Photographs

Photo 1 – Green Isle as viewed from the footbridge

Photo 2 – Green Isle as viewed from the garden

Photo 3 – The north-eastern elevation

Photo 4 – The south-western elevation

Appendix 2 – Risk Assessment

Risk	Consequence	Likelihood	Risk rating	Prevention / control measure	Revised likelihood	Revised risk rating
1. Bats						
Bats may be disturbed by the works and may not forage along the areas being worked on.	2	4	8	Any security lighting will be PIR operated.	1	2
Bats roosting in the building may be disturbed	4	2	8	The roof tiles will be removed by hand. The ridge and verge tiles will be removed under supervision of an ECoW.	1	4
2. Pollution						
Pollution event into the River Thames.	4	3	12	Fuel and materials are to be stored on the mainland (as shown in Figure 2). Spill kits to be to be kept on site Litter picks to be undertaken daily The bridge will have boards installed along it to stop materials falling into the river.	1	4
3. Spread of invasive species						
Spread of invasive species	2	3	6	A pre-commencement walkover of site will be undertaken, and any stands of Himalayan balsam will be pulled up and left in a pile to rot down (before they have set seed)	1	3
4. Disturbance to wildlife						
General disturbance	2	2	4	Noise and disturbance to be kept to a minimum – loud radios not to be used	1	2

		Consequence				
		Negligible 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Likelihood	5 Almost certain	Moderate 5	High 10	Extreme 15	Extreme 20	Extreme 25
	4 Likely	Moderate 4	High 8	High 12	Extreme 16	Extreme 20
	3 Possible	Low 3	Moderate 6	High 9	High 12	Extreme 15
	2 Unlikely	Low 2	Moderate 4	Moderate 6	High 8	High 10
	1 Rare	Low 1	Low 2	Low 3	Moderate 4	Moderate 5

Appendix 3 – Protected species ecology and legislation

Planning Authorities have a legal duty to consider biodiversity when assessing planning applications. Where there is a reasonable likelihood that a planning application might affect important protected sites, species or habitats, information on the species, habitat or site likely to be affected, together with an assessment of the impacts of the proposals, will almost certainly be required.

The legal duty for Planning Authorities to have regard to the conservation of biodiversity was introduced in the 2006 Natural Environment and Rural Communities Act (The NERC Act). This act clarified existing commitments with regard to biodiversity, raised the profile of biodiversity and aimed to make the consideration of biodiversity a natural and integral part of policy and decision making.

In addition to the NERC Act there is also national and international biodiversity legislation. This includes legislation in relation to protected species and sites which operates outside of the planning system. Local Authorities and developers have a duty to comply with this legislation.

National planning policy

Paragraph 99 of the Government Circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within the Planning System (this document has not been revoked by the recently published National Planning Policy Framework) states that:

'It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision.'

As such, in line with national planning policy, most planning authorities will ask for this information to be provided before a planning decision is made and in many cases before it is registered.

Local planning policy

In addition to national planning policy, most councils have planning policies to protect biodiversity, and to enhance it where practicable within and adjacent to development sites.

European protected species

The United Kingdom hosts a number of European Protected Species (EPS) of animals (table 1) and plants (table 2). These species receive special protection under UK law and it is an offence under the Wildlife and Countryside Act 1981 (as amended) and the European Habitats and Species Directive (92/43/EC), enacted in the UK through The Conservation of Habitats and Species Regulations 2010, to deliberately or recklessly destroy or damage their habitat, or to disturb, kill or injure the species without first having obtained the relevant licence from Natural England.

Planning Authorities have a statutory duty under these regulations to have regard to the requirements of the Habitats Directive and need to be satisfied that the development is likely to receive a licence from Natural England, and therefore comply with the Habitats Directive, before granting planning permission.

Table 1 – European Protected Species of Animal found in the UK

Common name	Scientific name
Bats, Horseshoe (all species)	*Rhinolophidae*
Bats, Typical (all species)	*Vespertilionidae*
Butterfly, Large Blue	*Maculinea arion*
Cat, Wild	*Felis silvestris*
Dolphins, porpoises and whales (all species)	*Cetacea*
Dormouse	*Muscardinus avellanarius*
Frog, Pool	*Rana lessonae*
Lizard, Sand	*Lacerta agilis*
Moth, Fisher's Estuarine	*Gortyna borelii lunata*
Newt, Great Crested (or Warty)	*Triturus cristatus*
Otter, Common	*Lutra lutra*
Snail, Lesser Whirlpool Ram's-horn	*Anisus vorticulus*
Snake, Smooth	*Coronella austriaca*
Sturgeon	*Acipenser sturio*
Toad, Natterjack	*Bufo calamita*
Turtles, Marine	*Caretta caretta*
	Chelonia mydas
	Lepidochelys kempii
	Eretmochelys imbricata
	Dermochelys coriacea

Table 2 – European Protected Species of Plant found in the UK

Common name	Scientific name
Dock, Shore	*Rumex rupestris*
Fern, Killarney	*Trichomanes speciosum*
Gentian, Early	*Gentianella anglica*
Lady's-slipper	*Cypripedium calceolus*
Marshwort, Creeping	*Apium repens*
Naiad, Slender	*Najas flexilis*
Orchid, Fen	*Liparis loeselii*
Plantain, Floating-leaved water	*Luronium natans*
Saxifrage, Yellow Marsh	*Saxifraga hirculus*

Nationally protected species

Many species of animal are protected under the 1981 Wildlife and Countryside Act (as amended). 'Full protection' applies to EPS and some non EPS species such as the water vole. This prohibits the intentional killing, injuring or taking (capture. etc); possession; intentional disturbance whilst occupying a 'place used for shelter or protection' and destruction of these places; sale, barter, exchange, transporting for sale and advertising to sell or to buy. Many species, such as common species of reptile and amphibian, are protected from intentional killing and injuring and trading.

Badgers

Badgers and their setts are protected under the 1992 Protection of Badgers Act and the Wildlife and Countryside Act 1981 (as amended). It is illegal to intentionally or recklessly kill, injure or take badgers or to interfere with a badger sett. Interference with a sett includes blocking tunnels, or damaging the sett in any way, and could include blocking a badger pathway if it were to stop badgers entering or leaving a

sett. Penalties for offences can be severe, with fines of up to £5,000 plus up to six months' imprisonment, for each illegal sett interference, badger death or injury.

Work that disturbs badgers occupying a sett is illegal without the appropriate licence from the relevant statutory authority being held. Natural England issue licences for reasons including science, education or conservation, for development such as the building of houses and for investigation of offences against badgers. They also issue licences for the prevention of serious damage to land, crops or other form of property, as well as for agriculture, forestry, drainage operations and prevention of the spread of disease.

Birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended), whilst they are actively nesting or roosting. Section 1 of this Act makes it an offence to kill, injure or take any wild bird, and to intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built. It is also an offence to take or destroy any wild bird eggs.

In addition, bird species listed under Schedule 1 of the Act receive extra protection. The Act states that 'it is an offence to intentionally or recklessly disturb any wild bird listed in Schedule 1 while it is nest building, or at (or near) a nest containing eggs or young, or disturb the dependent young of such a bird'.

In practice this means that in areas where birds are likely to be nesting works should not be undertaken during the nesting season, which is generally considered to be March to September, although this very much depends on weather conditions, habitats and the species involved. If works cannot be avoided then areas should first be checked for nesting birds. Habitats likely to host nesting birds include trees, hedgerows and dense scrub, buildings, reedbeds and riverine habitats and open areas with tussocky vegetation.

Bats

Bats are the only true flying mammals and belong to their own taxonomic group, the *Chiroptera*. Worldwide there are almost 1,000 species, with 16 in the UK. All species in the UK are insectivorous. They have a highly sophisticated echolocation system that allows them to avoid obstacles and catch invertebrates, either in flight or by picking them off water, the ground or foliage.

Bat species in the UK

There are 16 species of bat that are known to exist in the UK mainland, with a further two - the greater mouse eared bat *Myotis myotis*, and the parti-coloured bat *Vespertilio murinus* - that are thought to occur as rare migrants or to have small populations in the UK. Bats in the UK belong to one of two taxonomic families, the Rhinolophidae (horseshoe bats) and the Vespertilionidae (all other UK bats).

Bat Conservation Status

Bat populations have undergone a significant decline in the past sixty years. For example, estimates from the National Bat Colony Survey suggest that the UK pipistrelle population (one of our commonest bat species), declined by approximately 70% between 1978 and 1993. Factors contributing to this decline include:

- Loss of, and damage to, roosting sites, including buildings, trees, and underground structures (mines, tunnels, ice-houses, cellars, etc).
- Loss and fragmentation of suitable insect-rich feeding habitats such as wetlands and deciduous woodland.

Reduction in the abundance and diversity of insect prey due to intensive agriculture, particularly over-grazing and the use of pesticides.

Loss of linear features such as tree-lines and hedgerows, depriving bats of commuting routes between roosts and feeding areas.

Loss of winter roosting sites in buildings and old trees.

Disturbance and destruction of roosts, including the loss of maternity roosts due to the use of toxic timber treatment chemicals.

Roosts

Bats use a variety of roosts of different types including trees, buildings, caves, mines and other structures. Most species are colonial and roost in groups. This can make populations particularly vulnerable to loss of roosts as the loss of a single roost may affect the whole population. Some species hang in obvious locations, such as the timbers near to the apex of a roof, others roost in cracks and crevices, such as the gaps under tiles, and as such can be very difficult to locate.

During the winter (November to February), when there is a reduction in insect numbers, bats hibernate to conserve energy. They prefer sites with a constant low temperature and a high relative humidity. On mild winter's nights, bats may wake up and feed. However, bats are particularly vulnerable to disturbance at this time of year, as flying in winter uses up large quantities of energy that cannot easily be replaced.

In the spring, after emerging from hibernation, bats often move from site to site and may congregate in small groups. Female bats gather together in the summer (approximately May to August dependant on species) in maternity roosts. Once the young have stopped suckling, and the baby is independent, bats tend to disperse and use other roosts. Maternity roosts are particularly vulnerable to disturbance, as bats may have come from a wide geographical area, and have a strong tradition of returning to the same roost year after year.

During the late summer and early autumn males occupy mating roosts which are visited by several females. After mating some species gather together at swarming sites to fatten up prior to hibernation.

Habitat associations

In addition to roosts, bats also need foraging habitats to find suitable food resources, and commuting routes to get to these areas. As would be expected, the highest numbers of bats are found in areas with abundant invertebrates. Some species specialise in catching small invertebrates in flight, whilst others specialise in catching larger invertebrates such as moths and beetles. The distances that bats travel to foraging areas varies between species; records have shown some greater horseshoe bats travel up to 22km to forage, although many species will typically feed within 1km of a roost.

Bats, especially the smaller species, tend to follow linear features (such as hedgerows and tree lines) to their foraging habitats and will often not cross open spaces. A gap of 10m in a linear feature will often not be crossed by bats, and it is important that developments do not create such gaps if linear features are used by bats.

Table 3 – Description of the categories used to assess a building or tree's bat roost potential and the survey effort required to determine the likely presence or absence of bats

	Roost status	Description	Survey effort required to determine the likely presence or absence of bats
Bat Roost Potential	Confirmed	Bats or evidence of bats found.	Surveys would be required to establish the status of the roost. Generally three dusk emergence and/or pre-dawn re-entry surveys between May and September. Optimum period May – August (two surveys should be undertaken during the optimal period and at least one survey should be a pre-dawn survey).
	High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Three dusk emergence and/or pre-dawn re-entry surveys between May and September. Optimum period May – August. Two surveys should be undertaken during the optimal period and at least one survey should be a pre-dawn survey.
	Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only i.e. irrespective of species conservation status, which is established after presence is confirmed).	Two surveys, comprising one dusk emergence and a separate pre-dawn re-entry surveys between May and September. One of the surveys needs to be carried out between May and the end of August.
	Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation) A tree of sufficient size and age to contain features but with none seen from the ground or features seen with only very limited roosting potential	One dusk emergence or pre-dawn re-entry surveys between May and the end of August. May not be required for trees with low roost suitability (dependant on case-specific conditions)
	Negligible	Negligible habitat features on site likely to be used by roosting bats.	No further surveys required.

Table 4 – Habitat suitability scale for commuting and foraging bats

	Habitat Suitability	Description
Suitability of habitat for commuting and foraging	High	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts
	Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water
	Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
	Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats

Great crested newts: ecology and legislation

Ecology and distribution

The great crested newt (*Triturus cristatus*) can grow up to 18cm in size. It is Britain's largest newt. The body can have a warty appearance and the skin is normally dark brown or black, the belly is predominantly bright orange with black markings. During the breeding season the males develop a crest on their back and tail which they use to attract a mate.

The species is widely distributed in Britain but is absent from Cornwall, Devon, and parts of Wales. It is uncommon but locally abundant. The population has undergone a severe decline in the last 50 years due to the loss of breeding ponds and a decline in the quality of foraging habitat.

The species can be found in northern Europe part of West Siberia. The edge of the northern range extends from northern France, Great Britain, southern Scandinavia to the north of Russia, and the southern edge from central France to south-western Romania into central European Russia. Britain is one of the last strongholds for the species.

Great crested newts spend the majority of their lives on land, returning within up to 500m, but more usually 250m, of their breeding ponds. The mainstay of their diet is invertebrates.

They return to waterbodies, usually ponds, in the spring to breed. Adults enter the ponds from February onwards with the courtship and egg-laying period being from mid-March to mid-June. Eggs are laid in the folds of debris or the leaves of submerged aquatic plants. A female lays up to 200 eggs per season.

Eggs take 3 weeks to hatch and the larvae take 2 to 3 months to develop. Adults begin to leave breeding ponds gradually from late May. However they can over-winter in ponds and also sometimes return to feed. Young start to emerge from the pond in August and will not normally return until they have reached sexual maturity 2 – 4 years later.

Legislation and legal protection

Great crested newts receive special protection under UK law and it is an offence under the Wildlife and Countryside Act 1981 (as amended) and the European Habitats and Species Directive (92/43/EC), enacted in the UK through The Conservation of Habitats and Species Regulations 2017 (The Habitat Regulations) to deliberately or recklessly, to destroy or damage their habitat, or to disturb, kill or them without first having obtained the relevant licence for derogation from the regulations from the Statutory Nature Conservation Organisation (the SNCO - Natural England in England).

In order to obtain such a licence the SNCO must apply the requirements of Regulation 535 of the Regulations and, in particular, the three tests set out in sub-paragraphs (2)(e), (9)(a) and (9)(b)6. These are as follows:

(1) Regulation 53(2)(e) states: a licence can be granted for the purposes of "preserving 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".

(2) Regulation 53(9)(a) states: the appropriate authority (the SNCO) shall not grant a licence unless they are satisfied "that there is no satisfactory alternative".

(3) Regulation 53(9)(b) states: the appropriate authority (the SNCO) shall not grant a licence unless they are satisfied "that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range."

Newts are likely to be disturbed by any work that involves altering their breeding ponds (e.g. by introducing fish, deepening or altering its size) or works that involve clearing land up to 500m around ponds, and in such cases a licence for derogation form the provisions of the habitat regulations may need to be obtained.

Reptile ecology and legal status

There are six native terrestrial species of reptile in Great Britain (Table 3). All receive legal protection, most are declining in numbers, and all can be a constraint to development or land use change.

Table 5 - Status and Distribution of the UK's Native Terrestrial Reptile Species

Common Name	Scientific name	Group	UK Distribution	Status
Common Lizard	Zootoca vivipara	Lizard	Widespread in England, Scotland and Wales	Declining but locally common
Sand Lizard	Lacerta agilis	Lizard	A few isolated populations mainly in southern England and Wales	Endangered and very rare
Slow-worm	Anguis fragilis	Lizard (legless)	Widespread in England, Scotland and Wales	Declining but locally common
Adder	Vipera berus	Snake	Widespread in England, Scotland and Wales	Declining but locally common
Grass Snake	Natrix natrix	Snake	England, Wales, rare in Scotland	Declining but locally common
Smooth Snake	Coronella austriaca	Snake	A few isolated populations mainly in southern England and Wales	Endangered and very rare

Legal Protection

The legislation relating to the protection of reptiles in Britain is contained mainly within the Wildlife and Countryside Act (1981) as amended and the EU Habitats and Species Directive enacted in the UK through The Conservation of Habitats and Species Regulations 2010. In summary, the legislative protection of reptiles in Britain is as follows:

(a) Common lizards, slow-worms, adders and grass snakes - it is illegal to intentionally or recklessly kill or injure these species. In practice this means that the reasonable avoidance measures must be taken to avoid harm to these animals during works.

(b) Sand lizards and smooth snakes – these are European Protected Species and it is illegal to kill, capture, handle or disturb them, or to damage, destroy or obstruct access to breeding or resting areas, or their places of shelter or protection. However derogation from this legislation can be granted if the relevant licence from the Statutory Nature Conservation Organisation (Natural England in England) is obtained.

Biology, ecology and habitat requirements

Reptiles are ectotherms and regulate their body temperature by taking in heat from their surroundings. As a result they tend to be found in habitats where they are able to bask without being at risk from predation, are less active during cold periods and hibernate during the winter months.

Mating occurs in spring with live young being produced by the adder, smooth snake, common lizard and slow worm and eggs by the grass snake and sand lizard. Young are born or hatch between August and October.

The three species of lizard feed upon invertebrates. The snakes feed on larger prey, including small mammals, amphibians or lizards. The adder is Britain's only poisonous snake, and although bites to humans are rare and deaths extremely rare, medical attention should always be sought if a bite should occur.

The following list summarises habitat features that are important for Britain's reptile species:

(c) Basking: Basking sites that contain features that heat up quickly in the sun and variation in cover to provide varied shade and protection against predators.

(d) Sheltering: Shelter, such as rocks, dense scrub tree roots, etc., provide places where reptiles may seek refuge from extremes of temperature, bad weather and predators.

(e) Foraging: Feeding areas that contain good populations of prey species

(f) Hibernating: Frost-free, dry conditions, inaccessible to predators. Examples may include rabbit burrows, or gaps under tree trunks or rocks.

Appendix 4 - About GS Ecology

Established in 2009, GS Ecology is an independent ecological consultancy. We carry-out surveys and ecological consultancy services for public and private sector clients. We can advise you on cost effective sustainable solutions for your project, whether it be a bat survey to inform a planning application, the ecology chapter of an Environmental Statement or a Woodland Management Plan.

Our work is undertaken by experienced and qualified ecologists, who are members of the Chartered Institute of Ecology and Environmental Managers. Our services include:

- Ecology surveying and reporting to inform planning applications, e.g.
  - Preliminary Ecological Appraisal
  - Extended Phase 1 Habitat Survey
  - Protected species surveys, e.g. badgers, dormouse, great crested newts
  - Bat surveys
- BREEAM ecology assessments – to demonstrate the sustainability of a new building
- Protected species licensing such as bat and great crested newt licences for development sites after planning permission has been obtained
- Providing advice to land managers and writing ecological management plans, such as woodland management plans and farm environmental plans for England woodland Grant Scheme and Environmental Stewardship applications
- Providing ecology advice to Local Authorities and Local Planning Authorities