Date: July 2016

Contract Ref: 0847

PRELIMINARY ECOLOGICAL APPRAISAL with ECOLOGICAL IMPACT ASSESSMENT (EcIA)

STONELEIGH, MORDIFORD,
HEREFORDSHIRE, HR1 4LR

for

JBD ARCHITECTS

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Stoneleigh, Mordiford, Herefordshire

Preliminary Ecological Appraisal with Ecological Impact Assessment

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1. SUMMARY OF RESULTS & RECOMMENDATIONS

1.1 Results

1. A Preliminary Ecological Appraisal of a parcel of land within the garden of Stoneleigh was undertaken on 20 July 2016. The survey was completed by an experienced ecologist and two assistant surveyors from Focus Ecology. The purpose of the report is to inform a new planning application to develop a single residential dwelling and associated garage with garden and driveway.

2. The survey site occupies an area of approximately 0.08ha, centred on Ordnance Survey grid reference SO 576 371. The vast majority of the site comprises short amenity grassland, which is bounded by a mixture of fencing and garden hedging. A freshwater drainage channel forms the southern boundary of the site. There is also a detached bungalow within the survey area. However, there are no works proposed for the property.

3. The boundary features are to be retained within the proposed development footprint, which will minimise the ecological effects on species, such as hedgehogs, bats and nesting birds, that may use these features for foraging, commuting, shelter and/or nesting.

4. All of the on-site trees and shrubs have no potential to support roosting bats due to their small size and stature. However, a mature field maple, which overhangs the site, is considered to have moderate potential to support roosting bats.

5. A total of nine bird species have been recorded incidentally during the surveys. Of the species recorded, the house sparrow and song thrush are red-listed and the house martin is amber-listed.

6. The grassland is considered to be too short to support common reptile species, such as slow-worm.

7. There are no ponds or other suitable areas of aquatic habitat on-site to support breeding amphibians and the short mown grass is sub-optimal for amphibians during their terrestrial phase. The closest pond is located approximately 245m from the development area. Therefore, it is considered highly unlikely that great crested newts will be negatively impacted by the proposals.

8. Due to the small size of the channel, shallow depth of the water and lack of favourable features, it is considered highly unlikely that the channel would support a breeding population of protected riparian species such as otters, water voles and/or white-clawed crayfish. However, there is potential that the channel could be used for passage on an occasional basis by otters and/or water voles.

1.2 Recommendations

The following recommendations are made to ensure compliance with wildlife legislation, government guidance and best practice (please refer to Annex 8.1).

1. Unless a delay of more than 12 months is anticipated before development, no further specialist survey work is recommended at this juncture.

2. Existing mature trees and hedgerows should be retained within the development scheme. All retained trees and hedgerows should be afforded adequate protection in line with '*BS5837: 2012 Trees in relation to design, demolition and construction*'.

3. Where required to facilitate permitted development, removal of potential bird nesting habitat, such as trees and shrubs should be undertaken outside the bird nesting season (March – August inclusive) or otherwise under the direct supervision of a suitably qualified ecologist who will be able to identify any nesting birds and advise of appropriate safe working distances.

4. Strict control over the use of artificial night-lighting is recommended to prevent unnecessary illumination of wildlife habitats (*e.g*. hedgerows and riparian

margins). Lighting should be low level (*e.g.* light bollards) and of the minimum wattage. Please refer to the following for guidance; Institute of Lighting Professionals (2011) and Bat Conservation Trust (2009).

5. Unnecessary soil disruption should be minimised and soil erosion measures should be implemented during any site excavation works to prevent unwanted run-off of sediment and nutrients into the channel. A detailed scheme is beyond the scope and expertise of this report. However, suggested suitable measures (see Environment Agency, 2009) may include:
   - Temporary sediment trap(s) and/or cut-off trenches to collect any run-off during periods of heavy rainfall.
   - Contour bunding around the edge of excavated/cultivated areas.

6. An undisturbed, vegetated buffer of at least 5m from the freshwater drainage channel should be maintained to provide undisrupted occasional passage for protected riparian species, such as water voles. The storage of materials and heavy plant machinery should also be prohibited within this area.

7. Due to the inquisitive nature of otters, any machinery used should be made safe or temporarily fenced off when not in use. Also, because otters are largely nocturnal, all works should be carried out during daylight hours.

8. The following recommendations are made to provide biodiversity enhancements within the post-developed site and ensure compliance with local and national government policies and the 'biodiversity duty' enshrined within The Natural Environment & Rural Communities Act, 2006. Please refer to Annex 8.3 for a suggested planting list and Annex 8.4 for illustrations of the recommended features.

   - One sparrow terrace (such as the 1SP Schwegler Sparrow Terrace) should be included within the development scheme. Boxes should be installed at the eaves height and not directly over windows and doors.

- One bat box should be installed within the landownership of the client. The box could be fixed to an existing built structure (*e.g*. Schwegler Wall-mounted Bat Shelter 2FE or Habi-Sabi Bat Box) or installed on a suitable mature tree (*e.g.* Schwegler 2F Bat Box). The box should be installed at least 4m above ground-level, and not placed above windows.

- Any new planting and landscaping designs should provide foraging and nesting opportunities for a range of wildlife, including mammals, herpetofauna, birds and invertebrates. Native species of local origin and ornamental species with a known benefit to wildlife should be incorporated into planting schemes.

2. INTRODUCTION

2.1 Scheme Background

Focus Ecology was commissioned by JBD Architects to undertake a Preliminary Ecological Appraisal and Ecological Impact Assessment (EcIA) of a parcel of land within the garden of Stoneleigh to inform a new planning application. The current proposals involve the construction of a single residential dwelling with associated garage, garden and driveway. This will involve the loss of an area of amenity grassland and hard-standing.

This Preliminary Ecological Appraisal has been commissioned to provide supporting information on the possible presence of habitats and species of conservation significance, including legally protected species, and direct appropriate further works such as additional surveys, mitigation, compensation and licensing, if required.

2.2 Survey Objectives & Limitations

The objectives of the survey were:

1. to carry out a Preliminary Ecological Appraisal of the site to identify any habitats, species or features of nature conservation significance;
2. to complete an Ecological Impact Assessment (EcIA) to identify important ecological features (habitats, species and ecosystems) and characterise the significance of ecological impacts at the appropriate scale of reference;
3. to provide a concise written report that sets out appropriate mitigation measures to ensure compliance with wildlife law and recognised best practice, provide an assessment of any residual effects, identify opportunities for enhancement and set out the requirements for post-construction monitoring.

The Preliminary Ecological Appraisal was carried out by a suitably experienced ecologist from Focus Ecology. The month of survey (July) is within the optimal survey period for most habitats and species in England.

The reader is reminded that an ecological survey that is based on a single site visit will typically under-represent the biological diversity of a site, owing to seasonal variations in animal activity and plant growth form in particular. However, a Preliminary Ecological Appraisal such as this can be completed by an experienced ecologist at any time of year subject to suitable weather conditions.

A third-party data search was not commissioned for this project. However, due to the small-scale of the development proposals and low ecological value of the habitat to be removed, this is not seen as a significant limitation.

3. METHODS

3.1 Third-Party Data Trawl

A third-party data search was not commissioned as part of this project.

3.2 Preliminary Ecological Appraisal

An experienced ecological consultant and field assistants undertook a field survey on 20 July 2016 in accordance with the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2013) and the Handbook for Phase 1 Habitat Survey (JNCC, 2010). The extent of each habitat type was mapped and details of relative plant species abundance within homogenous areas were recorded. Species abundance was measured on the DAFOR scale (Dominant, Abundant, Frequent, Occasional and Rare), with the addition of the term 'Local' to describe variation on a small-scale.

Higher plant nomenclature follows Stace (3rd Edition), 2010 with common (English) names being used for ease of reading and accessibility. Bryophyte nomenclature follows Atherton *et al*. (Eds), 2010, with English names being used in line with this publication. Scientific names are used for fungal identification, with authorities referenced in the text, for reasons of clarity.

The survey method was extended to include a search for fauna of ecological importance, including those that are afforded legal protection.

Target Note descriptions were recorded for features of ecological importance, these may include areas of species-rich vegetation and field signs of protected and/or notable species.

<u>Preliminary Roost Assessment:</u>

A ground-based tree assessment was undertaken of mature and semi-mature trees within the site boundary. Survey methods followed the guidelines and techniques recommended in Mitchell-Jones (2004), Collins (2016) and Cowan, (2003). Binoculars were used as required to obtain better views of potential roost features in trees. Features that can provide roosting sites for bats in trees include:

- woodpecker holes;
- cracks, splits and fissures in trunk and limbs;
- rot holes;
- trunk cavities;
- loose bark;
- dense ivy growth.

Trees were assessed as having either 'high', 'medium', 'low' or 'negligible' potential to support roosting bats, and categorised using definitions in Collins (2016) (see Table 1, below).

Table 1: Guidelines for Assessing the Potential Suitability for Roosting Bats of Trees within a Development Site[1]

Suitability	Description: Structure
Negligible	Negligible features on the tree that are likely to be used by roosting bats.
Low	A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features with only very limited roosting potential.
Moderate	A tree with one or more potential roost features that could be used by bats due to their appropriate condition (*i.e*. size, shelter, protection) and surrounding habitat. However, it is unlikely to support a roost of high conservation value (with respect to roost type only).
High	A tree with one or more potential roost features 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 condition (*i.e*. size, protection, shelter) and surrounding habitat.
Confirmed Roost	Tree with confirmed bat roost.

3.3 Ecological Impact Assessment (EcIA)

CIEEM's current (and widely-endorsed) best practice guidelines (CIEEM, 2016) state that:

"*...EcIA is a process of identifying, quantifying and evaluating the potential effects of development-related or other proposed actions on habitats, species and ecosystems. EcIA can be used for the appraisal of projects of any scale: it is a*

[1] Taken and adapted from: **Collins, J. (ed.) (2016)**. *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd Edition*. The Bat Conservation Trust, London, UK.

systematic, repeatable process applicable to a wide range of projects." (CIEEM, 2016).

Following current guidelines on EcIA this assessment identifies and focuses on 'important ecological features'. These are those species, habitats or ecosystems that are of importance in terms of their conservation value, importance for biodiversity or legal protection in the appropriate geological context and are potentially to be impacted upon by the development proposal. These features thus constitute a material consideration in the assessment of ecological impacts of a scheme. The identification of important ecological features has been derived from a variety of sources including:

- Designated sites (statutory and non-statutory);
- Legal instruments. 'International legislation' (*e.g.* EC Habitats Directive, EC Birds Directive); National legislation (*e.g.* S.41 list of species and habitats '...*of principal importance for the purpose of conserving biodiversity in England*' under the Natural Environment and Rural Communities Act 2006; The Conservation of Species and Habitats Regulations, 2010; The Wildlife and Countryside Act 1981; The Protection of Badgers Act 1992; The Hedgerow Regulations 1997).
- The Post-2010 Biodiversity Framework, which replaced the UK Biodiversity Action Plan (UKBAP).
- County (local) BAPs / Lists (where active).
- The Red and Amber lists of 'Birds of Conservation Concern' (see Eaton *et alii*, 2015).
- UK Red Data Book and Nationally/Regionally/locally notable species.
- Planning Policy (local and National).
- Ecosystem services and natural capital.
- Other reasons including identified high-value unimproved or semi-natural habitats.

The geographical scale of significance for any important ecological feature has been determined following the guidelines of CIEEM (2016) as follows:

- International and European.
- National.
- Regional.
- Metropolitan, County, vice-county or other local authority-wide area.
- Local.

4. RESULTS

4.1 Third-party Data Search

A third-party data search was not commissioned as part of this project.

4.2 Preliminary Ecological Appraisal

4.2.1 Summary Site Description

The site is approximately 0.08ha in size and located south-west of an unnamed road within the village of Mordiford (centred on Ordnance Survey grid reference SO 576 371). The vast majority of the site comprises short amenity grassland, which is bounded by a mixture of fencing and garden hedging. A freshwater channel forms the southern boundary of the site. There is also a detached bungalow within the survey area. However, there are no works proposed for the bungalow. The site is surrounded by a mixture of arable / pastoral fields and residential development. There are areas of deciduous woodland and traditional orchard within the wider landscape. The River Wye and various tributaries, such as the Pentaloe Brook are located within 1km of the site.

4.2.2 Buildings

There is a detached brick-built bungalow with a tiled, pitched roof located within the central area of site. No works are to be undertaken of the bungalow.

4.2.3 Grassland

The vast majority of the site comprises short (less than 75mm) amenity grassland. Perennial rye-grass is dominant within the sward. Other species frequently recorded within the grassland include Yorkshire-fog, yarrow, common daisy, dandelion, false oat-grass, selfheal, creeping buttercup, fox-and-cubs, white clover and red fescue. Occasional cat's ear, prickly sow-thistle, common bird's-foot-trefoil, ribwort plantain, greater plantain, garden lady's-mantle and common nettle were also recorded. There is also a mound located within the north-easterly area of the site with a similar species composition.

There are a few small flowerbeds, with species such as cotoneaster, *Aquilegia* sp. and ornamental ivy present. Associated species include pendulous sedge, creeping cinquefoil, herb-Robert and broad-leaved dock.

4.2.4 Hedgerows & Other Boundary Features

Table 2: Summary of hedgerows and boundary features at Stoneleigh, Mordiford.

Boundary	Description
Boundary 1 (B1)	Boundary 1 stretches along the north-eastern boundary of the site. There is a large gap within the hedgerow due to the existing access (approximately 10m). The hedgerow is dominated with hawthorn. Other species recorded within the hedgerow include bramble, ivy, dogwood, holly, blackthorn, field maple, hazel and [Wilson's] honeysuckle.
Boundary 2 (B2)	The south-eastern boundary of the site comprises wooden panel fencing.
Boundary 3 (B3)	Boundary 3 is located along the south-western boundary of the site. The site is bounded by concrete and metal fencing. A mature field maple overhangs the north-westerly corner of the site. There is an alder shrub present. There is also a drainage channel situated along this boundary (please see section *4.2.5* below for further details).
Boundary 4 (B4)	Boundary 4 comprises wooden panel fencing.

4.2.5 Standing / Flowing Water

A freshwater drainage channel is located along the south-western boundary (B3) of the site. The channel is approximately 40mm deep and 0.75m wide and has a silty substrate with occasional gravel areas. The channel was slow-flowing and relatively turbid on the day of the survey. The banks of the channel are shallow (approximately 0.75m tall), although steep. Species growing within the channel and along the banks include brooklime, water forget-me-not, curled dock, meadowsweet, prickly sow-thistle, nipplewort, false oat-grass, common knapweed, great willowherb, marsh thistle, creeping cinquefoil, wood avens, hogweed, meadow vetchling, bramble, hedge bindweed and occasional hazel saplings.

4.2.6 Bats

Table 3: Summary of the preliminary bat roosting assessment at Stoneleigh, Mordiford.

Area/Feature	Observations

Area/Feature	Observations
Trees	
General	All of the on-site trees and shrubs have no potential to support roosting bats due to their small size and stature. However, the mature field maple located off-site is described further below in reference to Collins (2016).
Tree 1 (T1)	A mature field maple overhangs the north-westerly corner of the site. The tree is overgrown with ivy, which obscures the view of possible cracks and crevices. However, a couple of narrow split branches were observed. Therefore, this tree is considered to have moderate potential to support roosting bats.
Foraging Habitat / Wider Landscape	
General	The site is situated within the small village of Mordiford. The site comprises short amenity grassland and is bounded with a mixture of well-managed garden hedging and wooden panel fencing. The hedging does provide good foraging and commuting habitat for bats. The site is surrounded by a mixture of residential development and arable / pastoral fields with associated hedgerows. There is also woodland and orchard habitat located within 50m of the site and the River Wye with associated tributaries are situated within 1km of the site. Therefore, the site and surrounding area is considered to have moderate-high suitability for foraging and commuting bats (in reference to Collins (2016)).

4.2.7 Badgers

Possible old snuffle holes were observed within the north-western corner of the site, under the field maple. However, no setts or fresh evidence of badger activity (latrines, bedding, tracks *etc*.) was observed within the survey boundary.

4.2.8 Other Mammals

Small mammals typical of this semi-rural landscape, such as the wood mouse, common shrew, field and bank vole would be expected to occur in the local area. Foxes and hedgehogs are also likely to utilise the site.

It is considered highly unlikely that the garden hedgerow would support hazel dormice as they are well-managed and lack connectivity to more suitable habitat *e.g*. deciduous woodland and mature species-rich hedgerows.

There is a small channel situated along the south-western boundary of the site. Due to the small size of the brook (including water depth), it is considered unlikely that the

brook supports a breeding population of riparian mammal species, such as water voles and otters.

4.2.9 Birds

A variety of common bird species were recorded at the site during this Preliminary Ecological Appraisal. Table 4 provides a list of birds heard and/or seen on site and their relevant conservation status. However, the species recorded should only be taken as a 'snapshot' of avian activity rather than an exhaustive account of those species likely to use the site over the course of a full season.

Table 4: Bird species recorded at Stoneleigh, Mordiford on 20 July 2016.

English Name	Scientific Name	Conservation Status (BoCC4)
Woodpigeon	*Columba palumbus*	Green
Magpie	*Pica pica*	Green
Blue tit	*Cyanistes caeruleus*	Green
Blackbird	*Turdus merula*	Green
Song thrush	*Turdus philomelos*	Red
House sparrow	*Passer domesticus*	Red
Goldfinch	*Carduelis carduelis*	Green
Greenfinch	*Carduelis chloris*	Green
House martin	*Delichon urbica*	Amber

The house sparrow and song thrush are currently Red List birds of conservation concern owing to a significant decline in population of over 50% since recording began in 1969 (Eaton *et alii*. 2015).

The house martin is Amber listed due to moderate declines in breeding population of more than 25% but less than 50% over a 25 year period (Eaton *et alii*. 2015).

4.2.10 Reptiles

The grassland is unfavourable for reptiles due to its low height and homogenous structure.

4.2.11 Amphibians

There is a drainage channel located along the south-western boundary of the site. However, the water within the ditch is flowing and is therefore considered unsuitable habitat for great crested newts. The closest pond is located approximately 245m from the development area. The vast majority of the site comprises short amenity grassland, which provides limited opportunity for great crested newts to forage and shelter.

4.2.12 Invertebrates

A full assessment of the invertebrate assemblage at the site is beyond the scope of this survey. Meadow brown and large white butterflies were noted incidentally during the survey. However, no triggers were identified to indicate that the site supports an interesting or notable assemblage of invertebrates, based on English Nature, 2005. It is also considered unlikely that white-clawed crayfish occur within the ditch due to the lack of favourable features *e.g*. shallow depth of the water and lack of rocks.

4.2.13 Invasive & Non-native Species

A variety of ornamental species were noted during the course of the survey, such as *Aquilegia* sp. and *Cotoneaster* sp. Certain species of *Cotoneaster* are now listed as invasive plant species under Schedule 9 (Part II) of the Wildlife and Countryside Act 1981. It is an offence under section 14(2) of the Wildlife and Countryside Act 1981 to '*plant or otherwise cause to grow in the wild*' any species listed on Schedule 9 (Part II) of the Act. However, it is recognised that *Cotoneaster* is also a common garden species and is not considered a biological threat in its current context. No other notifiable invasive plant species listed under the Act (*e.g.* Japanese knotweed, giant hogweed) were recorded at the site.

4.2.14 Photographs

Plate 1: Showing a typical view of the site. Photograph looking south-east.

Plate 2: Showing the Boundary 1 (the south-eastern corner of the site).

Plate 3: Showing the mature field maple. Photograph looking north-west.

Plate 4: Showing Boundary 2, the eastern boundary of the site. Photograph looking south-west.

Plate 5: Showing Boundary 3 with associated ditch.

Plate 6: Showing the southern area of the site. Photograph looking north-west.

4.2.15 Location Plan

Please note: this plan is intended only to indicate the approximate location of features and should therefore, not be treated as an accurate scale plan.

Client: JBD Architects

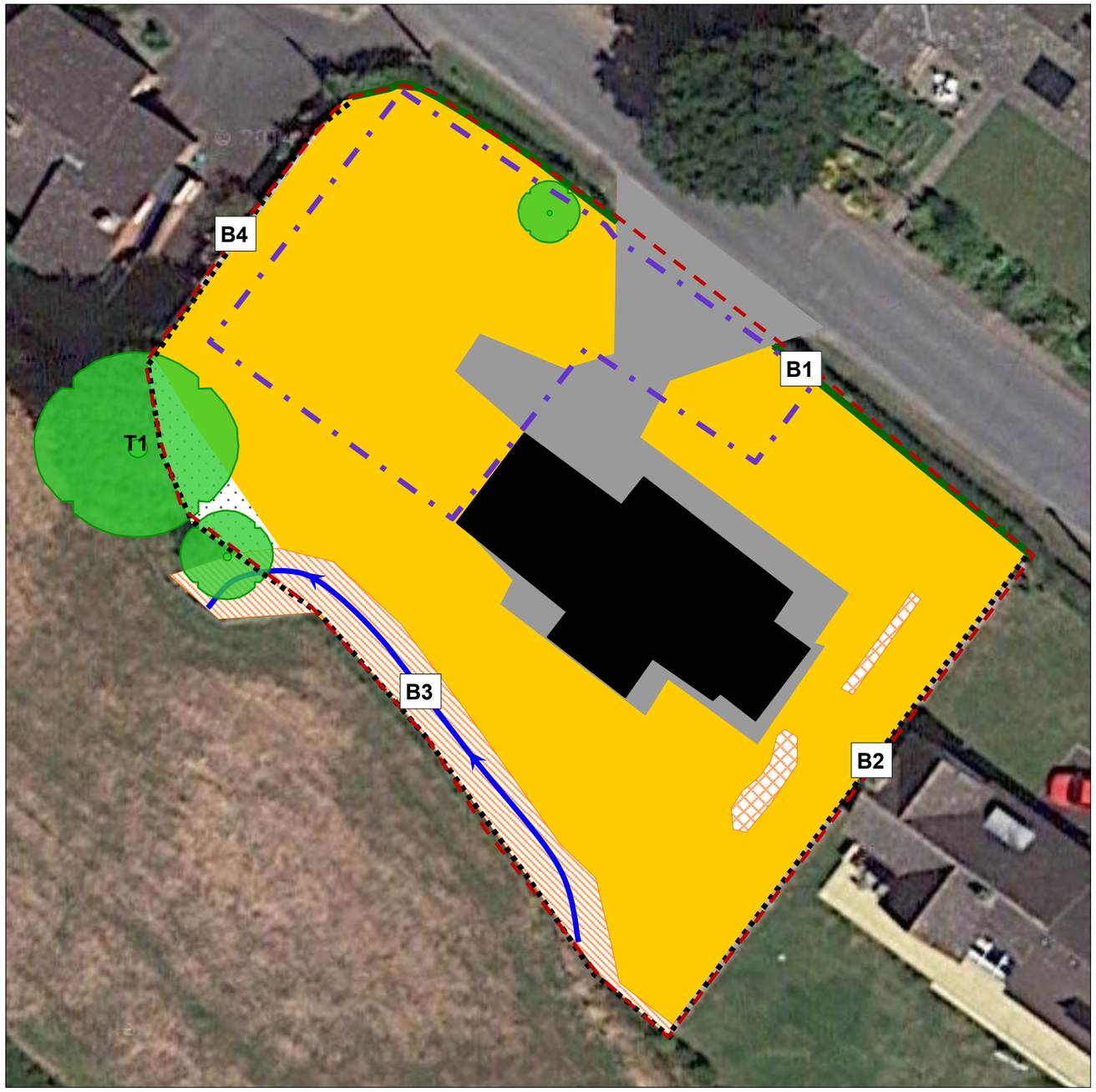
Site: Stoneleigh, Mordifiord, Herefordshire, HR1 4LR

Title: Location Plan

Contract: 0847

Date: July 2016

4.2.16 Phase 1 Habitat Survey Plan



KEY:

- Trees
- Amenity Grassland (J1.2)
- Introduced planting (J1.4)
- Bare ground (J4)
- Buildings
- Tall ruderal (C3.1)
- Hard-standing
- Intact garden hedgerow
- Running water (Ditch) (G2)
- Fencing (J2.4)
- Approximate development footprint
- Survey area
- T1 — No. of tree (please refer to text)
- B1 — No. of boundary (please refer to text)

NORTH

Client: JBD Architects
Site: Stoneleigh, Mordiford, Herefordshire, HR1 4LR
Title: Phase 1 Habitat Survey Plan
Contract: 0847
Date: July 2016

5. DISCUSSION

The client is currently seeking planning permission for the construction of one residential dwelling with associated parking, gardens and access. The proposals will result in the loss of areas of short amenity grassland and hard-standing. According to the plans, the hedgerow and ditch are to be retained within the proposed development footprint, which will minimise the ecological effects on species, such as hedgehogs, bats and nesting birds, that use these features for foraging, commuting, shelter and/or nesting.

The following ecological features have been identified, but are considered to be of negligible / site value only and/or will not be affected in any way by development proposals. Therefore, these are not 'important ecological features', with reference to CIEEM Guidelines (CIEEM, 2016).

- 240m² of amenity grassland (to be lost).
- 90m² of hard-standing (to be lost and/or altered).
- A vegetated freshwater drainage channel is located along Boundary 3. Due to the small size of the channel, shallow depth of the water and lack of favourable features, it is considered highly unlikely that the channel would support a breeding population of protected riparian species, including otters, water voles and/or white-clawed crayfish. However, there is potential that the channel could be used for passage on an occasional basis by otters and/or water voles. Therefore, precautionary measures and best practice will need to be implemented during works to prevent unwanted run-off of sediment and nutrients into the drain.
- T1- A mature field maple is to be retained within the development proposals. The tree was considered to have moderate potential to support roosting bats. Provided the tree is afforded an appropriate buffer, and a strict low-level lighting scheme is adopted the impact of the proposals are considered to be negligible.
- Approximately 30m of well-managed garden hedgerow appears to be retained within the development proposals. Provided the hedgerows are afforded an

appropriate vegetated buffer and a low-level lighting scheme is adopted, these features will not be significantly impacted by the proposals.

- A bungalow is located within the central area of the survey area. No works are to be undertaken to the bungalow. Although, a preliminary roost assessment was not conducted on the bungalow, it is considered that provided a low-level lighting scheme is adopted and work/construction activities are undertaken during daylight hours, it is considered highly unlikely that any potential bats roosting within the property would be disturbed.

6. ECOLOGICAL IMPACT ASSESSMENT

The process of ecological impact assessment (EcIA) is based upon current CIEEM best practice guidelines (CIEEM, 2016). Specifically the process involves:

- identifying and characterising impacts;
- incorporating measures to avoid and mitigate (reduce) these impacts;
- assessing the significance of any residual effects after mitigation;
- identifying appropriate compensation measures to offset significant residual effects; and
- identifying opportunities for ecological enhancement.

Table 5, below focuses only on those ecological features that have been identified as 'important' and affected by the development proposals from the results and discussion sections above. It is not necessary to carry out an impact assessment for those habitats and species that are sufficiently common, have stable populations, will be resilient to project impacts and whose populations will remain viable following and irrespective of the intended works.

Table 5: Ecological Impact Assessment (EcIA) of Important Ecological Features at Stoneleigh, Mordiford site.

Important Ecological Feature	Impact(s)	Significance of Impact(s) without Mitigation / Compensation / Enhancement	Mitigation/Compensation/Enhancement (proposed)	Significance of Residual Impact(s) with Mitigation / Compensation / Enhancement
N/A	N/A	N/A	N/A	N/A

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8. ANNEXES

8.1 Legislation & Best Practice

8.1.1 The Conservation of Habitats and Species Regulations 2010 (as amended)

http://www.legislation.gov.uk/uksi/2010/490/contents/made

These regulations, referred hereafter as "the Habitats Regulations", represent the primary method by which Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the "Habitats Directive") is transposed for England and Wales and their territorial seas. The Habitats Directive, in conjunction with the Birds Directive (Council Directive 2009/147/EEC) forms the basis for implementation of Europe's nature conservation policy through both habitat and species level protection. The Habitats Directive requires the designation of strictly protected European sites known as Special Areas of Conservation (SACs). Together with the Special Protection Areas (SPAs) established by the Birds Directive, these collectively form the Natura 2000 Network of protected sites. The Habitats Directive also requires the strict protection of animals and plants of Community Interest listed under Annex IV. Habitat types requiring strict protection as SACs are listed under Annex I. The conservation of animals and plants listed under Annex II requires the designation of SACs.

The Habitats Regulations require that public bodies must exercise their nature conservation responsibilities to ensure compliance with the Habitats Directive. These regulations also require the conservation of natural habitats and habitats of species through the selection, designation and notification of marine and terrestrial 'European Sites' to be afforded protection under the Habitats Directive. The habitats and species of European Importance are listed under Annexes I and II of the Habitats Directive. The regulations also contain provision for the appropriate management of these European Sites including the control of damaging operations, special nature conservation orders and restoration orders, for example. The Habitats Regulations afford strict protection to European Protected Species of animals under Schedule 2 and plants under Schedule 5. Offences (subject to certain exceptions) include the deliberate capture, killing, disturbance or trade in these animals. Similarly plants listed under Schedule 5 are protected (subject to exceptions) from picking, collection, cutting, destruction or trade.

8.1.2 The Wildlife and Countryside Act 1981 (as amended)

While the Habitats Regulations provide the basis for nature conservation policy in Europe, the Wildlife and Countryside Act 1981 (as amended) (WCA) is still a major mechanism for the legislative protection of wildlife and countryside/national parks in the UK. The WCA, and its various amendments, draw on from pre-existing legislation and support the Habitats Regulations in implementing the Bern Convention (1979) and Directive 2009/147/EC on the conservation of wild birds. Schedules within the WCA provide a list of protected species and habitats, in addition to prohibited actions. Further details are provided below for specific species relevant to the report. The WCA also contains measures for controlling invasive non-native species and amendments to a number of laws, including in relation to public rights of way.

8.1.3 The Countryside and Rights of Way (CROW) Act 2000

The CROW Act amends existing WCA legislation in accordance with the 1992 Convention on Biological Diversity (Rio Earth Summit). The Act applies to England and Wales only and encompasses public access, rights of way, nature conservation and Areas of Outstanding Natural Beauty (AONBs). Schedule 9 of the Act provides increased powers for the protection and management of SSSIs while Schedule 12 strengthens the legal protection for protected species via arrestable offences and heavier penalties.

8.1.4 The Natural Environment and Rural Communities (NERC) Act 2006

The Natural Environment and Rural Communities Act imposes a *Biodiversity Duty* (S.40) on all public bodies to conserve biodiversity at both species and habitat levels (S40). "*Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity*."

S.41 of the Act requires the publication of a list of "*living organisms and types of habitat which in the Secretary of State's opinion are of principal importance for the purpose of conserving biodiversity*." The list generated under S.41 of the Act contains a number of types of habitats and species of animal and plant that have the potential to be affected by development projects of a range of sizes and impacts.

S.47 of the Act establishes special protection for the nest sites of certain birds that are known to re-use their nests and creates an additional Schedule containing these birds, namely golden eagle, white-tailed eagle and osprey. It is an offence to take, damage or destroy the nest of these three birds at any time.

The Act also establishes Natural England as the independent body "to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development". 943 species and 56 habitats of principal importance are included on the S41 list as guidance for public bodies on decisions that affect biodiversity.

8.1.5 The Hedgerow Regulations 1997

On 1 June 1997, the Hedgerow Regulations came into force under section 97 of the Environment Act 1995 to address the dramatic decline in UK hedgerows. The regulations protect important hedgerows by limiting removal through a system of notification via local planning authorities.

The regulations are aimed at countryside hedgerows in England and Wales "on or adjoining, common land, village greens, Site of Special Scientific Interest (which include National Nature Reserves, Special Protection Areas under the Birds Directive and Special Areas of Conservation under the

Habitats Directive), Local Nature Reserves, or land used for agriculture, forestry or the breeding or keeping of horses, ponies or donkeys" (Section 3.6).

Written permission is required from the local planning authority before the removal of any hedgerow over 20 metres and more than 30 years old. Hedgerows less than 20 metres long may also be considered if they form part of a continuous network of hedges. Garden hedges, however, are not protected. Once the LPA has received a written request they will issue either a Hedgerow Retention or Hedgerow Removal Notice within 42 days depending on whether they define the hedgerow as *important* or not. This is determined by the following;

- "They have been in existence 30 years or more; and"
- "They satisfy at least one of the criteria set out in Part II of Schedule 1 of the Regulations."

Exemptions to the Regulations fall into three categories:

- "small scale works;"
- "works approved under other procedures which ensure careful assessment and consideration of the impact on the local environment; and"
- "works authorised under other legislation which justify the removal of a hedgerow without first establishing its importance."

It is an offence to remove a hedgerow subject to a retention notice, or to remove a hedgerow protected under the Hedgerow Regulations without first obtaining the required removal notice.

8.1.6 The UK Post-2010 Biodiversity Framework

As of 17 July 2012, the UK Post-2012 Biodiversity Framework replaced the UK level Biodiversity Action Plan to deliver the outcomes of the Government's Biodiversity 2020 Strategy. This was in response to the 2011 EU Biodiversity Strategy (EUBS) and the 2010 United Nations Convention on Biological Diversity (CBD) whereby five "'*Aichi' strategic goals and supporting targets*" have been internationally agreed.

The UK Framework is a collaborative effort between Defra and JNCC on behalf of the Four Countries' Biodiversity Group to achieve the '*Aichi*' strategic goals through focused supporting targets and follows on from policies contained within the Natural Environment White Paper (2011).

8.1.7 National Planning Policy Framework

The National Planning Policy Framework (NPPF) was published on 27 March 2012 and acts as guidance for planning authorities (LPAs) in England to form Local Plan policies in favour of sustainable development as part of the government's reforms to increase the accessibility of the planning system and promote long term sustainable growth. Along with the Circular 06/205, the NPPF consolidates the Planning Policy Statements and Guidance Notes, many of which are now obsolete, including *Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS9)*.

The framework states that "*planning policies and decisions should be based on up-to-date information about the natural environment and other characteristics of the area*" (Environment, Paragraph 165).

Chapter 11 of the framework advises on:

"conserving and enhancing the natural environment" wherein Paragraph 118 states that "*when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles*:"

"*if significant harm 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*;"

"*proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest feature is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have 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 proposals where the primary objective is to conserve or enhance biodiversity should be permitted*"

"*opportunities to incorporate biodiversity in and around developments should be encouraged*;"

"*planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss*;"

"*the following wildlife sites should be given the same protection as European sites:*

- *potential Special Protection Areas and possible Special Areas of Conservation;*
- *listed or proposed Ramsar sites; and*
- *sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites*."

8.1.8 Circular 06/205: Biodiversity and Geological Conservation

The Circular 06/205 complements the NPPF by advising on how the law relates to planning and nature conservation in England, with particular reference to designated sites and protected species;

"*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*" (Paragraph 99). However, "*developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development*."

Part IV also reminds LPAs and developers that licences and mitigation measures may be required in addition to planning permissions if protected species are to be affected by the development. "*The breach of protected species legislation can often give rise to a criminal offence*" (Paragraph 101).

8.1.9 BS42020:2013 Biodiversity. Code of Practice for Planning and Development

BS 42020 was developed by BSI with input from a variety of organisations (in all sectors) and experts in the field of biodiversity. It is fundamentally engaged with the incorporation of biodiversity into all stages of the planning process. The standard aims to identify a suite of recommendations and advice to ensure that decision-making and activities undertaken from inception to fruition of planning applications are adequately informed by appropriate and robust ecological knowledge. BS42020 aims to:

- give decision-makers (and specifically planning authorities and other regulatory bodies) more confidence that the ecological audits and assessment of impact on biodiversity provided in support of development proposals is fit for purpose;
- encourage greater consistency and transparency in the quality, scientific robustness and transparency of ecological reports that are submitted with planning applications and other forms of regulatory approval; and
- foster an approach that is proportionate and retains and positive environmental legacy following development.

8.1.10 Bats

All British bats are "European Protected Species" (EPS) and listed on Annex II and Annex IV of the EC Habitats Directive. The Directive is transposed into UK law through the Conservation of Habitats and Species Regulations 2010 (as amended). The following actions affecting bats are prohibited under the legislation:

- deliberate capture, injury or killing of a bat;
- deliberate disturbance of a bat and in particular disturbance which is likely to impair their ability:
    - to survive, to breed or reproduce, or to rear or nurture their young, or

  - in the case of animals of a hibernating or migratory species, to hibernate or migrate;
  - or to affect significantly the local distribution or abundance of the species to which they belong.
- damage or destruction of a breeding site or resting place;
- possessing, controlling transporting, selling or exchanging, or offering for sale or exchange, any bat or any part of a bat or anything derived from one.

Bats are also afforded protection from intentional or reckless 'disturbance' by the Wildlife and Countryside Act 1981 (as amended). The deliberate or reckless obstruction of access to a structure or place used by bats for shelter and protection is also an offence under the Act.

8.1.11 Badgers

Badgers and their setts are protected by the Protection of Badgers Act 1992 (as amended). This makes it an offence to wilfully kill, injure or take a badger or interfere with a badger sett through damaging the sett, destroying the sett, obstructing access to a sett, causing a dog to enter the sett or disturbing a badger occupying a sett.

8.1.12 Birds

All wild birds in the UK are afforded protection under the Wildlife and Countryside Act 1981 (as amended). This protection includes killing, injuring or taking wild birds as well as taking, damaging or destroying bird nests in use or being built, and taking or destroying eggs. Birds listed under Schedule 1 of the Act are afforded additional protection from disturbance during nesting and offences relating to these birds are subject to special penalties. The nest sites of birds listed under Schedule ZA1 of the act (golden eagle, white-tailed eagle and osprey) are afforded strict, year-round protection even when the nests are not in active use.

A small number of derogated bird species, principally members of the genus *Corvus* (crows), *Larus* (gulls) and *Columba* (pigeons), may be killed by authorised persons (landowner/occupier or otherwise authorised by the landowner or relevant conservation body or fisheries board) under a 'general licence'. The general licence is issued by Natural England (in the case of English usage). The general licence can only be exercised for reasons of preserving public health or public safety and cannot be lawfully used in the case of damage to property or nuisance.

8.1.13 Great Crested Newts

The great crested newt (*Triturus cristatus)* (Laurenti, 1758), is a "European Protected Species" (EPS) and listed on Annex II and Annex IV of the EC Habitats Directive. The Directive is transposed into UK law through the Conservation of Habitats and Species Regulations 2010. The following actions affecting great crested newts are prohibited under the legislation:

- deliberate capture, injury or killing of a great crested newt;

- deliberate disturbance of a great crested newt and in particular disturbance which is likely to impair their ability:
    - to survive, to breed or reproduce, or to rear or nurture their young, or
    - in the case of animals of a hibernating or migratory species, to hibernate or migrate;
    - or to affect significantly the local distribution or abundance of the species to which they belong.
- damage or destruction of a breeding site or resting place;
- possessing, controlling transporting, selling or exchanging, or offering for sale or exchange, any bat or any part of a great crested newt or anything derived from one.

Great crested newts are also afforded protection from intentional or reckless 'disturbance' by the Wildlife and Countryside Act 1981 (as amended). The deliberate or reckless obstruction of access to a structure or place used by great crested newts for shelter and protection is also an offence under the Act. This applies to both aquatic and terrestrial habitat.

8.1.14 Reptiles

All common reptile species (grass snake, adder, common lizard and slow-worm) native to Britain are protected by Schedule 5 the Wildlife & Countryside Act, 1981 (as amended). It is illegal to:

- deliberately kill, injure a reptile or
- sale, barter, exchange, transport for sale and advertising to sell or to buy a reptile.
- In Northern Ireland they are fully protected against killing, injuring, capturing, disturbance, possession or trade.

In addition sand lizard and smooth snake are protected under the Conservation (Natural Habitats, &c.) Regulations 1994 which makes it illegal to carry out the following activities:

- Deliberately or recklessly disturb, capture or kill these animals,
- Deliberately or recklessly take or destroy eggs of these animals;
- Damage or destroy a breeding site or resting place of such a wild animal;
- Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead animal, or any part of, or anything derived from such a wild animal.

8.1.15 Otters

Council Directive 92/43/EEC ("The Habitats Directive") is transposed into UK law by The Conservation of Habitats and Species Regulations 2010 (as amended). Otters are a European Protected Species (EPS), and are listed in Annex IV of the Habitats Directive and Schedule 2 of the Regulations. This affords both the otters and their breeding sites and resting places with strict protection. Actions and activities that are prohibited by this legislation are:

- deliberate capture, injury or killing of an otter;
- deliberate disturbance of an otter and in particular disturbance which is likely to; impair their ability:

- to survive, to breed or reproduce, or to rear or nurture their young, or
- in the case of animals of a hibernating or migratory species, to hibernate or migrate;

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

- damage or destruction of a breeding site or resting place;
- possessing, controlling transporting, selling or exchanging, or offering for sale or exchange, any otter or any part of an otter or anything derived from one.

Substantial penalties including fines and custodial sentences are now in place for offenders under the Regulations.

8.1.16 Water voles

Following a review of the protection afforded by the Wildlife and Countryside Act 1981 (as amended) water voles became subject to increased legal protection. From the 6th April 2008 water voles became fully covered by the provisions of section 9 of the Act. Consequently it is an offence to:

- Intentionally kill, injure or take water voles;
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection;
- Intentionally or recklessly disturb water voles whilst occupying a structure or place used for that purpose;

The water vole is also a 'species of principal importance for the purpose of conserving biodiversity' as identified by Section 41 of the Natural Environment and Rural Communities Act 2006. Moreover Section 40 of the Act imposes a 'biodiversity duty' all government departments (including local government) to further the conservation of the species through their decision making process.

8.1.17 White-clawed Crayfish

The white-clawed crayfish is listed under the EU Habitats Directive Annex II and V and therefore requires the designation of special areas of conservation (SACs) for its protection and conservation. It has also been listed under Appendix III of the Bern Convention.

It is an offence under Schedule 9 of the Wildlife and Countryside Act to keep without licence or release five of the introduced species of crayfish into the wild. This species is also indirectly affected by the EU Water Framework Directive which seeks to achieve good ecological status of aquatic systems.

8.2 Third-party Data

A third-party data search was not commissioned as part of this project.

8.3 Recommended Planting List

Amenity Planting for Wildlife:

Opportunities will be sought for maximising the wildlife value of amenity/landscape planting within the development scheme. This can be achieved through the use of scented flowers and species with acknowledged value for wildlife. A list of species for consideration within amenity planting is provided in Table 6, below.

Table 6: List of plant species with a known benefit to wildlife that should be used in any landscaping at the site.

Scientific Name	Common Name
Trees & Shrubs	
Acer campestre	field maple
Alnus glutinosa	alder
Betula pendula	silver birch
Betula pubescens	downy birch
Buddleia davidii	butterfly-bush
Calluna vulgaris	heather
Corylus avellana	hazel
Crataegus monogyna	hawthorn
Cydonia oblonga	quince
Cytisus scoparius	broom
Erica cinerea	bell heather
Euonymus europaeaus	spindle
Fagus sylvatica	beech
Frangula alnus	alder buckthorn
Ilex aquifolium	holly
Juniperus sp.	junipers
Laburnum anagyroides	laburnum
Leycesteria sp.	flowering-nutmeg
Ligustrum vulgare	wild privet
Malus sp.	apple tree varieties
Malus sylvestris	crab apple
Philadelphus sp.	mock-oranges
Prunus avium	wild cherry
Prunus cerasifera	cherry-plum
Prunus cerasus	dwarf cherry
Prunus domestica	wild plum
Prunus padus	bird cherry
Prunus spinosa	blackthorn
Pyracantha sp.	firethorns
Pyrus communis	cultivated pear
Pyrus pyraster	wild pear
Rhamnus cathartica	buckthorn
Rosa arvensis	field rose
Rosa sp.	roses
Rubes uva-crispa	gooseberry
Rubus ideaus	raspberry

Salix aurita	eared willow
Salix caprea	goat willow
Salix cinerea	grey willow
Salix pentandra	bay willow
Salix purpurea	purple willow
Salix viminalis	osier
Sambucus nigra	elder
Solanum dulcamara	bittersweet
Sorbus aucuparia	dogwood
Syringa vulgaris	lilac
Ulex europaeus	gorse
Ulex gallii	western gorse
Ulmus procera	English elm
Vaccinium myrtillus	bilberry
Vaccinium vitis-idaea	cowberry
Climbers	
Clematis sp.	clematis'
Hedera helix	common ivy
Jasminum sp.	jasmines
Lonicera sp.	honeysuckles
Rosa sp.	climbing roses
Vascular Plants	
Achillea millefolium	yarrow
Aconitum napellus	monkshood
Allium schoenoprasum	chives
Antirrhinum majus	snapdragon
Borago officinalis	borage
Calluna vulgaris	heather
Campanula rotundifolia	harebell
Centaurea cyanus	cornflower
Centaurea montana	perennial cornflower
Crocus tommasinianus	early crocus
Crocus vernus	spring crocus
Digitalis purpurea	foxglove
Echium vulgare	viper's-bugloss
Fragaria vesca	wild strawberry
Galium verum	lady's bedstraw
Geranium sp.	cranesbills
Hesperis matronalis	dame's-violet
Hypericum sp.	St. John's worts
Kniphofia sp.	red-hot pokers
Lamiastrum galeobdolon	yellow archangel
Leucanthemum vulgare	oxeye daisy
Linaria purpurea	purple toadflax
Linaria vulgaria	common toadflax
Lotus corniculatus	common bird's-foot trefoil
Lysimachia vulgaris	yellow loosestrife
Malva moschata	musk-mallow
Malva sp.	mallows
Matricaria recutita	scented mayweed

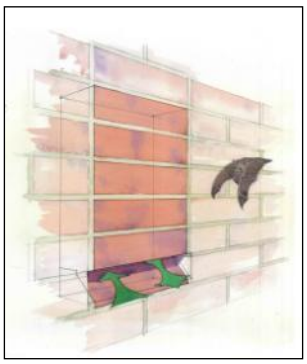
Matthiola bicornis	night-scented stock
Melilotus officinalis	ribbed melilot
Mentha sp.	mints
Myosotis discolor	changing forget-me-not
Nigella damascena	love-in-a-mist
Oenothera biennis	common evening-primrose
Ononis repens	common restharrow
Origanum vulgare	marjoram
Papaver dubium	long-headed poppy
Papaver rhoeas	common poppy
Primula veris	cowslip
Primula vulgaris	primrose
Reseda lutea	wild mignonette
Salvia officinalis	sage
Saponaria officinalis	soapwort
Silene dioica	red campion
Silene latifolia	white campion
Silene noctiflora	night-flowering catchfly
Silene nutans	Nottingham catchfly
Silene vulgaris	bladder campion
Symphytum tuberosum	tuberous comfrey
Tanacetum vulgare	tansy
Verbascum thapsus	great mullein
Viola arvensis	field pansy
Viola odorata	sweet violet
Viola riviniana	common dog violet
Viola tricolor	wild pansy
Marginal & Aquatic Species	
Acorus calamus	sweet flag
Caltha palustris	marsh marigold
Eleocharis palustris	common spike-rush
Lythrum salicaria	purple loosestrife
Mentha aquatica	water mint
Myosotis scorpioides	water forget-me-not.
Ranunculus flammula	lesser spearwort
Sparganium erectum	branched bur-reed
Stachys palustris	marsh woundwort

8.4 Examples of Recommended Mitigation Features

Schwegler 1SP sparrow terrace

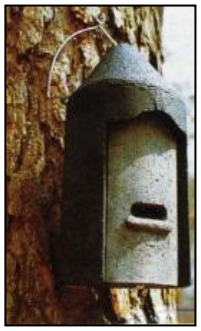
1FR Schwegler Bat Tube

1WI Schwegler Summer & Winter Bat Box



Habibat Bat Box

Schwegler 2F-DFP bat boxes



Schwegler 2F Bat Box

Schwegler 2FE Wall-mounted Bat Shelter

9. QUALIFICATIONS & EXPERIENCE

Focus Ecology was formed in 2010 and has the expertise to provide sure-fire ecological solutions to a wide range of projects. The company ethos forges the highest standards of professional scientific practice with a best value approach for our clients. Our core area of expertise is in the production of specialist ecological reports and advice to support planning applications. However, our flexible approach, range of skills and broad project experience from major infrastructure contracts to smaller projects allows us to adapt to your individual requirements. Focus Ecology is situated in Worcestershire, providing a convenient and central UK location.

Cassie Needham BSc (Hons) MSc MCIEEM

Cassie is an Ecologist with five years of experience in the ecological consultancy field and joined Focus Ecology in 2012. Prior to joining Focus Ecology she assisted on a number of large projects nationwide with two leading ecological consultancies. She holds a BSc (Hons) degree in Geography with Ecology from the University of Sussex and an MSc in Conservation from University College London. Cassie is experienced in conducting Preliminary Ecological Appraisals as well as surveys for protected species; great crested newts, reptiles, white-clawed crayfish, bats, hazel dormice and water voles. She also holds Natural England survey licences for bats (Class 2), great crested newts, hazel dormice and white-clawed crayfish, and is a Full member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Kathryn Oliver BSc (Hons) MSc GradCIEEM

Kathryn joined Focus Ecology as a Graduate Ecologist in 2016. She holds a BSc degree in Biological Sciences and an MSc in Ecological Management and Conservation Biology from Queen's University Belfast. She has experience conducting protected species surveys including bats, newts, reptiles and badgers. Kathryn is a Graduate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Daniel Hulmes BSc (Hons) MSc

Daniel joined Focus Ecology in 2016 as a Graduate Ecologist. He holds a BSc (Hons) degree in Conservation Biology from the University of Aberdeen and an MSc degree in Environmental Biology from Swansea University. He has previous experience undertaking protected species surveys including bats, badgers and reptiles.