

Preliminary Ecological Appraisal (PEA) Report

Project: The Firs, Crabtree Green, Eyton, LL13 0YF

Client: Mr S Fisher

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EXECUTIVE SUMMARY

The contents of this report detail the findings of a Preliminary Ecological Appraisal (PEA) at The Firs, Crabtree Green, Eyton, LL13 0YF, to inform a pre-planning application for the proposed erection of a garage as an extension of an existing dwelling. The site is centred on approximate OSGR SJ 33492 44699.

The application site, set in a rural environment, contains two plots (Plot A and Plot B) which are composed of built structures (**B1** – a workshop/ utility adjoined to an existing dwelling), hardstanding, shrubs/ trees, amenity grassland and fencing (**Plan 1**).

B1 (Plot A) and the dwelling to which it is adjoined are considered to offer ‘negligible’ bat roosting potential, with a number of mature trees near to application site noted to offer far greater bat roosting opportunities (**Plan 1; T2; T4; T5**). The near surrounds offer moderately-good foraging and commuting habitat for bats, notably along the hedgerows/ field boundaries. Local records for five (5) bat species were retrieved. No further survey with regard to bat species is deemed necessary. However, a sensitive lighting scheme is recommended, along with bat box provision as an enhancement.

Small groups of shrubs/ trees on Plot A/ Plot B provide ‘low’ nesting potential, although no birds’ nests were found (**Plan 1; T6; T8**). **B1** provides ‘negligible’ bird nesting potential. A sensitive de-vegetation scheme must be followed and bird box provision is recommended as an enhancement.

Three (3) significant standing waterbodies (**WB1 – WB3**) were identified during the desktop study, within a 250m zone of influence. **WB1** (**Plan 1; T1**) is a garden pond situated near to Plot A/ Plot B and known to contain common toad (*Bufo bufo*) and smooth newt (*Lissotriton vulgaris*). **WB2/ WB3** were not assessed given their distance from the application site. The terrestrial habitat present on both Plot A/ Plot B is deemed as being of poor quality for amphibian species. GCN records exist within 1km of the site. A detailed mitigation scheme for great crested newts (*Triturus cristatus*) and common amphibian species utilising precautionary methods including a time restriction on works or supervision by an ecologist, detailed pre-commencement hand searches, maintenance of poor terrestrial habitat on-site, hibernacula creation, pond management and Reasonable Avoidance Measures (RAM’s) detailed in a rigid method statement are considered necessary to mitigate against disturbance, injury and killing of common amphibians and GCN, if present, during the development. This is also deemed sufficient to negate the need for further survey with regard to amphibians.

Both Plot A/ Plot B provide poor-quality reptile habitat, given the absence of feeding and refuge habitat. There is some connectivity to the wider landscape, via hedgerows. No local records for reptile species were obtained. No further survey with regard to reptile species is required and reptiles are not considered a constraint to the proposals.

The land within Plot A/ Plot B is regarded to be of generally low ecological value. Native hedgerow planting is recommended as an enhancement for the wider area (**Plan 1; T7**).

No evidence of other protected species was noted during the survey and no adverse impacts upon protected species or habitats of ecological merit are envisaged, provided the provisions detailed within this report are adhered to.

1. INTRODUCTION

1.1 COMMISSION AND PROPOSALS

- Pearce Environment Ltd were commissioned by Mr S Fisher to undertake a Preliminary Ecological Appraisal (PEA) at The Firs, Crabtree Green, Eyton, LL13 0YF (hereafter referred to as 'the site'). The site is centred on approximate Ordnance Survey Grid Reference (OSGR) SJ 33492 44699.
- The findings of this report have been used to inform a pre-planning application for the proposed demolition of an extension of an existing dwelling on Plot A and erection of a detached garage on Plot B (**Appendix 1**).

1.2 AIMS

- This report sets out the findings of a desk-based study, site-based study and Preliminary Roost Assessment (PRA) undertaken by Pearce Environment Ltd during April of 2018.
- The aims of this report are to:
 - i. Determine the habitat types within and immediately adjacent to the boundary of the site in relation to the proposed development footprint;
 - ii. Identify habitats and species constraints pertinent to the development proposals, in accordance with statutory legislation and guidance given in Planning Policy Wales¹, with specific focus on great crested newts and bats;
 - iii. Determine the need for any additional species surveys, where necessary;
 - iv. Detail mitigation and compensation methods, Reasonable Avoidance Measures (RAM's) and/ or licensing requirements, where necessary; and
 - v. Identify opportunities for the proposed development to provide enhancements and add to the biodiversity resource within the site.

1.3 BACKGROUND

- There are no known historical ecological reports relating to the application site.

¹ Planning Policy Wales (Edition 9, November 2016)

2. METHODOLOGY

- This section summarises the methodologies used during the ecological studies undertaken to inform the proposed development, in line with the aims set out in **Section 1** of this report.

2.1 DESK STUDY

- The desk study is an important part of the ecological assessment as it provides contextual information, such as the sites' proximity to designated areas and known records of protected/ notable species (**Table 2.1**).
- This information is used to supplement the findings of a Preliminary Ecological Appraisal (PEA), to assess the potential for the proposals to affect protected species and designations of conservation concern, and supports the recommendations and conclusions set out in this report.

Table 2.1 Summary of resources used and information requested during the desk study (2018)

Organisation/ Resource	Information Assessed (search distance from site boundary)
MAGIC website ²	• International statutory designations (1km) • National statutory designations (1km) • Significant standing water bodies (250m)
Freely-available online data sets (NBN Atlas ³ and LERC Wales Aderyn ⁴)	• Protected/ UK BAP species records (1km)

- A desk study utilising freely-available online data sets only is considered sufficient for the purposes of this study, given the small scale and localised nature of the proposals.
- All pertinent information obtained during the desk study is referenced within **Section 3** and **Section 5** of this report.

2.2 PRELIMINARY ECOLOGICAL APPRAISAL (PEA)

- This level of survey does not aim to provide a complete floral and faunal inventory present on site but to identify field signs of, or habitats with, the potential to support protected species, thereby determining the need for further species survey(s).
- The main habitat types and plant species present were identified and mapped in **Plan 1**, summarised in **Section 3** and illustrated using photographs included within this report, according to the guidelines set out by the Chartered Institute of Ecology and Environmental Management (CIEEM)⁵.
- The initial PEA of the site was undertaken during a daytime visit on 9th April 2018. This visit was carried out at a temperature of 15°C, in dry and bright conditions. This time of year is considered to be just outside of the optimal period for undertaking a PEA,

² Multi-Agency Geographic Information for the Countryside website (www.magic.gov.uk/)

³ National Biodiversity Network, 2017 (<https://records.nbnatlas.org/explore/your-area>)

⁴ Aderyn. LERC Wales' Biodiversity Information & Reporting Database (<http://aderyn.lercwales.org.uk/public/search>)

⁵ Guidelines for Preliminary Ecological Appraisal (2013). CIEEM. Technical Guidance Series, 1-8.

therefore it was taken into consideration roosting bats may be absent at this time and vegetation may not yet be fully established. It does, however, coincide with bird nesting and newt breeding seasons.

- The survey was performed by Jonathan Molesworth BSc (hons) GradCIEEM, an ecologist with almost 3 years' experience and holder of Natural England (NE) and Natural Resources Wales (NRW) licenses for great crested newts (licence numbers 2017-31597-CLS-CLS and 77860:OTH:SA:2017), a 1st class degree in Biology from the University of Liverpool, and membership with the Chartered Institute of Ecology and Environmental Management (*CIEEM membership number 15105*). Jonathan is also a qualified tree climber, and is a member of the Shropshire Mammal Group and Shropshire Bat Group.

2.3 LIMITATIONS

- All aspects of the site were fully accessible during the survey.
- Whilst we make every effort to meet the client brief, no site visit can ensure prediction of the natural environment such as movement of species in response to variables such as weather and seasonality.
- As with any survey, it is a documentation of what the surveyor observes on the specific survey day and their interpretation of those observations.

2.4 SPECIES SURVEYS

Bats

Preliminary Bat Roost Assessment: Built Structures

- A daytime assessment of all built structure(s) on site was undertaken to determine their potential to support roosting bats. All external features considered potentially suitable for bats were identified and assessed. Signs of bat activity such as droppings, feeding remains and urine stains were also searched for around all accessible areas. The potential suitability of the structures investigated was assigned a rating of low-to-high in accordance with section 5.2 of the '*Bat Conservation Trust's Good Practice Guidelines*'⁶ (**Appendix 2**). An internal assessment of all accessible areas was undertaken for evidence of roosting bats such as droppings, feeding remains and urine staining.
- Recommendations for further survey requirements are based on guidelines summarised in Table 7.3 of '*Bat Conservation Trust's Good Practice Guidelines*' (**Appendix 2**).

Great Crested Newts

- A desk based study was undertaken using OS maps and online mapping resources to identify any waterbodies within 250m of the site boundaries.

⁶ Collins J. (Ed.) (2016) *Bat Surveys for Professional Ecologist: Good Practice Guidelines* (3rd Ed.) The Bat Conservation Trust, London.

Habitat Suitability Index (HSI)

- Those waterbodies identified within the search area not considered to be separated from the application site by major dispersal barriers were assessed for their potential to support great crested newts (*Triturus cristatus*) using the Habitat Suitability Index (HSI), developed by Oldham et al. (2000)⁷. This assessment uses a scoring system, derived from several criteria including pond area, water quality, fish/ waterfowl presence and the value of the surrounding, terrestrial habitat. Waterbodies with high scores are considered more likely to support GCN than those with lower scores.
- This tool has been developed to provide a quantitative measure of the suitability of a waterbody to support GCN and should not be used as a substitute for presence/ absence surveys where they are required.
- HSI scores relating to the suitability of the waterbodies assessed to support GCN are described in **Table 2.2**.

Table 2.2 Pond suitability for great crested newts determined using HSI scoring system

HSI Score	Waterbody Suitability to Support GCN
<0.5	Poor suitability
0.5 – 0.59	Below average suitability
0.6 – 0.69	Average suitability
0.7 – 0.79	Good suitability
>0.8	Excellent suitability

- Appropriate biosecurity measures were taken during waterbody visits, where necessary.

Nesting Birds

- An internal and external assessment of any built structure(s) on site was undertaken by an experienced ecologist, to identify the presence of habitat/ features suitable for nesting birds.
- A search for active/ disused birds' nests was undertaken, where appropriate.

Reptiles

- A thorough site walkover was undertaken to assess the habitat suitability for common reptile species. A terrestrial hand search was carried out during the PEA for reptiles basking or seeking refuge beneath debris, if appropriate.

Badgers

- A thorough site walkover was undertaken during the PEA to determine the presence of badger (*Meles meles*). Field signs such as setts, foraging scrapes, latrines, paths and badger paw prints were searched for. Where present, an assessment of

⁷ Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10 (4), 143-155.

excavations was made, taking into account the shape of the entrance, the quantity of spoil, the presence of fresh bedding and the presence of badger hair/ badger claw marks.

Invasive Weeds

- A search for signs of invasive species of plant such as Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*) was undertaken during the PEA.
- Appropriate biosecurity measures were undertaken, where appropriate.

Other Species

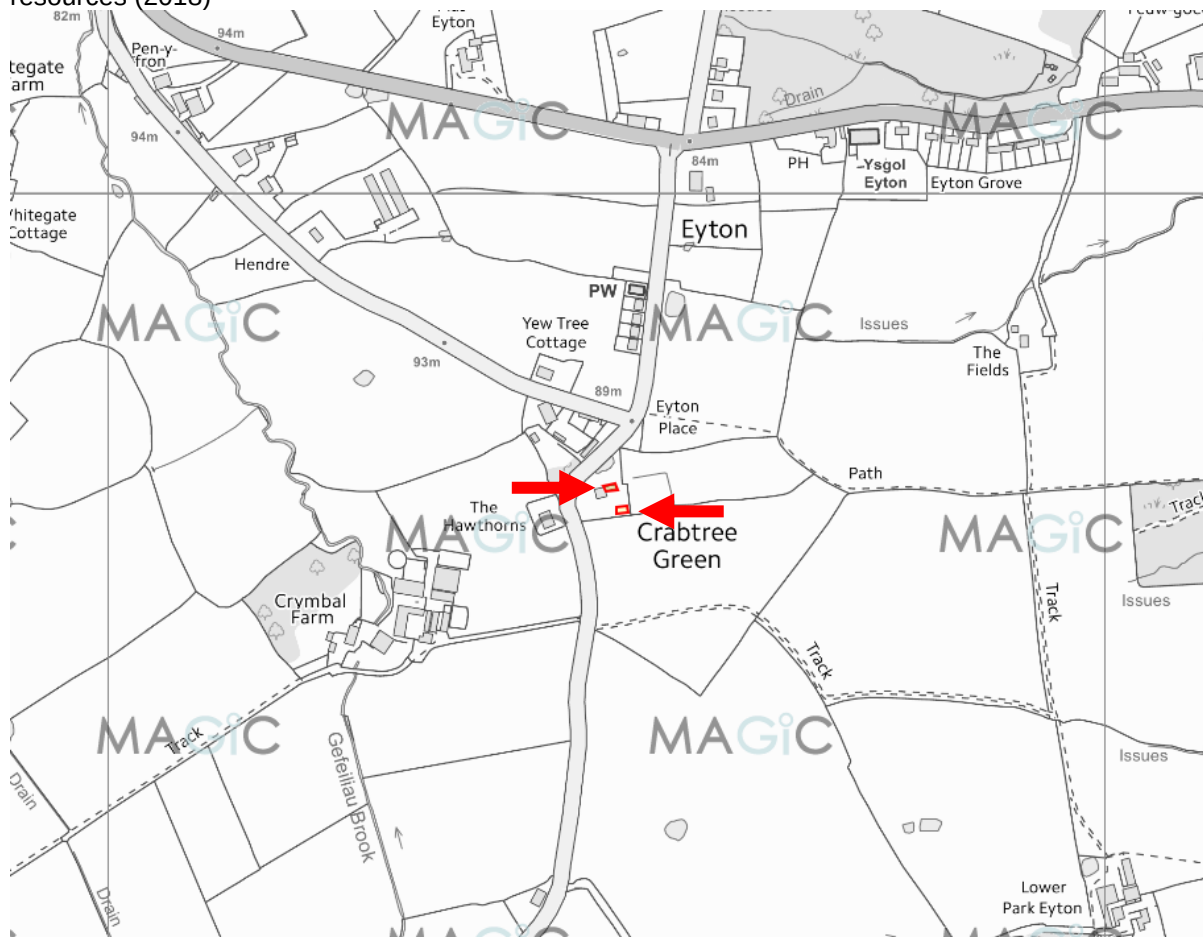
- Observations of any other notable species of flora and fauna were noted during the PEA.

3. RESULTS AND RECOMMENDATIONS

3.1 SITE DESCRIPTION

- The application site is set in rural environment, located in the settlement of Eyton, approximately 5.3km south of Wrexham town centre (**Figure 3.1**).

Figure 3.1 Site location and survey areas (indicated), reproduced using freely-available online mapping resources (2018)



- The site is directly surrounded by a mosaic of arable and pasture fields, isolated bands of woodland and scattered residential dwellings/ farmsteads in all directions (**Figure 3.2**).
- The site itself consists of two small plots – Plot A (~0.02 acres) and Plot B (~0.02 acres) – contained within the curtilage of a property and amenity garden. The following range of broad habitats are present on the plots (**Plan 1**):
 - Built structures;
 - Hardstanding;
 - Amenity grassland;
 - Shrubs/ trees; and
 - Fencing.
- Existing access to both Plot A and Plot B on site is gained via a driveway which runs off an un-named road (**Image 3.3**).

Figure 3.2 Aerial view of the site (showing Plot A and Plot B) and near surrounds, reproduced using freely-available online mapping resources (2018)

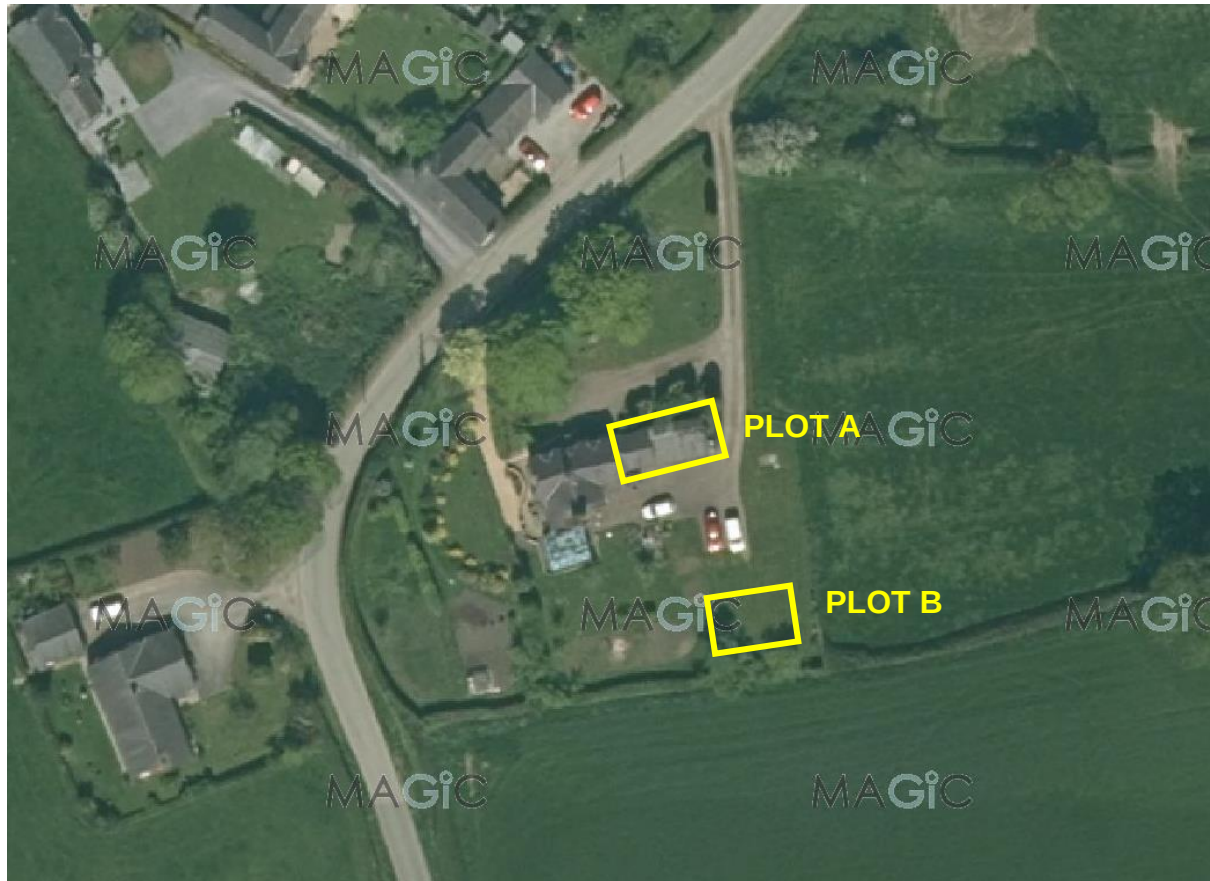


Image 3.3 Existing driveway into the property



3.2 BROAD HABITATS

PLOT A

Built Structures

- Plot A contains one (1) built structure, summarised below:
 - B1** – a two-sectioned utility block/ workshop adjoined to the eastern aspect of an existing dwelling, set upon hardstanding (**Image 3.4: Image 3.5**).
- All built structure(s) were subject to a PRA and nesting bird inspection, where appropriate, detailed later in this report.*

Image 3.4 B1, an adjoined utility/ workshop, also showing hardstanding



Hardstanding

- B1** is set upon and is immediately surrounded by hardstanding, consisting of brick paving and fine gravel, considered to be of low ecological value (**Image 3.4**).

Amenity Grassland

- A small portion of short-sward, managed amenity grassland is present at the eastern-most extent of **B1** (**Image 3.5**).

Shrubs/ Trees

- A stand of shrubs/ trees dominated by cherry laurel (*Prunus laurocerasus*) and *Leylandii* occupies a small area immediately north of **B1**, towards the eastern end (**Image 3.6**). Although no birds' nests were noted, these provide 'low' nesting potential.

Fencing

- Timber post and rail fencing forms the eastern site boundary of Plot A (**Image 3.5**).

PLOT B

Amenity Grassland

- Plot B consists largely of short-sward, managed amenity grassland, considered to be of low ecological value and which is currently used to site a bonfire (**Image 3.7**; **Image 3.8**).

Scattered Trees

- Three (3) old apple trees (*Malus domestica*) are present along the informal southern boundary of Plot B, likely one part of a larger orchard (**Image 3.7**; **Image 3.8**). Although no birds' nests were noted, these provide 'low' nesting potential.

3.3 OTHER OBSERVATIONS

- The majority of the Plot A footprint has no formal boundaries.
- The plot B footprint has no formal boundaries, although it lies in close proximity of a defunct hedgerow (immediately south; **Image 3.8**) and the brick wall of a former building (immediately west; **Image 3.7**).
- A small collection of fencing materials/ timbers are stacked along the informal southern boundary of Plot B (**Image 3.8**).
- No further observations pertinent to this study were made.

Image 3.5 Eastern end of **B1** on Plot A, also showing amenity grassland and fencing



Image 3.6 Small stand of Leylandii/ laurel at the northeast extent of Plot A



Image 3.7 A typical view of Plot B, showing amenity grassland, an apple tree and brick wall



Image 3.8 Scattered apple trees and fencing materials along the informal southern boundary of Plot B, also showing adjacent defunct hedgerow (outside of the footprint)



3.4 DESK STUDY RESULTS

Statutory Designations

- A desk based study was undertaken to identify the presence of statutory designations, which include:

International recognised statutory designations

- Special Protection Areas (SPAs)
- Special Areas of Conservation (SACs)
- Ramsar Sites

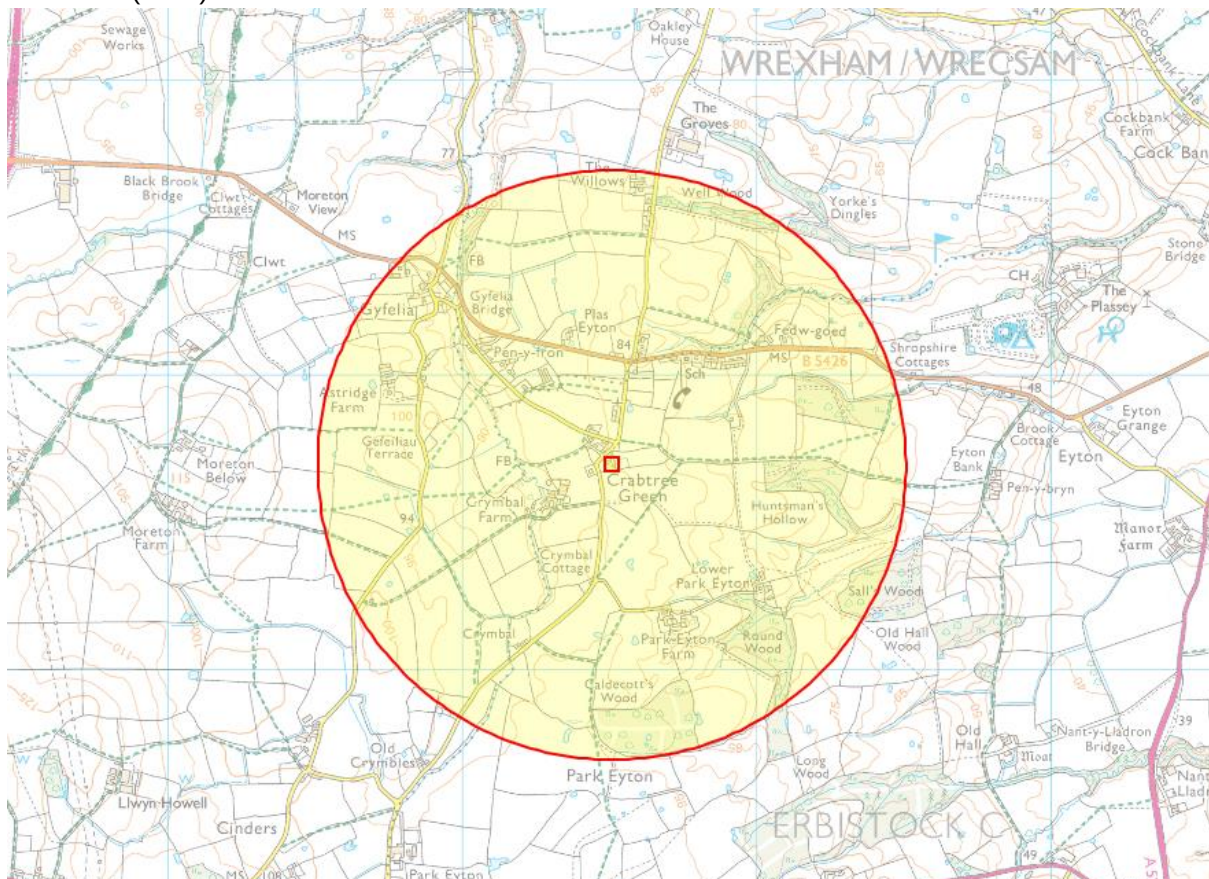
National recognised statutory designations

- Sites of Special Scientific Interest (SSSIs)
- National Nature Reserves (NNRs)

Local level statutory designations

- Local Nature Reserves (LNRs)
- A review of information available from freely-available online resources did not identify the presence of any statutory designations of conservation concern within 1km of the site (**Figure 3.9**). An extended search within 2km of the site did not identify any further statutory designations.

Figure 3.9 Proximity of statutory designations to the site, reproduced using freely-available online resources (2018)



- Owing to the absence of statutory designations within 1km of the site, no negative impacts upon such designations are anticipated as a result of the proposals.

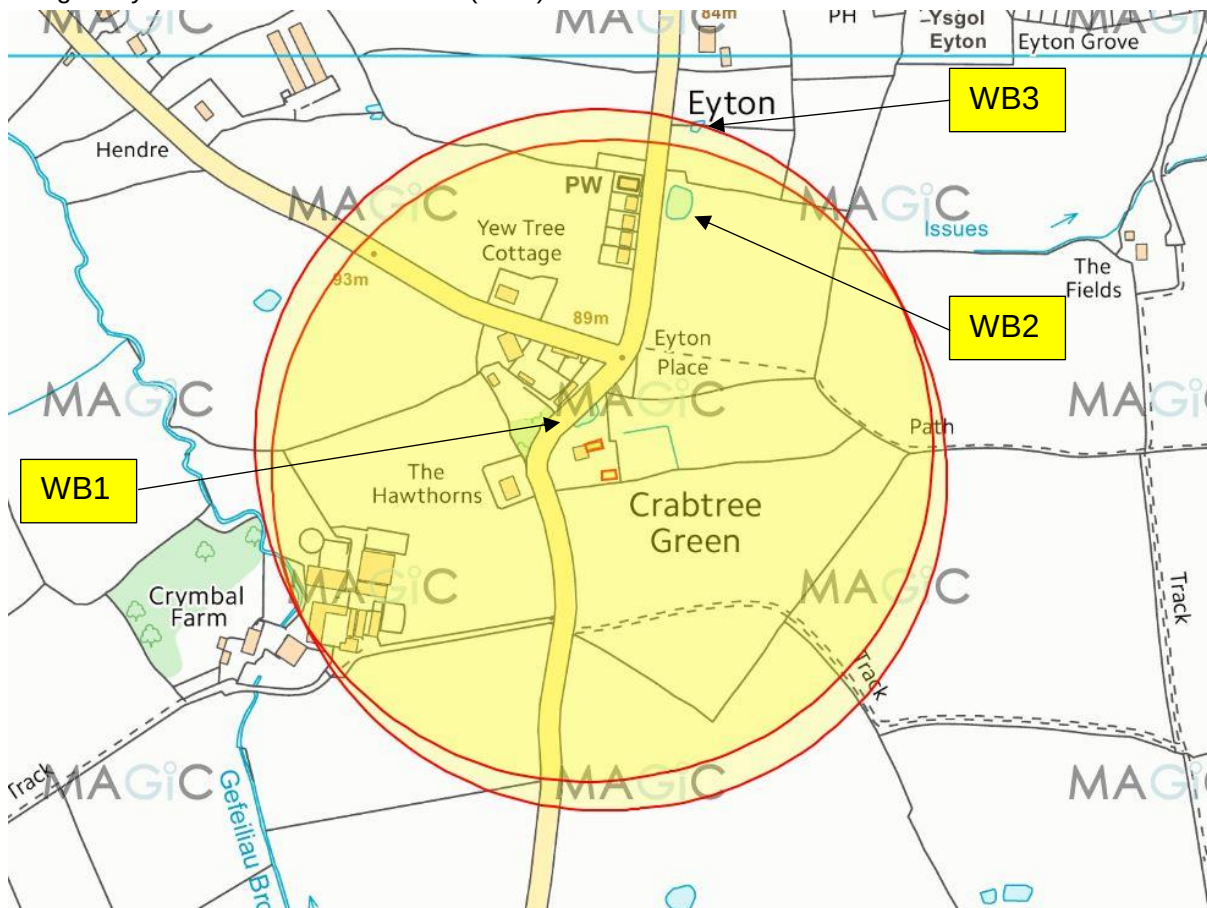
Non-Statutory Designations

- Owing to the small scale and localised nature of the proposals, a search for non-statutory designations was not deemed necessary.

Habitats of Importance

- An assessment of the surrounding habitats using OS maps and online mapping resources, in addition to a walkover of the site and surrounds, identified the presence of three (3) significant bodies of standing water (**WB1 – WB3**) within a 250m zone of influence of Plot A/ Plot B (**Figure 3.10**).

Figure 3.10 Proximity of standing waterbodies within 250m of the proposed application site, reproduced using freely-available online resources (2018)



- No further habitats of importance were identified during the desk study.

3.5 SPECIES RECORDS

- A database search during the course of the desk study returned records for 94 species. Protected species previously recorded within 1km of the site (excluding bird species) include common pipistrelle (*Pipistrellus pipistrellus*), noctule (*Nyctalus noctula*), whiskered bat (*Myotis mystacinus*), Natterer's bat (*Myotis nattereri*), brown long-eared bat (*Plecotus auritus*) and great crested newt (*Triturus cristatus*).
- A moderate array of bird species (including those listed under Schedule 1 and Schedule 2) have been recorded in the wider area. These include barn owl (*Tyto alba*), tawny owl (*Strix aluco*), little owl (*Athene noctua*), goshawk (*Accipiter gentilis*), hen harrier (*Circus cyaneus*), hobby (*Falco subbuteo*), kestrel (*Falco tinnunculus*), long-tailed tit (*Aegithalos caudatus*), coal tit (*Periparus ater*), house sparrow (*Passer domesticus*), fieldfare (*Turdus pilaris*), redwing (*Turdus iliacus*), starling (*Sturnus vulgaris*), song thrush (*Turdus philomelos*), marsh tit (*Poecile palustris*), chaffinch (*Fringilla coelebs*), great spotted woodpecker (*Dendrocopos major*) and curlew (*Numenius arquata*).
- No invasive (Schedule 9) species have been recorded within 1km of the site.
- Other notable species include European hedgehog (*Erinaceus europaeus*), palmate newt (*Lissotriton helveticus*), common frog (*Rana temporaria*), common toad (*Bufo bufo*) and freshwater pearl mussel (*Margaritifera margaritifera*).

Detailed species records lists can be supplied upon request

3.6 PRELIMINARY ROOST ASSESSMENT (PRA)

- A daytime inspection was undertaken on the 9th April 2018 to assess the potential of the structure(s) on the site to support roosting bats. A full description of those features considered suitable for roosting bats are described and illustrated using site photographs provided below.

B1 (workshop/ utility)

- The main feature of Plot A is an adjoined utility/ workshop building (**B1**) attached to the eastern aspect of an existing dwelling (**Image 3.4; Image 3.5**). **B1** can be split into two (2) approximate sections: **S1** (utility) and **S2** (workshop).
- **S1 (Image 3.11)** is immediately adjoined to the existing dwelling. It is of brick build, with a pitched roof, slate tiles and a plastered/ painted and lit interior, with an open roof space (no loft; **Image 3.12**). Externally and internally, **B1/ S1** is in excellent condition with no potential bat roost features identified. Five (5) vent tiles along the ridge were easily inspected from the ground using a high power torch and deemed as being shallow/ exposed and are not considered to constitute viable bat roosting habitat.
- **S2 (Image 3.13)** is immediately adjoined to **S1**. It is of brick build, with a timber frame, shallow-pitched roof and corrugated, cement-bonded roof. A very small unlined, slate-roofed section exists at the north-eastern corner. **S2** is partially-rendered and has no roof lining (**Image 3.14**). Externally and internally, **B1/ S2** is in average condition and relatively open in structure. No potential bat roost features were identified and it was generally noted that the current use of this section as a workshop, creating noise, vibration and dust, makes this section sub-optimal for bat roosting.

Image 3.11 B1 (S1 – utility section)



Image 3.12 Open and lit roof space inside **B1/ S1**



Image 3.13 B1 (S2 – workshop section)



Image 3.14 Typical view inside **B1/ S2**



- No evidence indicative of bat ingress/ egress was noted within either section of **B1**.
- **B1** is considered to offer 'negligible' bat roosting potential.
- The existing dwelling to which **B1** is adjoined (**Image 3.15**) was also subject to a brief PRA. This was found to be in excellent condition throughout, with flush brickwork, a tight roof and no gaps in the soffit boxes. No evidence indicative of bat ingress/ egress was found. Therefore the existing dwelling is deemed to offer 'negligible' bat roosting potential.
- It was noted that numerous large and mature oak (*Quercus spp.*) trees within a 100m radius of the proposed site footprint offer bat roosting potential far greater than that offered by the building(s) surveyed, by virtue of cavities, splits, major deadwood, hazard beams and torn-out limbs widely evident (**Image 3.16**).
- The near surrounds offer moderately-good bat commuting habitat, given the presence of field boundary hedgerows and mature trees.

Nesting Birds (buildings)

- No birds' nests were found in or on **B1** during the PRA and this building provides limited opportunities for nesting birds.
- **B1** therefore provides 'negligible' bird nesting potential.

Image 3.15 Existing dwelling to which **B1** is adjoined



Image 3.16 Nearby mature oak trees offer good potential bat roosting opportunities



3.7 SPECIES CONSTRAINTS

- Potential species constraints are detailed below, informed by the findings of the desk study combined with observed field signs or actual presence of protected species identified during the Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA).

Bats

- **B1** located on Plot A is considered to offer 'negligible' bat roosting potential. The existing dwelling to which **B1** is adjoined also offers 'negligible' bat roosting potential.
- No features deemed capable of supporting roosting bats are present on Plot B.
- The near surrounds offer moderately-good bat commuting habitat, given the presence of field boundary hedgerows and mature trees.
- Records for five (5) species of bat were retrieved within 1km of the site.

Legislation

- All species of British bat are listed as a European Protected Species (EPS) on Schedule 2 of the Conservation Regulations (Annex IV(a) to the Habitats Directive). This affords them strict protection under Regulation 43 of the Conservation of Habitats and Species Regulations 2017, making it an offence to:
 - i. Deliberately capture, injure or kill a bat;
 - ii. Deliberately disturb in a way that would significantly affect their local distribution or abundance, or affect their ability to survive, breed or rear young;
 - iii. Deliberately damage or destroy a roost; or
 - iv. Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or part thereof;
- Additional protection for bats is also afforded under the Wildlife and Countryside Act 1981 (as amended), making it an offence to intentionally or recklessly disturb bats whilst they are occupying a structure or place which is used for shelter or protection, or to obstruct access to this structure or place.

Recommendations

- No further survey(s) with regard to bat species is required.
- The provision of a minimum of two (2) Schwegler 1FR bat tubes, or equivalent, are recommended as an enhancement for bats within the new development(s). These may be integrated into the new garage/ new extension, provided they are installed at a height of no less than 4m and orientated in a south or southwest direction (**Image 3.17**).

Image 3.17 Examples of Schwegler 1FR bat tubes



- The provision of a minimum of one (1) 'Habibat' Triple Chambered Access Box or Schwegler 2F bat box (or equivalent), is recommended as further enhancement for roosting bats. This may be installed onto any suitably mature tree adjacent/ near to the site, on the client's land, provided it is installed at a height of no less than 4m and orientated in a south or southwest direction (**Image 3.18**).

Image 3.18 A Schwegler 2F bat box (left) and Habibat Triple Chambered Access Box (right)



- All bat boxes must be retained for the lifetime of the development and their exact location may be discussed with a suitably-qualified ecologist.
- Any artificial lighting during and post-development is to be directed away from any vegetated boundaries/ mature trees and all future external lighting will be of the Passive Infra-Red type, set on a short timer and orientated towards the ground. This is based on guidance from the BCT⁸.

⁸ Bats and Lighting in the UK (2009). Bat Conservation Trust.

Great Crested Newt

- A desk based assessment using OS maps and online mapping resources, in combination with the site visit, identified three (3) significant bodies of standing water (**WB1 – WB3**) within 250m of Plot A/ Plot B, as illustrated in **Figure 3.10**.

WB1

- **WB1** (SJ 33502 44732; **Image 3.19**; **Image 3.20**) is located ~16m north of Plot A/ ~41m north of Plot B, situated within the amenity garden constituting the larger site area. This small (<100m²) waterbody is set in amenity grassland, with gently-sloping grassed banks, shallow margins, a hedgerow running adjacent to the northern bank and several trees (including a mature oak) over-shading the southern bank. Several tussocks of soft rush (*Juncus effusus*) are present in the margins and common water crowfoot (*Ranunculus aquatilis*) dominates the open water areas.
- Four (4) adult male smooth newts were identified within **WB1** during the survey (**Image 3.21**), along with a small number of common toad (*Bufo bufo*) tadpoles.

WB2/ WB3

- Landowner permission to access **WB2** (SJ 33568 44893) and **WB3** (SJ 33575 44949) was not forthcoming.
- Given the distance of **WB2** and **WB3** from the plots (175m and 243m north of Plot A, and 197m and 265m north of Plot B, respectively), the small scale/ localised nature of the proposals and the small area of the plots, this is not considered to be a limiting factor and does not impact upon the recommendations made in this report.
- A Habitat Suitability Index (HSI) was run for **WB1** (**Table 3.22**). It was determined that **WB1** offers 'average' suitability for great crested newts (*Triturus cristatus*).
- Both Plot A and Plot B are considered to offer poor-quality terrestrial habitat for GCN, with greater quality habitat present adjacent to **WB1** (hedgerow).
- Sixteen (16) GCN records were obtained within 1km of the site, the nearest of which originate ~600m southeast of the site.

Image 3.19 WB1, a garden pond, showing eastern end



Image 3.20 WB1, looking towards the western end



Image 3.21 Male smooth newt identified in **WB1** (indicated)



Table 3.22 HSI assessment of **WB1**

Waterbody Reference	WB1
SI1 – Location	1
SI2 – Pond Area	0.2
SI3 – Permanence	0.9
SI4 – Water Quality	0.67
SI4 – Shade	1
SI6 – Fowl	1
SI7 – Fish	0.67
SI8 – Pond Count	1
SI9 – Terrestrial Habitat	0.33
SI10 – Macrophyte Cover	0.9
HSI score	0.69
Suitability	Average

Legislation

- Great crested newts are listed as a European Protected Species (EPS) on Schedule 2 of the Conservation Regulations (Annex IV(a) to the Habitats Directive). This affords them strict protection under Regulation 43 of the Conservation of Habitats and Species Regulations 2017, making it an offence to:

- i. Deliberately capture, injure or kill a GCN;
 - ii. Deliberately disturb GCN wherever they are occurring, in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or in the case of hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong;
 - iii. Deliberately take or destroy the eggs of a GCN; or
 - iv. Damage or destroy a breeding site or resting place of a GCN.
- Additional protection for all native species of amphibian is also afforded under the Wildlife and Countryside Act 1981 (as amended), making it an offence to intentionally or recklessly disturb GCN whilst they are occupying a structure or place which is used for shelter or protection, or to obstruct access to this structure or place.

Recommendations

- Owing to the low ecological value and small areas of the land within Plot A and Plot B, the relatively short expected timeframe of the development(s) and the small scale/ localised nature of the works (non-licensable, in the professional opinion of the ecologist, with passage of newts across the site the only perceivable risk), it is considered that no further phase 2 survey(s) with regard to GCN or other amphibian species are necessary provided the following mitigation strategy is undertaken:
 - Reasonable Avoidance Measures (RAM's) detailed in a rigid method statement for amphibians in **Section 4** of this report are to be followed during all development activities on both Plot A and Plot B, to mitigate against the risk of killing or injuring common species of amphibian known to occupy **WB1** (such as common toad – which is a UK BAP priority species) and as a precautionary measure should GCN be present;
 - Any works likely to impact upon GCN (such as ground works) are preferably to start no earlier than 30th September and finish no later than 1st March and when night time temperatures do not exceed 5°C (when newts are least active and unlikely to commute across the application site) – should this be unfeasible, a suitably-qualified ecologist must be present to supervise any sensitive works outside of this timeframe;
 - Any amenity lawns within Plot A/ Plot B and surrounding the site are to be maintained at a short sward height (<100mm), as is the current management, to retain these areas as poor terrestrial amphibian habitat;
 - The removal of any shrubs/ trees immediately north of **B1** on Plot A (*Leylandii*/ cherry laurel) and along the informal southern boundary of Plot B (apple trees) is to be undertaken when temperatures exceed 5°C (when newts are least likely to be hibernating) and under supervision from a suitably-qualified ecologist following a detailed hand search;

- The removal of any potential artificial refugia (such as fencing materials) from Plot B must be done so under supervision from a suitably-qualified ecologist following a detailed hand search;
 - **WB1** and its immediate surrounds are to be maintained as good quality habitat for amphibians by way of tree pruning along the southern/ eastern edges as appropriate (to prevent future over-shading of **WB1**) and creation of a minimum of one (1) hibernaculum/ habitat pile at the western end;
 - Monitoring visits by an appointed ecologist will ensure compliance with this strategy.
- The above mitigation measures are deemed sufficient to negate the need for any further survey(s) with regard to GCN/ amphibians. Should this mitigation strategy become unworkable, impractical or insufficient (in the opinion of the appointed ecologist) at any point during the development, an alternative must be designed and implemented.

Nesting Birds

- The small groups of shrubs/ trees on Plot A/ Plot B provide 'low' bird nesting potential, although no birds' nests were found.
- **B1** on Plot A offers 'negligible' bird nesting potential.
- A moderate array of bird species records were retrieved from the local area.

Legislation

- All wild birds, their nests and eggs are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended), this makes it an offence to:
 - i. Intentionally kill, injure or take any wild bird;
 - ii. Take, damage or destroy the nest of any wild bird while it is in use or being built;
 - iii. Take, damage or destroy the egg of any wild bird; or
 - iv. To have in one's possession, or control, any wild bird (dead or alive) or egg or any part of a wild bird or egg.
- In addition, further protection is afforded to those wild bird species listed on Schedule 1, prohibiting any intentional or reckless disturbance to these species while it is nest building, or at a nest containing eggs or young, or to recklessly disturb the dependent young of such a bird.

Recommendations

- Any shrub/ tree removal works are to be timed to occur outside the bird breeding season (this is February – August). In the event that works are required within this time period then inspections for nests should be undertaken immediately prior to the start

of any works. Should any active nest be found, works shall cease and a 5m buffer is to be formed until subsequent checks by a suitably-qualified ecologist prove the absence of nesting birds. *Given the prescribed timeframe in the GCN/ amphibian mitigation strategy, an ecologist may perform a nesting bird check AND amphibian hand search concurrently, immediately prior to the removal of any vegetation.*

- A minimum of two (2) Schwegler Woodcrete (1B) boxes, or equivalent, are to be provided as an enhancement for common passerine bird species on the site (**Image 3.23**). These are to be installed onto any suitably mature trees adjacent to the application site, or can be installed upon a high fence, at a height of no less than 2m and orientated in a southerly or westerly direction.

Image 3.23 An example of Schwegler 1B Woodcrete boxes



Reptiles

- Both Plot A and Plot B are considered to offer poor-quality reptile habitat, given the lack of feeding and refuge habitat.
- The larger site forms some connectivity with the wider landscape, by way of hedgerows.
- No records for reptile species were obtained within 1km of the site.

Legislation

- All species of native UK reptile, including common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*), grass snake (*Natrix natrix*) and adder (*Vipera berus*), receive some degree of protection from harm under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:
 - i. Intentionally kill or injure any UK native reptile; or
 - ii. Sell, barter, exchange, transport for sale or advertise to sell or to buy any UK native reptile.

- Full protection under both the Conservation of Habitats and Species Regulations 2017 and Wildlife and Countryside Act, 1981 (as amended) is afforded to sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*).

Recommendations

- No further survey with regard to reptile species is considered necessary and reptiles are not considered a constraint to the proposals.

Badger

- During the detailed PEA, no field signs indicating use of Plot A/ Plot B or the larger site by badger(s) were noted.
- No records for badger were obtained within 1km of the site.

Legislation

- Badgers and their setts are specifically protected under the Protection of Badgers Act of 1992. Under this legislation it is an offence to:
 - i. Wilfully kill, injure or take, or attempt to kill, injure or take, a badger;
 - ii. Possess a dead badger or any part or derivative of a badger;
 - iii. Cruelly ill-treat a badger;
 - iv. Dig for a badger;
 - v. Damage a badger sett or any part of it;
 - vi. Destroy a badger sett;
 - vii. Obstruct access to, or any entrance of, a badger sett;
 - viii. Cause a dog to enter a badger sett; or
 - ix. Disturb a badger when it is occupying a badger sett.

Recommendations

- No further survey with regard to badgers is considered necessary and this species is not considered a constraint to the proposals.

Other Species

- No invasive plant species were identified on or near to the application site.

- No further species pertinent to this study were found and no field signs of other protected or notable species were observed during the PEA.

Further Enhancements

- New, native hedgerow planting along the stock-proof fence bounding the access driveway to the east of Plot A/ North of Plot B is recommended as further enhancement of the wider area.
- New hedgerows should be species-rich and utilise native species of local provenance which will include the following:
 - Blackthorn (*Prunus spinosa*)
 - Hawthorn (*Crataegus monogyna*)
 - Field maple (*Acer campestre*)
 - Field rose (*Rosa arvensis*)
 - Guelder-rose (*Viburnum opulus*)
 - Elder (*Sambucus nigra*)
 - Hazel (*Corylus avellana*)
 - Spindle (*Euonymus europaea*)
 - Crab apple (*Malus sylvestris*)
- Hedgerow planting will be provided by installing bare rooted stock spaced approximately 30cm apart in two staggered rows to allow six whips per metre, and using supportive canes and plastic spiral guards.

4. METHOD STATEMENT (GCN/ Amphibians)

4.1 IMPACT OF THE WORKS

- Groundworks, potential limited vegetation clearance and general disturbance synonymous with the demolition of a building and subsequent erection of a new extension within the same footprint and erection of a detached garage on amenity grassland.

4.2 REASONABLE AVOIDANCE MEASURES (RAM's)

- The following sensitive working methodologies are recommended to ensure impacts upon common species of amphibian, and GCN (if present), are avoided during the period of the proposed works:
 - An experienced Ecological Clerk of Works (ECW) shall be appointed to ensure RAM's are enforced;
 - A copy of this method statement must be kept on site;
 - A careful hand search for GCN will be undertaken by the appointed ECW prior to removal of any potential refugia/ vegetation on site;
 - Any excavations will be back-filled on the same day as excavation, or checked by the ECW immediately prior to backfilling;
 - A means of escape, such as a wooden ramp, will be provided in all excavations that cannot be backfilled on the same day or alternatively, all excavations should be well-covered with plywood;
 - No piles of loose construction materials are to be created during works – all material will be kept on hardstanding, stored on pallets, removed immediately from the site or checked by an ECW prior to being removed;
 - Any site compound is to be sited upon existing areas of hardstanding on the site;
 - In the event GCN are discovered at any time during the development, works will immediately halt and Pearce Environment Ltd. will be contacted for advice;
 - Contractors are not to handle GCN unless informed to do so by the ECW;
- Should protected/ notable species be discovered during the works, all works should halt and advice from Pearce Environment will be sought.
- Subject to the implementation of the RAM's described above, no significant impacts upon protected/notable species potentially present on site are considered likely to arise.

5. CONCLUSIONS

5.1 SUMMARY OF THE SITE'S ECOLOGICAL SIGNIFICANCE

- The application site, set in a rural environment, consists of two (2) smaller plots (Plot A and Plot B), composed of built structures (**B1** – a workshop/ utility adjoined to an existing dwelling), hardstanding, shrubs/ trees, amenity grassland and fencing.
- B1**, situated on Plot A, is considered to offer 'negligible' bat roosting potential, with a number of mature trees near to application site noted to offer far greater bat roosting opportunities. The near surrounds offer moderately-good foraging and commuting habitat for bats, notably along the hedgerows/ field boundaries.
- The small groups of shrubs/ trees on both Plot A and Plot B provide 'low' nesting potential, although no birds' nests were found. **B1** provides 'negligible' bird nesting potential.
- Three (3) significant standing waterbodies (**WB1** – **WB3**) were identified during the desktop study, within a 250m zone of influence. **WB1** is a garden pond situated near to Plot A/ Plot B and known to contain common amphibian species. **WB2/ WB3** were not assessed. The terrestrial habitat present on both Plot A/ Plot B is deemed as being of poor quality for amphibian species.
- Both Plot A/ Plot B provide poor quality reptile habitat, given the absence of feeding and refuge habitat. There is some connectivity to the wider landscape, via hedgerows.
- No other habitat features or evidence of pertinent protected species were identified during the PEA and PRA (**Table 5.1**).

Table 5.1 Summary of the status of protected/ notable species and sites on, and within 1km of, the site

Species/ Group	Local Records	Suitable Habitat on Site	Field Signs	Recommendations
Habitats/ Designations	No	N/A	N/A	New hedgerow planting to enhance the wider area
Invasive Plants	No: none within 1km	N/A	No	<i>No further action required</i>
Bats	Yes: common pip, noctule, whiskered, Natterer's + BLE within 1km	No: B1 (Plot A) has 'negligible' bat roosting potential with greater roosting opportunities in trees off-site + moderately-good foraging/ commuting habitat in near surrounds	No	Sensitive lighting scheme + bat box provision as an enhancement

Species/ Group	Local Records	Suitable Habitat on Site	Field Signs	Recommendations
Nesting Birds	Yes: moderate assemblage within 1km	Yes: 'low' nesting potential in small groups of shrubs/ trees (Plot A and Plot B)	No	Sensitive de-veg works scheme + bird box provision as an enhancement
Barn Owl	Yes: within 1km	No	No	<i>No further action required</i>
Badgers	No: none within 1km	No	No	<i>No further action required</i>
Amphibians (including GCN)	Yes: GCN, palmate newt, smooth newt + common frog within 1km	Yes: 3X ponds within 250m (WB1 – WB3) but poor terrestrial habitat on Plot A/ Plot B	Yes: smooth newt/ common toad evidence in WB1	Detailed mitigation scheme (including works timing restrictions/ supervision from an ecologist/ maintenance of poor GCN habitat on- site/ hibernacula creation/ pond management), works to follow RAM's detailed in a method statement in Section 4 + compliance checks <u>OR</u> Further survey may be required
Reptiles	No: none within 1km	No: poor quality habitat but some connection to wider landscape	No	<i>No further action required</i>
Otter	No: none within 1km	No	No	<i>No further action required</i>
Water Vole	No: none within 1km	No	No	<i>No further action required</i>
Dormice	No: none within 1km	No	No	<i>No further action required</i>
White-clawed Crayfish	No: none within 1km	No	No	<i>No further action required</i>
Other Notable Specie	Yes: hedgehog + freshwater pearl mussel within 1km	No	No	<i>No further action required</i>

- Subject to the implementation of those provisions, further survey recommendations and working methodologies given in this report, it is considered that any detrimental effects regarding protected/ notable species can be avoided and/ or mitigated for.
- Should the development proposals be altered significantly, such that changes to the working area and/ or duration of the works arise, then a re-assessment of the likely impacts arising by a suitably experienced ecologist will be required.

6. BIBLIOGRAPHY

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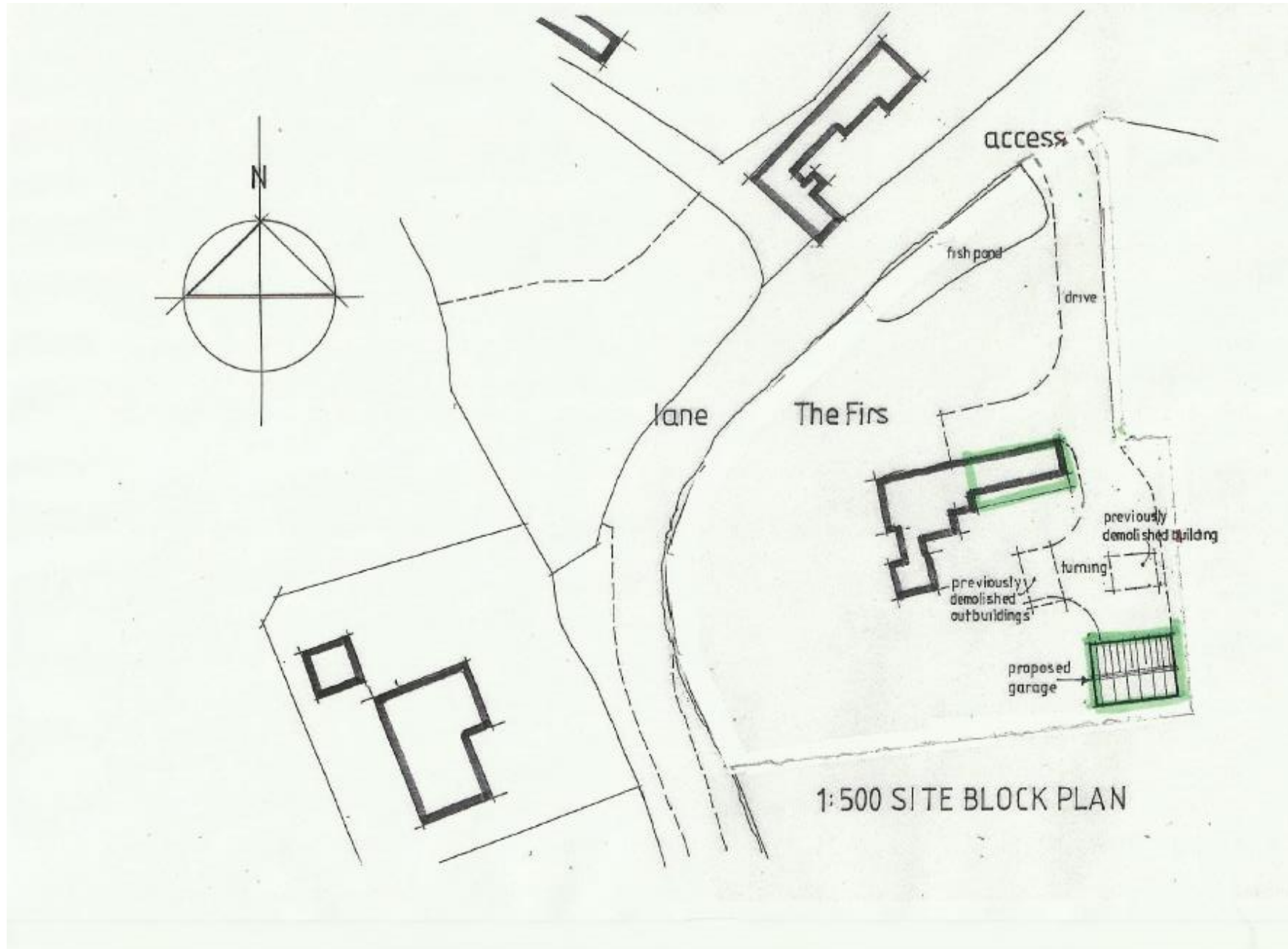
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Appendix 1 Site Plan (provided by the client)



Appendix 2 Tables 4.1 and 7.3 from *Bat Surveys for Professional Ecologist: Good Practice Guidelines*⁹

Table 4.1 Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions^a 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^b). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.^c	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated 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.
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 ^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	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.
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 ^a and surrounding habitat.	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.

^a For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

^b Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

^c This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

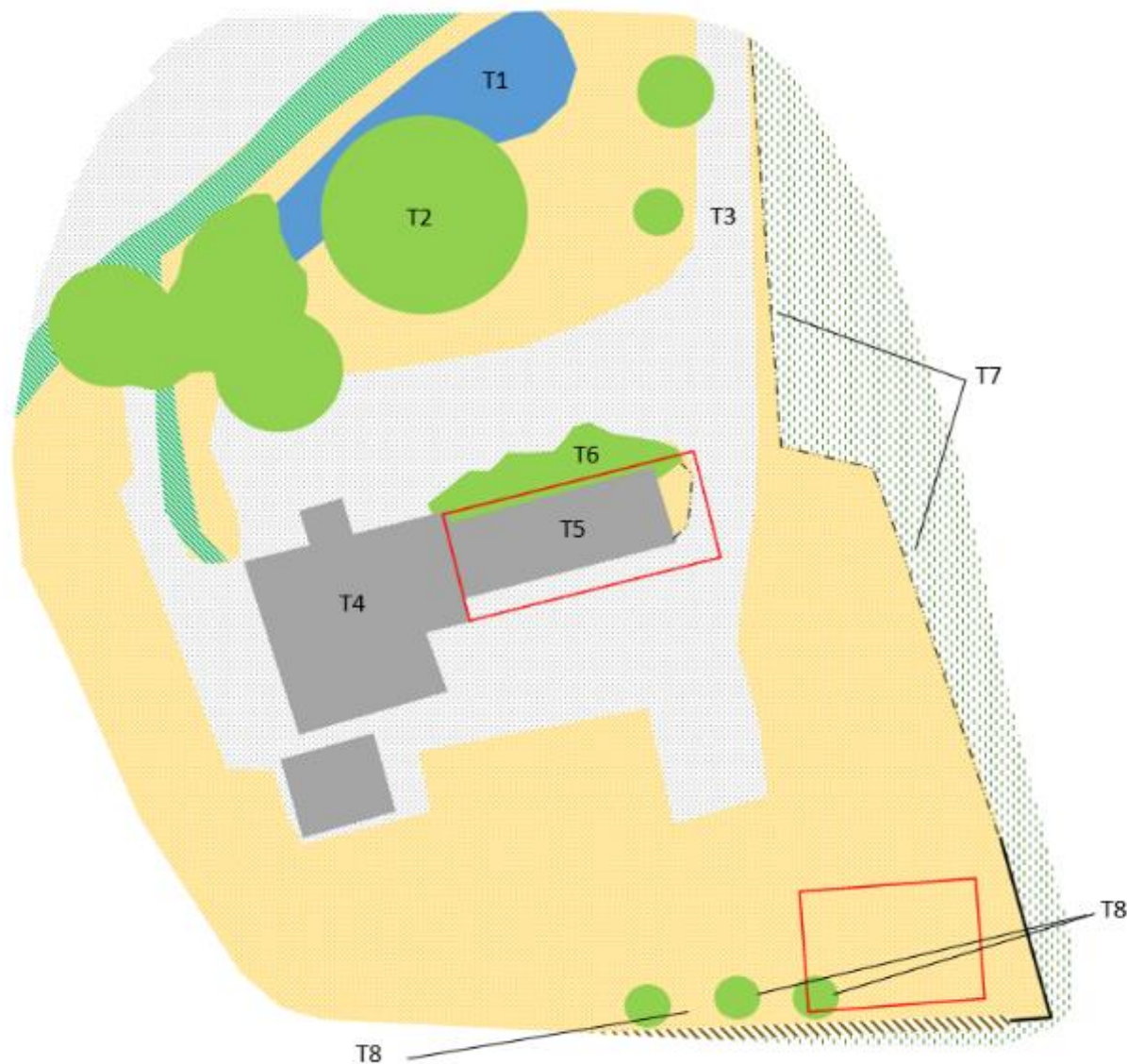
Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey^a (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.^b

⁹ Collins J. (Ed.) (2016) *Bat Surveys for Professional Ecologist: Good Practice Guidelines* (3rd Ed.) The Bat Conservation Trust, London.

Plan 1 Phase 1 Habitat Plan

This plan has been prepared using freely-available online mapping resources

This plan is indicative, locations of all features are approximate and not drawn to scale



KEY

Application site	
Building	
Stock-proof fencing	
Brick wall	
Intact hedgerow	
Defunct hedgerow	
Improved grassland	
Amenity grassland	
Standing water	
Hardstanding/ bare ground	
Trees/ shrubs	

PROJECT The Firs

TITLE Phase 1 Habitat Plan

CLIENT Mr S Fisher

DRAWN BY JM 12/04/2018

VERSION 01

PearceEnvironment LTD

TARGET NOTES

T1 – **WB1** (SJ 33502 44732) a garden pond known to contain smooth newt and common toad

T2 – One of numerous mature oak trees off-site but providing greater bat potential than any built structure(s) on-site

T3 – Existing access driveway into the property

T4 – Existing dwelling, to which **B1** is adjoined, with 'negligible' bat roosting potential

T5 – **B1**, constituting the bulk of Plot A, with 'negligible' bat roosting potential and 'negligible' bird nesting potential

T6 – Small stand of *Leylandii* cherry laurel with 'low' bird nesting potential on Plot A

T7 – Fence line along which new hedgerow planting is recommended as an enhancement for the wider area

T8 – Apple trees on Plot B with 'low' bird nesting potential

T9 – A small collection of fencing materials on Plot B