

Preliminary Ecological Appraisal (PEA) Report

Project: Bowling Bank Farm

Client: Mr D Hopkins

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EXECUTIVE SUMMARY

The contents of this report detail the findings of a Preliminary Ecological Appraisal (PEA) at Bowling Bank Farm, Worthenbury, LL13 0AW (hereafter referred to as '**the site**') to inform a planning application for the proposed conversion of land to glamping. The site is centred on approximate OSGR SJ 42593 45988.

The application site, set within a rural environment, constitutes dense scattered semi-mature trees (**Plan 1; T1**), improved and unmanaged grassland (**T2**), mature intact hedgerow (**T3**), mature gappy hedgerow (**T4**), and mature trees (**TR#**). The site also contains two (2) ponds (**Pond 1** and **Pond 8**). Two (2) dilapidated chicken coups (**B1 – B2**) are also located on site.

The site as a whole offers 'negligible' bat roosting opportunity. However, good foraging and commuting opportunity is present throughout owing to large linear hedgerows and scattered trees. The grassland further provides foraging opportunity.

Bat records exist within 1km for common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*P. pygmaeus*) and noctule (*Nyctalus noctula*).

Bats are not considered a constraint to the proposed development. However, it is recommended that bat box provision is incorporated to enhance the ecological value of the site.

No bird nests were observed during the survey. However, 'high' nesting bird opportunity is present owing to the abundance of vegetation and mature hedgerows on site.

Any vegetation removal is to be undertaken outside the bird nesting season (this is February – August, inclusive).

If vegetative works are required within this period then an ecologist must be present. If active nests are found then a 5m buffer is to be established around the nest and works may not take place here until it is proven that birds have fledged.

Where the cutting of long grass is required in this period then an ecologist must be present to undertake a check for ground nesting birds.

Nine (9) significant bodies of standing water exist within a 250m radius of the site. Two (2) ponds (**Pond 1** & **Pond 4**) resulted as positive for the presence of great crested newts (GCN; *Triturus cristatus*) following eDNA (Environmental DNA) sample testing.

Pond 1 is located on site (SJ 42711 45978).

Pond 4 is located approximately 84m south of the site (SJ 42773 45772).

Pond 2, Pond 3 and **Pond 9** were dry at the time of survey.

The remaining ponds (**Pond 5, Pond 6, Pond 7, Pond 8**) scored as negative for the presence of GCN.

No records were retrieved for GCN or reptiles within 1km of the site.

Strict Reasonable Avoidance Measures (RAM's) are to be followed with regard to GCN and are deemed as sufficient to mitigate any potential impacts upon herptiles on site. This includes monthly monitoring visits from

an ecologist to ensure grass within areas proposed for tents is maintained at a short sward height (below 150mm).

Any artificial lighting during and post-development is to be directed away from site boundaries/ on site linear features and all future external lighting will be of the Passive Infra-Red type, set on a short timer and orientated towards the ground.

1. INTRODUCTION

1.1 COMMISSION AND PROPOSALS

- Pearce Environment Ltd were commissioned by Mr D Hopkins to undertake a Preliminary Ecological Appraisal (PEA) at Bowling Bank Farm, Worthenbury, LL 13 0AW (hereafter referred to as '**the site**'). The site is centred on approximate Ordnance Survey Grid Reference (OSGR) SJ 42593 45988.
- The current document aims to inform a planning application for the proposed conversion of land to glamping.

1.2 AIMS

- This report sets out the findings of a desk-based study, site-based study and Preliminary Ecological Appraisal (PEA) undertaken by Pearce Environment Ltd during June 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 the NPPF¹, with specific focus on great crested newts, bats, nesting birds, reptiles and badgers;
 - 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 Department for communities and Local Government, (2012). *National Planning Policy Framework*

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) and supports the recommendations and conclusions set out in **Sections 3** and **4** of 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)
Cofnod ³	• Protected/ UK BAP species records (1km) • Statutory designations (1km) • Non-statutory designations (1km)
Freely-available online data sets (NBN Atlas ⁴)	• Protected/ UK BAP species records (1km)

- The search areas described above and resources used are considered to be sufficient to assess the potential for the proposal to affect protected species and designations of conservation concern. All pertinent information obtained during the desk study is referenced within **Section 3**, **Section 4** and **Appendix 2** 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 PEA was undertaken during a daytime visit on the 4th June 2018. This survey was carried out at a temperature of 23°C and in partly cloudy and dry conditions. This time of year is considered to be within the optimal period for undertaking a PEA.
- The survey was performed by Mark Morgan BSc (hons), an experienced ecologist and holder of Natural England (NE) licence for great crested newts (licence number 2017-32019-CLS-CLS). Mark

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

³ Cofnod – Local Environmental Records Centre for North Wales website (www.cofnod.ord.uk)

⁴ National Biodiversity Network, 2017 (<https://records.nbnatlas.org/explore/your-area>)

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

possesses a 1st class degree in Plant Biology from the University of Aberystwyth, with expertise in bats, great crested newts and badgers.

2.3 LIMITATIONS

- All external aspects of the site were fully accessible during the survey.
- Whilst every effort is made 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: Trees

- An assessment from the ground of any suitable tree(s) was undertaken to determine their potential to support roosting bats. All trees examined were categorised based on the number and types of features known to be suitable to support roosting bats, summarised in section 6.2.4 and classified in Table 4.1 (**Appendix 1**) of '*Bat Conservation Trust's Good Practice Guidelines*'⁶. These features include cracks and splits in limbs, cavities, woodpecker holes, loose bark and thick-stemmed ivy. Where appropriate, these features were assessed using binoculars.
- Recommendations for further survey requirements are based on guidelines summarised in Table 7.3 (**Appendix 1**).

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.

eDNA Sampling

- The technique of using eDNA to record species occupancy in ponds (including GCN) was utilised under the current study. The technique involves taking individual water samples from ponds and testing for traces of species DNA within the water.
- GCN DNA degrades in a pond within 20 days, so a positive result indicates recent habitation of the species.
- All pond samples are then sent to a laboratory for DNA analysis.
- The technique aims only to indicate presence or likely absence and does not determine population numbers.
- Appropriate biosecurity measures were taken between pond visits, where necessary.

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

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.
- An assessment from the ground of all trees/ boundary vegetation located on or immediately adjacent to the site was undertaken using the PEA, to identify the presence of habitat/ features suitable for nesting birds.
- A search for active/ disused birds' nests was undertaken, where appropriate.
- It was noted that the survey was undertaken at the onset of the bird nesting season where birds may currently not be nesting.

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, where necessary.

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 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

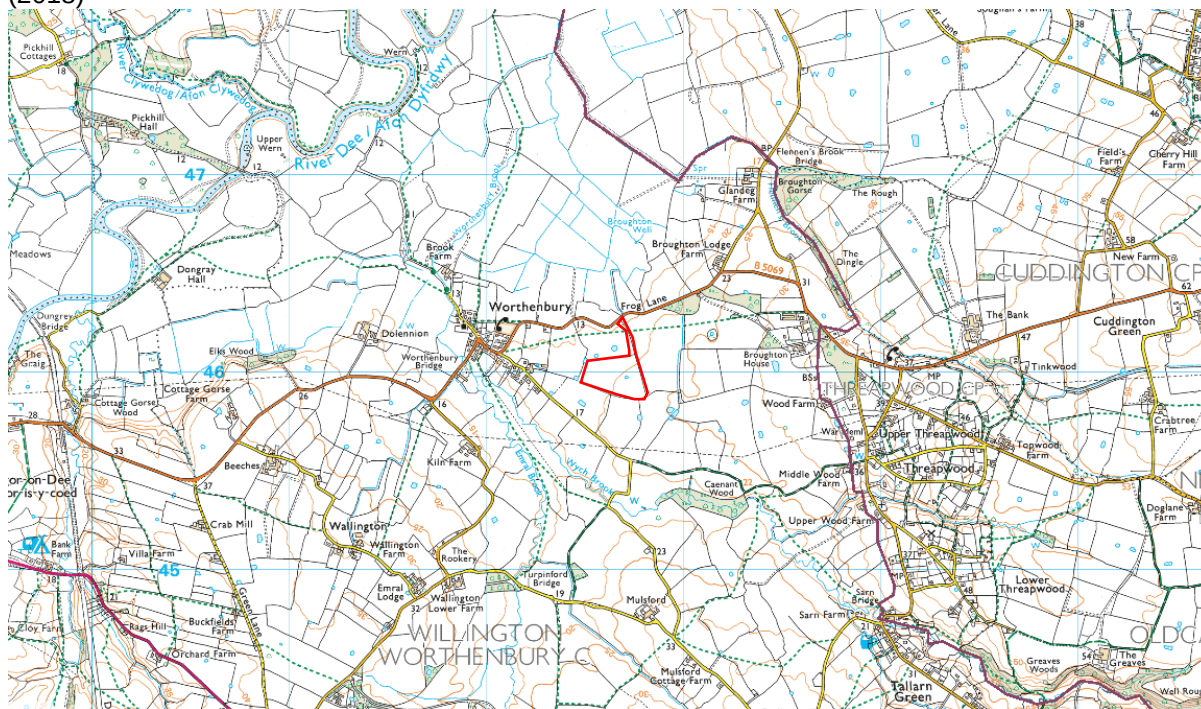
- Observations of any other notable species of flora and fauna were noted during the PEA.

3. RESULTS AND RECOMMENDATIONS

3.1 SITE DESCRIPTION

- The application site is set within a rural environment, located ~12 km southeast of Wrexham town (**Figure 3.1**).

Figure 3.1 Site location and survey area (outlined in red), reproduced using freely-available online mapping resources (2018)



- The site is directly surrounded by pasture in all directions with scattered property located further to the west (**Figure 3.2**).
- The site itself (~0.7 acres) constitutes a residential property and associated outbuildings (all buildings are exclusive of the development). The following range of broad habitat features are present on site (**Plan 1**):
 - Improved, unmanaged grassland;
 - Scattered trees;
 - Mature intact and gappy hedgerow;
 - Ponds; and
 - Built structures.
- Existing access to the site exists through Bowling Bank Farm to the west of the site.

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



3.2 BROAD HABITATS

Improved Grassland

- The site is dominated by improved grassland with a low forb and grass diversity. Common species noted within the mixture include (**Image 3.4**):

Yorkshire Fog
Common Poppy
Creeping Buttercup
White clover
Spear Thistle
Marsh Thistle

Holcus lanatus
Papaver rhoeas
Ranunculus repens
Trifolium repens
Cirsium vulgare
C. palustre

- Small glades of short-mown grass are scattered throughout the site (**Image 3.5**).

Scattered Trees

- The entirety of the site contains scattered trees throughout, mostly of the semi-mature and immature age classes. Common species include (**Image 3.6**):

Crack Willow
Goat Willow
Pedunculate Oak
Sessile Oak
Silver Birch
Field Maple

Salix fragilis
S. capraea
Quercus robur
Q. petraea
Betula pendula
Acer campestre

Ash

Fraxinus excelsior

Hedgerow and Site Boundaries

- Mature hedgerow surrounds site boundaries to the north, south and east, and is approximately 8m in width and 12m in height (**Image 3.7**) Hedgerow species include:

Hawthorn
Blackthorn
Dog Rose
Elder
Field Maple
Ash

Crataegus monogyna
Prunus spinosa
Rosa canina
Sambucus nigra
Acer campestre
Fraxinus excelsior

- A short span of gappy hedgerow was observed towards the south-eastern portion of the site (**Image 3.8**).
- A mature pedunculate oak tree (**TR1**) exists within the hedgerow to on the southern boundary (SJ 42548 45922) (**Image 3.9**).
- No formal feature determines the western site boundary, where recent mechanical disturbance is evident. A semi-dry manmade ditch has been recently created which extends south from **Pond 8** and passes within 1m of a mature oak tree (**TR2**; SJ 42473 45995) (**Image 3.10**; **Image 3.11**).

Ponds

- Two (2) ponds (**Pond 1** & **Pond 8**) are located on site. The ponds were assessed for great crested newt presence and are details, among others, later within this report.

Built Structures

- Two (2) built structures are located on site towards the south-western portion of the site. **B1** and **B2** are dilapidated former chicken coups, offering negligible bat roosting potential (**Image 3.12**).

Image 3.4 (a) Poppy, creeping buttercup and (b) Yorkshire fog within the grassland mix



Image 3.5 Glades of mown grass scattered throughout the site



Image 3.6 (a) Crack willow, (b) field maple and (c) immature oak



Image 3.7 (a) Hedgerow along the southern boundary, (b) mature hedgerow on the northern boundary



Image 3.7 Gappy hedgerow along the south-eastern site boundary



Image 3.8 Mature oak tree (TR1) in southern hedgerow



Image 3.9 Semi-dry manmade ditch extending from **Pond 8** along western site boundary



Image 3.10 Mature oak (TR2) on western boundary



Image 3.11 Dilapidated chicken coups to the west of the site (B1 & B2)



3.3 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

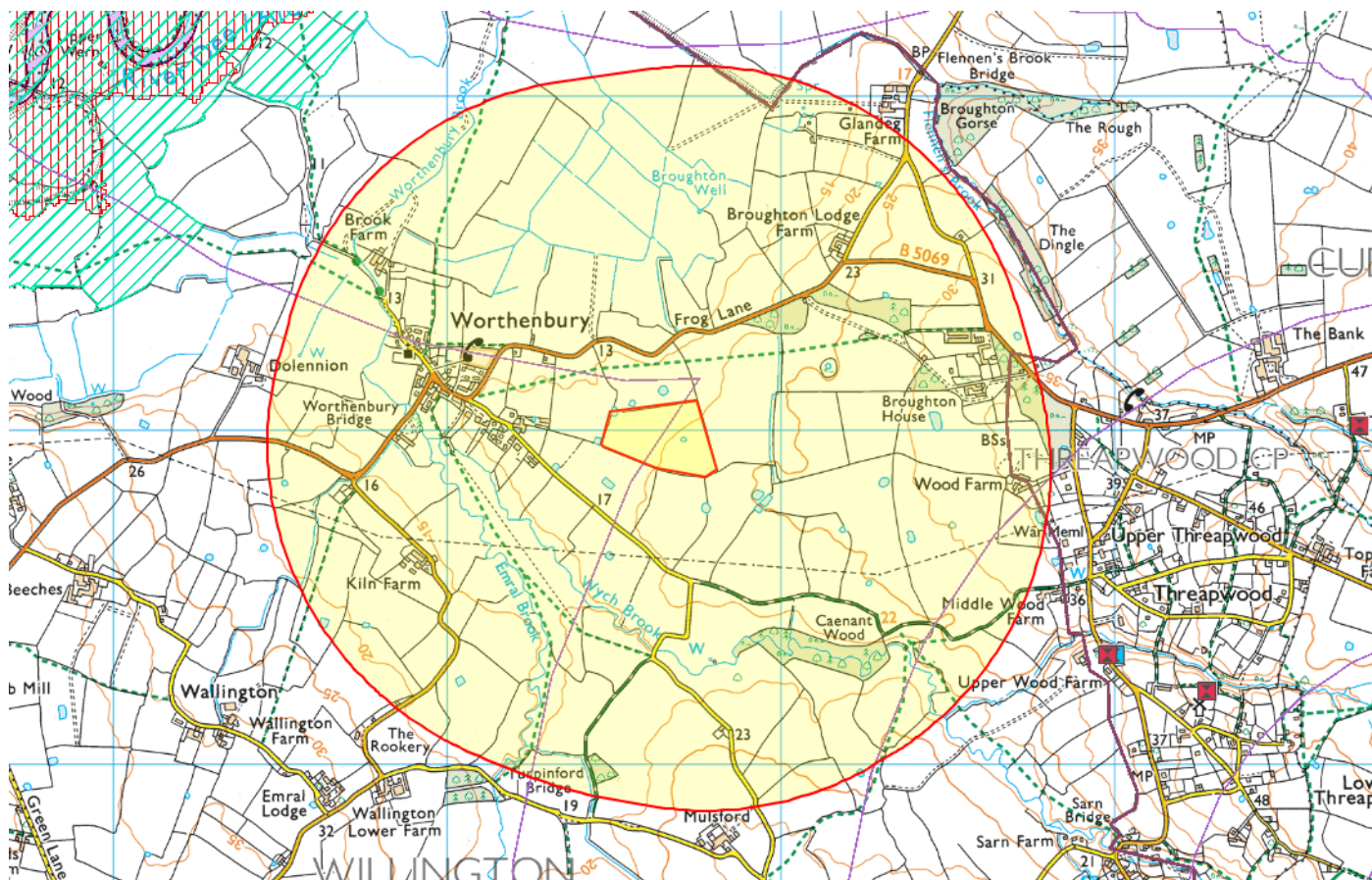
- Sites of Special Scientific Interest (SSSIs)
- National Nature Reserves (NNRs)

Local level statutory designations

- Local Nature Reserves (LNRs)

- A review of information obtained from SEDN identified no statutory designations of conservation concern within 1km of the site (**Figure 3.12**).

Figure 3.12 Proximity of statutory designations to the site, reproduced using freely-available online resources (2018). No sites of conservation concern were identified within 1km of the site



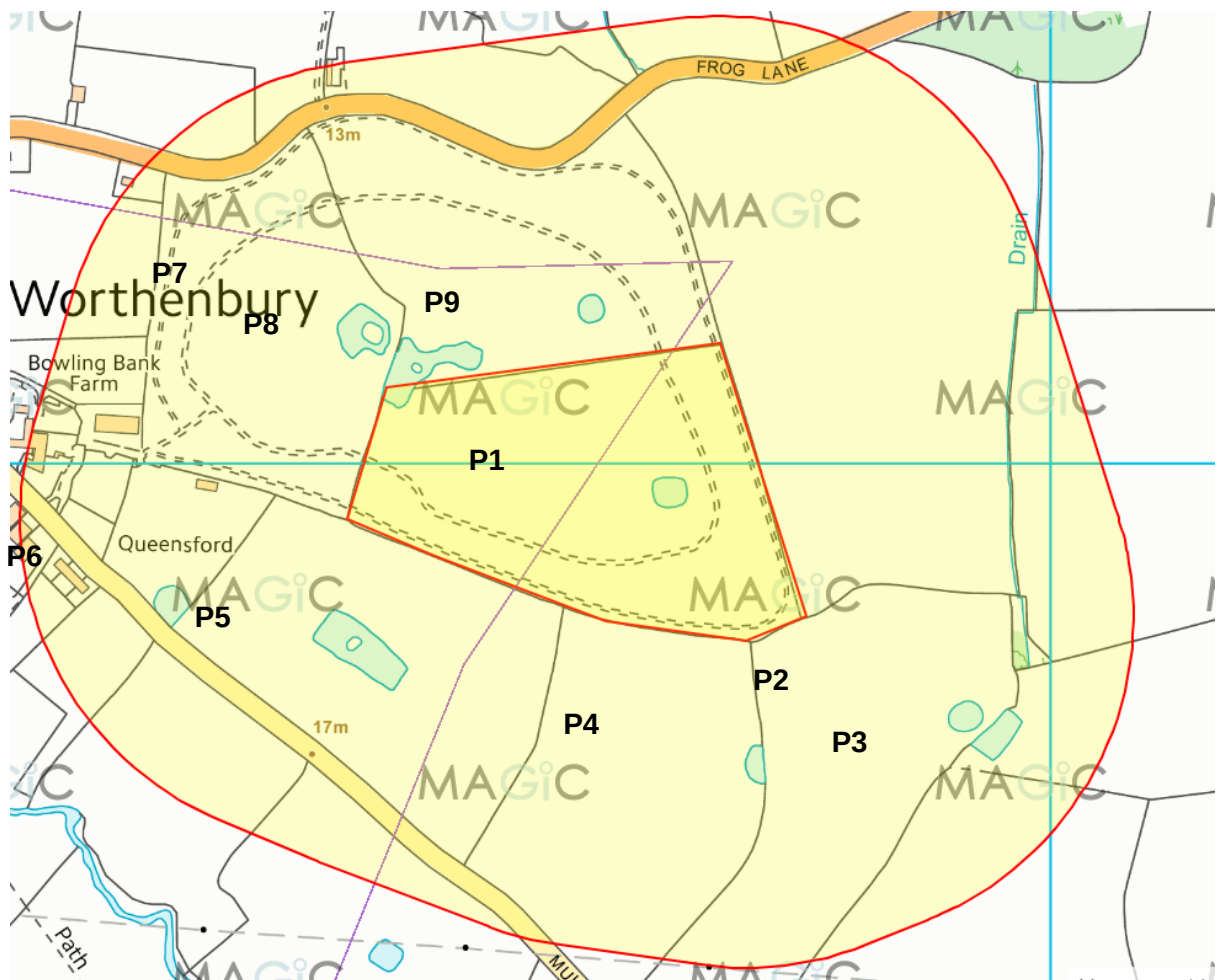
Non-Statutory Designations

- The desktop search did not identify the presence of any non-statutory designations within 1km of the site.

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 four (4) significant bodies of standing water within a 250m zone of influence (**Figure 3.14**).
- No further habitats of importance were identified during the desk study.

Figure 3.14 Proximity of standing waterbodies within 250m of the proposed application site, reproduced using freely-available online resources (2018). Nine (9) water bodies were found



3.4 SPECIES RECORDS

- A database search of a 1km radius surrounding the site during the course of the desk study was undertaken (**Appendix 2**).
- Protected species of mammal include:

Common pipistrelle	<i>Pipistrellus pipistrellus</i>
Soprano pipistrelle	<i>P. pygmaeus</i>
Noctule	<i>Nyctalus noctula</i>
Badger	<i>Meles meles</i>
Water Vole	<i>Arvicola amphibius</i>
Otter	<i>Lutra lutra</i>

- No species of herptiles (amphibians and reptiles) have been recorded within 1km.
- A moderate array of birds has been recorded in the wider area. Bird species recorded and listed under Schedule 1 and Schedule 2 of the Wildlife and Countryside Act 1981, include:

Kingfisher	<i>Alcedo atthis</i>
Barn owl	<i>Tyto alba</i>
Red Kite	<i>Milvus milvus</i>
Canada goose	<i>Branta canadensis</i>
Mallard	<i>Anas platyrhynchos</i>

- Invertebrate species listed under Schedule 5 of the Wildlife and Countryside Act 1981 include:

Silver-studded Blue	<i>Plebejus argus</i>
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- Invasive, non-native plant species listed under Schedule 9 recorded within 1km of the site include:

Japanese knotweed	<i>Fallopia japonica</i>
Rhododendron	<i>Rhododendron ponticum</i>
Monbretia	<i>Crocasmia x crocosmiiflora</i>
Himalayan Balsam	<i>Impatiens glandulifera</i>
Grey squirrel	<i>Sciurus carolinensis</i>
American Mink	<i>Neovison vison</i>

Detailed species records lists can be supplied upon request

- Species recorded while on site can be seen in **Table 3.15**.

Table 3.15 A list of species observed during the PEA

Species / Sex	Location	Activity
Woodpigeon (<i>Columba palumbus</i>)	Oversite	Flying through site
Chiffchaff (<i>Phylloscopus collybita</i>)	Unknown	Singing, not seen
Robin (<i>Erithacus rubecula</i>)	Unknown	Singing, not seen
Blackbird (<i>Turdus merula</i>) ♀ ♂	North-eastern boundary Southern hedgerow	Flying low into hedgerow
Common blue damselfly (<i>Enallagma cyathigerum</i>)	Pond 8	Upon pond-side vegetation
Rabbit (<i>Oryctolagus cuniculus</i>)	South of site	Running east through hedgerow
Sparrowhawk (<i>Accipiter nisus</i>)	Centre of site	Flying through site, low
Jackdaw (<i>Corvus monedula</i>)	Frequently passing over site	
Wren (<i>Troglodytes troglodytes</i>)	Near pond 8	Singing, not seen
Blue tit (<i>Cyanistes caeruleus</i>)	Unknown	Singing, not seen
Magpie (<i>Pica pica</i>)	Near pond 8	Within trees
Buzzard (<i>Buteo buteo</i>)	Centre of site	Flying through the site, low
Chaffinch (<i>Fringilla coelebs</i>)	Southwest of site	Within mature trees
Dunnock (<i>Prunella modularis</i>)	Unknown	Singing, not seen
Tree bumblebee (<i>Bombus hypnorum</i>)	Centre-west of site	Foraging within flowers

3.5 SPECIES CONSTRAINTS AND RECOMMENDATIONS

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

- The site offers low roosting potential within mature trees located on site.
- Good foraging and commuting potential is provided on site in the form of abundant vegetation, large, linear hedgerows and water sources.

Legislation (bats)

- 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:
 - Deliberately capture, injure or kill a bat;
 - Deliberately disturb in a way that would significantly affect their local distribution or abundance, or affect their ability to survive, breed or rear young;
 - 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 (bats)

- No mature trees (oaks) are to be removed under the development under any circumstances.
- As a form of ecological enhancement two (2) Schwegler 2F bat box (**Image 3.16**), or equivalent, are to be incorporated into the development.
- Bat boxes are to be installed onto mature trees at a height of no less than 4m and orientated in a south or southwest direction, where possible. Bat boxes must be retained for the lifetime of the development. Their exact location may be discussed with a suitably-qualified ecologist if necessary.
- Any artificial lighting during and post-development is to be directed away from any vegetated boundaries/ hedgerows 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 BCT⁷.

Image 3.16 Example of Schwegler 2F bat box



Great Crested Newt

- A desk-based assessment using OS maps and online mapping resources, in combination with the site visit, identified nine (9) significant bodies of standing water within 250m of the site, as illustrated in **Figure 3.14**. A summary of each pond and its location can be seen in **Table 17**.
- No records for GCN exist within 1km of the site.

⁷ *Bats and Lighting in the UK* (2009). Bat Conservation Trust.

Table 3.17 The location, distance to site and comments on ponds within 250m of the site

Pond Number	Location	Distance to site	Comments
1	SJ 42714 45977	On site	20m x 15m. No shade. Well vegetated. Pondweed and reed mace. Positive eDNA
2	SJ 42937 45805	142m southeast	DRY
3	SJ 42960 45794	168m southeast	DRY
4	SJ 42775 45768	80m south	Fenced from stock. Reed mace, pondweed, water mint. Positive eDNA
5	SJ 42477 45853	72m southwest	40m x 15m. Pondweed, yellow flag iris, rushes, island in centre of pond. Waterfowl present. Negative eDNA
6	SJ 42329 45887	138m southwest	100m ² . Mallard. Marginal vegetation, duckweed, poached by livestock. Negative eDNA
7	SJ 42468 46087	40m northwest	Recently disturbed land drainage tunnel. Negative eDNA
8	SJ 42521 46078	On site	Large pond, mallard present. Negative eDNA
9	SJ 42652 46118	31m north	DRY

Ponds: positive eDNA

Pond 1

- **Pond 1** is located on site to the east and is relatively small in size (~400m²) (**Image 3.18**). The pond is surrounded by unmanaged grassland at a tall sward height.
- **Pond 1** scored as positive for GCN following the results of eDNA testing.

Pond 4

- **Pond 4** is located ~80m south of the site to the east and is small in size (~200m²) (**Image 3.19**). The pond is situated within a pasture field however, the pond contains livestock fencing around its entirety where tall grasses and grassland species are present.
- **Pond 4** scored as positive for GCN following the results of eDNA testing.

Image 3.18 Pond 1, located northwest of the site



Image 3.19 Pond 4, located ~80m to the south of the site



Legislation (GCN)

- 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 (GCN)

- GCN presence has been confirmed within **Pond 1** and **Pond 4**.
- No records previously exist for GCN within 1km of the site.
- It is considered that the development will be of low ecological impact owing to the nature of the works (no excavations will be undertaken).
- The proposed grassland locations for glamping tents are currently managed (mown) to a short sward height (below 150mm). If these areas are maintained at a short sward height it is of the ecologists' opinion that Reasonable Avoidance Measures (RAM's) will suffice in mitigation any potential impacts upon GCN.
- No further studies are required regarding GCN at the site.
- The following RAM's are to be strictly adhered to throughout the duration of the works.

Reasonable Avoidance Measures (RAM's) - GCN

- The Developer shall appoint an experienced Ecological Clerk of Works (ECW) to ensure RAM's are enforced;
- A toolbox talk by the appointed ECW will be given to the site manager and all contractors working on site with respect to potential habitats and protected/ notable species. A copy of species factsheets relating to amphibians (including GCN) will be provided for display within the site office, or at a prominent location.
- An ecologist will make monthly visits to the site to ensure that all vegetated areas to be impacted upon under the development remain managed (mown) to a short sward height (less than 150mm in height);
- An ecologist must be present for any future areas of grassland which require cutting to ensure a sensitive technique is undertaken and newts are able to disperse naturally;
- Following a hand-search, a first cut to boot height (no less than 150mm) is to be undertaken, allowing animals to disperse. A second cut (<150mm) may then follow once the area has been checked for GCN;
- A careful hand-search of any potential refugia (rubble, debris, vegetation) proposed for removal shall be undertaken by the appointed ECW;
- No excavations are to take place on site. If they are required then an ecologist must be made present on site to ensure no animals become trapped and that all excavations are backfilled on the same day.
- All building materials will be palletised (always) and kept on areas of hardstanding (where possible);
- Any environmentally hazardous materials will be stored within an area determined by the ECW. Hazardous materials must be palletised and set upon hardstanding (where possible);
- If GCN or any other protected species are discovered on site during the developments then all work must cease immediately and Pearce Environment be contacted for further advice.

Nesting Birds

- A moderate number of bird species records was retrieved within the local area.
- The hedgerows and trees on site offer high nesting bird potential. Ground nesting opportunity is present within the unmanaged grassland areas.
- No bird nests were observed during the survey.

Legislation (nesting birds)

- 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 (Nesting Birds)

- It is recommended that the trees and hedgerow on site remain *in situ*.
- Any vegetative works (if required) 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 by a suitably qualified ecologist 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.
- Where long grass requires cutting within the bird nesting season, an ecologist must be present to undertake a nesting bird check immediately prior to cutting.
- A minimum of three (3) Schwegler Woodcrete (1B) Nest Boxes, or equivalent, are to be provided as an enhancement for common passerine bird species on the site (**Image 3.20**). These are to be installed onto any suitably semi-mature/ mature tree or at a height of no less than 2m and orientated in a southerly or westerly direction. Nest boxes are to be maintained for the lifetime of the development.

Image 3.20 An example of Schwegler 1B Woodcrete Nest Boxes



Reptiles

- The site is considered to offer poor-quality terrestrial reptile habitat, owing to an absence of refuge and general over-shading of the site.
- No reptile records were obtained within 1km of the site.

Recommendations (Reptiles)

- Reptiles are not considered a constraint to the proposed development.

Badger

- During the detailed PEA, no field signs indicating current use of the site by badger(s) were noted.
- Records for badger were retrieved during the desk study.

Recommendations (Badger)

- Badgers are not considered a constraint to the proposed development.

Other Species

- No evidence of any other species pertinent to this study was observed during the survey.

4. CONCLUSIONS

4.1 SUMMARY OF THE SITE'S ECOLOGICAL SIGNIFICANCE

- The application site, set within a rural environment, constitutes dense scattered semi-mature trees, improved and unmanaged grassland, mature intact hedgerow, mature gappy hedgerow, and mature trees.
- Bats are not considered a constraint owing to a lack of roosting opportunity. However, the site offers good foraging and commuting opportunity.
- Bat box provision is recommended.
- Trees and hedgerow on site are to remain *in situ*. A check for nesting birds by a suitably qualified ecologist should be undertaken if vegetative works are to take place within the bird nesting season (this is February – August, inclusive). This includes any future cutting of long grass with regard to ground nesting birds.
- Bird box provision is recommended.
- Nine (9) ponds are located within 250m of the site. **Ponds 1 and 4** scored as positive for GCN following eDNA testing.
- Strict Reasonable Avoidance Measures (RAM's) are deemed as sufficient to mitigate potential impacts upon GCN owing to the low disturbance and ecological impact of the proposed development.
- No other habitat features or evidence of pertinent protected species were identified during the Preliminary Ecological Appraisal (PEA).

Table 4.1 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	<i>No further action required</i>
Invasive Plants	Yes: Japanese knotweed, Rhododendron, Monbretia, Himalayan balsam, Grey squirrel, American mink	Yes	No	<i>No further action required</i>
Bats	Yes: Common pip, soprano pip, noctule	No: foraging and commuting only	No	<i>Bat box provision required</i>

Species/ Group	Local Records	Suitable Habitat on Site	Field Signs	Recommendations
Nesting Birds	Yes: moderate assemblage within 1km	Yes: within hedgerow trees and tall grass	No	Sensitive vegetation works, retain trees and hedgerow. Bird box provision as an enhancement.
Barn Owl	Yes	No	No	<i>No further action required</i>
Badgers	Yes	No	No	<i>No further action required</i>
Amphibians (including GCN)	No	Yes: presence confirmed within Pond 1 on site	Yes	<i>Strict RAM's to be followed throughout the duration of the works</i>
Reptiles	No	No	No	<i>No further action required</i>
Otter	Yes	No	No	<i>No further action required</i>
Water Vole	Yes	No	No	<i>No further action required</i>
Dormice	No	No	No	<i>No further action required</i>
White-clawed Crayfish	No	No	No	<i>No further action required</i>
Other Notable Species	No	No	No	<i>No further action required</i>

- Subject to the implementation of those provisions and working methodologies given in **Sections 3** and **4** of this report, no detrimental effects regarding protected/ notable species are considered likely to arise.
- 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.

5. BIBLIOGRAPHY

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Appendix 1 Tables 4.1 and 7.3 from *Bat Surveys for Professional Ecologist: Good Practice Guidelines*⁸

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.

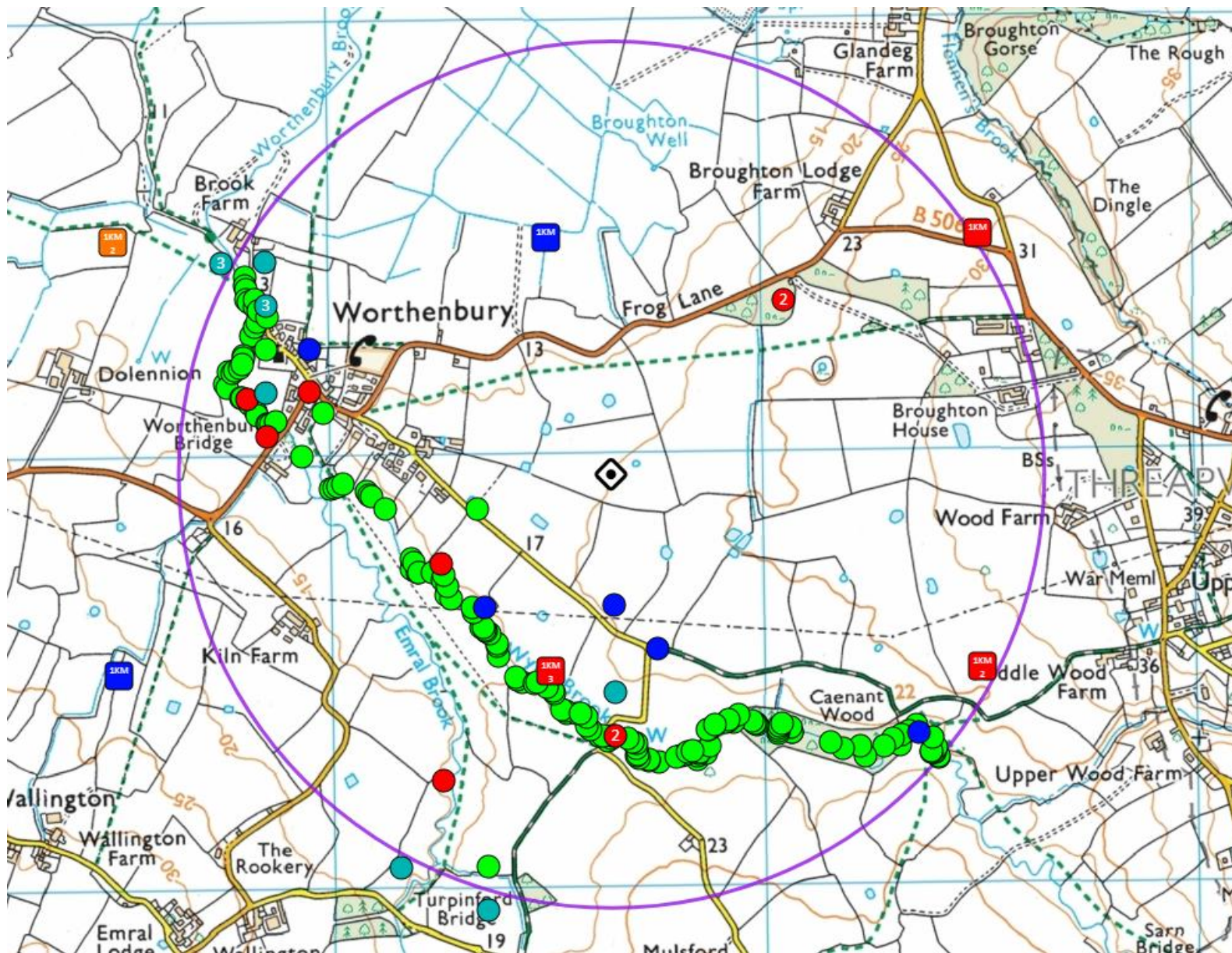
^c This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

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

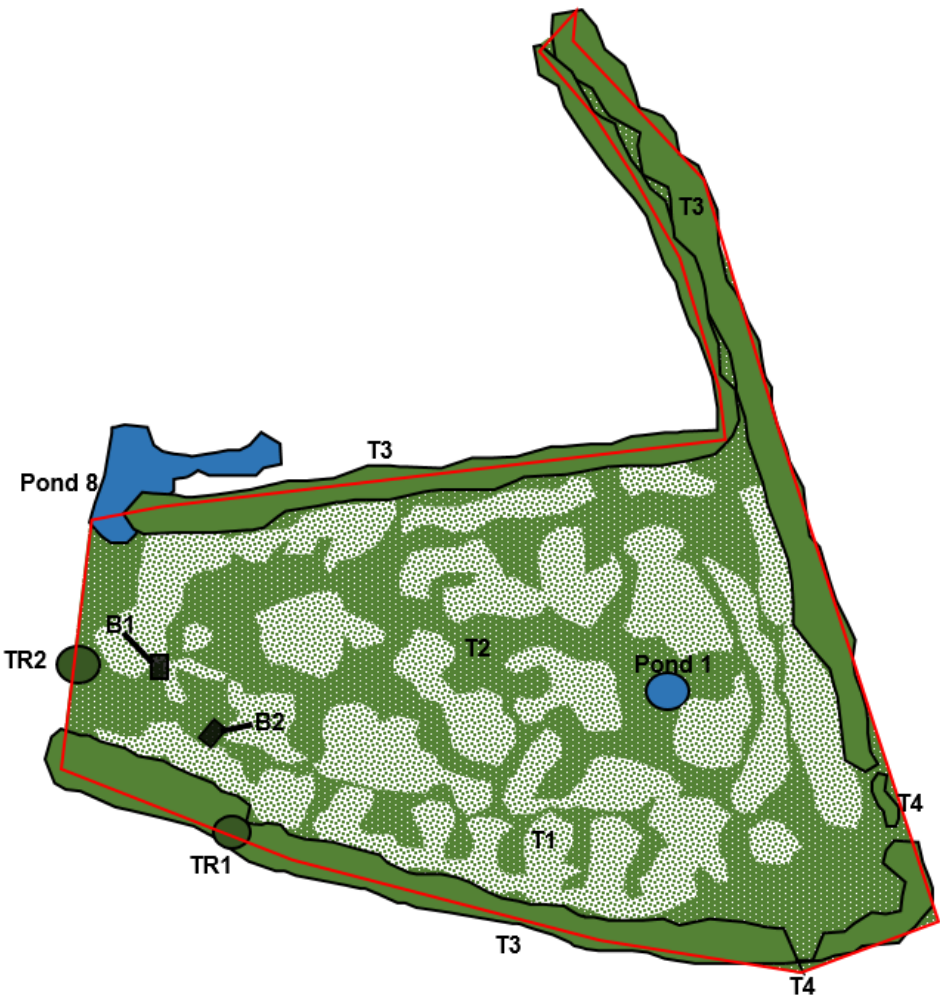
⁸ Collins J. (Ed.) (2016) *Bat Surveys for Professional Ecologist: Good Practice Guidelines* (3rd Ed.) The Bat Conservation Trust, London.

Appendix 2 Cofnod 1km Protected/ Notable Species Map



Plan 1 Phase 1 Habitat Plan

This plan has been prepared using the site location map provided by the client
This plan is indicative, locations of all features are approximate and not drawn to scale



Key

Application site	
Scattered trees	
Chicken coup	
Unmanaged grassland	
Hedgerow	
Pond	
Mature oak tree	

Project Bowling Bank Farm

Title
Plan 1 : Phase 1 Habitat Plan

Client D Hopkins

Drawn by MM 11/06/2018
Version 01

PearceEnvironment LTD

Target Notes

T1 – Scattered trees

T2 – Unmanaged grassland

T3 – Mature intact hedgerow

T4 – Mature gappy hedgerow