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**Land at Church Farm, South Leigh,  
Oxfordshire OX29 6UR**

**Ecological Impact Assessment**

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**April 2023**

***on behalf of Church Farm Partnership***

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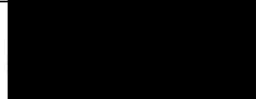
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<b>Client</b>	Church Farm Partnership
<b>Job name</b>	Land at Church Farm, South Leigh, Oxfordshire OX29 6UR
<b>Report date</b>	27 <sup>th</sup> April 2023
<b>Report title</b>	Ecological Impact Assessment
<b>Reference</b>	W4159_rep_Church Farm, South Leigh_27-04-23

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## **1 Introduction**

### **1.1 Site Description & Context**

The land at Church Farm, South Leigh (referred to as the 'site' for the purpose of this report) is located to the east of Church Farm, on the south-eastern edge of the village of South Leigh in Oxfordshire OX29 6UR. The approximate Ordnance Survey grid reference for the site is SP 394 088.

The site comprises a field of agriculturally improved grassland with hedgerow boundaries. A pond is located approximately 10m to the west of the site, also in the grounds of Church Farm. There is also a (newly created) swimming pond within the field.

The site is located within farmland on the edge of the village, which is surrounded by a largely agricultural landscape of arable land and improved grassland (pasture) with dividing hedgerows. Significant tracts of woodland tend to be scarce, although there are woodland habitats located approximately 125m to the south-east of the site. In addition to the pond at Church Farm, there are seven other ponds located within a 500m radius of the site.

### **1.2 Proposals**

There is a proposal for a shepherd's hut and associated septic tank (this will be a Glampsan Flat Tank). The site already has planning permission for three shepherd's huts.

### **1.3 Aims of Study**

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

## **2 Methodology**

### **2.1 Desk Study**

The Thames Valley Environmental Records Centre (TVERC) was contacted in August 2021 to collate records that it holds for protected/notable species and non-statutory sites of nature conservation importance within a 1km radius around the site.

The Multi-Agency Geographic Information for the Countryside ([www.magic.gov.uk](http://www.magic.gov.uk)) website was searched for information regarding internationally protected sites (e.g. Special Areas of Conservation) within 5km of the survey area and statutory sites of nature conservation importance (e.g. Sites of Special Scientific Interest) within a 1km radius of the site. Other Internet resources interrogated as part of the desk study include:

Bing Maps - [www.bing.com/maps](http://www.bing.com/maps)

Google Earth - [www.earth.google.co.uk](http://www.earth.google.co.uk)

Google maps - [www.google.co.uk/maps](http://www.google.co.uk/maps)

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

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

## 2.2 Field Surveys

### 2.2.1 Extended Phase 1 Habitat Survey

An extended Phase 1 Habitat Survey was undertaken on 8<sup>th</sup> September 2021 by Edward Bodsworth MA (Cantab) PhD MCIEEM. A walkover of the site was conducted, and a description of the habitats present was prepared using standard Phase 1 Habitat Survey methodology (JNCC 2010).

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

This survey was repeated on 25<sup>th</sup> April 2023 by Edward Bodsworth MA (Cantab) PhD MCIEEM.

### 2.2.2 Great Crested Newt Habitat Assessment

A Habitat Suitability Index (HSI) assessment of the pond at Church Farm was also undertaken on 8<sup>th</sup> September 2021 by Edward Bodsworth MA (Cantab) PhD MCIEEM. This survey was repeated on 25<sup>th</sup> April 2023 by Edward Bodsworth MA (Cantab) PhD MCIEEM.

The assessment was undertaken according to the criteria and method developed by Oldham *et al.* 2000. The work by Oldham, and others, hypothesises that the likely presence of breeding great crested newts can be predicted by a number of habitat features such as pond size, location, shading, the presence of fish, wildfowl and aquatic plants. These data are used to calculate an HSI value; represented as a number from 0 to 1. The higher the number, the more likely the pond is to be occupied by breeding great crested newts (see Table 1).

The studies by Oldham, later expanded by Brady (2010), indicate that great crested newts tend to avoid ponds with low HSI scores. Ponds with low HSI scores (poor to below average) typically only support great crested newts when they are located close to another occupied pond. Low scoring ponds are therefore only likely to support great crested newts in areas of high pond density. Ponds with relatively high HSI scores (good to excellent) frequently support great crested newts and survey work undertaken in England indicates that great crested newts are present in more than 90% of 'excellent' ponds.

Table 1. HSI categories of pond suitability for great crested newts.

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

## 3 Results

### 3.1 Ecological Context

#### 3.1.1 Sites of Nature Conservation Importance

##### 3.1.1.1 Statutory Sites

There are no sites of international nature conservation importance, such as Special Areas of Conservation, within a 5km radius.

There are no statutory sites of nature conservation importance, such as Sites of Special Scientific Interest, within a 1km radius of the site.

### 3.1.1.2 Non-statutory Sites

There is one Local Wildlife Site (LWS) located approximately 900m to the south-east of the site, namely Tar Wood LWS. Tar Wood is an ancient woodland, which means that it has been continuously wooded for at least 400 years. The woodland canopy is dominated by oak and ash with field maple and silver birch. There are some areas of hazel coppice. Most of the trees were removed during the First World War so there are few large old trees.

The ground flora has areas covered with bluebells and dog's mercury giving it the typical appearance of bluebell woodland. Other woodland wildflowers found here include wood anemone, greater stitchwort, slender St. John's-wort, wood speedwell and primrose. The rides are locally rich with a mix of grassland, woodland and wetland plants.

### 3.1.2 Species Records

The following sections summarise pertinent information on species gathered from the Records Centre, given the nature of the habitats that are present within the site.

#### 3.1.2.1 Amphibians

There are records of common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris* and great crested newt *Triturus cristatus* from the 1km search radius. There are thirty-eight records of the great crested newt, with the most recent records dating from 2017.

Great crested newts are known to breed within the pond at Church Farm. The pond also appears to be suitable for common frog, common toad and smooth newt.

#### 3.1.2.2 Reptiles

There are twenty records of grass snake *Natrix helvetica*, with the latest records dating from 2017.

The grassland habitats of the site appear to offer suitable habitat to grass snakes.

#### 3.1.2.3 Birds

The majority of records held by the TVERC pertain to species of bird, including birds of farmland, grassland and hedgerow habitats. Species that can use hedgerow habitats as nest sites include yellowhammer *Emberiza citrinella*, dunnock *Prunella modularis*, linnet *Linaria cannabina*, bullfinch *Pyrrhula pyrrhula* and song thrush *Turdus philomelos*. There are also records of barn owl *Tyto alba*, and the grassland habitat may offer foraging opportunities for this species.

Records of ground-nesting species include skylark *Alauda arvensis* and grey partridge *Perdix perdix*. The grassland habitats of the site are not considered to be suitable for these species.

#### 3.1.2.4 Bats

Bat species that have been recorded from the locality include the following:

- Common pipistrelle *Pipistrellus pipistrellus*
- Soprano pipistrelle *Pipistrellus pygmaeus*
- Noctule *Nyctalus noctula*
- Lesser noctule *Nyctalus leisleri*
- Barbastelle *Barbastella barbastellus*
- Brown long-eared bat *Plecotus auritus*

There are no structures or trees within the site that are suitable for roosting bats.

### 3.1.2.5 Other Mammals

The Records Centre also holds records of badger *Meles meles*, harvest mouse *Micromys minutus* and hedgehog *Erinaceus europaeus* from within the 1km search radius.

The grassland habitat is not suitable for harvest mouse, due to its management through infrequent cutting, and there is no evidence of badger activity within the site.

The site may offer habitat to hedgehogs, with hedgerows offering cover and grassland offering potential foraging opportunities.

## 3.2 Habitats

### 3.2.1 Improved Grassland

The site comprises a field of agriculturally improved grassland, dominated by tall grass species including cock's-foot *Dactylis glomerata* and false oat grass *Arrhenatherum elatius*. Herbs are present in low abundance and include creeping buttercup *Ranunculus repens*, stinging nettle *Urtica dioica*, white clover *Trifolium repens*, hogweed *Heracleum sphondylium*, dock *Rumex obtusifolius*, creeping thistle *Cirsium arvense*, cow parsley *Anthriscus sylvestris*, creeping cinquefoil *Potentilla reptans* and ground ivy *Glechoma hederacea*.

The sward appears to be managed through frequent mowing and currently has a very low sward. The majority of the sward is very short, and does not have a tussocky structure that could offer shelter to amphibians. Some peripheral areas have a taller sward that may be suitable terrestrial habitat to amphibians.

The grassland is agriculturally improved, and relatively species-poor. The habitat is not considered to meet the criteria for a grassland habitat of 'principal importance' as listed within Section 41 of the NERC Act 2006. Improved grassland is considered to be of low ecological value at the site level.

### 3.2.2 Trees

One young walnut tree *Juglans regia* is present within the eastern field and one young apple tree *Malus* sp. is also present in the very northern corner of the eastern field.

### 3.2.3 Hedgerows

The field is bounded by tall hedgerows of approximately 3m in height. This hedgerow includes hawthorn *Crataegus monogyna*, ash *Fraxinus excelsior*, black poplar *Populus nigra*, horse chestnut *Aesculus hippocastanum*, wayfaring tree *Viburnum lantana* and rose *Rosa canina*.

The eastern hedgerow boundary is very similar, but also includes field maple *Acer campestre*, spindle *Euonymus europaeus* and hazel *Corylus avellana*.

The northern boundary hedgerow is of field maple, sycamore *Acer pseudoplatanus*, blackthorn *Prunus spinosa*, wayfaring tree, hawthorn and elm *Ulmus* species.

The western hedgerow boundary includes field maple, blackthorn, hazel, hawthorn, elder *Sambucus nigra*, spindle and snowberry *Symphoricarpos albus*.

No ancient woodland indicator species are noted in the ground flora of the hedgerows, and the species within the ground flora reflect the adjacent grassland habitats, with cock's-foot, false oat grass, creeping thistle, ground ivy and bramble *Rubus fruticosus*.

The hedgerow boundaries comprise (mostly) native species and are considered to meet the criteria for hedgerow habitats of 'principal importance' as listed within Section 41 of the NERC Act 2006.



Given this, the hedgerow habitats are considered to be of high ecological value within the context of the site.

#### 3.2.4 *Scrub*

The southern boundary is marked by a post and wire fence, with scrub to the south. The scrub includes elder, hawthorn, blackthorn, bramble, nettle and creeping thistle.

The scrub is considered to be of ecological value within the context of the site.

#### 3.2.5 *Bare Ground*

The proposed area for car parking comprises an existing area of gravelled hard-standing/bare ground. The site is accessed via an existing road of hard-standing.

These habitats are of negligible ecological value.

#### 3.2.6 *Pond*

The pond at Church Farm is located approximately 10m to the west of the site. The pond is relatively large (approximately 1,200m<sup>2</sup>) and has fringing vegetation of iris, bog bean, water lily and sedges. There is abundant pond weed and good water quality. The pond is considered to be a habitat of high ecological value. Great crested newts are known to breed within this pond at Church Farm.

There is a (newly created) swimming pond within the field. This pond is likely to provide potential habitat to great crested newts.

### **3.3 Species**

#### 3.3.1 *Amphibians*

The pond located to the west of the site, at Church Farm, has a Habitat Suitability Index calculated as 0.86, indicating that the pond is 'excellent' habitat for breeding great crested newts. The species is known to be present within the pond, and may also now be present within the swimming pond.

Great crested newts can disperse up to 500m from their breeding pond and research has shown that individuals tend to use terrestrial habitat within 250m of their breeding pond when on land. The grassland and hedgerow habitats of the site are considered to be suitable for the great crested newt, as they offer potential shelter and foraging habitat for animals that may use the pond at Church Farm for breeding.

It is therefore considered that great crested newts may move through the site and may shelter within taller areas of grassland to the site's peripheries. However, areas of short grass do not offer shelter to amphibians and it is considered that the majority of the site does not offer suitable shelter and protection to great crested newts.

Table 2. Habitat Suitability Index calculation for the pond at Church Farm.

	<b>Pond 1</b>
<b>Characteristic</b>	<b>Score</b>
SI <sub>1</sub> Location	1
SI <sub>2</sub> Pond Area	0.925
SI <sub>3</sub> Pond Drying	0.9
SI <sub>4</sub> Water Quality	1
SI <sub>5</sub> Shade	1
SI <sub>6</sub> Fowl	0.67
SI <sub>7</sub> Fish	1
SI <sub>8</sub> Ponds	0.85
SI <sub>9</sub> Terrestrial Habitat	0.67
SI <sub>10</sub> Macrophytes	0.7
<b>HSI</b>	<b>0.86</b>
<b>Suitability</b>	<b>Excellent</b>

### 3.3.2 Reptiles

The agriculturally improved grassland habitat is considered to be unsuitable or sub-optimal for common reptile species. However, the nearby pond at Church Farm offers potentially suitable habitat to grass snakes and there is the potential for grass snakes, and other reptile species such as slow worms, to move through the site.

### 3.3.3 Plants

No rare or uncommon plants were noted during the survey.

Plant species that are present within the improved grassland are common and widespread.

### 3.3.4 Birds

Hedgerows offer potential nesting opportunities to breeding birds. The species assemblage may include certain commoner species that are of 'principal importance', as listed within Section 41 of the NERC Act 2006, such as dunnock, song thrush and yellowhammer.

Improved grassland is not considered to be suitable for ground nesting birds, such as the skylark and grey partridge. This is due to the dense sward and the infrequent cutting of the grassland.

The grassland may offer some habitat to foraging barn owls.

### 3.3.5 Invertebrates

The improved grassland is species-poor and has a relatively homogeneous structure. The habitat is likely to support a common invertebrate assemblage that is typical of agriculturally improved grassland.

### 3.3.6 Bats

There are no structures or trees within the site that could offer shelter to roosting bats.

The improved grassland is considered to be poor habitat for foraging bats and is unlikely to form a key resource for local bat populations. The swimming pond may provide some foraging opportunities, but it is small and is also unlikely to form a key resource for local bat populations.

### 3.3.7 Badger

No badger setts, or evidence of badger activity, were noted within the site.

### 3.3.8 Hedgehog

Hedgerows, and plantation woodland, may offer shelter and habitat for hedgehogs, and improved grassland may provide some foraging opportunities.

### 3.3.9 Other Species

The grassland is not considered to be suitable for harvest mice, due to its management through infrequent cutting.

No invasive plant species were noted within the site.

## 4 Discussion

### 4.1 Legislative & Policy Guidance

#### 4.1.1 Great Crested Newts

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

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

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

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

The proposal is necessary 'to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment';

'There is no satisfactory alternative';

The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range'.

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

#### 4.1.2 *Nesting Birds*

Nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. The nesting season for most species is between March and August inclusive.

Species listed on Schedule 1 of the Act, which includes the barn owl *Tyto alba*, are also protected from disturbance whilst nesting, and whilst preparing to nest.

#### 4.1.3 *Reptiles*

All British species of reptile are protected by the Wildlife and Countryside Act 1981. Part of Section 9(1) and all of Section 9(5) apply. This means they are protected against intentional killing and injuring (but not taking).

Rarer species, including the smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis*, are fully protected under the Act, which protects them from intentional disturbance and destruction of habitat.

#### 4.1.4 *The Natural Environment and Rural Communities Act 2006*

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

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

Habitats within the site that are listed within Section 41 of the NERC Act 2006 include:

##### Hedgerows

Species that may be present within the site that are listed within Section 41 of the NERC Act 2006 include:

- Great crested newt & common toad (peripheral areas of the site offer potentially suitable terrestrial habitat)

- Grass snake (grassland habitats are sub-optimal for the species)

- Hedgehog (the site offers potential habitats in the form of hedgerows)

- Certain bird species such as dunnock and song thrush (hedgerows offer potential nesting opportunities)

#### 4.1.5 *The National Planning Policy Framework*

The National Planning Policy Framework was revised on 20 July 2021 and sets out the government's planning policies for England and how these are expected to be applied. This revised Framework replaces the previous National Planning Policy Framework published in March 2012, revised in July 2018 and updated in February 2019.

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

protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

To protect and enhance biodiversity and geodiversity, plans should:

Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and

Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

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

If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons, and a suitable compensation strategy exists; and

Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be integrated as part of their design, especially where this can secure

measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

The following should be given the same protection as habitats sites:

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

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

## **4.2 Potential Impacts**

### *4.2.1 Sites of Nature Conservation Importance*

There are no foreseeable impacts on sites of nature conservation importance. This is due to the distance of such sites from the study site and the small-scale nature of the proposals.

### *4.2.2 Habitats*

The installation of one shepherd hut and septic tank is unlikely to result in a significant loss of grassland habitat. The tank will be buried and grassland established on top.

The existing improved grassland is species-poor and is considered to be of low ecological value.

### *4.2.3 Species*

#### *4.2.3.1 Amphibians*

Great crested newts are known to breed within the pond at Church Farm and may also use the new swimming pond for breeding.

However, it is considered that the proposed shepherd's hut and septic tank will not result in the damage or destruction of places that great crested newts may use for shelter and protection. Grassland habitats will remain under the shepherd's hut and the footprint of the septic tank is so small that installation will not result in any significant habitat loss for great crested newts.

A Precautionary Working Method is recommended to avoid potential inadvertent impacts on great crested newts.

#### *4.2.3.2 Reptiles*

A Precautionary Working Method is recommended to avoid potential inadvertent impacts on reptiles.

#### *4.2.3.3 Plants*

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

#### *4.2.3.4 Birds*

There are no proposals to remove hedgerows, and so no foreseeable impacts on nesting birds within hedgerows.

There are no foreseeable impacts on ground-nesting bird species.

#### 4.2.3.5 Bats

There are no structures or trees within the site that could offer shelter to roosting bats. There are therefore no foreseeable impacts on roosting bats.

External lighting could have an impact on bats by affecting their activity and behaviour. In that certain species of bat have been shown to be attracted to mercury vapour lamps which emit light over a very broad-spectrum including UV light to which insects are particularly sensitive.

Furthermore, insects can be attracted in large numbers to mercury lamps and so can bats of the genera *Nyctalus* and *Pipistrellus*, including noctules *N. noctula* and common pipistrelles *P. pipistrellus* (Rydell and Racey 1993). Lighting has shown to have an opposite effect on certain other species, such as the lesser horseshoe bat *Rhinolophus hipposideros*, which have been shown to avoid areas of artificial light (Stone *et al.* 2009).

#### 4.2.3.6 Badgers

There are no foreseeable impacts on badgers.

#### 4.2.3.7 Hedgehogs

Minor loss of improved grassland is unlikely to result in a significant loss of hedgehog foraging habitat, and extensive areas of potential foraging habitat will remain.

#### 4.2.3.8 Other Species

There are no foreseeable impacts on other species, such as harvest mice.

## 5 Recommendations

### 5.1 Further Surveys

No further surveys are considered necessary at present.

### 5.2 Habitats

There are no recommendations with regard to habitats.

### 5.3 Species

#### 5.3.1 Reptiles & Amphibians

The following Precautionary Working Method should be adhered to, to protect reptiles and amphibians.

The site owner/site manager will ensure that anyone undertaking construction works on the site (including sub-contractors) is made aware of the protected status of all reptile species, and great crested newts, from killing and injury and the procedure to follow in the unlikely event that common reptiles or amphibians are discovered during works.

Should any common reptiles or great crested newts be discovered during construction, and are in danger of killing or injury, works will cease immediately and advice sought from a suitably experienced ecologist.

Within the construction zone, the following methods of working will be adopted:

All clearance works will be undertaken when common reptiles are likely to be fully active and during the period April to September, inclusive.



Clearance of logs, brash, stones, rocks or piles of similar debris will be undertaken carefully and by hand.

Clearance of tall vegetation will be undertaken using a strimmer or brush cutter with all cuttings raked and removed the same day. Cutting will only be undertaken in a phased way which may either include:

- Cutting vegetation to a height of no less than 30mm, clearing no more than one third of the site in anyone day or;
- Cutting vegetation over three consecutive days to a height of no less than 150mm at the first cut, 75mm at the second cut and 30mm at the third cut;

Following removal of tall vegetation using the methods above, remaining vegetation will be maintained at a height of approximately 30mm through regular mowing or strimming to discourage common reptiles moving into the site.

Ground clearance of any remaining low vegetation (if required) and any ground works will only be undertaken following the works above.

Any trenches left overnight will be covered or provided with ramps to prevent common reptiles and amphibians from becoming trapped.

Building materials such as bricks, stone etc. will be stored on pallets to discourage reptiles and amphibians from using them as shelter. Any demolition materials will be stored in skips or similar containers rather than in piles on ground.

If at any time a great crested newt is encountered, works should stop and advice sought from a suitably qualified ecologist.

### 5.3.2 *Birds*

Clearance of woody vegetation, if at all necessary, should take place outside of the bird breeding period, avoiding March to August inclusive.

It is recommended, as an enhancement measure, that a bird box is mounted on a hedgerow tree. The recommended design is a long-lasting woodcrete box such as the Schwegler Avianex nest box for common bird species such as tits.

### 5.3.3 *Bats*

#### 5.3.3.1 *External Lighting*

It is recommended that external lighting should be avoided within the site, unless it is necessary for reasons of security and safety. In particular, light spillage along hedgerows should be avoided, so that dark corridors are maintained through and around the peripheries of the site in order to facilitate the movement of bats, as well as other nocturnal wildlife.

Where external lighting is required, it should be kept at low level and a low intensity, with hoods and baffles used to direct the light to where it is required (Bat Conservation Trust 2018, Emery 2008). To minimise the impact on bats, the use of low pressured sodium lamps is recommended in preference to mercury or metal halide lamps which have a UV element that can affect the distribution of insects and attract bats to the area, affecting their natural behaviour (Bat Conservation Trust 2018).

The key principles for choosing a suitable type of lamp are:



Avoid blue-white short wavelength lights: these have a significant negative impact on the insect prey of bats. Use alternatives such as warm-white (long wavelength) lights as this will reduce the impact on insects and therefore bats.

Avoid lights with high UV content: (e.g. metal halide or mercury light sources) or reduce/completely remove the UV content of the light. Use UV filters or glass housings on lamps which filter out a lot of the UV content.

Selecting an appropriate lamp unit that is designed to be environmentally friendly will minimise light spill, but further controls can be imposed by installing directional accessories such as baffles, hoods and louvres on lamps to direct light away from ecologically sensitive areas.

LED (Light Emitting Diode) units are an effective way to direct the light into small target areas and are recommended for lighting the proposed parking and turning area. Composite LEDs can be switched off to reduce/direct the light beam to specific areas.

## 6 References

CIEEM, 2016. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

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JNCC, 2010. *Handbook for Phase 1 Habitat Survey - a technique for environmental audit*. JNCC First published 1990; reprinted in 1993; reprinted in 2003 with limited revisions & additions; reprinted in 2004; reprinted in 2007 with minor additions; reprinted in 2010.

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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: 143-155.

Mitchell-Jones, A., 2004. *Bat Mitigation Guidelines*. English Nature.

Rydell J. & Racey, P. A. 1995. *Streetlamps and the feeding ecology of insectivorous bats*. Recent Advances in Bat Biology Zool Soc Lond Symposium abstracts.

## 7 Appendix 1. Photographs



Photograph 1. A general view of the proposed location of the shepherd's hut.



Photograph 2. Detail of the improved grassland habitat.



Photograph 3. The site viewed from the south.



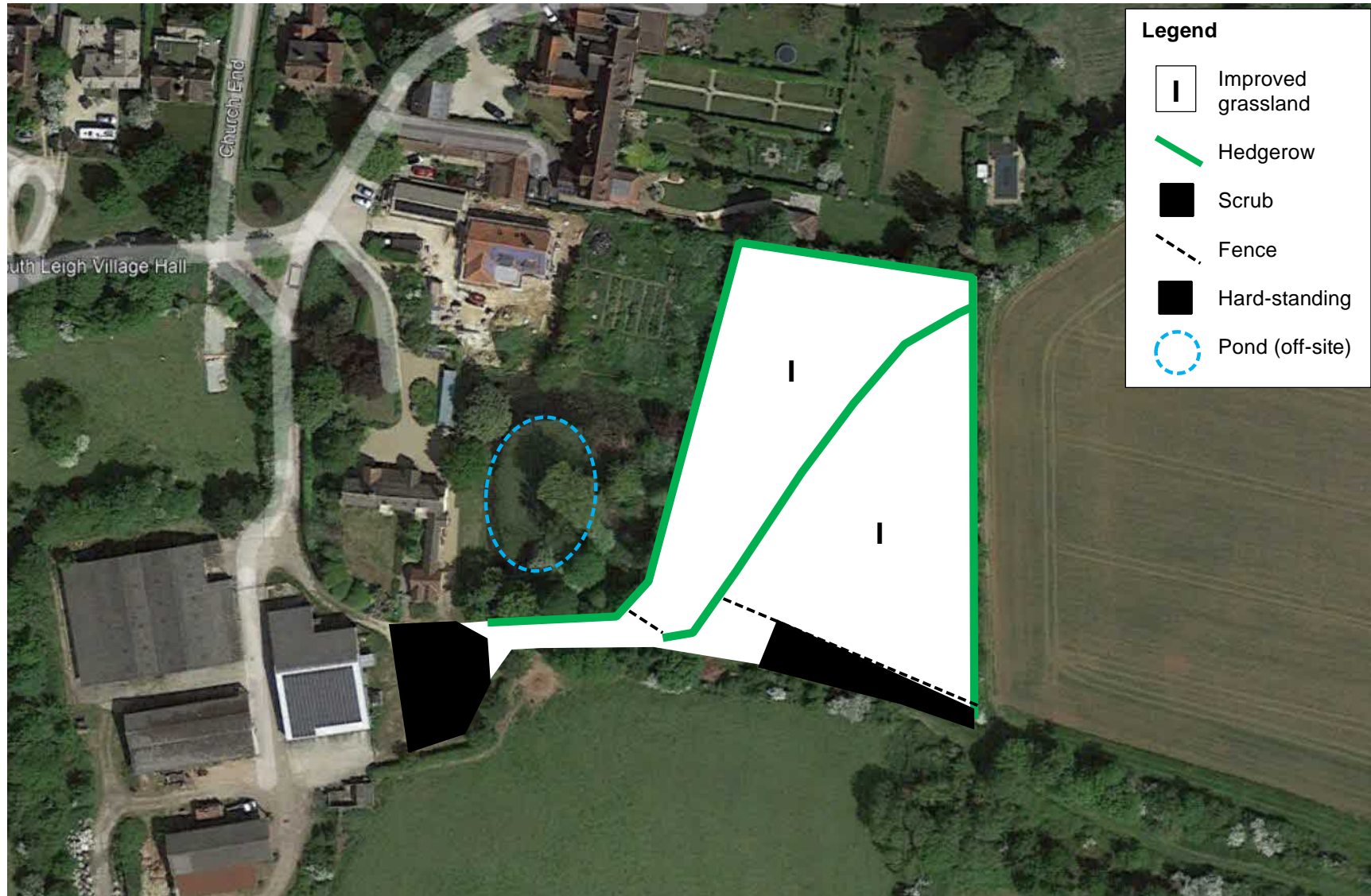
Photograph 4. The new swimming pond.



Photograph 5. The pond at Church Farm



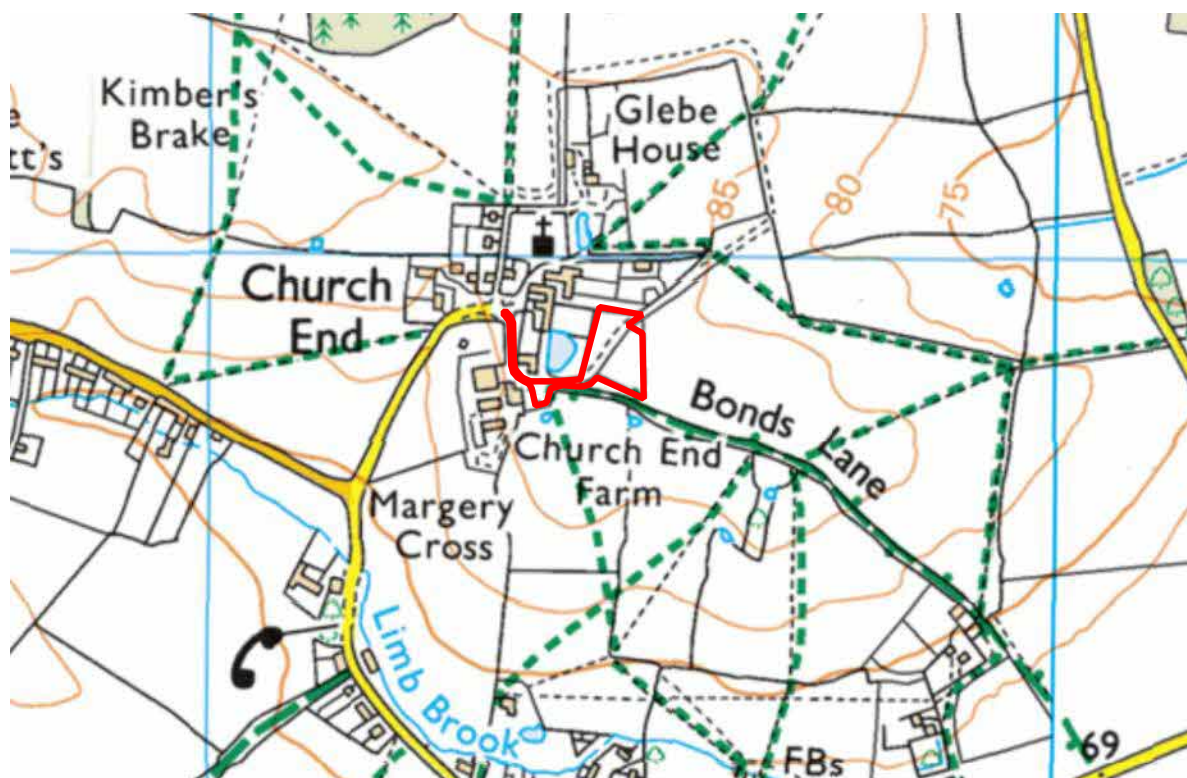
8 Appendix 2. Phase 1 Habitat Plan



## 9 Appendix 3. Site Location Plans



Aerial photograph showing the location of the site, outlined in red.



Ordnance Survey map showing the approximate location of the site (indicated by the red outline) within the local area.

## **10 Appendix 4. Data Search Results**

Please refer to separate report prepared by the Thames Valley Environmental Records Centre.