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Ecological Surveys • Habitat Management • Arboricultural Surveys • Vegetation Clearance

Ecological Impact Assessment

Little Court, Little Wratting
[NGR: TL 68513 46990]

Project Manager: Stephanie Ridge BSc (Hons)

On behalf of:
CARE (Little Court) Ltd

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1.0 Executive Summary

1.1 Rationale

Greenwillows Associates Ltd. was commissioned to conduct an ecological appraisal of three buildings and a parcel of land at Little Court, Little Wratting. The area surveyed is referred to as 'the site' for the purposes of this report.

The aim of the ecological appraisal was to provide, *inter alia*, an assessment of the likely impacts a proposed development might have upon notable and/or protected species and habitats and where such features might be affected, to identify the need for any follow up detailed/specialist surveys and/or mitigation to ameliorate the potential impacts.

The construction proposals relate to the demolition of the onsite buildings and the construction of a 120-bed dementia care village. The specialist dementia care village will accommodate up to 120 residents, and include central amenity building (shop, restaurant, pub, communal hall, treatment/counselling rooms, offices and staff accommodation), club/hobby rooms, vehicle parking and landscaping. The majority of the onsite hedgerows and copse will be retained as part of the development.

1.2 Essential Evidence, Conclusions and Recommendations

1.2.1 General Site Description

The site comprises a stable block, outbuilding, sand horse-riding arena, paddocks, two areas of copse and hardstanding. There is a small pond present in the north eastern corner of the site.

Table One: Conclusions and Recommendations

Potential Receptor	Conclusions	Recommendations
Nesting Birds	There is potential for nesting birds within the buildings, hedgerows, trees and tall ruderal vegetation around the site. Evidence of nesting birds was seen in the stable block and copse. If nests are disturbed during the process of incubation and rearing, then mortality of chicks could occur. Long term, there will be a loss of nesting habitat from the loss of the stable block, tall ruderal vegetation and any trees lost.	It is recommended that mitigation procedures are followed to avoid impacting on nesting birds and that nesting enhancements are included in the design of the site. See Section 8 for more details.
Bats	The hedgerows and tree lines within the site potentially provide good foraging and commuting habitat for bats. Some trees within the site have potential to support	Mitigation measures to avoid impact on bats are recommended. See Section 8 for more details

	roosting bats. The site was assessed as being of moderate suitability to support foraging and commuting bats. A follow up ground level tree assessment revealed one tree with negligible-low potential to support roosting bats, nine trees with low potential to support roosting bats and one tree with low-moderate potential to support roosting bats. Structures 1 and 2 have negligible potential to support roosting bats. Any increase in lighting could adversely impact suitability of adjacent habitats for commuting/foraging bats. If trees used as roosting habitat are removed/worked on without mitigation, there is a risk of killing/injuring bats and destroying roosting habitat.	
Badgers	Onsite and neighbouring habitats have potential to support foraging and commuting badgers. No immediate evidence of badgers was recorded. If badgers are using the site during the works, there is risk they could become trapped in open pits/trenches.	Mitigation measures to avoid impact on badgers are recommended. See Section 8 for more details.
Hedgehog	There is potential for hedgehogs to use hedgerows and tall ruderal vegetation on site for shelter, foraging and commuting. Hedgehogs may become trapped in any open pits/trenches left open at night. The clearance of vegetation poses a risk of injuring/killing individuals. New fencing could restrict movements of hedgehogs, restricting commuting and foraging opportunities.	Mitigation measures to avoid causing harm to hedgehogs are recommended. See Section 8 for more details.
Harvest Mouse	The hedgerows and tall ruderal vegetation offer some potential to support harvest mice.	Mitigation measures to avoid causing harm to harvest mouse are recommended. See

	There is a low risk that removal of this vegetation could result in killing/injuring individuals.	Section 8 for more details.
Hazel Dormouse	The hedgerows and copse offer some potential to support hazel dormouse. There is a low risk that removal of this vegetation could result in killing/injuring any individuals that may be present.	Mitigation measures to avoid causing harm to hazel dormouse are recommended. See Section 8 for more details.

2.0 Introduction and Terms of Reference

2.1 This report was commissioned to provide *inter alia*:

- An assessment of the likely impacts the proposed scheme might have upon notable and/or protected species and habitats and where such features might be affected to identify the need for any follow up detailed/specialist surveys.
- Recommendations to avoid potential adverse impacts upon notable and/or protected species and habitats identified as potential receptors within the construction footprint or the relevant zones of influence associated with each receptor.
- An informative document for use by the Local Planning Authority as part of the planning process.

2.2 Based on the JNCC (2010) guidelines an Extended Phase 1 Habitat Survey was undertaken by means of a walkover of the site and its immediate environs, including the licensable impact zone relative to the individual species.

2.3 The surveys were based on proposed plans provided by the client and aerial photographs.

2.4 This report outlines the methodology employed to undertake the surveys, results obtained and a discussion of the implications arising there from.

2.5 The areas surveyed are referred to as the 'site'.

3.0 Site Location

3.1 The site is situated at Little Court, Little Wratting, Haverhill, Suffolk CB9 7UD [NGR: TL68513 46990] (see Appendix One).

4.0 Legislation and Policy

4.1 Statutory Legislation

The Conservation of Habitats and Species Regulations 2017, or the 'Habitats Regulations 2017', transposes European Directives into English and Welsh legislation. This has recently been amended to the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) which continues the same provision for European Protected Species after Brexit. Under these Regulations, wild animals of a European Protected Species and their breeding sites or resting places are protected. It is an offence to deliberately capture, injure or kill any such wild animal and, in the case of great crested newts, deliberately take or destroy their eggs. It is also an offence to deliberately damage or destroy a breeding site or resting place of any such wild animal.

Wild animals of a European Protected Species are protected from disturbance. Disturbance of such wild animals includes in particular any disturbance which is likely:

(a) To impair their ability:

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

(b) To affect significantly the local distribution or abundance of the species to which they belong.

The Wildlife and Countryside Act 1981 (as amended) adds further protection to wildlife in England and Wales under Part 1. It is unlawful to intentionally kill, injure or take any wild bird or take, damage or destroy the nest of any wild bird whilst the nest is in use or being built. If the bird is included on the Schedule 1 list, it is additionally an offence to intentionally disturb its nest during the breeding season.

Certain species of animal are protected under the Wildlife and Countryside Act 1981 (as amended) by being included in Schedule 5 in respect of certain offences under Section 9. Such offences include:

9(1) Intentional killing, injuring or taking of a Schedule 5 animal,

9(4a) Damage to, destruction of, obstruction of access to any structure or place used by a Schedule 5 animal for shelter or protection,

9(4b) Disturbance of a Schedule 5 animal occupying such a structure or place.

Badgers are primarily protected by The Protection of Badgers Act 1992, under which it is a criminal offence to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so and to intentionally or recklessly interfere with a sett.

Under the Hedgerows Regulations 1997 it is an offence to remove most hedgerows without permission from the Local Planning Authority. Permission for the removal of hedgerows may

be refused if the Local Planning Authority determines any hedgerow to be 'important' under criteria listed in Part II of Schedule 1 of the Regulations.

4.2 Planning Policy

The National Planning Policy Framework relating to biodiversity (NPPF) is both guidance for local governing authorities on the content of their Local Plans and material consideration in determining planning applications. The NPPF has replaced much existing planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. However, the government circular 06/05: 'Biodiversity and Geological Conservation- Statutory Obligations and their impact within the Planning System', which accompanied PPS9, remains valid.

The NPPF places much emphasis on sustainable development and the need for the planning system to perform a number of roles including 'improving biodiversity' by protection of designated sites, priority habitats and priority species, ancient woodland and veteran trees.

The NPPF places more emphasis on ecological networks and their creation and states that the planning system should:

- Avoid, mitigate and compensate for significant harm to biodiversity and protect Sites of Special Scientific Interest and irreplaceable habitats such as ancient woodland.
- Provide a net gain for biodiversity wherever possible and contribute to the Government's commitment to halt the loss of biodiversity.

4.3 Notable Species and Habitats

4.3.1 The UK Biodiversity Action Plan (UK BAP) was drafted for 'Priority' species and habitats in which specific conservation targets were set and are regularly reviewed. UK BAP features do not receive any legal protection *per se*, but have biodiversity value within a national context. The UK BAP also serves as a framework for local biodiversity conservation efforts. UK BAP priority species and habitats were those that were identified as being the most threatened and requiring conservation action under the UK BAP. The original lists of UK BAP priority species and habitats were created between 1995 and 1999, and were subsequently updated in 2007, following a 2-year review of UK BAP processes and priorities, which included a review of the UK priority species and habitats lists. As a result of new drivers and requirements, the 'UK Post-2010 Biodiversity Framework', published in July 2012, has now succeeded the UK BAP. The UK BAP lists of priority species and habitats remain, however, important and valuable reference sources. Notably, they have been used to help draw up statutory lists of priorities in England and BAP species and habitats are still referred to at a local level (JNCC, 2013).

4.3.2 The Natural Environment and Rural Communities (NERC) Act 2006: Section 41 of the NERC Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been

drawn up in consultation with Natural England, as required by the Act.

4.3.3 The Section 41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

4.3.4 Section 17 of The Crime and Disorder Act (1998) places a duty on the local authority to *inter alia* "exercise its various functions with due regard to the likely effect of the exercise of those functions on, and the need to do all that it reasonably can to prevent, crime in its area"; this includes prevention of wildlife crime.

4.3.5 The Local Plan for Forest Heath and St Edmundsbury Councils (2015) states that:

"Policy DM10: Impact of Development on Sites of Biodiversity and Geodiversity Importance

When considering development proposals which may have an adverse impact on nature conservation sites or interests, the local planning authority will have regard to the expert nature conservation advice provided by Natural England, the Suffolk Wildlife Trust and other specialist sources and the following criteria:

a. the ecological or geological value and objectives for which the site was classified or designated;

b. the integrity of the site in terms of its wildlife value, its diversity and relationship with other ecological resources;

c. the cumulative impact of the proposal and other developments on the wildlife or geological value of the site;

d. the presence of protected species, habitat areas and wildlife corridors, or geological features, and proposed measures to safeguard and enhance them;

e. the opportunity to create new habitat areas and to improve the conservation status of locally vulnerable species;

f. guidance set down within Biodiversity Action Plans (BAP), habitat management plans and other relevant sources; and

g. the extent to which the imposition of conditions or planning obligation:

i. would mitigate the effects of the development and/or protect the geological or nature conservation value of the locality;

ii. ensure replacement habitat or features; and/or

iii. ensure that resources are made available for the future enhancement and management of the replacement habitat or feature to enable it to attain the quality and attributes that have been lost. Proposals for development which would adversely affect the integrity of areas of international nature conservation or geological importance, as indicated on the Polices Map, will be determined in accordance with the Conservation of Habitats and

Species Regulations 2010 (as amended).

Proposed development likely to result in adverse effects to a SSSI will not be permitted unless the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs.

Proposals which would result in significant harm to biodiversity, having appropriate regard to the 'mitigation hierarchy', will not be permitted.

Note: With respect to criterion g) the provision of replacement habitat or features is viewed as a last resort, rather than a regular development tool. Where compensation has been established as an acceptable approach, it will be necessary to provide replacement areas of at least equivalent value to the lost habitats. The local planning authority will normally expect new habitats to be in place to a satisfactory standard before the original habitats are lost.

Policy DM11: Protected Species

Development which would have an adverse impact on species protected by the Conservation of Habitats and Species Regulations (2010) (as amended), the Wildlife and Countryside Act (1981), the Protection of Badgers Act (1992), and listed in the Suffolk Biodiversity Action Plan, or subsequent legislation, will not be permitted unless there is no alternative and the local planning authority is satisfied that suitable measures have been taken to:

a. reduce disturbance to a minimum; and

b. i. maintain the population identified on site; or

ii. provide adequate alternative habitats to sustain at least the current levels of population.

Where appropriate, the local planning authority will use planning conditions and/or planning obligations to achieve appropriate mitigation and/or compensatory measures and to ensure that any potential harm is kept to a minimum.

Note: Developers should take into account separate legislation, Acts, regulations, case law, planning guidance and any subsequent replacement Supplementary Planning Documents and laws preventing interference with protected species, and should be aware of the need to undertake relevant assessments, studies and surveys as required prior to the submission of planning and related applications.

Policy DM12: Mitigation, Enhancement, Management and Monitoring of Biodiversity

In addition to, or as part of the requirements of other policies in this DPD, measures should be included, as necessary and where appropriate, in the design for all developments for the protection of biodiversity and the mitigation of any adverse impacts. Additionally, enhancement for biodiversity should be included in all proposals, commensurate with the scale of the development. For example, such enhancement could include watercourse improvements to benefit biodiversity and improve water quality, habitat creation, wildlife links (including as part of green or blue infrastructure) and building design which creates

wildlife habitat (e.g. green roofs, bird and/or bat boxes).

All new development (excluding minor household applications) shown to contribute to recreational disturbance and visitor pressure within the Breckland SPA and SAC will be required to make appropriate contributions through S106 agreements towards management projects and/or monitoring of visitor pressure and urban effects on key biodiversity sites."

5.0 Methodology

5.1 Desktop Study

A search of the Multi-Agency Geographic Information for the Countryside (MAGIC) website was undertaken with regards to the presence of statutory nature conservation sites within the potential zone of influence. In addition, a high-level screening review of the National Biodiversity Network (NBN) website was undertaken for an indication of the potential likely presence of protected species within 2km of the survey site; and records held by Suffolk Biodiversity Information Service (SBIS) of protected/notable species and designated sites within 2km of the target site, since 2010, were also consulted.

A search for waterbodies within 250m of the site was also undertaken using a range of mapping resources, including Google Earth, MAGIC and OS Maps.

A search of the Local Planning Portal was undertaken to identify any previous ecological surveys and planning applications close to the site.

5.2 Field Surveys

5.2.1 Extended Phase 1 Habitat Survey

A walkover of the site was undertaken on 19th November 2020, by Amy Smith and Stephanie Ridge, based on the JNCC (2010) Phase 1 Habitat Survey Guidelines. An additional walkover of the site was undertaken on 19th March 2021, by Stephanie Ridge, to include an area of site not previously included in the proposal.

The Phase 1 Survey was extended to include a search for signs of protected, principal importance and biodiversity action plan priority species and an assessment of the habitats present for their likelihood to support such species (see Annex One). Target notes (TN) are shown on a habitat map in Appendix Two.

5.2.2 Preliminary Roost Assessment - Building Inspection

A building inspection bat survey (including an examination of the internal structures, roof spaces and external spaces of all the buildings on site) was also undertaken 19th November 2020. The survey was carried out to assess the current usage of the building by bats and to advise on the impact on bats and legal obligations prior to building work being carried out.

The building inspection was carried out by Amy Smith and Stephanie Ridge, both level two class licensed bat surveyors [Licence No 2020-45057-CLS-CLS and 2019-44050-CLS-CLS respectively]. The building survey involved a thorough internal and external search of all suitable cavities, holes and crevices. All suitable areas and floors were inspected for the following signs:

- Bat droppings;
- Stains around roosting places and entrance points;
- Urine marks;

- Prey remains;
- Areas devoid of cobwebs;
- Live or dead bat;
- Suitable cracks and crevices for bats to enter.

Equipment available for the building survey included various sized torches and close-focusing binoculars.

A scoring system was applied to the building using the following criteria from the Bat Conservation Trust's Good Practice Guidelines (2016):

Low/Negligible probability of bat interest. Buildings in this category have one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by large numbers of bats and therefore unlikely to support a maternity or hibernation roost.

It must be borne in mind that a building from this latter group can become suitable for bats due to refurbishment. This often happens to houses once the attic space has been cleaned and under-felted prior to timber treatment.

Moderate probability of bat interest. The buildings in this category contain one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status with respect to roost type only. Occasionally a light scattering of droppings will be recorded in an attic or a semi-derelict building, which is considered by the surveyor unsuitable for use as a bat roost. The moderate probability of bat interest category can be used based on the surveyor's experience.

High probability of bat interest. This group includes buildings with known roosts or signs of bat occupancy such as droppings and staining at a roost entrance. The structure will have one or more potential roost sites noted that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. The description of high probability buildings will also contain an indication as to the time of the year when it will be occupied by bats i.e. Summer – nursery roost. Winter – hibernation.

5.2.3 Ground Level Roost Assessment - Trees

A preliminary ground level roost assessment was also carried out on the 19th November 2020 with a thorough ground level roost assessment carried out on 19th March 2021. The aim of the survey was to determine the potential presence of bats within trees that are in close proximity to the working areas and the need for further survey work and/or advise on the impact on bats and legal obligations prior to any tree works being carried out.

The preliminary ground level roost assessment was also carried out by Amy Smith and Stephanie Ridge, with Stephanie Ridge also carrying out the detailed ground level roost

assessment The survey included a detailed inspection from the ground level of the exterior of the trees to be removed, to look for features that bats could use for roosting including:

- Woodpecker holes;
- Rot holes;
- Hazard beams;
- Other vertical or horizontal cracks and splits;
- Partially detached bark;
- Knot holes from pruning or naturally shed branches;
- Tear-outs;
- Cankers;
- Other hollows or cavities;
- Double-leaders with compression forks;
- Overlapping stems or branches;
- Ivy cladding (diam. >50mm)
- Bat, bird, dormouse boxes.

Equipment available for the survey included high-powered hand-held torches and close-focusing binoculars. Detailed information on each Potential Roosting Feature (PRF) was recorded including type of feature, height above ground level and aspect. Each tree was then categorised using the following scoring system in the BCT Good Practice Guidelines (2016):

- **Negligible** - negligible features likely to be used by roosting bats
- **Low** – 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.
- **Moderate** – A tree with one or more potential roosting sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.
- **High** – A tree with one or more potential roost sites that are obviously suitable for use by larger number of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

5.3 Environmental DNA survey

When great crested newts inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. Analysis of pond water samples for these small environmental DNA (eDNA) traces can be undertaken to confirm great crested newt habitation or establish great crested newt absence.

Ponds 1 and 2 were subject to eDNA surveying with water samples collected on 15th April 2021 by Stephanie Ridge and Emma Watson. Both are trained in the use of eDNA sampling.

The samples were taken from the waterbody and were submitted for eDNA analysis to the

protocol stated in DEFRA WC1067 (Biggs et al., 2014).

5.4 Constraints and Survey Limitations

There were no constraints specific to the survey site but generally, surveys only provide a 'snap-shot' of information temporally and spatially from which behaviour can be extrapolated to make an ecological evaluation. Ecological conditions can vary on a yearly and seasonal basis.

Waterbodies were identified using multiple mapping sources during the desktop survey. Some waterbodies are not illustrated on maps, particularly those that are small in size and within residential properties, therefore some waterbodies may have gone undetected.

The initial survey was undertaken during the winter months which can limit botanical identification as it is outside of the main plant growing season. However, what remains of vegetative growth is generally sufficient to allow an experienced surveyor to make a general assessment about the habitat composition and quality of a site and identify the potential for any notable or protected species. Similarly, some fauna is less active/dormant at this time of the year, again this constraint can be addressed by an experienced surveyor identifying potential presence from the habitat composition of the site and neighbouring landscape, and the identification of any field signs present.

6.0 Results

6.1 Background Data

6.1.1 Statutory and Non-Statutory Nature Conservation Sites

Table Two: Statutory and Non-Statutory Nature Conservation Sites

Site Name	Designation	Grid ref	Distance from site	Reasons for designation
Norney Plantation	CWS	TL670474	1.4km	Ancient woodland with semi natural woodland present at the edges, with an understory of dog's mercury and nettle.
Broad Street Old Allotment	CWS	TL669460	1.9km	Common lizard, grass snake and high numbers of slow worm are known to be present on this disused allotment site. The site comprises a mosaic of unmanaged grassland with scattered deciduous trees, mature hedge lines, a small watercourse and small ponds.
River Stour Woodland	CWS	TL702475	1.7km	Steep slope of deciduous woodland above the River Stour. The site supports a valuable mollusc fauna.
Haverhill Disused Railway Line	CWS	TL663465	1.7km	Dense, species rich scrub with patches of unimproved grassland. Common lizard and slow worm are known to inhabit the railway walk as well as a variety of breeding birds.
Kedington Churchyard	CWS	TL705470	1.8km	Churchyard with large numbers of flowering plants including meadow saxifrage, yellow star of Bethlehem. The church tower harbours a bat roost and tawny owl are also present on site.
Ann Sucklings Way	CWS	TL672470	1.0km	Designated for the presence of crested cow-wheat. A lane with wide grassy verges and sections of old hedgerow.
Haverhill Railway Walks	LNR	TL 679 451	1.7km	A wildlife corridor of scrub and mature trees following the disused railway line. This corridor supporting a variety of species of birds, insects and plants.

Nb. CWS= County Wildlife Site, LNR= Local Nature Reserve

6.1.2 Notable Species and/or Protected Species

Within the records consulted, since 2010, notable species of relevance to the onsite habitats recorded within 2km of the site included: badger, barn owl, bat sp., brambling, brown long eared bat, bullfinch, common frog, common pipistrelle, common toad, Daubenton's bat, dunnock, great crested newt, harvest mouse, hazel dormouse, hedgehog, house martin, house sparrow, little owl, Nathusius' pipistrelle, Natterer's bat, noctule, serotine, smooth newt, song thrush, soprano pipistrelle, swift, tawny owl, western barbastelle and yellowhammer.

6.2 Field Survey - Habitats

6.2.1 Vegetation

6.2.1.1 *Tall Ruderal*

There are two areas of tall ruderal vegetation present on site to the south of Structure 2 and in the south eastern corner. Species present include nettles, cleavers, dock sp., spear thistle, oxeye daisy and creeping buttercup.

6.2.1.2 Improved Grassland

The southern part of the site consists predominately of grazed paddocks of improved grassland. Species present include perennial rye-grass, creeping buttercup and bristly oxtongue. The field was short grazed at the time of survey making it difficult to identify all species of grasses present.

6.2.1.3 *Semi Improved Grassland*

There is an area of semi-improved grassland along the northern and eastern side of the horse-riding arena and at the eastern end of the paddocks. Species present include perennial rye-grass, Yorkshire fog, cock's-foot grass, creeping buttercup, willowherb sp., ragwort, ground elder, dock sp., oxeye daisy, selfheal, umbellifer sp. and *Prunus* saplings.

6.2.1.4 Wooded Copse

There are two copse present on site, Copse 1 is present along the northern boundary of the site. A small pond is present within this copse. Copse 2 is present at the south western corner of the site. Tree species present include holly, ash, willow, hawthorn, cherry, apple, sycamore, larch and scots pine. Species present in the understory include nettle, spear thistle, elder, perennial rye-grass, bristly oxtongue, cleavers, oxeye daisy, white dead-nettle, ground- ivy, iris sp., bramble and umbellifer sp.

6.2.1.5 Boundary Hedgerow/Trees

There are hedgerows present on the eastern (H1) and southern (H2) boundaries of the site. See Table Three for more details.

Table Three: Hedgerows

Hedgerow	Height (m)	Width (m)	Description
H1	2-3	3	Mature, species-poor hedgerow with height varying along its length. Dense to base with no gaps, with a thinner section covering the old gateway at southern corner. The hedgerow is relatively unmanaged. Species: hawthorn; blackthorn; field maple; bramble.
H2	5.5	3.5	Species-poor, dense hedgerow with trees; narrow understory comprising ground-ivy and nettle. Beyond the hedge are arable fields. Species: hawthorn; dog rose; dogwood and elm.

Nb. All measurements are approximate

6.2.2 Miscellaneous

6.2.2.1 Ponds

There are two ponds present on site, Pond 1 and Pond 3. Pond 1 is adjacent to the northern boundary, within the copse area. This pond is small with steep banks down to the water level. Pond 3 is a man-made fishpond in the centre of the stable block. The pond is raised approximately 1 meter above ground level with brick sides and contained high numbers of large ornamental carp fish during the survey.

6.2.2.2 Buildings

There are two buildings present within the site boundary. Structure 1 is a modern brick and breeze block stable block with timber cladding and pan tile roof. There are 14 individual stables in total, which were all occupied by horses during the survey. Structure 2 is split into two parts: the eastern side is used for horse feed and equipment storage and has timber clad walls; the western side has been renovated into an office with large windows. These are described in more detail below in Section 6.3.2.1

6.2.2.3 Ditches

A slow-flowing, shallow ditch is present adjacent to the northern side of the paddock. The ditch contained 3 inches of water during the walkover survey.

6.2.2.4 Hardstanding

A large part of the site comprises concrete or gravel hardstanding.

6.2.2.5 Horse Riding Arena

There is a horse-riding arena present on site. The arena has a sand base to it.

6.2.2.6 Log pile

A log pile is present in Copse 1 (TN3).

6.2.2.7 Earth mound

An earth mound is present in Copse 2 (TN4). Rabbit diggings were present within the earth mound.

6.2.3 Neighbouring Habitat

The site is situated in the small village of Little Wratting, close to the town of Haverhill in West Suffolk. The site is mainly surrounded by arable land and residential properties, with a large residential development being undertaken to the south west of the site. Access to the new dementia care village development will be via the existing access off Haverhill Road.

6.3 Field Survey – Notable and/or Protected Species

6.3.1 Nesting Birds

The hedgerows, trees and tall ruderal vegetation onsite could support nesting birds during the breeding season, including ground nesting birds. The buildings could also support nesting birds with 14 remnant swallows nests identified above the light fixtures in the stables during the walkover survey (TN1). Evidence of nesting was also seen within the Copse 1 (TN2).

6.3.2 Bats

6.3.2.1 Buildings

There are two buildings present onsite. During the walkover survey, both buildings were assessed for their potential to support roosting bats, the results of which are given in Table Four.

Table Four: Results of Preliminary Roost Assessment – Building Inspection

Building	Description	Potential Roosting Features (PRFs) and General Comments	Bat Roost Potential
Structure 1	Modern brick and block-built stable block with modern timber rafters and a red pantile pitched roof. The walls are brick at the base until 1 foot high and then clad with timber. The building has a U-shape design with central area of open hardstanding. There is a small storage room which extends to the north of the building.	The exterior of the building is in very good condition with no gaps present in the timber cladding or under the roof tiles. The eaves comb is present with only minor damage in places, which looks due to rodents. There are some small gaps present between the blocks and the roof felt at the gable ends. The stables block has no loft void and each stable is open to the rafters. The tiles are under felted with non-bitumen-coated roofing membrane (NBCRM) felt. There are some small gaps present in the felt that looked to be from rodent damage.	**Negligible**

		The roof overhangs to create a covered walkway outside each stable. This area has timber cladding on the ceiling creating a small void, however, the side of this void is open into the stables. The overhanging porch is supported by modern timber uprights. The store roof at the northern end of the stable block has ply boarding on sections of the walls and a false ceiling creating a void above. This loft void is open into the adjoining stables. No evidence of bats was seen in this structure. Bats could access the inside of the stables through the open stable doors but there was a lack of suitable roosting spaces and large amounts of ambient light.	
Structure 2	Structure two is a barn which has been divided into two parts, the eastern side comprising a modern timber frame with timber cladding on the walls. There is a layer of felt under the timber wall cladding in places. The roof is pitched red pantiles with non-bitumen-coated roofing membrane under felting. The room is used for storage and horse feed. The western side of the structure has been developed into an office space.	<u>Eastern side</u> The roof felt is in good condition with no visible holes or gaps. The are no gaps visible in the external pantiles or ridge tiles. Light influx was visible between some of the timber panels on the walls. Generally, there is a lack of suitable roosting features present in the eastern side. No evidence of bats was seen. <u>Western side.</u> There were no gaps visible in the external pantiles or ridge tiles. Internally the building has been lined and plastered, with the ceiling following the roof shape into the apex of the roof. There is no loft void present. There is no access for bats into this part of the building. No evidence of bats seen, with high levels of ambient light and a lack of suitable roosting features.	**Negligible**

6.3.2.2 Trees

Trees on site were assessed for their potential to support roosting bats, the results of which are given in Table Five. Trees within the copse with negligible bat roosting potential are not listed.

Table Five: Results of Ground Level Tree Roost Assessment

Tree Reference	Species	Potential Roosting Features (PRFs) and General Comments	Bat Roost Potential	To Be Retained?
T1	Horse chestnut	Mature tree with no potential roosting features present	Negligible	**No**
T2	Horse chestnut	Mature tree with no potential roosting features present	Negligible	**No**
T3	Horse chestnut	Some rot holes and areas of flaking bark.	Low	**No**
T4	Horse chestnut	Mature tree with no potential roosting features present	Negligible	**No**
T5	Walnut	Mature tree with no potential roosting features present	Negligible	Yes
T6	Cherry	Mature dead tree, large amounts of peeling bark creating suitable features for individual opportunistic bats.	Low	**No**
T7	Ash	Semi-mature ash with ivy clad stem	Low	**No**
T8	Ash	Semi-mature ash with ivy clad stem	Negligible - Low	**No**
T9	Ash	Mature ash with dense ivy covering the stem and rot holes present	Low	**No**
T10	Willow	Partially fallen with an ivy clad trunk and intertwined with other trees.	Low	Yes
T11	Unknown	Partially fallen with bent over stem, stem heavily ivy clad and tangled in amongst other trees	Low	Yes
T12	Silver birch	Large limbs snapped off and partially ivy clad	Low - Moderate	Yes
T13	Horse chestnut	Flaking bark creating suitable roosting features	Low	Yes

T14	Horse chestnut	Flaking bark creating suitable roosting features	Low	Yes
T15	Silver birch	Limbs snapped off and rotten limbs present	Low	Yes
T16	Horse chestnut	Mature tree with no potential roosting features present	Negligible	Yes
T17	Horse chestnut	Mature tree with no potential roosting features present	Negligible	Yes
T18	Horse chestnut	Mature tree with no potential roosting features present	Negligible	Yes
T19	Horse chestnut	Mature tree with no potential roosting features present	Negligible	Yes
T20	Lime	Mature tree with no potential roosting features present	Negligible	Yes

6.3.2.3 Foraging/Commuting

The hedgerows and trees offer linear features that could be used by foraging and commuting bats. The open grassland also offers foraging opportunities for bats.

6.3.3 Badgers

There is suitable habitat for foraging and commuting badgers, although no immediate evidence of badgers or any setts were seen during the survey.

6.3.4 Great Crested Newt

6.3.4.1 Terrestrial Habitat

The marginal semi-improved grassland, hedgerows and copse offer good opportunities to foraging/commuting/resting/sheltering great crested newts (GCN). A rotting log pile was also identified on site (TN3); these logs could provide suitable resting/sheltering/hibernating habitat for GCN. The earth mound (TN4) could also provide suitable resting/sheltering/hibernating habitat for GCN.

6.3.4.2 Waterbodies

There are three waterbodies within 250m of the site.

Pond 1 is within the site boundary and is a small pond within the copse area. The pond has steep banks down to the water level.

Pond 2 is a medium-sized pond 35m to the east of the site and is located within an area of trees and scrub.

Pond 3 is a man-made fishpond in the centre of the stable block. The pond is raised

approximately 1 meter above ground level with brick sides and contained large numbers of large ornamental carp fish during the survey.

6.3.4.3 Habitat Suitability Index (HSI) Assessment

The waterbodies within the potential zone of influence were subject to an HSI assessment. The results of this are given in Table Six and the key to the score given in Table Seven.

Pond 1 was assessed as 'Good', Pond 2 was assessed as 'Excellent' and Pond 3 assessed as 'Poor'.

Table Six: Habitat Suitability Index Scores

Pond reference:	P1	P2	P3
Location	1	1	1
Pond area	0.3	0.5	0.1
Pond drying	1	1	0.9
Water quality	1	1	0.67
Shade	0.6	1	1
Fowl	1	1	1
Fish	1	1	0.01
Ponds	0.7	0.7	0.7
Terr'l habitat	0.67	0.67	0.01
Macrophytes	0.6	0.7	0.3
HSI	**0.74**	**0.83**	**0.26**

Table Seven: Categorisation of HSI Scores

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

6.3.5 Results of Environmental DNA (eDNA) Survey

Water samples from the Ponds 1 and 2 were taken and analysed for presence of great crested newts. The results are shown in Table Eight.

Table Eight: eDNA Results

Pond	Score	GCN present
Pond 1	0/12	No
Pond 2	0/12	No

6.3.6 Barn Owl

The grass paddocks and neighbouring habitat offer limited foraging habitat for barn owls. The trees and Structures 1 and 2 are not suitable for roosting/nesting barn owl. No evidence of barn owls was found during the walkover survey. No further recommendations are made regarding barn owl.

6.3.7 Hedgehog

The hedgerows and copse on site offer suitable habitat for commuting/ foraging and resting/hibernating hedgehogs.

6.3.8 Harvest Mouse

The tall ruderal vegetation and hedgerows are suitable to support harvest mouse. No evidence of harvest mouse was seen during the walkover survey.

6.3.9 Hazel Dormouse

The hedgerows and copse are suitable to support hazel dormouse. No evidence of hazel dormouse was seen during the walkover survey.

7.0 Impact Assessment Criteria

Where possible, features have been subjected to a full impact assessment using the criteria below. For those features where further surveys are deemed necessary, a full impact assessment will be undertaken once sufficient information is available, based on the results of such surveys.

The assessment of the impacts and effects[1] on important ecological features within the Zone of Influence (ZoI) of the Scheme has been based on the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines (2018). This process includes:

- Identification of ecological features likely to be affected;
- Identification of which ecological features are 'important', and therefore should be subject to detailed assessment;
- Characterising whether the effect on these ecological features is 'significant' in terms of the extent, magnitude, duration, reversibility, frequency/timing and whether it is likely to have a positive or negative effect.

7.1 Identifying the Zone of Influence (ZoI)

The 'Zone of Influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This may be confined to within the site boundaries and land immediately adjacent, but for some ecological features may extend beyond the project site. For example, great crested newts (and breeding colonies) could potentially also be affected within 250-500m metres of construction activities, depending on the scale of works and habitats present.

7.2 Evaluation

7.2.1 Determining Importance of Ecological Features and Resources

The CIEEM Guidelines acknowledge that determining importance of ecological features and resources is a complex and subjective process, but it provides key factors to take into consideration. These include geographic context; legal protection or control; site designations and features; habitat type and priority; biodiversity value; species of conservation value (including; population size, distribution and abundance); ecosystem value/natural capital.

Focusing on assessments of biodiversity value, there are various characteristics that can be used to identify ecological resources or features that are likely to be important in terms of biodiversity. These include:

[1] Note: The following definitions are used for the terms 'impact' and 'effect':
Impact – Actions resulting in changes to an ecological feature. For example, the construction activities of a development removing a hedgerow.
Effect – Outcome to an ecological feature from an impact. For example, the effects on a dormouse population from loss of a hedgerow (CIEEM 2018).

- Rare or uncommon species in the local, national or international context;
- Endemic or locally distinct sub-populations of a species;
- Species on the edge of their distribution;
- Notably large populations of animals or concentration of animals considered uncommon or threatened in a wider context;
- Species-rich assemblages of plants or animals;
- Ecosystems and their component parts which provide the habitats required by the above species, populations and/or assemblages;
- Plant communities (and associated animals) considered typical of valued natural/semi-natural vegetation types;
- Habitat diversity, connectivity and/or synergistic associations.

This assessment also measures the contribution to nature conservation interest from non-statutory sites, and the presence of habitats and species which, although not specially protected, are still considered to be of local, regional or national conservation importance.

This latter category includes identification of flora and fauna that are listed as Species of Principal Importance under the Natural Environmental and Rural Communities Act 2006 (NERC), those prioritised under the UK Biodiversity Action Plan (UK BAP)/Local Biodiversity Action Plans (LBAP), as well as Red Data Book Species.

7.2.2 Considering Geographic Context

The following frame of reference[2] is used when considering the importance of an ecological feature:

- International and European;
- National;
- Regional;
- Metropolitan, County, vice-county or other local authority-wide area;
- River Basin District;
- Estuarine system/Coastal cell; and
- Local[3]

[2] Note- this is not a hierarchy
[3] Where appropriate, impacts may also be assessed at the site scale, although it is acknowledged that this can be difficult to assess

7.2.3 Prediction of Ecological Impacts and Effects

This assessment has considered potential impacts on each ecological feature determined as 'important' from all phases of the project. Impacts are characterised, through consideration of their magnitude and/or extent, the route through which they occur (whether direct, indirect, secondary or cumulative) and their duration and their reversibility. Positive impacts are assessed as well as negative ones.

7.2.4 Significance of Effects

The CIEEM guidelines (2018) explain 'significant effect' with the following definition:

"For the purpose of EcIA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local."

A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project.

The following characteristics are considered when describing ecological impacts and effects:

- positive or negative
- extent
- magnitude
- duration
- frequency and timing
- reversibility

Following the characterisation of impacts and effects, an assessment of the ecological significance of an effect is made. The Guidelines promote a transparent approach in which a beneficial or adverse effect is determined to be significant or not, in ecological terms, in relation to: the conservation objectives of the defined site, the structure and functions of the ecosystem(s) and/or the conservation status[4] of habitats or species within a given geographical area. The Guidelines also advise that it is important to consider the likelihood of a predicted impact.

[4] Habitats: conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area
Species: conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

The Guidelines also state that:

"After assessing the impacts of the proposal, all attempts should be made to avoid and mitigate ecological impacts. Once measures to avoid and mitigate ecological impacts have been finalised, assessment of the residual impacts should be undertaken to determine the significance of their effects on ecological features. Any residual impacts that will result in effects that are significant, and the proposed compensatory measures, will be the factors considered against ecological objectives (legislation and policy) in determining the outcome of the application."

For the purposes of this report, a detailed impact assessment has only been presented for residual effects present after mitigation, although the above assessment has been undertaken for each important ecological feature pre-mitigation, to inform the recommendations outlined in Section Eight.

7.2.5 Key Principles Underpinning Recommendations

The following hierarchy of principles underpin EcIA and are followed in the assessment undertaken in this report:

- Avoidance - Seek options that avoid harm to ecological features (for example, by locating on an alternative site). This is the preferred option.
- Mitigation - Negative effects should be avoided or minimised through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.
- Compensation - Where there are significant residual negative ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.
- Enhancement - Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

7.2.6 Potential Effects

Based on the results outlined in Section Six, Table Eight provides a summary of the important species and habitats that are known to be present and/or have potential to be significantly affected by the proposed construction without mitigation.

Table Nine: Potential Receptors

Potential Receptor
Nesting Birds
Bats
Badger
Hedgehog
Harvest Mouse
Hazel Dormouse

8.0 Impact Assessment, Conclusions and Recommendations

8.1 General Description and Best Practice Recommendations

8.1.1 Conclusions

The site is situated in the small village of Little Wratting, close to the town of Haverhill, in West Suffolk. The site comprises areas of hardstanding, paddocks, two copse and small pond in the north eastern corner. There are two buildings on site, a stable block and barn, which has been partly converted into an office. The is also a large, sand horse- riding arena on site. The site is mainly surrounded by arable land and residential properties, with a large residential development being undertaken to the south west of the site.

8.1.2 Recommendations

Any works close to trees should be undertaken in accordance with the British Standard BS 5837: 2012 and National Joint Utilities Group Guidelines (NJUG 4).

8.2 Desktop Search Results - Designated Sites and Notable/Protected Species

8.2.1 Conclusions

There are six county wildlife sites and one local nature reserve within two kilometres of the site, all of which are over 1km from the site. Impacts on these sites are not anticipated and further recommendations have, therefore, not been made.

Within the records consulted, within the last ten years, notable species of relevance to the onsite habitats recorded within 2km of the site included: badger, barn owl, bat sp., brambling, brown long eared bat, bullfinch, common frog, common pipistrelle, common toad, Daubenton's bat, dunnock, great crested newt, harvest mouse, hazel dormouse, hedgehog, house martin, house sparrow, little owl, Nathusius' pipistrelle, Natterer's bat, noctule, serotine, smooth newt, song thrush, soprano pipistrelle, swift, tawny owl, western barbastelle and yellowhammer.

8.2.2 Recommendations

Species-specific recommendations have been detailed below under the appropriate headings for the majority of the species found with the records consulted.

8.3 Nesting Birds

8.3.1 Conclusions

The habitats onsite could support nesting birds during the breeding season, including ground nesting birds in the tall ruderal vegetation. The buildings could also support nesting birds, with fourteen disused swallows' nests identified above the light fixtures in the stables during the walkover survey. Evidence of nesting was also seen within Copse 1.

If birds' nests are disturbed during the process of incubation and rearing then mortality of chicks could occur.

In the long-term, there will be a loss of nesting habitat from the loss of the stable block, tall ruderal vegetation and any trees lost.

8.3.2 Recommendations

Any works involving vegetation clearance and any building demolition should avoid the bird breeding season (late February to August inclusive) to avoid damage to nests/ harm to nesting species. For swallows the breeding season is extended to the end of September. If it is not practicable to avoid the bird breeding season, then an experienced ecologist should undertake a nesting bird check to ascertain the amount of birds using the site and where they are so they can be avoided. Results of nesting bird surveys are only valid for 48hrs and, therefore, multiple surveys may be required for phased works.

Where possible, hedgerows and/or trees should be retained.

It is recommended that the new site plans include mitigation for the loss of swallow nesting habitat, as well as the provision of nesting habitats for other species in the form of nest boxes (see Appendix Four for designs and numbers to be installed). As mitigation for the loss of some of the trees from Copse 1, nesting boxes will be installed on the retained trees.

Following mitigation and/or enhancement measures, the residual impact is assessed as minor beneficial.

8.4 Bats

8.4.1 Conclusions

The hedgerows and trees offer linear features that could be used by foraging and commuting bats. The open grassland also offers foraging opportunities for bats. The site is also considered to be well connected to other areas of suitable roosting and/or foraging/commuting habitat. Overall, in accordance with Bat Conservation Trust guidelines (Collins, 2016), the site was assessed as being of moderate suitability to support foraging and commuting bats. It is understood that those features of the highest value to bats are to be retained as part of the proposed development.

No evidence of bats was seen during the building and tree inspections. Structures 1 and 2 both had negligible potential to support roosting bats. Of the trees inspected, one tree had negligible-low potential to support roosting bats, nine trees had low potential to support roosting bats and one tree had low-moderate potential to support roosting bats due to the presence of ivy cladding, flaking bark, snapped limbs and rot holes. All the other trees on site were assessed as having negligible potential to support roosting bats due to a lack of suitable features.

If bats are present at the time of the site clearance works then there is a risk of injuring/killing individuals. If tree or hedge lines are removed then connectivity across the landscape could be lost.

8.4.2 Recommendations

Hedgerows and trees along the site boundaries should be retained to maintain existing foraging and commuting corridors. Within the site all trees should be retained where possible. If trees identified as having low or negligible/low bat roosting potential are to be removed then it is recommended that a pre works inspection using ladders and endoscope or via aerial inspection is undertaken by, or supervised by, a licenced ecologist immediately prior to felling, to ensure that no bats are present. The trees should then be section felled. T12 was assessed as having low-moderate bat roosting potential and will be retained and not impacted or further bat activity survey will be needed. Trees assessed as having negligible bat roosting potential require no further inspection prior to them being removed.

It is recommended that guidelines from the Bat Conservation Trust and ILP (Institute of Lighting Professionals) on bats and artificial lighting are followed. Lighting levels should be kept to a minimum on the boundary hedgerows and onsite trees to retain dark commuting corridors. Generally, it is recommended to retain as much of the hedgerow and copse as possible to maintain a linear commuting route for bats as well as suitable roosting habitat in the copse. Any potential new lighting impacts associated with the proposed development (both during and post-construction phase) should be minimised by the use of warm white light sources and directional downlights - illuminating below the horizontal plane which avoids light trespass into the environment. The use of light directional accessories such as baffles, hoods and louvres can assist with this. Lighting types to be avoided include any blue-white light sources, metal halide and mercury lamps, and any form of up-lighting, which lights above the horizontal plane, illuminating trees and foraging habitat.

As compensation for loss of trees with potential roosting features, one bat box will be installed on the trees around site for each tree with roosting features that is removed, ie if 4 trees with roosting features are removed, 4 boxes will be installed as compensation. As site enhancement, two integrated bat roost boxes will be included in the design of the new building as an enhancement, with an additional two boxes placed in retained trees. There is the potential to enhance the site for bats through bat friendly planting. (see Appendix Four for details).

Following mitigation and/or enhancement measures, the residual impact is assessed as beneficial.

8.5 Badger

8.5.1 Conclusions

The habitat on site and part of the wider site provides suitable habitat to support foraging and commuting badgers. No evidence for badgers or setts was noted during the walkover survey.

If badgers are using the site at the time of the works, then there is a risk of them becoming trapped in any open trenches/pits created during works.

8.5.2 Recommendations

It is recommended to cover any trenches/pits created during the works each night to prevent badgers from becoming trapped. Alternatively, a ramp should be installed in these features to allow badgers to escape.

Following mitigation and/or enhancement measures, no significant effect is anticipated.

8.6 Great Crested Newts

8.6.1 Conclusions

There were three waterbodies noted within the zone of influence of the proposed development. All of the waterbodies were assessed during the walkover survey.

Using the Habitat Suitability Index Assessment (HSI) the waterbodies within the zone of influence of the proposed works were assessed for their suitability to support great crested newts. The HSI scores were considered along with the suitability of the terrestrial habitats within the working areas; the areas of rough grassland, tall ruderal vegetation, hedgerows and wooded areas are considered suitable. Phase 2 GCN surveys, in the form of environmental DNA surveys, were undertaken on Pond 1 and Pond 2, the results showed no newts to be present in these ponds.

8.6.2 Recommendations

No further recommendations are made.

8.7 Hedgehog

8.7.1 Conclusions

There is potential for the hedgerows and tall ruderal vegetation on site to be used by hedgehogs for shelter, foraging and commuting.

Hedgehogs may become trapped in any pits/trenches created by the works if left uncovered at night and the clearance of vegetation poses some risk of injuring/killing individuals. Installation of new fencing could restrict foraging and commuting routes of hedgehogs.

8.7.2 Recommendations

It is recommended that hedgerows are retained wherever possible.

Pits/trenches created during the works should be covered up or fenced off each night. If this is not practicable then ramps should be placed in each pit nightly to allow individuals to escape.

Clearance of hedgerows and vegetation should be undertaken by hand, avoiding frosty days when hedgehogs may be hibernating.

Provisions should be made to allow free movement of individuals in/out of the site and for commuting between green spaces created in the proposed development (see Appendix Four).

With proposed mitigation it is assessed there will be no significant effect on this species.

8.8 Harvest Mouse

8.8.1 Conclusions

The tall ruderal vegetation and hedgerows have low potential to support harvest mice. There were two records of harvest mice in the desktop study, albeit both records were located over 1km from the site. Previous large-scale surveying in the area to the south west of the site in 2015 revealed no evidence of harvest mice (FPCR Environment and Design Ltd. 2015).

Any vegetation clearance in suitable areas could result in injuring/killing individuals and loss of habitat, although the extent of suitable habitat is relatively limited.

8.8.2 Recommendations

The majority of the boundary hedgerows will be retained as part of the development, a small section of hedgerow (maximum 2m) will be removed to facilitate the gate access to the right of way. Due to the small scale of the vegetation removal, it is deemed unnecessary for a pre-works check to be undertaken, however, in the case that any nests are discovered then works should stop and advise sought from Greenwillows Associates.

Should larger quantities of boundary hedgerow need to be removed then further surveys may be required.

The tall ruderal vegetation should be cleared outside of the harvest mouse breeding season (May-October inclusive), with the area finger-tip searched by an ecologist prior to clearance and clearance undertaken from the field edge towards the hedge in order to encourage any harvest mice that may be present to move towards the hedgerows and away from the site.

With proposed mitigation it is assessed there will be no significant effect on this species.

8.9 Hazel Dormouse

8.9.1 Conclusions

The hedgerows have low potential to support hazel dormouse. However, the surrounding land is predominantly arable and, therefore, there is limited connectivity to other suitable habitats. There was one record of hazel dormouse in the desktop study, this being 1.5km to the south of the site.

Any vegetation clearance in suitable areas could result in injuring/killing individuals and loss of habitat, although, this is relatively small within the wider landscape.

8.9.2 Recommendations

The majority of the boundary hedgerows and copse will be retained as part of the development, a small section of hedgerow (maximum 2m) will be removed. Due to the small scale of the hedgerow removal, it is deemed unnecessary for a pre-works check to be undertaken of the hedgerow, however, in the case that any nest is discovered then works should stop and advise sought from Greenwillows Associates. If any vegetation removal within the copse is required, then a pre works check for hazel dormouse will be undertaken

prior to the removal of this vegetation.

Should larger quantities of boundary hedgerow need to be removed then further surveys will be required.

With proposed mitigation it is assessed there will be no significant effect on this species.

9.0 References

BSI (BS 5837:2012) Trees in Relation to Design, Demolition and Construction – Recommendations. British Standards Institute.

BSI (BS 42020:2013) Biodiversity - Code of practice for planning and development. British Standards Institute.

Biggs, J. Ewald, N. Valentini, A. Gaboriaud, C. Griffiths, RA. Foster, J. Wilkinson, J. Arnett, A. Williams, P. and Dunn, F. (2014) Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust: Oxford

CIEEM, CIRIA, IEMA (2016) Biodiversity Net Gain: Good Practice Guidelines for Development.

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester

Collins, J. (ed.) (2016) Bat surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.) The Bat Conservation Trust, London.

EU Habitats Directive: https://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

FPCR Environment and Design Ltd (2015) Hazel Dormouse Report. Great Wilsey Park, Haverhill.

HMSO (1981) Wildlife and Countryside Act. HMSO, London.

HMSO (1992) Protection of Badgers Act. HMSO, London.

HMSO (1994) Biodiversity The UK Action Plan. HMSO, London. Available at: http://jncc.defra.gov.uk/ukbap

HMSO (1997) Hedgerow Regulations. HMSO, London.

HMSO (1998) Crime and Disorder Act, c, 17 (1)(a). HMSO, London

HMSO (2000) Countryside and Rights of Way (CRoW) Act. HMSO, London.

HMSO (2006) Natural Environment and Rural Communities Act 2006. HMSO, London.

HMSO (2017) Conservation of Habitats and Species Regulations 2017. HMSO, London.

Institution of Lighting Professionals & Bat Conservation Trust (2018) Bats and Artificial Lighting in the UK. Bats and the Built Environment: Guidance Note 08/18. Institution of Lighting Professionals

JNCC (2010) Handbook for Phase 1 Habitat Survey. Peterborough.

Ministry of Housing, Communities and Local Government (2019) National Planning Policy Framework

Multi-Agency Geographic Information for the Countryside: http://www.magic.gov.uk/.

National Biological Network Website: http://www.searchnbn.net

NJUG (2007) Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees. The National Joint Utility Group, Volume 4.

Office of the Deputy Prime Minister (2005) Government Circular 06/05: Biodiversity and Geological Conservation- Statutory Obligations and Their Impacts Within The Planning System. ODPM London available at https://www.gov.uk/government/publications/biodiversity-and-geological-conservation-circular-06-2005

Richard Green Ecology. (Accessed 08.12.2020) Swallow Nest box design https://www.richardgreenecology.co.uk/swallow-nest-site-mitigation/

RSPB (accessed 08.12.2020) https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/swallow/attracting-swallows-to-nest/

Stace, C. (2019). New Flora of the British Isles, 4th Edition. C & M Floristics, Middlewood Green, Suffolk.

West Suffolk- Forest Heath and St Edmundsbury Councils (2015) Forest Heath and St Edmundsbury Local Plan. Joint development Management Policies Document.

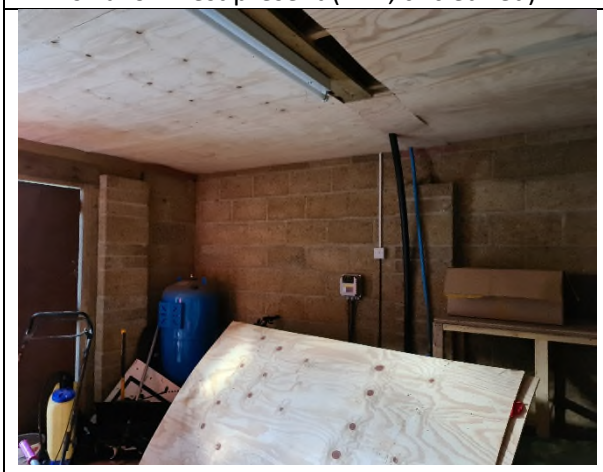
10.0 Photographs

Structure 1- Stable block with timber clad walls and pantile roof. Hard standing present around stable block

Structure 1- Internal of stable block with breathable roofing membrane visible under roof tiles. No void present

Structure 1- Lighting in stable block with swallow nest present (TN1, circled red)

Structure 1- Gap between blocks and roof felt at gable end of stable block

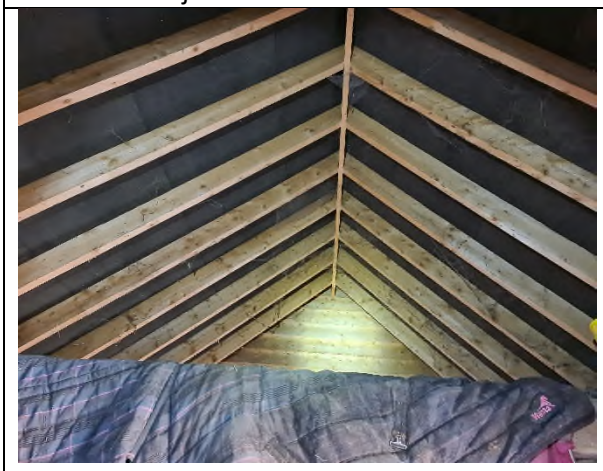


Structure 1- internal of store room with ply sheets on ceiling. Gaps present in ply sheets.

Structure 1- external timber cladding.

Structure 1- Roof structure where store room joins to stable block.

Structure 2. Office with windows on right and store room on left.



Structure 2- Eastern side internal, roof felt visible.

Structure 2- Eastern side internal, gaps present in timber cladding

Structure 2- west side renovated office space.

External gravel hard standing and access off road.


Sand horse arena.


Copse 1- general.


Copse 1- general.


Copse 1- general.


Copse 2- general.


Copse 2- general.

Semi-improved grassland adjacent to sand horse arena and Copse 1.

Semi-improved grassland and Hedge 1.

Improved grassland paddock.

Area of tall ruderal vegetation.

Tall ruderal vegetation.

Remnant birds' nest in Copse 1 (TN2).

Log pile in Copse 1 (TN3).

Tree 3, horse chestnut, negligible bat roosting potential.

Tree 1- 4, horse chestnut trees in paddock.

Tree 5, walnut, negligible bat roosting potential.

Tree 6, cherry, low bat roosting potential.

Tree 7, ash, low bat roosting potential.

Tree 8, ash, low bat roosting potential.

Tree 9, ash, low bat roosting potential.

Tree 10, willow, low bat roosting potential.

Tree 11, unknown tree species, low bat roosting potential.

Tree 12, silver birch, low-moderate bat roosting potential.

Tree 15, silver birch, low bat roosting potential.

Trees 16-19, horse chestnut, negligible bat roosting potential.

Pond 1. Small pond in Copse 1. HSI Score 0.74 'Good'. GCN Absent.

Pond 2- Small pond adjacent to neighbouring driveway. HSI Score 0.83 'Excellent'. GCN Absent.

Pond 3- Ornamental pond in middle of stable yard hardstanding. HSI score 0.23 'Poor'.

11.0 Appendices

Appendix One: Location Plan

Appendix Two: Habitat Map with Target Notes

Appendix Three: Flora and Fauna Referred to in the Report (Common and Latin Names)

Appendix Four: Examples of Potential Site Enhancements/Mitigation

Appendix Five: Proposed Plans

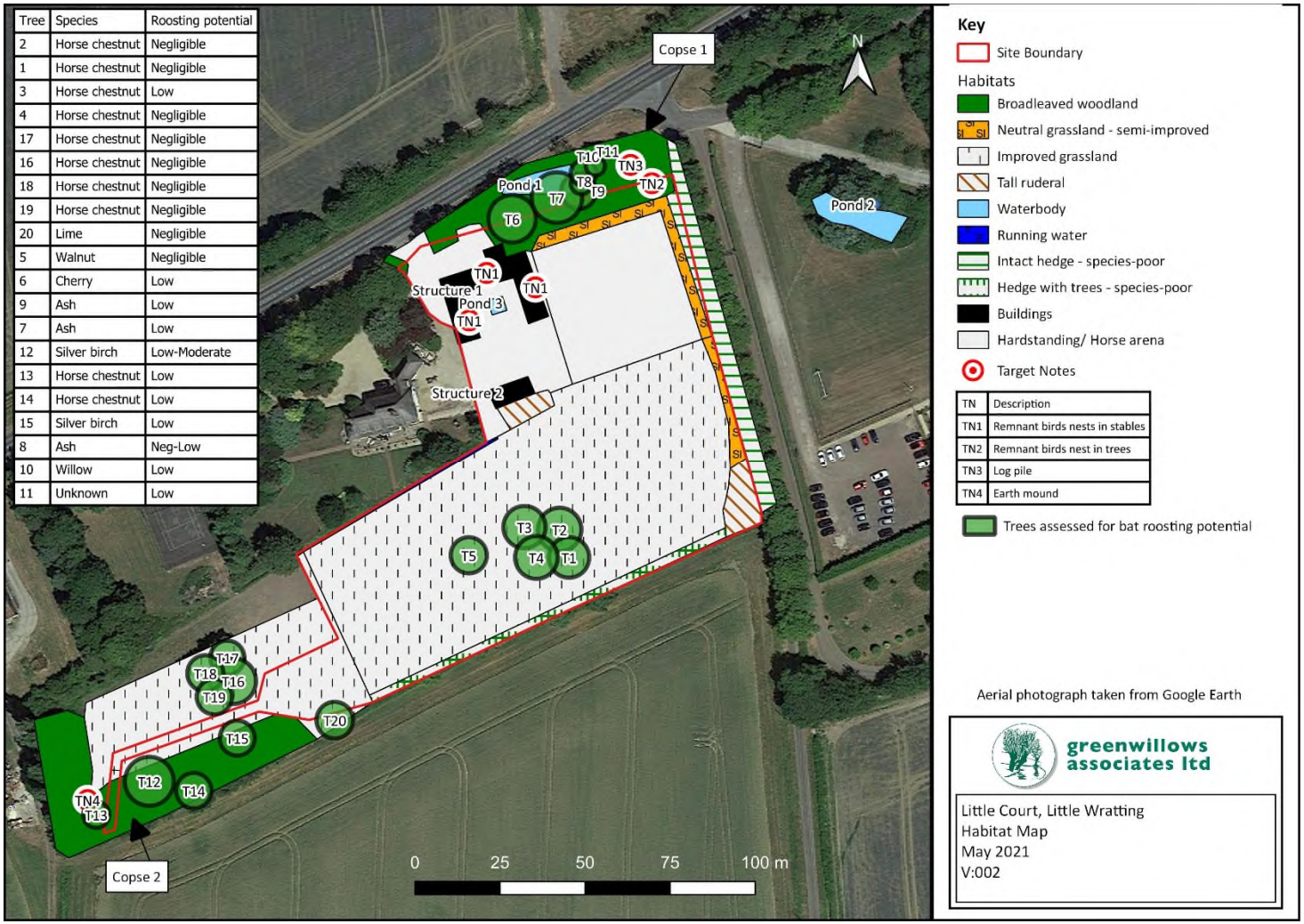
Annex One: Standard Survey Methodologies

Appendix One: Location Plan

Internal Reference: LIWR001

Appendix Two: Habitat Map with Target Notes

Tree	Species	Roosting potential
2	Horse chestnut	Negligible
1	Horse chestnut	Negligible
3	Horse chestnut	Low
4	Horse chestnut	Negligible
17	Horse chestnut	Negligible
16	Horse chestnut	Negligible
18	Horse chestnut	Negligible
19	Horse chestnut	Negligible
20	Lime	Negligible
5	Walnut	Negligible
6	Cherry	Low
9	Ash	Low
7	Ash	Low
12	Silver birch	Low-Moderate
13	Horse chestnut	Low
14	Horse chestnut	Low
15	Silver birch	Low
8	Ash	Neg-Low
10	Willow	Low
11	Unknown	Low



Appendix Three: Flora and Fauna Referred to in the Report (Common and Latin Names)

Flora	
Common name	**Latin name**
Apple	*Malus sp.*
Ash	*Fraxinus excelsior*
Blackthorn	*Prunus spinosa*
Bramble	*Rubus fruticosus agg.*
Bristly oxtongue	*Helminthotheca echioides*
Cherry	*Prunus sp.*
Cleavers	*Galium aparine*
Cock's- foot	*Dactylis glomerata*
Creeping buttercup	*Ranunculus repens*
Dock sp.	*Rumex sp.*
Dog rose	*Rosa canina*
Dogwood	*Cornus sanguinea*
Elder	*Sambucus nigra*
Elm	*Ulmus sp.*
Field maple	*Acer campestre*
Ground elder	*Aegopodium podagraria*
Ground-ivy	*Glechoma hederacea*
Hawthorn	*Crataegus monogyna*
Holly	*Ilex aquifolium*
Horse chestnut	*Aesculus hippocastanum*
Iris sp.	*Iris sp.*
Larch	*Larix decidua*
Lime	*Tilia sp.*
Nettle	*Urtica dioica*
Oxeye daisy	*Leucanthemum vulgare*
Perennial rye-grass	*Lolium perenne*
Prunus saplings	*Prunus sp.*
Ragwort	*Senecio jacobaea*
Scots pine	*Pinus sylvestris*
Selfheal	*Prunella vulgaris*
Silver birch	*Betula pendula*
Spear thistle	*Cirsium vulgare*
Sycamore	*Acer pseudoplatanus*
Umbellifer sp	*Umbelliferae*
Walnut	*Juglans regia*
White dead-nettle	*Lamium album*
Willow	*Salix sp.*
Willow herb	*Epilobium sp.*
Yorkshire fog	*Holcus lanatus*

Fauna	
Common name	**Latin name**
Badger	*Meles meles*
Barn owl	*Tyto alba*
Bat sp.	*N/A*
Brambling	*Fringilla montifringilla*
Brown long eared bat	*Plecotus auritus*
Bullfinch	*Pyrrhula pyrrhula*
Common frog	*Rana temporaria*
Common pipistrelle	*Pipistrellus pipistrellus*
Common toad	*Bufo bufo*
Daubenton's bat	*Myotis daubentonii*
Dunnock	*Prunella modularis*
Great crested newt	*Triturus cristatus*
Harvest mouse	*Micromys minutus*
Hazel dormouse	*Muscardinus avellanarius*
Hedgehog	*Erinaceus europaeus*
House martin	*Delichon urbicum*
House sparrow	*Passer domesticus*
Little owl	*Athene noctua*
Nathusius' pipistrelle	*Pipistrellus nathusii*
Natterer's bat	*Myotis nattereri*
Noctule	*Nyctalus noctule*
Serotine	*Eptesicus serotinus*
Smooth newt	*Lissotriton vulgaris*
Song thrush	*Turdus philomelos*
Soprano pipistrelle	*Pipistrellus pygmaeus*
Swallow	*Hirundo rustica*
Swift	*Apus apus*
Tawny owl	*Strix aluco*
Western barbastelle	*Barbastella barbastellus*
Yellowhammer	*Emberiza citrinella*

Appendix Four: Examples of Potential Site Enhancements/Mitigation

Recommended Swallow Mitigation

It is recommended to include one or both of the following options for swallow mitigation within the design of new buildings, and or adjacent outbuildings.

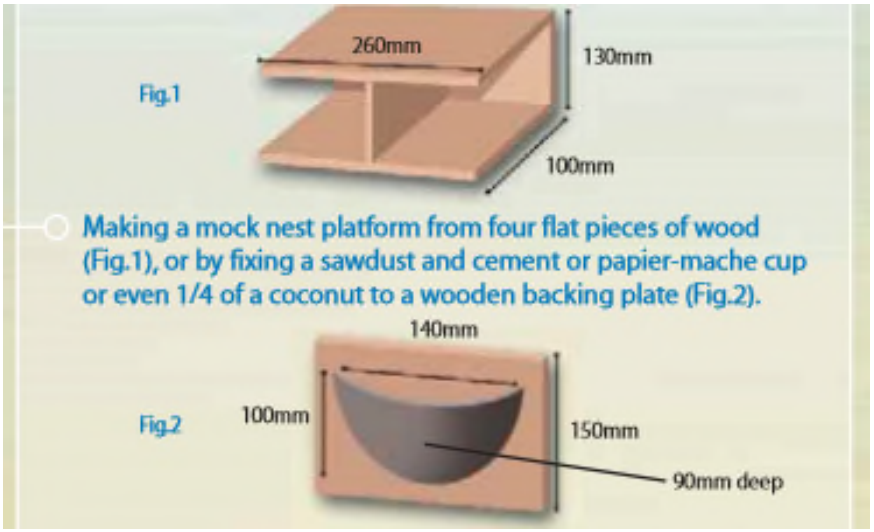
Option 1 (preferred): Internal Adaptation of Outbuildings adjacent to site

The existing adjacent outbuildings would need to have permanent access available for swallows- an opening of at least 200mm wide and 50mm high allowing access into the buildings will be needed- although the larger the better for this.

Within the outbuildings, simple wooden platforms can be created to provide suitable areas for swallows to build nests (on if suitable ledges aren't already present within the design of building).

Plastic sheet or boards can be installed underneath the nesting location to prevent droppings falling onto the area below.

Platforms for 14 nests will be installed if this option is chosen.



Example of a ledge that could be created within the loft void.
Taken from Accommodating Swallows Swifts and House Martins (RSPB Accessed 2020)

Option 2: External Bird Boxes

Custom made bird boxes such as those shown below, faced with similar materials to the new building to make them more aesthetically pleasing, can be attached to the existing outbuildings and/or new buildings. At least seven boxes should be installed if this option is chosen.

Photos credit: RSPB

Option 3: Extension of Ridge to Create New Bird Box

Photo/Design Credit: Richard Green Ecology

Similar to Option 2, seven of these eaves extension designs should be incorporated into the design.

Other Bird Boxes

Integrated boxes can be incorporated into building designs and can support a range of species depending on their design. They should be installed at a height of 2 m or above, facing between north and east. The boxes should have a clear flight path to them so avoid any overhanging branches/materials that could block the box entrance. Boxes should not be installed in groups side by side but instead spaced out across the face of the building that they are to be installed on.

It is recommended that six boxes are provided as enhancement on site. Box design can vary from those shown but the examples below are recommended as being suitable for those species that were using the site during the survey. They should be installed at a height of 2 m or above (minimum of 5m for swift boxes) facing between north and east. The boxes should have a clear flight path to them so avoid any overhanging branches/materials that could block the box entrance.

Schwegler 1SP Sparrow Terrace.

Three sparrow terraces will be incorporated into the final building design. Sparrow terraces can be fixed on to the surface of a suitable wall or incorporated into the wall and should be installed at a height of 2 m or above. The three terraces should be installed in a group together as sparrows are communal roosting birds.

Schwegler 16 S Swift Box

Three Schwegler 16 S Swift Box should be installed. These boxes can be fixed externally to a north or east facing wall but are best integrated within the wall structure. These boxes should be installed at 5m or above, with unobstructed access. Swift boxes should not be installed in groups side by side but instead spaced out across the face of the building that they are to be installed on.

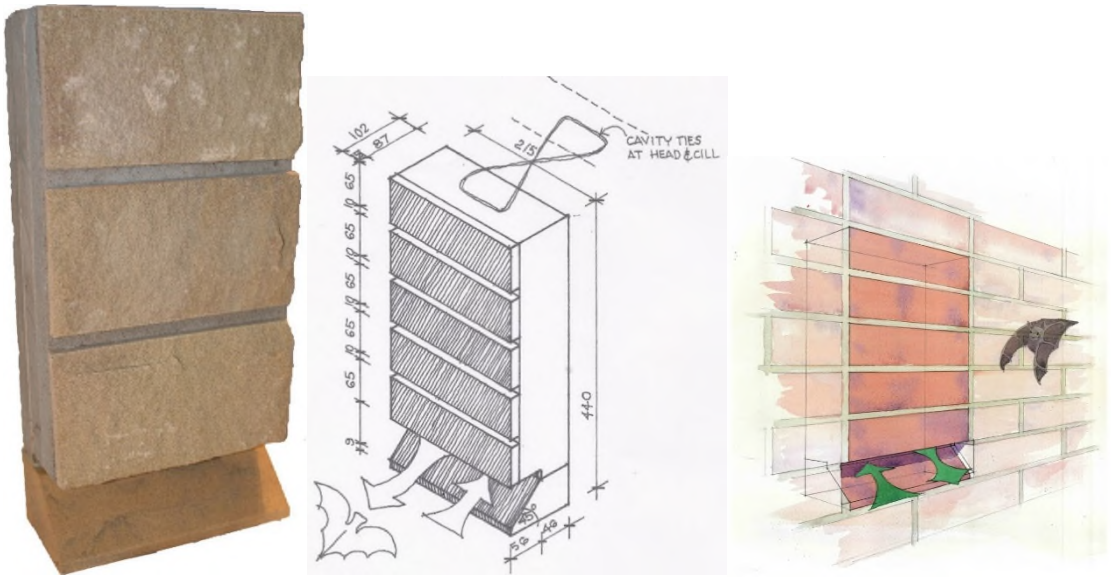
Schwegler 1B Nest Box

An additional four non-integrated nest boxes should be installed in Copse 1 and 2 as compensation for the loss of nesting habitat from tree removal. Schwegler 1B Nest Boxes with 26 mm and 32 mm holes will cater for a range of species. They should be installed on trees at a minimum height of 2m.

Recommended Bat Boxes

Bat boxes should be placed in a south to south-westerly orientation at a height of 4-6m above ground level, with all lighting angled away to avoid direct illumination of the box. Branches (if present) should be cleared to provide an unrestricted flight path to and from the box. Box design can vary from those shown but the below boxes are recommended and considered appropriate for this site. As compensation for the loss of roosting features through tree removal, it is recommended that 1 bat box is installed for each tree with roosting features which is removed. It is recommended that two integrated boxes and two non-integrated boxes are provided as enhancement on site.

Ibstock Enclosed Bat Box 'C' integrated bat box



Habibat Bat Box – Custom Stone Facing integrated bat box

One 1FF non-integrated boxes or similar will be installed as compensation for each tree with roosting features which is removed. An additional two 1FF non-integrated boxes or similar should be provided as enhancement within the copse.

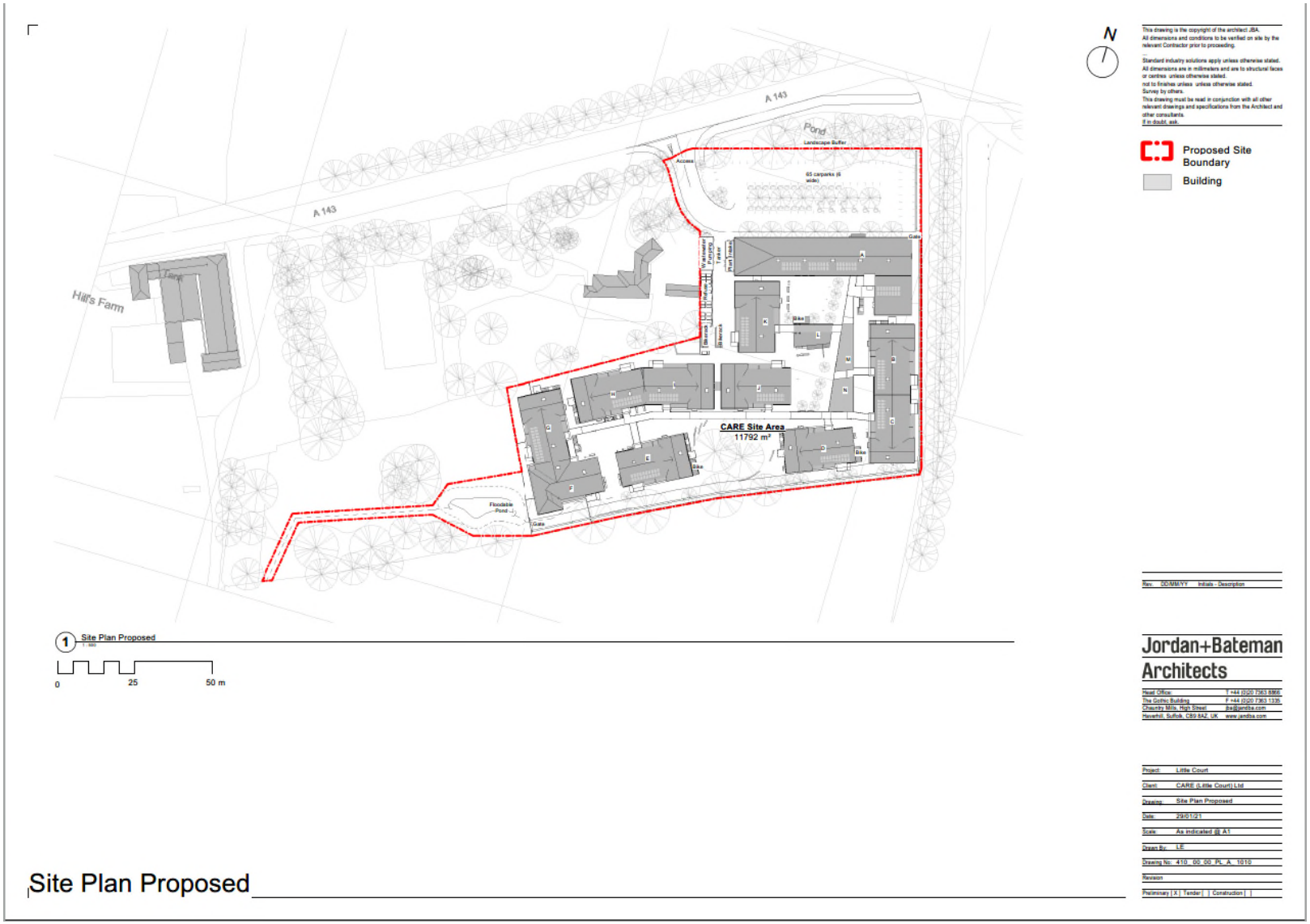
Schwegler 1FF Module bat box.

Hedgehog

Example of access provision for hedgehogs into site (13 x 13cm). At least two of these should be provided in total, across more than one boundary line.

Bat Friendly Planting Suggestions	
Bedding Plants	
Nottingham catchfly	*Silene nutans*
Night-scented catchfly	*S. noctiflora*
Bladder campion	*S. vulgaris*
Night-scented stock	*Matthiola bicornis*
Sweet rocket	*Hesperis natronalis*
Evening primrose	*Oenothera biennis*
Tobacco plant	*Nicotiana affinis*
Cherry pie	*Heliotropun x hybndurr*
Soapwort	*Saponaria officinalis*
Climbers	
European honeysuckle	*Lonicera caprifolium*
Italian honeysuckle	*L. etrusca superba*
Japanese honeysuckle	*L. japonica halliana*
Honeysuckle (native)	*L. periclymenum.*
White jasmine	*Jasminium officinale*
Dog rose	*Rosa canina*
Sweetbriar	*R. rubiginosa*
Field rose	*R. arvensis*
Ivy	*Hedera helix*
Bramble	*- many species*
Large trees, small trees and shrubs	
Oak	*Quercus robur & Q. petrea*
Ash	*Fraxinus excelsior*
Silver birch	*Betula pendula*
Field maple	*Acer campestre*
Hawthorn	*Crataegus monogyna*
Alder	*Alnus glutinosa*
Goat willow	*Salix caprea*
Guelder rose	*Viburnum opulus*
Hazel	*Corylus avellana*
Blackthorn	*Prunus spinosa*
Elder	*Sambucus nigra*
Buddleia	*Buddleja davidii*
Rock plants for walls	
Ivy-leaved toadflax	*Cymbana muralis*
Wall pennywort	*Umbilicus rupestris*
Stonecrop	*Sedum acre bertianum*

Appendix Five: Proposed Plans



ANNEX ONE

Standard Survey Methodologies

A site walkover is undertaken to identify potential habitats suitable for protected species and/or evidence of field signs indicating presence of protected species and invasive plants.

Species Specific Methodologies

Great Crested Newts: A habitat suitability assessment for newts is undertaken taking due note of the presence of water bodies within 250 metres of the site (based on English Nature (2001) now Natural England) guidelines and potentially suitable terrestrial resting and shelter habitat.

At certain times of the year and/or in some years but not others ponds may be seasonally dry but these are not necessarily ruled out as ephemeral ponds can be important 'stepping stones' from one pond to another and/or refuges from the ravages of fish populations that can build up in permanent ponds.

Ponds are assessed using a combination of professional judgment and applying the nationally accepted Habitat Suitability Index (HSI) for Great Crested Newts based on Oldham *et al 2001* which uses nationally accepted formulae based on a number of factors which are assigned a score ranging from 0 to 1 with a score of <0.5 assessed as poor, 0.5 to 0.59 below average, 0.6 to 0.69 average, 0.7 to 0.79 good and >0.8 excellent.

If appropriate, follow-up pond surveys are undertaken in the spring to cover all ponds within 250 metres (or further where professional judgment dictates) of the construction footprint to determine presence/absence of this species. Night-torch surveys, egg searching, netting and funnel trapping are the main methods employed where practicable

Bats: A habitat suitability assessment for bats is undertaken by identifying buildings and trees likely to be affected by the proposed construction works.

The tree assessments involve looking for the following signs:

- Holes
- Fissures
- Broken Limbs
- Loose Bark
- Urine Staining
- Fur Rubbing
- Dense Ivy

A scoring system is applied to the buildings and trees using the following criteria.

- **Low/Negligible probability of bat interest**. Buildings in this category fall into two main types: Generally well maintained without cracks and crevices, no gaps between bargeboard or soffit and wall or without an attic space. Or those which contain some or all of the above features, but are both draughty and thick in cobwebs or contain strong odours such as solvents, diesel etc.

It must be borne in mind that a building from this latter group can become suitable for bats due to refurbishment. This often happens to houses once the attic space has been cleaned and under-felted prior to timber treatment.

No licence is required for development to a building classified as Low probability of bat interest.

Trees with low bat interest are usually young trees without any deadwood or holes. Most conifers fall into this category as they are usually planted as a crop and are then felled prior to becoming old, although once maturity is attained as in a landscape tree, suitable bat roosts may develop.

- **Medium probability of bat interest.** The buildings in this category contain many sites suitable for roosting bats although no obvious signs were recorded during the survey. In exposed conditions on large buildings the signs of bat usage such as droppings and urine marks can be obliterated by heavy rain.

Occasionally a light scattering of droppings will be recorded in an attic or a semi-derelict building, which is considered by the surveyor unsuitable for use as a bat roost. The medium probability of bat interest category can be used based on the surveyor's experience.

Whilst no licence is required for development to a building classified as Medium probability of bat interest, it is often best practice to conduct sensitive roof stripping or architectural salvaging to minimise any possible disturbance.

Trees in this category will have holes, cracks and crevices and lose bark suitable for roosting bats but no obvious roost signs such as staining and droppings at entrances.

- **High probability of bat interest.** This group includes buildings with known roosts or signs of bat occupancy such as droppings and staining at a roost entrance. The description of high probability buildings will also contain an indication as to the time of the year when it will be occupied by bats i.e. Summer – nursery roost, Winter – hibernation.

A licence is normally required for development to a building classified as High

probability of bat interest.

Trees within this category will contain all the obvious roost features such as holes, cracks and crevices and loose bark and will also contain staining and droppings at the roost entrance or have been identified as a roost via a visual sighting of an existing bat.

If appropriate, follow-up surveys are undertaken incorporating detailed inspections of the buildings/trees by a licensed bat worker and where necessary bat activity surveys are also undertaken to determine presence/absence of this group of species.

Reptiles: A habitat suitability assessment for reptiles is undertaken looking for, *inter alia,* areas of rough scrub, tussocky/rank grassland, areas of structural diversity offering short open areas of grassland and bare soil for basking with taller vegetation and habitat edges offering shelter and rapid escape routes, natural refugia such as brash piles and rubble heaps.

Where appropriate, follow-up surveys are undertaken utilizing artificial refugia to determine presence/absence of this species.

Badgers: Field signs are searched for including setts, runs, prints, dung pits, hairs and feeding signs.

Otters: Field signs are searched for including holts, prints, spraints, haul out points and feeding signs.

Water Voles: A habitat suitability assessment for water voles is undertaken within riparian habitat assessment factors including, *inter alia,* water levels and seasonal longevity of water table, seasonal flash floods, bank profiles and substrates, vegetation for cover and suitable food sources, over shading, and evidence of the presence of mink. Where appropriate, follow-up surveys are undertaken where field signs are searched for including burrows, prints, runs, droppings, latrines and feeding signs.

White-Clawed Native Crayfish: A habitat suitability assessment for crayfish is undertaken within riparian habitat assessment factors including, *inter alia,* water levels and quality and seasonal longevity of water table, water flow, underlying geology, bank and watercourse substrates, suitable submerged refugia and known presence of signal crayfish. Where appropriate, follow-up surveys are undertaken to search for presence of this species by stone turning in the stream bed, netting and searching for burrows in the stream banks. Humane trapping may also be employed.

Harvest Mice: A habitat suitability assessment for harvest mice is undertaken within rough grassland and tall ruderal vegetation. Harvest mice build breeding

nests in dense vegetation by weaving a nest out of leaves which will be at the top of a tussock of grass or around half way up the stem of cereals. To search for these nests surveyors walk transects of the target habitat checking within tussocks of grass and on stems. All areas of suitable vegetation are checked.

Notable Flora and Invasive Weeds: A habitat suitability assessment for notable flora (rare and protected) is undertaken and species are recorded. Evidence of the presence of invasive weeds included within Schedule 9 of the Wildlife and Countryside Act 1981 as amended is searched for.