79 High Street, Cottenham

Ecological Impact Assessment

Prepared by Castle Hill Ecology
on behalf of Mr & Mrs Weeks

July 2023

79 High Street – Ecological Impact Assessment

The contents of this report have been produced with due consideration of best practice guidance, including the Charted Institute of Ecology and Environmental Management's Guidelines for Ecological Report Writing (CIEEM, 2017) and Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018), and the Bat Conservation Trust's guidelines for writing bat reports (Collins, 2016).

Survey data and biological records in this report are valid for a maximum of 18 months from the date of issue. After this period, updated survey work will be required to determine the current ecological baseline, supported by a new biological records data search from Cambridgeshire and Peterborough Environmental Records Centre and an updated desk study.

This report has been compiled by Rachel Bates, BSc (Hons) MSc ACIEEM.

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1.2 This report details the methodologies used to assess and evaluate likely ecological impacts as a result of the proposed development. Results from the desk study and survey work are presented and discussed, before detailing the mitigation measures and European Protected Species mitigation licences which will be required for any development to lawfully proceed. Recommendations for biodiversity enhancements which can be incorporated into the scheme design are also provided.

1.3 The Site does not lie within or adjacent to statutory or non-statutory designated areas, nor does it lie within or adjacent to Priority Habitats. On-site habitats do not meet the criteria for Priority Habitat status. It is unlikely that designated areas and Priority Habitats within 1km of the Site will be adversely impacted as a result of the proposed development due to its size and anticipated localised impacts. Mitigation or compensatory measures in relation to designated areas and Priority Habitats are therefore not required.

1.4 The Site comprises hardstanding, modified grassland, ornamental planting and some planted trees, habitats of low ecological value at a Site Level only. Current development proposals will result in the loss of existing habitat within the Site. Mitigation or compensatory measures for the loss of these habitats are not required. One mature tree on the northern boundary will be retained within the scheme design. Mitigation measures have been provided to ensure that retained tree/s are not damaged during site works.

1.5 Buildings within the Site support roosting bats; Building A supports a Brown Long-eared day roost of one individual and Building B supports a Common Pipistrelle day roost also of one individual. The demolition of existing buildings as part of current development proposals will result in the permanent loss of at least two confirmed bat roosts, and demolition works have the potential to disturb or harm individual bats.

A European Protected Species mitigation licence for bats will therefore be required for any permitted development to proceed lawfully.

1.6 One waterbody is present adjacent to the south-east Site boundary. The results of the eDNA analysis of water samples collected from this waterbody came back positive, confirming the presence of Great Crested Newt. In addition, records of Great Crested Newt were returned in the data search from Cottenham Moat County Wildlife Site approx. 400m south-west, which is designated for having a population of 50+ breeding Great Crested Newts. Given the proximity of a waterbody to the Site and the presence of habitat which may support this species during its terrestrial life stages, and given that a known breeding population is present within 500m of the Site, mitigation measures alone will not be sufficient to ensure offences against Great Crested Newt do not occur during site works.

A District Level Licence or European Protected Species mitigation licence for Great Crested Newt will therefore be required for any permitted development to proceed lawfully.

1.7 Badger, breeding birds, foraging and commuting bats, and European Hedgehog should be taken into consideration during all site works. Mitigation measures have been provided as a precaution to ensure wildlife does not come to harm during site works. It is recommended that a wildlife-friendly lighting strategy is produced by a lighting specialist to ensure light spill and light pollution are kept to a minimum, particularly for foraging and commuting bats.

1.8 It is recommended that Biodiversity Net Gain calculations using the latest DEFRA Biodiversity Metric are carried out in order to demonstrate any measurable gains or losses to biodiversity as a result of the proposed development.

1.9 Recommendations for biodiversity enhancements in line with the NPPF (2021) include the erection of one bird box on the new dwelling or garage, one integrated or externally-mounted bat box on the new dwelling or garage, planting a native hedgerow along the south-eastern boundary, habitat enhancement for European Hedgehog, and the inclusion of nectar-rich and pollen-rich plants to benefit insects including pollinators.

2. INTRODUCTION

2.1 Background

2.1.1 Castle Hill Ecology was commissioned by the client in March 2023 to carry out a Preliminary Ecological Appraisal of land to the rear of 79 High Street, Cottenham, hereafter referred to as 'the Site'. The preliminary appraisal was based on a desk study, a UKHab survey, a Habitat Suitability Index assessment, the collection of an eDNA water sample, and a Preliminary Bat Roost Assessment of buildings.

2.1.2 The Preliminary Bat Roost Assessment identified the suitability of two outbuildings to support roosting bats. Castle Hill Ecology was subsequently commissioned in May 2023 to carry out further bat activity surveys to determine the presence or likely absence of roosting bats, and if present, to identify the species and their numbers, and roost types.

2.1.3 This Ecological Impact Assessment is based on the findings of the preliminary appraisal and subsequent survey work. An impact assessment was requested by the client to inform and support a planning application for the demolition of existing outbuildings and the construction of a new residential property with a separate garage, covering a similar development footprint to those of the existing structures.

2.1.4 This report details the methodologies used to identify and map existing on-site habitats and assess their potential to support protected or notable species. Results from the desk study and the findings of the survey work are presented and discussed in order to evaluate likely ecological impacts as a result of the proposed development. Details of mitigation measures and/or European Protected Species mitigation licences are provided where required, along with recommendations for biodiversity enhancements which can be incorporated into the proposed scheme design.

2.2 Site Location and Description

2.2.1 The Site is located at 79 High Street, on the northern edge of Cottenham, Cambridge CB24 8SD (National Grid Reference TL 45331 68248). The Site boundary is outlined in yellow in Figure 2.1 below.

2.2.2 The Site consists of a hardstanding driveway and yard leading to four outbuildings, and an area of managed grassland used for amenity purposes. There are a few scattered trees and some ornamental planting. A pond lies adjacent to the eastern boundary, on the other side of a wooden post-and-rail fence. A mix of fencing and brick walls form boundary features. The main dwelling of 79 High Street extends across the western end of the Site. Access is gained from the High Street.

2.2.3 Residential properties with gardens and scattered commercial properties border the Site to the north, south and west. Small grassland fields lie to the east. Further afield, the village of Cottenham extends southwards. The landscape is dominated by intensive arable farmland interspersed by small, isolated pockets of woodland, scrub, grazing pasture, and waterbodies. A network of drainage ditches runs across the landscape along field boundaries, which along with sparsely scattered tree lines and intensively managed hedgerows provide some habitat connectivity.

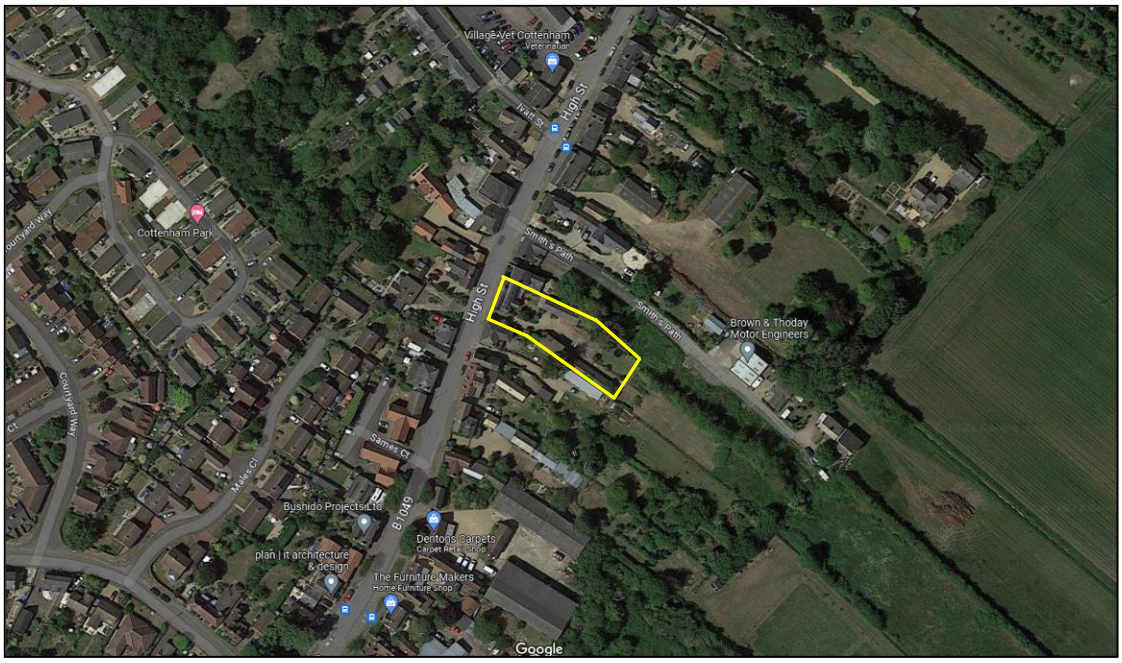

Figure 2.1: Location of the Site (Source: Google Maps)

2.3 Report Objectives

2.3.1 The key objectives of this report are to:

- Present the findings of the desk study, UKHab habitat survey, Preliminary Ecological Appraisal, Habitat Suitability Index, the eDNA survey, and the Preliminary Bat Roost Assessment;
- Identify on-site habitats and assess their potential to support protected or notable species and habitats;
- Present the findings of the subsequent bat activity surveys;
- Evaluate likely ecological impacts on statutory and non-statutory designated areas, Priority Habitats, and protected or notable species and habitats as a result of the proposed development;
- Detail mitigation measures and/or European Protected Species mitigation licencing which will be required; and
- Provide recommendations for biodiversity enhancements which can be incorporated into the scheme design (NPPF, 2021).

3. PLANNING POLICY and LEGISLATION

3.1 Local Planning Policy

3.1.1 The following policies in South Cambridgeshire Local Plan (2018) relate to biodiversity and the environment, and are summarised here:

3.1.2 POLICY NH/4: Biodiversity

2. New development must aim to maintain, enhance, restore or add to biodiversity. Opportunities should be taken to achieve positive gain through the form and design of development. The built environment should be viewed as an opportunity to fully integrate biodiversity within new development through innovation.

3. If significant harm to the population or conservation status of a Protected Species, Priority Species or Priority Habitat 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 will be refused.

4. Where there are grounds to believe that a proposal may affect a Protected Species, Priority Species or Priority Habitat, applicants will be expected to provide an adequate level of survey information and site assessment to establish the extent of a potential impact.

3.1.3 POLICY NH/5: Sites of Biodiversity Importance

1. Proposed development likely to have an adverse effect on land within or adjoining a Site of Biodiversity Importance will not normally be permitted. Exceptions will only be made where the benefits of the development clearly outweigh any adverse impact.

2. In determining any planning application affecting Sites of Biodiversity Importance the Council will ensure that the intrinsic natural features of particular interest are safeguarded or enhanced having regard to:

> a. The international, national or local status and designation of the site; b. The nature and quality of the site's features; c. The extent of any adverse impacts on the notified features; d. The likely effectiveness of proposed mitigation with respect to protection of the features of interest; and e. The need for compensatory measures in order to re-create on or off the site features or habitats that would be lost to development.

3.2 Environment and Biodiversity

3.2.1 Under the National Planning Policy Framework (NPPF, 2021), local planning authorities should aim to conserve and enhance the natural environment when determining planning applications. Local planning authorities also have an obligation to seek opportunities to further enhance the conservation status of Species and Habitats of Principle Importance.

3.2.2 Species and Habitats of Principal Importance for the conservation of biodiversity in England are covered under Section 41 of the Natural Environmental and Rural Communities (NERC) Act (2006) (JNCC, 2009). Species and habitats listed under Section 41 need to be taken into consideration by a public body when assessing planning applications.

3.2.3 Bat species listed within Section 41 include Barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, Noctule *Nyctalus noctula*, Soprano Pipistrelle *Pipistrellus pygmaeus*,

Brown Long-eared *Plecotus auritus*, Greater Horseshoe *Rhinolophus ferrumequinum*, and Lesser Horseshoe *Rhinolophus hipposideros*.

3.3 Wildlife Legislation

3.3.1 European Protected Species are afforded protection under the Habitats Regulations, which is transposed into UK law by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. European Protected Species are afforded additional protection under the Wildlife and Countryside Act 1981 (as amended) and the Countryside Rights of Way Act 2000. It is an offence to:

- Deliberately or recklessly capture, injure or kill any wild animal of a European protected species;
- Deliberately or recklessly disturb any such animal; or damage or destroy their breeding site or resting place; and
- Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead animal, or any part of, or anything derived from these species.

3.3.2 Disturbance of European protected species constitutes any activity which is likely to:

- Impair their ability to survive, to breed or reproduce, or to rear or nurture their young; OR in the case of animals of a hibernating or migratory species, to hibernate or migrate; and
- Significantly affect the local distribution or abundance of the species.

3.3.3 **Badgers** are protected by the Protection of Badgers Act 1992 and under the Wildlife and Countryside Act 1981 (as amended). It is an offence to wilfully, or attempt, to kill, capture, ill-treat or injure any badger; to obstruct, destroy or damage a badger sett or to disturb a badger whilst within its sett; to sell or offer for sale a live badger, or having possession or control of a live badger; and marking a badger or attaching any ring, tag or other marking device.

3.3.4 **Breeding birds** (all species) are protected under the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally kill, injure or take any wild bird and to take, damage or destroy the nest (whilst being built or in use) or eggs. Schedule 1 species are afforded additional protection under the Countryside Rights of Way (CRoW) Act 2000.

3.3.5 **Amphibians** (smooth newt, palmate newt, common frog and common toad) are protected by the Wildlife and Countryside Act 1981 (as amended). The sale, barter, exchange, transporting for sale and advertising to sell or to buy are an offence.

3.3.6 **Reptiles** (common species of adder, grass snake, common lizard and slow worm) are protected under the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally kill, injure and trade these animals.

3.3.7 It is an offence under Section 14 of the Wildlife and Countryside Act 1981 (as amended) to release, or cause the spread of, plants and animals listed on Schedule 9 that are "*not ordinarily resident in, and is not a regular visitor to, Great Britain in a wild state"*.

4. SURVEY METHODOLOGY

4.1 Desk Study

4.1.1 A data search for statutory and non-statutory designated areas and for protected and notable species and habitats within a 1km radius of the Site was requested from Cambridgeshire and Peterborough Environmental Records centre in March 2023. Only records within the last 15 years are considered to be relevant, as are species associated with on-site habitats.

4.1.2 Multi-Agency Geographic Information for the Countryside (MAGIC) www.magic.gov.uk was accessed in April 2023 to locate Priority Habitats and existing European Protected Species mitigation licences within 1km of the Site. The Natural England open data website was also accessed in April 2023 to identify which risk zone for Great Crested Newt the Site lies within.

4.1.3 Records for species that are listed on the International Union for the Conservation of Nature (IUCN) Red Data Books are provided with their current conservation status. Bird species are given the red data categories of either 'red' or 'amber'.

4.2 Site Visit and Surveyor Qualifications

4.2.1 The Site was visited on the 26th April 2023 by Rachel Bates BSc (Hons) MSc ACIEEM and Jonathan Durward BSc (Hons) MCIEEM. Rachel has over ten years' experience in ecological consultancy, and has a Class 1 Great Crested Newt licence (2015-19179-CLS-CLS), Class 1 Hazel Dormice licence (2016-21711-CLS-CLS), and Class 3 and 4 bat survey licences (2019-40153-CLS-CLS and 2017-28515-CLS-CLS respectively) for the purpose of this survey.

4.2.2 The site visit comprised a UKHab habitat survey which covered the area inside the red-line development boundary. Habitat surrounding the Site was reviewed using aerial photography and mapping. Field evidence of protected species, and species listed on Schedule 9 of the Wildlife and Countryside Act 1981, was also recorded. Waterbodies within a 250m radius of the Site were subject to Habitat Suitability Index assessments, an eDNA water sample was collected from an adjacent waterbody, and a Preliminary Bat Roost Assessment of buildings was carried out.

4.2.3 Weather conditions at the time of the site visit were dry, cool and overcast, with 90% cloud cover, temperatures of 10°C, and a light breeze (7 mph).

4.3 Habitat Survey

4.3.1 The UKHab survey was carried out following current survey methodology (UKHab, 2020a). Distinct habitats were identified and mapped based on vascular plant species present and species composition. Rose (2006) was used as a plant identification aid, and Latin names of identified plants were confirmed using Stace (2019). Features of particular ecological interest were described using Target Notes.

4.3.2 Field mapping was carried out using paper copies of OS maps, at a scale sufficient to provide enough detail for a minimum mappable unit of 5m. Field maps were then digitised using GIS.

4.3.3 Habitat features were recorded as either areas, lines or points, with linear features being less than 5m in width. Features over 5m in width were mapped as areas. Habitat features were then assigned to a Primary Habitat using the UKHab Category Definitions (UKHab, 2020b).

Secondary codes were added as appropriate to provide further detail on any management and the environment. Secondary codes were not used to map habitat features independently.

4.3.4 Once identified, habitats were assessed for their potential to support protected or notable species. This included a search for field evidence of fauna and the presence of non-native invasive species. The assessments were made based on habitat quality, structure, extent, and connectivity within the wider landscape, and supported by the results of the data search.

4.3.5 It should be noted that an assessment of the potential for on-site habitats to support protected or notable species does not substitute species-specific survey work.

4.4 Habitat Suitability Index Assessments

4.4.1 No waterbodies were identified within 250m of the Site using MAGIC or Ordnance Survey mapping. One artificial waterbody was recorded adjacent to the south-east boundary which was subject to a Habitat Suitability Index (HSI) to assess its suitability to support breeding populations of Great Crested Newt *Triturus cristatus*, using the methodology developed by Oldham *et al* (2000). The location of the waterbody, denoted as Pond 1, is shown in Figure 4.1 by the blue circle.

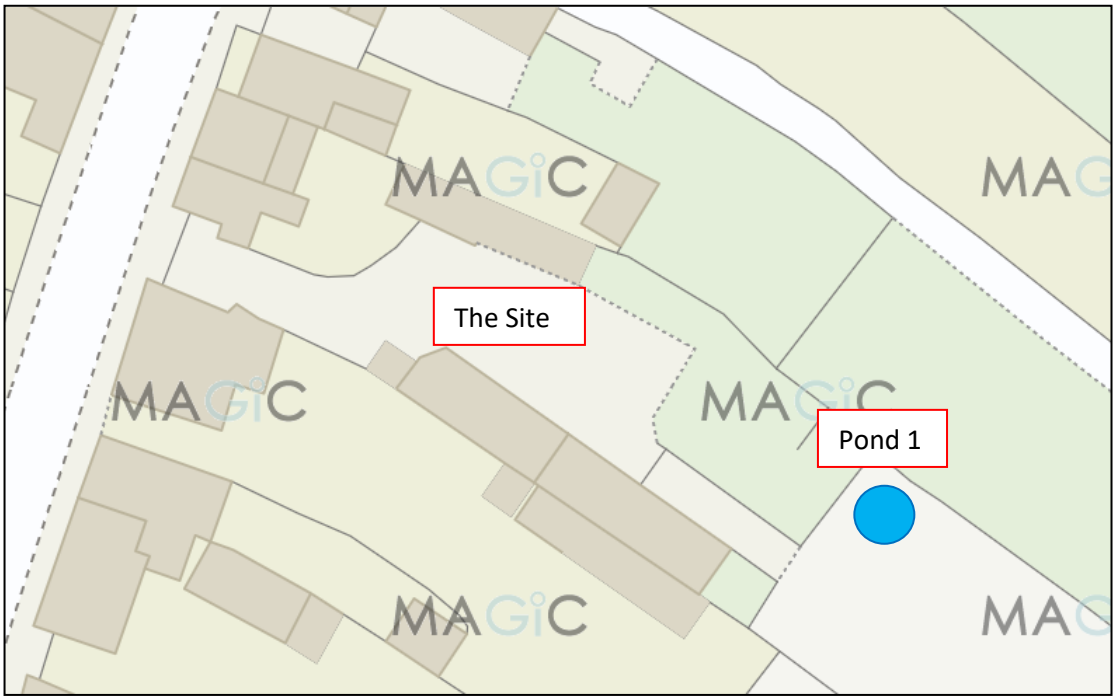

Figure 4.1: Location of Pond 1, adjacent to the eastern Site boundary

4.4.2 For each waterbody, the HSI assesses ten habitat variables which are considered to influence the presence of Great Crested Newt; geographic location, pond area, permanence, water quality, shade, the presence of fish and waterfowl, the number of ponds within a 1km radius, surrounding terrestrial habitat, and macrophyte cover.

4.4.3 The results of these variables produce a score between 0 and 1, where 0 indicates unsuitable habitat and 1 indicates optimal habitat. The HSI scores are as follows:

- Poor <0.5
- Below Average 0.5 – 0.59
- Average 0.6 – 0.69
- Good 0.7 – 0.79
- Excellent >0.8

4.5 eDNA Sampling

4.5.1 A water sample was collected from Pond 1 using the eDNA sampling equipment and survey methodology provided by NatureMetrics, to test for the presence of Great Crested Newt DNA.

4.5.2 A total of 20 subsamples were collected from around the perimeter of the waterbody, where accessible, to ensure a representative sample of eDNA was collected. The subsamples were gathered using a collection tube and then mixed together in a single collection bag. 15ml of water from the sample was drawn up into a pipette and emptied into a sample pot containing 35ml of preservative fluid. This was repeated six times, resulting in six sample pots containing a total of 50ml of fluid. The sample pots were then sent to NatureMetrics for DNA analysis.

4.5.3 The methodology used by NatureMetrics for laboratory analysis is summarised here (NatureMetrics, 2023):

"*eDNA was precipitated via centrifugation at 14,000 x g and then extracted using Qiagen DNeasy Blood and Tissue extraction kits. qPCR amplification was carried out in 12 replicates per sample, using GCN specific primers and probe (developed by Thomsen et al. (2012) and adopted by Biggs et al. (2014)), in the presence of extraction negative controls, qPCR positive controls, and qPCR negative controls. A score is given for the number of positive replicates out of 12.*

The qPCR method follows recommendations set out by NatureMetrics for Natural England in the qPCR validation project and helps improve the reliability of the interpretation of the data."

4.6 Preliminary Bat Roost Assessment

4.6.1 Buildings and structures within the Site were subject to internal and external inspections to determine their suitability to support roosting bats, following current best practice guidance (Collins, 2016). Trees were inspected from ground level only. Close focusing binoculars and a high-powered torch were used to identify potential roost features and to look for evidence of roosting bats. An endoscope was used to internally inspect potential roost features which were accessible from ground level.

4.6.2 Potential roost features on a building may include raised or missing roof tiles, ridge tiles, lead flashing or hanging tiles, and gaps under soffit boxing or within brickwork. Potential bat roost features within trees include woodpecker holes, knot holes and wounds, splits, and cracks. Evidence of bats and their roosts include the presence of droppings, stain or grease marks, feeding remains, or the bats themselves.

4.6.3 Buildings and trees were then categorised for their suitability to support roosting bats using guidance criteria in *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2016). The quality of on-site habitats was also categorised for suitability to support foraging and commuting bats. Classification criteria is summarised in Table 4.1 below:

Table 4.1: Guidance for assessing suitability of bat roosts and habitat (Collins, 2016)

Suitability	Description	
	Roosting Habitats	**Commuting and Foraging Habitats**
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost features that could be used by individual bats opportunistically, but are not suitable for use on a regular basis or by larger numbers of bats. A tree of sufficient size and age to contain potential roost features, but with none seen from the ground of features with only very limited roosting potential.	Habitat could be used by a small number of commuting bats, but which is not well connected the surrounding landscape by other habitats. Suitable but isolated habitat that could be used by small numbers of foraging bats.
Moderate	A structure or tree with potential roost features that could be used by bats on a more regular basis but are unlikely to support a roost of high conservation status (with respect to roost type only, not the species present).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees. Habitat that is connected to the wider landscape that could be used by foraging bats.
High	A structure or tree with potential roost features that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time.	Continuous high-quality habitat that is well connected to the wider landscape and is likely to be regularly used by foraging and commuting bats.

4.7 Bat Activity Surveys

4.7.1 Emergence and re-entry surveys involve visiting a building, structure or tree at dusk or dawn to listen for and record bat calls using detectors and recording devices, and to watch for bats emerging from or returning to roosts. Such surveys compile information on the species and numbers present, as well as on access points and roost locations.

4.7.2 Two buildings were each subject to two dusk emergence surveys on the 11th May 2023 and the 7th June 2023, following best practice guidance (Collins, 2016). Three surveyors with night vision aids were able to provide sufficient coverage of the outbuildings; Rachel Bates BSc (Hons) MSc ACIEEM, Vivien Hartwell, and Sara Miller. Figure 4.2 below shows the locations of surveyors (red circles) and night-vision aids (blue circles) for both surveys. The emergence surveys commenced 15 minutes before sunset and continued for 90 minutes after sunset.

4.7.3 Equipment used to detect and record bats during the surveys included an Elekon Batlogger M and EM Touch Pro's. Each detector recorded in full spectrum onto an SD card. Three Cannon XA50 infrared camcorders with infrared torch attachments were set-up next to each surveyor, focusing on potential roost features of particular interest. A fourth infrared camera, a Cannon XA20 with an infrared torch attachment, was located inside Building B focusing on the dividing wall with Building A. Video footage was subsequently reviewed to confirm survey results. Bat call recordings were analysed using the SonoBat 30 software.

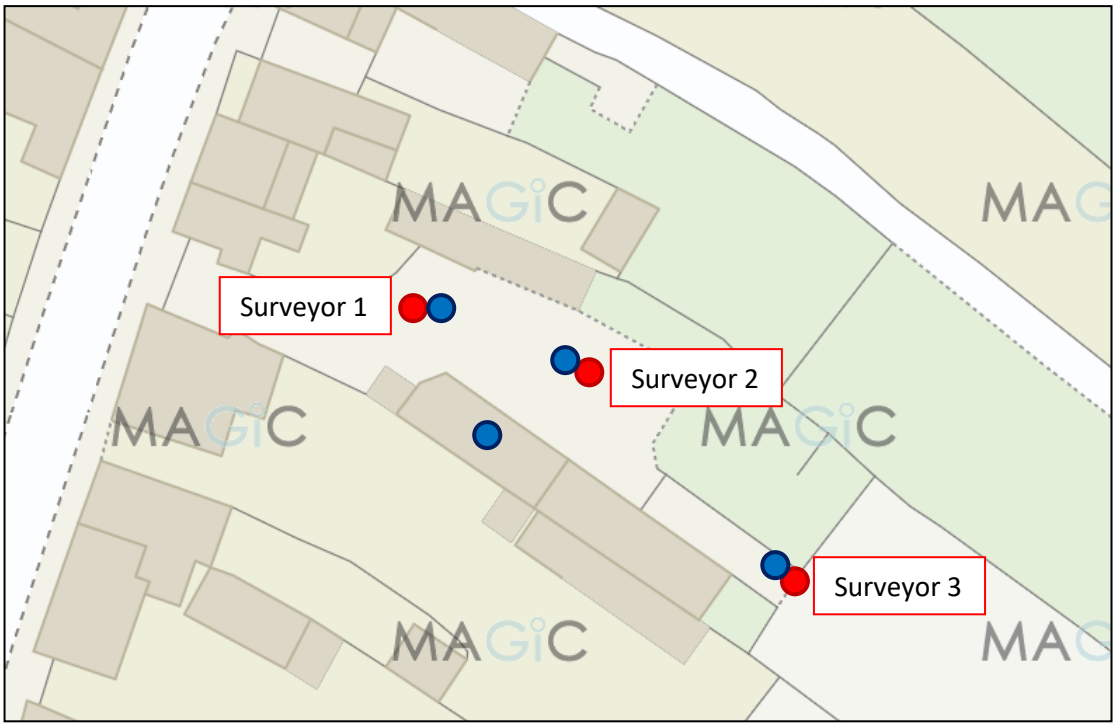

Figure 4.2: Location of surveyors for emergence surveys

4.8 Survey Limitations

4.8.1 Building D was not inspected internally as the interior could not be accessed. The suitability of this building to support roosting bats is therefore based on an external inspection only.

4.8.2 Droppings below or near to any external bat roost features may only remain for a few weeks before degrading, dependant on weather conditions. Weather conditions had been unsettled during the week prior to the inspections, and so it was anticipated that any droppings may no longer have been visible unless they were very recent.

4.8.3 Some species of bat, such as the Brown Long-eared bat, echolocate quietly and so may not always be heard on a bat detector unless they fly very close. Some bats do not echolocate at all upon emerging, and so there is a possibility that such bats may not be identified.

4.8.4 While sound analysis programmes can be used to identify some bat species with confidence, echolocation calls may sometimes be too distant or incomplete to be identified to species level. In these instances, calls are identified to genus level.

4.8.5 An absence of species records from within the data search results, or an absence of field signs of fauna during the habitat survey, does not provide confirmation that a species is absent from within the search area or the site.

4.8.6 Data within this report provides baseline ecological data at the time of each survey only and does not include flora or fauna which may be present at different times of the year.

4.9 Impact Assessment Methodology

Evaluating Ecological Features

4.9.1 An assessment of ecological features was undertaken at a defined geographical scale, based on CIEEM guidance (CIEEM, 2018). The value of identified ecological features was identified using the geographic scales provided in Table 4.2.

Table 4.2: Evaluation of ecological features

Value	Criteria	Examples
International	Nature conservation resource of international importance.	European sites: SPAs and SACs, SPAs and SACs. Ramsar wetlands. Habitats, and populations and assemblages of species, that represent the qualifying criteria of internationally designated sites.
National	Nature conservation resource of national importance.	SSSIs. W&CA Schedule 8 plants. Nationally important population or assemblage of a European Protected Species, or Schedule 1 and Schedule 5 species. Viable populations of species listed in Red Data Books.
Regional	Nature conservation resource of regional importance.	Regionally important populations of a species, or habitat of Principal Importance, or BAP species and habitats. Regionally important population or assemblage of a European Protected Species, or Schedule 1 and/or Schedule 5 species.
County	Nature conservation resource of importance in the context of old County/Vice-County scale areas.	Local Nature Reserves, Local or County Wildlife Sites. County important populations of a species or habitat of Principal Importance or BAP species and habitats. County-important population or assemblage of a European Protected Species, or Schedule 1 and/or Schedule 5 species.
Local	Nature conservation resource of importance in the local, district or borough Council area.	A breeding population of a species, or a viable area of a habitat, that is listed in a Local BAP. A breeding population of a European Protected Species, or Schedule 1 and/or Schedule 5 species.
Site	Unremarkable habitat or common species that are of some value in the context of the Site only.	Other species and habitats of note, for which mitigation measures could be recommended as a good practice measure.
Negligible	A resource that has little or no intrinsic nature conservation value.	Common, widespread, modified and/or impoverished habitats.

Identifying Ecological Effects and Significance

4.9.2 An impact assessment was carried out for each ecological feature. Potential impacts as a result of the proposed development were identified and then assessed to determine whether they could result in significant effects on ecological features at the geographical scale. The assessment focuses on significant effects after the implementation of the mitigation hierarchy: Avoidance; Mitigation; Compensation; and Enhancement (BSI, 2013).

4.9.3 'Significance of effect' is the term used to express the ecological consequence of an impact, which is identified by considering the magnitude of an impact and sensitivity of the ecological feature. The magnitude of an impact does not necessarily directly translate into significance of effect; it can depend on the magnitude of the impact and sensitivity of the ecological feature (see Table 4.3). Effects may also be categorised as direct or indirect, secondary, short, medium or long term, or permanent or temporary as appropriate.

Table 4.3: Significance matrix based on magnitude of impact and sensitivity of ecological features

Sensitivity	**Magnitude of Impact**				
	No Change	**Negligible**	**Low**	**Medium**	**High**
Negligible	None	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	None	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	None	Negligible or Minor	Minor	Moderate	Moderate or Major
High	None	Minor	Minor or Moderate	Moderate or Major	Major or Substantial
Very high	None	Minor	Moderate or Major	Major or Substantial	Substantial

- **Substantial**: Adverse effects generally associated with sites of international, national or regional importance that are likely to suffer the most damaging impact and loss of resource integrity. They represent key factors in the decision-making process.
- **Major**: Beneficial or adverse effects which are important considerations and are likely to be material in the decision-making process**.**
- **Moderate**: Beneficial or adverse effects which may be important, but are not likely to be key factor for decision-making.
- **Minor**: Beneficial or adverse effects which may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project.
- **Negligible**: No observable effects, within normal bounds of variation.

5. SURVEY RESULTS

5.1 Desk Study

Statutory and Non-Statutory Designated Areas

5.1.1 The Site does not lie within or adjacent to any statutory or non-statutory designated areas. There are no statutory designated areas within 1km of the Site, and only one non-statutory designated area:

- **Cottenham Moat County Wildlife Site**, which lies approx. 400mto the south-west. It is designated for the presence of 50+ Great Crested Newt *Triturus cristatus* in the waterbodies during the breeding season.

5.1.2 Although the Site lies within a SSSI Impact Risk Zone for Sites of Special Scientific Interest within the wider landscape, consultation with Natural England will not be required due to the size and nature of the proposed development.

Priority Habitats

5.1.3 There are no Priority Habitats, parcels of ancient woodland, or non-Priority Habitats within or adjacent to the Site. There are three Priority Habitats within 1km of the Site, listed below with the approximate distance and orientation of each habitat from the Site:

- **Deciduous Woodland** approx. 80m to the south.
- **Traditional Orchards** approx. 230m to the north-east.
- **Coastal and Floodplain Grazing Marsh** approx. 500m to the west.

5.2 Habitat Survey

Data Search Results

5.2.1 Plants returned in the data search included the Near Threatened Common Cudweed *Filago vulgaris*, Field Scabious *Knautia arvensis*, and Wild Strawberry *Fragaria vesca*.

5.2.2 Non-native, invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act (1981) which were returned in the search included Wall Cotoneaster *Cotoneaster horizontalis* and Nuttall's Waterweed *Elodea nuttallii*.

Habitat Survey Results

5.2.3 Habitat recorded within the Site included Buildings (u1b5), Developed land; sealed surfaces (u1b), Introduced shrub (u (1160)), ruderal/ephemeral (u (17)), and Modified grassland (g4). Walls and timber fencing (u1e) formed the Site boundaries. On-site habitats are evaluated as being ecologically important at a Site level only. The habitat map is provided in Figure 5.1 in Appendix A. Photos of on-site habitats are provided in Appendix B.

5.2.4 No protected or notable plants were recorded during the survey, and there is limited potential for such species to be present due to the habitat types present and residential nature of the Site. No Schedule 9 plant species were recorded during the survey.

Buildings

5.2.5 Four outbuildings and structures were present within the Site along the northern and southern boundaries, which are denoted as Buildings A, B, C and D on the habitat map in Appendix A. Descriptions of the outbuildings and structures are provided in in Section 5.6. Photos of the buildings are provided in Appendix C.

Sealed Surfaces and Introduced Shrub

5.2.6 Access into the Site was gained by a gravel driveway from the High Street to the west, which led into a central hardstanding yard between the outbuildings and structures. Alongside the driveway were a mix of ornamental and native plants and shrubs in raised beds.

Modified Grassland

5.2.7 A small area of short-sward, managed grassland was present in the eastern end of the Site. Species included Perennial Rye-grass *Lolium perenne*, Meadow-grass *Poa* sp., Common Daisy *Bellis perennis*, Dandelion *Taraxacum* agg., Creeping Cinquefoil *Potentilla reptans*, Hedgerow Cranesbill *Geranium pyrenaicum*, Red Dead-nettle *Lamium purpurea*, Ground Ivy *Glechoma hederacea*, and Ragwort *Jacobaea vulgaris*.

5.3 Protected and Notable Species

5.3.1 Habitats within the Site are unsuitable to support Hazel Dormouse *Muscardinus avellanarius*, Brown Hare *Lepus europaeus*, Harvest Mouse *Micromys minutus*, reptiles, Otter *Lutra lutra*, Water Vole *Arvicola amphibius* or White-clawed Crayfish *Austropotamobius pallipes.* These species are therefore given no further consideration in this report.

Badger

5.3.2 No records of Badger *Meles meles* were returned in the data search and no evidence of this species was recorded during the survey. The Site provides limited foraging opportunities for individuals and has limited connectivity to neighbouring habitat. This species was scoped out of further assessment. No further survey work is required, but mitigation measures must be implemented during site works as a precaution.

Barn Owl

5.3.3 Although records of Barn Owl *Tyto alba* were returned in the data search, no field evidence of this species was recorded during the survey. Buildings within the Site had limited suitability to support nesting individuals and on-site habitat provides no foraging opportunities. Barn Owl was scoped out of further assessment. No further survey or mitigation measures are required.

Bats

5.3.4 Records of Brown Long-eared *Plecotus auritus*, Common Pipistrelle *Pipistrellus pipistrellus*, and Soprano Pipistrelle *Pipistrellus pygmaeus* were returned in the data search. It is not known if these records include known roosts. No European Protected Species mitigation licences for bats have been granted by Natural England within the search area.

5.3.5 There were four outbuildings and structures within the Site which were assessed for their potential to support roosting bats. Details of the assessments are provided in Section 5.6. Photos are provided in Appendix C.

5.3.6 No trees within the Site were of an age or condition so as to support potential roost features, being young and/or in general good health. Trees in relation to roosting bats were scoped out of further assessment. No mitigation measures are required.

5.3.7 The Site was categorised as being of low quality for foraging and commuting bats due to the habitat types present and its location within a residential environment. The Site is evaluated as being ecologically important for foraging and commuting bats at a Site Level. Foraging and commuting bats were scoped out of further assessment, but mitigation measures must be implemented during site works to ensure minimal disturbance to individuals utilising the Site.

Breeding Birds

5.3.8 Red-listed species of bird returned in the data search included Fieldfare *Turdus pilaris*, Lesser Redpoll *Acanthis cabaret*, Grasshopper Warbler *Locustella naevia*, Starling *Sturnus vulgaris*, Swift *Apus apus*, Tree Sparrow *Passer montanus*, and Turtle Dove *Streptopelia turtur.*

5.3.9 No birds were observed within the Site during the survey, and no evidence of nesting birds was recorded. Buildings and the mature tree provide suitable nesting habitat for breeding birds. The Site is evaluated as being ecologically important for breeding birds at a Site Level. Breeding birds were scoped out of further assessment, but mitigation measures must be implemented during site works as a precautionary measure.

European Hedgehog

5.3.10 No records of European Hedgehog *Erinaceus europaeus* were returned in the data search, and no evidence of this species was recorded during the survey. However, on-site habitats provide foraging opportunities for individuals and there is good connectivity to neighbouring habitat in a residential landscape. Individuals are likely to be present within the local area. The Site is therefore evaluated as being ecologically important for European Hedgehog at a Site Level. This species is coped out of further assessment, but mitigation measures must be implemented during all site works as a precautionary measure.

Great Crested Newt and Amphibians

5.3.11 Records of Great Crested Newt *Triturus cristatus* were returned in the data search, from two locations approx. 360m to the south and 400m south-west. Records of Common Frog *Rana temporaria* and Common Toad *Bufo bufo* were also returned. No current European Protected Species mitigation licences for Great Crested Newt have been granted by Natural England within the search area. The Site lies within a green zone for Great Crested Newt, where this species is sparsely distributed, less likely to be present and it is less likely there are important pathways of connecting habitat.

5.3.12 One waterbody (Pond 1) was present adjacent to the eastern boundary. Details of the Habitat Suitability Index assessment and eDNA sampling from Pond 1 are provided in Sections 5.4 and 5.5 respectively. No other waterbodies were identified within 250m of the Site. On-site habitat ranges from negligible to sub-optimal to support amphibians during their terrestrial life stages, comprising managed short-sward grassland and areas of hardstanding, with some features that may be used as potential hibernacula.

Invertebrates

5.3.13 One record of the Near Threatened Small Heath *Coenonympha pamphilus* were returned in the data search, along with records of numerous species of UK BAP moths. No invertebrates were observed during the survey, likely due to cool temperatures. The Site is suitable for the

more common and mobile invertebrate species given the habitat types present and the semi-rural environment. Invertebrates were scoped out of further assessment. No further survey work or mitigation measures are required.

Schedule 9 Animal Species

5.3.14 No relevant Schedule 9 animal species were returned in the data search, nor were any such species recorded during the survey. It is likely that Grey Squirrel *Sciurus carolinensis* will be present in the local area.

5.4 Habitat Suitability Index Assessments

5.4.1 There were no waterbodies within the Site itself and only one waterbody was identified within 250m of the Site. Pond 1 was subject to a Habitat Suitability Index assessment, the results of which indicated that it had and 'average suitability' to support breeding populations of Great Crested Newt. Results of the assessment are summarised in Table 5.1. Photos of Pond 1 are provided in Plates 1 and 2 below.

Table 5.1: Habitat Suitability Index Scores

Pond Number	HSI Score:	Suitability for GCN	Distance from Proposed Development
1	0.61	Average	2m

Plate 1: Pond 1, looking south-east

Plate 2: Pond 1, looking north-west

5.5 eDNA Sampling

5.5.1 Laboratory analysis of the water sample collected from Pond 1 came back **positive**, meaning that eDNA from Great Crested Newt was detected in the sample. Figure 5.1 below presents the results from the eDNA analysis; a total of 9 of the 12 replicates tested positive for Great Crested Newt resulting in a high level of confidence in the presence of this species. There was no inhibition or degradation of the water sample.

GCN Detection Results

Pond ID	Inhibition	Degradation	GCN Score	Result
Pond 1	No	No	9	Positive

Sample Information

Pond ID	Kit ID	Sampling Date	Received Date
Pond 1	GCN-23-00007	2023/04/26	2023/05/03

Figure 5.1: Results summary for eDNA analysis (Source: NatureMetrics, 2023)

5.6 Preliminary Bat Roost Assessment

5.6.1 Four buildings were subject to internal and external inspections, denoted as buildings A, B, C and D in Figure 5.2. Categorisations of the suitability of each building to support roosting bats is summarised in Table 5.1 below. Photos from the inspections are provided in Appendix C.

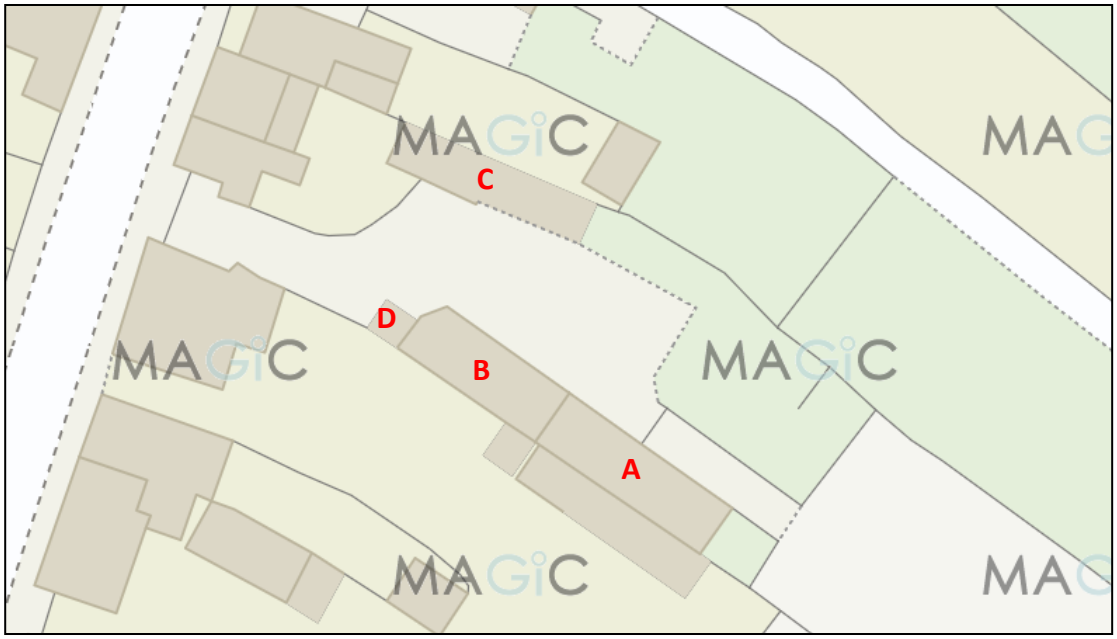

Figure 5.2: Building locations

Building A

5.6.2 Building A was a single-storey outbuilding which was previously used as a stable. The pitched roof of corrugated cement-based material had risen and warped in several places, resulting in numerous gaps and crevices along the ridge and across the roof. The mix of breezeblock and brick walls were generally in good condition but with occasional gaps in the mortar, and with

some gaps between brickwork and doorframes. Timber weatherboarding on the south-east gable end was in poor condition with several open gaps providing access into the interior. Open doors and windows on the north-east and south-west elevations also provided internal access. There was no soffit boxing or fascia boards.

5.6.3 Internally, the timber-framed roof rose up to the apex with no roof void, where there was a timber ridge beam thickly covered in cobwebs. The roof was single-skin, attached directly to the beams with no internal cladding. Timber beams contained no mortice joints or cracks that may have provided roost features. Brick walls to approx. 1.5m high divided the interior into individual stables. The south end of the building was light and exposed from open windows and doors, but very cobwebby and there was a thick covering of dust and debris on the floor. The north end of the building was much darker as doors and windows were boarded up.

5.6.4 Building A was categorised as having **low suitability** to support roosting bats. Potential roost features included gaps and crevices between raised roof material, and crevices between brickwork and doorframes. No droppings or other evidence of roosting bats was recorded.

Building B

5.6.5 Building B was a two-storey building which was previously used as a mill. The corrugated metal roof sloped back from the north-east elevation down towards the south-west elevation. The brick walls rose to approx. 2m before changing to timber weatherboarding up to roof height. The weatherboarding had warped and risen in numerous places, creating multiple crevice-type features. Several crevices were noted between the brickwork and doorframes, and there several gaps in the mortar. Windows on the north-east elevation had been roughly boarded-up. There was no soffit boxing or fascia boards.

5.6.6 Internally, the south-west end of the building was open to the apex of the timber-framed roof. There was no roof void, and no internal cladding to the roof. The ridge beam, rafters and the interior were heavily cobwebbed and the floor had a thick covering of debris. Some timber beams contained cracks, and the complex wooden construction of old mill workings provided potential cavity-type features. The north-west end of the building was very cluttered due to old mill workings on three levels. The interior was used for storage. Light levels were low with a few external access points noted in the southern wall and through gaps in the roof covering. A separate gap in the weatherboarding lower down on the south elevation provided access into the adjoining old stable block. Rat droppings were noted.

5.6.7 Building B was categorised as having **moderate suitability** to support roosting bats. Potential roost features included gaps and crevices within roof timbers and the old mill workings, and crevices between brickwork and doorframes. Externally, raised weatherboarding provided features suited for bats in the genus *Pipistrellus*. No droppings or other evidence of roosting bats was recorded.

Building C

5.6.8 Building C had a high, open structure typical of an agricultural outbuilding. The pitched roof of corrugated sheet metal was generally in good condition, with a few raised edges. Brick walls were in relatively good condition with few gaps in the mortar. Timber weather-boarding was present on the gable ends and had risen in places, but as the boarding was single-skin with no internal cladding, gaps did not lead to potential roost features. There was no soffit boxing or fascia boards. The south-facing elevation was completely open, resulting in a light, drafty and exposed interior. There was no roof void and there was no internal cladding to the roof.

5.6.9 Building C was categorised as having **negligible suitability** to support roosting bats due to an absence of potential roost features. No droppings or other evidence of roosting bats, such as feeding remains, was recorded externally.

Building D

5.6.10 Building D was a small single-storey storage area which was covered almost entirely by a dense covering of bushy Common Ivy growth. Access to the interior could not be gained, but potential roost features or potential access points were noted. Building D was categorised as having **negligible suitability** to support roosting bats. No droppings or other evidence of roosting bats was recorded externally.

Table 5.2: Summary of building categorisations

Building	Roost Suitability	Surveys Required?
Building A	Low	YES – minimum of one activity survey
Building B	Moderate	YES – minimum of two activity surveys
Building C	Negligible	No
Building D	Negligible	No

5.7 Bat Activity Surveys

First Dusk Emergence Survey

5.7.1 The first dusk emergence survey on the 11th May 2023 recorded two separate emergences; one Brown Long-eared bat emerged at 21:08 from an open stable door on the north elevation of Building A (Plate 1 below), and one Common Pipistrelle emerged at 21:39 from underneath the weatherboarding on the north elevation on Building B (Plate 2 below).

5.7.2 Bat activity during the survey was very low, with sporadic commuting passes and very brief foraging activity from Common Pipistrelle and Soprano Pipistrelle between 20:53 and 21:39, after which there was no activity for the remainder of the survey. Foraging activity was largely over the field south-east of the Site, with less frequent activity between the on-site buildings. Survey metadata is provided in Table 5.3.

Table 5.3: Survey Metadata 11.05.2023

Date:	Start Time:	Finish Time:	Sunset:	Start Temp:	Finish Temp:	Rain:	Wind (0-12):	Cloud Cover:
11.05.2023	20.26	22:11	20:41	12.1ºC	9.4ºC	0	2 (4mph)	50%

Plate 1: Emergence point, 21:08

Plate 2: Emergence point, 21:39

Second Dusk Emergence Survey

5.7.3 The second dusk emergence survey on the 7th June 2023 recorded one emergence; one Brown Long-eared bat emerged at 21:58 from an open stable door on the north elevation of Building A (see Plate 3 below).

5.7.4 Bat activity during the survey was again very low, with the majority of commuting passes and short bursts of foraging activity from Common Pipistrelle and Soprano Pipistrelle between 21:40 and 22:10, after which activity became very sporadic. Foraging activity was largely over the field south-east of the Site and between the on-site buildings. Survey metadata is provided in Table 5.4.

Table 5.4: Survey Metadata

Date:	Start Time:	Finish Time:	Sunset:	Start Temp:	Finish Temp:	Rain:	Wind (0-12):	Cloud Cover:
07.06.2023	21:02	22:47	21:17	10.7ºC	9.3ºC	0	3 (9mph)	10%

Plate 3: Emergence point, 21:58

5.8 Roost Type

5.8.1 Roost characterisation collects data on the physical characteristics of a roost, which allows for a more accurate assessment of the potential impacts of a proposed development on bats and ensure that mitigation and monitoring strategies are relevant and proportionate. Physical characteristics of a bat roost that may be recorded include; the size and nature of the roost, roosting surfaces, aspect and orientation, temperature and humidity, lighting and surrounding habitat (Collins, 2016).

5.8.2 A review of video footage from inside Building B did not record any Brown Long-eared bats moving from Building B into Building A through the dividing wall. It can therefore be assumed that Building A contains the Brown Long-eared roost.

5.8.3 The confirmed Brown Long-eared roost in Building A is categorised as being a day roost of one individual bat. The confirmed Common Pipistrelle Roost in Building B is also categorised as being a day roost of one individual bat. A day roost is described by Natural England as:

> *"A place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer."*

5.9 Important Ecological Features

5.9.1 Based on the findings of the desk study, Preliminary Ecological Appraisal and the subsequent bat survey work, the importance of identified ecological features at a geographical scale is summarised in Table 5.5.

Table 5.5: Importance of identified ecological features

Ecological Receptor	Ecological Importance (at a geographical scale)
Designated areas	International; National; Regional Level
Priority Habitat	County; Local Level
Habitats	Site Level
Roosting bats	Site Level (European Protected Species)
Foraging and commuting bats	Site Level
Breeding birds	Site Level
Great Crested Newt	Local Level (European Protected Species)
European Hedgehog	Site Level

6. ECOLOGICAL ASESSMENT and MITIGATION

6.1 Development Proposals

6.1.1 Current development proposals are for the demolition of existing buildings and structures, and the construction of one new residential dwelling and a garage with associated landscaping. Access into the Site will be gained via a driveway from High St to the west. Figure 6.1 shows a plan of the scheme design.

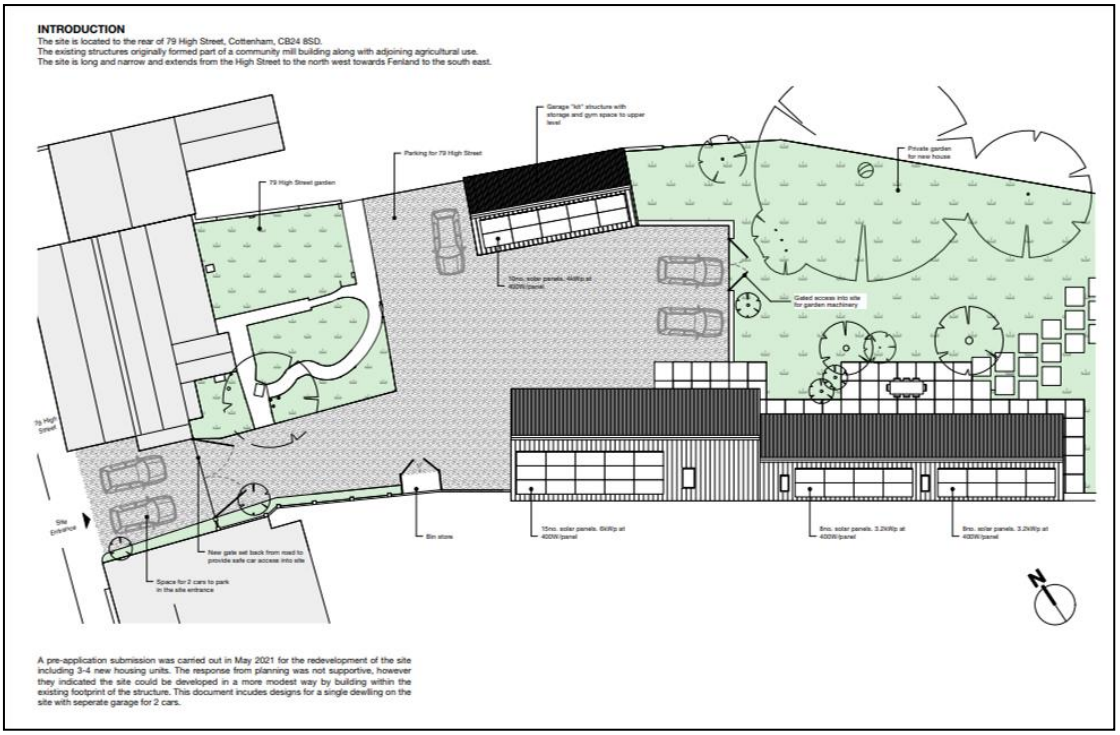

Figure 6.1: Plan of the scheme design (Source: apa)

6.2 Statutory and Non-statutory Designated Areas

6.2.1 The Site does not lie within or adjacent to any statutory or non-statutory designated areas. The nearest designated area lies approx. 400m to the south-west. Due to the size and nature of the proposed development and its anticipated localised impacts, there will be no adverse impacts on the integrity of designated areas within 1km of the Site, either directly or indirectly. Mitigation or compensatory measures in relation to statutory and non-statutory designated areas are therefore not required.

6.3 Priority Habitats and On-site Habitats

Priority Habitats

6.3.1 There are no Priority Habitats within or adjacent to the Site, nor do on-site habitats meet the criteria for Priority Habitat status. The nearest Priority Habitat lies approx. 80m to the south. Due to the size and nature of the proposed development and its anticipated localised impacts, there will be no adverse impacts on the integrity of Priority Habitats within 1km, either directly

or indirectly. Mitigation or compensatory measures in relation to Priority Habitats are therefore not required.

On-site Habitat

6.3.2 The Site comprises buildings, hardstanding, managed amenity grassland, introduced shrub, and scattered planted trees, bordered by timber fencing and brick walls. Current development proposals will result in the permanent loss of existing habitat. Habitat is evaluated as being of negligible to low ecological value. The loss of existing habitat will result in a minor adverse effect at a Site level. No compensatory measures for the loss of on-site habitat are required.

6.3.3 The mature tree on the northern boundary will be retained within the scheme design. Works during site clearance and construction phases of the project are likely to adversely impact the retained tree. Mitigation measures are required to prevent short-term and long-term damage to the retained tree.

- **Protective fencing will be erected around the retained tree in accordance with a Tree Protection Zone, which should be produced by an arboriculturist, and will be kept in place for the duration of site works. Fencing will prevent damage to the tree from machinery, protect root systems, and will reduce soil compaction.**

6.4 European Protected Species Mitigation Licences

6.4.1 Two species of bat, Common Pipistrelle and Brown Long-eared, and Great Crested Newt have been confirmed as present within or immediate proximity to the Site boundary. These species will be adversely impacted as a result of the proposed development.

6.4.2 Natural England states that a European Protected Species mitigation licence is only required if works will have impacts on a European Protected Species that would otherwise be illegal:

- capturing, killing, disturbing or injuring them (on purpose or by not taking enough care);
- damaging or destroying their breeding or resting places (even accidentally); and
- obstructing access to their resting or sheltering places (on purpose or by not taking enough care)

Bats

6.4.3 Of the four buildings within the Site which were subject to a Preliminary Roost Assessment, Building A was categorised as having low suitability to support roosting bats and Building B was categorised as having moderate suitability. Subsequent activity surveys confirmed the presence of roosting bats in both buildings; one Brown Long-eared day roost in Building A and one Common Pipistrelle day roost in Building B.

6.4.4 Given the findings of the Preliminary Roost Assessment and the confirmation of the number of roosting bats, two activity surveys are considered to be proportionate and sufficient to identify the roost type for each species (BSI, 2013).

6.4.5 Mitigation measures such as the timing of works and supervision by a suitably qualified and licenced ecologist will reduce the risk of accidental mortality, disturbance or injury of individual bats during works, but will not remove the risk completely. Current development proposals will result in the destruction of a confirmed Common Pipistrelle day roost and a confirmed Brown Long-eared day roost. Demolition works have the potential to disturb or harm any bats in-situ. The disturbance to and destruction of the two separate day roosts will have a major impact on Common Pipistrelle and Brown Long-eared populations at a Site Level.

6.4.6 **A European Protected Species mitigation licence for bats will be required for works to proceed lawfully. Mitigation and compensatory measures for the loss of the day roosts will be included within the licence application.**

Great Crested Newt

6.4.7 There are no waterbodies within the Site itself but the presence of Great Crested Newt was confirmed in the waterbody adjacent to the south-east boundary. On-site habitat ranges from negligible to sub-optimal to support this species during their terrestrial life stages, with habitat features which may be utilised by hibernating individuals.

6.4.8 Records of Great Crested Newt were returned in the data search, mainly from Cottenham Moat County Wildlife Site which is designated for its breeding population of this species and is located approx. 400m to the south-west. Habitat connectivity between the Cottenham Moat and the Site is good. While the Site lies within a green zone for Great crested Newt, it is close to the amber zone around Cottenham Moat.

6.4.9 Mitigation measures such as the timing of works will reduce the risk of accidental mortality, disturbance or injury of individual Great Crested Newts during site works but will not remove the risk completely. Current development proposals will result in the loss of terrestrial habitat in close proximity to a waterbody where this species was confirmed as present.

6.4.10 In the absence of mitigation measures, Natural England's tool for determining the need for a mitigation licence shows that the risk of an offence being committed against individual Great Crested Newts during site works is *highly likely* (Figure 6.2).

Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	**Notional offence probability score**
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.01 - 0.1 ha lost or damaged	0.3
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	Killing or injuring newts	0.8
	Maximum:	0.8
Rapid risk assessment result:	**RED: OFFENCE HIGHLY LIKELY**	

Figure 6.2: Natural England's *'Do I Need a Licence'* Tool – before mitigation

6.4.11 With the implementation of non-licenced mitigation measures during site works, as part of a precautionary working method statement, the same tool shows that the risk of an offence being committed during works is *likely* (Figure 6.3, below).

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.01 - 0.1 ha lost or damaged	0.3
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	Minor disturbance of newts	0.5
	Maximum:	0.5
Rapid risk assessment result:	AMBER: OFFENCE LIKELY	

Figure 6.3: Natural England's *'Do I Need a Licence'* Tool – after mitigation

6.4.12 Given the presence of Great Crested Newt in a waterbody approx. 2m from the south-eastern Site boundary, terrestrial habitat within the Site including potential hibernacula features, and the presence of a breeding population of significance within 500m of the Site, the proposed development may disturb or harm individuals during site works even with the implementation of non-licenced mitigation measures.

6.4.13 **A European Protected Species mitigation licence or District Level Licence (DLL) for Great Crested Newt will therefore be required for works to proceed lawfully.**

6.5 Protected and Notable Species Mitigation Measures

Amphibians

6.5.1 Records of Common Frog and Common Toad were returned in the data search, and on-site habitats are suitable to support amphibians during their terrestrial life stages, including for hibernation. The following working method statement will be implemented and adhered to during all site works as a precautionary measure, to ensure any individuals which may utilise the Site are not harmed.

Precautionary Working Method Statement

1. **Vegetation within the works area will be regularly maintained at a height of 10cm until site works commence, to maintain unsuitable habitat with the primary aim of discouraging any individuals from entering the works area.**
2. **Potential hibernacula such as log or rubble piles will be removed by hand and under supervision of a suitably qualified ecologist.**
3. **Materials used for construction will be raised off the ground using pallets to ensure they are not used as temporary resting places. Machinery and materials will not be stored in proximity to the south-eastern boundary.**
4. **Works should be undertaken during daylight hours when great crested newts are least active, commencing an hour after sunrise and ending at least one hour before sunset.**
5. **At the end of each working day, any trenches, holes, or excavations should be backfilled or covered if possible; if not, a ramp should be left in overnight to allow any reptiles or other animals to exit easily.**

Badger and European Hedgehog

6.5.2 Although no evidence of Badger or European Hedgehog was recorded during the survey, the Site may be utilised by both of these species but by hedgehog in particular. Works during the site clearance and construction phases of the project may result in a minor adverse effect on both species at a Site level only. The following mitigation measures will be implemented and adhered to during Site works to ensure individuals which may utilise the Site are not harmed.

- **Excavations will be covered up at the end of each working day to ensure that Badger, European Hedgehog or other wildlife do not fall into holes and become trapped. Where the covering up excavations is not possible, a length of timber will be put into the hole to provide an escape route back up to ground level.**

Bats

6.5.3 Species recorded as foraging and commuting within the Site included Common Pipistrelle and the Priority Species Brown Long-eared and Soprano Pipistrelle. Habitat within the Site is of low quality for foraging and commuting bats. Upon completion of the proposed development there will be additional sources of light spill from the new residential dwelling and any external lighting. Temporary lighting used during site works may disturb bats utilising the Site. Current development proposals will result in a minor adverse effect on foraging and commuting bats at a Site level.

6.5.4 Mitigation measures will be implemented to reduce any temporary disturbance or permanent adverse impacts from light spill, particularly for those species less tolerant of light pollution (Gunnell *et al*., 2012). It is recommended that a wildlife-friendly lighting strategy is produced by a lighting specialist to reduce the extent of light spill which may disturb nocturnal animals, with a focus on foraging and commuting bats.

- **To minimise the disturbance to foraging and commuting bats which may utilise the Site, it is recommended that works do not commence until at least 1 hour after dawn and finish at least 1 hour before sunset.**

- **Outdoor lighting will have as little light spill as possible, with light spread near to or below the horizontal, use light sources that emit minimum ultra-violet light to avoid attracting large numbers of insects, be as low-level and directional as possible, and be of the minimal levels required for health and safety.**

Breeding Birds

6.5.5 Linear boundary features provide suitable nesting habitat for breeding birds. Works during the site clearance and construction phases of the project may result in a minor adverse effect on breeding birds at a Site level only. It is recommended that vegetation clearance work takes place between September and February to avoid the breeding bird season.

- **If vegetation clearance is required during the breeding bird season (March to August inclusive), a suitably qualified ecologist must carry out a nesting bird check no more than 48 hours in advance. If an active nest is found, a 3m buffer zone will be created to ensure the nest is not disturbed or destroyed during site works, and will remain in place until any young have successfully fledged.**

7. OPPORTUNITIES for BIODIVERSITY ENHANCEMENT

7.1 In line with the NPPF (2021), the proposed development can incorporate enhancements for biodiversity through the management and enhancement of existing habitat or the creation of new habitat. Enhancing and managing on-site habitats will maintain habitat connectivity and provide areas for shelter and food sources for a variety of species.

7.2 Opportunities for biodiversity as part of the scheme design could include:

- The installation of one bird box on the new residential dwelling or garage, such as a Swift box or Sparrow Terrace box.
- One integrated or externally-mounted bat box on the new residential dwelling or garage, such as the Ibstock integrated bat box.
- Allowing piles leaf litter and deadwood to build up along Site boundaries to provide areas of rest and shelter for animals, including European Hedgehog.
- The inclusion of nectar-rich and pollen-rich native and non-invasive ornamental plants within landscaping plans, to provide food resources for pollinators and other insects.
- The creation of a native hedgerow along the south-eastern Site boundary.

7.3 It is recommended that any boundary features are left as open as possible to promote habitat connectivity for wildlife, and for European Hedgehog in particular; research suggests that although hedgehogs are doing well in urban habitats, gardens need to remain connected. Simple post and rail fencing would achieve this; any solid fencing should have occasional gaps, 15cm high x 15cm wide, created at ground level to maintain habitat connectivity whilst at the same time excluding larger mammals. Further information can be gathered from the website 'Hedgehog Street', which aims to help people improve their gardens for hedgehogs. http://www.hedgehogstreet.org/

7.4 The biodiversity enhancements listed above do not necessarily result in measurable gains to biodiversity It is recommended that Biodiversity Net Gain calculations using the latest DEFRA Metric are carried out, comparing baseline and post-development habitats to demonstrate any measurable gains or losses to biodiversity as a result of the proposed development.

8. CONCLUSION

8.1 In relation to the local policies of the South Cambridgeshire Local Plan (2018) (see Section 3):

- The proposed development will not impact on any designated sites of national or international importance, nor will the proposed development impact on any County Wildlife Sites or Sites of Nature Conservation Interest of regional or local importance.
- There will be no loss of or adverse impacts to Priority Habitats or Priority Species, or species or habitats listed under local Biodiversity Action Plans. There will be no loss, fragmentation or deterioration of irreplaceable habitats, and no loss of or damage to high-quality habitats.
- No ancient woodland or veteran trees will be lost or adversely impacted as a result of the proposed development.
- Mitigation measures for amphibians, Badger and European Hedgehog, breeding birds, and foraging and commuting bats will ensure there are no adverse impacts on protected or notable species as a result of development. Mitigation measures for the retained tree/s will prevent damage to vegetation during site works.
- The incorporation of biodiversity enhancements will improve site biodiversity beyond that which the scheme design may support, and so help to maximise opportunities for biodiversity (NPPF, 2021).
- Biodiversity enhancements do not necessarily contribute to a measurable net gain in biodiversity, particularly for species-specific enhancements. Calculations to determine measurable gains or losses to biodiversity as a result of any development should use the latest DEFRA Biodiversity Metric.

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APPENDIX A – Habitat Map

APPENDIX B – Habitat Photos

Plate 1: Looking north-west over hardstanding

Plate 2: Looking south-east over grassland

Plate 3: Access from the Site to adjacent field

Plate 4: Looking north-west from south-east

Plate 5: North boundary with mature tree

Plate 6: Access into the Site

APPENDIX C – Building Inspection Photos

Building A

Plate 1: South-east gable end

Plate 2: North-east elevation looking north

Plate 3: Interior, south end

Plate 4: Interior roof

Plate 5: Interior, north end

Plate 6: North-east elevation looking south

Building B

Plate 7: North-east elevation, north end

Plate 8: North-east elevation, south end

Plate 9: Southern end

Plate 10: Interior, southern end

Plate 11: Interior, north-east corner

Plate 12: Interior, north-west corner

Building C

Plate 13: East gable end

Plate 14: Southern elevation, south end

Plate 15: Southern elevation, north end

Plate 16: Interior roof

Building D

Plate 17: East elevation