Nicholas Smith
Ecological Surveyor
Email: nicholassmith@arbtech.co.uk
Arbtech Consulting Ltd
arbtech.co.uk

Preliminary Ecological Appraisal and Roost Assessment

Survey site:

Manor Farm, Church Road, Catworth, Cambridgeshire, PE28 0PA

Client:

Frazer Stannard

Survey date:

27th August 2024

Project:

This report is prepared to inform a planning application with the Huntingdonshire District Council. The proposal is described as:
The proposed scheme includes removal of the WC and porch to rear, a new first floor extension which will house a new en-suite to the existing bedroom. On the ground floor the new scheme proposes to add a single storey extension and also incorporate the existing outbuilding and area that separates the house and outbuilding to be included as part of a new habitable area of the property.

PEA survey methodology and legislation can be found in the Arbtech Supplement: **PEA Methodology and Legislation - 2024.**
PRA survey methodology and legislation can be found in the Arbtech Supplement: **PRA Methodology and Legislation - 2024.**

Site Location and Context

The survey site is centred on National Grid Reference TL 09134 73629 and has an area of approximately 0.86ha.

The site comprises one dwelling (B1) a number of storage buildings and associated hardstanding, modified grassland and bordering hedgerows/line of trees. It is situated on the outskirts the village of Church End, Huntingdon. Aerial imagery shows the local landscape to have an agricultural character, with several small copses and woodland swathes in close proximity to the site. Water bodies can be found nearby, such as a garden pond located ~5m north. Such features likely enhance the area for a variety of species, including bats, amphibians and reptiles.

Survey Details

The site survey was undertaken by Nicholas Smith Ecological Surveyor, bat licence accredited agent (details can be provided on request), an ecologist with over one year of experience.

Date of survey	Temperature (°C)	Humidity (%)	Cloud Cover (%)	Wind (km/h)	Rain
27/08/2024	24	53	30	3	None

Executive Summary

Four brown-long eared bats were observed within loft void 2, roosting between the bitumen felt and rafters. Large amounts of dropping were also observed during the survey consisting of >100.
Three bat emergence/re-entry surveys are required on B1a and B1b during the active bat season (May – September) to confirm roost type of the bats found inside of the building.

These survey visits should be completed during the optimal survey period mid-May to August inclusive. The survey visits should be at least three weeks apart.

Survey limitations

It should be noted that whilst every effort has been made to describe the baseline conditions within the survey area, and evaluate these features, this report does not provide a complete characterisation of the site. This assessment provides a preliminary view of the likelihood of protected species being present. This is based on suitability of the habitats on the site and in the wider landscape, the ecology and biology of species as currently understood, and the known distribution of species as recovered during the searches of historical biological records.

No Biological Records Data (BRD) was available at the time of writing this report and this should be obtained, and the report updated to enable a robust ecological impact assessment to be completed.

No access could be made to all loft voids (loft void 1) during the survey due to health and safety concerns. An inspection of loft void 2 and 3 was made, further surveys are recommended and therefore this limitation is not deemed significant.

Ecological Survey Factor **Conclusion, Impact or Recommendations**	**Detailed using desk study and site survey (carried out under good weather conditions). Any specific limitations noted within relevant section. This table may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.**
Habitats and plants (see habitat map in appendix 1, location plan in appendix 2, proposal plan in appendix 3 and photos in appendix 4). **Botanical species are described with reference to the DAFOR scale (D = Dominant; A = Abundant, F = Frequent, O = Occasional, R = Rare).**	
Summary of Survey Findings **(***UKHab codes used)*	The site does not contain any habitats listed as a habitat of principal importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006). Habitats within the site are common and widespread and have low ecological value. Notable habitats are present within 2km. **On-site habitat descriptions** Modified grassland [g4], The site consists of an area of modified grassland north of the residential dwelling. Species consist of; **D:** perennial rye **A:** cleaver, creeping cinquefoil **F:** creeping buttercup, common daisy **O:** cut-leaf geranium, hawkweed *sp.,* selfheal **R:** bristly ox-tongue, spear thistle, greater plantain, lady's bedstraw Artificial unsealed, unvegetated surface [u1c] A gravel car park was present in the centre of the site.

	Built up areas and gardens [u1] vegetated garden [828] Areas of vegetated garden were present on site. Species recorded consisted of rosemary, *Angelonia,* common box, purple vervain and *Euonymus japonicus.* Modified grassland [g4], grazed [100], scattered trees [32] A field of modified grassland was present south of the site. The field is currently managed by grazing of sheep, creating a short sward length of <5cm. Species within the grassland comprised: **D:** **A:** false-oat grass **F:** yorkshire fog, white clover, hawkweed *sp.,* cocksfoot, **O:** wall barley, groundsel, creeping cinquefoil, cow parsley, red fescue, **R:** sow thistle, ground ivy, bristly oxtongue, curled dock, bramble Scattered tree species consisted of a single ash with a DBH of 32cm and a single *Malus sp.* with a DBH of 18cm. Other native hedgerow [h2a6] A native hedgerow was present on the western boundary of the field. Species comprised a small *Malus sp.,* occasional field elm, frequent elder and small sycamore. Ground flora species consisted of abundant ivy with frequent white bryony. Other native hedgerow with trees [h2a6, 11] A native hedgerow with trees was present on the southern boundary of the site. The hedgerow was dominated by ash trees with rarely present hawthorn, *malus sp.* and a sycamore tree. Ground for a species consisted of frequent common nettle, with rarely present creeping buttercup, garlic mustard, burdock, broad-leaved dock, nipplewort, smooth sowthistle, red campion occasional creeping thistle and cleavers. Other Broadleaved Woodland [w1g] line of trees [33] A tree line was present on the east of the site. Tree species consisted of mature sycamore, young rowan, oak, and *tilia sp.* Buildings [u1b5] A single dwelling was present on site in the west of the site (B1a), and an outbuilding is present northwest of the building (B1b) see the PRA results below for a description of the buildings. Further storage structures were present; however, they were not surveyed due to not being impacted by the development.

	Local notable habitats Patches of deciduous woodland are present is close proximity to the site, the closest is located ~0.2m west. Priority habitats present within 2km of the site, including coastal and floodplain grazing marsh (located ~1.6km northwest), lowland meadows (located ~1.3km southeast), tradition orchards (located 0.5km southwest), and lowland fens (located ~1.9km north).
Foreseen Impacts	**On-site habitats** The habitats on-site are widespread and not notable. A small area of modified grassland will be lost, as part of future development. **Notable habitats** No direct impacts to any notable habitats will occur as a result of the proposed development. However, due to the proximity of the site to deciduous woodland (0.2km west), indirect effects (e.g. pollution, dust, litter, surface run off, etc.) could occur during construction.
Recommendations	**On-site habitats** No further surveys required. **Notable habitats** Best practice measures to minimise the possibility of pollution affecting the nearby waterbodies must be implemented during construction. A Construction Environment Management Plan (CEMP) may be required for this. **Biodiversity net gain** The Environment Act (2021) requires all developments (excluding exemptions) to deliver a 10% net gain in biodiversity. This is mandatory for larger developments and comes into force for smaller developments on 2nd April 2024.
Locality and Designated Sites	
Summary of Survey Findings	**On-site designations** The site is not subject to any designation. **Statutory designated sites (within 2km)** There is 1 statutory site within 2km of the site; • Little Catworth Meadows Site of Special Scientific Interest (SSSI), located 1.3km southeast. Designated for its herb-rich calcareous grassland surrounded by mature hedgerows.

	The site does not fall within an SSSI Impact Risk Zone that highlights any potential impacts as a result of the proposed development. **Statutory designated sites (within 2.5km)** No national network sites (SAC, SPA, Ramsar) are located within 2.5km. **Non-statutory designated sites** The presence of non-statutory designated sites within 2km of the site cannot be established without data from Cambridgeshire and Peterborough Environmental Records Centre.
Foreseen Impacts	**On-site designations** No impacts foreseen. **Statutory and non-statutory designated sites** The proposed development is not anticipated to cause any impacts to offsite habitats, in the event that non-statutory sites are present in the locality, due to the small scale and low overall impact of the development.
Recommendations	**On-site designations** None required. **Statutory and non-statutory designated sites** None required.
Invasive / Non-native species	
Summary of Survey Findings	No problematic invasive and non-native species recorded on site.
Foreseen Impacts	N/A
Recommendations	No further surveys but remain vigilant.
Invertebrates	
Summary of Survey Findings	The habitats present on-site, including modified grassland and hedgerows likely provide common invertebrates with opportunities to forage and shelter. The site contains no further notable habitats which may provide niches for specialised or protected invertebrates.

Foreseen Impacts	None foreseen.
Recommendations	No further surveys. **Suggested biodiversity enhancements** It is recommended that log piles are provided post-development which would create new habitat within the site for saproxylic invertebrate species. It is recommended that species-rich grassland be created as part of the proposed development which would provide enhanced opportunities for invertebrates post-development.
Bats	
Summary of Survey Findings	**EPSL data** A search of the magic.gov.uk database for granted EPSLs within a 2km radius of the site has been completed. Displaced bats from licensed sites <2km away from the survey site will find alternative habitat either within the mitigation measures implemented as part of the licence or will relocate to other known roosts sites in close proximity to the licensed site. No EPSLs were returned within a 2km radius of site. There are no Special Areas of Conservation designated for bats within 10km of the site. **Foraging and commuting habitat** Habitats recorded on site are assessed to provide moderate foraging opportunities for bats in the form of hedgerows, line of trees and grassland. The surrounding habitats including the adjacent pond and pockets of woodland are likely to provide optimal foraging and commuting habitat for bats. **Roosting habitat** Buildings to be impacted by the proposed development are assessed for their suitability to support roosting bats below. There is 1 building on site consisting of a residential dwelling (B1). Evidence of bats were found within the loft void, including four brown long-eared bats and >100 bat droppings.
B1a Building description	***Photographs***

<table>
<tr><td colspan="3">Summary
B1a consists of a two storey residential dwelling with a single-storey outbuilding located at the northwestern elevation. The roof is made of clay tiles and walls are brick, with all structures presenting suitable bat roosting and access features, including high amounts of slipped and lifted tiles, cracks in mortar, lifted lead flashing, gaps in soffit boards and gaps between walls. Internally there are three loft voids present in the main dwelling and a loft void present within the outbuilding. The interior of the roof of the main dwelling is lined with bitumen felting with timber rafters, timber ridge beams and timber trusses. One half of the interior of the roof of the outbuilding is lined with bitumen felt with timber rafters and Latham plaster, the other half is boarded. An extension to the northwestern elevation will be undertaken part of the development. The building has high habitat value.</td><td></td></tr>
<tr><th>Feature</th><th>Materials</th><th>Condition/description/suitability</th><th>Photograph(s)</th></tr>
<tr><td>Walls</td><td>Brick walls</td><td>Condition/description
The walls are in good condition, sealed with paint.

Suitability/access/evidence of bats
N/A</td><td></td></tr>
</table>

Roof	Clay tiles	**Condition/description** Slipped and lifted tiles throughout, moss present. **Suitability/access/evidence of bats** Gaps from missing tiles allow direct access for void dwelling bats into the loft void.	
Window/doors frames and lintels	Timber doors	**Condition/description** Windows/doors frames and lintels mostly appear to be in good condition. **Suitability/access/evidence of bats** N/A	

Eaves	Gaps present from broken	**Condition/description** Soffit boxes are in poor condition with gaps present throughout. **Suitability/access/evidence of bats** Gaps are present from broken timber soffit boxes allowing direct access for void dwelling bats and possible further opportunities for crevice dwelling species.	
Internal voids	Timber rafter, trusses and ridge beam lined with breathable membrane.	**Condition/description** Loft void 1: No access. Loft void 2: Internal space measures approx. 11m long, 5m wide, floor to ridge height approx. 4m. Loft void 3: Internal space measures approx. 6m long, 4m wide, floor to ridge height approx. 4m. The internal timbers at the west in loft void 1 were in poor condition with cracks present providing habitat for crevice dwelling bats. **Suitability/access/evidence of bats** Four brown-long eared bats were observed within loft void 2, roosting between the bitumen felt and rafters. Large amounts of dropping were also observed during the survey consisting of >100.	

<table>
<tr><th colspan="3">B1b Building description</th><th>Photographs</th></tr>
<tr><td colspan="3">Summary
B1b consists of a single-storey outbuilding located at the northwestern elevation of the main dwelling. The roof is made of clay tiles and walls are brick, with all structures presenting suitable bat roosting and access features, including high amounts of slipped and lifted tiles, cracks in mortar, lifted lead flashing, gaps in soffit boards and gaps between walls. Internally there is a loft void present. The interior of the roof of the outbuilding consists of one half of the interior of the roof of the outbuilding is lined with bitumen felt with timber rafters and Latham plaster, the other half is boarded. An extension to the northwestern elevation will be undertaken part of the development. The building has high habitat value.</td><td></td></tr>
<tr><th>Feature</th><th>Materials</th><th>Condition/description/suitability</th><th>Photograph(s)</th></tr>
<tr><td>Walls</td><td>Brick walls</td><td>Condition/description
The walls are in poor condition with cracks present between walls at the northwestern elevation.

Suitability/access/evidence of bats
Gaps between the walls allow direct access into the building and provide potential opportunities for crevice-dwelling bats. No evidence found but recent and current rain would wash this away externally.</td><td></td></tr>
</table>

Window/doors frames and lintels	Timber doors	**Condition/description** Windows/doors frames and lintels mostly appear to be in good condition. A gap is present between the timber doors and timber frames on the northwest elevation. **Suitability/access/evidence of bats** A gap between the timber door and frame provides access for bats into the building.	
Roof	Clay tiles	**Condition/description** Slipped and lifted tiles throughout, missing ridge tiles. **Suitability/access/evidence of bats** Gaps from missing tiles allow access between bitumen felt and tiles for crevice-dwelling bats.	
Internal voids	Timber rafter and ridge beam lined with bitumen felt.	**Condition/description** Internal space measures approx. 5m long, 2m wide, floor to ridge height approx. 2m. **Suitability/access/evidence of bats**	

		No evidence of bats was found during the survey, the loft void provided suitable habitat for void dwelling bats.	

Foreseen Impacts	**Roosting habitat [Buildings]** The proposed development will result in the extension onto this building. This could result in the disturbance of any bat roosts present and could cause disturbance, death or injury to bats. **Foraging and commuting habitat** The proposed development will not result in the removal of any habitats which could be used by foraging or commuting bats. However, the proposed development may include the use of lighting which could spill on to bat roosting, foraging or commuting habitat and deter bats from using these areas. **Artificial lighting** It is unknown if the development will result in the increase of artificial lighting.
Recommendations	**Roosting habitat [Buildings]** Three bat emergence/re-entry surveys are required on B1a and B1b during the active bat season (May – September) to confirm roost characterisation of the bats found inside of the building.

	These survey visits should be completed during the optimal survey period mid-May to August inclusive. The survey visits should be at least three weeks apart. Sub-optimal: early May and September. Would require greater justification of timing e.g., weather conditions, known local bat activity. Three surveyors are required to provide full coverage of the B1a elevations to look for emerging/re-entering bats. Two surveyors are required to provide full coverage of B1b. An infrared camera should also be employed as part of the survey to see where any specific roost locations are located. Suitable surveyor locations are included at Appendix 2. Lighting mitigation will likely be required based on the outcome of the night bat survey(s). If any bat roosts are confirmed from this survey schedule, a bat licence would be required to demolish the buildings as it would involve the destruction of roosts. This is applied for with the help of a class 2 licensed bat ecologist after planning permission is granted, but before commencement of works. **Foraging and commuting habitat** No further surveys are required. **Artificial lighting** A low impact lighting strategy will be adopted for the site during post-development which outlines the areas of the site that will be retained as dark corridors. Parameters can be found on the Bat Conservation Trust website: https://www.bats.org.uk/our-work/buildings-planning-and-development/lighting-2 **Suggested biodiversity enhancements** Enhancements are dependent on the outcome of further surveys.
Birds	
Summary of Survey Findings	**Buildings** No evidence of nesting birds was identified on or within B1, however the building is considered suitable for nesting for species such as passerine species. **Trees and vegetation** The hedgerows and trees provide suitable nesting and foraging habitat for birds. The modified grassland provides further suitable foraging habitat for birds.

	Barn owls The site does not appear to provide any suitable nesting sites for barn owls. **Overwintering birds** Due to the small size of the site and the extent and type of the habitats recorded, the site not considered suitable to support a significant assemblage of protected and/or notable birds.
Foreseen Impacts	**Buildings/trees** The proposed development could result in the destruction or the disturbance and subsequent abandonment of active bird nests. The development will also result in the loss of foraging and nesting habitat. **Barn owls** None foreseen. **Overwintering birds** None foreseen.
Recommendations	**Buildings/trees** Any building removal should be undertaken outside the period 1st March to 31st August. If this timeframe cannot be avoided, a close inspection of the vegetation should be undertaken immediately, by a qualified ecologist, prior to the commencement of work. All active nests will need to be retained until the young have fledged. Precautions should be taken with machinery and noise levels when working close to any retained nests so as not to disturb any nearby nesting birds during construction works. At least a 3-5m buffer should be created between any machinery and active nests until the young have fledged. **Barn owls** None required. **Overwintering birds** None required. **Suggested biodiversity enhancements** The installation of a minimum of two bird boxes on mature trees around the site boundaries or on retained buildings will provide additional nesting habitat for birds e.g. Schwegler No 17 Swift Nest Box (buildings)

	Schwegler 1SP Sparrow Terrace (buildings) Schwegler 1B Nest Boxes (trees) Schwegler 2H Robin Boxes (trees) Woodstone Nest Box (buildings or trees) Or a similar alternative brand. Tree boxes should be positioned approximately 3m above ground level where they will be sheltered from prevailing wind, rain and strong sunlight. Small-hole boxes are best placed approximately 1-3m above ground on an area of the tree trunk where foliage will not obscure the entrance hole.
Reptiles	
Summary of Survey Findings	**EPSL data** A review of the MAGIC database returned no granted EPSL records for protected reptiles within 2km of the site. **Habitat suitability** The modified grassland provides suitable foraging and commuting habitat for reptiles. The hedgerow provides suitable shelter and hibernation habitat for reptiles. **Wider landscape** The adjacent pond and blocks of woodland are of elevated ecological value within the wider landscape and may represent important resources for local reptile populations. These adjacent habitats provide optimal foraging, commuting, and refuge opportunities for reptiles and are well connected to further suitable habitat in the wider landscape. The presence of reptiles utilising these adjacent habitats cannot be discounted.
Foreseen Impacts	There is a low risk that reptiles could be present in the vicinity of the works. These could be injured or killed without mitigation.
Recommendations	A precautionary working method will be implemented for widespread reptiles during construction, including the following measures: • Vegetation will be maintained at a short sward (5cm) to discourage reptiles. • Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape. • Best practice pollution prevention measures will be implemented to minimise impacts to nearby habitats. • Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations. • If any reptiles are found in the working area these should be allowed to disperse of their own accord or, if at immediate risk, should be moved by hand to a sheltered, vegetated area away from disturbance. • In the unlikely event that a reptile is identified, works must cease and advise must be sought from a suitably qualified ecologist.

	The provision of log piles within the hedgerows would provide new shelter/hibernation opportunities in the event that reptiles are present in the locality. **Suggested biodiversity enhancements** The provision of log piles within the hedgerows would provide new shelter/hibernation opportunities in the event that reptiles are present in the locality.
Amphibians	
Summary of Survey Findings	**EPSL and survey data** A review of the MAGIC database returned no granted EPSL records for great crested newts within 2km of the site. Further, no positive class survey licence return or DLL historic survey data (2017 – 2019) were present within 2km of the site. **Aquatic habitat suitability (including ponds within 500m)** Great crested newts (GCN) exist in metapopulations and are known to utilise ponds and their connecting terrestrial habitat during their life cycle; great crested newts are typically found within terrestrial habitats up to 500m from breeding ponds (Langton et al. 2001). There are no ponds on the site, but a review of aerial imagery (MAGIC and OS Maps) indicates the presence of a total of ten waterbodies within 500m of the site. There are five waterbodies present within 250m of the site, comprising a pond (P1) ~5m northeast of the site, a pond (P2) present 50m west of the site, a pond (P3) 50m south of the site, a pond 150m southeast and a pond 190m northeast. Ponds located north, east and west of the site provide good connectivity between ponds through continuous tree lines. Ponds located south of the site are separated by urban infrastructure such as urban dwellings. P1 was subject to a Habitat Suitability Assessment (HSI) , the results of which are tabled below and indicate that the pond is of below average value (see below) for GCN because high numbers of waterfowl were recorded on the pond and poor quality habitat surrounds the pond.

	<table><tr><th>SI No</th><th>SI Description</th><th>SI Value</th></tr><tr><td>1</td><td>Geographic location</td><td>1.00</td></tr><tr><td>2</td><td>Pond area</td><td>0.95</td></tr><tr><td>3</td><td>Pond permanence</td><td>1.00</td></tr><tr><td>4</td><td>Water quality</td><td>0.67</td></tr><tr><td>5</td><td>Shade</td><td>1.00</td></tr><tr><td>6</td><td>Water fowl effect</td><td>0.01</td></tr><tr><td>7</td><td>Fish presence</td><td>0.67</td></tr><tr><td>8</td><td>Pond Density</td><td>1.00</td></tr><tr><td>9</td><td>Terrestrial habitat</td><td>0.33</td></tr><tr><td>10</td><td>Macropyhyte cover</td><td>0.80</td></tr><tr><td colspan="2">HSI Score</td><td>0.51</td></tr><tr><td colspan="2">Pond suitability (see below)</td><td>Below average</td></tr></table> A pond map showing approximate pond locations is provided in Appendix 4. **Terrestrial habitat suitability** The site provides suitable terrestrial habitat for amphibians in the form of grassland and hedgerows. The modified grassland provides suitable foraging and commuting habitat. The hedgerow provides suitable hibernation/shelter habitat. The wider landscape provides suitable habitat for amphibians including great crested newts, the site also provides suitable habitat and therefore the presence of GCN on site cannot be discounted.
Foreseen Impacts	A small area of modified will be removed during construction. The hedgerow will be retained. The loss of such habitats is unlikely to have significant adverse effects on local amphibian populations owing to the presence of similar well-connected habitat of a size capable of supporting a viable population. However, site clearance could result in the death or injury of common amphibians and GCN if present. When georeferencing the proposed development plans over scaled mapping of the site, it is noted that the development area is likely to result in the loss or significant disturbance of 0.004ha of urban land if great crested newts are present within the waterbody 5m to the northeast of the site, when completing the rapid risk assessment published by Natural England (Natural England 2015), the proposed development produces a **Green risk score**, which states: **Offence Highly Unlikely.**
Recommendations	Given that the proposals will not exceed 100m2 in area beyond the existing footprint of the buildings, further surveys for GCN are considered disproportionate and the protective measures detailed above for reptiles would also serve to protect amphibians during construction. In the unlikely event that any GCN are recorded during construction, all works would cease and an EPSL will likely be need to be obtained before works can resume.

	Suggested biodiversity enhancements The site could be enhanced for amphibians post-development through creation of amphibian hibernacula using rubble and logs from site clearance. Information on how to construct a hibernaculum can be found here: https://www.wiltshirewildlife.org/hibernaculum
Badger	
Summary of Survey Findings	No badger setts were noted on site or within a 30m radius of the site. The grassland provides suitable commuting habitat for badger. There is limited suitable badger foraging habitat on site given the lack of fruiting trees/scrub.
Foreseen Impacts	No works will be undertaken within 30m of a badger sett. Urban land may be effected during construction. The loss of such habitats is likely to be inconsequential to local badger populations owing to their low value and the presence of more extensive habitat locally. However, construction activities could result in the death or injury of badgers, if present.
Recommendations	Owing to the nature of the proposed development and the low potential for impacts to bat roosts, further badger surveys are considered to be disproportionate. A precautionary working method will be implemented during construction, including the following measures: • Heras fencing will be erected around the working area to prevent encroachment into retained habitats where badger setts could be present. • Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape. • The use of night-time lighting will be avoided, or sensitive lighting design will be implemented to avoid light spill on to retained habitats which badgers could use. • Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations. In the unlikely event that a badger sett is identified, works must cease and advise must be sought from a suitably qualified ecologist. **Suggested biodiversity enhancements** Planting fruit bearing trees to increase foraging opportunities for badgers.
Riparian animals	
Summary of Survey Findings	A review of the MAGIC database returned no granted EPSL records for otters or water voles within 2km of the site. There are no water courses on the site. The site provides negligible opportunity for otter and water vole due to a lack of riparian habitat. There is a lack of suitable waterbodies and watercourses within close proximity of the site offering habitat for otter and water vole.

Foreseen Impacts	No impacts are anticipated on riparian mammals as a result of the proposed development.
Recommendations	None.
Hazel dormouse	
Summary of Survey Findings	**EPSL data** A review of the MAGIC database returned no granted EPSL records for hazel dormice within 4km of the site. **Habitat suitability** Dormice typically utilise a three-dimensional habitat structure as to commute between feeding and breeding sites whilst avoiding predation. As such, the hedgerows/trees may offer opportunities, but the remaining habitats on site are considered unsuitable for hazel dormice. Furthermore, for isolated habitats in the UK, research indicates that dormice require 20ha of woodland habitat to support a viable population (Bright *et al.* 1994). Although 20ha of woodland is not present on or directly adjacent to the sites, the hedgerows present are connected to an extensive hedgerow network within the wider landscape, which in turn, are connected to multiple woodland pockets. However, the presence of dormouse being found on site is low due to a lack of suitable habitat on site.
Foreseen Impacts	No impacts are anticipated to hazel dormice as a result of the proposed development as no impacts to suitable habitat is anticipated.
Recommendations	None.
Other e.g. hedgehog	
Summary of Survey Findings	The modified grassland provides suitable foraging and commuting habitat for hedgehog. The hedgerow and trees offers suitable hibernation/shelter habitat for hedgehog.
Foreseen Impacts	There will be no significant loss of small terrestrial l mammal habitat during construction, however construction activities could result in the death or unnecessary suffering of small mammals if present, the latter of which constitutes an offence under the Wild Mammals (Protection) act 1996.
Recommendations	Similar to the badgers, a precautionary working method will be implemented during construction, including the following measures: • Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape. • The use of night-time lighting will be avoided, or sensitive lighting design will be implemented to avoid light spill on to retained habitats which hedgehogs could use. • Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations.

	If any hedgehogs are found in the working area these should be allowed to disperse of their own accord or, if at immediate risk, should be moved by hand to a sheltered, vegetated area away from disturbance. **Suggested biodiversity enhancements** The following habitat creation and enhancement opportunities could be incorporated into the proposed development which would be beneficial for hedgehogs: • Planting fruit bearing trees and species-rich grassland to increase foraging opportunities. • Creation of brash piles or installation of hedgehog houses in shady areas. • Installation of gaps under boundary fencing to enable hedgehogs to move freely through the site.

Appendix 1: Survey/Habitat map



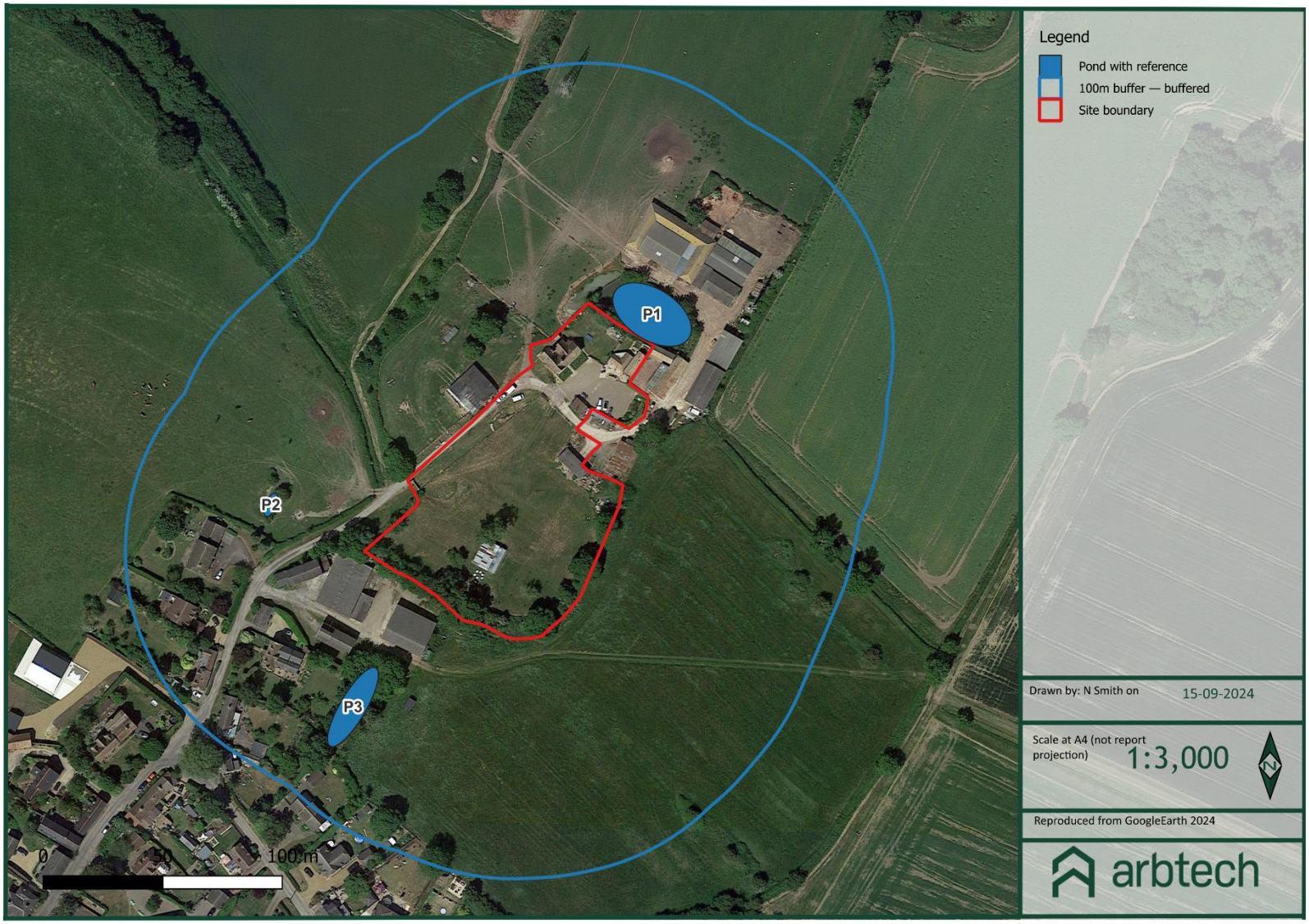
Appendix 2: PRA map



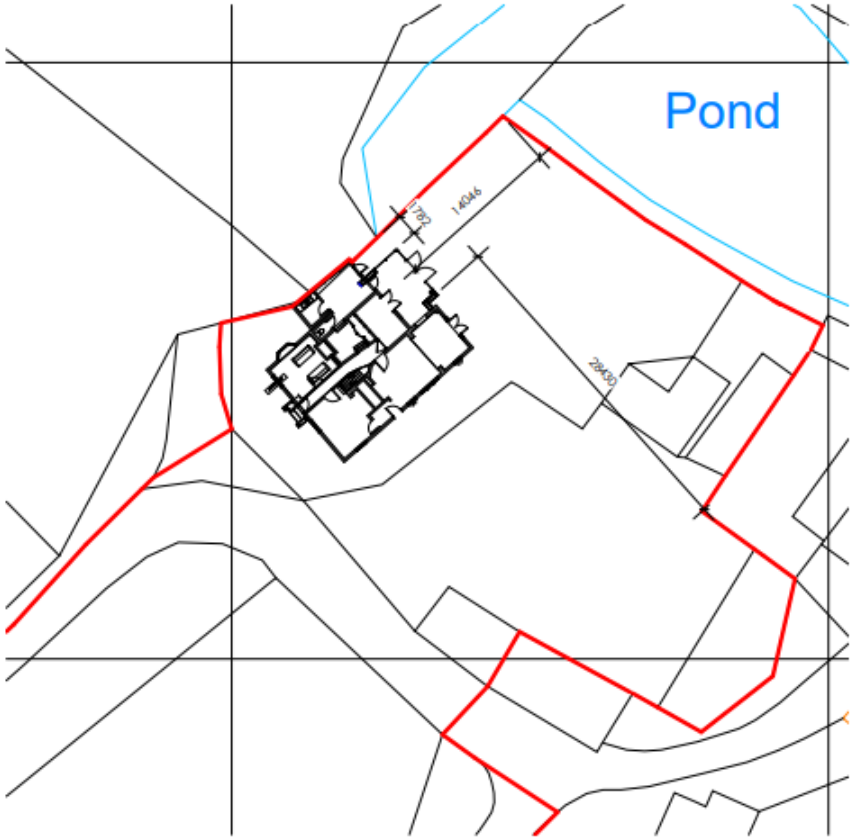
Appendix 3: Location map



Appendix 4: Pond plan



Appendix 5: Proposed plan



Appendix 6: Habitat Photos

Unsealed surface	
Photograph	**Description**
	Figure 1: Areas of gravel surface present on site.
Modified grassland	
Photograph	**Description**
	Figure 2: Modified grassland present in the garden of the site.

Vegetated garden	
Photograph	**Description**
	Figure 3: Vegetated garden present on the site.
Native hedgerow	
Photograph	**Description**
	Figure 4: Native hedgerow present on the southern boundary of the field.

Native hedgerow with trees and modified grassland	
Photograph	**Description**
	Figure 5: Native hedgerow with trees present on the western boundary of the field and modified grassland present in the southern field.
Tree line	
Photograph	**Description**
	Figure 6: Tree line present on the eastern boundary of the field.

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