
Preliminary Ecological Appraisal

Cygnets House, Boxford

for

Mr & Mrs Renshaw

21 November 2023



Client

Mr & Mrs Renshaw

Planning authority

Babergh District Council

Time limit of reliance

Please note that the reported surveys were conducted on the date(s) stated in the report and that it represents site conditions at the time of the visit. The findings and recommended mitigation are based on these conditions. If site conditions change materially after the site survey, the original report cannot be relied upon and will need to be updated. Ecological reports and surveys can typically be relied on for 18 to 24 months from the date of survey.

Surveys supporting European Protected Species Mitigation Licence applications must be within the current or most recent survey season for bats (May to September), or within two survey seasons for great crested newts (March to June).


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Author	Ebonie Lambo-Hills M.Sc, B.Sc (Hons), Natural England licences (Bat level 1 2022-10580-CL17-BAT, Great crested newt level 1 2022-10255-CL08-GCN, Barn owl Level 1 2023-11316-CL29-OWL)
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<i>Signed disclosure</i> <i>The information, data, advice and opinions provided in this report which I have provided is true and has been prepared in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. I confirm that the opinions expressed are my true and professional bona fide opinions.</i> <i>Nathan Duszynski, ACIEEM</i>	
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SUMMARY

- Greenlight Environmental Consultancy Ltd. has been commissioned to carry out a Preliminary Ecological Appraisal for a proposed development at Cygnets House, Swan Street, Boxford, Suffolk, CO10 5NZ (grid reference: TL 96116 40693).
- This report outlines the habitat features on site, the likelihood of protected species being present and any potential effects of the proposed development on such species.
- The ecology report is required in support of a planning application for the demolition of the garage and the extension of the existing residential dwelling.
- The survey and assessment were completed by independent, qualified and experienced ecologists with Natural England survey licences for the relevant protected species.
- The findings of the assessment are that the habitats on the site are of **low** ecological value and that there are no significant ecological constraints that would prevent the proposed works.
- **Further surveys for bats are required prior to works commencing to inform an ecological impact assessment of the site and an appropriate mitigation strategy.**
- If the following mitigation and enhancements are incorporated into the proposed layout, there will be a net gain for biodiversity, as is encouraged by the National Planning Policy Framework.

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
Protected sites	Two statutory and four non-statutory protected sites within 2km.	No significant impacts on protected sites and their qualifying features.	None required.
Protected habitats and habitats subject to conservation designations	Modified grassland will be removed as part of the proposed works. No Priority Habitats will be affected.	Low scale of habitat loss predicted for wildlife.	<u>Mitigation</u> Soft landscaping scheme to include the planting of new native species-rich hedgerows and trees around site. Construction work to be carried out in accordance with BSI (2012), BS 5837:2012, to protect trees and their root protection areas.
Bats	Building one (dwelling) has moderate summer and negligible hibernation bat roosting potential. Building two (garage) and three (shed) have negligible summer and hibernation bat roosting potential.	Potential disturbance/ destruction of bat roosts if present in buildings. Low scale loss and potential light disturbance of commuting and foraging habitats on site.	<u>Further surveys required</u> At least two activity surveys will be undertaken on building two (dwelling) between May-September, with one conducted between May-August. The outcome of the surveys will inform a detailed mitigation strategy and whether an EPS Mitigation Licence will be required from Natural England. <u>Mitigation</u> Any lighting schemes will comply with Bat Conservation Trust (GN08/23) and CIE 150:2017 guidance.

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
	Low value commuting and foraging habitat on site.		
Breeding birds	Nesting habitats for tree, hedgerow and building nesting birds present on site, including potential breeding habitat for Red and Amber listed species. No suitable barn owl foraging habitat on site.	Low scale loss of nesting habitat on site. Potential disturbance to breeding birds.	<u>Mitigation</u> Works to any hedgerows, trees and buildings on site to be conducted outside bird nesting season or under watching brief of ecologist if during nesting season. <u>Enhancement</u> Installation of two integrated swift boxes, installed on building.
Great crested newts	Unsuitable terrestrial habitats on site. No ponds within 250m of the site. Site falls within Green and Amber risk zone for district level licensing. Six GCN records within 2km.	Loss of GCN terrestrial habitat not considered significant to a local population of GCN, if present. No impacts on potential GCN aquatic habitat. Rapid risk assessment indicates "offence highly unlikely".	<u>Precautionary mitigation</u> Cut and maintain vegetation short (maximum height of 10cm) on and around the site until the start of works
Other animals	N/A	Potential harm to animals.	<u>Mitigation</u> If fencing is required, this will be porous and provide openings for hedgehogs. Rough sawn planks will be placed inside any open excavations. Construction materials will be stored off the ground on pallets and waste materials in skips. <u>Enhancement</u> Installation of one bee brick.

1. METHOD

- 1.1. A walkover of the site was conducted on 7th November 2023 by Ebonie Lambo-Hills – an independent, qualified and experienced ecologist. Survey conditions were as follows: 11°C, 6mph wind, sunny intervals and dry.
- 1.2. All survey methods were carried out in accordance with the most up to date good practice guidance for the relevant protected species. Please refer to Appendix A for the full methodology and species breakdown.
- 1.3. The habitats on and directly adjacent the site were considered unsuitable for the following protected species, with no evidence or signs of use observed. No further surveys or mitigation for these species are detailed in this report:
 - Water vole *Arvicola amphibius*
 - Otter *Lutra lutra*
 - White-clawed crayfish *Austropotamobius pallipes*
 - Reptiles (slow-worm *Anguis fragilis*, common lizard *Zootoca vivipara*, grass snake *Natrix helvetica* and adder *Vipera berus*)
 - Badger *Meles meles* (setts)
 - Hazel dormouse *Muscardinus avellanarius*
 - Natterjack toad *Epidalea calamita*

2. SITE CONTEXT

Location

- 2.1. The general location of the site is shown in Figure 1 below.
- 2.2. The site is situated on the within the village of Boxford, with the A12 located approximately 11.1km southeast. The closest town is Sudbury located approximately 8.5km west of the site.
- 2.3. The site is enclosed by residential dwellings to the north, south and west and woodland to the east. The wider surroundings are comprised of a mixture of residential dwellings, blocks of woodland and arable fields lined with mature trees and hedgerows.



Figure 1
Satellite image of site surroundings, site indicated by red line.
Image © Google, date accessed 13/11/23

3. DESCRIPTION OF THE DEVELOPMENT

- 3.1. The proposals are for the demolition of the garage and the extension of the existing residential dwelling. Please refer to Appendix K for the proposed plans.

4. PROTECTED SITES

Statutory

- 4.1. There are two statutory protected sites located within 2km – one Sites of Special Scientific Interest (“SSSI”) and one Area of Outstanding Natural Beauty (“AONB”). Please refer to Appendix C for the full citation.

- i. Dedham Vale SSSI, approximately 1.1km southeast.

“Picturesque villages, rolling farmland, rivers, meadows, ancient woodlands and a wide variety of local wildlife combine to create what many describe as the traditional English lowland landscape.”

- ii. Edwardstone Woods SSSI, approximately 1.4km northwest.

“The Edwardstone Woods SSSI are an inter-related group of ancient woods containing a diversity of stand types. These form a transition from mainly ash-maple-hazel woods of mid Suffolk to the lime of south Suffolk.”

- 4.2. The proposed development falls outside of all SSSI Impact Risk Zones relating to residential developments.

Non-statutory

- 4.3. There are four non-statutory protected sites located within 2km – four County Wildlife Sites (“CWS”). Please refer to Appendix C for the full citations.

- i. Sherbourne House Meadows CWS, approximately 0.5km west.

“The site consists of a number of meadows, which are of considerable botanical value. Two westerly meadows support a high diversity of wetland plants including the rare and declining wood club-rush and also southern marsh orchid with one meadow of tall herb fen.”

- ii. The Goodlands CWS, approximately 0.7km west.

“The site, which covers an area of approximately 10 ha consists of a valuable mosaic of semi-natural habitats bordering the River Box, upstream of Boxford.”

- iii. River Box Meadow CWS, approximately 1.2km southeast.

“This site comprises of two floodplain meadows on the River Box. They are bordered on the east by the steep-sided watercourse which is fringed by mature willows. Dense, species-rich, native hedges enclose the meadows on the remaining sides.”

- iv. Bower House Woods and Meadows CWS, approximately 1.8km northeast.

“The woodlands included in this County Wildlife Site are Stony Down Grove and Whinnyfield Woods, both of which are listed in Natural England's Inventory of Ancient Woodland (Stony Down Grove is listed as Stony Grove).”

5. HABITATS

Desktop review

- 5.1. Priority Habitats to occur within 2km (identified using MAGIC – managed by Natural England), include Coastal and Floodplain Grazing Marsh, Good Quality Semi-Improved Grassland, Deciduous Woodland, Traditional Orchards and Woodpasture and Parkland BAP Priority Habitat. The closest of which, is Traditional orchard located adjacent southwest of the site.

Field study

- 5.2. The habitats on the site are of **low** ecological value, being mainly modified grassland managed as a garden, hardstanding, non-native hedgerow and hedgerows (Priority Habitat) on the site peripheries.
- 5.3. Priority Habitats, as listed under the NERC Act 2006 Section 41 Habitats of Principal Importance found on site include: Hedgerows.
- 5.4. Figure 2 provides a map of the habitats present on the site. NERC Act 2006 Section 41 habitats have been identified where relevant. A full list of plant species recorded on site is attached in Appendix E.

Modified grassland (UK Habitat Classification g4; secondary code: 108 frequently mown, 510 bare ground & 828 vegetated garden)

- 5.5. The site is dominated by modified grassland which is frequently managed as a lawn and used as a garden, with ornamental planting around the site. Species include: annual meadow grass *Poa annua*, creeping buttercup *Ranunculus repens*, daisy *Bellis perennis*, dandelion *Taraxacum officinale*, dove's-foot cranesbill *Geranium molle*, ground elder *Aegopodium podagraria*, hosta *Hosta sp.*, iris *Iris sp.*, jasmine *Jasminum sp.*, mouse-ear-hawkweed *Pilosella officinarum*, perennial ryegrass *Lolium perenne*, yarrow *Achillea millefolium* and Yorkshire fog *Holcus lanatus*.

Other native hedgerow (UK Habitat Classification h2a6) – Priority Habitat

- 5.6. The site features a native, hedgerow partly along the southern periphery. Hedgerow species include: hazel *Corylus avellana*, holly *Ilex aquifolium* and yew *Taxus baccata*. This hedgerow does not qualify as “important” under The Hedgerow Regulations 1997, lacking the required number of native woody species or associated features.

Non-native and ornamental hedgerow (UK Habitat Classification h2b)

- 5.7. Partly along the eastern and northern periphery, the site features several non-native hedgerows. Species include: bay laurel *Laurus nobilis*, Darwin's barberry *Berberis Darwinii*, hawthorn *Crataegus monogyna*, holly, Leyland cypress *Cupressus × leylandii*, spotted laurel *Aucuba japonica* and wild plum *Prunus domestica*.

Buildings (UK Habitat Classification u1b5)

- 5.8. There are three buildings on site used as a residential dwelling with associated storage. Please refer to the bat section detailed below for further information.

Other developed land (UK Habitat Classification u1b6)

- 5.9. There is a mixture of gravel hardstanding which leads from the southwest driveway through to the existing dwelling, and patio slabs around the dwelling.

Built linear features (UK Habitat Classification u1e, secondary code; 612 fence & 853 mortared wall)

- 5.10. The site features a mixture of closeboard fencing and red brick walls around the site periphery.



Figure 2
 Habitats on site.
 Image © QGIS, date accessed 13/11/23.



Photo 1, existing southwestern entrance, looking northeast.



Photo 2, modified grassland with introduced shrubs and flower beds, looking north.



Photo 3, modified grassland and fence, looking northeast.



Photo 4, hardstanding and introduced shrubs, looking southwest.

6. PROTECTED AND NOTABLE SPECIES

Desktop review

Data search

- 6.1. The biodiversity data search within 2km of the site indicated 678 records from 144 species.
- 6.2. Records of note within 2km and relevant to the proposed development works are:
 - 16 barn owl *Tyto alba* records, with the most recent from 2021.
 - Nine skylark *Alauda arvensis* records, with the most recent from 2020.
 - 17 swift *Apus apus* records, with the most recent from 2020.
 - Six GCN *Triturus cristatus* records, with the most recent from 2020. The closest record is located approximately 0.6km northwest.
 - 30 hedgehog *Erinaceus europaeus* records, with the most recent from 2019.
 - 10 bat records, with the most recent from 2021, including common pipistrelles *Pipistrellus pipistrellus*, soprano pipistrelles *Pipistrellus pygmaeus*, brown long-eared *Plecotus auritus*, noctules *Nyctalus noctula*, and other unidentified bat species.

Protected species licences

- 6.3. A 2km search on <http://www.magic.gov.uk/> indicated one record of a granted European Protected Species (“EPS”) Mitigation Licence relating to:
 - Other Mammal (case reference: 2018-34034-EPS-MIT) from 2018, approximately 1.8km northeast. Species on the licence include: Hazel or common dormouse.

Bats

- 6.4. There are three buildings located on site, as indicated in Figure 3 and photos 5-11.



Building one - dwelling

- 6.5. The dwelling is a brick structure which features PVC doors and windows on every aspect. The dwelling has a peg tiled roof, with clay ridge tiles and timber soffit boxes around the periphery. There are two brick chimneys which are surround with lead flashing.
- 6.6. Internally the dwelling features a loft space which spans the length of the property and is approximately 1.7m at the apex. The loft space has been partially boarded, with fibreglass insulation present and featuring modern beams, a ridge beam and a bitumen lining.
- 6.7. Roosting opportunities are present under slipped and raised roof tiles, under lifted lead flashing, gaps between soffit boxes and brickwork and within the loft space. Although no bats were visible, approximately 20 droppings, consistent in size, structure and appearance with pipistrelle *Pipistrelle sp.* and brown long-eared were present throughout the void. A cluster of approximately 15 dropping were present on the gable end of the building, indicating bats could also be using gaps between the timbers and brickwork within the loft space.
- 6.8. The building is assessed as **moderate** summer, but **negligible** hibernation roost suitability for bats due to its location, roosting features and signs of bats. Please note, the building is occupied

during winter months and features central heating, which would create fluctuations in temperature and humidity.



Photo 5, north and west of building one, looking east.



Photo 6, east aspect of building one, looking west.

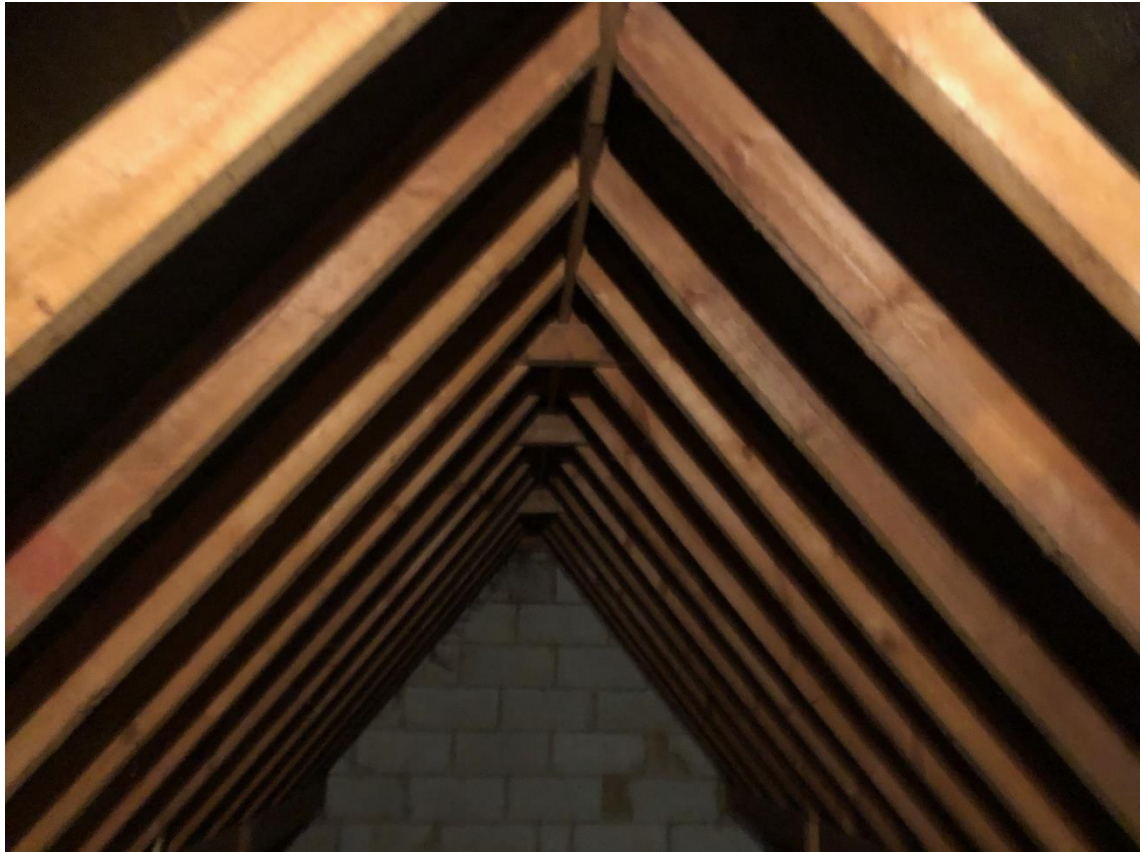


Photo 7, internal view of building one, looking southwest.



Photo 8, bat droppings located within loft space.

Buildings 2-3

6.9. The buildings vary in construction and are comprised of:

- Building two (garage) – brick structure which features modern timber beams and a bitumen felt roof lined with timber sarking. There is a metal framed door on the southwest aspect, timber framed door on the southeast aspect and PVC framed door on the northeast aspect, with the building being light within.
- Building three (shed) – unlined timber framed shiplap shed, with a bitumen felt roof which is lined with plyboard.

6.10. There were no signs of use by bats on the building exteriors or interiors and the structures provide unsuitable roost environments, with no suitable cavities for roosting bats. The buildings are assessed as **negligible** (summer and hibernation) roost suitability for bats.



Photo 9, south and west aspect of building two, looking north.



Photo 10, east and south aspect of building one, looking north.

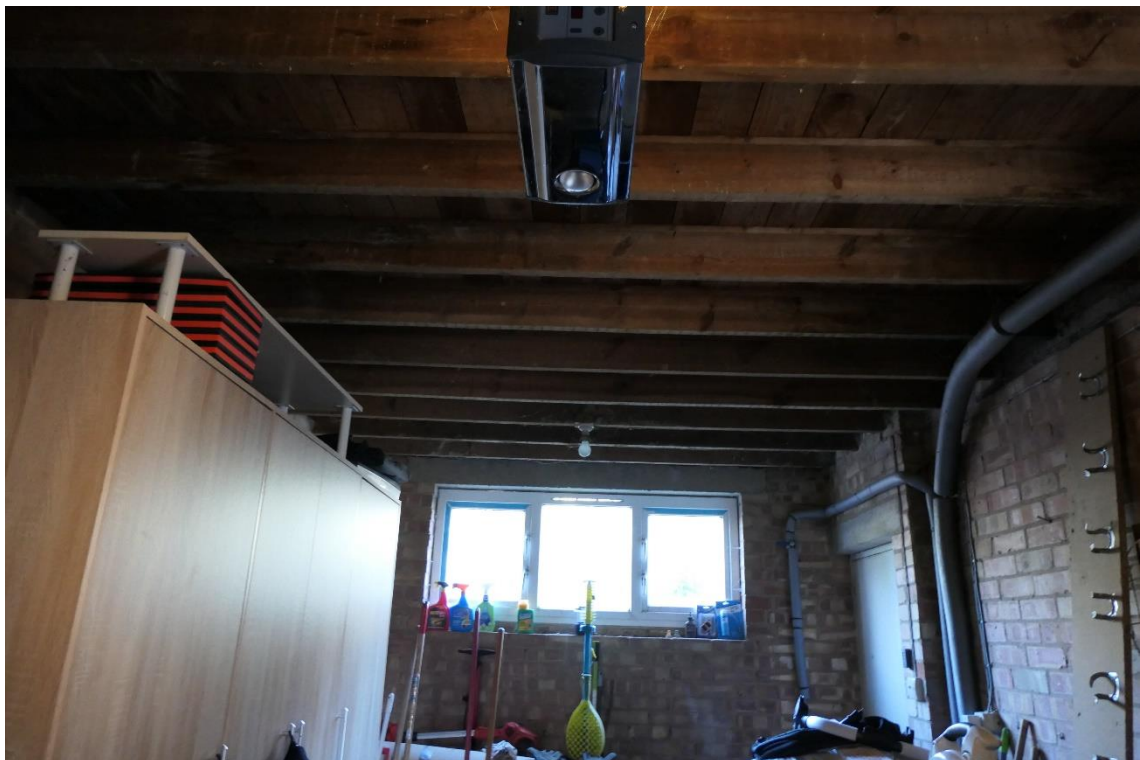


Photo 11, internal view of building two, looking east.

Trees

- 6.11. The trees around the site boundary were assessed for bat roosting potential and were considered unsuitable due to their age and/or lack of features.

Foraging and commuting links

- 6.12. The site itself provides **low** value foraging habitat for bats along the boundary hedgerows, plantation woodland and orchards, with bats mainly using nearby woodlands for foraging.
- 6.13. The landscape immediately adjacent to the site is considered of **moderate** value for foraging and commuting bats, with linked gardens, woodland, hedgerows and treelines providing links to the wider landscape. Residential dwellings adjacent the site and within Boxford have the potential to provide roosting opportunities for bats.

Birds

- 6.14. Birds in the UK are classified into three categories of conservation importance - red, amber and green. Factors such as global threat level, population decline, breeding population decline and contraction of breeding range are taken into account to determine classification.
- 6.15. The following bird species were observed during the site visit:

Red listed:

House sparrow	<i>Passer domesticus</i>
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Amber listed:

Woodpigeon	<i>Columba palumbus</i>
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Green listed:

Blackbird	<i>Turdus merula</i>
Blue tit	<i>Cyanistes caeruleus</i>
Carrion crow	<i>Corvus corone</i>
Goldfinch	<i>Carduelis carduelis</i>
Great tit	<i>Parus major</i>
Jackdaw	<i>Corvus monedula</i>
Robin	<i>Erithacus rubecula</i>

- 6.16. The site provides suitable nesting habitats for hedgerow, tree and building nesting species.
- 6.17. The site has the potential to support nests for the following Red listed species: house martin *Delichon urbicum*, house sparrow *Passer domesticus* and swift *Apus apus*.
- 6.18. The site has the potential support nests for the following Amber listed species dunnock *Prunella modularis*, woodpigeon *Columba palumbus* and wren *Troglodytes troglodytes*.
- 6.19. Please note, the species listed in the paragraphs above are not exhaustive, as birds can nest in unexpected locations. Additionally nesting parameters may change between years and following building/habitat management.
- 6.20. No signs of barn owl were found on the site and no foraging habitat is present.

Great crested newts

- 6.21. There are no ponds within the survey site or within 250m, which for the size of the development and nature of terrestrial habitat on the site, is a sufficient distance to consider for assessment (Figure 4). GCN are most likely to occupy good quality terrestrial habitat within 250m of a breeding pond (English Nature, 2001).
- 6.22. The terrestrial habitats on the site are considered predominantly unsuitable for GCN, consisting of managed modified grassland, with suboptimal hedgerows.
- 6.23. Terrestrial habitats adjacent the site include a mixture of unsuitable (residential dwellings with associated gardens and hardstanding) and suitable (deciduous woodland) GCN foraging, commuting and hibernating habitats.
- 6.24. The site falls within the Green and Amber risk zones for GCN district level licensing, which are classified as *“containing sparsely distributed GCN and are less likely to contain important pathways of connecting habitat for this species”* and *“containing main population centres for GCN and comprise important connecting habitat that aids natural dispersal”* respectively (Natural England, 2021).
- 6.25. The residential dwellings to the north, south and west and west act as habitat barriers and ecologically separate the site from ponds in the local vicinity.

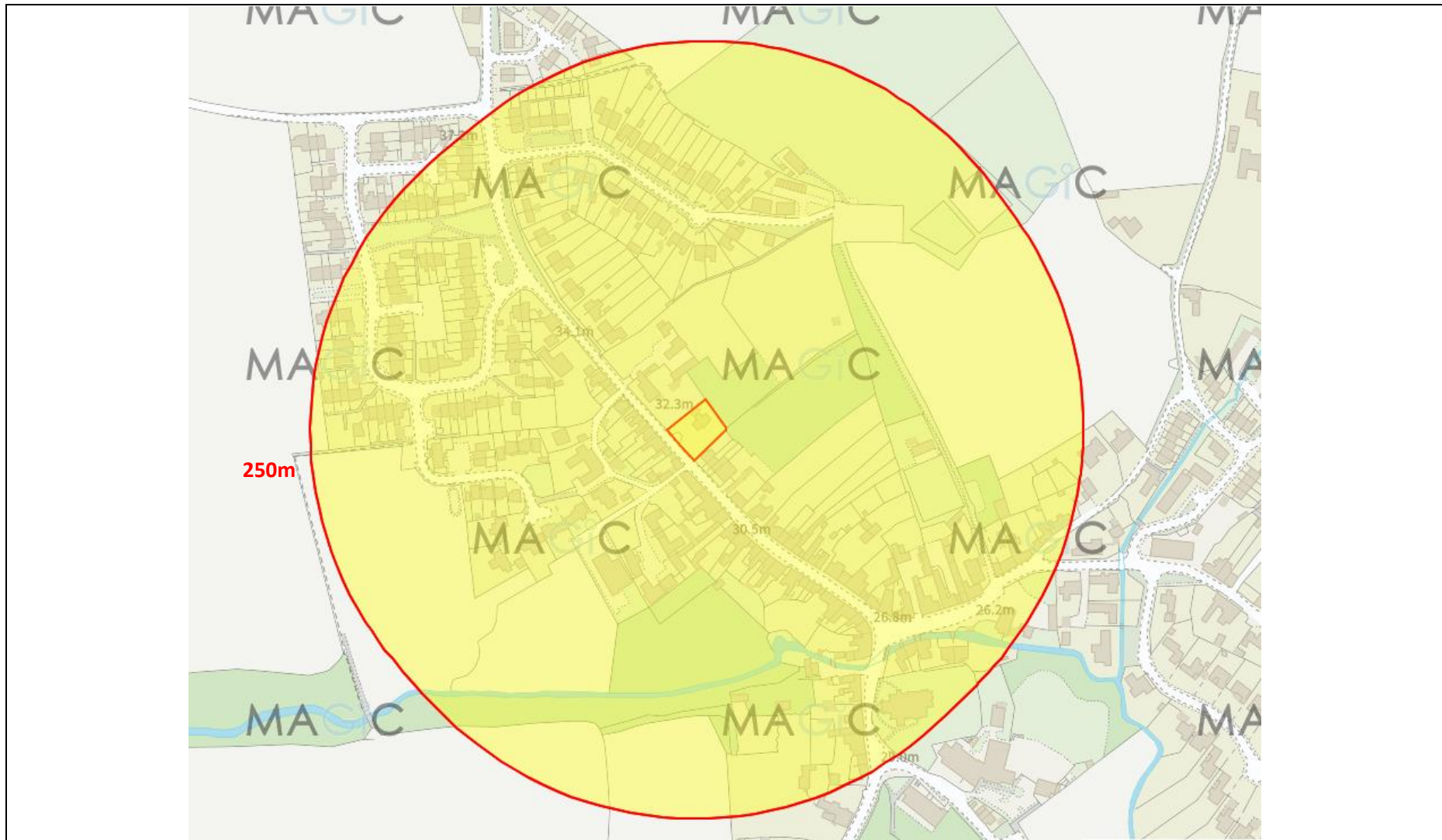


Figure 4
No ponds within 250m of the proposed site.
Image © MAGIC, date accessed 13/11/23

Other animals

- 6.26. The site is considered unsuitable for stag beetles *Lucanus cervus*, with no deadwood located on site.
- 6.27. The non-native shrubs, flower beds and hedgerows provide nectar rich pollen sources for a range of pollinator species.

7. DISCUSSION AND CONCLUSIONS

Protected sites

- 7.1. The development footprint falls outside all identified protected sites (statutory and non-statutory). There are two statutory protected sites and four non-statutory protected sites located within 2km of the site.
- The closest statutory protected site (Dedham Vale AONB) is located approximately 1.1km southeast and designated for its lowland landscape.
 - The closest non-statutory protected site (Sherbourne House Meadows CWS) is located approximately 0.5km west of the site and designated for its meadows with considerable botanical value.
- 7.2. The proposed development falls outside of any SSSI Impact Risk Zones relating to residential developments.
- 7.3. The proposed development is expected to have no effects on statutory or non-statutory protected sites or their qualifying features, owing to its relatively small scale, distance to protected sites and limited predicted impacts beyond the area of works.

Habitats

- 7.4. The proposed works will require the clearance of vegetated habitats on site, including ≈0.01ha of modified grassland. No priority habitats will be affected by the proposed development. This is expected to result in a low scale loss of nesting habitat for building nesting birds, and a low scale loss of foraging features for bats. Please refer to the bat section below for predicted impacts on buildings with potential bat roosts.
- 7.5. As a precautionary measure, the following mitigation will be implemented to avoid impacts on habitats from the proposed works:
- i. A soft landscaping scheme to include the planting of new native species-rich (≥5 species), hedgerows and trees around the site (see Appendix F for suggested species).
 - ii. Construction works carried out in accordance with British Standards Institution (2012), BS 5837:2012, Trees in relation to design, demolition and construction – recommendations, to protect trees which are to be retained and their root protection areas.

Bats

- 7.6. The proposed works will require the extension of building one on site, which has the potential to materially modify or destroy potential bat roosting locations, if present.
- 7.7. The following surveys/mitigation are required to determine if any bat species are present, the nature of their use of the building and any roosting locations:
- i. At least two bat activity surveys will be conducted on buildings one (dwelling) between May and September. Please note, at least one survey must be conducted between May and August.
 - ii. If bats are found to be present and roosting within any buildings, further activity surveys and a European Protected Species Mitigation Licence may be required for the development.
 - iii. Any lighting schemes will follow guidance from the Bat Conservation Trust (GN08/23) and CIE 150:2017. Warm-white (<3,000K) lights with UV filters (where necessary) will be installed away from roosting locations and linear features. Lighting units will feature a beam angle <70°, connected to movement sensors and feature baffles, hoods, louvres and horizontal cut off units at 90° where necessary.
- 7.8. The outcomes of further activity surveys will inform the detailed recommended mitigation for bats. We consider that the proposed development will be able to accommodate this in the form of alternative roosting opportunities, as required.
- 7.9. Building Regulations state that the energy efficiency of buildings must be improved where possible and that contractors must assess the condensation risk within the roof space and make appropriate provisions in line with BS 5250:2011. This British Standard states that both High Resistance (bitumen type 1F) and Low Resistance (non-bitumen coated roofing membranes (NBCRM)) underlays are acceptable as long as appropriate ventilation is provided. As NBCRM are proven to entangle bats through regular contact, which also compromises the integrity of the membrane, the Bat Conservation Trust recommend only NBCRM that have passed the snagging propensity test (must be supplied/installed with the necessary certification) or traditional type 1F bitumen are used.

Birds

- 7.10. The proposed works are expected to result in a low scale loss of bird nesting habitat through the extension of building one.
- 7.11. As a precautionary measure, the following mitigation will be implemented to avoid impacts on birds from the proposed works:

- i. Any works affecting bird nesting habitat such as management of hedgerows, trees or buildings would ideally need to be conducted outside the main nesting season. If work is planned during the bird nesting season (between 1st March and 31st July), then a precautionary check of all habitats will be conducted by a qualified ecologist immediately prior to starting any work. If any nesting birds are found, an appropriate protection zone from the nest will be required and will be maintained until the young have fledged.

7.12. As enhancements, the following will be implemented:

- i. Two integrated swift boxes (Swift Block – Appendix G).

7.13. Natural England and Local Planning Authorities (“LPA”) have recognised a significant decline in swift populations across the country, and are actively endorsing integrated swift boxes to provide a net gain in biodiversity, as is encouraged by National Planning Policy Framework (NPPF) 2023.

Great crested newts

7.14. The proposed works are expected to result in a low scale loss of terrestrial habitats (≈ 0.01 ha of modified grassland managed as lawn), with aquatic habitats unaffected.

7.15. GCN are most likely to use suitable terrestrial habitat within only 250m of a breeding pond (English Nature, 2001) and we consider it highly unlikely that GCN would be present on site.

7.16. Taking a worst-case scenario of 0.01-0.1ha of land being lost or damaged >250m from a breeding pond, the risk assessment calculation (set out in the GCN method statement template provided by Natural England) indicates an “*offence highly unlikely*”.

7.17. As a precautionary measure, the following mitigation will be implemented to avoid impacts on GCN from the proposed works:

- i. Vegetation on site will be cut and maintained short (maximum height of 10cm) until the start of works, to discourage animals from using these areas.

7.18. After these precautionary mitigation measures, we predict no impact on GCN as a result of the development plans, and no further surveys are necessary.

Other animals

7.19. The surrounding habitat of the site is considered suitable for hedgehogs. To maintain potential hedgehog routes within the site and between the site and further habitats, any fencing installed will be porous and provide access openings for hedgehogs (see Appendix H for examples).

7.20. General mitigation to protect wildlife during the construction period are as follows:

- i. Any excavations will have a rough sawn plank placed inside to act as a ramp to allow any animals that have fallen in to escape. The excavations will be checked each morning works are scheduled for, to remove any animals trapped.
- ii. Construction materials will be stored off the ground on pallets and waste materials in skips, to prevent providing shelter for animals and subsequent harm when materials are moved.

7.21. As enhancements, the following will be implemented:

- i. The installation of one bee brick on extended building (Bee brick – Appendix J).

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Appendix A

Methods

Desktop Review

A desktop review of published data, such as records of protected sites and species, OS maps and satellite images has been carried out. A data search was carried out with the Suffolk Biodiversity Information Service ("SBIS").

A field survey visit was conducted to confirm the findings of the desktop review and to record habitats and species located on site.

Equipment available for use during the survey were binoculars, ladders, torches, endoscope and a digital camera.

Habitats

The habitats on site have been defined using the UK Habitat Classification Version 2.0 (UKHab Ltd, 2023). Natural Environment and Rural Communities (NERC) Act (2006) habitats listed under section 41 have been identified where appropriate.

Bats

An assessment of the habitats on and surrounding the site for bat interest was made, in accordance with latest bat survey guidelines (Collins, 2023).

The buildings on site was assessed for its potential to support roosting bats and involved a thorough internal and external search of all suitable cavities, holes and crevices. All suitable areas, including objects, ledges and floors were inspected for the following signs:

- Bat droppings
- Stains around roosting places and entrance points
- Urine marks
- Prey remains
- Areas devoid of cobwebs
- Live or dead bats
- Suitable cracks and crevices for bats to enter

In exposed conditions, the signs of bat usage such as droppings and urine marks can be obliterated by heavy rain.

An evaluation system was applied to the building(s) using the following criteria:

- **Suitability – none.** No habitat features on site likely to be used by any roosting bats at any time of year i.e. a complete absence of crevices/suitable shelter at all ground/underground levels.
- **Negligible roost suitability for bats.** These buildings have no obvious potential roosting features for bats, or minor features in an isolated or unsuitable location such that the presence of a bat roost is considered highly unlikely. However, a small element of uncertainty remains as bats can use small and

apparently unsuitable features on occasions. Such buildings usually fall into two main types: generally, well maintained without cracks and crevices, no gaps between bargeboard or soffit and wall, or without an attic space; or those which contain some or all of the above features, but are both draughty and thick in cobwebs or contain strong odours such as solvents, diesel etc. It must be borne in mind that a building from this latter group can become suitable for bats following refurbishment. This often happens to houses once the attic space has been cleaned and under-felted prior to timber treatment. When no suitable habitats for bats are found, no further surveys or European Protected Species (“EPS”) mitigation licence are required.

- **Low roost suitability for bats.** Buildings in this category have one or more potential roost sites that could be used by individual bat opportunistically. These buildings do not however provide suitable conditions (such as space, shelter, temperature, humidity, or light and noise disturbance) to be used on a regular basis by a large number of bats. Structures with low roost suitability for bats will require **one dusk emergence survey** conducted between May and August to assess their current use by bats.
- **Moderate roost suitability for bats.** These buildings contain one or more potential roosting sites which could be regularly used by bats owing to their size, shelter, protection and conditions. These buildings are however unlikely to support a roost of high conservation status (maternity roost or hibernation roost). Structures with moderate roost suitability for bats will require two surveys, **two dusk emergence surveys** conducted between May and September with at least one of the surveys undertaken between May and August, to assess their current use by bats.
- **High roost suitability for bats.** This group includes buildings with one or more potential roost sites which are obviously suitable for use by a larger number of bats on a regular basis and potentially for longer periods of time owing to their size, shelter, protection and conditions. These buildings may support a roost of high conservation status (maternity roost or hibernation roost) and will require three activity surveys to assess their current use by bats. The surveys should include at least **three dusk emergence surveys** conducted between May and September with at least two of surveys undertaken between May and August.

Trees on and around the site were assessed for their suitability to support roosting bats. The assessment involved a ground level inspection of the exterior of the trees to search for features offering roosting potential to bats such as split limbs, woodpecker holes, cavities, lifted bark, dense thick-stemmed ivy, etc.

An evaluation system was applied to the trees using the following criteria:

- **Suitability - none.** Either no potential roosting features in the tree or highly unlikely to be any. Trees highly unlikely to be used by roosting bats.
- **Further Assessment Required.** Further assessment required to establish if potential roosting features are present in the tree.
- **Potential Roosting Feature – Individual (“PRF-I”).** Potential roosting features only suitable for individual bats or very small numbers of bats, either due to the size of lack of suitable surrounding habitats i.e. trees with limited roosting potential.

- **Potential Roosting Feature – Multiple (“PRF-M”).** Potential roosting features suitable for multiple bats and may therefore be used by a maternity colony.

The habitats on and around the site were assessed for their commuting and foraging potential for bats. An evaluation system was applied to the commuting and foraging potential using the following criteria.

- **Suitability – none.** No habitat features on site likely to be used by any commuting or foraging bats at any time of year i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats.
- **Negligible commuting and foraging potential for bats.** Habitat features unlikely to be used by commuting or foraging bats i.e. no obvious flight-paths or foraging opportunities. However, a small element of uncertainty remains in order to account for non-standard bat behaviour.
- **Low commuting and foraging potential for bats.** Habitats that could be used by a small number of commuting or foraging bats such as, a gappy hedgerow, unvegetated stream or lone trees, but are isolated and not well connected to the surrounding landscape.
- **Moderate commuting and foraging potential for bats.** Habitats that are continuous and connected to the wider landscape such as, lines of trees, scrub, linked back gardens, grasslands and water features.
- **High commuting and foraging potential for bats.** Habitats that are continuous and connected to the wider landscape such as, river valleys, watercourses, hedgerows, lines of trees, deciduous woodland, and grazed parkland. These habitats are likely to be used regularly by commuting or foraging bats and are likely to be close to, or connected to, known roosts.

Birds

The site and its surrounding habitats were assessed for their potential to support breeding birds. Bird nesting habitat could include grassland, hedgerows, scrub, trees and buildings.

Bird species noted during the site visit were recorded. Trees, buildings and grassland were checked for use by barn owls, swifts and skylarks.

Great crested newts

Habitats on and near the site were assessed for their suitability for great crested newts (“GCN”).

Water features on and near the site were assessed for their suitability for occupation by GCN, according to a Habitat Suitability Index (“HSI”). The HSI is a theoretical index of a waterbody’s suitability to support a breeding population of GCN and is calculated from a series of ten variables recorded on site, as detailed in Table 1.

Indices	Name	Description
SI1	Geographic Location	Lowland England or upland England, Scotland and Wales
SI2	Pond area	To the nearest 50m ²
SI3	Permanence	Number of years' pond dry out of ten
SI4	Water quality	Measured by invertebrate diversity
SI5	Shade	Percentage shading of pond edge at least 1m from shore
SI6	Fowl	Level of waterfowl use
SI7	Fish	Level of fish population
SI8	Pond count	Number of ponds within 1km divided by 3.14
SI9	Terrestrial habitat	Quality of surrounding terrestrial habitat
SI10	Macrophytes	Percentage extent of macrophyte cover on pond surface

Table 1, HSI indices.

The HSI score is the geometric mean of the ten suitability indices calculated:

$$HSI = (SI1 \times SI2 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/10}$$

Once calculated, the HSI score for a waterbody can be categorised as follows:

Excellent (>0.8)

Good (0.7 – 0.79)

Average (0.6 – 0.69)

Below Average (0.5 – 0.59)

Water voles, otters and white-clawed crayfish

Water features on and adjacent to the site were assessed for use by water vole, otter and white-clawed crayfish. Otters in England typically use areas of fresh water and streams and ditches for moving between habitats. Otter holts are usually located underneath tree roots, in tunnels. Field signs of presence include spraints on prominent features such as bridges, tree bases or boulders, and footprints.

Water voles inhabit burrows in the banks of ponds, ditches, streams and rivers. Field signs include droppings left in latrine spots, burrow entrances or feeding remains.

White-clawed crayfish inhabit streams and rivers with a moderate flow rate, and lakes. Clear, well-oxygenated water is preferred. Typical habitat features include crevices in rocks, gaps between stones, submerged plants and tree roots.

Reptiles

The habitats on the site and within the proposed area of works were assessed for suitability for reptiles.

Reptiles rely on conditions that allow them to maintain their body temperature through basking. They require access to direct sunlight, shelter from the elements, sufficiently large populations of prey species and hibernation sites.

Reptiles typically favour a habitat mosaic with a diverse vegetation structure, which could include grassland, scrub and woodland.

Badgers

An inspection of all habitats with the potential to support badger *Meles meles* sett construction and foraging activities on the application site was undertaken. Any incidental observations of badger signs were also recorded. The survey comprised searching for evidence of badger activity in the form of setts, droppings, pathways, snuffle holes, hair and footprints.

Dormice

Dormice habitats include deciduous woodland, hedgerows and scrub. Dormice are found mainly in the south of England, including Kent and Sussex, with sporadic populations elsewhere. An assessment of the suitability of site habitats for occupation by dormice was made.

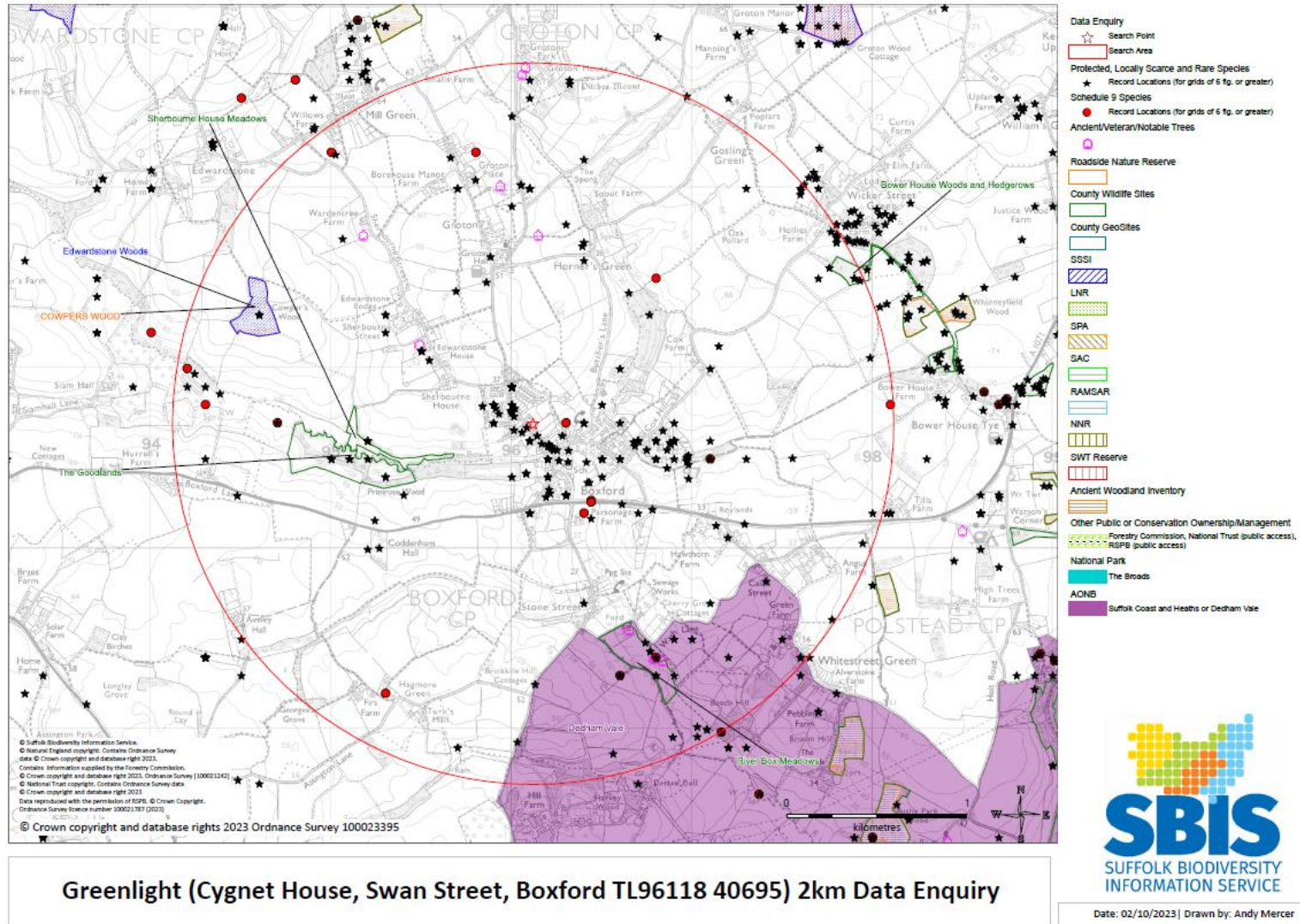
Other protected species

Particular regard was made to the nature of the proposed development and the potential of impact upon any other protected species, species which are nationally or locally scarce, or species subject to other conservation designations such as Red Data Book or Priority S41 species, from the development work, should these be present in the area.

Constraints

The field survey was conducted outside of the optimal survey period for flowering plants. Although the habitats recorded on site are unlikely to change to those described in this report, flora biodiversity is likely to be under recorded.

Appendix B
Map of protected sites within 2km



Appendix C

Protected sites citations

SSSI citations

COUNTY: SUFFOLK

SITE NAME: EDWARDSTONE WOODS

DISTRICT: BABERGH

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981.

Local Planning Authority: Babergh District Council

National Grid Reference: TL (935430, 945413
928425) Area: 27.9 (ha.) 68.9 (ac.)

Ordnance Survey Sheet 1:50,000: 155

1:10,000: TL 94 SW

Date Notified (Under 1949 Act): 1971

Date of Last Revision: –

Date Notified (Under 1981 Act): 1986

Date of Last Revision: –

Other Information:

Description and Reasons for Notification:

The Edwardstone Woods SSSI are an inter-related group of ancient woods containing a diversity of stand types. These form a transition from mainly ash-maple-hazel woods of mid Suffolk to the lime of south Suffolk. Substantial areas of hornbeam are also present. The woodland structure is predominantly coppice-with-standards, with the rides and woodland margins supporting a diverse ground flora typical of Suffolk boulder-clay soils.

Park and High Woods together form the largest woodland area in the group, at least 500 years old, and regularly coppiced, at least in part, until about 70 years ago. Fine stands of small-leaved lime *Tilia cordata* and hornbeam *Carpinus betulus* are present with large standards of oak *Quercus robur* and ash *Fraxinus excelsior* frequent within the canopy and occasional wild cherry *Prunus avium* in High Wood. Localised stands of sweet chestnut *Castanea sativa* and silver birch *Betula pendula* are also found in the wood. Hazel *Corylus avellana* is scattered throughout the coppice layer with ash, field maple *Acer campestre* and wild cherry coppice present along the more base-rich wood margins. Holly *Ilex aquifolium* is common. Shrub species present along the hedgerows in High Wood include both common and Midland hawthorns *Crataegus monogyna* and *C. oxyacanthoides*, honeysuckle *Lonicera periclymenum*, crab apple *Malus sylvestris* and spindle *Euonymus europaeus*.

The ground flora is dominated by glades of bluebell *Hyacinthoides non-scripta* with bramble *Rubus fruticosus* and male fern *Dryopteris filix-mas* locally abundant.

Stallington Wood is situated on a steep valley side leading down to the River Box. Hornbeam dominates the coppice throughout most of the wood, with large standard oak and sweet chestnut frequent within the canopy. The margins support a wider variety of understorey species including field maple, hazel, wild cherry, hawthorn, blackthorn, *Prunus spinosa*, alder *Alnus glutinosa*, willow *Salix* sp., small-leaved lime and crab apple. Bluebell again dominates the ground flora, with dog's mercury *Mercurialis perennis*, bracken *Pteridium aquilinum* and male fern locally abundant. The wood is surrounded by medieval banks and ditches and is an important landscape feature.

Couper's Wood and Priory Down are small neighbouring woods. Priory Down contains an unusually wide variety of species, with wild service *Sorbus torminalis* and large small-leaved lime stools amongst oak, ash, hornbeam, field maple, wild cherry and aspen. Shrub species include hazel, spindle, holly, crab apple and both Midland

County Wildlife Sites citations

CWS Number	Name	Description	NGR
Babergh 103	BOWER HOUSE WOODS AND HEDGEROWS	"The woodlands included in this County Wildlife Site are Stony Down Grove and Whinnyfield Woods, both of which are listed in Natural England's Inventory of Ancient Woodland (Stony Down Grove is listed as Stony Grove).	TL982413
Babergh 147	THE GOODLANDS	Stoney Down Grove is a small woodland enclosed by a medieval woodbank and ditch, surrounded by arable fields. A large proportion of the southern half of the wood consists of old lime coppice, some of which are very large. The remainder of the wood contains a range of native woodland trees such as ash, field maple, oak and wild service tree. The ground flora supports a mosaic of bramble, dog's mercury and bluebell interspersed with small quantities of ancient woodland indicator plants such as wood sorrel, wood anemone, moschatel and hairy St John's- wort. A small stream runs along the edge of the wood and drains into a large pond which is fringed with marshy vegetation including abundant mosses, rushes and brooklime and provides good habitat for woodland invertebrates, particularly dragonflies. A further pond can be found in the eastern corner of the site.	TL952406
Babergh 24	RIVER BOX MEADOWS	Whinnyfield Wood is what remains of what was once a much larger wood. A medieval ditch and bank encloses most of the wood and a number of internal earthworks can be seen that are also possibly medieval in origin. The wood contains small areas of ash and hazel coppice with oak standards, particularly on the margins, whilst the northern section is dominated by mature oak, with sparse ground flora due to the dense shade cast by the tree canopy. A range of native species are present in the rest of the wood, including cherry, birch, aspen, hazel and hawthorn. Where there is sufficient light, typical woodland flora can be found including some ancient woodland indicator species such as wood spurge and hairy wood-rush.	TL966393
Babergh 49	SHERBOURNE HOUSE MEADOWS	These two areas of ancient woodland, along with two blocks of secondary woodland, an adjacent ancient green lane and linking hedgerows all support a breeding population of dormice. Stony Down Grove (Babergh 103) and Whinnyfield Wood (Babergh 104) were previously separate CWS which have been amalgamated to form this CWS, with the addition of the hedgerows and areas of secondary woodland."	TL955406
Babergh 103	BOWER HOUSE WOODS AND HEDGEROWS	The site, which covers an area of approximately 10 ha consists of a valuable mosaic of semi-natural habitats bordering the River Box, upstream of Boxford. At the western end of the site is a low lying marshy area which is dominated by tall fen vegetation mainly marsh thistle, hairy willowherb, rushes, meadowsweet and lesser pond sedge. This area does not appear to have been managed for some considerable time. Bordering the river and to the north of the fen is a slightly higher, drier area which has been used in the past for dumped river dredgings. A large proportion of this is colonised with tall rank vegetation i.e. nettle and creeping thistle, the remainder is composed of closely grazed horse pasture, although some small patches of species-rich	TL982413

	<p>fen meadow are also present, particularly at the eastern end. The valley slopes down steeply to the river in the eastern half of the site. Springs issuing from the hillside maintain high water levels throughout the year. These wetter areas are colonised by a species-rich fen meadow community which includes a good range of wetland plants typically found in such communities, e.g. southern marsh orchids (many hundreds of plants), ragged robin and greater bird's-foot trefoil. The fen meadow grades into a drier, less diverse grassland sward at the top of the slope and at the eastern end of the site. Although of less botanical diversity than the fen, the dry grassland supports good populations of invertebrates (particularly grasshoppers and crickets, and butterflies). Woodland cover consists of a wet alder belt along the south western boundary and a number of pine alders fringing the River Box.</p>	
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Appendix D

Legislation

European Protected Species

The Ramsar Convention (1971) on Wetlands of International Importance especially as Waterfowl Habitat seeks to promote the conservation and wise use of wetlands, particularly those which support internationally significant numbers of water birds. This is achieved through the designation of Ramsar Sites.

The European Community Council Directive on the Conservation of Wild Birds (79/409/EEC) sets out general rules for the conservation of all naturally occurring wild birds, their nests, eggs and habitats. It requires member states to designate Special Protection Areas (SPAs) for protection of certain species.

The main piece of legislation relating to nature conservation in Great Britain is **The Wildlife and Countryside Act 1981 (as amended)**. This Act is supplemented by provision in **The Countryside and Rights of Way (CROW) Act 2000** and **The Natural Environment and Rural Communities Act 2006 (in England and Wales)**. This act provides varying degrees of protection for the listed species of flora and fauna, including comprehensive protection of wild birds, their nests and eggs.

The Countryside and Rights of Way Act 2000 strengthens the protection given to SSSIs. It revises the procedures for the notification of SSSIs and for the consenting of operations which may damage the special interest of a SSSI. Local authorities have a duty to take steps, consistent with the proper exercise of their functions, to further the conservation and enhancement of SSSIs. The act also strengthens the existing provisions of the Wildlife and Countryside Act 1981 for the enforcement of wildlife legislation, including a new offence of "recklessly" destroying or damaging the habitats of certain protected species.

UK wildlife is also protected under **The Conservation (Natural Habitats &c.) Regulations 1994** (which were issued under the European Communities Act 1972), through inclusion on Schedule 2. In 2017, these Regulations, together with subsequent amendments, were consolidated into **The Conservation of Habitats and Species Regulations 2017**.

The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites. The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 5. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.

The Protection of Badgers Act 1992 consolidates previous badger legislation by providing comprehensive protection for badgers and their setts, with a requirement that any authorised sett disturbance or destruction be carried out under licence.

The Hedgerows Regulations 1997 aim to protect important hedgerows in the countryside. They make it illegal to remove most countryside hedges without first notifying the local planning authority, and provide protection for 'important hedgerows'.

County Wildlife Site is a non-statutory designation used to identify high quality wildlife habitats in a county context. Local Authorities have a responsibility as part of their planning function to take account of sites of substantial nature conservation value and to consider them alongside other material planning considerations. The location of County Wildlife Sites will be included in Local Plans and Development Documents.

National Planning Policy - National Planning Policy Framework (NPPF)

Section 15 of the National Planning Policy Framework 2023 (NPPF): Conserving and enhancing the natural environment states that 'planning policies and decisions should contribute to and enhance the natural and local environment by ... minimising impacts on and providing net gains for biodiversity.'

Office of The Deputy Prime Minister ("ODPM") Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their impact within the planning system.

Paragraph 98 of Circular 06/2005 states that 'the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat'.

Implications of legislation and policies

Without this ecological assessment, the potential developer would be unable to demonstrate due diligence in his responsibilities. Furthermore, the local planning authority would not have been provided with sufficient information for a planning decision to be made. This could result in non-determination or refusal of the application.

With legal responsibilities and planning implications, it is essential that any ecological assessment of a potential development site, including the area of this report, must determine the possible presence or absence of any protected species as part of any planning development consideration.

Where mitigation or compensation measures are required to ensure that no significant impacts will result on biodiversity from the development, the proposed measures may be secured through planning conditions or by EPS Mitigation Licences from Natural England.

Bats

All bat species in Britain are protected under the Wildlife and Countryside Act 1981 through inclusion on Schedule 5. They are also protected under the Conservation (Natural Habitats &c.) Regulations 1994 (which were issued under the European Communities Act 1972), through inclusion on Schedule 2. On 30th November 2017, these Regulations, together with subsequent amendments, were consolidated into the Conservation of Habitats and Species Regulations 2017.

European protected animal species (“EPS”) and their breeding sites or resting places are protected under Regulation 42. It is an offence for anyone to deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs. It is an offence to damage or destroy a breeding or resting place of such an animal. It is also an offence to have in one's possession or control, any live or dead European protected species.

The threshold above which a person will commit the offence of deliberately disturbing a wild animal of a European protected species has been raised. A person will commit an offence only if he deliberately disturbs such animals in a way as to be likely significantly to affect (a) the ability of any significant groups of animals of that species to survive, breed, or rear or nurture their young, or (b) the local distribution of abundance of that species. The existing offences under the Wildlife and Countryside Act (1981) as amended which cover obstruction of places used for shelter or protection (for example, a bat roost), disturbance and sale still apply to European protected species.

This legislation provides defences so that necessary operations may be carried out in places used by bats, provided the appropriate Statutory Nature Conservation Organisation (in England this is Natural England) is notified and allowed a reasonable time to advise on whether the proposed operation should be carried out and, if so, the approach to be used. The UK is a signatory to the Agreement on the Conservation of Bats in Europe, set up under the Bonn Convention. The Fundamental Obligations of Article III of this Agreement require the protection of all bats and their habitats, including the identification and protection from damage or disturbance of important feeding areas for bats.

Barn Owls

The Habitats Regulations (1994), as amended, states that a person commits an offence in the case of Barn Owl only if this species is disturbed in the breeding season. This applies equally to all those bird species listed under Schedule 1.

Breeding Birds

It is an offence to kill, injure or take any wild bird; take, damage or destroy the nest of any wild bird while that nest is in use or being built (even of "pest" species); take or destroy the eggs of any wild bird.

Great Crested Newts

Great crested newts are protected under both English and European law. It is an offence to kill, injure, disturb or take great crested newts or to damage or destroy their places of shelter, whether the animals are present or not.

Water Vole

The water vole received limited legal protection in April 1998 through its inclusion in Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) for some offences. Legal protection makes it an offence to:

- intentionally kill, injure or take (capture) a water vole;

- possess or control a dead or live water vole, or any part of a water vole;
- intentionally or recklessly damage or destroy access to any structure or place which water voles use for shelter or protection or disturb Water Voles while they are using such a place;
- sell, offer for sale or advertise for sale live or dead Water Voles

Water voles, their breeding sites and resting places are protected by law. In most cases, work can be planned to avoid harming water voles. If works cannot avoid disturbing them or damaging their habitats, you may be able to get a licence from Natural England.

Otters

Otters are protected under Section 9 of the Wildlife and Countryside Act 1981 (as amended) and revised by the Countryside and Rights of Way Act 2004, making it an offence to:

- intentionally kill, injure or take an otter;
- possess or control any (live or dead) otter, or any part of or anything derived from an otter;
- intentionally or recklessly damage or destroy or obstruct access to any structure or place used for shelter or protection by an otter;
- intentionally or recklessly disturb an otter while it is occupying a structure or place for that purpose;
- to sell, offer for sale, possess or transport for the purpose of sale any (live or dead) otter or part or derivative of an otter;
- to advertise for buying and selling such things.

Furthermore, otters are included on Schedule 2 of the Conservation (Habitats &c.) Regulations (1994), making it an offence to:

- deliberately to capture or kill a wild animal of a European protected species;
- deliberately to disturb any such animal;
- deliberately to take or destroy the eggs of such an animal; or
- damage or destroy a breeding site or resting place of such an animal.

Otters are also listed as a priority species on the UK and Biodiversity Action Plans.

White-Clawed Crayfish

This crayfish is listed under Annex II of the habitats directive and areas are designated as Special Areas of Conservation to protect this species. Outside of this a licence is required to capture this species. It is listed as a priority species under the Biodiversity Action Plan and is a Species of Principal Importance under section 41 of the NERC Act 2006.

Reptiles

Reptiles such as common lizard, slowworm, grass snake or adder are protected under Section 9 of the Wildlife & Countryside Act (1981) as amended. The legislation makes it illegal to deliberately or recklessly kill or injure

any native reptile. This protection therefore requires that reasonable effort be made to avoid harm to reptiles during developments on land occupied by reptiles.

Badger

The Wildlife and Countryside Act (1981) and its subsequent amendment in 1985 made it an offence to take, kill, injure or ill-treat a badger. The badger gained further protection under the auspices of The Protection of Badgers Act (1992) which consolidates all former protective legislation in relation to badgers, except their inclusion on Schedule 6 of the Wildlife and Countryside Act 1981.

Under the 1992 Act, the badger sett is protected against obstruction, destruction, and damage; furthermore, the animal's access to and from the sett must not be impeded. It should be noted that the concept/definition of the sett extends beyond the main sett to include annexe, subsidiary and outlying setts. However, although the badger and its sett are protected (including access to the sett), the wider habitat and foraging ground is not.

Dormice

Dormice are protected from being killed, injured, captured or disturbed and their resting and breeding places should not be damaged or destroyed.

Natural England Licensing - EPS Mitigation Licensing

Licences can be obtained from the Wildlife Management and Licensing Service at Natural England to allow certain activities that would otherwise constitute an offence, for the purposes of development (e.g. destruction of a bat roost, loss of great crested newt aquatic and terrestrial habitat, etc).

Appendix E

Plant species recorded on site

English name	Scientific name
Annual meadow grass	<i>Poa annua</i>
Aquilegia	<i>Aquilegia sp.</i>
Bay laurel	<i>Laurus nobilis</i>
Bindweed	<i>Convolvulus sp.</i>
Bramble	<i>Rubus fruticosus</i>
Cleavers	<i>Galium aparine</i>
Cock's-foot	<i>Dactylis glomerata</i>
Creeping buttercup	<i>Ranunculus repens</i>
Creeping wood sorrel	<i>Oxalis corniculata</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale</i>
Darwin's barberry	<i>Berberis Darwinii</i>
Dove's-foot cranesbill	<i>Geranium molle</i>
Ground elder	<i>Aegopodium podagraria</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Herb-robert	<i>Geranium robertianum</i>
Holly	<i>Ilex aquifolium</i>
Horseweed	<i>Erigeron canadensis</i>
Hosta	<i>Hosta sp.</i>
Iris	<i>Iris sp.</i>
Ivy	<i>Hedera helix</i>
Jasmin	<i>Jasminum sp.</i>
Leyland cypress	<i>Cupressus × leylandii</i>
Mouse-ear-hawkweed	<i>Pilosella officinarum</i>
Nettle	<i>Urtica dioica</i>
Old man's beard	<i>Clematis vitalba</i>
Perennial ryegrass	<i>Lolium perenne</i>
Purple toadflax	<i>Linaria purpurea</i>
Rose	<i>Rosa sp.</i>
Sow thistle	<i>Sonchus oleraceus</i>
Spear thistle	<i>Cirsium vulgare</i>
Spotted laurel	<i>Aucuba japonica</i>
Spurge	<i>Euphorbia sp.</i>
Sun spurge	<i>Euphorbia helioscopia</i>
Sunflower	<i>Helianthus annuus</i>
Wild plum	<i>Prunus domestica</i>
Willowherb	<i>Epilobium</i>
Yarrow	<i>Achillea millefolium</i>
Yellow fumitory	<i>Pseudofumaria lutea</i>
Yew	<i>Taxus baccata</i>
Yorkshire fog	<i>Holcus lanatus</i>

Appendix F

Native species suitable for planting and sowing

Plants should be obtained from specialist nurseries and preferably be of local genetic stock.

Key: (f) – fruit and berry species; (e) – evergreen species; (se) semi-evergreen species; (d) – deciduous species

Trees	
Alder (d)	<i>Alnus glutinosa</i>
Apples (f; d)	<i>Malus spp.</i> (local varieties)
Ash (d)	<i>Fraxinus excelsior</i>
Beech (d)	<i>Fagus sylvatica</i>
Bird cherry (f; d)	<i>Prunus padus</i>
Elder (f; d)	<i>Sambucus nigra</i>
Elm (d)	<i>Ulmus procera</i>
Field maple (d)	<i>Acer campestre</i>
Pedunculate oak (d)	<i>Quercus robur</i>
Rowan (f; d)	<i>Sorbus aucuparia</i>
Pears (f; d)	<i>Pyrus spp.</i>
Silver birch (d)	<i>Betula pendula</i>
Small-leaved lime (d)	<i>Tilia cordata</i>
White willow (d)	<i>Salix alba</i>
Wild cherry (f; d)	<i>Prunus avium</i>
Walnut (d)	<i>Juglans regia</i>

Shrubs	
Blackthorn (f; d)	<i>Prunus spinosa</i>
Buckthorn (f; d)	<i>Rhamnus catharticus</i>
Crab apple (f; d)	<i>Malus sylvestris</i>
Dog rose (f; d)	<i>Rosa canina</i>
Dogwood (f; d)	<i>Cornus sanguinea</i>
Field maple (d)	<i>Acer campestre</i>
Guelder-rose (f; d)	<i>Viburnum opulus</i>
Hawthorn (f; d)	<i>Crataegus monogyna</i>
Hazel (d)	<i>Corylus avellana</i>
Holly (e)	<i>Ilex aquifolium</i>
Honeysuckle (f; d)	<i>Lonicera periclymenum</i>
Spindle (f; d)	<i>Euonymus europaeus</i>
Wild privet (f; se)	<i>Ligustrum vulgare</i>
Yew (f; e)	<i>Taxus baccata</i>

Flowering plants	
Bird's-foot trefoil	<i>Lotus corniculatus</i>
Black knapweed	<i>Centaurea nigra</i>
Common cat's-ear	<i>Hypochoeris radicata</i>
Common sorrel	<i>Rumex acetosa</i>
Common vetch	<i>Vicia sativa</i>
Cowslip	<i>Primula veris</i>
Field scabious	<i>Knautia arvensis</i>
Foxglove	<i>Digitalis purpurea</i>
Lady's bedstraw	<i>Galium verum</i>
Meadow buttercup	<i>Ranunculus acris</i>
Meadow vetchling	<i>Lathyrus pratensis</i>
Oxeye daisy	<i>Leucanthemum vulgare</i>
Primrose	<i>Primula vulgaris</i>
Red clover	<i>Trifolium pratense</i>
Selfheal	<i>Prunella vulgaris</i>
Sweet violet	<i>Viola odorata</i>
Wild daffodil	<i>Narcissus pseudonarcissus</i>
Yarrow	<i>Achillea millefolium</i>

Grasses	
Common bent	<i>Agrostis capillaris</i>
Crested dog's-tail	<i>Cynosurus cristatus</i>
Meadow fescue	<i>Festuca pratensis</i>
Red fescue	<i>Festuca rubra</i>
Rough meadow-grass	<i>Poa trivialis</i>
Small timothy	<i>Phleum bertolonii</i>
Smooth meadow-grass	<i>Poa pratensis</i>
Sweet vernal-grass	<i>Anthoxanthum odoratum</i>
Yellow oat-grass	<i>Trisetum flavescens</i>

Flowering Lawn Mixture – EL1 Emorsgate Seeds

<https://wildseed.co.uk/product/mixtures/complete-mixtures/special-habitat-mixtures/flowering-lawn-mixture/>

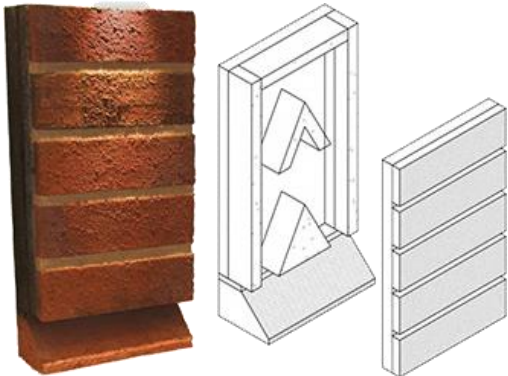



Wildflower Meadow Mixture – EM3 Emorsgate Seeds

<https://wildseed.co.uk/product/mixtures/complete-mixtures/general-purpose-meadow-mixtures/special-general-purpose-meadow-mixture/>

Appendix G

Examples of bat and bird boxes

(images sourced from www.nhbs.com, www.habibat.co.uk, www.manthorpe.co.uk, www.barnowltrust.org.uk and www.greenwoodsecohabitats.co.uk)

<p style="text-align: center;">Integrated bat box Habibat Bat Box</p> 	<p style="text-align: center;">Integrated bat box Bat Block</p> 
<p style="text-align: center;">Standalone bat box 2F Schwegler Bat Box (General purpose)</p> 	<p style="text-align: center;">Standalone bat box Greenwood's Ecohabitats three crevice bat box</p> 

Recommendations for installing bat boxes:

(Sourced from Bat Conservation Trust www.bct.org)

Ideally, several boxes should be put up facing in different directions to provide a range of conditions.

Locate boxes:

- Where bats are known to feed close to hedges and treelines (some bats use a treeline or hedgerow for navigation, putting boxes near these features may help the bats find the box).
- On trees: boxes should be placed on the trunk of a mature tree, where there is a clear flight line/accessible entrance.
- On buildings: boxes should be placed as close to the eaves as possible.
- As high as possible (ideally, at least 3 to 4m above the ground, where safe installation is possible).
- In sunny places, sheltered from strong winds (usually between south-west and south-east).

Make sure the boxes are secured.

Boxes can be installed on trees using adjustable ties to avoid damaging the trees. Otherwise, timber screw bolts or nails can be used. Aluminium alloy nails are less likely to damage saws and chipping machinery.

Bats need time to find and explore new homes, and it may be several months or even years before boxes have residents. Once bats find a place they want to live they can return over and over again. Droppings on the landing area, urine stains around the lower parts of the box and chattering noises from inside on warm afternoons and evenings are signs of occupation.

<p>Small bird nesting box 1B Schwegler Nest Box</p> 	<p>Small bird nesting box 2H Schwegler Robin Box</p> 
<p>Integrated swift box Swift Block</p> 	<p>Integrated swift box Manthorpe Swift Brick</p> 
<p>Integrated sparrow terrace 1SP Schwegler Sparrow Terrace</p> 	<p>Integrated sparrow terrace Terraced Sparrow Box</p> 

Recommendations for installing bird boxes:

(Sourced from British Trust for Ornithology www.bto.org, Manthorpe www.manthorpe.co.uk and Barn Owl Trust www.barnowltrust.org.uk)

The highest priority when siting a nest box must be to provide a safe and comfortable environment in which birds can nest successfully.

Tips for putting up a nest box:

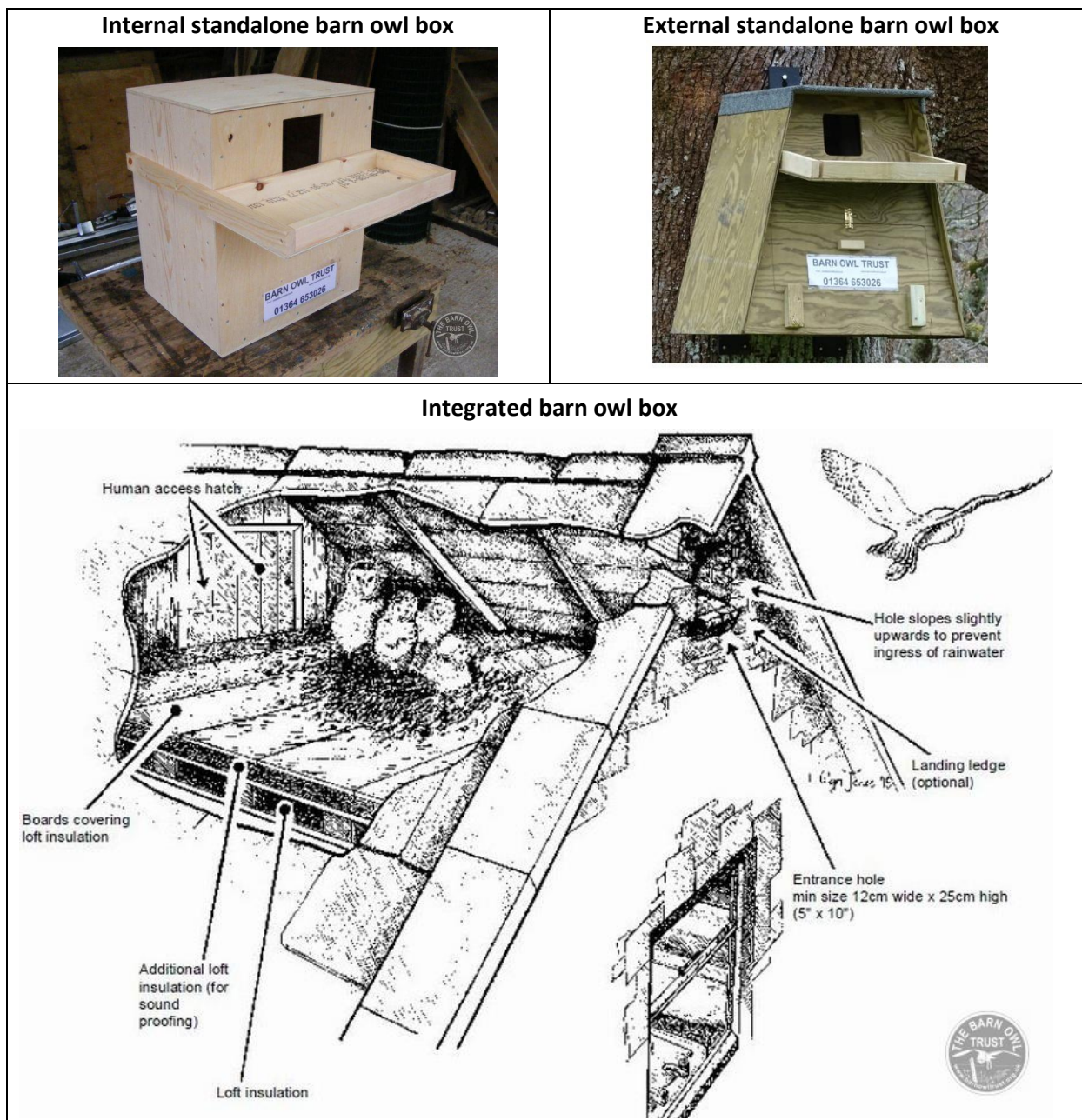
- Boxes should be sited 1-3m from the ground, ideally on tree trunks but can be placed on the side of a shed or wall. Avoid areas where foliage obscures the entrance hole.
- Don't place boxes too close to another nest box of the same type, as this may promote aggressive behaviour between neighbours.
- Shelter your nest box from prevailing wind, rain and strong sunlight. The box should face between north and east, and angled vertically or slightly downwards to prevent rain entering.
- Make sure cats cannot get into the box.
- Keep nest box away from bird feeders.
- Use galvanized or stainless steel screws or nails. If fixing boxes to trees, galvanised wire can be used to tie the box to the trunk or hang it from a branch. Make sure to regularly inspect these fittings (every two or three years) to ensure the box remains securely attached.

Tips for putting up house sparrow terraces and swift bricks/boxes:

- Locate ≥ 5 m high on the gable wall of the property and above the level of the insulation zone.
- Where possible, install in locations that are unlikely to receive large amounts of direct sunlight during the hottest times of the day, ideal places include below the overhang of the verge and barge board.

Tips for putting up barn owl boxes:

- The box should be installed on a building or tree in open farmland, on an isolated hedgerow or along the edge of a woodland.
- Boxes should be sited at least 3m from the ground, with a clear flight-path for entry and exit.
- Where possible, install boxes facing suitable habitat and ideally away from the prevailing wind.
- Nest boxes should ideally be installed in pairs.



Recommendations for installing integrated barn owl box:

(Sourced from Barn Owl Trust www.barnowltrust.org.uk)

Standalone barn owl boxes:

Tips for putting up barn owl boxes:

- The box should be installed on a building or tree in open farmland, on an isolated hedgerow or along the edge of a woodland.
- Boxes should be sited at least 3m from the ground, with a clear flight-path for entry and exit.
- Where possible, install boxes facing suitable habitat and ideally away from the prevailing wind.
- Nest boxes should ideally be installed in pairs.

Integrated barn owl boxes:

Design requirements – entrance hole dimensions and ledge (exercise platform):

- Entrance hole minimum size: 100mm wide x 200mm high, optimum size: 130mm x 250mm, maximum size: 200mm x 300mm.
- The bottom of the hole must not have any sharp edges or narrow gaps in which a toe or talon could get caught.

- Where necessary there can be a 'tunnel', minimum 150mm wide x 200mm high, between the entrance hole and the nest space.
- A grippable ledge (e.g. stone or slatted timber) below the entrance hole provides an exercise platform for emerging owlets.
- In cases where the entrance hole goes directly into a nest space less than 700mm deep, an exercise platform is essential; the bigger the better, but not less than 250mm x 500mm wide with a grippable raised edge.

Design requirements – nest space & dimensions:

- Floor area of nest chamber: absolute minimum 0.4m² (e.g. 500mm wide x 800mm high or 400mm wide x 1m high), ideal size is 1m² (1m x 1m). These dimensions are bigger than those for nestboxes, because built-in provision usually lacks an external exercise platform that would permit maximum wing stretching prior to fledging.
- Where there is no external exercise platform the internal box depth from the bottom of the entrance hole to floor of nesting area must not be less than 700mm. Note: the ideal depth for Barn Owls is at least 1m, which should be achieved wherever space permits.
- Depth from the bottom of the entrance hole to floor of nesting area must be not less than 450mm provided that there will definitely be an easy-to-grip external exercise platform for fledglings to stand on outside the entrance hole.
- In a large loft simply partition off a section behind the owls' entrance hole.
- Stone, brick and timber are all suitable materials. Although owls are not destructive and seem unharmed by soft insulation materials, these are usually best avoided.
- In an unheated building, no insulation is required.
- Lining the space is not essential.
- An internal perch positioned as high or higher than the access hole may be beneficial as long as the space is big enough to accommodate one without resulting in one perched bird defecating on another underneath.

Design requirements – insulation:

- From the owls' point of view, insulation is not required.
- However, there should be some form of moisture insulation between the owl space and the building interior.
- Where space is at a premium, use a highly efficient heat insulation board (e.g. 50mm Celotex polyurethane foam).
- Where space allows, use a more environmentally sustainable (and thicker) heat insulation board (e.g. a wood fibre board like Pavatex) to which a sound insulation board can be added (e.g. 60mm Pavatherm) if required.



Design requirements – human access and cleaning out:

- Human access is essential as the nest space will need to be cleared out very occasionally.
- A generous removable inspection hatch or door in the back of the owl space (accessible from the building interior) is usually the preferred option but in some cases an external arrangement may be a practical option.
- In the case of a loft partition, create an integral crawl-through doorway.
- The access should permit all or most of the nest space floor to be reached by hand.

Appendix H

Examples of hedgehog friendly fencing

(images sourced from www.quercusfencing.com and www.jackson-fencing.co.uk)

<p style="text-align: center;">Quercus Fencing</p> <p style="text-align: center;">Hedgehog friendly oak woven fencing panels</p> 	<p style="text-align: center;">Jacksons-Fencing</p> <p style="text-align: center;">Hedgehog friendly gravel board for use with slotted posts</p> 
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Recommendations for installing hedgehog friendly fencing:

(Sourced from Hedgehog Street www.hedgehogstreet.org)

A hedgehog friendly fence should have a gap measuring at least 13cm by 13cm in the gravel board. These gaps allow any hedgehog to pass through but are too small for nearly all pets.

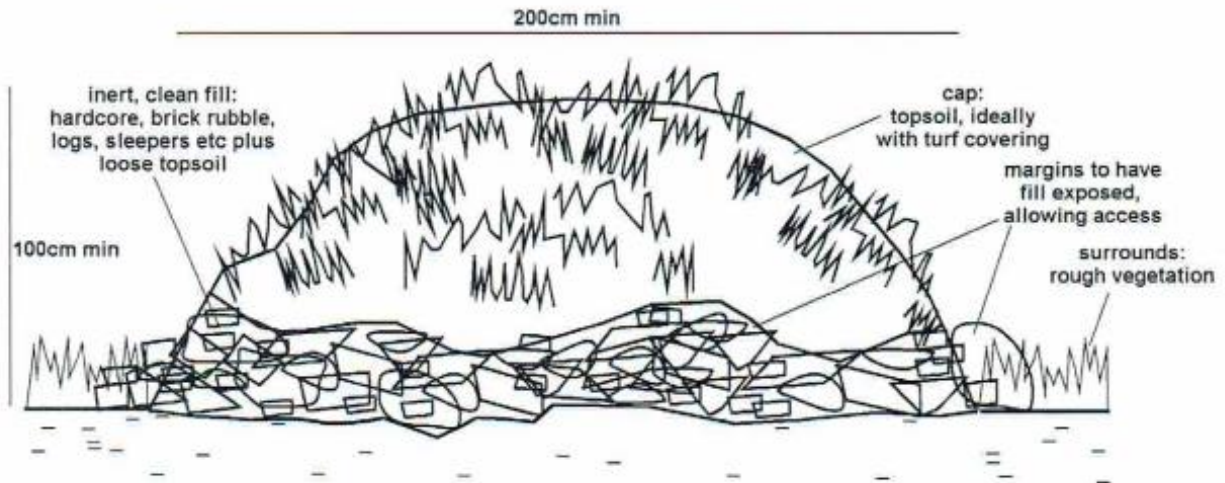
At least one hedgehog friendly fence panel should be located on each side of your garden, to provide unimpeded access.

Almost all fencing materials can be made hedgehog friendly, but may require DIY adaptations. Please note that some concrete gravel boards contain metal rods running along the length of the boards to provide strength and rigidity, and cannot be cut. To overcome this, a gap can be left between the gravel board and post to provide the required gap.

Appendix I Habitat piles

Figure 3: Suggested hibernaculum design

This design mimics artificial and natural conditions in which great crested newts have frequently been found overwintering. Dimensions should not be below 2m length x 1m width x 1m height. The illustrated design would be suitable for locating on an impermeable substrate. On free-draining substrates, the design is largely similar but the bulk of the fill is sited in an excavated depression in the ground. Hibernacula should ideally be positioned across a site, both close to and distant from breeding ponds, always in suitable terrestrial habitat and above the flood-line.



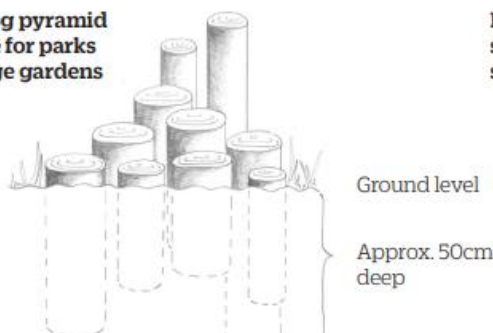
Source: English Nature (2001) *Great Crested Newt Mitigation Guidelines*, Peterborough.

- ▶ Log pyramids can be built at any time of year
- ▶ Use wood from any broadleaved tree
- ▶ The logs should be at least the thickness of an adults arm
- ▶ Site the logs in partial shade if possible to prevent them drying out
- ▶ Partially bury the logs in the soil so that they don't dry out
- ▶ Allow plants to grow over the log pyramid to retain moisture and provide shade

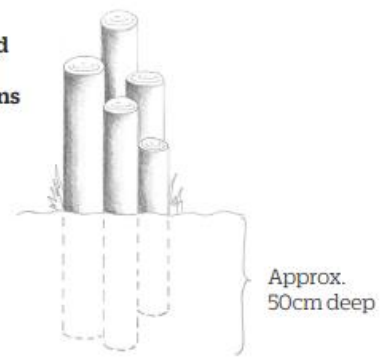
Your log pyramid will also benefit a range of other species including fungi, dead wood invertebrates and the animals that feed on them. It will be a great place for foraging small mammals, basking reptiles and potentially solitary bees.



**Large log pyramid
suitable for parks
and large gardens**





**Log pyramid
suitable for
small gardens**



Peoples Trust for Endangered Species (2022) *Build a log pyramid for stag beetles*. London

Appendix J Bee Bricks

(images sourced from www.nhbs.com and www.greenandblue.co.uk)

Bee post	Bee bricks
	
Recommended bee brick installation (Sourced from NHBS www.nhbs.com)	
<ul style="list-style-type: none">• Bee bricks will be installed on a south facing sunny spot of an external wall of the residential dwelling, at a minimum height of 1m. No vegetation should be obstructing the holes.• Bee posts will be positioned south facing in a sun exposed spot, with no vegetation covering the fascia. The posts must be set in a concrete base at a minimum of 30mm, similar to installing a fencepost.	

Appendix K Proposed plans

