
Preliminary Ecological Appraisal

Land off Half Moon Lane, Lakenheath

for

TLC Groundwork and Construction Ltd

18 August 2023



Client

TLC Groundwork and Construction Ltd

Planning authority

West Suffolk 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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Signed disclosure

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.

Nathan Duszynski, ACIEEM

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SUMMARY

Greenlight Environmental Consultancy Ltd. has been commissioned to carry out a Preliminary Ecological Appraisal for a proposed development at Land off Half Moon Street, Lakenheath, Brandon, Suffolk, IP27 9JX (grid reference: TL 71139 83104).

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 existing structures on site and the construction of eight residential dwellings.

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/licences are required for great crested newts prior to works commencing to inform an ecological impact assessment and appropriate mitigation strategy, or to offset any adverse impacts via financial contributions.

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	Four statutory and three 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	Bare ground, modified grassland, scattered scrub and trees, and non-native hedgerow 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 between plots and around site. Species-rich flowering lawn mixtures in all grassed areas, rich in nectar and pollen. Construction work to be carried out in accordance with BSI (2012), BS 5837:2012, to protect trees and their root protection areas.
Bats	Negligible bat roosting potential in buildings 1-3. Low bat roosting potential in two trees located on site.	Potential disturbance of bat roosts if present in trees. Low scale loss and potential light disturbance of commuting and	<u>Mitigation</u> If proposed works change to affect trees with low bat roosting potential, a soft-fell approach will be adopted. Any lighting schemes will comply with Bat Conservation Trust and CIE 150:2003 guidance.

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
	Low value commuting and foraging habitat on site.	foraging habitats on site.	<u>Enhancement</u> Installation of four integrated bat boxes installed on new buildings.
Breeding birds	Nesting habitats for scrub, tree 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 scrub, trees, hedgerow 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 eight integrated swift boxes and eight small bird boxes, installed on new buildings and trees respectively.
Great crested newts	Unsuitable terrestrial habitats on site. One pond on site assessed as average suitability, and one pond within 250m could not be accessed for detailed assessment. Site falls within Amber risk zone for district level licensing. No GCN records within 2km.	Potential harm to GCN if present on site during works. Modification of GCN aquatic habitat. Loss of GCN terrestrial habitat not considered significant to a local population of GCN, if present.	<u>Further steps required</u> This can be in the form of either: Further GCN surveys (presence/likely absence surveys conducted between mid-March and mid-June, or eDNA surveys conducted between mid-April and June). The outcome of the surveys will inform a detailed mitigation strategy and whether an EPS Mitigation Licence will be required from Natural England. Applying to join a District Level Licensing scheme to determine the required level of financial contribution to GCN mitigation, which can be completed at any time of year.
Reptiles	Habitats on site unsuitable. Two reptile records within 2km.	No impacts predicted.	<u>Precautionary mitigation</u> Cut and maintain vegetation short (maximum height of 10cm) on and around the site until the start of works. If habitats are left unmanaged, further reptile surveys will be required to assess if a population is present.
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> Creation of two habitat piles. Installation of eight bee bricks.

1. METHOD

- 1.1. A walkover of the site was conducted on 3rd August 2023 by Ebonie Lambo-Hills – an independent, qualified and experienced ecologist. Survey conditions were as follows: 19°C, 7mph 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*

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 western edge of the village of Lakenheath, with the A11 located approximately 8.9km south. The closest town is Brandon, located approximately 6.6km northeast of the site.
- 2.3. The site is enclosed by residential dwellings to the north and east, unmanaged grassland and residential dwellings to the south, and a grassland bank and river to the west. The wider surroundings are comprised of a mixture of residential dwellings, grassland, 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 09/08/23.

3. DESCRIPTION OF THE DEVELOPMENT

- 3.1. The proposals are for the demolition of the existing structures on site and the construction of eight residential dwellings. Please refer to Appendix K for the proposed plans.

4. PROTECTED SITES

Statutory

- 4.1. There are four statutory protected sites located within 2km – four Sites of Special Scientific Interest (“SSSI”). Please refer to Appendix C for the full citation.

- i. Lakenheath Pools Fen SSSI, approximately 0.8km west.

“Lakenheath Pools Fen is an area of species-rich fen meadow with areas of damp calcareous and neutral grassland. It lies on the transition between the Breckland sands and the fen basin.”

- ii. RAF Lakenheath SSSI, approximately 1.3km east.

“RAF Lakenheath consists of several large areas of species-rich Breckland grassland, on well drained sandy soils overlying chalk. The high number of rare and scarce plant species is higher than any other site in Suffolk.”

- iii. Maidscross Hill SSSI, approximately 1.4km east.

“A sizeable area of very dry Breck grassland on a range of soil types, including the grassland covering a nearby reservoir. Past gravel workings have left areas of bare ground which are at various stages of recolonisation. Lack of grazing has permitted bracken and gorse scrub to invade some areas.”

- iv. Pashford Poor's Fen, Lakenheath SSSI, approximately 1.5km northeast.

“Pashford Pools Fen, on the Breckland/Fen edge, is a mosaic of several different habitats supporting a great diversity of plants and animals. It consists of an area of unimproved, species rich mesotrophic meadow containing a number of hollows, some of which are occupied by pockets of spring-fed fen and marshy grassland.”

- 4.2. The proposed development falls outside of all SSSI Impact Risk Zones relating to residential developments, being a development of <100 residential units.

Non-statutory

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

i. Undley Bank CWS, approximately 0.6km south.

“This chalk embankment comprises sections of unimproved calcareous grassland (Priority habitat) together with areas of scrub. Species previously recorded here include nationally scarce sickle medick and large-flowered hemp-nettle, the latter of which has been recorded in Suffolk at only a small number of sites in the north west.”

ii. Lakenheath Cemetery CWS, approximately 0.8km east.

“Lakenheath Cemetery supports a diverse range of flora associated with lowland dry acid grassland (Priority habitat) and unimproved grassland such as sheep sorrell, biting stonecrop, common restharrow, mouse-ear hawkweed and early forget-me-not, as well as a number of mosses and lichens.”

iii. Caudle Farm and Broom Road Fields CWS, approximately 1.2km southeast.

“This network of arable field margins (Priority habitat) is situated to the south of Lakenheath and bordered by Lakenheath Airbase (SSSI) and Maidscross Hill (SSSI). The margins support a population of grape hyacinth, which is a Red Data Book species and found only on approximately twenty sites in the UK, on Breckland.”

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, Lowland Calcareous Grassland, Lowland Dry Acid Grassland, Lowland Heathland, Lowland Fens, Deciduous Woodland, Traditional Orchards and Woodpasture and Parkland BAP Priority Habitat. The closest of which, is Deciduous woodland located approximately 200m south of the site.

Field study

- 5.2. The habitats on the site are of low ecological value, being bare ground, unmanaged modified grassland, dry ditch and non-native hedgerows.
- 5.3. No priority Habitats, as listed under the NERC Act 2006 Section 41 Habitats of Principal Importance found on site.
- 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: 80 unmanaged and 230 garden)

- 5.5. The site features an area of unmanaged modified grassland which was originally used as a garden, with several scattered ornamental plants. Species include: annual meadow grass *Poa annua*, cock's-foot *Dactylis glomerata*, comfrey *Symphytum* sp., creeping buttercup *Ranunculus repens*, creeping thistle *Cirsium arvense*, fleabane *Erigeron* sp., ground elder *Aegopodium podagraria*, ground ivy *Glechoma hederacea*, mouse-ear-hawkweed *Pilosella officinarum*, perennial ryegrass *Lolium perenne*, ribwort plantain *Plantago lanceolata* and white clover *Trifolium repens*.

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

- 5.6. The site features a cherry laurel *Prunus laurocerasus* hedgerow which runs along the eastern access track to the house.

Buildings (UK Habitat Classification u1b5)

- 5.7. There are three buildings on site which were used as a residential dwelling with associated shed and agricultural barn. Please refer to the bat section detailed below for further information.

Other developed land (UK Habitat Classification u1b6, secondary code: 17 ruderal/ephemeral)

- 5.8. The eastern third of the site is dominated by concrete hardstanding which has been encroached by ruderal/ephemeral vegetation, with some scattered grasses. Species include: black medic *Medicago lupulina*, bristly oxtongue *Helminthotheca echioides*, cock's-foot, creeping cinquefoil *Potentilla reptans*, false oat-grass *Arrhenatherum elatius*, herb-robert *Geranium robertianum*, horseweed *Erigeron canadensis*, nipplewort *Lapsana communis* and white dead-nettle *Lamium album*.

Artificial unvegetated, unsealed surface (UK Habitat Classification u1c, secondary code: 10 scattered scrub, 11 scattered trees, 17 ruderal/ephemeral, 73 bare ground, 76 recent management, 117 dry, 230 garden and 191 ditch)

The site is dominated by bare ground which has been created from recent clearance of the site and was previously an unmanaged garden. Within the bare ground, there is scattered ruderal/ephemeral vegetation. Species include: herb-robert, mayweed *Tripleurospermum* sp., nettle *Urtica dioica* and sun spurge *Euphorbia helioscopia*. Within the bare ground, there are scattered trees, species include: apple *Malus* sp., ash *Fraxinus excelsior*, holly *Ilex aquifolium*, Lebanon cedar *Cedrus libani*, silver birch *Betula pendula*, walnut *Juglans regia*, white willow *Salix alba* and yew *Taxus baccata*. The site features several areas of bramble *Rubus fruticosus* and white willow scrub. Along the western periphery, the site features a dry ditch.

Built linear features (UK Habitat Classification u1e)

- 5.9. The site features a mixture of closeboard fencing and post and mesh fencing along the site peripheries.

Standing open water and canals (UK Habitat Classification r1)

- 5.10. The site features one unlined pond located to the south of the site, which contains scattered common reed *Phragmites australis* within.

Target note	Comments
A	Brash pile.

Table 1, target notes.





Photo 1, existing eastern entrance, building one and two and non-native hedgerow, looking west.



Photo 2, hardstanding and fencing looking north.



Photo 3, building one, hardstanding and bare ground with scattered scrub, looking southeast.



Photo 4, bare ground with scattered scrub and trees.



Photo 5, bare ground with scattered scrub and trees, looking north.



Photo 6, bare ground with scattered scrubs and trees and building three, looking northwest.



Photo 7, Target note A: brush pile, looking northwest.



Photo 8, dry ditch running along northern periphery.

6. PROTECTED AND NOTABLE SPECIES

Desktop review

Data search

6.1. The biodiversity data search within 2km of the site indicated 1,844 records from 361 species.

6.2. Records of note within 2km and relevant to the proposed development works are:

17 barn owl *Tyto alba* records, with the most recent from 2022.

18 skylark *Alauda arvensis* records, with the most recent from 2022.

26 swift *Apus apus* records, with the most recent from 2021.

Two reptile records, with the most recent from 2022. The closest record is located approximately 1.3km south. Species include: common lizard *Zootoca vivipara* and grass snake *Natrix helvetica*.

41 hedgehog *Erinaceus europaeus* records, with the most recent from 2022.

88 bat records, with the most recent from 2022, including common pipistrelles *Pipistrellus pipistrellus*, soprano pipistrelles *Pipistrellus pygmaeus*, brown long-eared *Plecotus auritus*, serotines *Eptesicus serotinus*, noctules *Nyctalus noctula*, Leisler's *Nyctalus leisleri*, Daubenton's *Myotis daubentonii*, Natterer's *Myotis nattereri*, barbastelles *Barbastella barbastellus* and other unidentified bat species.

Protected species licences

6.3. A 2km search on <http://www.magic.gov.uk/> indicated no records of granted European Protected Species ("EPS") Mitigation Licences.

Bats

6.4. There are three buildings and two trees with bat roosting potential located on site, as indicated in Figure 3 and photos 9-19.



Figure 3
Location and numbering of buildings located on site.
Image © QGIS, date accessed 09/08/23.

Building one (Residential dwelling)

6.5. The building is split into two residential dwellings and is a rendered brick construction with an interlocking concrete tiled roof. There are tight PVC soffit boxes on the north and south aspect and a mixture of PVC and timber framed doors and windows on every aspect. The building has a single brick chimney and a dormer window on the north aspect.

6.6. Internally the building is split into two residential dwellings which vary internally.

- i. Dwelling 2a (eastern property) is predominantly boarded out and features a small loft space on the north aspect. The loft space features modern beams, bitumen felt and fibreglass insulation.

- ii. Dwelling 2b (wester property) features a loft space which is approximately 1.6m in height. The loft space features modern beams, a ridge beam and bitumen lining. The loft space is moderately cobwebbed throughout and has a large wasp nest within.
- 6.7. Building one features an extension to the east, which is a timber framed construction situated on a brick plinth. The extension has an unlined corrugated acrylic roof and PVC doors and windows.
 - 6.8. There are two extensions on the western aspect. The older extension is a timber framed structure situated on a brick plinth, with a bitumen felt roof and no loft space. The second more modern extension is a brick construction which features PVC windows and a bitumen felt roof, with no loft space.
 - 6.9. There were no signs of use by bats on the residential dwellings exterior or interior and the structures provides 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, north and east aspects of building one, looking southwest.



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



Photo 11, south and east aspects of two extensions on western aspect of building one, looking north.



Photo 12, internal view of building one (dwelling 2a) loft space, looking west.



Photo 13, internal view of building one (dwelling 2b), looking west.

Buildings two and three

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

Building two (agricultural barn) – the barn is a brick construction which features a mixture of unlined corrugated asbestos and unlined corrugated acrylic roofing sheets. The building features metal beams, with a false ridge beam and open eaves. The building is light within.

Building three (summer house) – timber framed structure which features a clay pantile roof and is lined with timber sarking. The walls are comprised of tongue and groove timber cladding which is lined with plywood and features timber a framed door and windows. The building was light and airy within.

6.11. 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 14, south and east aspect of building two, looking northwest.



Photo 14, western aspect of building two, looking northeast.

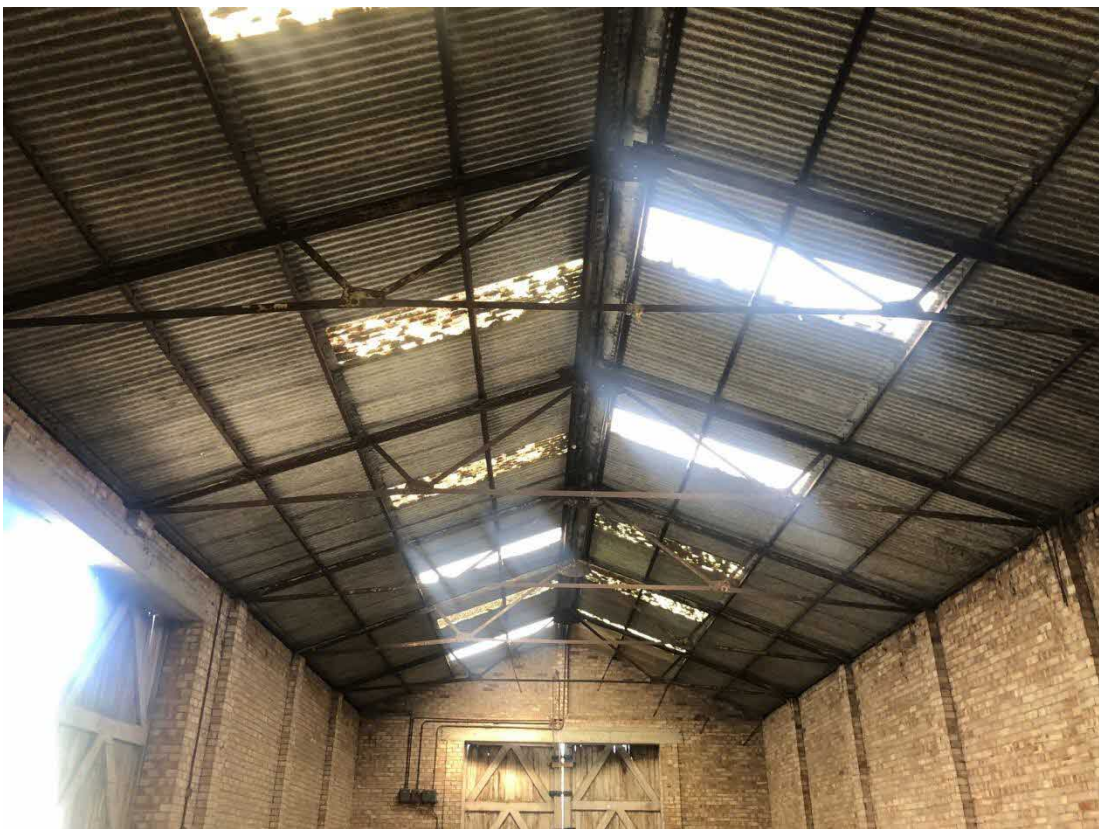


Photo 15, internal view of building two, looking north.



Photo 16, southern aspect of building three, looking north.



Photo 17, internal view of building three.

Trees

- 6.12. The trees around the site boundary were assessed for bat roosting potential.
- 6.13. A total of two trees on the site were assessed as having low roost suitability for bats based on their location, age and suitable features (Table 2, Figure 3).
- 6.14. The remaining trees are assessed as negligible bat roosting potential, due to their age and/or lack of features.

Tree No.	Tree species	What3words	Bat roosting potential	Potential roosting features
1	Ash	will. teeth. crabmeat	Low	Cavities between cut ivy branches and trunk.
2	Weeping willow	dolls. coining. talkative	Low	Cavities from split branches.

Table 2, trees with bat roosting potential.



Photo 18, tree one with cut ivy branches, looking east.



Photo 19, tree two with split in branches, looking west.

Foraging and commuting links

- 6.15. The site itself provides low value foraging habitat for bats around mature scattered trees and pond, with bats mainly using nearby woodlands and adjacent river for foraging.
- 6.16. The landscape immediately adjacent to the site is considered of moderate value for foraging and commuting bats, with linked gardens, river and treelines providing links to the wider landscape. Residential dwellings adjacent the site and within Lakenheath have the potential to provide roosting opportunities for bats.

Birds

- 6.17. 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.
- 6.18. The following bird species were observed during the site visit:

Red listed:

Swift

Apus apus

Amber listed:

Rook	<i>Corvus frugilegus</i>
Woodpigeon	<i>Columba palumbus</i>
Wren	<i>Troglodytes troglodytes</i>

Green listed:

Blackbird	<i>Turdus merula</i>
Blue tit	<i>Cyanistes caeruleus</i>
Collard dove	<i>Streptopelia decaocto</i>
Goldfinch	<i>Carduelis carduelis</i>
Long-tailed tit	<i>Aegithalos caudatus</i>
Jackdaw	<i>Corvus monedula</i>
Robin	<i>Erithacus rubecula</i>

- 6.19. The site provides suitable nesting habitats for scrub, tree and building nesting species.
- 6.20. The site provides potential breeding habitat for the following Red listed species: house sparrow *Passer domesticus*.
- 6.21. The site provides potential breeding habitat for the following Amber listed species: dunnock *Prunella modularis*, woodpigeon *Columba palumbus* and wren *Troglodytes troglodytes*.
- 6.22. No signs of barn owl were found on the site and no foraging habitat is present.

Great crested newts

- 6.23. There is one pond within the survey site and one further pond 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).
- 6.24. The terrestrial habitats on the site are considered unsuitable for GCN, consisting of recently cleared bare ground, with several pockets of suitable areas of scrub and unmanaged modified grassland.
- 6.25. Terrestrial habitats adjacent the site include a mixture of unsuitable (residential dwellings with associated gardens and hardstanding) and suitable (unmanaged grassland) GCN foraging, commuting and hibernating habitats.
- 6.26. Pond one was assessed as average suitability for GCN (Table 3). Pond two was not assessed in detail, as authorised access to the ponds was not available.
- 6.27. The site falls within the Amber risk zone for GCN district level licensing, which is classified as “containing main population centres for GCN and comprise important connecting habitat that aids natural dispersal” (Natural England, 2021).

6.28. The residential dwellings to the north and east, and the river to the west acts as habitat barriers and ecologically separate the site from ponds in the local vicinity.

Pond	1
Geographic location	Zone A
	1.00
Pond surface area (m ²)	400m ²
	0.80
Desiccation rate	>3 years out of 10
	0.50
Water quality/ invert density	Poor
	0.33
Shoreline shade (%)	70%
	0.80
Waterfowl impacts	Absent
	1.00
Fish impacts	Absent
	1.00
Ponds within 1km	1
	0.39
Terrestrial habitat quality	Moderate
	0.67
Macrophyte cover (%)	30%
	0.60
HSI Score	Average
	0.66

Table 3, HSI score for ponds within 250m of the proposed site.



Photo 20, pond one, looking east.

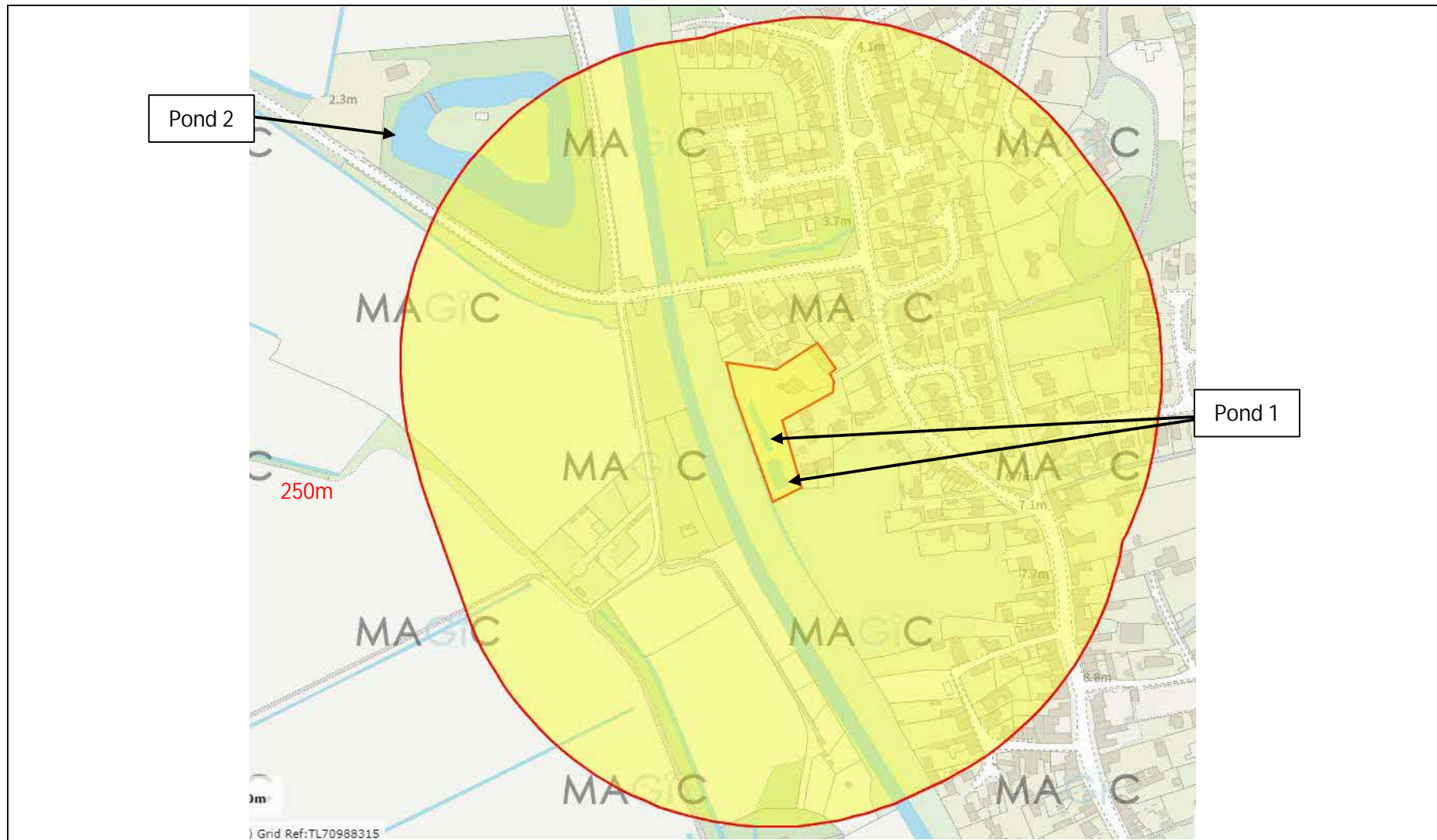


Figure 4
Ponds within 250m of the proposed site. * Please note, although magic presents two ponds within the site boundary, both ponds are connected by a channel.
Image © MAGiC, date accessed 09/08/23.

Reptiles

- 6.29. The habitats on the site are considered predominantly unsuitable for reptiles, consisting of bare ground from the recent clearance of vegetation, with several small areas of suitable unmanaged modified grassland and scrub. The habitats on site would have been suitable for reptiles prior to the clearance of vegetation.
- 6.30. Habitats located on the site boundaries including the base of the dry ditch could be used as commuting habitats by reptiles if they were present in the area.
- 6.31. Terrestrial habitats adjacent the site include a mixture of unsuitable (residential dwellings with associated gardens and hardstanding) and suitable (grassland) reptile foraging, commuting and hibernating habitats.

Other animals

- 6.32. The site is considered predominantly unsuitable for stag beetles *Lucanus cervus*, with no suitable deadwood present on site.
- 6.33. The site prior to clearance offered suitable habitat for a range of pollinator species, with a variety of nectar rich flowering plants.

7. DISCUSSION AND CONCLUSIONS

Protected sites

- 7.1. The development footprint falls outside all identified protected sites (statutory and non-statutory). There are four statutory protected sites and three non-statutory protected sites located within 2km of the site.

The closest statutory protected site (Lakenheath Pools Fen SSSI) is located approximately 0.8km west and designated for damp calcareous and neutral grassland.

The closest non-statutory protected site (Undley Bank CWS) is located approximately 0.6km south of the site and designated for its unimproved calcareous grassland.

- 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 ≈0.1ha of hardstanding with encroached ruderal/ephemeral vegetation, ≈0.3ha of bare ground with ruderal/ephemeral vegetation, scattered scrub and trees, ≈0.01ha of unmanaged modified grassland, ≈25m of non-native hedgerow and the modification to pond one on site. No priority habitats will be affected by the proposed development. This is expected to result in a low scale loss of nesting habitat for scrub and tree nesting birds, and a low scale loss of foraging features for bats. Please refer to the bat section below for predicted impacts on buildings and trees 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:
 - a. The planting of new native species-rich (≥5 species), hedgerows and trees between plots and around the site (see Appendix F for suggested species).
 - b. The planting of native species-rich flowering lawn mixtures in lawns and open grassland areas, which are rich in nectar and pollen (see Appendix F for suggested seed mix).

- 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 are expected to result in a low scale loss of potential roosting, foraging and commuting habitats for bats through the demolition of all the buildings on site, clearance of vegetation and through increased noise and light levels.
- 7.7. As a precautionary measure, the following mitigation will be implemented to avoid impacts on bats from the proposed works:
 - i. If proposed works change to incorporate trees with low bat roosting potential, a soft-fell approach will be adopted. This is where the tree limbs are cut, slowly lowered to the ground and left overnight with roosting features pointing upwards, to allow any roosting bats the opportunity to disperse. If a bat is found, works must cease immediately and a suitably licensed ecologist sought to advise on appropriate mitigation.
 - ii. Any lighting schemes will follow guidance from the Bat Conservation Trust and CIE 150:2003. Warm-white (long wavelength) lights with UV filters will be fitted as close to the ground as possible. Lighting units will be angled below 70° and equipped with movement sensors, baffles, hoods, louvres and horizontal cut off units at 90°.
- 7.8. 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.
- 7.9. As enhancements, the following will be implemented:
 - i. Four integrated bat boxes (Bat Block – Appendix G).
- 7.10. After these precautionary mitigation measures, we predict no impact on bats as a result of the development plans. We consider that a European Protected Species Licence will not be required, and no further surveys are necessary.

Birds

- 7.11. The proposed works are expected to result in a low scale loss of bird nesting habitat through the demolition of all the buildings and clearance of vegetation, including several scattered trees and scrub.
- 7.12. 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 scrub, 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.
- 7.13. As enhancements, the following will be implemented:
- i. Eight integrated swift boxes (Swift Block – Appendix G).
 - ii. Eight small bird boxes (Schwegler 1B or 2H Nest Box – Appendix G).
- 7.14. 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 NPPF 2021.

Great crested newts

- 7.15. The proposed works are expected to result in a loss of unsuitable ≈ 0.4 ha terrestrial habitat (≈ 0.3 ha of bare ground with ruderal/ephemeral vegetation, scattered scrub and trees, ≈ 0.01 ha of unmanaged modified grassland and ≈ 25 m of non-native hedgerow), with the modification of pond one.
- 7.16. Taking a worst-case scenario of pond one being damaged, the risk assessment calculation (set out in the GCN method statement template provided by Natural England) indicates an “offence highly likely”.
- 7.17. As GCN may commute across the site to reach ponds in the local vicinity, further steps are required to inform the planning application. This can be in the form of the following methods:
- i. Further GCN surveys:
 - a. Presence/likely absence surveys on ponds within 250m of the site which contain sufficient levels of water during the GCN breeding season (can only be conducted

between mid-March and mid-June). Please note, a number of visits are required in the peak season (mid-April to mid-May).

- b. eDNA surveys on ponds within 250m of the site which contain sufficient levels of water during the GCN breeding season (can only be conducted between mid-April and June).
 - c. The outcomes of the presence/likely absence or eDNA surveys will inform a detailed mitigation strategy for GCN and whether a district level license or EPS Mitigation Licence will be required from Natural England for the proposed development to proceed.
- ii. Apply to join a district level licensing (“DLL”) scheme (can be completed all year round). Please note, all ponds will be assumed to contain GCN unless presence/likely absence surveys or eDNA tests have confirmed likely absence.

Reptiles

- 7.18. The proposed works are expected to result in a low scale loss of reptile habitat through the clearance of ≈0.3ha of bare ground with ruderal/ephemeral vegetation, scattered scrub and trees, ≈0.01ha of unmanaged modified grassland and ≈25m of non-native hedgerow.
- 7.19. Although habitats on site are unsuitable, the habitat would have been suitable prior to the recent clearance of vegetation, with reptiles able to recolonise the site quickly if the site is left unmanaged. As a precautionary measure, the following mitigation will be implemented to avoid impacts on reptiles 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.
 - ii. If habitats are left unmanaged, further reptile surveys will be required to assess if a population is present and to determine an appropriate mitigation strategy, which could include trapping and translocation of animals on site, and creation of reptile hibernacula.
- 7.20. After these precautionary mitigation measures, we predict no impact on reptiles as a result of the development plans, and no further surveys are necessary.

Other animals

- 7.21. 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).

7.22. 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.

7.23. As enhancements, the following will be implemented:

- i. Two log piles will be created in the on the site using the remains of the felled trees (Appendix I). Once the wood has begun to decay/rot, it will become suitable for a wide variety of wildlife, including stag beetles.
- ii. The installation of eight bee bricks (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 (Butcher et al., 2020). 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, 2016).

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:

- Negligible roost suitability for bats. These buildings have no potential roosting features for bats, or very few or minor features in an isolated or unsuitable location such that the presence of a bat roost is considered highly unlikely. 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 or one dawn re-entry 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, one dusk emergence and one dawn re-entry survey 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 one dusk emergence and at least one dawn re-entry survey (the third survey can either be at dusk or dawn) and should be 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 and dense thick-stemmed ivy.

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

Negligible roost suitability for bats. Trees unlikely to be used by roosting bats.

Low roost suitability for bats. A tree of sufficient size and age to contain Potential Roosting Features (“PRFs”), but with none seen from the ground or features seen with only very limited roosting potential.

Moderate roost suitability for bats. A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.

High roost suitability for bats. A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection and surrounding habitat.

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.

Negligible commuting and foraging potential for bats. Habitat features unlikely to be used by commuting or foraging bats.

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 4.

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 4, 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.

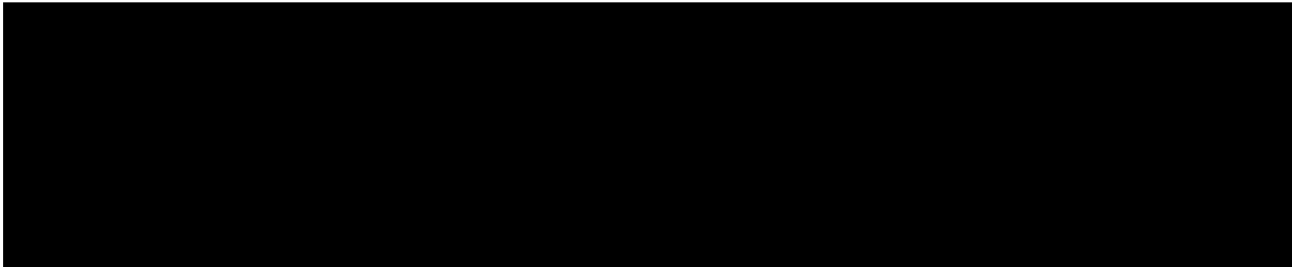
White-clawed crayfish inhabit streams and rivers with a moderate flow rate, and lakes. Clear, well-oxygenated water is preferred. Typical habitat features include crevices in rocks, gaps between stones, submerged plants and tree roots.

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.



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

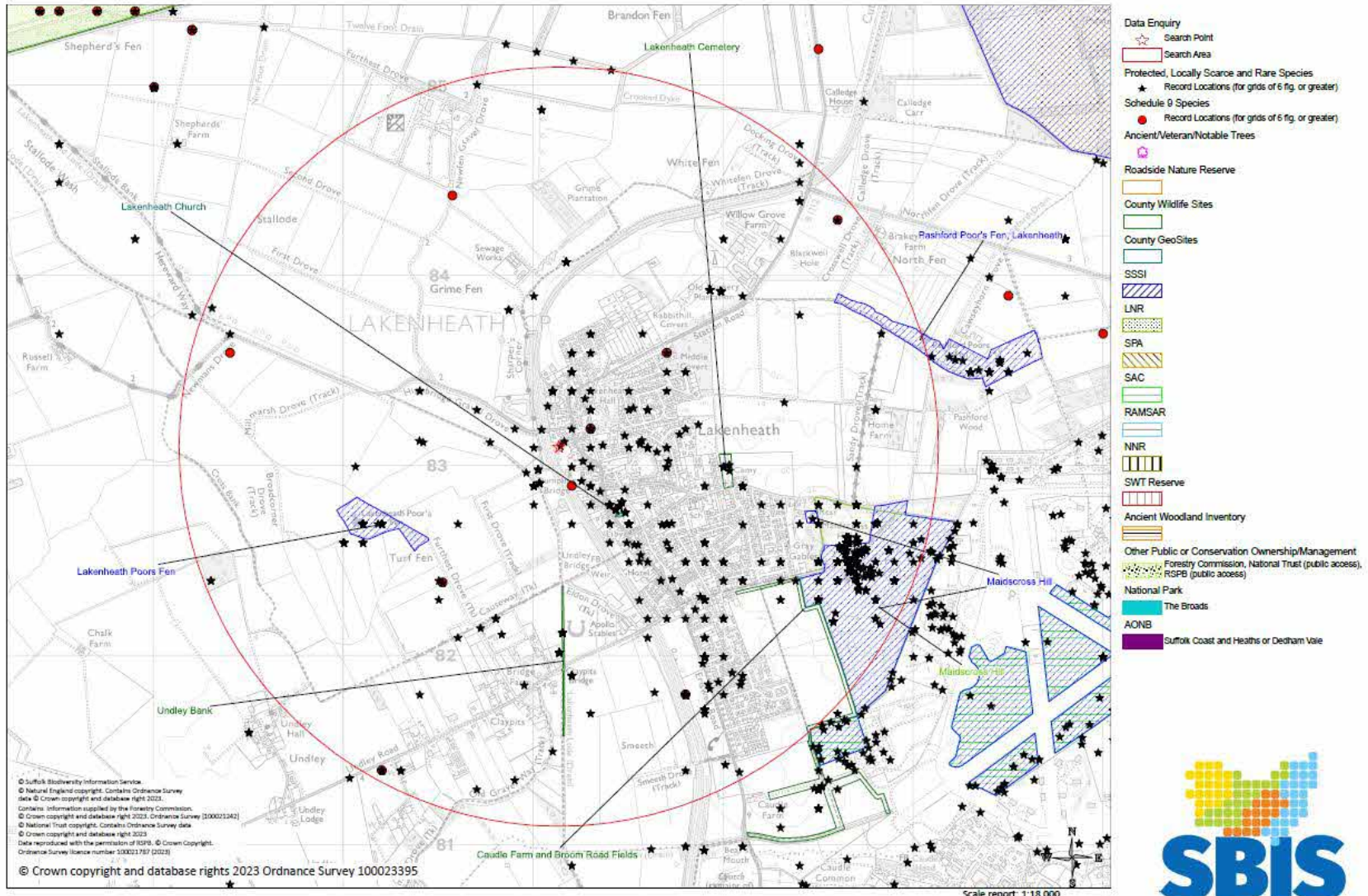
Particular regard was made to the nature of the proposed development and the potential of impact upon any other protected species, species which are nationally or locally scarce, or species subject to other conservation designations such as Red Data Book or Priority S41 species, from the development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

Constraints

The field survey was conducted within the optimal survey period for flowering plants, the recent clearance if the sure has meant a large number of species have been removed. 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



Greenlight (Land off Half Moon Lane, Lakenheath TL71132 83105) 2km Data Enquiry



Date: 12/07/2023 | Drawn by: Andy Mercer

Appendix C

Protected sites citations

SSSI citations

COUNTY: SUFFOLK SITE NAME: PASHFORD POORS FEN,
LAKENHEATH

DISTRICT: FOREST HEATH

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

Local Planning Authority: FOREST HEATH DISTRICT COUNCIL, Suffolk County Council

National Grid Reference: TL 732835 Area: 12.2 (ha.) 30.1 (ac.)

Ordnance Survey Sheet 1:50,000: 143 1:10,000: TL 78 SW

Date Notified (Under 1949 Act): 1972

Date Notified (Under 1981 Act): 1995

Other Information:

The majority of the site is managed as a nature reserve by the Suffolk Wildlife Trust.

Description and Reasons for Notification:

Pashford Poors Fen, on the Breckland/Fen edge, is a mosaic of several different habitats supporting a great diversity of plants and animals. It consists of an area of unimproved, species rich mesotrophic meadow containing a number of hollows, some of which are occupied by pockets of spring-fed fen and marshy grassland. At one end of the site birch woodland has become established and there are also small areas of willow scrub and reedbed.

Management of the neutral grassland is by mowing followed by cattle grazing in some areas. The dominant grass in the sward is Sweet Vernal-grass *Anthoxanthum odoratum*. A variety of other grasses and herbs are present including Small Scabious *Scabiosa columbaria*, Meadow Saxifrage *Saxifraga granulata*, Lady's Bedstraw *Galium verum* and Red Fescue *Festuca rubra*.

Acid marshy grassland occurs in several damp hollows in the area of neutral grassland. A distinct transition zone is present on the edges of these wet areas and is characterised by Saw Sedge *Cladium mariscus* and Great Burnet *Sanguisorba officinalis*. The marshy grassland is dominated by Purple Moor-grass *Molinia caerulea*, Meadowsweet *Filipendula ulmaria* and Reed Canary-grass *Phalaris arundinacea* with Marsh Pennywort *Hydrocotyle vulgaris*, Ragged Robin *Lychnis flos-cuculi* and Blunt-flowered Rush *Juncus subnodulosus*.

The fen consists of areas of tall fen vegetation dominated by Reed *Phragmites australis* and Saw Sedge and areas of invasive birch woodland. The fen flora is relatively rich, especially on mown paths and includes Marsh Marigold *Caltha palustris*, Devil's-bit Scabious *Succisa pratensis* and Purple Small-reed *Calamagrostis canescens*.

File Ref: 14/WA/6

County: Suffolk**Site name: RAF Lakenheath****District: Forest Heath****Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981 (as amended)****Local Planning Authority: Forest Heath District Council, Suffolk County Council****National grid reference: TL 740820****Area: 111.79 ha 276.12 ac****Ordnance survey sheet: 1:50,000: 143****1:10 000: TL 78 SE, TL 78 SW****Date notified (under 1981 Act): 1992****Date of last revision: 1997****Other information: This site is wholly within the RAF Lakenheath airbase****Description and reasons for notification:**

RAF Lakenheath consists of several large areas of species-rich Breckland grassland, on well-drained sandy soils overlying chalk. The high number of rare and scarce plant species is higher than any other site in Suffolk. The site is on the western edge of Breckland and is a significant part of the former mediaeval rabbit warren of Lakenheath, parts of which now survive in a more disjointed form as Lakenheath Warren, Wangford Warren and Maidscross Hill.

The dominant grass is sheep's fescue (*Festuca ovina*) with common bent (*Agrostis capillaris*) and cock's foot (*Dactylis glomerata*) the more abundant of the other grasses present. Many herb species are found within the turf including lady's bedstraw (*Galium verum*), shepherd's cress (*Teesdalia nudicaulis*) and sheep's sorrel (*Rumex acetosella*). Sand sedge (*Carex arenaria*) is abundant in places, where it has colonised sandy open areas.

The site supports a large wild population of the nationally rare perennial knawel (*Scleranthus perennis*), which is protected under Section 13 of the Wildlife and Countryside Act 1981. Eight other nationally rare plant species are found within the grassland: Breckland thyme (*Thymus serpyllum*), wild grape hyacinth (*Muscari atlanticum*), Spanish catchfly (*Silene otites*) sand catchfly (*Silene conica*), drooping brome (*Bromus tectorum*), smooth rupturewort (*Herniaria glabra*), spring speedwell (*Veronica verna*) and grey fescue (*Festuca caesia*); another five nationally scarce plant species are also present.

About three-quarters of the unique Breckland grassland and heathland has been lost in the last two centuries, primarily to arable farming and forestry. Development of the RAF Lakenheath airfield from 1942 onwards will have caused some losses of important habitat, but the remaining areas have been protected from farming and forestry operations. They have been well managed with an intensive mowing regime which mimics the more usual sheep or rabbit grazing system.

COUNTY: SUFFOLK SITE NAME: LAKENHEATH POORS FEN

DISTRICT: FOREST HEATH

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

Local Planning Authority: FOREST HEATH DISTRICT COUNCIL

National Grid Reference: TL 701827 Area: 4.95 (ha.) 12.23 (ac.)

Ordnance Survey Sheet 1:50,000: 143 1:10,000: TL 78 SW,
1:10,560: TL 68 SE

Date Notified (Under 1949 Act): 1958 Date of Last Revision: N/A

Date Notified (Under 1981 Act): 1985 Date of Last Revision: N/A

Other Information:

The site boundary has been adjusted by a deletion.

The site is managed as a nature reserve by the Suffolk Trust for Nature Conservation.

Reasons for Notification:

Lakenheath Poors Fen is an area of species-rich fen meadow with areas of damp calcareous and neutral grassland. It lies on the transition between the Breckland sands and the fen basin. Although a relatively small fragment, it represents a once extensive tract of similar vegetation that is now lost to arable cultivation. The rich flora includes one rare and one uncommon species, whilst the dykes and ditches support a good variety of aquatic plants.

The areas of grassland are grazed by cattle and are dominated by Common Quaking-grass *Briza media*, Crested Hair-grass *Koeleria cristata* and False Oat-grass *Arrhenatherum elatius*. There are many species of flowering plant associated with this vegetation including Marsh Orchid *Dactylorhiza incarnata*, Sneezewort *Achillea ptarmica*, Marsh Pennywort *Hydrocotyle vulgaris*, Small Scabious *Scabiosa columbaria*, Skullcap *Scutellaria galericulata* and Cuckoo Flower *Cardamine pratensis*. The nationally rare, Marsh Pea *Lathyrus palustris* and the locally rare Milk Parsley *Peucedanum palustre* are present and the site is also notable for the occurrence of the locally uncommon Creeping Willow *Salix repens*.

The main dyke on the site contains Broad-leaved Pondweed *Potamogeton natans*, Water Violet *Hottonia palustris* and Cyperus Sedge *Carex pseudocyperus*. The other ditches are only seasonally flooded but they support a range of plants including the uncommon Lesser Water Plantain *Baldellia ranunculoides*, Brookweed *Samolus valerandi* and Water Mint *Mentha aquatica*.

COUNTY: SUFFOLK SITE NAME: MAIDSCROSS HILL

DISTRICT: FOREST HEATH

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

Local Planning Authority: FOREST HEATH DISTRICT COUNCIL

National Grid Reference: TL 726825 Area: 45.16 (ha.) 111.60 (ac.)

Ordnance Survey Sheet 1:50,000: 143 1:10,000: TL 78 SW

Date Notified (Under 1949 Act): 1975 Date of Last Revision: –

Date Notified (Under 1981 Act): 1986 Date of Last Revision: –

Other Information:

Description and Reasons for Notification:

A sizeable area of very dry Breck grassland on a range of soil types, including the grassland covering a nearby reservoir. Past gravel workings have left areas of bare ground which are at various stages of recolonisation. Lack of grazing has permitted bracken and gorse scrub to invade some areas. Four nationally and one locally rare plant species occur on this site.

Maidscross Hill contains well developed areas of calcareous and acidic grassland, as well as some intermediate areas. Much of the acidic grassland is dominated by vigorous Sand Sedge *Carex arenaria* with relatively few other species. The calcareous grassland is shorter, though somewhat tussocky and is dominated by Red Fescue *Festuca rubra*, Bent grasses *Agrostis spp.* and Crested Hair-Grass *Koeleria macrantha*. It contains many other associated species including Ladies Bedstraw *Galium verum*, Lesser Meadow Rue *Thalictrum minus*, Bird's-foot Trefoil *Lotus corniculatus* and Hop Trefoil *Trifolium campestre*.

The intermediate areas are dominated by coarser grasses such as False Oat Grass *Arrhenatherum elatius* and Timothy *Phleum pratense*. Despite this, they contain a good range of associated species including Yellow Oat Grass *Trisetum flavescens*, Wild Carrot *Daucus carota*, Smooth Tare *Vicia tetrasperma* and Smooth Hawks Beard *Crepis capillaris*. In some parts, weed species Cleavers *Galium aparine*, White Melilot *Melilotus alba* Nettles *Urtica dioica* and Wild Parsnip *Pastinaca sativa* have invaded this grassland.

Small scale gravel extraction has been practised on Maidscross Hill for many years. The more recently worked areas are still largely bare but with a great variety of small annual plants growing on them, including Sand Catchfly *Silene conica*, Small Medick *Medicago minima*, Sand Cat's-tail *Phleum arenarium* and Thyme-leaved Sandwort *Arenaria serpyllifolia*. Sand Sedge is invading some of these areas. The older gravel

workings, particularly the tops of mounds and other very well drained areas support lichens and moss-dominated heath with small herbs such as Striated Catchfly *Silene Conica*.

Maidscross Hill is not currently grazed except by rabbits and the lack of sufficient grazing has allowed bracken and considerable amounts of gorse and hawthorn scrub to invade. Although this has meant the loss of some grassland the scrub has provided additional nesting habitat for birds.

The rare plant species found on Maidscross Hill are associated with the more open, calcareous grassland. They are Breckland Wild Thyme *Thymus serpyllum*, Spanish Catchfly *Silene otites*, Grape Hyacinth *Muscari neglectum* and Sickle Medick *Medicago falcata*.

County Wildlife Sites citations

CWS Number	Name	Description	NGR
Forest Heath 26	UNDLEY BANK	This chalk embankment comprises sections of unimproved calcareous grassland (Priority habitat) together with areas of scrub. Species previously recorded here include nationally scarce sickle medick and large-flowered hemp-nettle, the latter of which has been recorded in Suffolk at only a small number of sites in the north west. Hound's tongue, a Breckland species considered near threatened, has also been recorded here in the past. The site supports a range of invertebrates including common butterflies such as clouded yellow, brimstone, meadow brown and painted lady.	TL711819
Forest Heath 27	CAUDLE FARM & BROOM ROAD FIELDS	This network of arable field margins (Priority habitat) is situated to the south of Lakenheath and bordered by Lakenheath Airbase (SSSI) and Maidscross Hill (SSSI). The margins support a population of grape hyacinth, which is a Red Data Book species and found only on approximately twenty sites in the UK, on Breckland. The field margins and anti-car furrows are colonised by a number of other rare Breckland grassland species such as Breckland speedwell. The particularly rare fingered speedwell has also been recorded growing on the banks in the past.	TL726817
Forest Heath 51	LAKENHEATH CEMETERY	" This is the only Suffolk site in which yarrow broomerape, a Nationally Rare species, is recorded. Around twenty spikes were recorded here initially (in 1990), with fewer numbers being seen in more recent years.	TL720829

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 2021 (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.

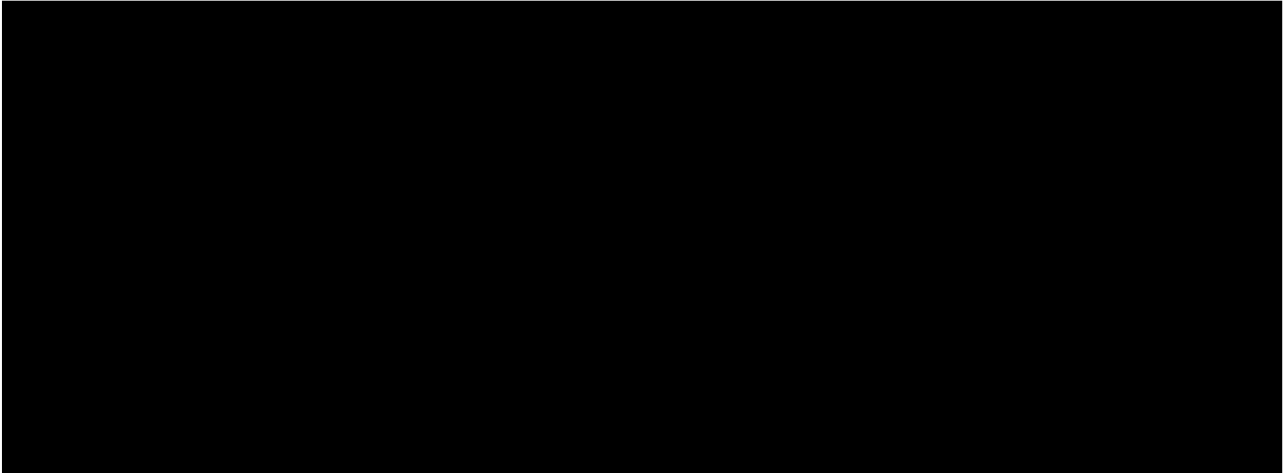
White-Clawed Crayfish

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.



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>
Apple	<i>Malus</i> sp.
Ash	<i>Fraxinus excelsior</i>
Bamboo	<i>Bambusa</i> sp.
Barren brome	<i>Bromus sterilis</i>
Beech	<i>Fagus sylvatica</i>
Black medic	<i>Medicago lupulina</i>
Box	<i>Buxus</i> sp.
Bramble	<i>Rubus fruticosus</i>
Bristly oxtongue	<i>Helminthotheca echioides</i>
Cheese mallow	<i>Malva sylvestris</i>
Cherry laurel	<i>Prunus laurocerasus</i>
Chickweed	<i>Stellaria media</i>
Cock's-foot	<i>Dactylis glomerata</i>
Comfrey	<i>Symphytum</i> sp.
Common reed	<i>Phragmites australis</i>
Cow parsley	<i>Anthriscus sylvestris</i>
Creeping buttercup	<i>Ranunculus repens</i>
Creeping cinquefoil	<i>Potentilla reptans</i>
Creeping thistle	<i>Cirsium arvense</i>
Dove's-foot cranesbill	<i>Geranium molle</i>
Elder	<i>Sambucus nigra</i>
False oat-grass	<i>Arrhenatherum elatius</i>
Feverfew	<i>Tanacetum parthenium</i>
Fleabane	<i>Erigeron</i> sp.
Fox glove	<i>Digitalis purpurea</i>
Garden privet	<i>Ligustrum ovalifolium</i>
Goldenrod	<i>Solidago</i> sp.
Greater burdock	<i>Arctium lappa</i>
Greater plantain	<i>Plantago major</i>
Ground elder	<i>Aegopodium podagraria</i>
Ground ivy	<i>Glechoma hederacea</i>
Groundsel	<i>Senecio vulgaris</i>
Hawthorn	<i>Crataegus monogyna</i>
Herb-robert	<i>Geranium robertianum</i>
Holly	<i>Ilex aquifolium</i>
Horseweed	<i>Erigeron canadensis</i>
Ivy	<i>Hedera helix</i>
Lebanon cedar	<i>Cedrus libani</i>
Lilac	<i>Syringa vulgaris</i>
Lords and ladies	<i>Arum maculatum</i>
Mayweed	<i>Tripleurospermum</i> sp.
Mouse-ear-hawkweed	<i>Pilosella officinarum</i>
Mugwort	<i>Artemisia vulgaris</i>
Nettle	<i>Urtica dioica</i>
Nipplewort	<i>Lapsana communis</i>
Opium poppy	<i>Papaver somniferum</i>
Pear	<i>Pyrus</i> sp.
Perennial ryegrass	<i>Lolium perenne</i>

Purple toadflax	<i>Linaria purpurea</i>
Ragwort	<i>Jacobaea vulgaris</i>
Red valerian	<i>Centranthus ruber</i>
Ribwort plantain	<i>Plantago lanceolata</i>
Rose	<i>Rosa sp.</i>
Rough meadow grass	<i>Poa trivialis</i>
Silver birch	<i>Betula pendula</i>
Spear thistle	<i>Cirsium vulgare</i>
Sun spurge	<i>Euphorbia helioscopia</i>
Wall barley	<i>Hordeum murinum</i>
Walnut	<i>Juglans regia</i>
Weeping willow	<i>Salix babylonica</i>
White clover	<i>Trifolium repens</i>
White dead-nettle	<i>Lamium album</i>
White willow	<i>Salix alba</i>
Wood forget-me-not	<i>Myosotis sylvatica</i>
Yarrow	<i>Achillea millefolium</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</i> spp. (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</i> spp.
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/>

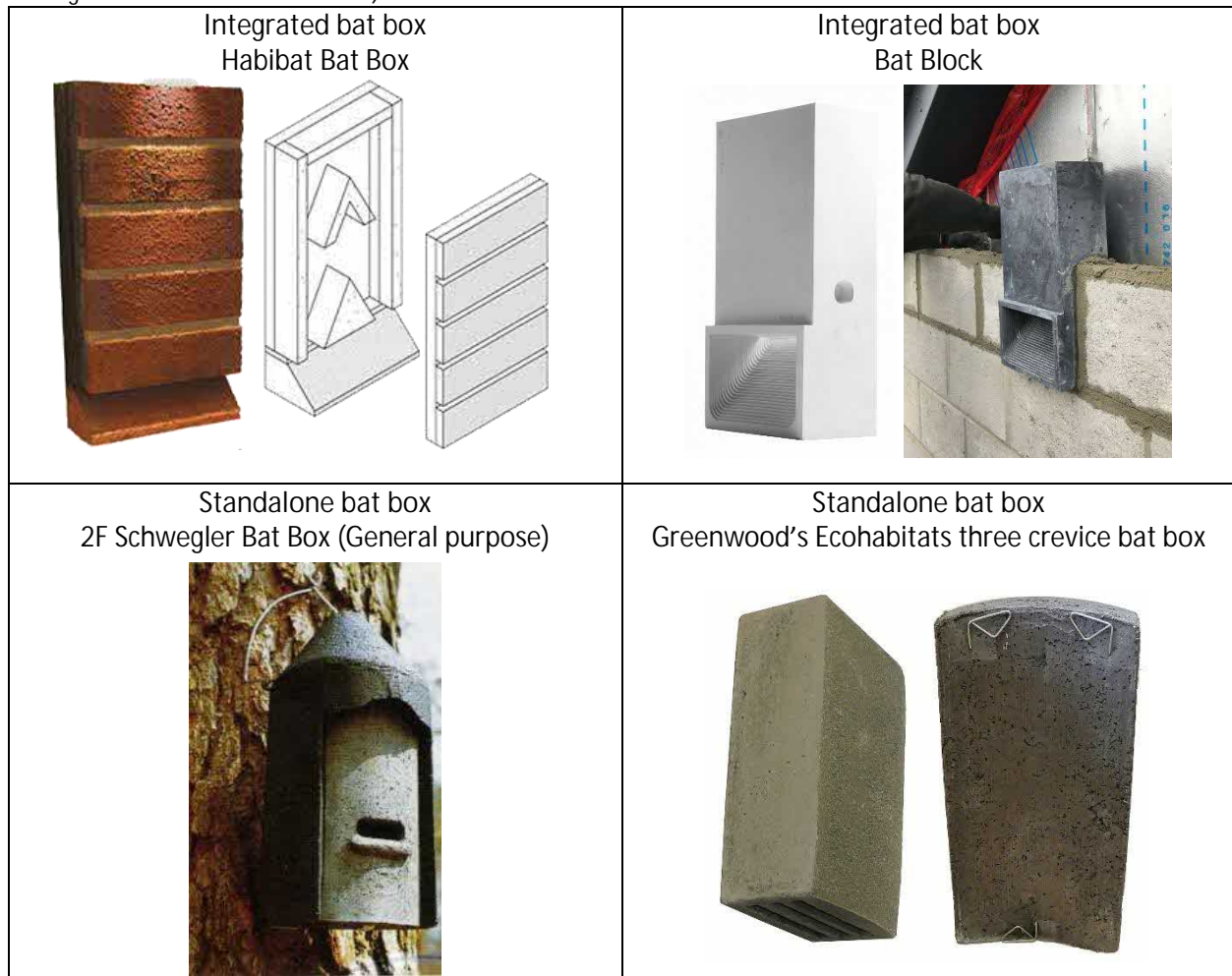
Wildflower Meadow Mixture – EM3 Emorsgate Seeds

<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)



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 chittering 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.

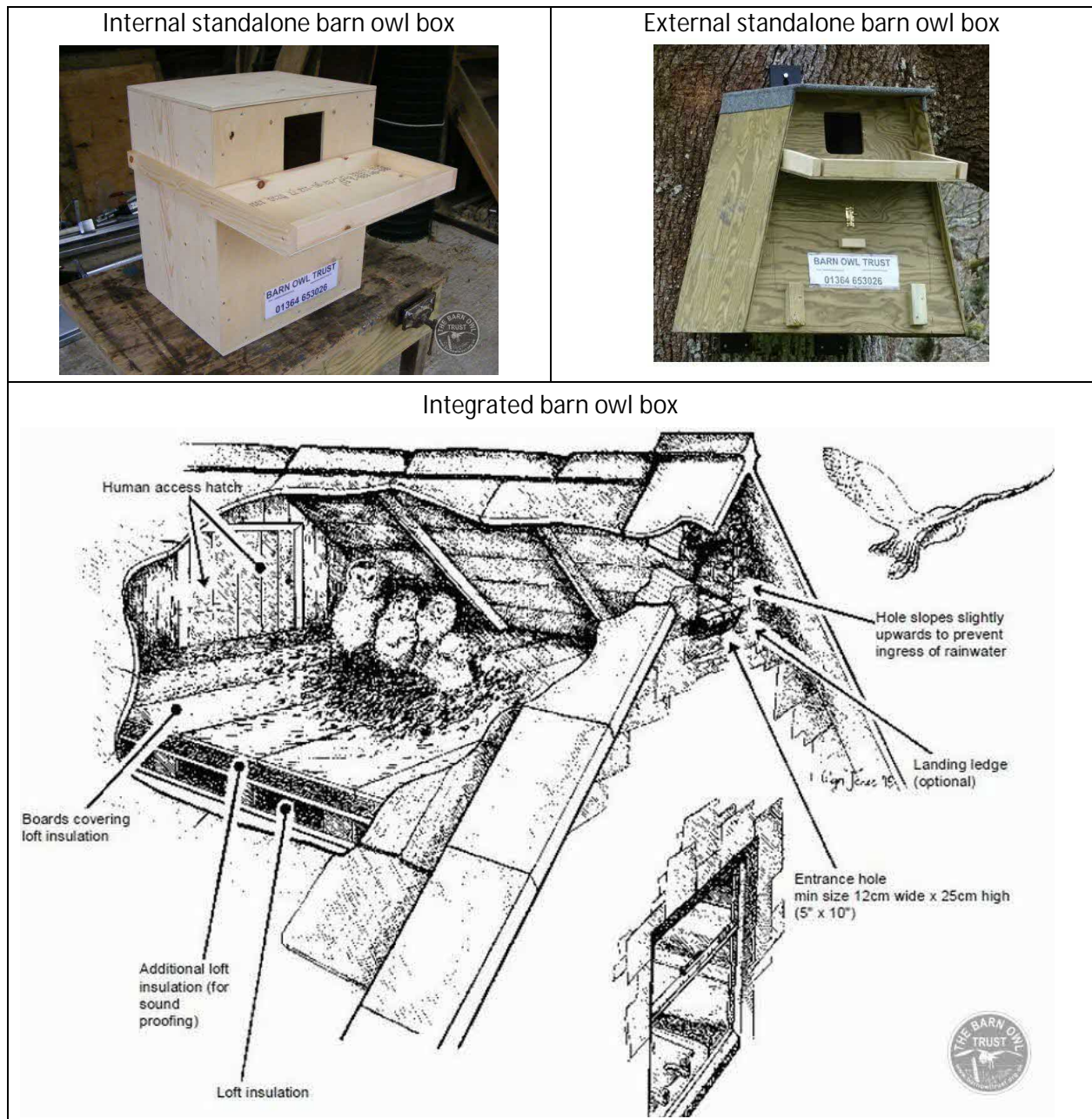
Tips for putting up barn owl boxes:

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.

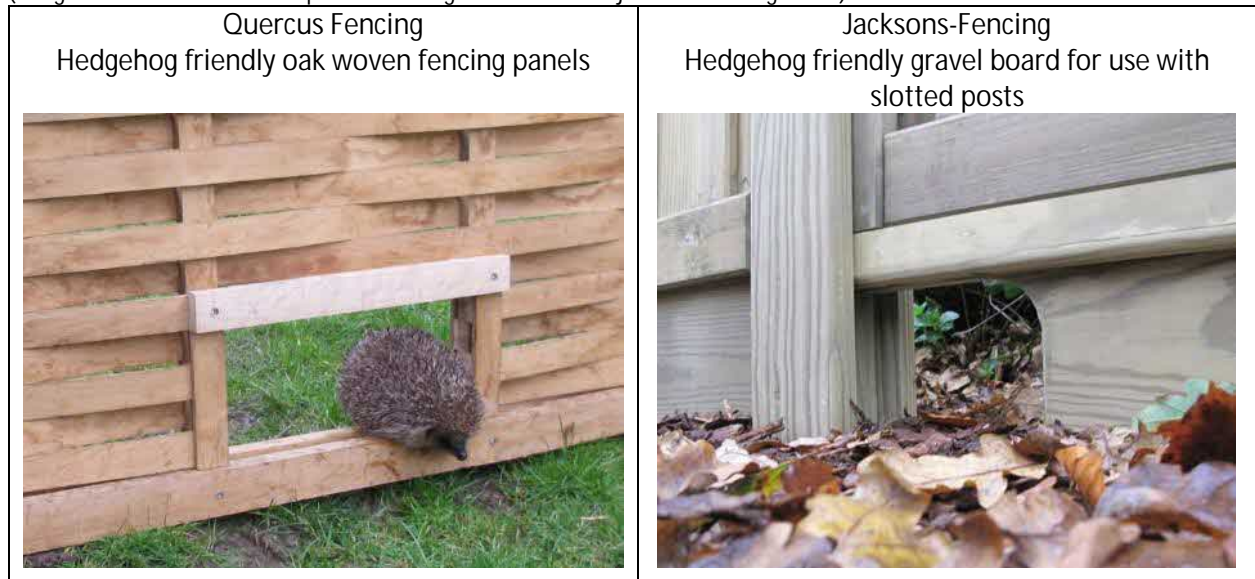
In the case of a loft partition, create an integral crawl-through doorway.

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)



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.

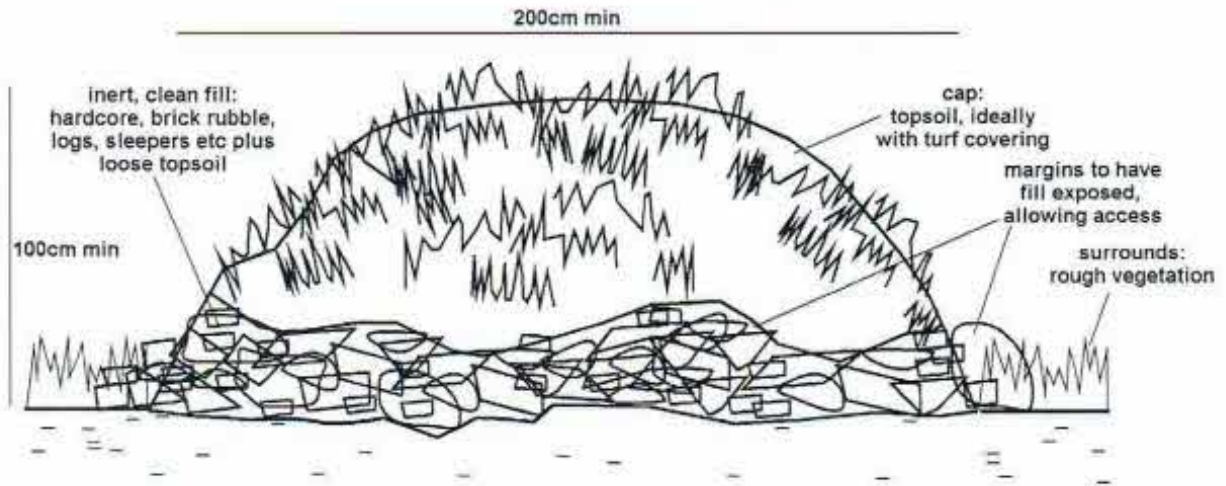
At least one hedgehog friendly fence panel should be located on each side of your garden, to provide unimpeded access.

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 over-wintering. 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.



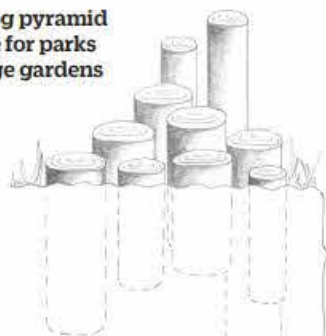
Source: English Nature (2001) Great Crested Newt Mitigation Guidelines, Peterborough.

- ▶ 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.



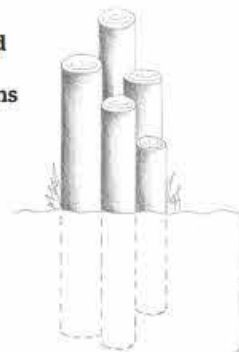
**Large log pyramid
suitable for parks
and large gardens**



Ground level

Approx. 50cm
deep

**Log pyramid
suitable for
small gardens**





Approx.
50cm deep

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)	
<p>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.</p> <p>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.</p>	

Appendix K Proposed plans



Proposed Site Layout Image

0m 10m 20m 30m 40m 50m 1:500

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Client: **TLC Groundworks and Construction Ltd.**
 Site: **Land off Half Moon Lane, Lakenheath.**
 Project: **Proposed Dwellings**
 Drawing: **Proposed Site Layout Image**
 Drawing Size: **A3** Scale(s): **1:500**
 Date: **April 2023** Drawing no.: **416/03**