MHECONSULTING
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Ecology Report

PROPOSED NEW DWELLING
Cherry Orchard Barn, Stoke Road, Lower Layham, Suffolk

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Figures

Appendices

Executive Summary

MHE Consulting Ltd were instructed to undertake an ecological survey and assessment of a proposed new dwelling at Cherry Orchard Barn, Stoke Road, Lower Layham, Suffolk. A Class Q Prior Notification application (DC/21/06064) for the conversion of a barn into a residential unit was submitted to Babergh District Council and approved. A new application is to be submitted for the demolition of the barn and construction of a detached dwelling with garage with a new road access and a crossing over a minor watercourse.

The application site is located off Stoke Road, Lower Layham and comprises a machinery store/workshop with small areas of hard standing, managed lawn, meadow grassland and ruderal vegetation, hedgerows, trees, a small watercourse. A traditional S.41 list orchard exists to the west of the site.

No evidence of roosting bats was found in the barn proposed for demolition, whilst an old wren (Troglodytes troglodytes) nest was present internally. Adjacent habitats (e.g. lawn, broadleaved trees/shrubs, meadow grassland and ruderal vegetation, hedgerows and minor watercourse) offer suitable for bats (foraging and commuting), amphibians (dispersal, foraging and refuge), hedgehogs (foraging and refuge) and birds (foraging, nesting and song perch). Grass snake (*Natrix helvetica*) may periodically pass through the application site when en-route to hunt in the adjacent watercourse and may seek refuge within compost piles left on site.

Measures are proposed to avoid, mitigate and compensate impacts and ecological effects upon habitats and associated species, whilst enhancements are suggested which could deliver a net gain for biodiversity.

1 Introduction

1.1 BRIEF

MHE Consulting Ltd were instructed to undertake an ecological survey and assessment of a proposed new dwelling at Cherry Orchard Barn, Stoke Road, Lower Layham, Suffolk (TM 02567 39763; Figure 1).

A Class Q Prior Notification application (DC/21/06064) for the conversion of a barn into a residential unit was submitted to Babergh District Council and approved. A new application is to be submitted for the demolition of the barn and construction of a detached dwelling with garage with a new road access and a crossing over a minor watercourse.

The ecological survey and this report are necessary to:

- Identify the existing ecological value of the site;
- Identify the need for further (e.g. protected species) surveys;
- Assess any potential adverse impacts of the proposed development on ecological features of the site or nearby designated sites;
- Make recommendations for mitigation (if required); and
- Identify opportunities for biodiversity enhancements and net gains.

This report will be used to develop the proposals and to form the basis for the submission of biodiversity information to the Local Planning Authority (LPA). It reflects the site at the time of the survey and should be reviewed and revised as appropriate.

1.2 SITE LOCATION AND DESCRIPTION

The application site (Figure 1) is located off Stoke Road, Lower Layham and comprises a redbrick tractor store/workshop with a corrugated cement-asbestos roof (Photos 1 to 3). A driveway, area of hardstanding and a rubble pile exists to the north of barn (Photo 4) with a managed lawn and broadleaved trees to the west (Photo 5). Ruderal vegetation has developed on land to the east and south of the barn (Photo 6). Gappy section of hedgerow (Photo 7) exists where a new road access is proposed, with some intact sections (Photo 8) to the north and south including some more recent planting (e.g. c. 10 years).

A small watercourse (Photo 9) exists between the barn and Stoke Road. To the west of the site is a traditional orchard with numerous veteran cherry (*Prunus sp*) trees and some other fruit trees.

Photos of the building and its surrounds are provided in Appendix A1.

2 Planning policy and legislation

2.1 INTRODUCTION

This chapter summarises the key legislation and policies relevant to assessing the biodiversity impacts of the scheme upon habitats and species.

2.2 PLANNING POLICY

2.2.1 National Planning Policy Framework (NPFF)

The National Planning Policy Framework was originally published in 2012 and most recently revised in July 2021. The document sets out the Government's planning policies for England and provides guidance on how these policies are expected to be applied. It provides a framework for, and must be taken account of within, locally prepared plans for housing and other development, and is a material consideration in planning decisions.

An overarching objective of the NPPF, which aims to integrate and secure net gains, is to contribute to protecting and enhancing the natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

The full NPPF is available to view online using the gov.uk website: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf . Policies of particular relevance to development and biodiversity include 174, 180, 181 and 182.

174. Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

180. When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
b) development on land within or outside a Site of Special Scientific Interest (SSSI), and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of SSSI;
c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

181. The following should be given the same protection as habitats sites:

a) potential Special Protection Areas and possible Special Areas of Conservation;
b) listed or proposed Ramsar sites; and
c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

182. The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects) unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

2.2.2 *Local Plan*

Adopted local plans provide the framework for development across England, and include policies related to conserving and enhancing the natural environment. Existing planning policies and supporting documents used to plan, deliver, and monitor development across the Babergh District Council area can be found at:

https://www.midsuffolk.gov.uk/planning/planning-policy/adopted-documents/babergh-district-council/babergh-local-plan/

2.3 LEGISLATION

2.3.1 *Natural Environment and Rural Communities (NERC) Act 2006*

Section 40 places a duty on every public body in exercising its functions, to have regard to the purpose of conserving biodiversity; this includes restoring or enhancing populations or habitats. A key purpose of this duty is to embed consideration of biodiversity as an integral part of policy and public-sector decision making. S*pecies and*

habitats of principal importance in this respect are those published under Section 41 ("S. 41") of the NERC Act 2006.

2.3.2 *Wildlife and Countryside Act 1981 (as amended)*

Rare and scarce habitats and species are afforded varying levels of protection under the Wildlife and Countryside Act 1981 (as amended) (hereafter "WCA 1981"). Some species and groups are afforded full protection (e.g. Schedule 1 bird species, bats), whilst others receive partial protection (e.g. widespread reptiles). Section 3.1 provides further detail relevant to this scheme. Species afforded legal protection are referred to by their relevant schedule ("Sch.") within the act, i.e. "Sch. 1" (birds), "Sch. 5" (other animals), or "Sch. 8" (plants).

Invasive plant species such as Japanese knotweed (*Fallopia japonica*) and giant hogweed (*Heracleum mantegazzanium*) are listed on Schedule 9 of the WCA 1981. It is an offence to plant or otherwise cause these species to grow in the wild and this includes the development of sites such that the plant colonises land owned by a third party.

2.3.3 *The Countryside and Rights of Way (CROW) Act 2000*

The CROW Act 2000 strengthened and updated elements of the WCA 1981, and gave a statutory basis to biodiversity conservation, requiring government departments to have regard for biodiversity in carrying out its functions and to take positive steps to further the conservation of listed habitats and species. It strengthened the protection of SSSI and threatened species. Many of its provisions have been incorporated as amendments into the WCA 1981 and some have been superseded by the NERC Act 2006.

2.3.4 *The Conservation of Habitats and Species Regulations 2017*

The Conservation of Habitat and Species Regulations 2017 (as amended) transposed the land and marine aspects of the Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC) into UK law. They have been recently amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019, which continue the same provision for European Protected Species, licensing requirements, and protected areas (National Site Network) after Brexit.

Under the Regulations, competent authorities i.e. any Minister, government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the Regulations.

2.3.5 *Protection of Badgers Act 1992*

The Protection of Badgers Act 1992 (hereafter "PBA 1992") consolidates and improves upon the previous Badgers Act 1973, Badgers Act 1991, and Badgers (Further Protection) Act 1991. Under the PBA 1992 (except when holding a licence to do so) it is illegal for a person to wilfully; kill, injure, take, posses, sell, or otherwise cruelly treat a badger. It is also illegal to dig out, damage, destroy, or obstruct entry to setts (including by use of dog(s)). Further information on offences, exceptions, and penalties are listed on the PBA 1992 on legislation.gov.uk.

3 Methodology

3.1 INTRODUCTION

This report has been produced with reference to relevant guidance, most notably:

- Guidelines for Ecological Report Writing (CIEEM, 2017);
- Biodiversity – Code of Practice for Planning and Development (BS 42020:2013[1]);
- Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018); and
- Biodiversity Net Gain: good practise principles for development (CIRIA, CIEEM and IEMA, 2016).

The following sections summarise the approaches used to review existing data, and to undertake appropriate field surveys to scope and inform an Ecological Impact Assessment (EcIA) for the scheme. Where further surveys are considered necessary, this is identified in section 5.

3.2 DESK SURVEY

The following data sources were consulted to assess the potential for the application site to support protected or notable habitats/species:

- Aerial photos, Ordnance Survey maps, Natural England (NE) open source data, and the MAGIC website (http://magic.defra.gov.uk/): These were used to identify habitat types including priority habitats, suitability for particular species/groups, and the locality of nationally and internationally designated sites; and
- Historical biological records: species and locally designated site records within 2km of the site were previously provided by the Suffolk Biodiversity Information Service (SBIS).

From this exercise, it was concluded that the following legally protected species/groups may be present on the site and/or land immediately adjacent to it:

- Amphibians including great crested newts (GCN) (*Triturus cristatus*)[2] and reptiles such as grass snake (*Natrix helvetica*)[3];
- Mammals including badgers (*Meles meles*) [4] , hazel dormice (*Muscardinus avellanarius*)[2], water vole (*Arvicola amphibius*) and bats[2];
- Breeding birds[5] including Red and Amber Status[6] species; and
- S. 41[7] list habitats such as hedgerows, and species such as hedgehog (*Erinaceus europaeus*).

In the context of the setting and nature of the development, the 'zone of influence' of the scheme is considered restricted to habitats on the site and species within 100m of the site boundary unless stated otherwise.

[1] BSI Standards publication BS 42020:2013 Biodiversity – Code of practice for planning and development.
[2] GCNs, hazel dormice and all species of bats receive full protection under the WCA 1981 and Habitats Regulations 2017.
[3] Widespread reptiles and amphibians receive partial protection under the WCA 1981.
[4] Badgers and their setts are afforded protection by the PBA 1992.
[5] All wild birds, their nests and eggs are protected under the WCA 1981 (as amended), level of protection varies per species.
[6] The conservation statuses of UK bird species are listed within the Birds of Conservation Concern 4 (Eaton *et al*., 2015).
[7] S. 41 of the NERC Act 2006 lists 'habitats and species which are of principal importance for the conservation of biodiversity in England'.

3.3 FIELD SURVEY

An initial site walkover was undertaken on the 30 June 2021 with a further site walkover on the 7 December 2022 to 1) record habitats present, and 2) assess the value of the habitats present for protected and notable species.

A list of vascular plants and a description of the vegetation was made, including the location and extent of any Schedule 9 (WCA 1981) plants. Photos of the habitats present, and any field signs are provided in Appendix A1.

3.3.1 Habitats and vascular plants

The site was walked with all distinct vegetation and habitat types, and any features of interest identified. Care was taken to record as many species as possible.

3.3.2 Amphibians and reptiles

a) Amphibians

The terrestrial habitat suitability of the site was assessed with respect to refugia, and foraging habitat based on the known habitat preferences of GCNs and widespread amphibians such as common frog (*Rana temporaria*), smooth newt *(Lissotriton vulgaris*) and common toad (*Bufo bufo*).

b) Reptiles

Habitats on and around the application site were assessed with respect to the known foraging and refuge habitat preferences of widespread reptile species.

3.3.3 Bats

a) Preliminary Roost Assessment

The building was assessed with regards its suitability for supporting roosting bats with reference to the NE Bat Mitigation Guidelines (Mitchell-Jones, 2004) and the Bat Conservation Trust (BCT) "Bat Surveys: Good Practice Guidelines, 3rd edition" (Collins, 2016).

b) Foraging and commuting habitat

Consideration is given to the value of any potential foraging and commuting habitats (i.e. hedgerows, trees, ponds) on or adjacent to the application site (Collins, 2016).

3.3.4 Nesting birds

The value of the building was assessed in relation to nesting birds. This was supplemented with field records of birds seen or heard within the site, or nests observed. Birds within the adjacent woodland were also recorded.

3.3.5 Badger

The application site and adjacent habitats were surveyed for evidence of badger activity including setts, day beds, latrines, diggings/snuffle holes, paths/runs, scratching posts, hair, and footprints. Any potential sett found was then assessed for evidence of recent use by badger and classified as per current guidance (Scottish Badgers, 2018).

3.3.6 Hazel dormice

The potential of the site for hazel dormice was assessed based on the habitats present and the habitat preferences of the species.

3.3.7 *Water vole*

The watercourse and adjacent habitat was assessed with regards to its suitability for water vole including the presence of burrows, latrines, feeding remains, lawn, and pathways.

3.3.8 *S.41 list habitats and species*

The site was surveyed to determine the presence of any S. 41 habitats and site's suitability for S. 41 list species such as hedgehog was assessed based on their habitat preferences.

3.3.9 *Non-native invasive plant species*

The site was inspected for Schedule 9 species such as Japanese knotweed and giant hogweed.

3.4 SURVEY CONSTRAINTS

Given the nature of the site and the restricted footprint of the proposals, the timing of the survey visit was considered appropriate for this report.

3.5 SURVEYORS

The site assessment was undertaken by Christian Whiting BSc (Hons) MSc MCIEEM MEECW who has over 20 years' experience working as an ecologist. He holds Natural England (NE) survey licences for bats (2015-14745-CLS-CLS - Bat Survey Level 2, barn owl (CL29/00213), and great crested newts (Class A licence 2015-17633-CLS-CLS). He is a Registered Consultant (Registration RC089) on NE's Bat Low Impact Class Licence. He is an agent under the Environment Agency's and IDB water vole organisational and class licences respectively. His main areas of expertise are bats, vascular plants, amphibians and reptiles, otter (Lutra lutra) and water vole.

3.6 ASSESSMENT

Impacts and effects upon habitats and species are assessed with reference to the CIEEM Guidelines for Ecological Impact Assessment (2018) and are reported in Section 5, based on the baseline conditions reported in Section 4.

The assessment includes potential impacts upon habitats and species during the construction and operational phases of the scheme. It considers positive and negative impacts, their extent, magnitude and duration, frequency and timing, and reversibility.

4 Results

4.1 INTRODUCTION

This chapter summarises the results of the desk and field surveys.

4.2 BASELINE ECOLOGICAL CONDITIONS - DESK STUDY

4.2.1 Designated sites

Any locally designated sites such as Local Nature Reserves (LNR) located within 2km, nationally designated sites within 5km and internationally designated sites within 13km of the application site are listed in Table 4.1.

Table 4.1 Relevant designated sites

Site name	Site designation
Railway Walk, Hadleigh	LNR
Layham Grove	CWS
Layham Pit Woodland and Meadow	CWS
River Bett (sections)	CWS
Snakes Wood	CWS
Valley Farm Wood	CWS
Roadside Nature Reserve 202	RNR
Hintlesham Woods	SSSI
Stour and Orwell Estuaries	SPA/Ramsar

Locally designated sites

One Local Nature Reserve, 5 County Wildlife Sites and one Roadside Nature Reserve (RNR) which are located within 2km of the proposed development site are listed below.

Railway Walk Hadleigh LNR is a 11.6ha stretch of the former Hadleigh Railway, which is owned and managed by Babergh District Council. Most of the walk is bordered by trees, either on raised banks or on downward slopes, and the surrounding landscape is a patchwork of fields, copses and hedgerows. Towards Raydon the path cuts through a small area of light woodland, where badgers and deer can be seen.

Layham Grove CWS is an ancient woodland of medieval origins. The site is partly bordered by a wood bank and ditch and comprises three main stand types; these are small-leaved lime (*Tilia cordata*) coppice with hornbeam (*Carpinus betulus*) and wild cherry (*Prunus avium*) in the northern and eastern compartments; elm (*Ulmus* sp.) coppice with oak (*Quercus robur*) standards in the central compartment and replanted deciduous species in the western compartment. The site supports a ground flora typical of ancient woodland sites whilst a deep pond in the north-west corner provides further structural diversity. Notable species recorded at the site include nightingale (*Luscinia megarhynchos*) and the hazel dormouse (*Muscardinus avellanarius*).

Layham Pit Woodland and Meadow CWS is an active aggregate pit with ongoing consent for extraction, infilling and restoration to agricultural land. The site supports a mosaic of habitats including large open areas, ruderal vegetation, and sand martin (*Riparia riparia*) cliffs. The centre of the site is undisturbed and carries a tributary to the river Brett with areas of semi-natural woodland, scrub and spring-fed, unimproved wet

grassland/fen meadow present. These habitats are important for a wide range of invertebrates, amphibians, reptiles, and breeding birds such as nightingale.

River Bett (sections) CWS comprises 5 sections of the watercourse which area notable for being of particular importance for aquatic wildlife. These sections support an abundant and diverse wetland flora, including rare species such as river water-dropwort (*Oenanthe fluviatilis*).

Snakes Wood CWS is one of several ancient woodlands situated within the bounds of Gifford's Hall Estate. However, it is the only one of these sites located within 2km of the proposed development site. Snakes Wood is located on a slope adjacent to the River Bett. The upper slope is dominated by ash (*Fraxinus excelsior*) with a belt of alder-carr woodland running parallel to the river and ancient elm pollards and patches of small-leaved lime in drier areas. The wood supports a diverse avifauna and several scarce plants including opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*).

Valley Farm Wood CWS contains areas of woodland of differing ages, including an area of ancient woodland in the northern compartment. The site has both dry and wetter areas and includes a man-made lake, which has been stocked with fish and is leased to Hadleigh Fishing Club. The habitats present support a range of species, particularly invertebrates, nesting birds and hazel dormice, which have been recorded in the woodland and surrounding hedges. The surrounding hedges were incorporated into the site boundary in 1999 to benefit dormice.

RNR 202 is notable for supporting the nationally scare herb lesser calamint (*Calamintha nepeta*).

Given the nature and limited scale of the development no significant impacts upon the ecological features of the locally designated sites are anticipated.

Nationally designated sites

Hintlesham Woods SSSI comprises three woodlands, Hintlesham Great Wood, Ramsey Wood and Wolves Wood, which together form one of the largest remaining areas of ancient coppice-with-standards woodland in Suffolk. Historical and archaeological evidence show the woods to have been in existence at least since the 12th century. Wolves Wood is managed by the RSPB.

The woods contain a variety of tree communities and a diverse ground flora, with notable species found in the woods including the uncommon wild service tree (*Sorbus torminalis*), and plants such as bird's-nest orchid (*Neottia nidus-avis*), wood spurge (*Euphorbia amygdaloides*) and violet helleborine (*Epipactis purpurata*). The woods also support breeding populations of woodcock (*Scolopax rusticola*), nightingale (*Luscinia megarhynchos*), tawny owl (*Strix aluco*), nuthatch (*Sitta europaea*) and whitethroat (*Curruca communis*).

The site falls within a SSSI Impact Risk Zone though does not fall under any listed risk criteria. No significant impacts are anticipated as a result of the proposed scheme.

Internationally designated sites

The Stour and Orwell Estuaries SPA and Ramsar sites comprise a large Internationally important network of estuaries and coastal habitats which qualify for important populations of overwintering birds including hen harrier (*Circus cyaneus*), redshank (*Tringa totanus*) and black-tailed godwit (*Limosa limosa islandica*) amongst other species. The number of overwintering waterfowl present has been estimated to number over 65,000 birds.

Where a development or project may, alone or in combination, have a 'likely significant effect' upon the features of the Natura 2000 or Ramsar site, the Habitats Regulations 2017 require a Habitats Regulations Assessment (HRA) to be undertaken.

Advice from Natural England has preciously suggested increased housing located within 1km by foot and 13km by car of Natura 2000 sites may potentially cause disturbance to the interest features due to walkers (and dogs). Disturbance to bird species that breed and/or overwinter within the sites is considered to cause the greatest impact.

HRAs are undertaken by a "competent authority" (CA), which in the case of Local Plans and most planning applications is the LPA. Within Suffolk, Ipswich Borough Council in partnership with the neighbouring authorities Babergh and East Suffolk have developed a 'Recreational Avoidance and Mitigation Strategy' (RAMS) to address likely significant effects upon Natura 2000 sites resulting from development within the area.

Financial contributions towards the RAMS will normally be the LPA's preferred mechanism for securing mitigation, and no further assessment will be made within this document.

4.2.2 *Priority habitats*

Assessment of the Magic Map database shows a traditional orchard (Photo 9) located immediately west of the application site and separate areas of deciduous woodland (broadleaved) located c.10m east and c.10m south of the application site, respectively.

4.2.3 *Species*

No protected or notable species records exist for within the application site boundary. Table 4.2 identifies species records for within 2km and 100m (**in bold**) of the application site boundary.

Table 4.2 Protected/notable species within 2km of the site (SBIS)

Scientific name	Common name	Legal /conservation status
Amphibians and reptiles		
Anguis fragilis	Slow worm	Sch. 5; S. 41
Natrix helvetica	Grass snake	Sch. 5; S. 41
Triturus cristatus	Great crested newt	EPS; Sch. 5; S. 41
Bats		
Eptesicus serotinus	Serotine	EPS; Sch. 5
Myotis nattereri	Natterer's	EPS; Sch. 5
Nyctalus leisleri	Leisler's	EPS; Sch. 5
Plecotus auritus	Brown long-eared	EPS, Sch. 5, S. 41
Pipistrellus pipistrellus	Common pipistrelle	EPS; Sch. 5

P. pygmaeus	Soprano pipistrelle	EPS; Sch. 5; S. 41
Birds		
Apus apus	Swift	Amber Status
Delichon urbicum	House martin	Amber Status
Emberiza citrinella	Yellowhammer	Red Status; S. 41
Falco tinnunculus	Kestrel	Amber Status
Linaria cannabina	Linnet	Red Status; S. 41
Luscinia megarhynchos	Nightingale	Red Status
Muscicapa striata	Spotted flycatcher	Red Status; S. 41
Passer domesticus	House sparrow	Red Status; S. 41
Prunella vulgaris	Dunnock	Amber Status; S. 41
Pyrrhula pyrrhula	Bullfinch	Amber Status; S. 41
Streptopelia turtur	Turtle dove	Red Status; S. 41
Sturnus vulgaris	Starling	Red Status; S. 41
Turdus philomelos	**Song thrush**	**Red Status; S. 41**
Tyto alba	Barn owl	Sch. 1
Other mammals		
Arvicola amphibius	Water vole	Sch. 5; S. 41
Lepus europaeus	Brown hare	S. 41
Lutra lutra	Otter	EPS; Sch. 5; S. 41
Erinaceus europaeus	Hedgehog	S. 41
Meles meles	Badger	PBA
Micromys minutus	Harvest mouse	S. 41
Muscardinus avellanarius	Hazel dormouse	EPS; Sch. 5; S. 41
Mustela putorius	Polecat	S. 41
Invertebrates		
Limenitis camilla	White admiral	RLENG.VU; S. 41
Lucanus cervus	**Stag beetle**	**Sch. 5; S. 41**
Satyrium w-album	White letter hairstreak	RLGB.EN; Sch. 5; S.41
Valvata macrostoma	Large-mouthed Valve Snail	S. 41

4.2.5 *Additional species records*

Assessment of Natural England's recent Class Licence return data and eDNA records show the closest record to be located c. 2.9km -east of the application site (dated 2019), which is outside the normal dispersal range of the species.

4.3 BASELINE ECOLOGICAL CONDITIONS – FIELD SURVEY

4.3.1 *Habitats and vascular plants*

Descriptions of the habitats and the characteristic plants species present are provided below. Photos are provided in Appendix A1.

a) Built environment

The existing barn is a tractor store/workshop with redbrick walls and a corrugated cement-asbestos roof (Photos 1 to 3). Small areas of horizontal timber cladding are present around the windows on the south and north elevations. Land immediately north of the barn comprises hard standing, a rubble pile, and an unsurfaced access track (Photo 4) which opens on to Stoke Road to the east of the site.

b) Managed lawn

An area of periodically mown species-poor lawn exists to the west of the barn (Photo 5). The lawn supports low numbers of broadleaved grasses and common forbs with no rare or notable plants present.

c) Broadleaved trees and hedgerow

An established native mixed species hedgerow H1 (Photo 5) with some broadleaved trees exists along the western site boundary and includes elder (*Sambucus nigra*), field maple (*Acer campestre*), oak (*Quercus robur*), sweet chestnut (*Castanea sativa*), hazel (*Corylus avellana*), walnut (*Juglans regia*) and blackthorn (*Prunus spinosa*)

An established (e.g., >50 years) native hedgerow H2 with trees exists along the roadside boundary and includes hawthorn (*Crataegus monogyna*), elder, field maple and elm (*Ulmus sp*) with some gaps present (Photo 7). At the northern end a more recent planted hedgerow H3 (Photo 8) exists which supports hazel, field maple, hawthorn, and plum (*Prunus sp*).

Areas of willow (*Salix sp*) scrub and alders (*Alnus glutinosa*) exist adjacent to the watercourse, mostly to the south of the proposed road access.

d) Ruderal vegetation and wildflower meadow

Ruderal vegetation and damp grassy areas that have been sown with a wildflower seed mix (owner *pers. comm*.) exist to the east of the barn and along the edge of the watercourse (Photo 6). Yorkshire fog (*Holcus lanatus*) and false oatgrass (*Arrhenatherum elatius*) were the dominant grasses with common nettle (*Urtica dioica*), marsh thistle (*Cirsium palustre*), bulbous buttercup (*Ranunculus bulbosus*) the dominant forbs. Common knapweed (*Centaurea nigra*) and oxeye daisy (*Leucanthemum vulgare*) are frequent along with bird's-foot trefoil (*Lotus corniculatus*).

e) Orchard

A traditional orchard exists immediately west of the application site comprising several veteran cherries along with nut trees and other fruit trees.

4.3.2 *Amphibians and reptiles*

a) Amphibians

The barn and hard standing are generally unsuitable terrestrial habitat for amphibians, though land immediately adjacent offers areas of suitable foraging habitat (e.g., lawn and ruderal vegetation) and animals could seek refuge within rubble and compost piles scattered around the edge of the barn. Habitats in the wider locality, such as the watercourse, orchard and woodland areas to the south and west, offer further refuge, foraging and dispersal opportunities.

A single pond is located within 250m of the site (Figure 1) to the north-west which suggests that only low numbers of more terrestrial species such as common toad (*Bufo bufo*) may be present or occasionally disperse through the site.

b) Reptiles

As above. The adjacent watercourse and damp grassy/ruderal areas support good hunting/foraging habitat for grass snake, which may also seek refuge within compost piles. Other common reptiles, such as common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*), generally require more structurally diverse habitats for significant resident populations to exist and as such are likely to be absent from the site.

4.3.3 *Bats*

a) Preliminary Roost Assessment

No evidence of roosting bats was found in the barn with limited potential roosting niches present. Low numbers/individual bats could potentially roost behind warped cladding around the windows though no evidence of roosting was found in these locations (e.g. droppings and staining) that would indicate current use by roosting bats.

b) Commuting and foraging habitat

The application site hedgerows and areas of scrub, rough grassland and the watercourse provides high value bat commuting and foraging habitats (Collins, 2016) which are well connected to linear features in the wider landscape.

4.3.4 *Nesting birds*

No evidence of nesting/roosting barn owl (*Tyto* alba) (WCA1i) or kestrel (*Falco tinnunculus*) (Amber Status) was found in the barn during either of the inspections. The barn could potentially support nesting small passerines, including swallows (*Hirundo rustica*), and/or wood pigeons (*Columba palumbus*) and stock doves (*Columba oenas*), An old wren (*Troglodytes troglodytes*) nest was present (Photo 10) in dense ivy that has died, with some dense ivy on the exterior of the building providing potential nesting and roosting habitat.

Nightingale have been heard singing within an area of willow scrub along the watercourse to the south of the application site (Owner *pers comm*.).

Adjacent habitats, such as broadleaved trees and shrubs, areas of ruderal vegetation damp grassland and lawn, will provide nesting, song perch and foraging habitat for a range of common garden birds including dunnock (*Prunella modularis*), song thrush (*Turdus philomelos*) and blackbird (*T. merula*). The orchard provides habitat for species such as bullfinch (*Pyrrhula pyrrhula*) (Amber status). Duck such as mallard (*Anas platyrhynchos*) (Amber status) may nest by the watercourse.

4.3.5 *Badger*

No evidence of badger (e.g. snuffle holes, runs, latrines, setts) were found on or adjacent to the site.

4.3.6 *Hazel dormice*

The roadside hedgerow includes some mature hazel as well as other species which might be used by dormice for foraging but it is very gappy in places. The proposed location for the road access off Stoke Road has large gaps and is not considered suitable for hazel dormice.

4.3.7 *Water vole*

No evidence of water vole was found in the minor watercourse that flows through the site.

4.3.8 *S. 41 Habitats and Species*

a) Species

Habitats adjacent to the barn offer some potential foraging and refuge opportunities for hedgehogs and could support S. 41 invertebrates such as Lepidoptera and potentially stag beetle (*Lucanus cervus*); records for the latter exist for within 50m of the site

boundary. No deadwood was noted along the route of the proposed road access but a dead tree exists where the new access is which could potentially support stag beetle.

b) Habitats

The intact hedgerow H3 to the west of the barn meets the qualifying criteria for a S. 41 hedgerow habitats. The roadside hedgerow H1 is gappy where the new road access is proposed and therefore does not meet the qualifying criteria. The orchard to the west meets the qualifying criteria for a S. 41 traditional orchard habitat.

The watercourse is not considered to meet the qualifying criteria for a S. 41 river habitat.

4.3.9 *Non-native invasive plants*

No non-native invasive species were recorded within the application site boundary.

4.4 GEOGRAPHIC CONTEXT

The geographic context of a feature is a useful consideration within an assessment of impacts. For this report, the geographic frames of reference for the habitats and species present on site are provided in Table 4.3; values are based upon the criteria in Table A2.1 and expert best judgements.

Table 4.3 Feature value based on geographic context

Feature	Value
Lawn, ruderal vegetation, broadleaved trees and watercourse	Local
Amphibians and reptiles	Local
Bats	Local
Nesting birds	Local
S. 41 habitats and species	Local

5 Assessment and recommendations

5.1 INTRODUCTION

The following section provides a summary description of the proposed development, with an assessment of associated impacts and likely significant effects upon biodiversity.

The assessment and recommendations are based on use of the mitigation hierarchy, which in the first instance aims to avoid impacts. Where impacts cannot be avoided, they should be minimised (through mitigation). Only where impacts cannot be avoided or minimised should there be compensation for biodiversity harm.

Ecological enhancements are suggested, and consideration is given to individual as well as overall net gains or losses of biodiversity.

5.2 DESCRIPTION OF PROPOSED DEVELOPMENT

The demolition of the barn and construction of a new dwelling, garage and access drive will result in localised disturbance/loss of mostly habitats of relatively low biodiversity value present within the red line boundary, as well as the temporary site compound (if required). The proposed road access will require the felling of a small number of woody shrubs along the roadside frontage and cutting back of hedgerows to create the required visibility splay. The watercourse crossing will have a temporary impact on the watercourse with disturbance of banks having the potential to result in pollution of the as a result of suspended solids and potential fuel oil spills.

The assessment and recommendations below provide preliminary recommendations for mitigation, compensation, and enhancements for the proposed development. They are based on drawings provided by Roger Balmer Design and information available at the time of writing and should be updated accordingly if the scheme is subsequently amended.

5.3 FURTHER SURVEYS REQUIRED

It is generally advised that subject to no significant change in site management regimes, and dependent on the species present, baseline survey results remain valid for approximately 12 – 18 months (CIEEM, 2019). Exceptions include where mobile species are/may be present, where site management practices cease or change, or where existing guidance indicates otherwise.

Existing management regimes should be maintained on the site prior to works commencing.

5.4 ASSESSMENT OF IMPACTS

The EcIA assessment process (CIEEM, 2018) involves:

- Identifying and characterising impacts and their effects;
- Incorporating measures to avoid and mitigate negative impacts and effects;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects; and
- Identifying opportunities for ecological enhancement.

The emphasis in EcIA is on the assessment of 'significant effects' i.e. an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. In broad terms significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species including extent, abundance, and distribution.

The ecological features to be subject to detailed assessment in this report are those judged to be important and potentially affected by the project; protected species are included where the development will result in a potential breach of legislation.

5.5 HABITATS AND VASCULAR PLANTS

a) Potential impacts

The proposed road access will result in the permanent removal of a small number of roadside woody shrubs (gappy hedgerow) and the permanent loss of grassland and ruderal habitat along its route. Sections of the roadside hedgerow will require cutting back and management in the long-term to maintain a suitable visibility splay for road safety purposes.

Building works also have the potential to disturb retained habitats with some permanent localised loss of some small areas of managed lawn and ruderal vegetation around the edge of the building and adjacent car parking area. These effects combined are likely to be a significant negative effect at the local level.

The construction phase has the potential to damage the adjacent watercourse through accidental pollution and siltation (particularly the construction of the bridge or culverted crossing) whilst inadequate sewerage facilities could also impact water quality of the watercourse during the operational phase. Such impacts would have a significant negative effect at the local level.

b) Mitigation

Vegetation clearance should be undertaken only within the application site boundary, as per the detailed guidance in section 5.6. Retained adjacent habitats (e.g. hedgerows, trees, scrub, wildflower grassland and ruderal habitat, and watercourse) should be protected from damage with temporary fencing (e.g. Heras or similar) fencing during the construction phase.

The builder's compound (if required) should be sited on the gravel driveway and off grassed areas.

During construction works, straw bales should be placed along the edge of the watercourse; a geotextile can be weighed down e.g. with sand bags to further limit siltation impacts upon the waterbody. A contractor Risk Assessment Method Statement (RAMS) should be developed ahead of works commencing to ensure Good Practice measures are used to avoid and/or minimise the risk of pollution. Measures may include, but are not exclusive to:

- Locating any site compounds (including any fuel storage) away from the watercourse;
- Limiting topsoil removal as required and covering topsoil whilst stockpiled;
- Cleaning machinery in designated areas with a sump and re-using waste water where possible or discharging via a sewer or tanker only;

- Storing chemical and fuels securely within double-bunded bowsers or chemical stores (with a 110% capacity to contain any spillage) away from the watercourse;
- Using water based, non-toxic and biodegradable chemicals and fuels where possible;
- Mixing and washing chemicals and associated equipment in designated areas with waste water safely disposed of via mains sewerage or tanker as appropriate;
- Use of biodegradable hydraulic and fuel oils;
- Having adequate site security in place; regularly checking equipment for failures and/or leaks; and
- Keeping spill kits and booms present on the site and ensuring staff are trained in their use.

Further information is available via the Guidance for Pollution Prevention - Works and maintenance in or near water: GPP 5 January 2017 document, produced by Natural Resources Wales (NRW), the Northern Ireland Environment Agency (NIEA) and the Scottish Environment Protection Agency (SEPA)[8].

c) Residual effects

There will be a significant residual effect as a result of the loss of the grassland and ruderal habitat along the route of the proposed road access required compensation.

5.6 AMPHIBIANS AND REPTILES

a) Potential impacts

The removal of longer grassland and ruderal vegetation, as well as ground-breaking and construction activities (e.g. sewerage and surface water drainage runs), could result in potential entrapment, injury and mortality of amphibians and reptiles whilst animals could also be harmed due to contact with caustic substances such as wet concrete.

Animals seeking refuge within stored building materials and existing rubble and compost piles could be harmed when these materials are moved.

Gully pots and silt pots used for site drainage could result in entrapment and ultimately death of animals (Muir, 2012).

The above impacts could have a significant negative effect on a small number of individuals at the local level.

b) Mitigation

To avoid impacts upon amphibians, including potentially GCNs, the following measures should be implemented:

1. Adjacent lawn/ruderal areas around the barn should be kept short with regular mowing prior to and during construction;
2. The poster in Appendix A4 should be erected in the welfare facilities provided for construction staff on site;
3. Clearance of any taller vegetation (if required) should be undertaken sensitively taking taller vegetation down to ground level using a 2-stage cut as follows:

[8] http://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf

- The first cut should be to no lower than 150mm above ground level with the arisings raked off and combined with any roadside woody shrubs that require clearance for the road access to create some composting/refuge heaps to the south of the proposed road access;
- The area should be left for a minimum of 1 hr to allow any animals to move and the second cut should be to just above ground level; and
- The arising should again be raked off and removed from site to prevent any wildlife seeking refuge.

4. Any existing refugia present that requires removal (e.g. rubble and compost piles) should be moved by hand during the period April to September inclusive;
5. Excavations should be filled on the same day they are dug or covered overnight with ply boarding and any gaps filled with damp sharp sand;
6. Refugia should be placed in areas of retained habitat to the south during the works and be monitored;
7. Should any GCNs (Appendix A4) be encountered, works should stop immediately, and advice be sought from a suitably experienced ecologist. Any common amphibians or reptiles should be allowed to move out of the works area, or safely relocated into areas of rough grassland/ruderal habitat to the south of the proposed works;
8. If this is not feasible access ramps should be created to allow animals to escape and the excavations should be inspected prior to infilling. Any animals (except for GCN) present should be moved into retained scrub or ruderal habitat;
9. Footings and concrete slabs should be poured during the morning where possible to ensure it has solidified prior to dusk to reduce the risk of animals coming into contact with wet concrete;
10. Any hand mixing of mortar or concrete should be away from the watercourse on ply boarding over a tarpaulin which is folded over the boarding at the end of each day to prevent animals coming into contact;
11. Any excess concrete should be poured into a concrete skip, so it can then set to prevent animals coming into contact. Concrete mixers and shovels, rakes, boots etc. must be cleaned off in a safe location whereby any washing will not enter the pond as per section 5.5;
12. All building materials and waste materials should be stored on hard standing/bare ground to the north of the barn or stored off the ground on pallets to reduce risk of animals seeking refuge;
13. **Surface water drainage should avoid the use of gully pots with silt traps as they can trap amphibians over time. Drainage structures which do not contain silt traps and discharge straight into a ditch or watercourse are safe to use;**
14. **If gully pots with silt traps are required, any installed gully pots should be situated ≥150mm from kerbs to maintain function while reducing the probability of animals falling in, or a gully pot ladder[9] should be placed into each gully pot; and**
15. **Any downpipes taking water off the roofs should be sealed at ground level by using a leaf and debris screen[10] to prevent amphibians becoming trapped.**

c) Residual effects

With mitigation implemented there will be no significant residual effects.

[9] https://www.thebhs.org/shop/the-bhs-amphibian-gully-pot-ladder
[10] https://www.drainagepipe.co.uk/leaf-and-debris-gully-110mm-p-D94G/

5.7 BATS

a) Potential impacts

i. Roosting bats

No impacts on existing roosts are anticipated.

ii. Light disturbance

Lighting during both construction and operational phases has the potential to impact bats as some species will actively avoid lit areas due to an increased risk of predation, whilst emergence times can be significantly delayed due to illumination of roost access/egress points which in turn impacts upon feeding success. Lighting impacts relate to security lighting external to the building, and potentially from light spillage resulting from internal lighting once the building is in use. In this instance, impacts on the adjacent hedgerow and orchard to the west and south of the barn, and the watercourse to the east are most relevant.

iii. Roofing membranes and bat entrapment

Research has shown bats can become entangled in modern breathable non-bitumen coated roofing membranes (NBCRM) roofing membranes such as Tyvek and other woven membranes if used under clay pantiles or peg/plain tiles or behind weatherboarding (Waring *et al.,* 2013).

b) Mitigation

i) Lighting

Lighting design should minimise lighting impacts upon adjacent habitats (e.g. willow scrub, hedgerow, watercourse and orchard) and should follow current guidance[11][12]:

Type of lamp (light source): Light levels should be as low as possible as required to fulfil the lighting need. Exterior lighting should have a maximum of 7.5 to 10 lux and LED lights should be used using the warm white (or amber) spectrum, with peak wavelengths >550nm (2700 or 3000°K) and no UV component; and

Lighting design: Lighting should be directed to where it is needed, with minimal horizontal spillage towards retained habitats (e.g. trees, orchard and watercourse). This can be achieved by restricting the height of the lighting columns/fixtures and the design of the luminaire, including the following measure:

- Light columns/fixtures in general should be as short/low as possible as light at a low level reduces the ecological impact.
- Luminaires with an upward light ratio of 0% should be mounted on the horizontal i.e. with no upward tilt.
- If taller lights are required, and as a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill; and
- PIR movement sensors and timers should be used to minimise the 'lit time' for all external lighting (up to 1 minute), which should be sited to minimise impacts upon the hedgerow.

ii) Wall linings and roof membranes

If weatherboarding is to be used on the walls, then breathable membranes could be used if no gaps >4mm exist between the cladding. Screwing the cladding in would help prevent warping or shiplap/tongue in groove cladding can be used to reduce the risk of warping. Cement fibre wood effect cladding can be used with a NBCRMs but only

[11] https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting
[12] www.eurobats.org/sites/default/files/documents/publications/publication_series/WEB_DIN_A4_EUROBATS_08_ENGL_NVK_28022019.pdf

certified (e.g., TLX Batsafe is the only NBCRM which has passed a snagging propensity test) membranes should be used under handmade or reclaimed pantiles or clay peg/plain tiles. Alternatively where gaps are >4mm between tiles or where soffits meet the walls; traditional Type 1F roofing felt or a breathable sarking board (e.g. Hunton Sarket or Pavatex Isolair) should be used instead.

c) Residual effects

With mitigation measures implemented, there will be negligible residual negative effects upon bats.

5.8 NESTING BIRDS

a) Potential impacts

Commencement of the demolition works and any removal of woody shrubs and dense vegetation by the watercourse (e.g. could impact ground nesting waterfowl) during the nesting season (March to August inclusive has the potential to result in the injury or death of nesting birds and damage to active nests and eggs. Accidental damage to retained habitats (e.g. broadleaved trees) by working machinery could also impact nesting birds. These impacts would constitute a significant negative effect (as an offence under wildlife legislation) at the local level.

b) Mitigation

Habitat avoidance and mitigation as per sections 5.5 and 5.6 with areas of willow scrub and alders left untouched.

Commencement of the demolition and vegetation clearance works should take place outside of the nesting bird season. If this is not feasible, a check for nesting birds should be undertaken prior to works starting. If any active nests are present, works within 5m must wait until the young have fledged.

c) Residual impact

No significant residual impacts expected.

5.9 HAZEL DORMICE

a) Potential impacts

The removal of woody shrubs and cutting back of the roadside hedgerows for the visibility splays for the proposed road access could potentially impact hazel dormice if they were present locally. Accidental damage to retained sections of intact hedgerow could also impact the species.

b) Mitigation

Habitat avoidance and mitigation as per sections 5.5 and 5.6 with retained hedgerows protected.

c) Residual impact

No significant residual impacts expected.

5.10 OTHER S. 41 LIST HABITATS AND SPECIES

a) Potential impacts

Vegetation clearance, ground-breaking and construction activities will result in a small permanent loss of foraging habitat for hedgehog, whilst the removal of a dead tree by the proposed road access could impact stag beetle larvae.

Hedgehogs could potentially fall into excavations or open trenches, come into contact with caustic materials, and take shelter in building materials/spoil heaps on site during the construction phase, resulting in injury or death.

Erection of ecological barriers (e.g. timber panel fencing) without gaps to allow hedgehog pass through or under would affect foraging access for animals. In combination such impacts would be considered to result in a negative ecological effect at the local level.

Accidental damage to retained hedgerows would be a significant negative effect at the local level, whist any pollution of the minor watercourse would have a significant negative effect at the local level and potentially downstream.

b) Mitigation

Habitat avoidance and mitigation as per section 5.5 and 5.6. Site clearance should always consider the potential presence of hedgehogs with vigilance. Animals encountered should be moved to suitable cover, e.g. base of trees along the western edge of the site or taller ruderal vegetation to the south of the barn.

During construction, concrete should be poured early in the day or covered with ply boarding or membrane overnight to prevent animals coming into contact. Trenches should be covered overnight, or mammal ladders (large rough planks placed at shallow angles) placed to allow animals escape. Uncovered trenches must be checked daily and any animals encountered be relocated out of the works area.

The use of close board fencing should be minimised, with native species-rich hedgerows preferable where boundary features are required. If close board fencing were to be installed, then at least one hedgehog highway[13] should be provided at either end of the fencing run with signage.[14]

Any dead trees/woody shrubs that require removal for the proposed road access should be used to create a stag beetle loggery prior to the removal of any root balls; any larvae encountered should be moved to the loggery into an area of damp woodchip/sawdust before being cover over with some compost and some logs/brash.

Pollution prevention measures as per section 5.5.

c) Residual effects

With prescribed avoidance and mitigation measures there will be no significant residual effect upon S. 41 list habitats and species.

5.11 COMPENSATION

Residual significant negative effects upon habitats and species related to the proposed development are mainly restricted to the loss of small areas of species-poor lawn, areas of wildflower grassland and ruderal vegetation, a short section of gappy hedgerow and some artificial refugia.

[13] https://www.hedgehogstreet.org/help-hedgehogs/link-your-garden/

[14] https://ptes.org/shop/just-in/hedgehog-highway/

New hedgerow planting to offset the short section to be cleared for the site access, whilst additional species should be planted along the retained roadside hedgerows with the following species recommended:

- Spindle (*Euonymus europaeus*)
- Guelder rose (*Viburnum opulus*)
- Holly (*Ilex aquifolium*)
- Crab apple (*Malus sylvestris*)
- Wild privet (*Ligustrum vulgare*)
- Hazel (*Corylus avellana*)
- Common dogwood (*Cornus sanguinea*)

The loss of an area of grassland and ruderal habitat along the route of the proposed road access should be compensated by the enhancing of the retained areas by the implementing of a suitable management regime as follows:

- Spring vegetation cut (not below 150mm to avoid impacts on amphibians and reptiles) to remove standing vegetation with the arisings removed for composting or adding to amphibian/reptile refugia;
- Pathways c. 1m wide to be mown to create a mix of taller herb/wildflower and short grassland with nectar rich low growing species such and bird's-foot trefoil;
- Localised control of some thistle, dock and all ragwort (*Senecio jacobaea*) through hand cutting to prevent seed production; and
- Autumn cut after wildflowers have set their seed with arisings removed.

The demolition of the barn will result in the permanent loss of potential bird nesting habitat which should be compensated through the erection of some sparrow terraces (x2) and/or open fronted robin/wren nest boxes x2(Appendix A5) on the north or west walls of the proposed garage or the new house.

A stag beetle loggery (Appendix A6) should be constructed from above ground trunks and boughs from trees/woody shrubs to be cleared for the proposed road access. Small boughs can be chipped and used to create a core for larvae to use.

5.12 CUMULATIVE EFFECTS

The Babergh District Council planning website was searched (21/12/22) within a 1km buffer of the application site for relevant applications dating back 2 years. Refused and withdrawn applications were excluded with regards to cumulative ecological effects. Any applications considered relevant are listed below.

- Permission was granted (DC/20/01290) for the erection of a replacement dwelling (following demolition of existing dwelling and outbuildings) at Beck Cottage, Overbury Hall Road, Layham. Bat activity surveys recorded no evidence of prior/current bat roosting in the building to be demolished with the ecologist reporting that there were *no significant ecological constraints that would prevent the proposed works* and subject to the implementation of suggested mitigation and enhancement measures, there would be a *net gain for biodiversity*.
- Permission was granted (DC/21/00760) for the erection of an agricultural building for storage of animal feed, bedding and machinery on land north of Partridge Cottage, Stoke Road, Lower Layham. An ecological appraisal report submitted with the application concluded that the site was of *limited ecological value*, *containing amenity lawn only* and therefore the proposal was unlikely to cause

significant negative effects to protected species and habitats, subject to the implementation of mitigation and enhancements measures.

- Permission was granted (DC/21/02930) to construct a cart lodge building and domestic annex accommodation at Dorian, Stoke Road, Layham. No ecology report was submitted with the application.
- DC/21/06064. Application for prior approval of a proposed: Change of use of Agricultural Building and any land within its curtilage to 1no. Dwellinghouse (C3) together with building operations reasonably necessary for conversion. Town and Country Planning (General Permitted Development)(England) Order 2015 as amended Schedule 2, Part 3, Class Q, Cherry Orchard Farm Stoke Road Layham Suffolk IP7 5RB. An ecology survey and report was prepared by MHE Consulting Ltd and submitted with the application.
- DC/22/02865. Full Planning Application - AMENDED WORDING: Erection of single-storey extension to form, Utility/Cloaks, Entrance Hall, Sitting/Dining Room and Home Office. Change of use of part former orchard to residential garden. | Bridge Barn Cherry Orchard Farm Stoke Road Layham IP7 5RB. An ecology survey and report was prepared by MHE Consulting Ltd and submitted with the application.
- DC/22/05951 Householder Application. Proposed ground and first extension and demolition of existing outbuildings. The Farmhouse Cherry Orchard Farm Stoke Road Layham Ipswich Suffolk IP7 5RB. No ecology report has been submitted even though extensions to a dwelling and demolition of outbuildings are proposed.

Due to the nature of the proposed development and low number of applications in the area, there is no indication that there will be any significant cumulative impact with the current application.

5.13 ENHANCEMENT OPPORTUNITIES

To minimise losses and maximise ecological enhancement opportunities, the following biodiversity enhancements will be implemented as part of the scheme (Table 5.1).

Table 5.1 Enhancement opportunities

Feature	Enhancement suggestion
Bats	1. Three artificial bat boxes (Appendix A7) could be mounted on local suitable trees and/or the new house or garage.
Birds	2. Swift boxes (minimum of 3 as they are colony breeders) could be incorporated within the northern elevation of the new dwelling and be positioned just below the eaves. The Cambridge Swift Nest Box System[15] are proven for use by swifts as well as being lightweight and cost effective. **Speaker systems must be installed as per recommended guidance [16] with material [17] and**

[15] https://www.wildcare.co.uk/cambridge-swift-nest-box-system-red-face-36772.html and https://www.wildcare.co.uk/cambridge-swift-nest-box-system-nesting-block.html

[16] https://www.swift-conservation.org/2016-08-23%20EquipmentListforusingtheMP3versionoftheSwiftCalls.pdf

[17] https://www.swift-conservation.org/Shopping!.html

Feature	Enhancement suggestion
	guidance to attract an initial colony[18] provided to the homeowner.
Reptiles	3. A grass snake egg laying heap (Appendix A8) could be created adjacent to the watercourse, using arisings generated during the vegetation clearance required for the road access.
Invertebrates	4. An additional stag beetle loggery/pyramid (Appendix A6) could be constructed (using suitable broadleaved logs – not conifers) and positioned in a shaded location near the hedgerow along the western site boundary. A recently fallen cherry tree by Bridge Farm could be used in part to create a loggery.

Peat based composts should not be used for any planting or landscaping in order to preserve existing carbon stores and avoid damage to sensitive habitats.

5.14 CONCLUSIONS

With the avoidance measures and enhancement strategies suggested, the scheme will minimise biodiversity impacts and provide some enhancements in in accordance with planning policy. Measures could be secured through appropriate planning conditions as per the British Standard (BS 42020:20131). These could include conditions specific to breeding birds (e.g. BS 42020:201 D.3.2.1), and/or a Biodiversity Method Statement (e.g. BS 42020:2013 D.2.1).

[18] https://swift-conservation.org/2014-06-21%20swiftcallsinstructions.pdf

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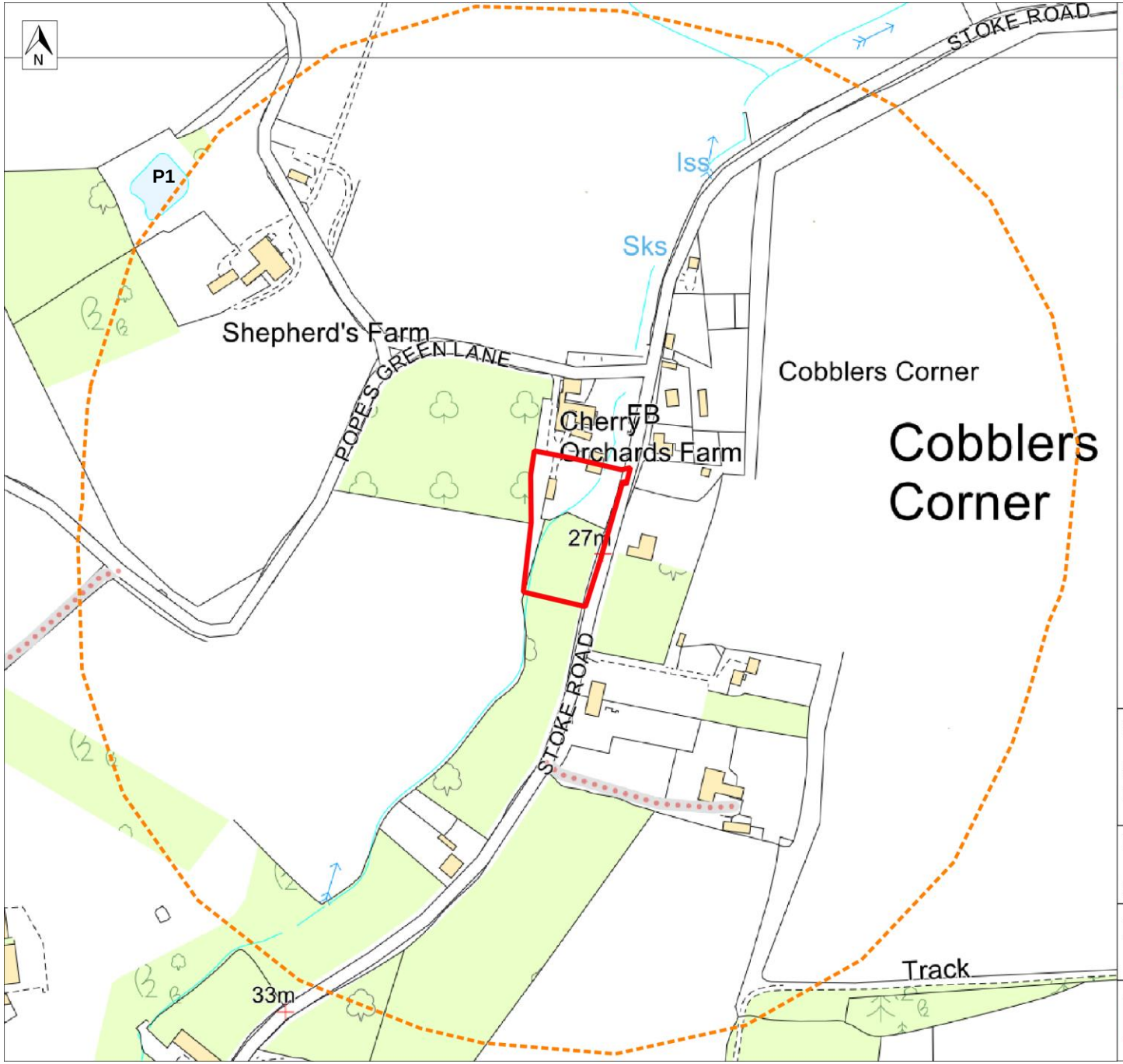
Figures



Legend

Survey area

0 50 100 150 m

Client: Mr C. Partridge

Project: Cherry Orchard Barn, Stoke Road, Lower Layham

Drawn:	Date:	Drawing Ref:
CW	21/12/22	CHERRYORCHARDBARN/001

Figure 1 Site location and ponds plan

MHECONSULTING
environmental consultants

Appendices

Appendix A1 Photos

Photo 1 North elevation of existing barn

Photo 2 South and east elevations of the existing barn

Photo 3 Internal view of existing barn

Photo 4 Existing access and rubble pile to the north of existing barn

Photo 5 Managed lawn, hedegrow and trees to the west of existing barn

Photo 6 Area of ruderal and wildflower meadow were the proposed driveway is to be located (red arrow)

Photo 7 Gaps in the roadside hedgerow where the driveway is proposed

Photo 8 Roadside hedgerow comprising established and more recent planting

Photo 9 Minor watercourse to east of the barn

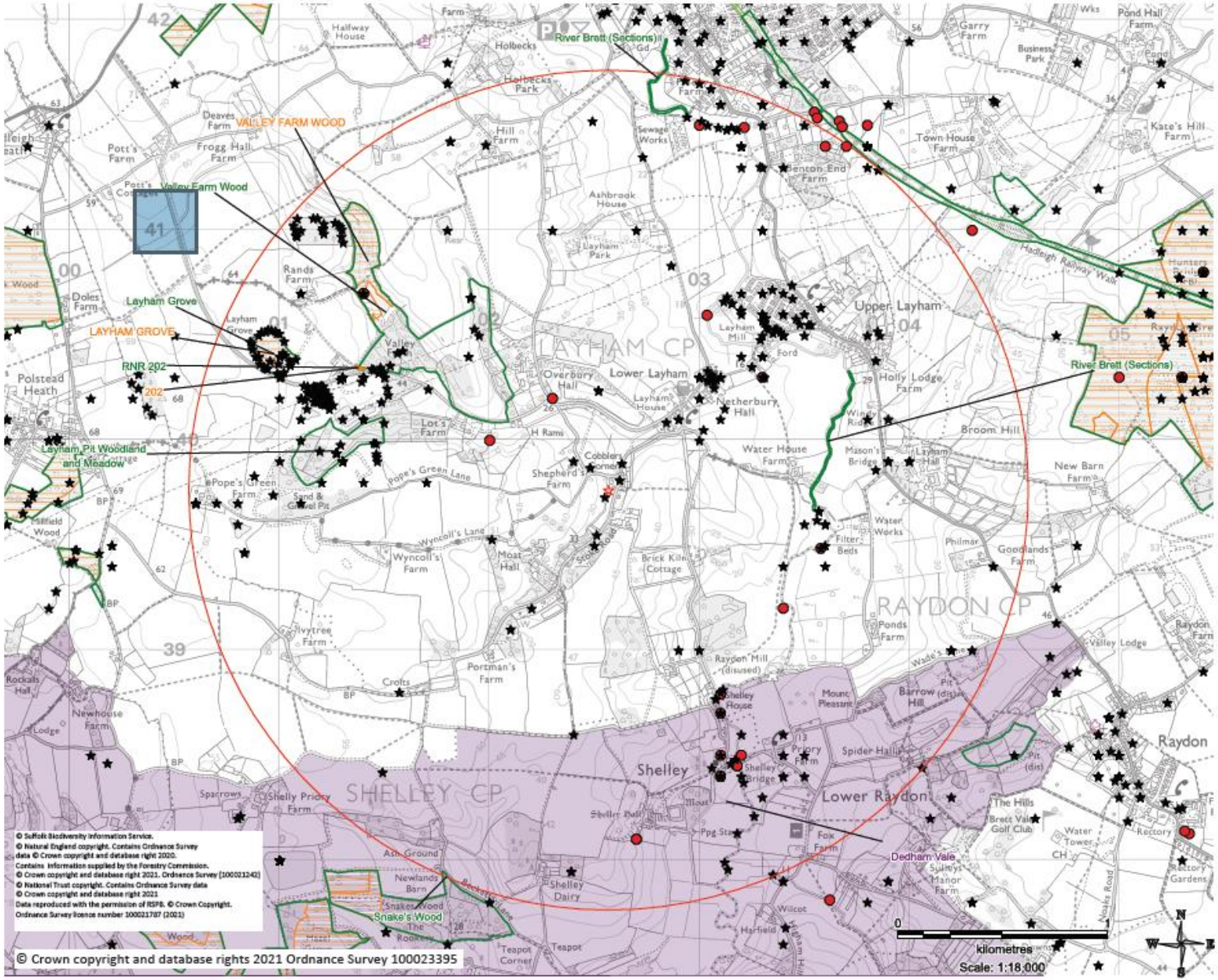
Photo 10 Old wren nest in the existing barn

Appendix A2 EcIA criteria

A2.1 General criteria for geographic context/value

Designation	Example
International	• SPA, SAC and Ramsar sites and the features that they have been designated for. • A sustainable area of habitat listed in Annex I of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of a larger whole. • A sustainable population of an internationally important species e.g. UK Red Data Book (RDB) species or European Protected Species (EPS) of unfavourable conservation status in Europe (e.g. Annex II species: bats, GCNs etc.), of uncertain conservation status or of global conservation concern in the UK BAP.
National	• SSSI or a discrete area that meets the selection criteria for designation. • A sustainable area of priority habitat identified included on the S. 41 NERC Act list or smaller areas of such habitat that are essential to maintain the viability of a larger whole. • A sustainable population of priority species (listed under S. 41 of the NERC Act 2006). • A sustainable population of a nationally important species i.e. RDB species not included in above category but which is listed on Schedules 5 or 8 of the WCA 1981 (as amended). Also, sites supporting a breeding population of such species or supplying a critical element of their habitat requirements. • A sustainable population of uncommon or threatened Annex IV EPS species at a UK level. • A nationally scarce species (occurs in 30-100 10km squares in the UK) that has its main UK population within the district.
County	• A viable area of habitat identified in the county BAP. • A County Wildlife Site. • A sustainable population of common or non-threatened Annex IV EPS species at a UK level. • A Nationally Scarce species that does not have its main population within the county. • A sustainable population of a BAP species not included in the 'national' category above for which a county Action Plan exists.
Local	• Individual members of local populations of priority or other nationally/internationally important species which are not in themselves key for maintaining a sustainable population (e.g. individual dog otter passing through area with no holts or resting sites). • Other habitats and species not in the above categories but are considered to have some value at the district/borough level.

Appendix A3 SBIS data map



Data Enquiry
- Search Point
- Search Area

Protected, Locally Scarce and Rare Species
- Record Locations (for grids of 6 fig. or greater)

Schedule 9 Species
- Record Locations (for grids of 6 fig. or greater)

Ancient/Veteran/Notable Trees

Roadside Nature Reserve

County Wildlife Sites

County GeoSites

SSSI

LNR

SPA

SAC

RAMSAR

NNR

SWT Reserve

Ancient Woodland Inventory

Other Public or Conservation Ownership/Management
- Forestry Commission, National Trust (public access), RSPB (public access)

National Park
- The Broads

AONB
- Suffolk Coast and Heaths or Dedham Vale

MHE Consulting (Cherry Orchard Farm TM0256739763) 2km Data Enquiry

SBIS
Suffolk Biodiversity Information Service

Date: 12/08/2021 | Drawn by: Jane Mason

Appendix A4 GCN Poster

MHE | MHECONSULTING
environmental consultants

ADDRESS | Mill House, Homersfield, Harleston, Suffolk IP20 0ET
TELEPHONE | 01986 788791
EMAIL | millhouseecology@gmail.com

Great Crested Newt

If seen by any employee, works must cease immediately and an ecologist be contacted for advice

It is an offence to intentionally or recklessly disturb, injure or kill great crested newts

Further information can be found at www.arguk.org

http://www.acreecology.co.uk/wp-content/uploads/2012/02/great-crested-newt-survey-south-wales.jpg

https://secure.i.telegraph.co.uk/multimedia/archive/03435/great_crested_newt_3435922k.jpg

Appendix A5 Bird boxes

RSPB Sparrow terrace nest box

Product Code: R407816

Qty 1

£ 29.99

In Stock ADD TO BASKET

Product Information Product details Ratings & Reviews

PROMOTIONAL NEST BOXES!

- Add two promotional nest boxes to your basket to save £2
- Offer ends 5th January 2020 and is subject to availability
- Loyalty points can be collected/redeemed as usual
- Not available in conjunction with any other offer

barkboxes.co.uk/product/open-fronted-nest-box/

lings Sign In | Fulcrum -... UK Grid Reference... National Biodiversit... Bing Maps ~ Santander Online... Microsoft Office Ho... Jacobs Engineering... Jacobs Engineering... Worldwic

BARK BOXES
Conserve and Enhance

Home About Us Other Services Gallery Contact

Open Fronted Nest Box

£25.00

For birds such as robin and pied wagtail. Open fronted but with a generous canopy to screen from aerial predators. Place in good cover not in the open.

43 in stock

\- 1 + Add to basket

Category: bird and bat boxes

Description Additional information Reviews (0)

Description

Height tbc
Width
Depth
Typical Weight

Appendix A6 Stag beetle loggery

Build a log pile for stag beetles

people's trust for endangered species

Stag beetles are one of the largest insects in the UK. They are in decline across Europe but there are many simple things you can do to help.

How you can help stag beetles

Stag beetles don't move far from where they emerge. Although males can fly up to 500m, most female stag beetles don't travel more than 20m and return to where they emerged to lay eggs. This means populations are vulnerable to becoming isolated and if there isn't enough dead wood nearby, dying out all together.

Private gardens are very important habitats for stag beetles. They rely on decaying wood that is in contact with the soil, both to feed on as larvae and in which to lay their eggs.

You can help by building a log pile in your garden to ensure that there is a good supply of suitable dead wood nearby for females to lay their eggs in.

Images: Peter Cox, Ben Andrew, PTES

Stag beetle facts

- They are Britain's largest native terrestrial beetle
- The larvae develop underground in rotting wood for several years
- The adult only lives for a few weeks in the summer with the sole purpose of finding a mate
- Adult beetles don't eat but rely on the fat stores built up during their larval stage
- The male's antler-like jaws are used to fight off rival males

Please create a log pile for stag beetles and map it at **www.ptes.org/stagbeetle**. For more tips please see over.

How to make a log pile

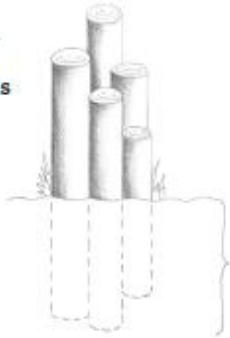
people's trust for endangered species

- 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 pile 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



Or, if space is limited, a single log on or in the soil will be appreciated

More tips for stag beetle friendly gardening

- Leave tree stumps in place if possible; they can become garden features with plants growing over them
- Try not to use pesticides
- Keep a lid on your water butt as stag beetles are known to fall in and drown
- Avoid using polythene sheeting to control weeds. Newly emerging stag beetles can get trapped beneath it in spring and die
- If you find larvae in the bottom of rotten fence posts and need to move them, dig a hole elsewhere in your garden and put them in together with some of the rotting wood from the original site. Cover loosely with soil

people's trust for endangered species

www.ptes.org
enquiries@ptes.org
020 7498 4533

facebook.com/ptes.org
twitter.com/PTES

registered charity no. 274206

Images: Ross Bower, Steve Haywood

Appendix A7 Bat boxes

Chillon WoodStone Bat Box

£26.35 ex VAT

Eco Bat Shelter

Price From:

£15.93 ex VAT

Beaumaris Bat Box

Price From:

£26.39 ex VAT

Large Multi-Chamber Bat Box

£42.23 ex VAT

Woodstone Interconnecting Bat Box

£52.54 ex VAT

Class Bat Box Making Kit - Single Kit

£8.80 ex VAT

Kent Bat Box

£15.73 ex VAT

Chavenage Cavity Bat Box

£17.00 ex VAT

Improved Crevice Bat Box, Triple

£29.83 ex VAT

Almodovar Bat Box

£39.38 ex VAT

Appendix A8 Grass snake egg-laying heap

Creating grass snake egg-laying heaps

RAVON ARG UK

Introduction

Identification

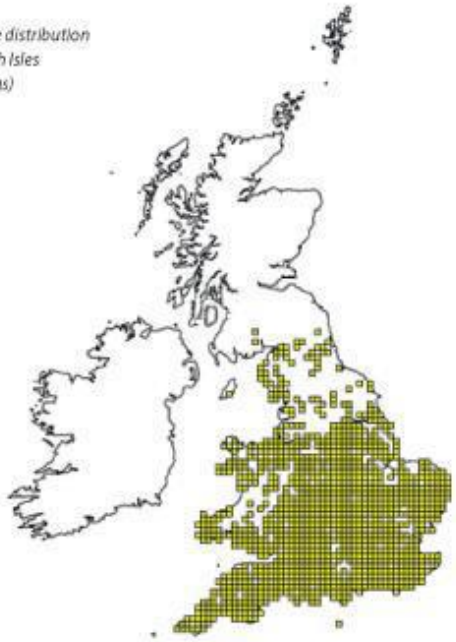
The grass snake *Natrix helvetica* is the largest British native snake, and can grow to over 1 metre in length. Grass snakes range from grey to green or brown in colour. They have a distinctive yellow or cream collar, bordered to the rear by contrasting dark markings. There is a series of dark bars running along the flanks and some individuals have dark spots on the back as well. Often found near water, grass snakes can sometimes be spotted swimming, or hunting for favoured prey species, which are mainly amphibians. Grass snakes are non-venomous, but they can exude an unpleasant smelling musk if caught. They can live for up to 15 years in the wild.

Life cycle

In common with other native reptiles, grass snakes hibernate over winter from October to March, emerging as the weather warms in early spring to replenish their energy reserves by feeding and basking. During April and May they find a mate, and in June or July females lay 10 to 40 leathery white eggs, often in warm compost, piles of leaves or manure heaps, which helps the eggs to incubate and hatch. Several females may use the same egg laying spot, so it may be possible to find large numbers of eggs in a suitable heap. After 6 to 10 weeks the pencil sized (14-22 cm long) young grass snakes emerge. Hatchlings cut their way out of the egg with an egg tooth, which they lose once they have emerged. It then takes three to four years for the young grass snakes to reach adulthood and sexual maturity.

Hatched grass snake eggs

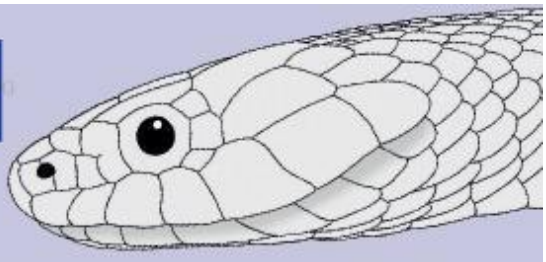
Grass snake distribution in the British Isles (© NBN Atlas)



Distribution and habitat

Grass snakes are widely distributed across much of England and Wales, though they are less commonly recorded in the North East of England, and Scotland. Generally, grass snakes prefer to live near water, where they can readily find their amphibian prey; but two other essential habitat features are egg-laying sites and places to hibernate. Natural grass snake egg-laying sites include heaps of organic material, or rotted tree stumps. Many grass snakes, however, take advantage of human activities and lay their eggs in manure or compost heaps. As a result, grass snakes are sometimes seen near riding stables and allotments during the spring and summer months. Over-wintering or hibernation occurs in dry, frost free and relatively undisturbed locations. Hibernation sites may be located in burrows or holes, heaps of rubble or wood, or dilapidated stone walls or buildings. In some areas, a vegetated earth bank or hedge bank, sea wall or even a road or rail embankment may be used.

Why create egg-laying heaps?



How you can help grass snakes

Grass snakes and humans have been intricately linked through livestock husbandry for many thousands of years across large parts of Europe. Historically, grass snakes have made use of manure heaps, and latterly compost heaps, as egg-laying sites, since these structures generate the heat that the snakes need to incubate and successfully hatch their eggs. In previous times this close association led to the grass snake being regarded as a house god in some parts of Europe, the symbol of spring, wisdom and protecting livestock.

However, in common with much of our native wildlife, we are seeing declines in grass snakes as agricultural and livestock husbandry practices change. One factor is thought to be availability of egg-laying sites, since there are fewer suitable heaps of manure accessible to grass snakes in the wider countryside. One means of boosting grass snake numbers may therefore be to create egg-laying heaps. These heaps also provide shelter and overwintering sites for slow-worms, amphibians, invertebrates and small mammals such as hedgehogs, mice and voles.

How to create a grass snake egg-laying heap

- **Where:** In a sunny spot, adjacent to tall vegetation, away from busy roads and no more than 400m from a water body. Female grass snakes become habituated to using a successful heap for several years, so when refreshing a heap, ensure you always use the same location.
- **When:** Mid-March to late April
- **Materials:**
  - One third fresh horse manure
  - One third vegetation (leaves, clippings) or compost
  - One third large sticks or branches
- **Instructions:**
  - Clear the ground where you want the heap
  - Create a base layer of leaves and clippings
  - Lay the largest sticks/branches on top of this
  - Place half of the horse manure on top of the sticks and branches.
  - Add another layer of smaller sticks.
  - Mix the remaining manure with the vegetation/compost and add this to the heap. Add some branches and smaller sticks to keep these layers well ventilated.
  - Ensure that the egg-laying heap is not too compacted, so the animals can easily get into it, and to prevent it from overheating.