

Ecology Report

PROPOSED BARN CONVERSION
Barley Farm, Stradbroke

March 2024



ADDRESS | Mill House, Homersfield, Harleston, Suffolk IP20 0ET

TELEPHONE | 01986 788791

EMAIL | millhouseecology@gmail.com

REPORT PRODUCED BY:

MHE Consulting Ltd
Mill House
Homersfield
Harleston
IP20 0ET

01986 788791
07766 771305
millhouseecology@gmail.com

ARCHITECTS:

Tim Hannon
Brooks Architects

01728 832165

Contents Amendment Record

REPORT NUMBER: BARLEYFARM/2024/ER/002

This report has been issued and amended as follows:

Issue	Revision	Description	Date	Signed
1	0	Final Draft	16/07/20	C. Whiting
1	1	Internal review	20/07/20	H. Booth
1	2	Final version issued	20/07/20	C. Whiting
2	0	Updated with results of the second bat survey	26/11/20	C. Whiting
2	1	Updated following further site survey and building inspection	22/03/24	C. Whiting

This report has been prepared in accordance with the instructions of the client for their sole and specific use. Any other persons who use any information contained within do so at their own risk.

Contents

EXECUTIVE SUMMARY

1	INTRODUCTION	1
1.1	BRIEF	1
1.2	SITE LOCATION AND DESCRIPTION	1
2	PLANNING POLICY AND LEGISLATION	2
2.1	INTRODUCTION	2
2.2	PLANNING POLICY	2
2.3	LEGISLATION	Error! Bookmark not defined.
3	METHODOLOGY	2
3.1	INTRODUCTION	6
3.2	DESK SURVEY	6
3.3	FIELD SURVEY	6
3.4	SURVEY CONSTRAINTS	9
3.5	SURVEYORS	9
3.6	ASSESSMENT	9
4	RESULTS	10
4.1	INTRODUCTION	10
4.2	BASELINE ECOLOGICAL CONDITIONS - DESK STUDY	10
4.3	BASELINE ECOLOGICAL CONDITIONS – FIELD SURVEY	11
4.4	GEOGRAPHIC CONTEXT	13
5	ASSESSMENT AND RECOMMENDATIONS	14
5.1	INTRODUCTION	14
5.2	DESCRIPTION OF PROPOSED DEVELOPMENT	14
5.3	FURTHER SURVEYS REQUIRED	14
5.4	ASSESSMENT OF IMPACTS	14
5.5	HABITATS AND VASCULAR PLANTS	15
5.6	AMPHIBIANS AND REPTILES	16
5.7	BATS	17
5.8	NESTING BIRDS	18
5.9	OTHER S. 41 LIST HABITATS AND SPECIES	19
5.10	COMPENSATION	20
5.11	CUMULATIVE EFFECTS	20
5.12	ENHANCEMENT OPPORTUNITIES	20
5.13	CONCLUSIONS	21
6	REFERENCES	22

Figures

Figure 1 Location plan

Figure 2 Habitats on site

Figure 3 Bat survey results

Appendices

Appendix A1 Photos

Appendix A2 SBIS data search plan

Appendix A3 EclA Criteria

Appendix A4 Bat boxes

Appendix A5 Bird boxes

Appendix A6 Grass snake egg laying heap

Executive Summary

MHE Consulting Ltd were instructed to undertake an ecological survey at land at Barley Green Farm, Laxfield Road, Barley Green, Suffolk, where a planning application will be submitted to Mid Suffolk District Council for a proposed barn conversion of a timber framed barn into a single dwelling.

The application site comprises a timber framed barn with timber weather boarding and pantile roof and area of hard standing, lawn, scattered trees, roadside hedgerow, orchard, ruderal habitat, and some rough grassland. Three ponds (P1 to P3) exist within 50m of the barn proposed for conversion. Ponds P1 and P2 support dense fish stocks and are very eutrophic and not considered suitable for great crested newts (GCN) (*Triturus cristatus*), whilst pond P3 was close to being dry and very choked with emergent vegetation and not considered suitable as a GCN breeding pond.

A Preliminary Roost Assessment and a dusk emergence bat survey confirmed the presence of day roosting common pipistrelle (*Pipistrellus pipistrellus*), Natterer's (*Myotis nattereri*) and soprano pipistrelle (*P. pygmaeus*). Some brown long-eared (BLE) (*Plecotus auritus*) feeding perches/night roosts were also present. Bat emergence and dawn swarming surveys confirmed the presence of day roosting common pipistrelle, soprano pipistrelle and Natterer's, whilst brown long-eared and barbastelle (*Barbastella barbastellus*) were observed flying into the barn and using it as a night roost. It is highly likely both species also used the barn as a day roost.

No evidence of nesting or roosting barn owl (*Tyto alba*) (Schedule 1) were recorded, though an old robin (*Erithacus rubecula*) and a wren (*Troglodytes troglodytes*) nest were present confirming past use by small numbers of common species. The boundary hedgerows, scattered trees and orchard provide potential nesting, foraging and song perch habitat for a range of bird species.

Of note was the presence of adder's-tongue fern (*Ophioglossum vulgatum*) in the lawn by pond P1 and a smaller patch by pond P3. It is a species often found in damp, old meadows.

The wider site supports habitat for common amphibians and reptiles but habitats immediately surrounding the barn comprises lawn and hard standing which provide no suitable refuge habitat, though the lawn areas provide foraging habitat at night when it rains. Hedgehog (*Erinaceus europaeus*) may forage over the lawn, whilst hedgerows, scrub and ruderal habitat provide potential hedgehog refuge habitat. The hedgerows support a number of native shrub and tree species and may support notable invertebrates.

Recommendations are made to avoid and mitigate potential ecological impacts including timing of work and implementation of good working practice. Ecological enhancements are recommended to deliver a Biodiversity Net Gain. Standard planning conditions are recommended to secure the measures proposed.

1 Introduction

1.1 BRIEF

MHE Consulting Ltd were instructed to undertake an ecological survey at land at Barley Green Farm, Laxfield Road, Barley Green, Suffolk (Figure 1, TM 24728 73634), where a planning application will be submitted to Mid Suffolk District Council for a proposed barn conversion of an existing timber framed barn into a single dwelling.

The barn conversion includes an extension at the eastern end and the planting of a new hedgerow and trees to compensate for the loss of hedgerow required to create a new site access and visibility splay.

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, consistent with national and local planning policy, net gains.

This report will be used to develop the proposals as necessary, and to form the basis for the submission of biodiversity information with any planning application. 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) comprises a timber framed barn with areas of lawn and hard standing surrounding it, with 3 ponds located within 50m, and an orchard and ruderal/scrub habitat to the north (Figure 2). Hedgerows exist along the existing driveway and the roadside frontage.

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 (NPPF)*

The National Planning Policy Framework was originally published in 2012 and recently revised on 19 December 2023, this document replaces the previous version of the NPPF, published in September 2023. 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 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/media/65829e99fc07f3000d8d4529/NPPF_December_2023.pdf

Policies of particular relevance to development and biodiversity include: 180, 186, 187 and 188, which are listed below.

180. 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.

186. 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 SSSIs;

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.

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

a) potential Special Protection Areas (SPAs) and possible Special Areas of Conservation (SACs);

b) listed or proposed Ramsar sites; and

c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential SPAs, possible SACs, and listed or proposed Ramsar sites.

188. 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. Planning policies and supporting documents that are used to plan, deliver and monitor development across the Babergh and Mid Suffolk District Council areas:

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

These policies encourage environmental net gains from new development through the creation of new habitats and green infrastructure. Both policies also implement the mitigation hierarchy to avoid, mitigate and compensate for any losses due to new development. However, neither policy specifies the need for the 10% biodiversity net gain. Net gains for biodiversity are secured as per para 180 d) of the NPPF (2023).

2.2.3

Biodiversity Net Gain

Biodiversity net gain (BNG) is an approach to the development and management of land that aims to leave biodiversity in a measurably better state than it was before development occurred. It will ensure habitats for wildlife are retained, enhanced and created through the development process.

Under the Environment Act 2021, all planning permissions, with a few exceptions, are required to deliver a minimum of 10% increase in the biodiversity net gain delivered compared to the pre-development baseline. BNG will be measured using Defra's Statutory biodiversity metric for Major applications and the Small Sites Metric for Minor applications. All net gains will need to be secured and monitored for at least 30 years.

These commitments are further developed in Policy LP16 of the new Joint Local Plan and in the Biodiversity Net Gain Interim Planning Guidance Note for Suffolk. More detailed guidance on BNG will also be set out in a new Biodiversity and Trees Supplementary Planning Document.

The requirement for a BNG assessment for major sites came into effect on the 12 February 2024 and for minor developments they are required from 2 April 2024.

Major developments are defined as follows:

- i) Where the number of dwellings to be provided is ten or more.*
- ii) Where the number of dwellings to be provided is not known, a site area of more than 0.5 hectares.*
- iii) Provision of a building or buildings where the floor space to be created by the development is 1,000 square metres or more or*
- iv) Development carried out on a site having an area of one hectare or more.*

Even though the small size of the site meets the qualifying criteria for Small Sites Metric (SSM), as bats have been recorded then the Statutory Biodiversity Metric will be used.

2.3

LEGISLATION

2.3.1

Environment Act 2021

The Environment Act received royal assent in November 2021. The Act will set clear statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water and waste, and includes an important new target to reverse the decline in species abundance by the end of 2030. Of particular relevance to development planning will the requirement for all new development to deliver a quantified (10%) Biodiversity Net Gain.

2.3.2

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

2.3.3 *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., “WCA1i” (birds), “WCA5” (other animals), or “Sch. 8” (plants).

Invasive plant species such as Japanese knotweed (*Reynoutria japonica*) and giant hogweed (*Heracleum mantegazzianum*) 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.

2.3.4 *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 SSSIs 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.

2.3.5 *The Conservation of Habitats and Species Regulations 2017*

The Conservation of Habitat and Species Regulations 2017 (hereafter referred to as the Habitat Regulations 2017) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), and elements of the EU Wild Birds Directive, into national law. The 2017 Regulations provide for the designation and protection of ‘European sites’ (SPAs, and SACs), the protection of ‘European Protected Species’ (“EPS”), and the adaptation of planning and other controls for the protection of European Sites.

They have been 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 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 relevant EC Directives.

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 42020:2013¹);
- 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 (EclA) 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 SBIS biological records: species and locally designated site records within 2km of the sites.

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

- Amphibians including great crested newt (GCN) (*Triturus cristatus*)² and reptiles such as grass snake (*Natrix helvetica*)³;
- Mammals including [REDACTED]⁴ and bats²;
- Breeding birds⁵ including Red and Amber status⁶ species; and
- S. 41⁷ list habitats such as hedgerows, and species such as hedgehog (*Erinaceus europaeus*).

In the context of the setting and nature of the developments, the small 'zone of influence' of the scheme is considered restricted to habitats on the site and species within 100m of the site boundaries.

3.3 FIELD SURVEY

An initial site walkover was undertaken on the 29 May 2020 to 1) record habitats present, and 2) assess the value of the habitats present for protected and notable species. A further inspection of the barn for bats and notable bird species, and a site

¹ BSI Standards publication BS 42020:2013 Biodiversity – Code of practice for planning and development.

² GCNs and all species of bats receive full protection under the WCA 1981 and Habitats Regulations 2017.

³ Widespread amphibians and reptiles receive partial protection under the WCA 1981.

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'.

walkover of habitats to be impacted by the proposed new access and any BNG requirements was undertaken on the 15 March 2023.

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 sites were 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

Three ponds P1 to P3 (Figure 1) are located within 7m, 13m and 35m respectively of the barn. Their suitability for supporting GCNs was assessed using the Habitat Suitability Index (HSI) methodology as developed by Oldham *et al.* (2000) and modified by Lee Brady.

The terrestrial habitat suitability of the sites 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*).

Recommendations are provided in chapter 5 to avoid impacts on GCNs and common amphibians.

b) Reptiles

Habitats on and around the application sites 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 existing barn was assessed for Bat Roosting Potential (BRP) with reference to NE's Bat Mitigation Guidelines (Mitchell-Jones, 2004) and the Bat Conservation Trust (BCT) "Bat Surveys: Good Practice Guidelines, 3rd edition" (Collins, 2023). Evidence of roosting bats was recorded if observed.

b) Tree roost potential

Any trees present on the site were assessed with regards to their suitability for supporting roosting bats as per the Bat Conservation Trust (BCT) "Bat Surveys: Good Practice Guidelines, 3rd edition" (Collins, 2023). Evidence of roosting bats was recorded if observed.

c) Foraging and commuting habitat

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

d) Dusk emergence survey

A dusk emergence survey was undertaken (6 July 2020) as per the following methodology:

The emergence survey commenced 15 minutes prior to and for up to 1.5 hours after sunset to cover the main emergence period and when some bats may return to the roost;

Bat activity such as bats leaving or returning to roost within buildings on site was recorded. In addition, commuting bats and foraging bats were recorded; and

Numbers and species of bats were recorded to determine the significance of any roosts identified.

A FLIR Scion thermal scope (Plate 1) was used to monitor the west and south elevations of the barn and 2 ecologists with Wildlife Acoustic Echo Meter Pro and Elekon Batlogger M full spectrum detectors observed the north, east and south elevations. An Elekon Batlogger A+ full spectrum detector was placed within barn B1, during the survey.

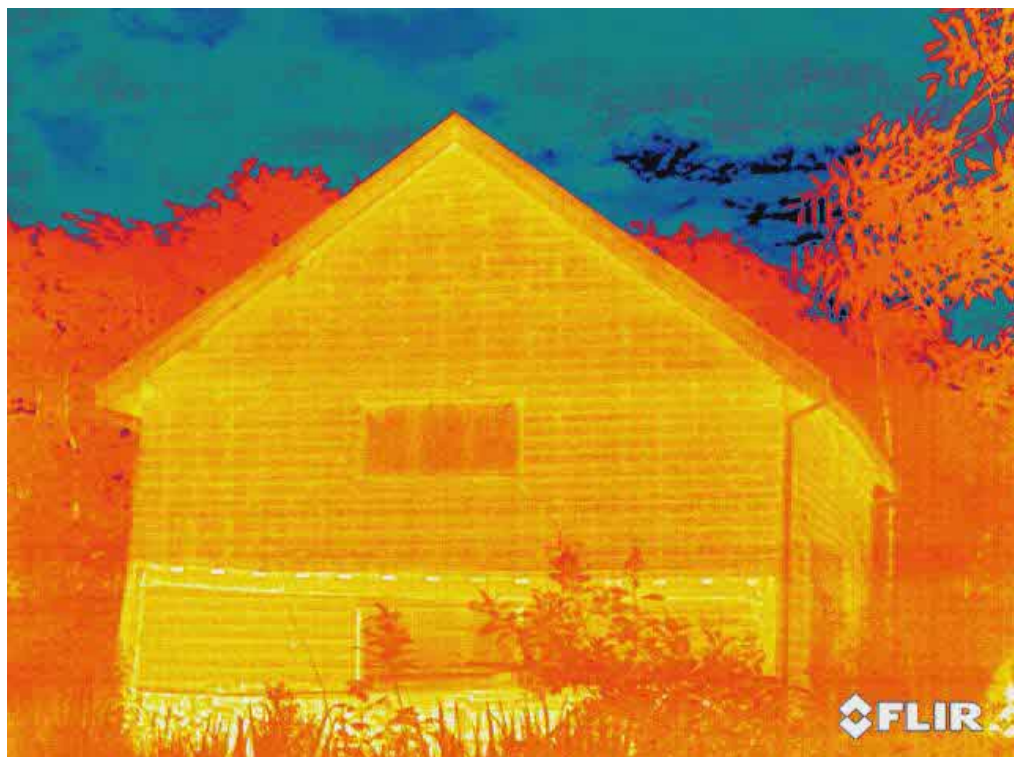


Plate 1 Thermal scope monitoring the west and south elevations of the barn

e) Dawn swarming survey

A dawn swarming survey was undertaken (30 September 2020) as per the following methodology:

The survey commenced 1hr 45 minutes prior to sunrise and continued until all bat activity ceased;

Bat activity such as bats leaving or returning to roost within buildings on site was recorded. In addition, commuting bats and foraging bats were recorded; and

Numbers and species of bats were recorded to determine the significance of any roosts identified.

3.3.5

Nesting birds

The value of the sites was assessed in relation to nesting birds. This was supplemented with field records of birds seen or heard within the site, or nests observed.

3.3.7

S. 41 list habitats and species

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

3.3.8

Non-native invasive plant species

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

3.4

SURVEY CONSTRAINTS

All of the site was accessible for inspection and there were no constraints to the survey.

3.5

SURVEYORS

The initial site walkover, building inspection and pond assessments were undertaken by Christian Whiting BSc (Hons) MSc MCIEEM who has over 24 years' experience working as an ecologist and holds NE survey licences for bats (2015-14745-CLS-CLS - Bat Survey Level 2, barn owl (CL21/0213) and great crested newts (Class A licence 2015-17633-CLS-CLS).

He is a Registered Consultant (Registration RC089) on NE's Bat Mitigation Class Licence. He is registered on the NE water vole (*Arvicola amphibius*) Developers Class Licence CL31 (Intentional disturbance of water voles and damage/destruction of water vole burrows by means of 'Displacement') and 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.

The bat activity surveys were undertaken by Christian Whiting and Jill Crighton, an experienced bat surveyor.

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, e.g. Local Nature Reserves (LNR) 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
Stradbroke Meadow	CWS
Stradbroke Cemetery	CWS
Chippenhall Green	SSSI

Chippenhall Green SSSI is located within 5km of the application site, but no Natura 2000 sites are located within 13km of the site.

No impacts upon the features of the CWSs or SSSI are predicted.

4.2.2 Species

a) Relevant biological records

No protected or notable species records exist from within the property site boundary, with species located 100m of the site highlighted in bold. Table 4.2 identifies species records for within 2km the application site boundary.

Table 4.2 Protected/notable species within 2km of the application site

Scientific Name	Common name	Legal/conservation status
<i>Lissotriton vulgaris</i>	Smooth newt	Sch. 5
<i>Triturus cristatus</i>	Great crested newt	EPS; Sch. 5; S. 41
<i>Natrix helvetica</i>	Grass snake	Sch. 5; S. 41
<i>Apus apus</i>	Swift	Amber Status
<i>Emberiza citrinella</i>	Yellowhammer	Red Status; S. 41
<i>Passer domesticus</i>	House sparrow	Red Status; S. 41
<i>Passer montanus</i>	Tree sparrow	Red Status; S. 41
<i>Perdix perdix</i>	Grey partridge	Red Status; S. 41
<i>Streptopelia turtur</i>	Turtle dove	Red Status; S. 41
<i>Sturnus vulgaris</i>	Starling	Red Status; S. 41
<i>Turdus philomelos</i>	Song thrush	Red Status
<i>Tyto alba</i>	Barn owl	Sch. 1
<i>Barbastella barbastellus</i>	Barbastelle	EPS; Sch. 5; S. 41
<i>Eptesicus serotinus</i>	Serotine	EPS; Sch. 5
<i>Myotis nattereri</i>	Natterer's	EPS; Sch. 5
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	EPS; Sch. 5

<i>Pipistrellus pygmaeus</i>	Soprano pipistrelle	EPS; Sch. 5; S. 41
<i>Plecotus auritus</i>	Brown long-eared	EPS; Sch. 5; S. 41
<i>Erinaceus europaeus</i>	Hedgehog	S. 41

b) Natural England Class Licence and eDNA records

The nearest recent GCN record is c. 4.5km to the north-west of the application site.

4.3 BASELINE ECOLOGICAL CONDITIONS – FIELD SURVEY

4.3.1 *Habitats and vascular plants*

The application site (Figure 2) comprises a timber framed barn with areas of lawn and hard standing surrounding it, with 3 ponds (Photos 4 to 6) located within 50m, and an orchard and area of ruderal/scrub habitat to the north (Photo 7). Hedgerows exist along the existing driveway and along the roadside frontage (Photos 8 and 9).

Hedgerows H1 and H2 (Photo 8) are dominated by hawthorn (*Crataegus monogyna*), whilst hedgerow H3 (Photo 9) comprises hawthorn, elm (*Ulmus sp*), field maple (*Acer campestre*) and apple (*Malus sylvestris*).

The lawn areas by the barn are generally species poor but of note was the presence of adder's-tongue (*Ophioglossum vulgatum*) fern (Photo 10) by pond P1 with a small number of fronds by pond P3. This species is an indicator of damp, old meadows.

Photos 1 to 12 show the barn and habitats as surveyed in 2020, whilst photos 13 to 20 show the site from the most recent site walkover.

4.3.2 *Amphibians and reptiles*

Three ponds P1 to P3 (Photos 4 to 6, Figure 1) exist within 50m of the barn. Ponds P1 and P2 are eutrophic and full of rudd (*Scardinius erythrophthalmus*) which feed on invertebrates primarily and are likely to eat GCN larvae. Pond P3 was drying up and is known to dry every year (Owner *pers. comm.*).

All three ponds were assessed as supporting poor (P1 and P2) and below average (P3) GCN habitat suitability. On the basis of the site's poor suitability for amphibians coupled with the low HSI scores for the 3 ponds, further survey and assessment work for amphibians is considered unnecessary.

Grass snake could potentially pass through the site when hunting in ponds P1 and P2 as they will eat fish, but the lack of cover around the barn proposed for conversion means that any resident populations of common reptiles are unlikely. Grass snake could inhabit the more overgrown parts of the gardens surrounding the farmhouse, whilst the orchard and ruderal habitat provides cover.

A further site inspection confirmed that the ponds were still all present and holding water following the wettest winter. Their conditions were as previously with fish likely to be present in ponds P1 and P2.

4.3.3 *Bats*

a) Preliminary Roost Assessment

The barn is timber framed with timber weather boarding and a pantile roof (Photos 1 to 3). The frame has several open mortise and tenon joints within which bats could roost, though the majority contained cobwebs. Some though had droppings below including

a joint in the brace/tie beam TB1 (Photo 11, Figure 3) which contained some probable Myotis droppings with some more droppings on the ground below (Photo 12).

Some pipistrelle droppings were found in a couple of locations (Figure 3) on the 1st floor. A brown long-eared (BLE) feeding perch is located below the ridge at the eastern gable end, with a further accumulation of moth wings at the western end. A scatter of BLE/Myotis droppings were present over the floors, whilst some possible barbastelle droppings were also present.

A soprano pipistrelle was recorded in a joint in east gable end between the window and the corner post and a small number (c.10) of droppings were below the cavity.

Since the original survey several tiles have become dislodged especially on the north side of the barn with water ingress occurring extensively within the western third of the barn. No bats were recorded roosting in the barn during the 15 March 2024 roost inspection, but fresh bat droppings of BLE, pipistrelle and likely Natterer's were present with some BLE feeding remains.

b) Dusk emergence survey (06/07/20).

The survey (Figure 3) was undertaken during suitable weather with a starting temperature of 17°C with no rain. Sunset was at 21:17 and the survey started at 21:04 and ended at 22:45 when bat activity ceased.

A soprano pipistrelle emerged from the eaves in the south-east corner of the barn at 21:39. Two common pipistrelles then left from under the eaves at 21:44. A common pipistrelle exited from under a tile at 21:45. A BLE bat flew into the barn at 21:46 and then left at 21:49 (as confirmed by the thermal scope). A barbastelle entered the barn at 21:55 and was observed inside the barn for much of the remainder of the survey, whilst a Natterer's was also observed flying in the barn.

An Elekon batlogger A+ left in the barn indicated that the barbastelle was recorded in the barn at about the same time as the one observed external to the barn prior to entering it. The Natterer's was in the barn during the accepted period when they will emerge and as they tend to be late emerging compared to pipistrelles for example, it is thought to have day roosted in the barn. The barbastelle is considered likely to day roost in the barn and also use it as a night roost.

c) Dawn swarming survey (30/09/20)

The survey started at ended at 0700 with sunrise at 06:56. Weather was considered suitable being overcast and mild (c. 14°C). Almost continuous foraging around the ponds to the west of the barn and dwelling from the start of recording until a common pipistrelle flew towards the farmhouse and presumably roosted there, whilst a soprano pipistrelle entered the south-western corner of the barn, below the eaves at 06:36.

d) Trees

No trees exist on site which require felling that have the potential to support roosting bats.

e) Foraging and Commuting Habitat

The application site offers moderate commuting and foraging habitat (Collins, 2016) along the hedgerows and over the adjacent ponds.

4.3.4

Nesting birds

A robin and a wren nest were recorded on the first floor. Hedgerows, trees and shrubs provide suitable habitat for a range of nesting bird species including blackbird (*Turdus merula*), song thrush (*Turdus philomelos*) (Red Status; S. 41 list), wood pigeon (*Columba palumbus*) and dunnock (*Prunella modularis*) (Amber Status; S. 41 list).

No evidence of barn owls was recorded in the barn.



4.3.6

S. 41 list habitats and species

a) Habitats

The hedgerows H1 and H2 both support native species and meet the criteria for S. 41 hedgerow habitats. The orchard is likely to meet the qualifying criteria for a S. 41 list orchard habitat.

b) Species

The lawn habitat provides foraging habitat for hedgehog which may also nest/seek refuge in the base of the hedgerows. The various trees, shrubs and hedgerows may support S. 41 list invertebrates. The elm in the hedgerows provide valuable habitat for the white-letter hairstreak (*Satyrrium w-album*) butterfly.

4.3.7

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 sites are provided in Table 4.3; values are based upon the criteria in Table A3.1 and expert best judgements.

Table 4.3 Feature value based on geographic context

Feature	Value
Lawn, pond, orchard, hedgerows, ruderal, unmanaged grassland, and trees	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 developments, 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

Proposed works will include partial stripping and renovation of the existing barn and extending it, the removal of short sections of hedgerow for site access, and landscaping comprising some tree and hedgerow planting.

Assessments and recommendations below are based on drawings provided by Tim Hannon (Brooks Architects) as submitted with the planning application and available at the time of writing and should be updated accordingly as the scheme is subsequently amended.

5.3 FURTHER SURVEYS REQUIRED

The bat emergence and dawn swarming surveys confirmed that low numbers of day roosting common pipistrelle, Natterer's and soprano pipistrelle in the barn. Brown long-eared and barbastelle bats were recorded using the barn as a night roost and both species are likely to also use the barn for day roosting. The PRA (2020) identified low numbers of droppings of these species and no significant accumulations to indicate a significant roost such as a maternity roost. The updated PRA confirmed the continuous use of the barn by bats, with a further 1 to 2 emergence surveys required to secure a bat licence once planning permission has been granted.

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.

5.4 ASSESSMENT OF IMPACTS

The EclA 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 EclA 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

Vegetation clearance, ground-breaking and construction operations will result in the permanent loss of a very small area of species-poor lawn, some sections of hedgerow, a small number of immature trees and some ruderal. Pollution of the adjacent ponds due to silt or chemical (e.g. fuel oil) inputs would cause a deterioration in water quality/toxicity for aquatic species, which could result in temporary negative effects upon fish and aquatic macroinvertebrates taxa and population recruitment. These impacts would result in local negative effects during the construction phase.

b) Mitigation

Retained hedgerows, grassland, shrubs, and trees should be protected from damage with Heras (or similar) fencing during the construction phase. The area of grassland around pond P1 where adder's-tongue fern (Figure 2) is present should also be protected during the building works.

A Construction Environment Management Plan (CEMP) or equivalent (e.g. section within a Biodiversity Method Statement) should be secured to ensure good practice measures avoid and/or minimise the risk of pollution to the ponds. Measures may include but are not limited to:

- Locating the site compound away from the ponds;
- Minimising topsoil removal and covering topsoil whilst stockpiled;
- Cleaning machinery in designated areas;
- Storing chemical and fuels securely within bunded vessels;
- 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;
- Having adequate site security in place;
- Regularly checking equipment; and
- Keeping spill kits on 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.

⁸ <https://www.netregs.org.uk/media/1303/gpp-5-works-and-maintenance-in-or-near-water.pdf>

c) Residual effects

The loss of hedgerows will result in a significant residual effect requiring compensation as part of the scheme design (see 5.10). Once established the proposed hedgerow set back behind the required visibility splays will deliver a positive effect if it is species-rich.

5.6

AMPHIBIANS AND REPTILES

a) Potential impacts

The conversion of the barn has low potential to cause injury and/or the death of common amphibians and potentially grass snake. Animals dispersing to nearby ponds or foraging over the lawn could fall into open trenches resulting in entrapment and mortality considered a negative effect at the local scale. Loss of any shrubs and hedgerows could result in the loss of refuge habitat including potentially for overwintering. Together these impacts could cause a significant effect on animals at the Local level.

On completion of the development, the use of gully pots or similar as part of a surface water drainage system can result in the entrapment of amphibians (Muir, 2012) if the gully pots do not discharge straight into a ditch or pond without silt traps or another impediment. These impacts would potentially be a significant negative effect upon a small number of animals at the Local level.

b) Mitigation

The following good practise measures should also be implemented:

- During the construction phase, trenches will be filled on the same day as excavation where possible. Trenches left overnight will be covered with ply/OSB sheets and any gaps filled with damp sharp sand;
- Footings and concrete slabs will be poured during the morning to ensure they have hardened off prior to evening to reduce the risk of animals encountering wet concrete;
- Any hand mixing of mortar or concrete will be on ply boarding over a tarpaulin which is folded over the boarding at the end of each day to prevent animals coming into contact;
- Any excess cement/concrete will be poured into a concrete skip, so it can then set to prevent animals coming into contact.
- All building materials will be stored on bare ground or hard standing, or stored off the ground on pallets;
- Any demolition waste should be stored in skips to prevent amphibians or reptiles from seeking refuge;
- Should any animals be encountered they should be allowed to displace into retained habitat (e.g. boundaries) or carefully relocated;
- If any GCNs are encountered works must stop immediately and a qualified ecologist be contacted for advice on how to proceed;
- Any installed gully pots that do not discharge without impediment straight into a ditch or pond must be situated $\geq 100\text{mm}$ from roadside; OR a wildlife-kerb⁹ must be installed adjacent to each gully pot; OR a gully pot ladder¹⁰ placed into each gully pot; and

⁹ <https://www.aco.co.uk/products/wildlife-kerb>

¹⁰ <https://www.thebhs.org/the-bhs-amphibian-gully-pot-ladder>

- Any downpipes taking water off the roofs should be sealed at ground level by using a leaf and debris screen¹¹ to prevent amphibians entering drains.

c) Residual effects

With mitigation implemented direct impacts upon animals will be avoided with no significant residual effect.

5.7

BATS

a) Potential impacts

i) Roosting bats

Day roosts of barbastelle, common pipistrelle, Natterer's, and soprano pipistrelle and BLE feeding/night roosts will be lost and are considered a significant effect at the Local level.

ii) Light disturbance

Lighting during the construction and operational phases can impact bat foraging behaviour and increase the risk of predation, which could affect foraging success and population recruitment.

iii) Commuting and foraging habitat

The loss of a mature roadside hedgerow and short sections along the existing driveway are considered a significant effect at the Local level.

iv) Roofing membranes

Research has shown bats can become entangled in modern non-bitumen coated roofing membranes (NBCRMs) which are woven, causing injury or death to individuals (Waring *et al.*, 2013). As the proposed new dwelling will have a pantile roof then a bat friendly roofing felt (e.g. Type 1F) or breathable wood fibre sarking board must be used. **NBCRMs should not be used behind weather boarding unless they have passed a snagging propensity test.**

In combination, the above impacts have the potential to result in a significant effect upon the conservation status of bats at a Local level.

b) Mitigation

i) Roosting bats

A bat EPSM licence will be required from NE to legalise the roost losses predicted. The following measures will be used to avoid harm to bats during the soft stripping of the barn prior to its conversion:

The named ecologist or accredited agent will inspect the barn prior to any soft stripping of roof tiles commencing.

Exclusion bags will be installed on any timber joints with confirmed or potential roost potential and they will be left in situ for a minimum of 7 days with minimum night time temperatures of 8 degrees centigrade.

Timing of works would be planned for the spring to autumn period to avoid overwintering periods when bats may be in hibernation.

Holding boxes (1 per species) would be installed on suitable trees prior to works commencing and they will be used for the release of any bats encountered during the roof strip and later removal of any timber cladding.

¹¹ <https://www.drainagepipe.co.uk/leaf-and-debris-gully-110mm-p-D94G/>

A toolbox talk will be provided to the building contractors and a written record kept with further TBTs provided if new staff or sub-contractors come to site.

The roof tiles and timber cladding will be removed by hand and any bats encountered will be placed into a soft cotton drawstring bag and placed into a small mammal holding box prior to release into a holding box.

Once the exclusion bags have been in place for a minimum of 7 days and they are confirmed as being free of bats they will be soft blocked with rock wall or similar material to prevent bats re-entering.

A bat friendly roofing membrane (e.g. bitumen type 1F, timber breathable sarking board or a modern membrane that has passed a snagging propensity test) must be used under the roof tiles to prevent entanglement of bats over time.

The installation of compensatory bat boxes into the walls and roof of the barn will be supervised by the named ecologist or the accredited agent.

ii) Light disturbance

Exterior lighting design will be made with reference to current guidance¹²¹³ and will consider:

Type of lamp (light source): Light levels should be as low as possible as required to fulfil the lighting need. Lamps 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°K) and no UV component; and

Lighting design: Lighting should be directed to where it is needed, with minimal horizontal spillage towards retained habitats including grassland, hedgerows, scrub and the pond. This can be achieved by restricting the height of the lighting columns and the design of the luminaire, including the following measure:

Light fixtures in general should be as short 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.

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' on residential properties (up to 1 minute).

iii) Commuting and foraging habitat.

As per Section 5.5

c) Residual effects

Some significant residual effects are predicted which require compensation for roost loss (as part of the EPSM licence) and commuting/foraging habitat loss (see 5.10).

5.8

NESTING BIRDS

a) Potential impacts

Hedgerow removal and the conversion of the barn during the nesting season (1st March to 31st August) could result in the injury or death of nesting birds and damage to active nests and eggs, considered a negative effect at a Local level.

¹² <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting>

¹³ www.eurobats.org/sites/default/files/documents/publications/publication_series/WEB_DIN_A4_EUROBATS_08_ENGL_NVK_28022019.pdf

The section of hedgerows to be removed and the conversion of the barn will result in the permanent loss of potential bird nesting habitat considered a significant effect upon the conservation status of the species present.

The cart lodge will offer opportunities for nesting swallow (*Hirundo rustica*) considered a minor positive effect at the Local level.

b) Mitigation

Building demolition and hedgerow clearance works should be undertaken/commence outside of the nesting bird season. If this is not feasible for any reason, then checks and supervision will be undertaken by a suitably experienced ecologist immediately prior to conversion works commencing and the removal of hedgerows.

c) Residual effects

The loss of hedgerows will result in a significant residual effect on the availability of bird nesting habitat which requires compensation (see section 5.10).

5.9

OTHER S. 41 LIST HABITATS AND SPECIES

a) Potential impacts

Site clearance will result in the permanent loss of hedgerows and associated ruderal habitat and lawn habitat which provides potential hedgehog foraging and refuge habitat. Ground-breaking and the excavation of footings and/or pipe runs could result in hedgehogs falling open excavations with steep sides and becoming trapped. Animals could be injured or killed if the excavation is deep or they fall into or walk across wet concrete. Such impacts have the potential to result in negative effects upon a small number of animals at the local scale.

Erection of ecological barriers would reduce dispersal capability negatively impacting fitness and recruitment rates. However, no new boundary fences are proposed as part of the development which would prevent hedgehogs from accessing the gardens.

Losses of hedgerow are considered significant at the Local level.

b) Mitigation

During construction, concrete should be poured early in the day or covered with ply boarding or membrane overnight to prevent hedgehog coming into contact. Trenches should be covered overnight.

The use of close board fencing should be avoided as proposed, with native species-rich hedgerows preferable where boundary features are required. If close board fencing were to be installed, then at least one hedgehog highway¹⁴ should be provided at either end of the fencing run with signage.¹⁵

c) Residual effects

Direct effects upon hedgehog will be avoided, but there will be a significant residual effect until proposed compensatory hedgerows (Section 5.10) have established and matured (10 to 20 years).

¹⁴ <https://www.hedgehogstreet.org/help-hedgehogs/link-your-garden/>

¹⁵ <https://ptes.org/shop/just-in/hedgehog-highway/>

5.10

COMPENSATION

Hedgerow planting is proposed as part of the scheme along with native tree planting. A minimum of 6 native woody species should be planted in a double row 50cm apart with the plants staggered along the rows.

Hawthorn should form (e.g. 50 - 60%) a significant component of the hedgerow to provide protection for nesting birds and small mammals. The remaining woody shrubs should be a mix selected from the following species:

Bird cherry (*Prunus cerasifera*): 10% - This species would provide food for birds and mammals and help reduce cat predation;

Common dogwood (*Cornus sanguinea*): 5 - 10% - Provides autumn/winter colour with the stems and the berries are eaten by wildlife

Field maple (*Acer campestre*): 10% - Provides colour to the hedgerow and the seeds are eaten by small mammals;

Hazel (*Corylus avellana*): 5 to 10% - Provides autumn food for small mammals. Alternatively, they could be planted as hazel coppice for coppicing in the future;

Holly (*Ilex aquifolium*): 10% - Provides a great form and some screening all year round and berries for birds;

Guelder rose (*Viburnum opulus*): 5 - 10% - Provides great autumn colour and berries;

Dog rose (*Rosa canina*): 5% - Provides attractive blooms with nectar (insects), scent (for the residents of the new dwelling), and hips for small mammals;

Spindle (*Euonymus europaeus*): 5% - Provides excellent autumn colour and the seeds are eaten by wildlife;

Crab apple (*Malus sylvestris*): 2.5% - Provides blossom (insects) and fruit (wildlife).

Wild pear (*Pyrus pyraeaster*): 2.5% - Provides blossom (insects) and fruit (wildlife).

A bat loft with a minimum 2m floor to ridge height is to be provided at the eastern end of the barn. The roof will have pantiles and a bat friendly roofing membrane (Type 1F bitumastic felt or timber sarking boards such as Pavatex Isolair or Steico) used. Ridge access will be provided in the main barn, whilst bat boxes will be erected on suitable trees by pond P1, and some bat boxes could be installed behind timber cladding in the walls on the eastern, southern, and/or western elevations. The exact detail of the mitigation required will be agreed with NE as part of a future EPSM licence application.

Loss of bird nesting opportunities should be compensated by the provision of a minimum of 6 small passerine nest boxes (Appendix A5).

5.11

CUMULATIVE EFFECTS

The Mid Suffolk District Council planning website was searched with a 2km buffer dating back a minimum of 2 years. Only minor applications were returned. No significant cumulative impact with the current application is predicted.

5.12

ENHANCEMENT OPPORTUNITIES

If mitigation and compensation are implemented as advised, the scheme will result in No Net Loss (NNL) of biodiversity once compensatory habitats have established. To be consistent with planning policy, development schemes should deliver Biodiversity Net Gain (BNG).

To deliver a significant BNG the proposed a minimum of 4 of the 7 potential enhancements in Table 5.1 should be implemented.

Table 5.1 Enhancement opportunities

Feature	Guidance
Hedgerows	1. Further hedgerow planting could be undertaken to mark the southern site boundary of the application site with the adjacent farmhouse. A minimum of 6 native species should be planted per 30m (see section 5.10).
Small passerine bird boxes	2. Two each of house sparrow terraces and combined robin/wren boxes (Appendix A5) could be erected on the converted barn (west or north elevations) and/or suitable trees on site.
Bat boxes	3. Three Kent bat boxes (Appendix A4) could be erected on suitable mature trees within the grounds.
Pollen-rich climbers	4. Honeysuckle (<i>Lonicera periclymenum</i>) will be planted at intervals of every 5-10m along existing hedgerows to provide nectar sources for pollinator species.
Invertebrates	5. Bug houses ¹⁶ (x4) or log/brush piles (using arising from the removed hedgerow) could be erected on site on suitable trees. 6. A log/brush pile could be created from the hedgerow removal.
Grass snake egg laying heap	7. A grass snake egg laying heap (Appendix A6) could be created by pond P1 on the north side in an exposed area where it will get some direct sunlight.

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

5.13

CONCLUSIONS

With avoidance, mitigation and compensation measures suggested, the scheme will result in NNL of biodiversity, whilst enhancements could be implemented to achieve a BNG in accordance with planning policy.

Measures proposed could be secured through appropriate planning conditions as per the British Standard (BS 42020:2013¹). These could include conditions specific to bats (D.6.2 Submission of a copy of the EPS licence) and nesting birds (D.3.2.1) and e.g. a Biodiversity Method Statement (D.2.1) to provide detailed guidance for mitigation, compensation, and enhancement measures.

¹⁶ <https://www.nhbs.com/bug-box-kit>

6 References

CIEEM (2017) Guidelines for Ecological Report Writing. Second edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2019) Advice Note: on the lifespan of ecological reports and surveys.

CIRIA, CIEEM and IEMA (2016) Biodiversity Net Gain: good practice principles for development.

Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition), Bat Conservation Trust, London.

Eaton, M.A., Brown, A.F., Noble, D.G., Musgrove, A.J., Hearn, R., Aebischer, N.J., Gibbons, D.W., Evans, A. and Gregory, R.D. (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds* 102, pp296-341.

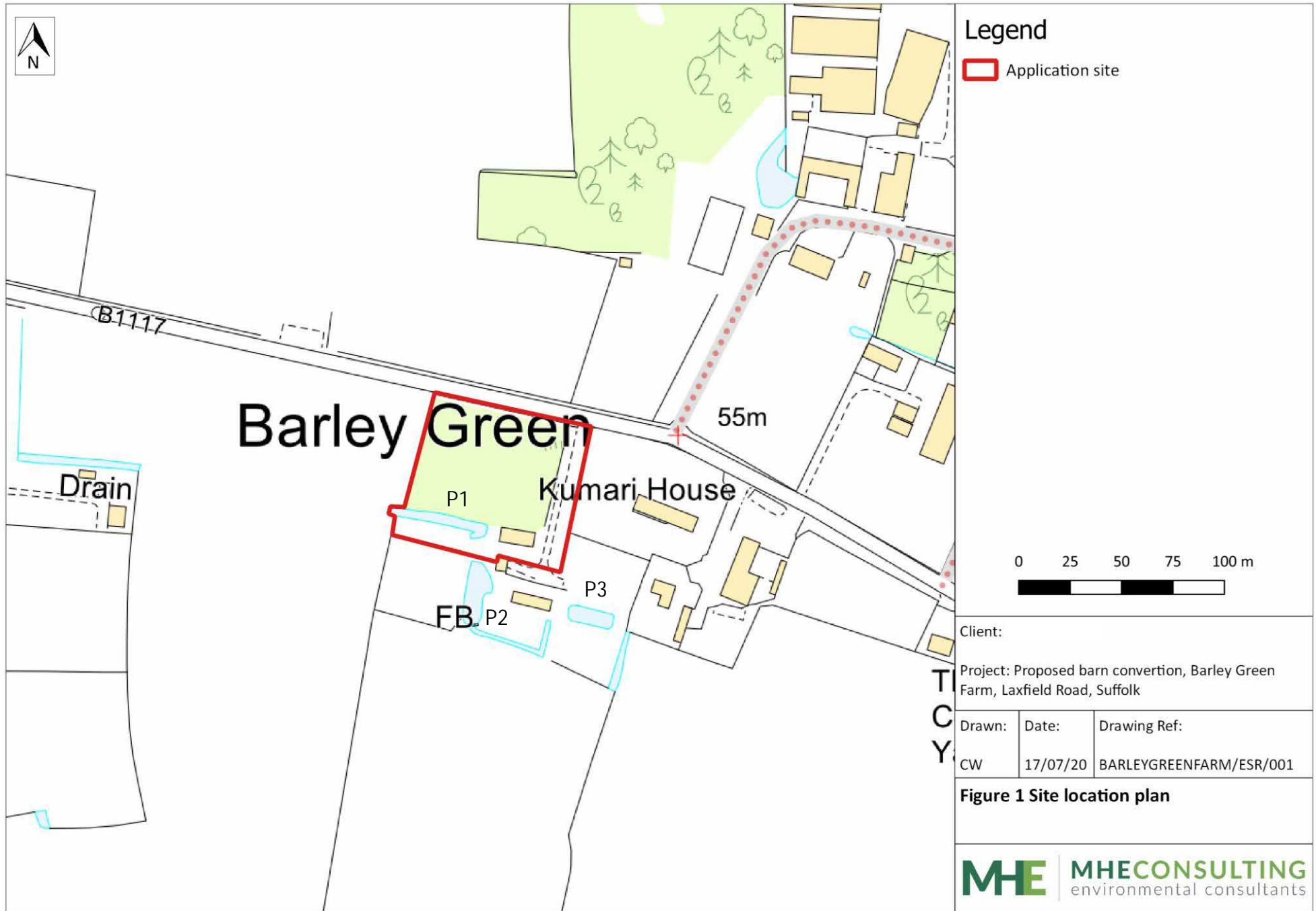
Mitchell-Jones, A.J. (2004) Bat mitigation guidelines, English Nature report

Muir, D. (2012), Amphibians in drains project report summary. *Biodiversity News*, 59, 16-18.

Oldham, R., Keeble, J., Swan, M., and Jeffcote, M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10(4), 143-155.

Waring, S., Essah, E., Gunnell, K. and Bonser, R. (2013) Double jeopardy: the potential for problems when bats interact with breathable roofing membranes in the United Kingdom. *Architecture & Environment*, 1 (1). Pp. 1-13.

Figures





Ruderal and grassland with scattered trees and scrub

Hedgerows

H3

H2

Fruit trees

H1

P1

P2

P3

Legend

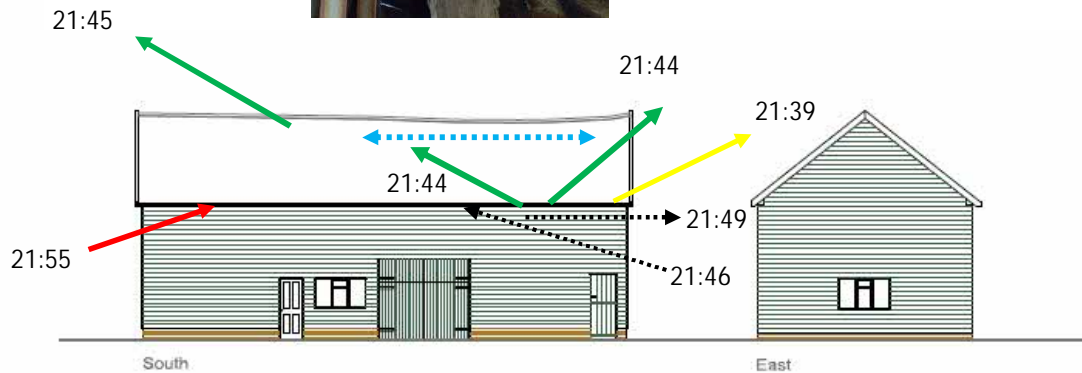
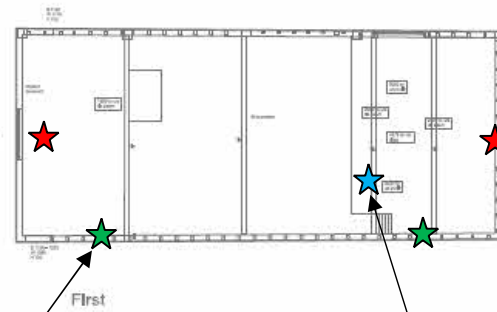
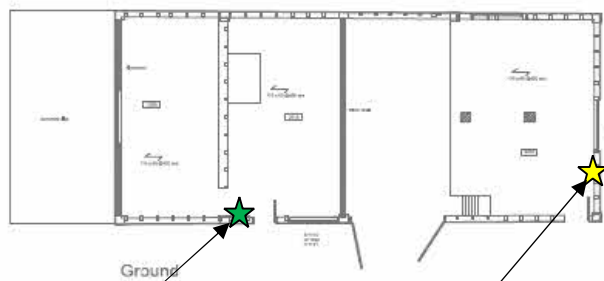
★ Adder's-tongue fern

Client:

Project: Proposed barn conversion, Barley Green Farm, Laxfield Road, Suffolk

Drawn:	Date:	Drawing Ref:
CW	17/07/20	BARLEYGREENFARM/ESR/002

Figure 2 Habitats plan



Legend

Preliminary Roost Assessment

- ★ Soprano pipistrelle in joint
- ★ Natterer's roost in brace/tie beam
- ★ BLE feeding perch
- ★ Pipistrelle droppings

Emergence survey

- ← Barbastelle
- ← BLE
- ← Common pipistrelle
- ← Natterer's (inside barn)
- ← Soprano pipistrelle

Client:

Project: Proposed barn conversion, Barley Green Farm, Laxfield Road, Suffolk

Drawn:

Date:

Drawing Ref:

CW

17/07/20

BARLEYGREENFARM/ESR/003

Figure 3 Bat survey results

Appendices

Appendix A1 Photos



Photo 1 West and south elevations



Photo 2 South and west elevations



Photo 3 North elevation



Photo 4 Pond P1 is very turbid and supports a dense population of rudd



Photo 5 Pond P2 is very turbid and supports a dense population of rudd



Photo 6 Pond P3 - Dry



Photo 7 Orchard and ruderal vegetation



Photo 8 Hedgerows H1 and H2 along the access drive



Photo 9 Hedgerow H3



Photo 10 Adder's-tongue fern by pond P1



Photo 11 Internal view of the barn – tiebeam/brace where Natterer's are roosting



Photo 12 Natterer's dropping below joint in the tie beam/brace

2024 photos



Photo 13 Barn west and north elevations



Photo 14 Barn south and east elevations



Photo 15 Pond P1



Photo 16 Pond P2



Photo 17 Pond P3



Photo 18 Roadside hedgerows H1 and H2

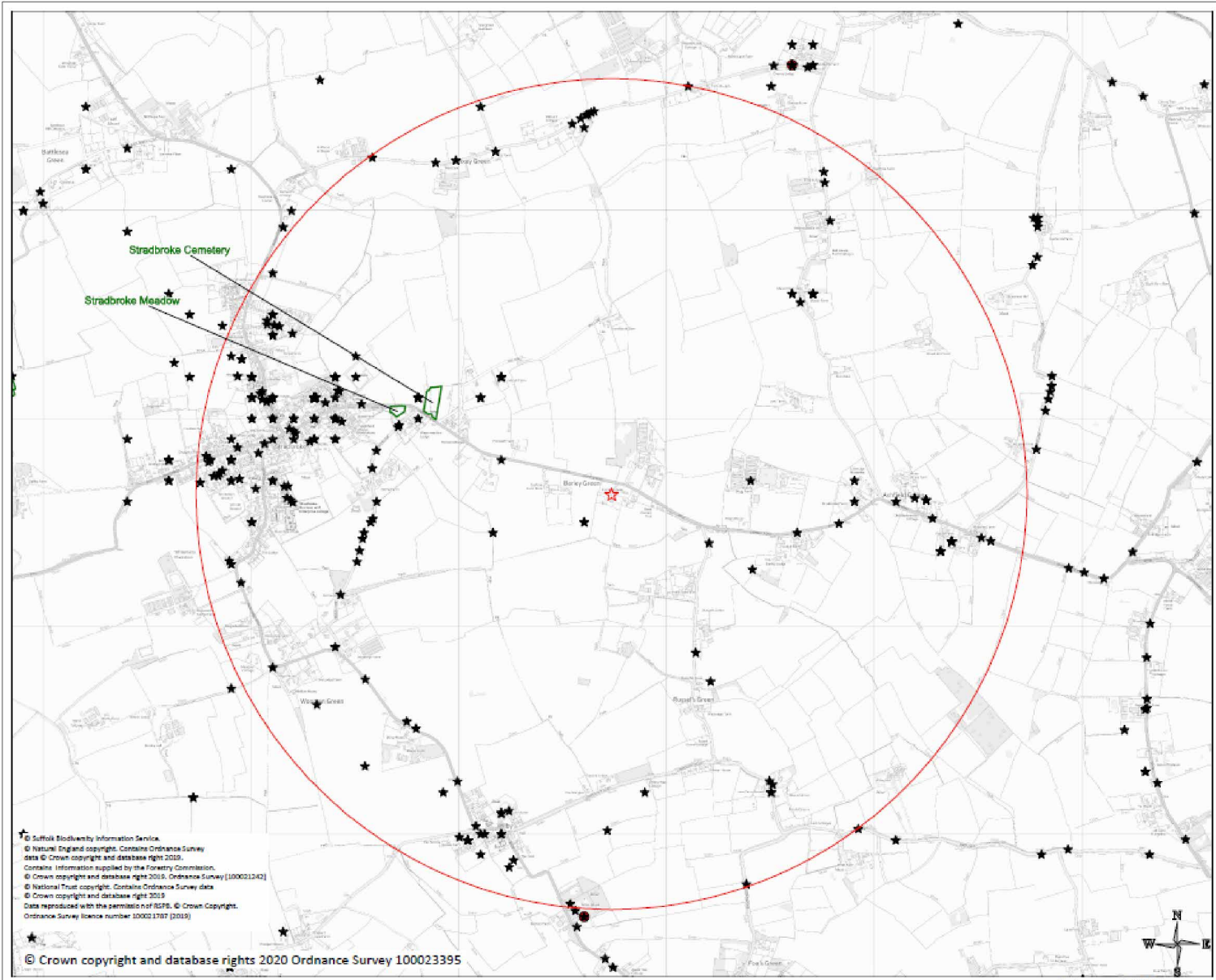


Photo 19 Roadside hedgerow H3



Photo 20 Fruit trees to north of the barn

Appendix A2 SBIS data search plan



- 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**
- ▨
- AONB**
- ▨ Suffolk Coast and Heaths or Dedham Vale
- National Park**
- ▨ The Broads
- Other Public or Conservation Ownership/Management**
- ▨ Forestry Commission, National Trust (public access), RSPB (public access)

© Suffolk Biodiversity Information Service.
 © Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2020.
 Contains information supplied by the Forestry Commission.
 © Crown copyright and database right 2019. Ordnance Survey (100021242)
 © National Trust copyright. Contains Ordnance Survey data © Crown copyright and database right 2019.
 Data reproduced with the permission of RSPB. © Crown Copyright. Ordnance Survey licence number 100021707 (2019)

© Crown copyright and database rights 2020 Ordnance Survey 100023395

Scale report: 1:18,000



Suffolk Biodiversity Information Service

Date: 26/06/2020 | Drawn by: Jane Mason

MHE (Barley Farm Stradbroke TM2473173634) 2km Data Enquiry

Appendix A3 EclA criteria

A3.1 General criteria for geographic context/value

Designation	Example
International	<p>SPA, SAC and Ramsar sites and the features that they have been designated for.</p> <p>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.</p> <p>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.</p>
National	<p>SSSI or a discrete area that meets the selection criteria for designation.</p> <p>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.</p> <p>A sustainable population of priority species (listed under S. 41 of the NERC Act 2006).</p> <p>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.</p> <p>A sustainable population of uncommon or threatened Annex IV EPS species at a UK level.</p> <p>A nationally scarce species (occurs in 30-100 10km squares in the UK) that has its main UK population within the district.</p>
County	<p>A viable area of habitat identified in the county BAP.</p> <p>A County Wildlife Site.</p> <p>A sustainable population of common or non-threatened Annex IV EPS species at a UK level.</p> <p>A Nationally Scarce species that does not have its main population within the county.</p> <p>A sustainable population of a BAP species not included in the 'national' category above for which a county Action Plan exists.</p>
Local	<p>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).</p> <p>Other habitats and species not in the above categories but are considered to have some value at the district/borough level.</p>

Appendix A4 Bat boxes

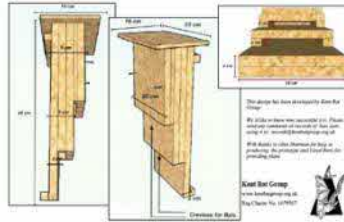
The Kent bat box

Simple to construct, self-cleaning and low maintenance.

The only critical measurement is the width of the entrance—these should be no larger than suggested. Other measurements are approximate.

Materials and construction
Box to be made from untreated rough-sawn timbers. Timber should be c.20mm thick. The box should be roofter and draught-free. Crickets can be between 15 and 25 mm wide. Flying may be by use of brackets, durable bonds or wires.

Location
Boxes are best fixed as high as possible in a sheltered wind-free position, exposed to the sun for part of the day. They can be fitted to walls, other flat surfaces or trees. A clear flight line to the entrance is important.



Kent bat box

habibat.co.uk/category/bat-boxes/habibat-unfaced-bat-box

UK Grid Reference... National Biodiversit... Bing Maps... Santander Online... Microsoft Office Ho... Jacobs Engineering... Worldwide sunrise...

01642 724 626
Request Quote

HABI^{BAT}
Filtering Nature

About | Integrated | External | Specialist Projects | Installation | Contact | News

Habibat Unfaced Bat box

- Other Options -

Plinth Colour Options: Red, Blue or Buff
Dimensions: 215 mm wide x 440 mm high x 102 mm deep
Material: Concrete plus plain facing (for rendering over)
Weight: approximately 7 kg

The Habibat Bat Box is a large, solid box made of insulating concrete which provides an internal roost space, and can be seamlessly integrated into the fabric of a building as it is built or renovated. Suitable for most species commonly found in the UK, this single chambered unit features an integrated V system to increase the surface for bats to roost against, whilst allowing them to move around.

The Habibat Bat Box can be faced with a number of products to suit the design build. This includes, brick, block, stone, wood or a rendered finish, ensuring the box is unobtrusive and aesthetically pleasing. There are a choice of 3 plinth colours available: smooth blue, smooth red, or buff.

BIM
BIM versions of the Habibat 001 Bat Box are available for download, to request these please contact us.



Vincent Pro bat box

Google Maps | maximising the biodiversity | Meadow mixtures for differ | EM7 - Meadow Mixture for | IFF Schwegler Bat Box With | Schwegler IFF Bat Box - The

nhbs.com/1ff-schwegler-bat-box-with-built-in-wooden-rear-panel

About | Help | Blog | Jobs | Established 1085 | NHBS CmbH | GBP | English | Newsletter | Google 4.8 Stars | Contact Us

Schwegler 1FF

Appendix A5 Bird boxes



RSPB Robin and wren diamond nestbox

Product Code: R401640

£ 13.99

★★★★☆ [Read all reviews](#)

Best-selling, diamond shaped, open-fronted nest box attractive to robins, wrens, pied wagtails and spotted flycatcher.

Beautifully made from FSC timber; roof treated with safe, non-toxic, water-based preservative. UK made.

[Read full information](#)

SAVE £2 WHEN YOU BUY TWO PROMOTIONAL NEST BOXES!

- Add two promotional nest boxes to your basket to save £2
- Offer ends 5th January 2021 and is subject to availability
- Loyalty points can be collected/redeemed as usual
- Not available in conjunction with any other offer

RSPB Sparrow terrace nest box

Product Code: R407816



[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



Qty

£ 29.99

In Stock

[ADD TO BASKET](#)



Apex starling nestbox

Product Code: R405836

Qty

£ 23.99



In Stock

[ADD TO BASKET](#)

SAVE £2 WHEN YOU BUY TWO 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



Appendix A6 Grass snake egg-laying heap

Creating grass snake egg-laying heaps



RAVON

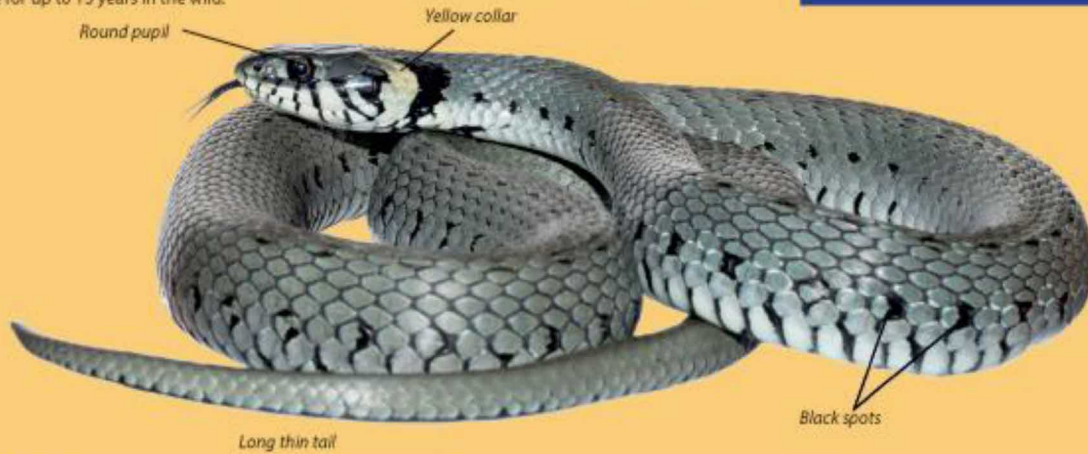


ARG UK

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.

Introduction



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)

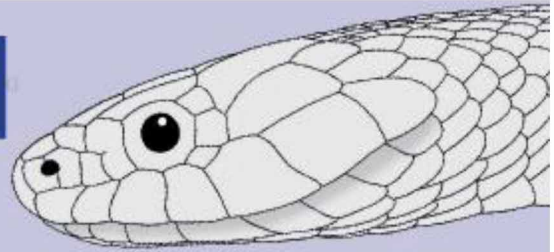


Distribution and habitat

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?



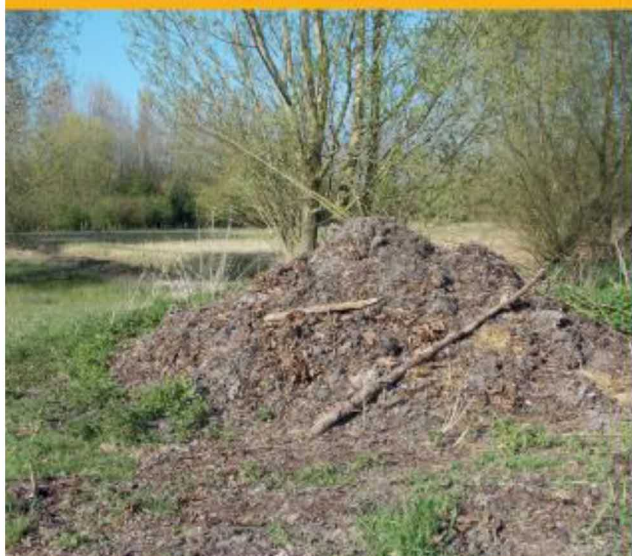
How you can help grass snakes

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.



For more information about grass snakes

Amphibian and Reptile Groups of the UK (ARG UK) - www.arguk.org
 Amphibian and Reptile Conservation - www.arc-trust.org
 Froglife - www.froglife.org

If you find a dead or diseased grass snake please report the incident to the Garden Wildlife Health Project (GWH) - www.gardenwildlifehealth.org.
 GWH investigates disease threats to British wildlife.

If you spot a grass snake at any stage of its life cycle (eggs, juvenile, adult), or even a shed skin, please share the information either through Record Pool - www.recordpool.org.uk, or your preferred biological recording scheme.

ARG UK

The Amphibian and Reptile Groups of the UK (ARG UK) is a network of volunteers committed to the conservation of native amphibians and reptiles. ARG UK is a registered charity (no. 1165504).

Acknowledgements

Text: Angela Julian, John Baker, Ian Kramer, Tariq Stark & Ingo Janssen

Photo credits: John Baker, Nicola Devine, Jelger Herder, Tariq Stark, Theodoor Heijerman & Warren Photographic

This leaflet is based on an advisory publication by RAVON and has been reproduced with the generous support of RAVON staff.



amphibian and reptile
 conservation 

