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## Ecology Report

**PROPOSED SOLAR PANEL ARRAY**  
**The Thatched Barn, Eye Road, Hoxne Suffolk**

December 2023



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# Executive Summary

MHE Consulting Ltd were instructed to undertake an ecological survey and assessment of land at The Thatched Barn, Eye Road, Hoxne Suffolk IP21 5BA. A planning application has been submitted to Mid Suffolk Council for the installation of a 17kW Photo Voltaic (PV) array in the garden to the east of the barn. A cable will connect the PV panels to the house and will be excavated into a shallow trench, which will be infilled.

The application site is located off Eye Road, Hoxne and comprises part of a residential garden to the east of The Thatched Barn containing an area of modified grassland with vegetable beds, some fruit bushes, a shed and greenhouse on hard standing with various gardening materials/equipment present. The garden is bordered by a length of native hedgerow to the south and a line of trees/woody shrubs to the north, a small orchard to the east and hardstanding to the west.

Several ponds exist within 250m of the application site boundary. Three were assessed with regards to their suitability for supporting breeding great crested newts (GCNs) (*Triturus cristatus*), receiving Below average to Average habitat suitability index scores (HSI). The site itself offers some foraging habitat for widespread amphibians (e.g. grassland), with the boundary trees and hedgerows and waste/brush piles offering refuge and dispersal opportunities. However, the site is unlikely to support common reptile species such as slow-worm (*Anguis fragilis*) or common lizard (*Zootoca vivipara*) due to the absence of areas of rough/tussocky grassland and scrub habitat but could support occasional grass snake (*Natrix helvetica*), which may hunt in nearby ponds or seek refuge within boundary habitats and artificial refugia left on site (e.g. woodchip and compost piles).

The boundary hedgerow and trees provide bat commuting and foraging opportunities of moderate-high value. The habitats present also support foraging, nesting, and song perch habitats for a range of common garden birds while hedgehogs (*Erinaceus europaeus*) may forage over the grassland and seek refuge within the base of hedgerows and within brush plies. Native woody shrubs could also support some S. 41 list invertebrates, including Lepidoptera.

The southern boundary hedgerow supports native species and therefore meet the qualifying criteria as S. 41 list habitat as defined within the Natural Environment and Rural Communities (NERC) Act 2006.

Recommendations are made to avoid wildlife offences and ecological impacts. Where impacts cannot be avoided, measures are proposed to mitigate remaining effects including timing of works and good working practices. Compensation measures and biodiversity enhancements are proposed. Standard planning conditions are referenced to secure the recommended measures.

# 1 Introduction

## 1.1 BRIEF

MHE Consulting Ltd were instructed to undertake an ecological survey and assessment of land at The Thatched Barn, Eye Road, Hoxne Suffolk IP21 5BA (TM1758876577; Figure 1). A planning application has been submitted to Mid Suffolk Council for the installation of a 17kW PV array in the garden to the east of the barn. A cable will connect the PV panels to the house and will be excavated into a shallow trench, which will be infilled.

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).
- 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 is located off Eye Road, Hoxne (Figure 1) and forms part of a residential garden to the east of The Thatched Barn which contains an area of short, modified grassland with vegetable beds, some fruit bushes, a shed and greenhouse on hard standing with various gardening materials/equipment present. The garden is bordered by a length of native hedgerow to the south and a line of trees/woody shrubs to the north, a small orchard to the east and hardstanding to the west.

Habitats in the wider landscape include residential properties with gardens containing ponds (Figure 2), with areas of woodland and a watercourse. Photos of the application site 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 (NPPF)*

The National Planning Policy Framework was originally published in 2012 and recently revised in February 2019. 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/government/uploads/system/uploads/attachment\\_data/file/779764/NPPF\\_Feb\\_2019\\_web.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf) Policies of particular relevance to development and biodiversity include 170, 175, 176 and 177.

**170.** 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.

**175.** 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 incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

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

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

**177.** 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. Babergh and Mid Suffolk Councils are currently in the process of creating a joint local plan, which will provide a framework for shaping and guiding future development in both districts until the year 2037.

Part 1 of the Joint Local Plan was adopted by Mid Suffolk District Council on 20 November 2023 and by Babergh District Council on 21 November 2023. This can be found at: <https://www.midsuffolk.gov.uk/joint-local-plan>.

Within this document, Policy LP16 covers matters relating to biodiversity & geodiversity and states that all development must follow the biodiversity mitigation hierarchy and:

- a) Protect designated and, where known, potentially designated sites. Proposed development which is likely to have an adverse impact upon designated and potentially designated sites, or that will result in the loss or deterioration of irreplaceable biodiversity or geological features or habitats (such as ancient woodland and veteran/ancient trees) will not be supported;

- b) Protect and improve sites of geological value and in particular geological sites of international, national and local significance;
- c) Conserve, restore and contribute to the enhancement of biodiversity and geological conservation interests including Priority habitats and species. Enhancement for biodiversity should be commensurate with the scale of development;
- d) Where possible plan positively for the creation, protection, enhancement and management of local networks of biodiversity with wildlife corridors that connect areas. This could include links to existing green infrastructure networks and areas identified by local partnerships for habitat restoration or creation so that these ecological networks will be more resilient to current and future pressures;
- e) Identify and pursue opportunities for securing measurable net gains, equivalent of a minimum 10% increase, for biodiversity. The Councils will seek appropriate resources from developers for monitoring of biodiversity net gain from developments. Where biodiversity assets cannot be retained or enhanced on site, the Councils will support the delivery of net gain in biodiversity off-site. Householder applications may not require a formal BNG assessment; and**
- f) Apply measures to assist with the recovery of species listed in S41 of the NERC Act 2006.

Development which would have an adverse impact on species protected by legislation, or subsequent legislation, will not be permitted unless there is no alternative, and the LPA is satisfied that suitable measures have been taken to:

- a) Reduce disturbance to a minimum;
- b) Maintain the population identified on site; and
- c) Provide adequate alternative habitats to sustain at least the current levels of population.

Where appropriate, the LPA will use planning obligations and/or planning conditions to achieve appropriate mitigation and/or compensatory measures and to ensure that any potential harm is kept to a minimum.

A supplementary planning document specific to biodiversity and trees is expected to be published in the summer of 2024.

### 2.2.3

#### *Biodiversity Net Gain Interim Planning Guidance Note for Suffolk*

An Interim Biodiversity Net Gain Planning Guidance Note for Suffolk<sup>1</sup> in February 2023 provides detailed guidance for applicants and decision makers in local authorities across Suffolk during the interim period before Spring 2024 when a measurable biodiversity net gain of at least 10% was to become a mandatory requirement for all major developments (and minor developments from April 2024), with some exceptions (see Section 2.3.1 - Environment Act (2021) below).

Paragraph 3.2 of the Interim Guidance Note states that:

*For the purposes of this interim guidance authorities (in Suffolk) will be requesting at least 10% biodiversity net gain on all major developments.*

<sup>1</sup> <https://democracy.ipswich.gov.uk/documents/s36985/PD-22-14%20Appendix%201%20%20Suffolk%20Wide%20BNG%20Guidance%20Document.pdf>

*Major developments include:*

- 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.*

The Babergh – Mid Suffolk District Council website<sup>2</sup> states that a formal assessment using the Metric is not required but that biodiversity enhancements such as bat boxes, bird boxes etc are required.

## **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. “Sch. 1” (birds), “Sch. 5” (other animals), or “Sch. 8” (plants).

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

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<sup>2</sup> [https://midsuffolk.gov.uk/w/biodiversity-net-gain?p\\_l\\_back\\_url=%2Fsearch%3Fq%3Dbng](https://midsuffolk.gov.uk/w/biodiversity-net-gain?p_l_back_url=%2Fsearch%3Fq%3Dbng)

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.

### 2.3.6

#### *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, possess, 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](http://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<sup>3</sup>);
- 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 presence of local, national and international designated sites;
- NE's great crested newt (GCN) (*Triturus cristatus*) survey licence record data were plotted to determine the shortest distance from the application site and assess this in the context of landscape cover and connectivity; and
- Historical biological records within 2km of the sites were provided by the Suffolk Biodiversity Information Service (SBIS) (Appendix A3).

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*)<sup>4</sup> and reptiles such as grass snake (*Natrix helvetica*)<sup>5</sup>;
- Mammals including badgers (*Meles meles*)<sup>6</sup> and bats<sup>2</sup>;
- Breeding birds<sup>7</sup> including Red and Amber Status<sup>8</sup> species; and
- S. 41<sup>9</sup> list habitats such as hedgerows, and species such as hedgehog (*Erinaceus europaeus*).

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<sup>3</sup> BSI Standards publication BS 42020:2013 Biodiversity – Code of practice for planning and development.

<sup>4</sup> GCNs and all species of bats receive full protection under the WCA 1981 and Habitats Regulations 2017.

<sup>5</sup> Widespread reptiles and amphibians receive partial protection under the WCA 1981.

<sup>6</sup> Badgers and their setts are afforded protection by the PBA 1992.

<sup>7</sup> All wild birds, their nests and eggs are protected under the WCA 1981 (as amended), level of protection varies per species.

<sup>8</sup> The conservation statuses of UK bird species are listed within the Birds of Conservation Concern 4 (Eaton *et al.*, 2015).

<sup>9</sup> S. 41 of the NERC Act 2006 lists 'habitats and species which are of principal importance for the conservation of biodiversity in England'.

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 250m of the site boundary, unless stated otherwise.

### 3.3 FIELD SURVEY

An initial site walkover was undertaken on 28 November 2023 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 using the UKHab Classification methodology (UKHab Ltd., 2023). Care was taken to record habitat indicator species.

#### 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.

No ponds exist within the application site boundary though several are located within 250m of the site. The nearest (P1) and another (P2) were assessed for their suitability to support breeding GCNs, and other common amphibians, using the GCN Habitat Suitability Index (HSI) as developed by Oldham et al. (2000).

##### 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) Tree roost potential

Existing trees which may require removal were visually checked to assess their suitability (See Table 3.1) for use by roosting bats using the criteria of the latest Bat Conservation Trust (BCT) protocols (Collins, 2023).

**Table 3.1 Bat Roost Potential (BRP) of trees**

Bat Roost Suitability	Description
<i>Confirmed presence</i>	Bat presence confirmed during the scoping survey
<i>High</i>	Trees with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.
<i>Moderate</i>	Trees with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status.

<i>Low</i>	A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential. <i>NB The tree(s) are of a size and age that elevated surveys may result in features being found; or features which may have limited potential to support bats</i>
<i>Negligible</i>	Negligible habitat features on site likely to be used by roosting bats

All potential roosting cavities (e.g., natural cavities, rot holes, woodpecker holes, splits, peeling bark) were inspected from the ground using binoculars where necessary.

Where potential niches existed, niches below 5m high were physically inspected using ladders. Any cavities with the potential to support roosting bats were inspected with an endoscope and/or a small LED torch as necessary. All potential roosting niches were checked for the presence of bats (alive or dead), faecal staining, fur and/or scratch marks around the entrance and droppings within the cavities or attached to the trunk/bough below the entrance.

b) Foraging and commuting habitat

Consideration is given to the value of any potential foraging and commuting habitats (i.e., hedgerows, trees, streams, ponds, composting areas) on the application site as per Table 3.2.

**Table 3.3 Commuting and foraging habitats**

<b>Suitability</b>	<b>Description</b>
<i>High</i>	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge.  High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, trees-lined watercourses, and grazed parkland.  Site is close to and connected to known roosts.
<i>Moderate</i>	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland, or water.
<i>Low</i>	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e., not very well connected to the surrounding landscape by other habitats.

	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in parkland situation) or a patch of scrub.
<i>Negligible</i>	Negligible habitat features on site likely to be used by commuting and foraging bats.

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

3.3.5 *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 *S.41 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.

3.3.7 *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 limited extent of works, the timing of the survey visit was considered appropriate for this report.

3.5 **SURVEYORS**  
The survey was undertaken by Christian Whiting BSc (Hons) MSc MCIEEM MEECW who has over 24 years' experience working as an ecologist. He holds 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 and is an authorised agent on the Environment Agency's and Water Management Alliance IDB water vole 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 (e.g. Local Nature Reserves) designated sites within 2km, nationally designated sites within 5km and coastal internationally designated sites within 13km of the application site are listed below in Table 4.1.

**Table 4.1 Relevant designated sites**

Site name	Site designation	Distance
Denham Churchyard	CWS	2km SE
Hoxne Brick Pit	SSSI	0m

### Locally designated sites

No Local Nature Reserves (LNR) are located within 2km of the application site, though a County Wildlife Site (CWS), Denham Churchyard, does exist within 2km. Denham Churchyard is noted for its high population of early-purple orchid (*Orchis mascula*) and its generally diverse grassland enclosed by hedgerows and standards of yew (*Taxus baccata*), ash (*Fraxinus excelsior*), horse chestnut (*Aesculus hippocastanum*) and oak (*Quercus* sp.).

**The very limited scale of the development means that no direct impacts/disturbance on the CWS are anticipated.**

### Nationally designated sites

Hoxne Brick Pit Site of Special Scientific Interest (SSSI) is of geological importance for containing deposits from the 'Anglian' late glacial, early Hoxnian (Holl) interval. The site boundary overlaps with the application site although the very limited nature (and depth of excavation) of the development means that no impacts are predicted

**The application site lies within a SSSI Impact Risk Zone (IRZ) whereby further consultation between the Local Planning Authority (LPA) and NE is required for all planning applications (except householder). Given the small scale of the development, proposed mitigation measures (see section 5.9) should ensure that no negative impacts occur.**

### Internationally designated sites

**No relevant Natura 2000 coastal sites are located within 13km of the site and even if they were, given the nature of the proposed development no impacts will occur.**

### Habitats Regulations Assessment

**No HRA is required due to the proposed nature of the development.**

#### 4.2.2

##### Priority habitats

Assessment of the magic map database identified no priority habitats within the application site boundary, although a large area of deciduous woodland (broadleaved) is shown to the east, northeast and southeast of the site. The closest part of the woodland is shown immediately east of the site boundary (within the applicant's garden) although this is a small orchard with planted fruit trees, with the 'true' woodland starting further east, along the edge of the watercourse.

#### 4.2.3

##### Species

###### a) Relevant biological records

No records of protected or notable species exist from within the site boundary. Table 4.2 identifies relevant species records for within 2km of the application site boundary and within the 250m zone of influence of the proposed scheme (**in bold**) (where geographical precision is < 1km).

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

Scientific name	Common name	Legal /conservation status
<b>Amphibians</b>		
<i>Lissotriton vulgaris</i>	Smooth newt	WCA5; S. 41
<i>Rana temporaria</i>	Common frog	WCA5; S. 41
<i>Triturus cristatus</i>	Great crested newt	EPS; Sch. 5; S. 41
<b>Reptiles</b>		
<i>Natrix helvetica</i>	Grass snake	WCA5; S. 41
<b>Bats</b>		
<i>Barbastella barbastellus</i>	Barbastelle	EPS; WCA5; S. 41
<i>Eptesicus serotinus</i>	Serotine	EPS; WCA5; S. 41
<i>Myotis daubentonii</i>	Daubenton's	EPS; WCA5
<i>M. nattereri</i>	Natterer's bat	EPS; WCA5;
<i>Nyctalus leisleri</i>	Leisler's	EPS; WCA5; S. 41
<i>Nyctalus noctula</i>	Noctule	EPS; WCA5; S. 41
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	EPS; WCA5;
<i>P. pygmaeus</i>	Soprano pipistrelle	EPS; WCA5; S. 41
<i>Plecotus auritus</i>	Brown long-eared	EPS; WCA5; S. 41
<b>Birds</b>		
<i>Accipiter nisus</i>	Sparrowhawk	Amber Status
<i>Alcedo atthis</i>	Kingfisher	Amber Status; WCAi1
<i>Apus apus</i>	Swift	Amber Status
<i>Columba oenas</i>	Stock dove	Amber Status
<i>Delichon urbicum</i>	House martin	Amber Status
<i>Emberiza citrinella</i>	Yellowhammer	Red Status; S. 41
<i>Falco tinnunculus</i>	Kestrel	Amber Status
<i>Muscicapa striata</i>	Spotted flycatcher	Red Status; S. 41
<i>Passer domesticus</i>	House sparrow	Red Status; S. 41
<b><i>Prunella modularis</i></b>	<b>Dunnock</b>	<b>Amber Status; S. 41</b>
<i>Pyrrhula pyrrhula</i>	Bullfinch	Amber 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; S. 41
<i>Turdus pilaris</i>	Fieldfare	Red Status; WCAi1

Scientific name	Common name	Legal /conservation status
<i>Turdus viscivorus</i>	Mistle thrush	Red Status
<i>Tyto alba</i>	Barn owl	WCAi1
<b>Plants</b>		
<i>Platanthera chlorantha</i>	Greater butterfly-orchid	RLGB.Lr(NT)
<b>Mammals</b>		
<i>Arvicola amphibius</i>	Water vole	EPS; WCA5; S.41
<b><i>Erinaceus europaeus</i></b>	<b>Hedgehog</b>	<b>S. 41</b>
<i>Lepus europaeus</i>	Brown hare	S. 41
<i>Lutra lutra</i>	Otter	EPS; WCA5; S.41

#### 4.2.4

#### GCN records

Assessment of NE's GCN class licence return data, EPSML application and pond survey records showed the closest record (eDNA) to be located c.1.9km west 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, with photos provided in Appendix A1.

The application site forms part of a residential garden to the east of the Thatched Cottage. It contains an area of species-poor, mown grassland with some fruit bushes and vegetable beds (**g4 Modified grassland; 106 Mown; 828 Vegetated garden; 847 Introduced shrub**) (Photos 1 to 3). The grass sward is dominated by perennial rye (*Lolium perenne*) and features forbs such as common daisy (*Bellis perennis*), groundsel (*Senecio vulgaris*), dove's-foot crane's-bill (*Geranium mole*), ground ivy (*Glechoma hederacea*), ribwort plantain (*Plantago lanceolata*), dandelion (*Taraxacum officinale* agg.), ragwort (*Jacobaea vulgaris*) and spear thistle (*Cirsium vulgare*) (see Plate 1).

A length of native hedgerow (**h2a Native hedgerow**) extends along the southern garden boundary, with a line of trees and woody native shrubs along the northern boundary (**w1g 33 Line of trees**). The hedge is predominately hawthorn (*Crataegus monogyna*) with occasional guelder rose (*Viburnum opulus*), dogwood (*Cornus sanguinea*), plum (*Prunus* sp.), spindle (*Euonymus europaeus*), and holly (*Ilex aquifolium*). The tree line contains sweet chestnut (*Castanea sativa*), wild cherry (*P. avium*) and hazel (*Corylus avellana*).

The area of garden where the cable route will be dug contains a glass greenhouse and wooden shed (**u1b5 Buildings**) with areas of hard standing and bare earth containing various waste materials (e.g. bricks, leaf piles and gardening equipment) (**u1b Developed land, sealed surface; u1c Artificial unvegetated – unsealed surface**). The cable route will run into a garage which will hold the battery storage unit (Photos 4 to 6)

There is a small orchard (**g4 Modified grassland; 27 Traditional orchard**) immediately east of the site (Photo 7), and a watercourse (**r2b Other rivers and Streams**) (a tributary of the River Dove) further east (Photo 8).



**Plate 1 – Aerial of the site (Source: Google Earth Pro)**

#### 4.3.2

##### *Amphibians and reptiles*

###### a) Amphibians

###### i) Ponds

No ponds are present within the application site boundary, but several exist within 250m of the site (Figure 2).

The nearest pond P1 (Photo 9) is located c. 55m northeast of the site boundary at the nearest point. It held water at the time of the site walkover (probably due to high rainfall) but was full of bramble and other terrestrial vegetation, with no macrophytes present, which indicates that it may be dry for much of the year. It is also heavily shaded with relatively turbid water, no evidence of fish and situated within optimal terrestrial habitat (e.g., rough grassland). The pond was assessed as supporting *Below average* habitat suitability for breeding GCNs (HSI score = 0.57).

Pond P2 (Photo 10) is a very small ornamental line pond in the garden c. 10m<sup>2</sup> and is considered to support below average habitat suitability (HSI = 0.54) primarily as a result of the very small size whilst fish could also be present with a heron net over the pond.

Pond P3 is a larger pond located c. 180m north of the site (Photo 11). The pond is situated within a small woodland adjacent to the road and is heavily shaded by the branches of adjacent trees. It holds water, with no macrophytes present, and no obvious evidence of fish. The pond scored *Average* habitat suitability for breeding GCNs (HSI score = 0.68).

###### ii) Terrestrial habitat

The application site and adjacent land supports suitable terrestrial habitats for amphibians, including foraging opportunities within grassland and refuge opportunities within woodland and at the base of hedgerows and scrub/shrubs. Further discrete refuge (and potentially overwintering) habitat exists within the multitude of artificial refugia (Photo 12) left in the gardens (e.g. brash, woodchip, leaf and compost piles). The overall habitat suitability of the site has been assessed as *moderate*.

###### b) Reptiles

Recent SBIS records exist for grass snake within 1km of the site although the short grass sward throughout much of the site provides inadequate cover for species such as slow-worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*), which favour a

greater mosaic of habitats with areas of open habitat for basking and foraging habitat dominated by rough grassland and scrub (e.g. providing cover from predators). Some limited refuge habitats, exist within the base of the boundary hedgerow, with further discrete refuge opportunities provided by brash, leaf and woodchip piles left in the garden. These may be used by individual grass snake, which may occasionally pass through the site on-route to hunt in local waterbodies. However, the overall habitat suitability of the site was assessed as *low*.

#### 4.3.3 *Bats*

##### a) Tree roost assessment

No trees in the immediate vicinity of where PV the array is proposed to be installed have the potential to support roosting bats. Some mature broadleaved trees exist to the east, along the banks of the watercourse, and on adjacent land though these are all outside the site boundary and will not be impacted, such that impacts will be avoided.

##### b) Foraging and commuting habitat

Habitats on-site and immediately adjacent support moderate-high value foraging opportunities for bats (e.g. woody shrubs, fruit bushes and mature broadleaved trees), which are likely support a range of invertebrate prey taxa. The tree line and hedgerows along the northern and southern boundaries are well-connected to other linear features in the wider locality and will function as important local commuting routes, linking roost sites with foraging habitats within core sustenance zones (Collins, 2023).

#### 4.3.4 *Nesting birds*

The boundary trees and hedgerow provide potential nesting, foraging and song perch habitat for a range of garden birds, including species such as dunnock (*Prunella modularis*) (Amber Status; S. 41 List), song thrush (*Turdus philomelos*) (Red List; S. 41 List), blackbird (*Turdus merula*) and wren (*Troglodytes troglodytes*).

#### 4.3.5 *Badger*

No evidence of badger (e.g., snuffle holes, runs, latrines, setts) was observed on site.

#### 4.3.6 *S. 41 list habitats and species*

##### a) Habitats

The boundary hedgerow comprises c. 80% of a native shrub species, primarily hawthorn, and is over 20m in length with gaps of less than 5m, therefore meets the qualifying criteria to be listed as a S. 41 hedgerow habitat. Offsite priority habitats include deciduous woodland located to the east of the site boundary, along the edge of the watercourse, whilst the small orchard to the east would be considered a S. 41 list habitat.

##### b) Species

The garden provides some suitable hedgehog foraging and refuge habitats for hedgehogs. Mature trees and shrubs present along the site boundaries may also support some S. 41 list invertebrates, including Lepidoptera.

#### 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 A2.1 (Appendix A2) and expert best judgements.

**Table 4.3 Feature value based on geographic context**

<b>Feature</b>	<b>Value</b>
Grassland, trees/shrubs, hedgerow and vegetable beds	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 installation of a ground mounted PV array will result in the localised disturbance to and loss of modified grassland with some fruit bushes and vegetable beds, whilst the installation of a power cable, linking the array to a battery storage unit in a garage to the west, will largely pass through made ground (e.g. hard standing and gravel). If unmitigated, this has the potential to negatively impact common amphibians and grass snakes, foraging and commuting bats, nesting birds and hedgehogs.

The assessment and recommendations below provide preliminary recommendations for mitigation, compensation, and enhancements for the proposed development. They are based on drawings provided by Brooks Architects Ltd. (Drawing Nos. 2323 – PP08-14) and information available at the time of writing and should be updated accordingly as 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 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*

The proposed installation of a ground mounted PV array will result in the permanent loss of a very small area of grassland and vegetable beds where the panels will be raised off the ground on ballast boxes. Very small temporary losses and disturbance of grassland will also occur when the cable route is excavated, installed and then infilled. Loss of these habitats is not considered to be ecologically significant though it will comprise a net loss of habitat present on site.

The construction phase has the potential to accidentally damage the existing boundary hedgerow and trees. Such impacts would have a significant negative effect at the Local Level.

### *b) Mitigation*

Given the limited scale of the proposed works and the short build period required to erect the supporting framework and attach the solar panels, no site compound is considered necessary with materials brought to site by the contractor as required.

The works footprint and associated disturbance should be minimised in extent as much as possible. Retained boundary hedgerows, trees/shrubs, and grassed areas should be protected with temporary fencing (e.g., Heras) to prevent above ground damage and Root Protection Areas (RPAs) should be used to inform the detailed design.

### *c) Residual effects*

With mitigation measures implemented, there will be no significant residual effects for the scheme.

## **5.6 AMPHIBIANS AND REPTILES**

### *a) Potential impacts*

Any removal of vegetation to install the cable is unlikely to result in the injury or mortality of amphibians as the vegetation is maintained relatively short. However, the presence of open trenches (e.g. cable route) could result in the injury and mortality of amphibians, including potentially GCNs. The movement of existing potential refuge materials in the works footprint (e.g. woodchip, leaf and brick piles) could result in injury/death (if required) of any individuals seeking refuge within when the materials are moved. Combined, the above impacts are considered a significant negative effect at the Local Level.

*b) Mitigation*

As per section 5.5.

Given the limited footprint of the proposed scheme, the risk of harm to amphibians and GCNs is relatively low. Therefore, a Precautionary Working Method Statement could be provided to the LPA for approval, which would mitigate for any potential (albeit impacts on GCNs).

To avoid impacts upon other amphibians' and grass snakes, good practice precautionary methods should be followed for the scheme, to include the following measures:

1. The areas of grassland to be removed (and adjacent) should be kept short with regular mowing;
2. Clearance of any taller vegetation should be undertaken sensitively during the months of April to September inclusive. Hand tools (e.g., strimmers and hedge trimmers) should be used to take taller vegetation down to ground level using a 2-stage cut as follows:
  - The first cut should be to no lower than 150mm above ground level with brash raked removed from site; and
  - 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. The arising should again be raked off and removed from site to prevent any wildlife seeking refuge.
3. Any refugia present that requires removal should be cleared sensitively (i.e. by hand where possible and under close observation) as animals may be found underneath, particularly between October to March;
4. 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;
5. 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 hedgerows.
6. Uncovered excavations should be checked daily and immediately prior to filling;
7. 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;
8. Any hand mixing of mortar or concrete (if required) should 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;
9. 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.
10. All building materials and waste materials should be stored on bare ground or hard standing, or stored off the ground on pallets to reduce risk of animals seeking refuge; and
11. Should any GCNs be encountered, works must stop immediately, and advice be sought from a suitably experienced ecologist. Any other animals should be allowed to move out of the works area, or safely relocated. The poster in (**Appendix A4**) should be erected in the welfare facilities provided for construction staff onsite.

*c) Residual effects*

With mitigation implemented there will be no significant residual effects.

## 5.7

### **BATS**

#### *a) Potential impacts*

##### i) Roosting bats

No trees that have the potential to support roosting bats will be removed from the site and therefore the risk of negative impacts is considered to be negligible.

##### ii) Commuting and foraging bats

The removal of grassland and tall vegetation to accommodate the installation of the solar array will result in a small net loss of low value bat foraging habitat, albeit very small in extent and not considered to be significant upon conservation status.

##### iii) Light disturbance

No lighting will be required during the construction or operational phases of the solar arrays, such that no impacts are predicted.

#### *b) Mitigation*

Temporary fencing of any trees and hedgerows to avoid damage excavator to be used for the installation of the cable.

#### *c) Residual effects*

Subject the appropriate mitigation there will be no residual effect.

## 5.8

### **NESTING BIRDS**

#### *a) Potential impacts*

The installation of the cable where it passes close to any trees and hedgerows could cause disturbance to nesting birds during the breeding/nesting season (1st March to 31st August). Although considered unlikely, the destruction of nests and possible injury or death of nesting young birds present, through accidental damage to retained hedgerows and trees would be considered a significant negative effect (as an offence under wildlife legislation) at the Local level. Disturbance effects can impact upon breeding and fledging success.

#### *b) Mitigation*

As per section 5.5.

If building works are proposed to commence during the bird breeding season (e.g. March to August inclusive for most species) a nesting bird check is required prior to works commencing. If any nests are found, exclusion zones must be established until young have fledged.

#### *c) Residual impact*

No significant effects.

## 5.9

### **OTHER S. 41 LIST HABITATS AND SPECIES**

#### *a) Potential impacts*

During the construction phase hedgehog could potentially fall into excavations including wet concrete resulting in injury or death. Such impacts could have a significant negative effect upon individuals at the Local level.

*b) Mitigation*

Habitat avoidance and mitigation as per section 5.5 and 5.6.

*c) Residual effects*

No significant effect.

**5.10 COMPENSATION**

The development will result in the permanent loss of a small area of modified grassland and vegetable beds/shrubs which does not require compensation.

To be consistent with planning policy, biodiversity gains could be delivered through suggested enhancement measures (see section 5.12 below).

**5.11 CUMULATIVE EFFECTS**

The Mid Suffolk District Council planning website was searched on 01 December 2023 for relevant applications within a 1km buffer of the application site dating back 2 years. Refused and withdrawn applications were not considered in relation to cumulative ecological effects.

The search returned several householder applications for extensions and alterations to existing dwellings or garages, numerous applications to fell trees within a conservation area, applications for the discharge of conditions and material amendments for small schemes granted planning permission more than two years ago, and a scheme to redevelop and increase the size of a pig farm (DC/22/01811). The latter will require an EIA. However, no other applications for major development were returned in the search area, such that there is no indication from the above applications that there will be any significant cumulative impact with the current application.

**5.12 ENHANCEMENT OPPORTUNITIES**

Mitigation measures proposed will ensure negative ecological effects are minimised. However, to be consistent with planning policy, biodiversity gains could be delivered through suggested enhancement measures. To maximise biodiversity enhancements a minimum of 3 of the 6 options listed in Table 5.1 should be implemented.

**Table 5.1 Enhancement opportunities**

<b>Feature</b>	<b>Enhancement suggestion</b>
Wildflower mix	<p>1. An area of grassland within the applicant's garden (e.g. in the orchard) could be managed to become more floristically rich by cutting the existing sward short in the spring or autumn and then scarifying prior to over-seeding with a wildflower seed mix<sup>10</sup> suitable for the underlying soils/geology.</p> <p>Once established pathways can be cut through the grassland (with the wildflowers let uncut until they have set seed by the end of July), creating a more structurally diverse sward.</p>

<sup>10</sup> <https://wildseed.co.uk/product/mixtures/complete-mixtures/general-purpose-meadow-mixtures/standard-general-purpose-meadow-mixture/> or <https://www.bostonseeds.com/products/wildflowers-seed/wildflower-seed-mixtures-100/bsbp-100-bees-and-butterfly-wildflower-seeds.html>

Feature	Enhancement suggestion
Nectar-rich plants	2. Some nectar rich plants, including climbers such as traveller's joy ( <i>Clematis vitalba</i> ) and honeysuckle ( <i>Lonicera periclymenum</i> ), as well as night-scented species e.g., white jasmine ( <i>Jasminum officinale</i> ), could be planted at 5m intervals along the existing hedgerow and/or trained up walls, fences, posts and trellises. Once established, plants would benefit pollinators and associated predators (e.g., foraging bats and hedgehogs).
Bats	3. Three bat boxes (Appendix A5) could be mounted on suitable boundary trees (exact locations agreed with a suitably experienced ecologist).
Small passerine bird boxes	4. Three small passerine nest boxes (Appendix A6) could be erected on trees in the garden with exact locations agreed with a suitably experienced ecologist.
Amphibians and reptiles	5. A grass snake egg laying heap (Appendix A7) could be created in the garden to the east adjacent to the woodland and watercourse, using arisings generated during the vegetation clearance required for the solar array installation.  6. Logs/brush ( <b>broadleaved trees only</b> ) and other green waste materials in the garden (as well as bricks) could be used to create some log/brush piles, or small hibernaculum which would provide refuge habitat for amphibians and other animals (Appendix A8).

**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.**

## 5.13

### CONCLUSIONS

The proposed mitigation and enhancement measures will ensure the proposed scheme avoids net losses of biodiversity and will maximise biodiversity enhancements provided.

To maximise potential biodiversity benefits the measures proposed should be secured through detailed design and appropriate planning conditions as per the British Standard BS 42020:2013):

1. BS 42020:2013 D.2.1: A Biodiversity Enhancement Strategy to detail mitigation, compensation and enhancement measures, to be reflected in the detailed landscaping proposals and site plans for the scheme; and
2. BS 42020:2013 D.3.7 Restrictions on occupation of development until specific biodiversity outcomes are achieved.

## 6 References

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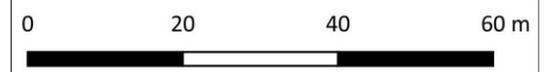
Waring, S., Essah, E., Gunnell, K. and Bonser, R. (2013) Double jeopardy: the potential for problems when bats interact with breathable roofing membranes in the United Kingdom. *Architecture & Environment*, 1 (1). pp. 1-13.

## Figures



### Legend

 Application site boundary

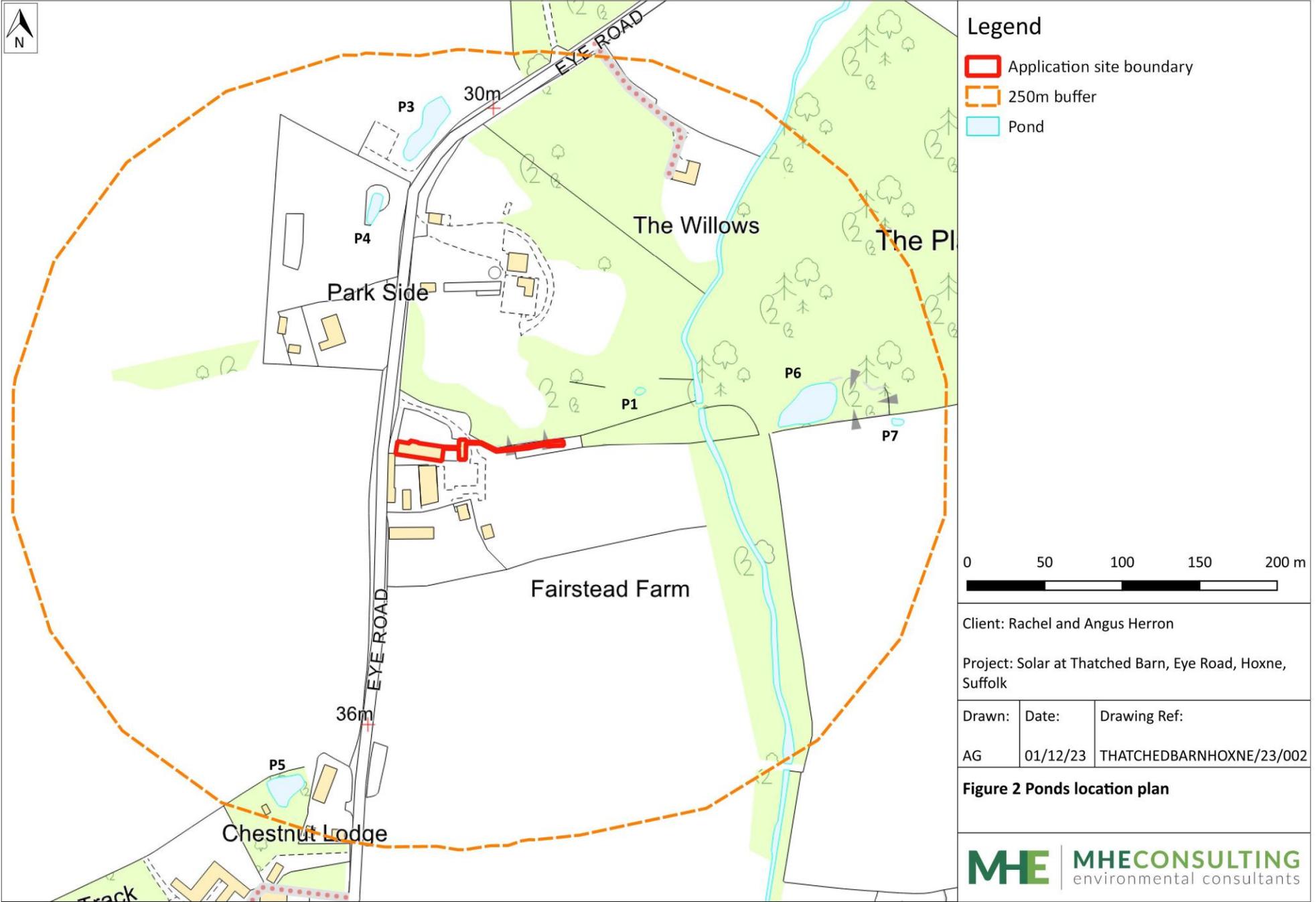


Client: Rachel and Angus Herron

Project: Solar at Thatched Barn, Eye Road, Hoxne, Suffolk

Drawn:	Date:	Drawing Ref:
AG	01/12/23	THATCHEDBARNHOXNE/23/001

**Figure 1 Site location plan**



## Appendices

## **Appendix A1 Photos**



**Photo 1** View of the area of garden where the PV array will be sited – looking east



**Photo 2** View of the area of garden where the PV array will be sited – looking west



**Photo 3** Bramble and fruit bushes near where the PV array will be positioned – looking west



**Photo 4** Area to the west of the PV array where the shallow dig cable route will be laid – looking east



**Photo 5** Area to the west of the PV array where the shallow dig cable route will be laid – looking west



**Photo 6** Garage where the battery storage unit will be located



**Photo 7** Orchard within applicant's garden immediately east of the site.



**Photo 8** Tributary of the River Dove to the east of the site



**Photo 9** View of pond P1 on land to the north of the site



**Photo 10** Small ornamental pond P2

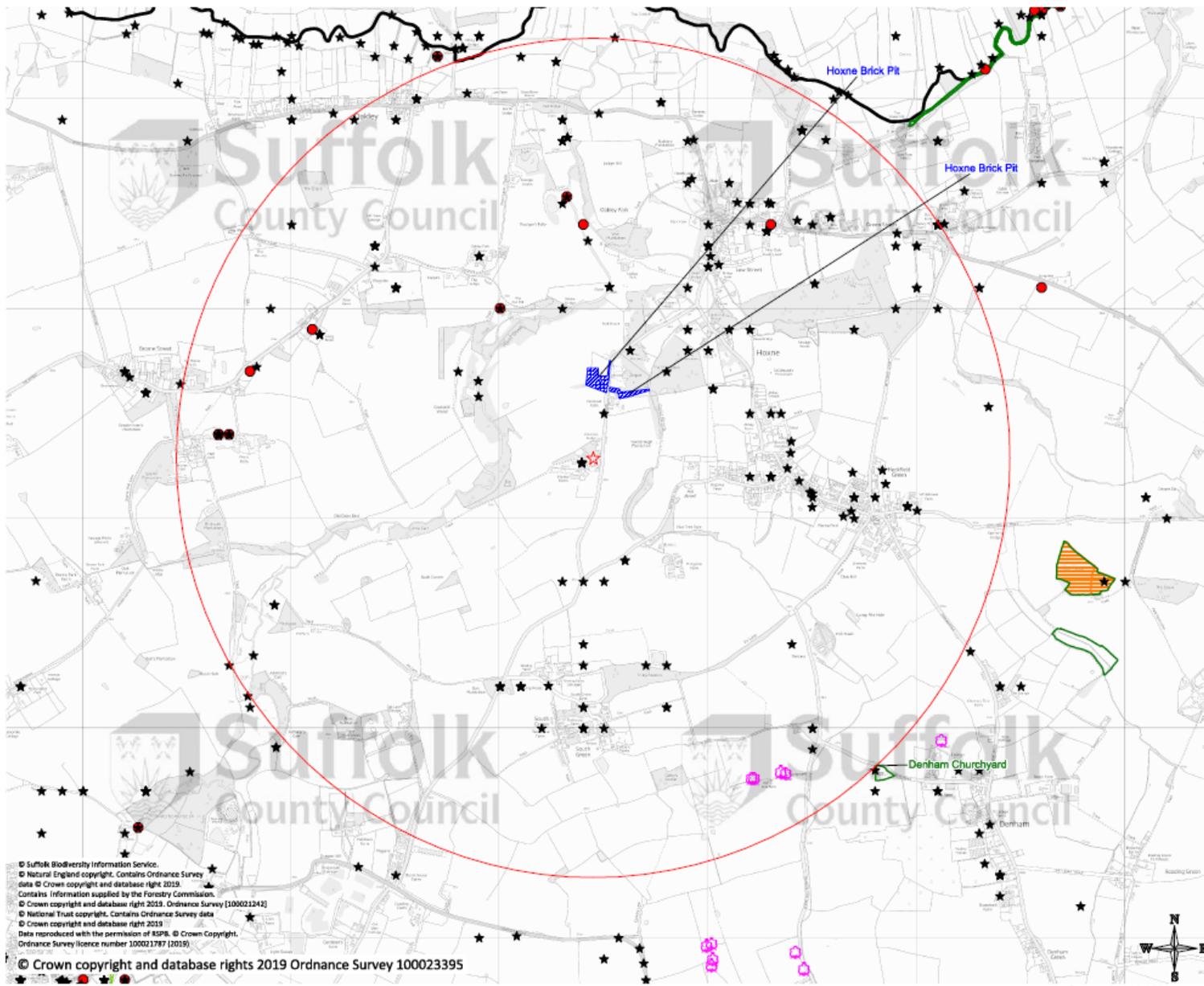


**Photo 11** Pond P3 to the northwest of the site



**Photo 12** Example of artificial refugia (brush pile) left in the garden

## **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

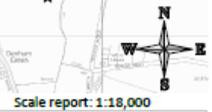
**National Park**

- ▭ The Broads

**Other Public or Conservation Ownership/Management**

- ▭ Forestry Commission, National Trust or RSPB

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Suffolk Biodiversity Information Service  
 Date: 25/01/2019 | Drawn by: Jane Mason

**MHE Consulting (Home Farm West, Hoxne TM1744776287) 2km Data Enquiry**

**Appendix A3 EclA criteria**

### A3.1 General criteria for geographic context/value

Designation	Example
<b>International</b>	<ul style="list-style-type: none"> <li>• SPA, SAC and Ramsar sites and the features that they have been designated for.</li> <li>• 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.</li> <li>• 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.</li> </ul>
<b>National</b>	<ul style="list-style-type: none"> <li>• SSSI or a discrete area that meets the selection criteria for designation.</li> <li>• 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.</li> <li>• A sustainable population of priority species (listed under S. 41 of the NERC Act 2006).</li> <li>• 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.</li> <li>• A sustainable population of uncommon or threatened Annex IV EPS species at a UK level.</li> <li>• A nationally scarce species (occurs in 30-100 10km squares in the UK) that has its main UK population within the district.</li> </ul>
<b>County</b>	<ul style="list-style-type: none"> <li>• A viable area of habitat identified in the county BAP.</li> <li>• A County Wildlife Site.</li> <li>• A sustainable population of common or non-threatened Annex IV EPS species at a UK level.</li> <li>• A Nationally Scarce species that does not have its main population within the county.</li> <li>• A sustainable population of a BAP species not included in the 'national' category above for which a county Action Plan exists.</li> </ul>
<b>Local</b>	<ul style="list-style-type: none"> <li>• 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).</li> <li>• Other habitats and species not in the above categories but are considered to have some value at the district/borough level.</li> </ul>

## **Appendix A4 Great-crested newt poster**

# 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.arguk.org)



## **Appendix A5 Bat boxes**



Kent bat box



Vincent Pro Box

## **Appendix A6 Small passerine bird boxes**

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

Sign In | Fulcrum ... UK Grid Reference... National Biodiversit... Bing Maps Santander Online... Microsoft Office Ho... Jacobs Engineering... Jacobs Engineering... Worldwid

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### 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)
<p><i>Description</i></p> <p>Height the</p> <p>Width</p> <p>Depth</p> <p>Typical Weight</p>		

## 2HW Schwegler Nest Box





Complete Nest Box  
Not in stock: **Usually dispatched within 1-2 weeks**  
**£52.00** ⓘ  
#189129

**Price:** £52.00 [ADD TO BASKET](#)

[About this product](#) | [Specification](#) | [Customer reviews](#) | [Related products](#)

#### Additional images





## Willow Tit/Tree Creeper

£35.00

A new improved box designed for fitting to smaller willow/birch trees, low to the ground, to encourage willow tit. Filled internally with damp sawdust/shavings/rotting wood as this species likes to excavate their own holes. The narrowing top crevice is designed to be suitable for roosting bats. Also suitable for tree creeper without the sawdust infill.

8 in stock



Add to basket

Category: [bird and bat boxes](#)

Description

Additional information

Reviews (0)

### Description

Height 430mm

Width 60mm

Depth 70mm

Typical Weight 4.3kg

## **Appendix A7 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)

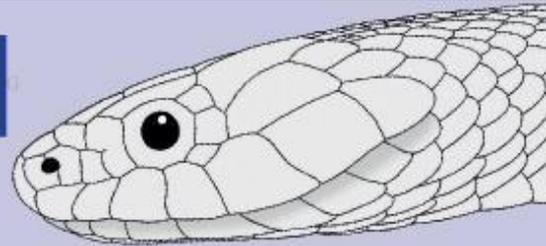


## Distribution and habitat

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](http://www.arguk.org)  
 Amphibian and Reptile Conservation - [www.arc-trust.org](http://www.arc-trust.org)  
 Froglife - [www.froglife.org](http://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](http://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](http://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

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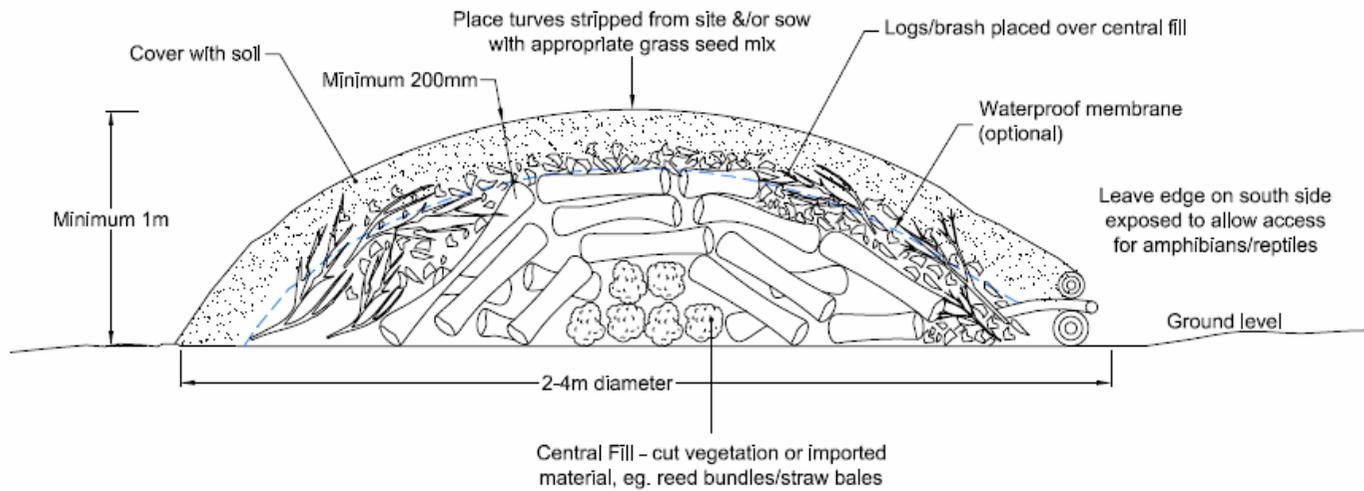
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amphibian and reptile  
 conservation 



## **Appendix A8 Log/brush piles – amphibian hibernacula**



**Brush/log pile recently created**



**Brush/log pile (c. 2 years old) with vegetation growing through and over**