

# PRELIMINARY BAT ROOST ASSESSMENT AND NESTING BIRD SURVEY

Hillside Farm, Newmarket Road, Melbourn, Royston, SG8 7LZ



Prepared by James Hodson BSc MSc  
Trading as 'Eco-Check Ltd'  
White House Cottage  
Knaption Green  
Norfolk  
NR28 0RU  
Tel: 07914 130493  
Email: [ecocheckconsultancy@gmail.com](mailto:ecocheckconsultancy@gmail.com)

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Report produced by:	Client details:
Eco-Check Consultancy Ltd White House Cottage Knapton Green Norfolk NR28 0RU	Acorus Rural Property Services
Tel: 01263 722199 / 07914 130493	Contact: Louise Gregory
<a href="mailto:ecocheckconsultancy@gmail.com">ecocheckconsultancy@gmail.com</a>	<a href="mailto:louise.gregory@acorus.co.uk">louise.gregory@acorus.co.uk</a>
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# 1. Executive Summary

The following summary is an extract of the report. Please ensure the report is read in its entirety for detailed survey findings and recommendations:

SUMMARY	
<b>Introduction</b>	Eco-Check was commissioned by Acorus Rural Property Services to undertake a Preliminary Bat Roost Assessment and nesting bird survey of a group of 6 poultry sheds (B1-B6) of brick, timber frame and timber clad construction with corrugated asbestos sheet roofs at Hillside Farm, Newmarket Road, Melbourn, Cambridgeshire, SG8 7LZ to support a planning application to South Cambridgeshire District Council for the conversion of the buildings to create 5 no. dwelling houses.
<b>Methodology</b>	<p>Desk Study: A desk study was undertaken to obtain and review records of bat activity and roosts within 5km of the site. Records of any other protected/priority species within 2km were also noted and included where relevant.</p> <p>Preliminary Roost Assessment (PRA): A licensed bat ecologist undertook an external inspection of the buildings (a brief internal visual check also made but limited as poultry inside the buildings), searching for roost features, access points, actual roosting bats and signs of past usage. The structural design and condition of the buildings was also noted within the PRA to assess the structural potential for different sorts of roosts.</p>
<b>Results</b>	<p>Desk Study: NBN released details of 40 records of 5 bat species within 5km. The site sits within the Impact Risk Zone of a nearby statutory protected site; however, the application does not meet the criteria that would require a consultation with Natural England. There are no non-statutory protected sites in the vicinity that are likely to be impacted by the application.</p> <p>PRA: The buildings have few PRFs, primarily some small voids between the timber cladding and internal sheet lining and small gaps between the corrugated sheet panels which could provide roosting areas for singleton or small numbers of bats on an occasional basis only. A detailed search of the exterior of the building's surfaces, ledges, fascias, soffits, floors etc. found no bat droppings, feeding remains or any evidence of bat activity or roosting bats.</p> <p>The internal inspection found no evidence of any bat activity or bat roosts and the buildings appear not to have been used by bats for any purpose. The poultry houses are still in use and subject to disturbance, lighting, noise, and vibration (extractor fans) and are cleaned and fumigated between cycles making the buildings sub-optimal roosting habitat. On the basis of the visual survey, sub-optimal PRF's and current use the buildings surveyed were assessed to have <b>negligible/low</b> roost potential.</p>
<b>Recommendations</b>	<ul style="list-style-type: none"> <li>• In the unlikely event bats are found during the scheduled demolition and conversion works, all works must stop immediately, and advice sought from a licensed ecologist. In such instance, further survey work and a European Protected Species Licence (EPSL) may be required.</li> <li>• All staff working on site should receive a toolbox talk (TBT) prior to the commencement of works. The TBT will focus on PRFs, protective legislation, and the risk of bat presence.</li> <li>• The removal of sheet materials, cladding etc. will be undertaken under the supervision of the licensed bat ecologist.</li> <li>• In terms of bat activity and disturbance, works should be undertaken during daylight hours (i.e. 07:00 to 19:00) and artificial lighting should be avoided wherever possible. Where this is not possible, light spillage onto any linear features should be avoided by the use of directional lighting (i.e. the use of hoods and / or cowls).</li> </ul>

## 2. Introduction

### 2.1. Purpose of Survey

Eco-Check was commissioned by Acorus Rural Property Services to undertake a Preliminary Bat Roost Assessment and nesting bird survey of a group of 6 poultry sheds (B1-B6) of brick, timber frame and timber clad construction with corrugated asbestos sheet roofs at Hillside Farm, Newmarket Road, Melbourn, Cambridgeshire, SG8 7LZ to support a planning application to South Cambridgeshire District Council for the conversion of the buildings to create 5 no. dwelling houses.

This report has been prepared in accordance with the recommended format in 'Bat Surveys-Good Practice Guidelines, J. Collins, 2016' and 'Bat Workers Manual, 3<sup>rd</sup> Edition, Mitchell and Jones, 2004'. The methodology of the survey adopts the recommended best working practice for the inspection of buildings for bats and bat roosts. The overall aim is to ensure the proposed works do not adversely impact the local bat population. A desk-based study was performed to check for any records of bat roosts and bat activity within the wider site surrounds. A Preliminary Roost Assessment (PRA) was then undertaken to collate the following information:

- Identify the presence of any roosts or signs of previous bat activity;
- Assess the likelihood of the buildings on-site supporting a potential roost (based on the respective architecture and structural condition); and;
- Determine whether further survey work is required to ascertain the presence / likely absence, size, status and seasonal usage of bat roosts (conforming to best practice survey guidelines [Collins, 2016] and legislative protection).

### 2.2. Site Location

Hillside Farm is situated in an isolated rural location bordered by large arable fields and approximately 2km east of Royston, 15km south-west of Cambridge and is accessed from the A505 to the north, Grid Reference TL386412.

The site forms an agricultural holding owned and operated by J P Dodds Hillside Poultry Farm and David Dodds Transport Ltd. The site Hillside Pullets is an active poultry farm in operation for more than 30 years.

The buildings (B1 to B6) are currently in use for housing poultry. The buildings are of brick, timber frame and timber clad construction with corrugated asbestos sheet roofs and 4 ridge mounted ventilation fans. The floors are concrete, and the buildings are lined internally with timber boards. The buildings measure approximately 20m x 10m apart from B2 which measures approximately 20m x 6m and a furthermore recent structure (B3) measuring approximately 25m by 10m. The tongue and groove sides of the building are generally in good condition and well-sealed with only minor cracks and rot holes. The poultry houses are cleaned and fumigated internally between crops and are subject to regular disturbance, fluorescent lighting, chickens and noise and vibration from extractor fans.

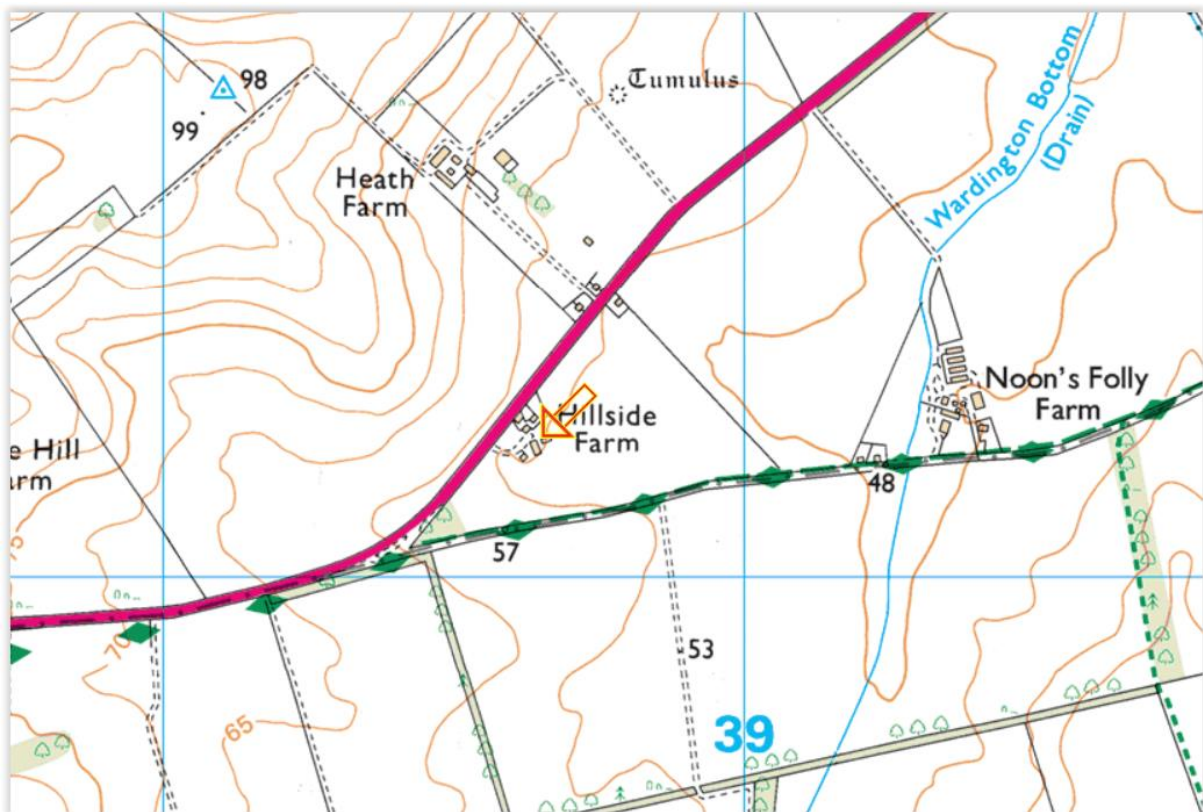


Figure.1- Site Location Map, Streetmap 2023

### 2.3. Site Description

The site forms an agricultural holding with a range of agricultural and poultry buildings of different age and construction. The buildings are bordered by hard surfaces and bare ground with patches of managed improved grassland and some ruderals. There is cypress hedging bordering the buildings to the west and post and wire fencing bordering the site with the arable field to the south and east.

The local green infrastructure is considered to be of low interest to bats and other protected species in context of the quantity, quality and connectivity of suitable habitats in proximity to the site such as woodland, river, lakes, parkland, meadows, hedgerows etc. The site is bordered by almost entirely large arable fields and has limited connectivity apart from hedging along Newmarket Road.

### 2.4. Proposed Works

The proposal is for the change of use and conversion of four poultry sheds (B1, B3, B5 & B6) to form 5 no. dwellings and the demolition of two buildings (B2 & B4) to create parking spaces. Planning policy supports a prosperous rural economy and demand is high for residential units. The proposal will assist in diversifying the farming business, to support the viability and retention of the farm holding. This is especially important following the change in farm support after the UK left the European Union. The buildings are structurally sound and of permanent, substantial construction.

The alterations to the buildings will not harm their appearance or adversely affect the setting of the buildings in the locality. They will still have the appearance of agricultural buildings. They will therefore not materially change the character or impact on the surrounding countryside.

There is no increase in floor area proposed and car parking will be accommodated adjacent to the buildings subject to this application by demolition of two structures. The proposal is sustainable in that it will further support a business use and diversification of the farm business to assist with viability satisfying the Economic Objective. Socially it will provide a required space for housing, thus supporting local jobs. Environmentally it will make use of potentially redundant buildings, the additional works making the buildings more flexible in their use.



*Figure 2 – Aerial View of Site and Buildings*

## 3. Methods

### 3.1. Desk Study

#### 3.1.1. Designated sites

A desk study search for sites designated for nature conservation importance was undertaken on the **Multi-Agency Geographic Information** website ([www.magic.gov.uk](http://www.magic.gov.uk)). The search comprised statutory designated sites (e.g. Sites of Special Scientific Interest, SSSIs). A search was also undertaken for non-statutory designations such as County Wildlife Sites (CWSs) or Local Wildlife Sites (LWSs). A search within 1km of the site was undertaken for non-statutory wildlife sites.

#### 3.1.2. Notable species

A desk study for records of relevant bat records within 2km (5km bats) was obtained from the NBN Atlas as well as previous survey data and local knowledge in the immediate vicinity.

### 3.2. Preliminary Roost Assessment (PRA)

A licensed bat ecologist undertook a PRA on 7<sup>th</sup> April 2023 in accordance with best practice guidance (Collins, 2016). The objectives of survey were to:

- Determine the presence or likely absence of bats;
- Locate any bat roosts and determine the species (where possible);
- Estimate the size of the roost (i.e. small / moderate / large);
- Identify access / egress points to and from potential / confirmed roosts;
- Assess potential flight paths to and from potential / confirmed roosts in terms of the arrangement of current vegetation and lighting layout; and,
- Determine the status and seasonal usage of any bat roosts present.

The survey comprises a systematic search of the exterior from ground level to locate confirmed and/or identify potential roosts and access points (where visible), and to locate any evidence of bats such as live or dead specimens, droppings, urine splashes, fur-oil staining and/or squeaking noises.

The external survey focuses upon the ground surrounding Potential Roost Features (PRFs), particularly beneath potential access points, and structural features of interest such as: gaps between and behind timber cladding, walls, wall-tops, ledges, weatherboarding, eaves, ridge capping, gaps under profiled sheet materials and gaps in brickwork were searched to check for potential access points to roosting areas. A search was made of the terrestrial habitats bordering the buildings and any trees, shrubs, hedges, outbuildings, or other features that may support roosting bats or nesting birds.

### 3.3. Tree Preliminary Bat Roost Assessment

Any trees close to or within the working areas were inspected for signs of any potential roosting features such as rot holes, splits, frost fissures, flaking bark etc.

### 3.4. Bat Roost Category

Following completion of the external and internal surveys, each building / structure are classified in one of the following categories:

- Confirmed bat roost: Presence determined from evidence of bats or bats observed in situ;
- High potential: A structure 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;
- Moderate potential: A structure with one or more potential roost sites that could be used by bats due their size, shelter, protection, conditions and surrounding habitat but is unlikely to support a roost of high conservation status;
- Low potential: A structure with one or more potential roost sites that could be used by individual bats opportunistically. These sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger number of bats (i.e. unlikely to be suitable for maternity or hibernation); or,
- Negligible potential: No habitat features likely to be used by roosting bats.

### 3.5. Legislation

All species of bat are fully protected under The Conservation (Natural Habitats, &c.) Regulations 2017, through their inclusion on Schedule 2. Regulation 39 prohibits:

- Deliberate killing, injuring or taking (capture) of Schedule 2 species (e.g. bats);
- Deliberate disturbance of bat species as:
  - a) to impair their ability:
    - (i) to survive, breed, or reproduce, or to rear or nurture young;
    - (ii) to hibernate or migrate
  - b) to affect significantly the local distribution or abundance of the species;
    - Damage or destruction of a breeding site or resting place; and
    - Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Bats are also currently protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level);
- Intentional or reckless obstruction of access to any place of shelter or protection; and
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

An EPS Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and



hibernate). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Though there is no case law to date, the legislation may also be interpreted such that, in certain circumstances, important foraging areas and/or commuting routes can be regarded as being afforded *de facto* protection, for example, where it can be proven that the continued usage of such areas is crucial to maintaining the integrity and long-term viability of a bat roost.

The species protection provision of the Habitats Directive, as implemented by the Conservation of Species and Habitats Regulations 2017 contain three “derogation tests” which must be applied by the Local Planning Authority when deciding whether to grant planning permission for a development that could harm a European Protected Species. The three tests are that:

- The activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety
- There must be no satisfactory alternative; and
- Favourable conservation status of the species must be maintained.

It is the responsibility of the applicant to submit sufficient information to address these tests when applying for planning permission. NB: For development activities, a Natural England EPS Licence application can only be obtained after planning permission has been granted. However, the granting of planning permission does not guarantee that a licence will be issued by Natural England.

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

The NERC Act 2006 states that ‘every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity’, otherwise known as the Biodiversity Duty. Under Section 41 of the Act, the Secretary of State must publish a list of the living organisms and types of habitat which in the Secretary of State’s opinion are of principal importance for the purpose of conserving biodiversity.

This list is based on those species listed in the UK Biodiversity Framework as priority species (see Section 2.3) in addition to Annex II species listed under The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). The S41 list replaces the list published under Section 74 of the Countryside and Rights of Way (CROW) Act 2000.

### **Environment Act 2021**

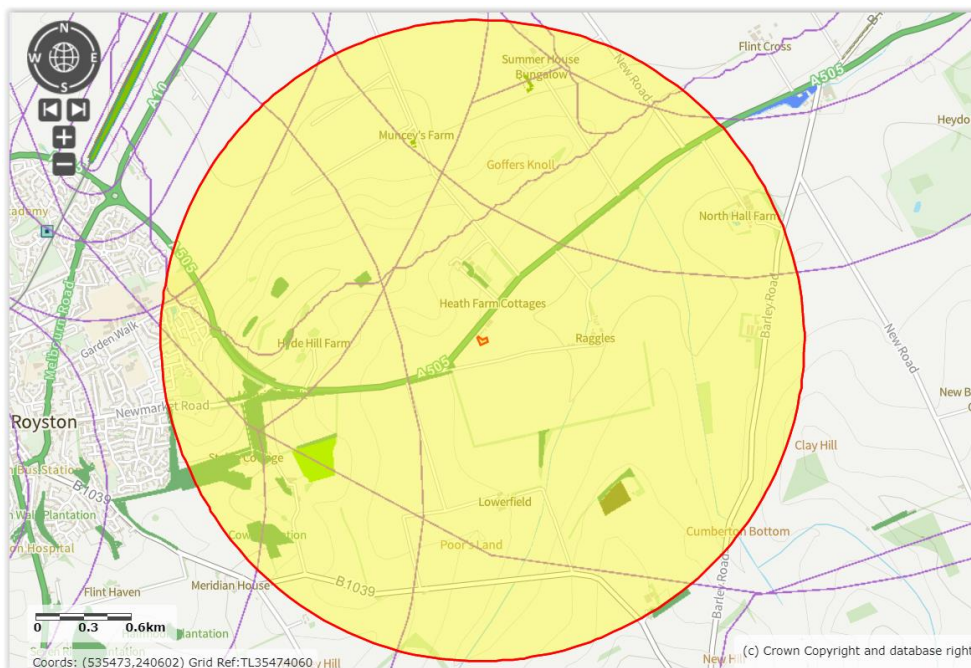
[Environment Act 2021](#) Legislation that will protect and enhance our environment for future generations has now passed into UK law. Through the Act, we will clean up the country’s air, restore natural habitats, increase biodiversity, reduce waste and make better use of our resources. It will halt the decline in species by 2030, require new developments to improve or create habitats for nature, and tackle deforestation overseas. It will help us transition to a more circular economy, incentivising people to recycle more, encouraging businesses to create sustainable packaging, making household recycling easier and stopping the export of polluting plastic waste to developing countries. These changes will be driven by new legally binding environmental targets, and enforced by a new, independent Office for Environmental Protection (OEP) which will hold government and public bodies to account on their environmental obligations.

## 4. Survey Results

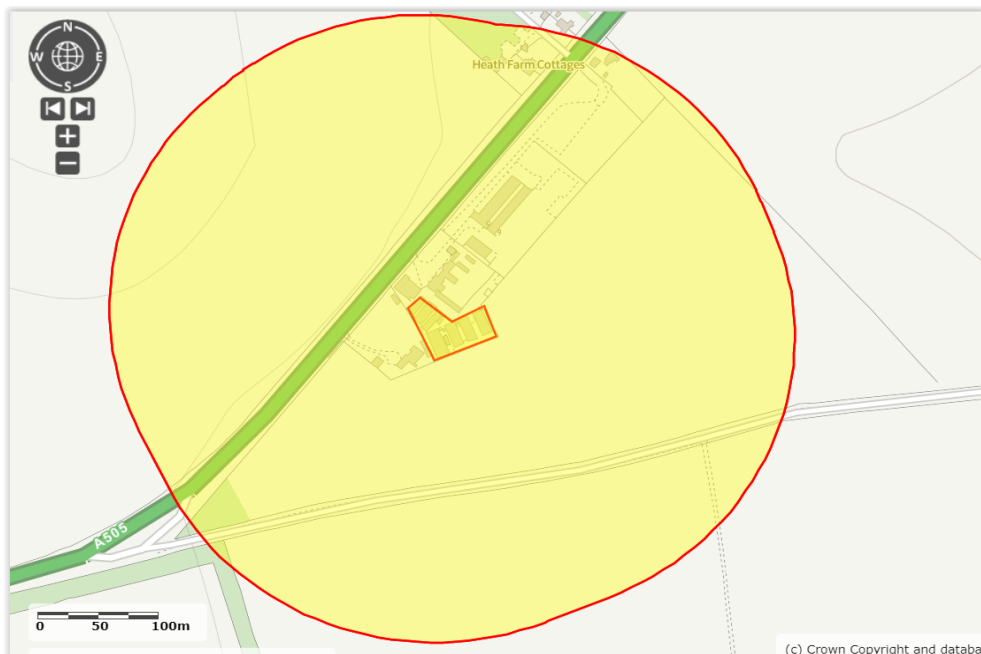
### 4.1. Desk Study

#### 4.1.1. Designated sites

There are no statutory designated sites within a 2km radius. The site is within the SSSI Impact Risk Zone of Fowlmere Watercress Beds SSSI, approximately 3.7km north-east. There are no County Wildlife Sites or Roadside Nature Reserves within 1km. No ponds or water bodies were identified within 250m of the site.



**Figure 3 – MAGIC Site Check- Designated Sites within 2km**



**Figure 4 – Search for ponds and water bodies within 250m**

#### 4.1.2. Bat Records

NBN released details of 40 records of 5 bat species within a 5km search radius including brown long-eared, common pipistrelle, natterer's and noctule. There are also records of hedgehog, brown hare and badger within 2km of the site. Details of the most recent records are detailed in Table 1 below:

Common name	Scientific Name	Location	Designation
Brown long-eared (bat)	<i>Plecotus auritus</i>	TL432399, 2015	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
Common pipistrelle (bat)	<i>Pipistrellus pipistrellus</i>	TL4037/TL4349- 35 records 2002-2021	Bern2, Bern3, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
Natterer's (bat)	<i>Myotis nattereri</i>	TL432399, 2015	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
Noctule	<i>Nyctalus noctula</i>	TL4045, 2010	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
European Hedgehog	<i>Erinaceus europaeus</i>	TL38/TL39-2020 4 records 2016-2019	Bern2, CMS_A2, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
Brown Hare	<i>Lepus europaeus</i>	TL37- 2007-2019 8 records 2007-2019	Bern2, CMS_A2, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
Badger	<i>Meles meles</i>	TL39/TL40- 4 records 2017-2020	Bern2, CMS_A2, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b

**Table 1** – Protected and Priority Species Records within 2km

## 4.2. Building Survey

### 4.2.1. Bat species

A bat survey was undertaken by James Hodson BSc, MSc (Bat Survey License 2017-30927-CLS-CLS, Great Crested Newt Licence 2018-36283-CLS-CLS) on 7<sup>th</sup> April 2023 of a group of 6 poultry houses all of similar construction as detailed above.

#### Poultry Houses: B1-B6

A detailed search of the exterior of the building's ledges, cladding, frames, panels, floor etc. found no bat droppings, feeding remains or any evidence of bat activity or roosting bats. The tongue and groove timber walls were mostly tight fitting and sealed, the eaves are open in places where corrugated roofing sheets meet. An internal inspection found no indication of bat activity, although the poultry being houses prevented a detailed survey of the inside. No bat droppings or feeding remains or other evidence was found.

The roof comprises corrugated fibreboard sheet panels which were intact and in good condition. At the time of the survey, the buildings were being used for housing poultry and as such are fumigated between crops to remove any pathogens. The buildings are subject to noise, vibrations from drying fans as well as artificial lighting and movements of livestock and people. The buildings construction, sub-optimal roosting conditions and lack of evidence of bats is such that all the buildings surveyed were assessed as having **Negligible** probability of bat interest. Given the low potential for the building to support bats and the lack of evidence of any bat usage no further bat survey work is deemed necessary prior to planning consent.



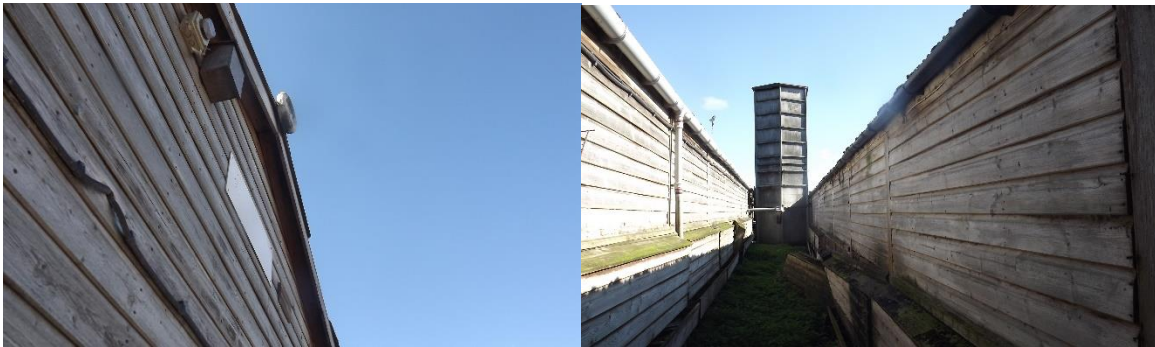
*Figure 5 – South-east elevations adjoining arable field (left), and south boundary (right)*



*Figure 6 – Tongue and groove timber cladding (left), poultry house gable end and doors (right)*



*Figure 7 – Feed hopper and concrete aprons (left) and gable ends of sheds B4-B6 (right)*



*Figure 8 – Tight fitting tongue and groove cladding (left), bare ground between sheds (right)*

#### **4.3. Tree Survey**

There are no trees of sufficient size or age close to the buildings considered likely to support roosting bats. There is a Leyland cypress hedge along the west boundary approximately 5-6m high and managed and this lacked any potential roosting features PRF's.

**Table 2.0** - Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape (Adapted from table 4.1 pp. 35 in Collins, 2016)

Suitability.	Description of Roosting habitats.	Description of Commuting and Foraging habitats.
Negligible	Negligible habitat features on-site likely to be used by roosting bats.	Negligible habitat features on-site likely to be used by commuting or foraging bats.
Low	<p>A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation.)</p> <p>A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.</p>	<p>Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.</p> <p>Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.</p>
Medium	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	<p>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.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.</p>
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. 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.	<p>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, tree-lined water-courses and grazed parkland.</p> <p>Site is close to and connected to known roosts.</p>

## 5. Constraints

### 5.1. Desk Study

These results can only give an indication of species presence in this location. The absence of recent records for certain species in an area may be due to the lack of survey effort or the non-submission of records, rather than the absence of those species. Many species records are also at low resolution and do not indicate their exact location.

### 5.2. Building Survey

A difficulty in inspecting buildings for bats is that the presence of smaller roosts is generally harder to detect than more significant colonies, particularly those of crevice dwelling bats such as pipistrelle. In addition, bats are very transient in nature with complex roosting behaviour and often move between several different roosting sites during the year. Therefore, the presence of transient singleton roosts (e.g. single male roost) can be present at any time of year. The inside of the houses could not be surveyed thoroughly due to them containing large numbers of poultry.

However, I consider the buildings to have low enough bat roosting evidence/potential such that the visual inspection was sufficient to provide reasonable confidence in a negative roost assessment, particularly as bats are not recorded often within buildings of this construction, particularly when external voids are damp/wet and/or exposed.

There is therefore no reasonable expectation that impacts to bats, such as would be considered an offence under Article 12 (1) of the Habitats Directive or Conservation of Habitats and Species Regulations 2017, will occur as a result of the proposed demolition and conversion works.

The potential for roosting bats however can rarely be excluded entirely due to the highly mobile nature of bats and seasonal use of roosts. Due to the small possibility of solitary non-breeding bats within the buildings, a precautionary approach should be adopted with regards to removal of sheet boarding on the roofs and walls due to the small possibility of solitary roosting bats being present within these areas. A watching brief by the licensed bat ecologist (LBE) will be undertaken during these works.

## 6. Evaluation and Recommendations

Please note that all evaluation and recommendations are based upon the findings of this preliminary bat roost assessment and on the proposal outlined in 2.4 above. If the site changes, then the potential for protected species to use the site may change accordingly. If the proposals alter from those at present, then it is possible that the likely impacts will also change.

### 6.1. Bat Species

#### 6.1.1. Overview of legislation relating to bat species

British bat species are protected under the Wildlife and Countryside Act (1981) and Conservation of Habitats and Species Regulations (2017, as amended). This makes it an offence to kill or injure bats or damage or destroy a place of shelter or protection, amongst other actions (see Appendix 1 for more details). Any activity that would result in a contravention of the above legislation would likely require a European Protected Species licence (EPSL) from the relevant statutory body (Natural England). Works or mitigation activities involving interference with bats or bat shelters must be carried out by a licensed bat worker.

#### 6.1.2. Summary of findings

In accordance with best practice guidance (Collins, 2016)<sup>1</sup>, a building of negligible/low potential affords opportunity to be used by individual bats opportunistically, but does not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger number of bats.

There will be no direct or indirect impacts on any designated wildlife sites given the separation distances and small scale of the proposed works. The proposed conversion and demolition works could potentially disturb roosting bats within the areas highlighted and so a pre-works inspection and watching brief by the licensed bat ecologist will take place at this time.

#### 6.1.3. Recommendations and further survey work

No further roost characterization surveys are recommended due to the lower quality of the PRFs, the lack of bat evidence recorded and the sub-optimal roosting conditions recorded the additional survey effort is considered disproportionate to the risk at hand. A single dusk/dawn survey provides little statistical confidence in roost presence for singleton non-breeding bats, especially pipistrelle bats which switch roosts very frequently. Precautionary mitigation is, therefore, recommended to ensure the proposed conversion works complies with UK and European legislation and does not adversely impact the local bat population.

It is recommended for all contractors on-site to receive a toolbox talk prior to works commencing, and also for any PRFs (i.e. lead flashing, soffits/ fascia's etc.) to be inspected by the licensed bat ecologist prior to a soft-strip. In the unlikely event bats are found during the scheduled works, all works must stop immediately, and advice sought from a licensed ecologist. In such an instance, further survey work and a European Protected Species Licence (EPSL) may be required.



#### **6.1.4. Assessment of impact and licensing**

The proposed works have a low likelihood of impacting on bats and there was no evidence of bat activity or bat roosts. On this basis the requirement for a European Protected Species Mitigation License EPS/M is unlikely.

### **6.2. Bird Species**

#### **6.2.1. Overview of legislation relating to bird species**

Under the Wildlife and Countryside Act 1981 it is illegal to take, damage or destroy the nests of wild birds whilst being built or in use. It is not an offence to carry out work in areas that they use, outside of the nesting period (see Appendix 1 for more details).

#### **6.2.2. Summary of findings and likely impacts in absence of mitigation**

No evidence of nesting birds was found on or inside the buildings surveyed. The cypress hedge on the west boundary provides some nesting habitat and the adjacent arable land also provides habitat for ground nesting birds such as skylark *Alauda arvensis* which were observed in the vicinity.

#### **6.2.3. Recommendations**

If works which are likely to damage or disturb bird nests (e.g. removal of roofing material) or if works are to be carried out during the nesting period (1<sup>st</sup> March to 31<sup>st</sup> August) a check should be made for nesting birds, the day before works are due to commence. Similarly a check of the arable field for up to 25m from the buildings should be undertaken to ensure no ground nesting birds are present during the nesting season.

Any birds nesting should be left to complete their breeding (i.e. until the young have fully fledged) before carrying out works on areas of the building where birds are nesting. An ecologist can help with this if necessary. Additional bird nesting boxes installed on the buildings and trees would likely be utilised.

## 7.0 Habitats Regulations and Derogation Test

With respect to the impact on bats, an offence under Article 12 of the European Directive and Regulation 41 of The Conservation of Habitats and Species Regulations 2017 is unlikely to occur. In accordance with the Standing Advice issued by Natural England, as part of the decision-making process, the Local Planning Authority must consider whether an EPS Licence is likely to be required or granted by Natural England in order to derogate from the protection afforded by the Habitats Regulations.

Given the lack of evidence of any roosting bats within the buildings, the **negligible** probability of bat interest within the working areas and the potential to incorporate mitigation within the development for bats, it is considered that an EPS license will not be required and there are reasonable and realistic opportunities to maintain the favourable conservation status of the local bat population despite the proposed construction work. We recommend that the following condition from BS42020:2013 is attached to any planning consent;

“Occasionally European protected species, such as bats, can be found during the course of development even when the site appears unlikely to support them or after an ecological survey has found no previous evidence of them. In the event that this occurs, the developer must stop work immediately and seek the advice of a suitability qualified ecological consultant and/or the relevant statutory nature conservation organisation.”

Reason: In accordance with the requirements of the adopted Joint Core Strategy and paragraph 118 of the National Planning Policy Framework, and for the undertaking of the council’s statutory function under the Natural Environment and Rural Communities Act (2006).

## 8. Mitigation and Biodiversity Enhancement

**8.1** Methods to mitigate the potential impacts on bat species may include sensitive timings of works to avoid periods when bats are breeding, supervision of removal of roofing materials by a suitably qualified bat ecologist, installation of bat bricks and use of suitable roofing materials (including bitumen roofing felt liners). It will be recommended that breathable roofing membranes (BRMs) are not used, as these have been shown to trap bats within the fibrous material. More detailed mitigation recommendations can be provided pending planning consent. Similarly, any wood treatment with insecticides must use bat safe chemicals such as Flufenoxuron.

**8.2** All staff working on site should receive a toolbox talk (TBT) prior to the commencement of conversion works. The TBT will focus on PRFs, protective legislation, and the risk of bat presence onsite. The corrugated sheet materials to be removed in a ‘soft-strip’ fashion. and,

**8.3** Bird and bat boxes will be erected on the external elevations and/or adjacent trees to provide additional nesting and roosting opportunities and to compensate for potential disturbance to nesting birds and roosting bats.

**8.4** Any new external lights will be set on a motion detector and positioned in such a way that they do not shine towards the adjacent tree canopies and hedges which is the nearest area of foraging habitat. Low intensity lighting should be used where possible in place of high intensity discharge or sodium lamps, this will minimize disturbance to foraging and commuting bats.

In accordance with the Bat Conservation Trust's publication *Bats and artificial lighting* (BCT, 2018) light pollution by artificial lighting will be kept to a minimum and light spillage avoided. The following specific mitigation will be put in place to minimize disturbance to bats caused by the lighting of the site. The following mitigation strategies have been taken from Bat Conservation Trust Landscape and Urban Design for Bats and Biodiversity (Gunnell et al., 2012) and other referenced sources:

- Minimise light spill by eliminating any bare bulbs and upward pointing light fixtures. The spread of light should be kept near to or below the horizontal plane, by using as steep a downward angle as possible and/or shield hood. Flat, cut-off lanterns are best;
- Use light sources that emit minimal ultra-violet light (van Langevelde and Feta, 2001) and avoid the white and blue wavelengths of the light spectrum, so as to avoid attracting insects and thus potentially reducing numbers in adjacent areas;
- Limiting the height of lighting columns to eight metres and increase the spacing of lighting columns (Fure, 2006) can reduce the spill of light into unwanted areas;
- Avoid using reflective surfaces under lights or light reflecting off windows (e.g. on to trees);
- Only the minimum amount of light needed for safety and access should be used and or turned off when the site is not in use;
- Artificial lighting proposals should not directly illuminate boundary habitats, which may be of value to foraging or commuting bats and birds (e.g. green corridors);

## 9.0 Recommendations for Further Surveys

If development has not commenced within 18 months of April 2023, it is recommended that an updated survey is undertaken, as the suitability of the site for protected species may have changed.

## 10. References

Bat Surveys-Good Practice Guidelines, J. Collins, 2016' Corbet and Harris (1991).

CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal*. Chartered Institute of Ecology and Environmental Management, Winchester.

Mitchell-Jones, & McLeish, A.P. Ed.(2004),3<sup>rd</sup> Edition Bat Workers' Manual

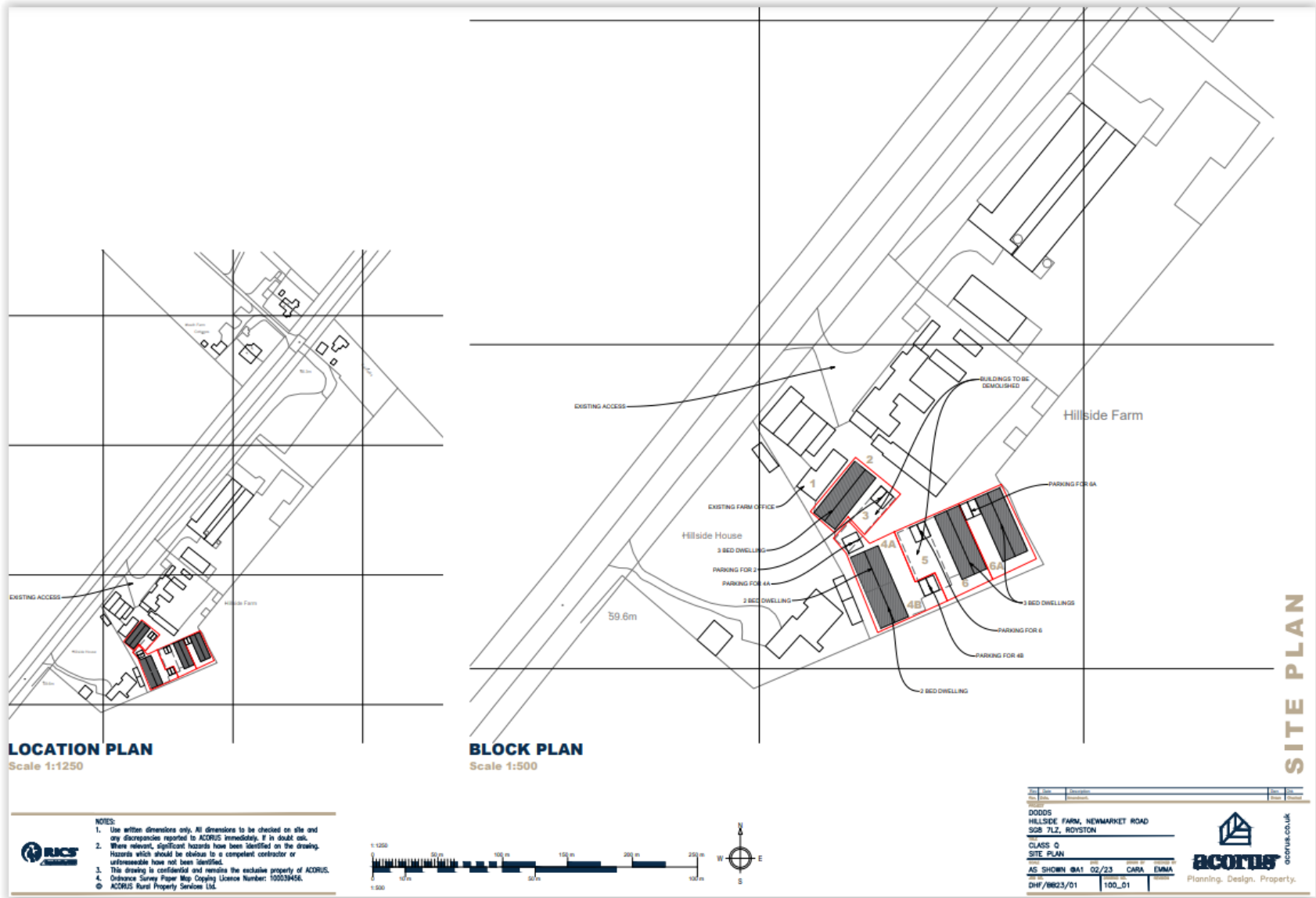
Mitchell-Jones. English Nature (2004). Bat Mitigation Guidelines. EN

Regini, K, 2000, Guidelines for ecological evaluation and impact assessment, In Practice: Bulletin of the Institute of Ecology and Environmental Management, 29, 1-7.

Natural England, MAGIC MAP Search, April 2023 [www.magic.gov.uk](http://www.magic.gov.uk)

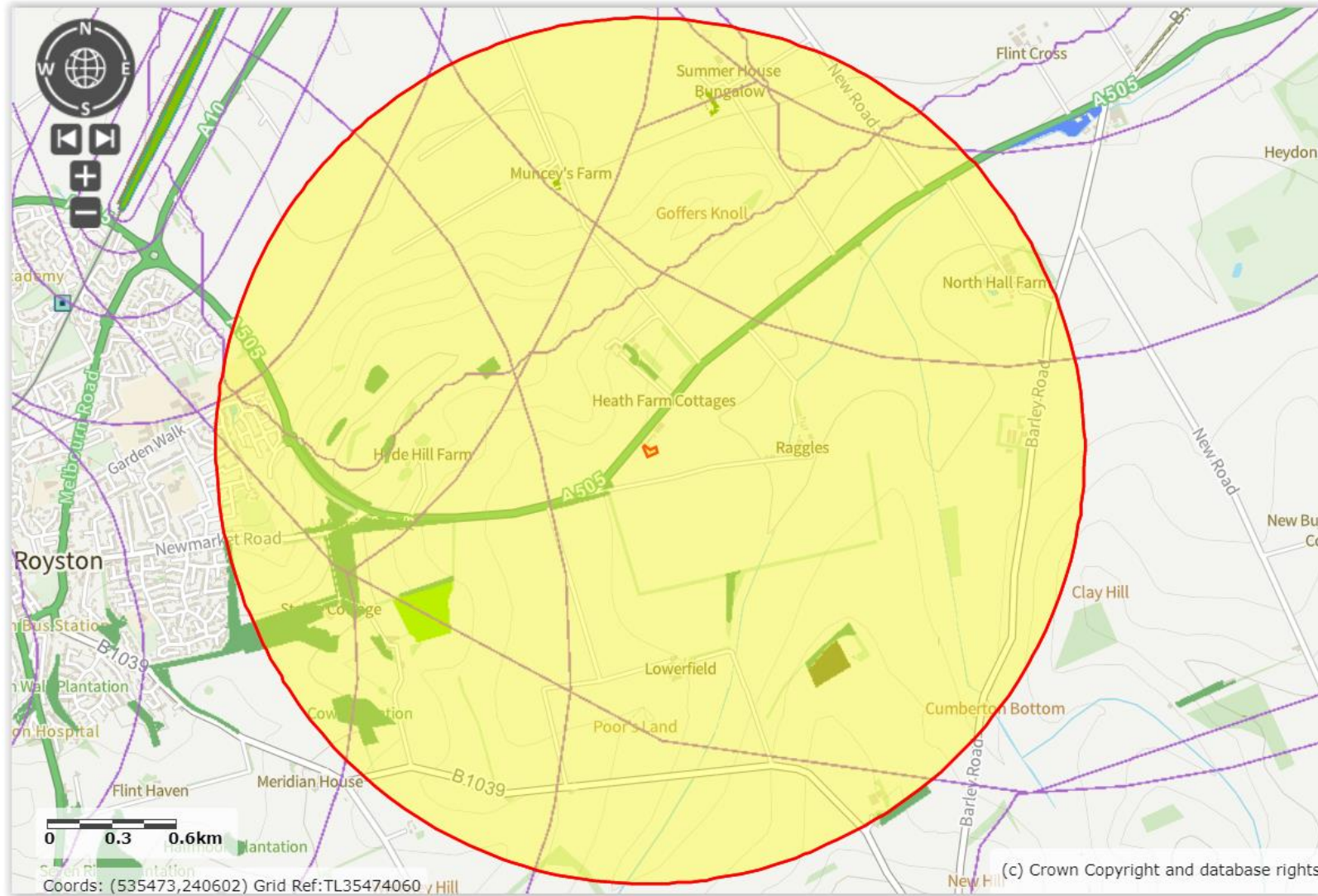
The National Biodiversity Network Website ([www.nbn.org.uk](http://www.nbn.org.uk))

# APPENDIX 1



Site Location Plan

**APPENDIX 2**



Magic – Map of Statutory Wildlife Sites and Priority Habitats within 2km

## **Wildlife site legislation**

A variety of sites are designated in the UK, under various Conventions, Directives and Regulations, for their nature conservation importance and interest. The general aim of these designations is to conserve and protect ecological resources in addition to raising awareness and understanding. Other non-statutory sites are afforded some protection through local plans.

### ***RAMSAR Sites***

Wetlands of international importance. Ramsar Sites are effectively protected, through the planning system, under the Wildlife and Countryside Act 1981, as amended, and the Countryside and Rights of Way Act 2000 through their notification as SSSIs and through other regulatory systems addressing water, soil and air quality.

### ***Special Protection Areas (SPAs)***

SPAs are the most important habitats for rare and migratory birds within the European Union. The Birds Directive, adopted by the UK in 1979, provides for the protection, management and control of all species of naturally occurring wild birds in the European territory of Member States, including the UK. The provisions of the Birds Directive are transposed into English law by the Conservation of Natural Habitats and Species Regulations 2010.

### ***Special Areas of Conservation (SACs)***

SACs are sites that are chosen to conserve the natural habitat types and species of wild flora and fauna listed in Annex I and II of the Habitats Directive. They are the best areas to represent the range and variety of habitats and species within the European Union. The provisions of the Habitats Directive were transposed into English law by the Conservation of Natural Habitats and Species Regulations 2010.

### ***Sites of Special Scientific Interest (SSSIs)***

SSSIs are nationally important sites for wildlife, geological and geomorphological features in England. They are designated and protected under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981, as amended. They receive additional protection under the Countryside and Rights of Way Act 2000.

### ***National Nature Reserves (NNRs)***

NNRs are nationally important areas of wildlife habitat and geological formations in Britain. NNRs are designated and protected under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981, as amended. They receive additional protection under the Countryside and Rights of Way Act 2000. They are managed for the benefit of nature conservation.

### ***Local Nature Reserves (LNRs)***

LNRs are similar to NNRs but they apply to the local context. They are sites of value to nature conservation and are designated under the National Parks and Access to the Countryside Act 1949. They are managed for the benefit of nature conservation.

### ***Hedgerows***

Hedgerows are a very significant wildlife habitat over large parts of Britain. They provide essential refuge for a great many woodland and farmland plants and animals. Hedgerows are given protection under The Hedgerows Regulations 1997. As a result, since 1 June 1997, it has been against the law to remove most countryside hedgerows (or parts of them) without first notifying the local planning authority.

### ***Ancient Woodland***

Ancient woodlands are woodlands that have been established since or before 1600AD. They are non-statutory sites and are not legally protected but they may be afforded some protection in, for example, structure and local plans.

### ***County Wildlife Sites***

These non-statutory sites are sites designated by a local authority as being of County nature conservation value but may not be notified as SSSIs. These selected sites are known as wildlife sites (WS), sometimes called SINCs or SNCIs.

### ***Local Sites***

These non-statutory sites may be designated by a local authority as being of local nature conservation value but are not notified as SSSIs. They have a variety of titles dependent upon the designating authority.

### ***Regionally Important Geological / Geomorphological Sites (RIGS)***

Regionally Important Geological and Geomorphological Sites (RIGS) are designated by locally developed criteria and are currently the most important places for geology and geomorphology outside statutorily protected land such as Sites of Special Scientific Interest (SSSI). The designation of RIGS is one way of recognising and protecting important earth science and landscape features.

## **Species Legislation and Protection**

The legislation which protects various species within the British fauna or flora is outlined below:

### ***Birds***

#### ***The Birds Directive (1979)***

The European Community Council Directive on the Conservation of Wild Birds (79/409/EEC) sets out general rules for the conservation of all naturally occurring wild birds, their nests, eggs and habitats.

#### ***Wildlife and Countryside Act 1981***

Sections 1 to 8 of the Wildlife and Countryside Act relate to the protection of birds. All birds, their nests and eggs are protected by law and it is thus an offence, with certain exceptions to:

- intentionally kill, injure or take any wild bird
- intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built
- intentionally take or destroy the egg of any wild bird
- have in one's possession or control any wild bird, dead or alive, or any part of a wild bird, which has been taken in contravention of the Act or the Protection of Birds Act 1954
- have in one's possession or control any egg or part of an egg which has been taken in contravention of the Act or the Protection of Birds Act 1954
- use traps or similar items to kill, injure or take wild birds
- have in one's possession or control any bird of a species occurring on Schedule 4 of the Act unless registered, and in most cases ringed, in accordance with the Secretary of State's regulations (see Schedules)

#### ***Countryside and Rights of Way Act 2000***

This act strengthens the existing provisions of the Wildlife and Countryside Act 1981 for the enforcement of wildlife legislation, including a new offence of "recklessly" disturbing any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or recklessly disturbing the dependent young of such a bird.

#### ***UK Biodiversity Action Plan Priority Species***

A number of British Birds are UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced. The protection of UK BAP Priority Species is implemented through Local Planning Policy.

## **Bats**

### *The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)*

The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention or CMS) was adopted in Bonn, Germany in 1979 and came into force in 1985. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix 1 of the Convention), concluding multilateral Agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix 2), and by undertaking co-operative research activities.

The European Community is a party to CMS. In general it undertakes activities under the Convention involving issues where the Community has 'competence' (the authority to act as a Community rather than as the member states individually or collectively as the Union). Thus the Community is a Party to the Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS) as this agreement has significant relevance to fishing activities, over which the Community has authority within the Union.

The UK ratified the Convention in 1985. The legal requirement for the strict protection of Appendix I species is provided by the Wildlife & Countryside Act (1981 and as amended). The UK has currently ratified three legally binding Agreements under the Convention: the Agreement on the Conservation of Populations of European Bats (EUROBATS); the African-Eurasian Migratory Waterbird Agreement (AEWA); and ASCOBANS. An Agreement on the Conservation of Albatrosses and Petrels is currently in the process of being ratified; as of May 2002, eight countries including the UK had so far signed, and the Agreement will enter into force after five countries have ratified. The UK has also ratified the Memorandum of Understanding (MoU) on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia, in respect of the British Indian Ocean Territory.

### *The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) 1979*

The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was adopted in Bern, Switzerland in 1979, and came into force in 1982. The principal aims of the Convention are to ensure conservation and protection of all wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to afford special protection to the most vulnerable or threatened species (including migratory species) (listed in Appendix 3). To this end the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.

To implement the Bern Convention in Europe, the European Community adopted Council Directive 79/409/EEC on the Conservation of Wild Birds (the EC Birds Directive) in 1979, and Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the EC Habitats Directive) in 1992. Among other things the Directives provide for the establishment of a European network of protected areas (Natura 2000), to tackle the continuing losses of European biodiversity on land, at the coast and in the sea to human activities.

### *The Habitats Directive (1992)*

The European Community Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) aims to protect the European Union's biodiversity. It requires member states to provide strict protection for specified flora and fauna (i.e. European Protected Species) outside of designated sites.

### *The Conservation of Habitats and Species Regulations 2010*

The Conservation of Habitats and Species Regulations 2010 formally transpose the requirements of the Habitats Directive into national law (replacing the Conservation (Natural Habitats &c) Regulations 1994). They build on existing nature conservation legislation for the protection of habitats and species by introducing requirements for assessing plans and projects affecting European designations and licensing certain activities affecting European Protected Species. All bats are listed as 'European protected species of animals'.

Licences are required for checking known roosts or for carrying out work that may disturb bats, such as the management or disturbance of features that are known to be used as roosting sites.



### *Wildlife and Countryside Act 1981*

This act provides varying degrees of protection for the listed species of flora and fauna. All UK native species of Bat are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). The legislation protects bats and their roosts under Section 9 of the Act, such that it is an offence to:

- Intentionally kill, injure or take a bat
- Possess, control or sell any live or dead specimen or anything derived from a bat
- Intentionally damage, destroy or obstruct access to any structure or place used for shelter or protection (i.e. a roost) by a bat
- Deliberately, or intentionally disturb a bat while it is occupying a roost

### *Countryside and Rights of Way Act 2000*

This act strengthens the existing provisions of the Wildlife and Countryside Act 1981 for the enforcement of wildlife legislation, including a new offence of "recklessly" disturbing bats or recklessly damaging, obstructing or destroying their roosts.

### *UK Biodiversity Action Plan Priority Species*

Several species of bat are UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced for these species. The protection of UK BAP Priority Species is implemented through Local Planning Policy.

## **Otter**

### *The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) 1979*

The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was adopted in Bern, Switzerland in 1979, and came into force in 1982. The principal aims of the Convention are to ensure conservation and protection of all wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to afford special protection to the most vulnerable or threatened species (including migratory species as listed in Appendix III of the Convention). To this end the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.

To implement the Bern Convention in Europe, the European Community adopted Council Directive 79/409/EEC on the Conservation of Wild Birds (the EC Birds Directive) in 1979, and Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the EC Habitats Directive) in 1992. Among other things the Directives provide for the establishment of a European network of protected areas (Natura 2000), to tackle the continuing losses of European biodiversity on land, at the coast and in the sea to human activities.

### *The Habitats Directive (1992)*

The European Community Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) aims to protect the European Union's biodiversity. It requires member states to provide strict protection for specified flora and fauna (i.e. European Protected Species) outside of designated sites.

### *The Conservation of Habitats and Species Regulations 2010*

The Conservation of Habitats and Species Regulations 2010 formally transpose the requirements of the Habitats Directive into national law (replacing the Conservation (Natural Habitats &c) Regulations 1994). They build on existing nature conservation legislation for the protection of habitats and species by introducing requirements for assessing plans and projects affecting European designations and licensing certain activities affecting European Protected Species.

Licences are required for carrying out work that may disturb or injure Otter or destroy breeding sites.

### *Wildlife and Countryside Act 1981*

This act provides varying degrees of protection for the listed species of flora and fauna. Otter is a Schedule 5 species and is fully protected under Section 9 of the Wildlife and Countryside Act (as amended) under which it is an offence to:

- intentionally kill, injure or take an Otter
- deliberately capture or kill an Otter
- possess or control any live or dead specimen or anything derived from an Otter
- intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by an Otter
- deliberately, intentionally or recklessly disturb an Otter while it is occupying a structure or place which it uses for that purpose

*UK Biodiversity Action Plan Priority Species*

Otter is a UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced. The protection of UK BAP Priority Species such as Otter is implemented through Local Planning Policy.

**Water Vole**

*Wildlife and Countryside Act 1981*

This act provides varying degrees of protection for the listed species of flora and fauna. Since April 2008 the water vole has received full legal protection through its inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 in respect of Section 9. Full legal protection under the Act makes it an offence to:

- Intentionally kill, injure or take water voles.
- Possess or control live or dead water voles or derivatives
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection
- Intentionally or recklessly disturb water voles whilst occupying a structure or place used for that purpose.
- Sell water voles or offer or expose for sale or transport for sale.
- Publish or cause to be published any advertisement which conveys the buying or selling of water voles.

*Countryside and Rights of Way Act 2000*

This act strengthens the existing provisions of the Wildlife and Countryside Act 1981 for the enforcement of wildlife legislation, including a new offence of "recklessly" destroying or damaging the habitats of certain protected species, including water vole, or recklessly disturbing water vole.

*UK Biodiversity Action Plan Priority Species*

Water vole is a UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced. The protection of UKBAP Priority Species such as water vole is implemented through Local Planning Policy.

**Brown hare**

*UK Biodiversity Action Plan Priority Species*

Brown hare is a UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced for this species. The protection of UK BAP Priority Species is implemented through Local Planning Policy.

**Hedgehog**

*UK Biodiversity Action Plan Priority Species*

Hedgehog is a UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced for this species. The protection of UK BAP Priority Species is implemented through Local Planning Policy.

### ***Great Crested Newt***

#### *The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) 1979*

The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was adopted in Bern, Switzerland in 1979, and came into force in 1982. The principal aims of the Convention are to ensure conservation and protection of all wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to afford special protection to the most vulnerable or threatened species (including migratory species) (listed in Appendix 3). To this end the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.

To implement the Bern Convention in Europe, the European Community adopted Council Directive 79/409/EEC on the Conservation of Wild Birds (the EC Birds Directive) in 1979, and Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the EC Habitats Directive) in 1992. Among other things the Directives provide for the establishment of a European network of protected areas (Natura 2000), to tackle the continuing losses of European biodiversity on land, at the coast and in the sea to human activities.

#### *The Habitats Directive (1992)*

The European Community Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) aims to protect the European Union's biodiversity. It requires member states to provide strict protection for specified flora and fauna (ie European Protected Species) outside of designated sites.

#### *The Conservation of Habitats and Species Regulations 2010*

The Conservation of Habitats and Species Regulations 2010 formally transpose the requirements of the Habitats Directive into national law (replacing the Conservation (Natural Habitats &c) Regulations 1994). They build on existing nature conservation legislation for the protection of habitats and species by introducing requirements for assessing plans and projects affecting European designations and licensing certain activities affecting European Protected Species.

Licences are required for carrying out work that may disturb or injure Great Crested Newts or destroy breeding sites.

#### *Wildlife and Countryside Act 1981*

This act provides varying degrees of protection for the listed species of flora and fauna. Great Crested Newt is a Schedule 5 species and is fully protected under Section 9 of the Wildlife and Countryside Act (as amended) under which it is an offence to:

- Intentionally kill, injure or take a Great Crested Newt
- Deliberately capture or kill a Great Crested Newt
- Possess or control any live or dead specimen or anything derived from a Great Crested Newt
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a Great Crested Newt
- Deliberately, intentionally or recklessly disturb a Great Crested Newt while it is occupying a structure or place which it uses for that purpose
- Deliberately take or destroy the eggs of a Great Crested Newt

#### *UK Biodiversity Action Plan Priority Species*

Great Crested Newt is a UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced. The protection of UKBAP Priority Species such as Great Crested Newt is implemented through Local Planning Policy.

#### ***Reptiles (Adder, Grass Snake, Slow worm, Common Lizard)***

##### *Wildlife and Countryside Act 1981*

This act provides varying degrees of protection for the listed species of flora and fauna. All UK native reptiles are protected under Schedule 5 (Section 9) of the Wildlife and Countryside Act 1981 (as amended). Common lizard, Slow Worm, Grass snake and Adder receive partial protection under the Act. Only part of sub-section 9(1) and all of sub-section 9(5) apply; these prohibit the intentional killing and injuring and trade (i.e. sale, barter, exchange, transporting for sale and advertising to sell or to buy).

##### *Countryside and Rights of Way Act 2000*

This act strengthens the existing provisions of the Wildlife and Countryside Act 1981 for the enforcement of wildlife legislation, including a new offence of "recklessly" killing or injuring the above-listed species.

##### *Biodiversity Action Plan Priority Species*

Common Lizard, Grass Snake, Adder and Slow Worm are listed on the UK Biodiversity Action Plan as they are priority species for conservation. The protection of UKBAP Priority Species is implemented through Local Planning Policy.

#### ***Common Toad***

##### *UK Biodiversity Action Plan Priority Species*

Common Toad is a UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced for this species. The protection of UK BAP Priority Species is implemented through Local Planning Policy.

#### ***Stag Beetle***

##### *UK Biodiversity Action Plan Priority Species*

Stag Beetle is a UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced for this species. The protection of UK BAP Priority Species is implemented through Local Planning Policy.

#### ***Plants***

##### *Wildlife and Countryside Act 1981*

The Wildlife and Countryside Act (as amended) provides protection to a number of species of plant as listed in Schedule 8. Section 13 identifies measures for the protection of wild plants. It prohibits the unauthorised intentional uprooting of any wild plant species and forbids any picking, uprooting or destruction of plants listed on Schedule 8. It also prohibits the sale, etc, or possession for the purpose of sale of any plants on Schedule 8 or parts or derivatives of Schedule 8 plants. It provides certain defences, e.g. provision to cover incidental actions that are an unavoidable result of an otherwise lawful activity.

##### *UK Biodiversity Action Plan Priority Species*

Several species of plant found in the area are UK Priority Species for Conservation under the UK Biodiversity Action Plan, for which National Species Action Plans have been produced.

**Table 6.1 Guidance on the optimal timing for carrying out specialist ecological surveys and mitigation**

This is not definitive and is intended to provide an indication only. The timing of surveys and animal activity will be dependent on factors such as weather conditions. Please consult the *species briefing sheets* for more detailed information, including species distribution.

KEY	
	Recommended survey time
	No surveys
	Mitigation conducted at these times
	Mitigation works restricted

- \* Where survey techniques involve the capture, handling or disturbance of *protected species* then only licensed persons can undertake surveys; personal *survey and monitoring* licences are obtained from English Nature, Countryside Council for Wales, Environment and Heritage Service (NI) or Scottish Natural Heritage
- \*\* Where mitigation involves the killing, capture, injury and/or disturbance of *protected species* and/or the damage, destruction or obstruction of their *habitats*, a *development licence* must be obtained from the Department for Food and Rural Affairs (England), Scottish Executive's Environment and Rural Affairs Department, Welsh Assembly (Countryside Division) or the Environment and Heritage Service Northern Ireland. Licences will be granted only to persons who have proven competence in dealing with the species concerned. Development licence applications take approximately 30 days to be processed by government departments. Where mitigation works need to be conducted under licence *before* works begin, licence applications will need to be submitted considerably earlier.

take approximately 30 days to be processed by government departments. Where mitigation works need to be conducted under licence *before* works begin, licence applications will need to be submitted considerably earlier.

		Licence required?	J	F	M	A	M	J	J	A	S	O	N	D	
Habitats / vegetation	Surveys	N	Mosses and lichens. No other detailed plant surveys – Phase 1 surveys only (least suitable time)			Detailed habitat assessment surveys Surveys for higher plants and ferns Mosses and lichens in April, May and September only						Mosses and lichens. No other detailed plant surveys – Phase 1 surveys only (least suitable time)			
	Mitigation	N	Planting and translocation		No mitigation for majority of species						Planting and translocation				
Birds	Surveys	N	Winter birds		Breeding birds / migrant species			Breeding birds		Breeding birds / migrant species			Winter birds		
	Mitigation	N	Clearance works may be conducted at this time, but must stop immediately if any nesting birds are found		No clearance or construction works Bird nesting season						Clearance works may be conducted at this time, but must stop immediately if any nesting birds are found				
Badgers	Surveys	*	All survey methods – best time is in spring and early autumn / winter												
	Mitigation	**	Building of artificial setts No disturbance of existing setts						Stopping up or destruction of existing setts					See Jan to June	
Bats	Surveys	*	Inspection of hibernation, tree and building roosts			No surveys		Activity surveys and inspection of building roosts. Emergence counts.				No surveys		Inspection of hibernation, tree and building roosts	
	Mitigation	**	Works on maternity roosts		Works on maternity roosts until mid-May. Works on hibernation roosts from mid-March			Works on hibernation roosts only			Hibernation roosts until November. Maternity roosts from mid-September		Works on maternity roosts only		

**Table 6.1** Guidance on the optimal timing for carrying out specialist ecological surveys and mitigation (continued)

		Licence required?	J	F	M	A	M	J	J	A	S	O	N	D
Other reptiles	Surveys	N	No surveys – reptiles in hibernation	Activity surveys from March to June and in September / October. Surveys are limited by high temperatures during July and August. Peak survey months are April, May and September.									No surveys – reptiles in hibernation	
	Mitigation	N	Scrub clearance	Capture and translocation programmes can only be conducted whilst reptiles are active (March to June and September / October). Trapping is limited by high temperatures during July / August. Scrub clearance									Scrub clearance	
Great crested newts (n/a in NI)	Surveys	*	No surveys – newts in hibernation	Pond surveys for adults: mid-March to mid-June. Surveys must include visits undertaken between mid-April and mid-May. Egg surveys April to mid-June. Larvae surveys from mid-May. Terrestrial habitat surveys				Larvae surveys to mid-August. Terrestrial habitat surveys		Terrestrial habitat surveys		No surveys – newts in hibernation		
	Mitigation	**	No trapping of newts. Pond management only	Newt trapping programmes in ponds and on land				Newt trapping on land only				No trapping of newts. Pond management only		
Natterjack toads	Surveys	*	No surveys - toads in hibernation		Surveys of breeding ponds for adults. Surveys for tadpoles from May onwards. Surveys for adults on land			Surveys for adults on land.		No surveys – toads in hibernation				
	Mitigation	**	Pond management works		Trapping of adults in ponds from April to July. Trapping of adults on land. Trapping of tadpoles from May to early September					Pond management works				
White-clawed crayfish	Surveys	*	Reduced activity		Surveys can be undertaken	Avoid surveys (females are releasing young)		Optimum time for surveys			Reduced activity			
	Mitigation	***	Avoid capture programmes (low activity levels may lead to animals being easily missed)		Exclusion of crayfish from construction areas.	Avoid capture programmes		Exclusion of crayfish from construction areas			Avoid capture programmes (low activity levels may lead to animals being easily missed)			
Fish	Surveys	*	For coastal, river and stream-dwelling species, the timing of surveys will depend on the migration pattern of the species concerned. Where surveys require information on breeding, the timing of surveys will need to coincide with the breeding period, which may be summer or winter months, depending on the species.											
	Mitigation	**	Mitigation for the protection of watercourses is required at all times of year. Mitigation for particular fish species will need to be timed so as to avoid the breeding season. This varies from species to species.											

\*\*\* Where mitigation involves the capture of white-clawed crayfish, a mitigation licence must be obtained from English Nature, Countryside Council for Wales, Environment and Heritage Service (NI) or Scottish Natural Heritage. Licences will be granted only to persons who have proven competence in dealing with the species concerned.

Examples of Bat Boxes		
<p>It is important that the bat boxes are positioned sufficiently high above the ground to dissuade ground predators, a minimum of 4m up; and at a distance from sources of artificial lighting. The boxes should be located on the west, south and east facing sides of the trees / buildings giving bats a range of microclimates through the year and direct access to foraging and commuting habitat along site boundaries.</p>		
Schwegler 1FF Bat Box		The 1FF bat box can be sited in trees or on buildings. Size: 43cm high x 27cm wide x 14cm deep.
Schwegler 2F Bat Box		The 2F bat box can be sited in trees or on buildings. Size: 33cm high x 16cm diameter.
1FQ Schwegler Bat Roost (For External Walls)		Suitable for a variety of crevice-dwelling bats, for larger roosts or maternity groups. Internal layout provides 3 different areas where bats can roost, offering different levels of light and temperature. Gaps ranging from 1.5cm to 3.5cm wide offering various places for bats to roost. Suitable to erect on most types of external brick, timber or concrete structures. Size: 60cm high x 35cm wide x 9cm deep.
Improved Roost-Maternity Bat Box		A large 3 crevice bat box. 3 separate crevices each with different temperature characteristics. Suitable for larger roosts or maternity groups of small crevice-dwelling species such as pipistrelle bats. Suitable to erect on buildings or trees. Size: 49cm high x 26cm wide x 13cm deep.
Timber Double Chamber Bat Box		This bat box is suitable for siting on trees in gardens or woodland and requires no annual maintenance. Should not be painted or treated with any type of preservative, as these can harm the bats. Size: 31.3cm high x 16cm wide x 16cm deep.
The Kent Bat Box		Made from untreated rough-sawn timbers ca.20mm thick. Crevices can be between 15mm and 25mm wide. Suitable to fit to walls, other flat surfaces or trees. Approximate dimensions (boxes vary in size): 24cm wide x 47.5cm high x 17cm deep.

<b>Bird Nesting Habitat</b>	
<p><b>CedarPlus Nest Box</b>            Available with 2 entrance hole sizes:  <b>32mm hole</b> – suitable for great, marsh and coal tits, redstart, nuthatch, pied flycatcher, house sparrow and tree sparrows.  <b>26mm hole</b> – to allow access only to blue, marsh and coal tits (and possibly wrens).             Height: 370mm; Width: 156mm; Depth: 175mm</p>	
<p><b>Schwegler 1B Bird Box</b>            The 1B nest box will attract a wide range of species and is available with different entrance hole sizes to prevent birds from competing with each other for the boxes.            It is available in 4 colours: brown, green, white and red. The nest box can be attached to the tree or wall using an aluminium nail or by hanging over a branch and is made from Woodcrete to ensure that it is long-lasting.            Entrance hole sizes:  <b>32mm hole</b> – will attract great, blue, marsh, coal and crested tit, redstart, nuthatch, collared and pied flycatcher, wryneck, tree and house sparrow.  <b>26mm hole</b> – suits blue, marsh, coal and crested tit and possibly wren. All other species are prevented from using the nest box due to the smaller entrance hole.  <b>Oval hole (29x55mm)</b> – suits redstarts because more light enters the brood chamber. It is also suitable for all other species which nest in the 32mm boxes.            Height: 23cm; Diameter: 16cm</p>	
<p><b>No. 10 Schwegler Swallow Nest</b>            The Swallow Nest No. 10 consists of a woodcrete nesting bowl which is attached to a wooden panel of formaldehyde-free chipboard. The nest should be placed inside outbuildings such as sheds, barns or stables leaving a distance of at least 35mm between the top of the nest and wall top. Ensure there is always access for the birds through an open window or skylight, or other high level access (minimum of 50mm (H) x 70mm (W) gap). Multiple nests should not be placed at less than 1m intervals.            To avoid problems with droppings accumulating, a droppings board could be placed beneath each nest box to collect the droppings.</p>	





## Artificial lighting and wildlife

### Interim Guidance: Recommendations to help minimise the impact artificial lighting

Wherever human habitation spreads, so does artificial lighting. This increase in lighting has been shown to have an adverse effect on our native wildlife, particularly on those species that have evolved to be active during the hours of darkness. Consequently, development needs to carefully consider what lighting is necessary and reduce any unnecessary lighting, both temporally and spatially. When the impacts on different species groups are reviewed, the solutions proposed have commonalities that form the basis of good practice. These are outlined in the following document.

#### Overview of impacts

##### Invertebrates

Artificial light significantly disrupts natural patterns of light and dark, disturbing invertebrate feeding, breeding and movement, which may reduce and fragment populations. Some invertebrates, such as moths, are attracted to artificial lights at night. It is estimated that as many as a third of flying insects that are attracted to external lights will die as a result of their encounter.<sup>1</sup> Insects can become disoriented and exhausted making them more susceptible to predation. In addition, the polarisation of light by shiny surfaces attracts insects, particularly egg laying females away from water. Reflected light has the potential to attract pollinators and impact on their populations, predators and pollination rates. Many invertebrates natural rhythms depend upon day-night and seasonal and lunar changes which can be adversely affected by artificial lighting levels.

It is not always easy to disentangle the effects of lighting on moths from other impacts of urbanisation. However, it is known that UV and green and blue light, which have short wavelengths and high frequencies, are seen by most insects and are highly attractive to them. Where a light source has a UV component, male moths in particular will be drawn to it. Most light-induced changes in physiology and behaviour are likely to be detrimental. They discern it to be 'light', so they do not fly to feed or mate.<sup>2</sup>

##### Birds

There are several aspects of changes to bird behaviour to take into account. The phenomenon of robins and other birds singing by the light of a street light or other external lighting installations is well known, and research has shown that singing did not have a significant effect on the bird's body mass regulation. However, it was felt that the continual lack of sleep was likely to be detrimental to the birds' survival and could disrupt the long-term circadian rhythm that dictates the onset of the breeding season<sup>3</sup>. Many species of bird migrate at night and there are well-documented cases of the mass mortality of nocturnal migrating birds as they strike tall lit buildings. Other UK bird species that are particularly sensitive to artificial lighting are long-eared owls, black-tailed godwit and stone curlew.<sup>4</sup>

<sup>1</sup> Bruce-White C and Shardlow M (2011) A Review of the Impact of Artificial Light on Invertebrates - See more at: <http://www.buglife.org.uk/advice-and-publications/publications/campaigns-and-reports/review-impact-artificial-light#sthash:s7GPA1vL.dpuf>

<sup>2</sup> As above

<sup>3</sup> Pollard A. (2009) Visual constraints on bird behaviour. University of Cardiff

<sup>4</sup> Rodriguez A., Garcia A.M., Cervera F. and Palacios V. (2006) Landscape and anti-predation determinants of nest site selection, nest distribution and productivity in Mediterranean population of Long-eared Owls, *Asio otus*. *Ibis*, 148(1), pp. 133-145

## Mammals

A number of our British mammals are nocturnal and have adapted their lifestyle so that they are active in the dark in order to avoid predators. Artificial illumination of the areas in which these mammals are active and foraging is likely to be disturbing to their normal activities and their foraging areas could be lost in this way. It is thought that the most pronounced effect is likely to be on small mammals due to their need to avoid predators. However, this in itself has a knock-on effect on those predators.

The detrimental effect of artificial lighting is most clearly seen in bats. Our resident bat species have all suffered dramatic reductions in their numbers in the past century. Light falling on a bat roost exit point, regardless of species, will at least delay bats from emerging, which shortens the amount of time available to them for foraging. As the main peak of nocturnal insect abundance occurs at and soon after dusk, a delay in emergence means this vital time for feeding is missed. At worst, the bats may feel compelled to abandon the roost. Bats are faithful to their roosts over many years and disturbance of this sort can have a significant effect on the future of the colony. It is likely to be deemed a breach of the national and European legislation that protects British bats and their roosts.

In addition to causing disturbance to bats at the roost, artificial lighting can also affect the feeding behaviour of bats and their use of commuting routes. There are two aspects to this: one is the attraction that short wave length light (UV and blue light) has to a range of insects; the other is the presence of lit conditions.

As mentioned, many night-flying species of insect are attracted to lamps that emit short wavelength component. Studies have shown that, although noctules, serotines, pipistrelle and Leisler's bats, take advantage of the concentration of insects around white street lights as a source of prey, this behaviour is not true for all bat species. The slower flying, broad-winged species, such as long-eared bats, barbastelle, greater and lesser horseshoe bats and the *Myotis* species (which include Brandt's, whiskered, Daubenton's, Natterer's and Bechstein's bats) generally avoid external lights.

Lighting can be particularly harmful if it illuminates important foraging habitats such as river corridors, woodland edges and hedgerows used by bats. Studies have shown that continuous lighting along roads creates barriers which some bat species cannot cross<sup>5</sup>. It is also known that insects are attracted to lit areas from further afield. This could result in adjacent habitats supporting reduced numbers of insects, causing a further impact on the ability of light-avoiding bats to feed.

These are just a few examples of the effects of artificial lighting on British wildlife, with migratory fish, amphibians, some flowering plants, a number of bird species, glow worms and a range of other invertebrates all exhibiting changes in their behaviour as a result of this unnatural lighting.

## Recommendations

### Survey and Planning

The potential impacts of obtrusive light on wildlife should be a routine consideration in the Environmental Impact Assessment (EIA) process<sup>6</sup>. Risks should be eliminated or minimised wherever possible. Some locations are particularly sensitive to obtrusive light and lighting schemes in these areas should be carefully planned.

In August 2013, Planning Minister Nick Boles launched the new National Online Planning Guidance Resource aimed at providing clearer protection for our natural and historic environment. The guidance looks at when lighting pollution concerns should be considered and is covered within one of the on line planning practice

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<sup>5</sup> Stone E. L., Jones G and Harris (2009) Street lighting disturbs commuting bats. *Current Biology*, 19, pp 1-5

<sup>6</sup> See also: Institution of Lighting Professionals - Professional Lighting Guide (PLG 04) Guidance on undertaking lighting environmental impact assessments)

guides<sup>7</sup>. The guide provides an overview for planners with links to documents that aim to give planners an overview of the subject through the following discussion points:

1. When is obtrusive light / light pollution relevant to planning?
2. What factors should be considered when assessing whether a development proposal might have implications for obtrusive lighting / light pollution?
3. What factors are relevant when considering where light shines?
4. What factors are relevant when considering how much the light shines?
5. What factors are relevant when considering possible ecological impact?

This can help planners reach the right design through the setting of appropriate conditions relating to performance and mitigation measures at the planning stage.

The Institution of Lighting Professionals (ILP) recommends that Local Planning Authorities specify internationally recognised environmental zones for exterior lighting control within their Development Plans<sup>8</sup>. In instances lacking classification, it may be necessary to request a Baseline Lighting Assessment/Survey conducted by a Lighting Professional in order to inform the classification of areas, particularly for large-scale schemes and major infrastructure projects.

When assessing or commissioning projects that include the installation of lighting schemes, particularly those subject the EIA process, the following should be considered and relayed to applicants:

- *Ecological consultants should confirm the presence of any sensitive fauna and flora*, advising the lighting designers of bat routes and roosts and other areas of importance in order to ensure that reports correspond with each other.
- *Ecological consultants should consider the need for quantitative lighting measurements*. In some instances it may be necessary for further lighting measurements to be taken. For example, outside an important bat roost. These should follow best practice guidance from the ILP and would ideally be conducted by a Lighting Professional.
- *Where appropriate, professional lighting designers should be consulted* to design and model appropriate installations that achieve the task but mitigate the impacts. This should be done at the earliest opportunity. Early decisions can play a key role in mitigating the impact from lighting.
- *Reports submitted should outline the impacts of lighting in relation to ecology*, making clear reference to the ecological findings, highlighting any sensitive areas and detail proposed mitigation. Consideration should also be given to internal lighting where appropriate.
- *Post -installation checks and sign off upon commissioning should be carried out* by the lighting designer to ensure that the lighting installation has been installed in accordance with the design, that predictions were accurate and mitigation methods have been successful.

## Principles and design considerations

### *Do not*

- *provide excessive lighting*. Use only the minimum amount of light needed for the task.
- *directly illuminate bat roosts* or important areas for nesting birds

### *Avoid*

- *installing lighting in ecologically sensitive areas* such as: near ponds, lakes, rivers, areas of high conservation value; sites supporting particularly light-sensitive species of conservation significance (e.g. glow worms, rare moths, slow-flying bats) and habitat used by protected species.
- *using reflective surfaces under lights*.

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<sup>7</sup><http://planningguidance.planningportal.gov.uk/blog/guidance/light-pollution/when-is-light-pollution-relevant-to-planning/>

<sup>8</sup> Institution of Lighting Professionals (2011) Guidance Notes for the Reduction of Obtrusive Light GN01:2011.