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# Biodiversity Enhancement Management Plan

## Site Name

**Huddlestone Farm, Steyning**

## Client

**Enso Energy Ltd**

## Issue Date

**14th March 2025**

## Author

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**Project No: 6603**

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# Document Control

| Issue No | Author | Reviewer | Issue Date | Additions/alterations | Notes |
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| Rev01 | **Meerabai Kings** MSci (hons) | **Paul Whitby** MCIEEM CEcol | 14.03.25 | Addition of native tree planting and management. Removal of hedgerow planting and management (no hedgerows within red line boundary) | |

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## About the Author

This report has been prepared by Meerabai Kings, an Assistant Ecologist at The Ecology Co-op, with two years experience. As a Qualifying member of the Chartered Institute for Ecology and Environmental Management (CIEEM) she is bound by their code of professional conduct.

## About the Reviewer

This report has been reviewed by Kate Priestman, who is a Principal Ecologist with over twenty years' experience. Kate has undertaken extensive survey work and reporting, encompassing a breadth of deliverables, and prepared European Protected Species licences for numerous schemes. As a Full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and a Chartered Environmentalist (CEnv), she is bound by CIEEM's code of professional conduct.

The revised report has been reviewed by Paul Whitby, who is a Principal ecologist with 19 years experience. He has extensive experience in Ecological Impact Assessment and Biodiversity Net Gain. As a Full member of the Chartered Institute for Ecology and Environmental Management (CIEEM), he is bound by their code of professional conduct.

## Report Summary

| | |
|---|---|
| **Purpose** | The Ecology Co-operation was commissioned by Eso Energy Ltd to provide a Biodiversity Enhancement Management Plan (BEMP) with regards to a proposed development at Huddlestone Farm, Steyning. This document outlines site-wide mitigation for habitats and protected species as well as targeted enhancement measures. It also includes management objectives, responsibilities and maintenance schedules including remedial responsibilities, should they be necessary. It will be submitted to Horsham District Council as part of planning application reference: DC/24/1534. |
| **Context** | A Preliminary Ecological Appraisal of the site was undertaken in June 2024 by The Ecology Co-op. No Phase 2 surveys were recommended or conducted. |
| **Construction phase measures** | Section 3 of this report details mitigation measures during construction and the operational phase of the development, including an ecologically sensitive lighting scheme (see Appendix 2) as well as precautionary measures for breeding birds, reptiles and amphibians. A Method Statement concerning reptiles is provided in a separate document by The Ecology Co-op. |
| **Biodiversity Enhancements** | Section 4 sets out the proposed habitat enhancement measures for the site, including:<br>• sowing wildflower seed mixture on the retained grass verges;<br>• native tree planting on the grassland beside the ditch;<br>• installing bat boxes on the mature oak trees on site;<br>• installing bird boxes on the mature oak trees on site; and,<br>• constructing a reptile and amphibian hibernacula on site. |
| **Post-construction management** | Post construction management for the retained ecological features and proposed biodiversity enhancement features is detailed in full in section 5 and a work schedule is provided in section 6 outlining management responsibilities and remedial actions should they be necessary. |
| **Toolbox talk** | Site staff must be briefed, prior to the commencement of construction, on the ecological issues related to the project and the importance of contacting an ecologist in the event that any wildlife is identified within the construction zone. |

# *CONTENTS PAGE*

**1 INTRODUCTION ..... 5**

1.1 Purpose of the Report ..... 5
1.2 Background ..... 5
1.3 Summary of Previous Survey Work ..... 7

**2 LEGAL PROTECTION ..... 7**

2.1 Management Plan Strategic Vision ..... 7

**3 CONSTRUCTION PHASE MITIGATION MEASURES ..... 7**

3.1 General Housekeeping ..... 7
3.2 Bats ..... 8
3.3 Breeding Birds ..... 8
3.4 Reptiles and Amphibians ..... 8

**4 BIODIVERSITY ENHANCEMENT MEASURES ..... 9**

4.1 Enhancement for Grass Verges ..... 9
4.2 Native Tree Planting ..... 10
4.3 Enhancements for Bats ..... 11
4.4 Enhancements for Nesting Birds ..... 11
4.5 Enhancements for Reptiles and Amphibians ..... 12

**5 POST CONSTRUCTION MANAGEMENT PLAN ..... 13**

5.1 Wildflower Verges ..... 13
5.2 Native Tree Management ..... 13
5.3 Bat and Bird Boxes ..... 14
5.1 Reptile and Amphibian Hibernacula ..... 14

**6 WORK SCHEDULE ..... 15**

**7 MONITORING AND REVIEW ..... 16**

**8 COMPETENCIES, STANDARD AND SPECIFICATIONS OF WORKS ..... 16**

**APPENDIX 1 - Wildlife Legislation and National Planning Policy ..... 17**

**APPENDIX 2 – Reducing Impacts of Artificial Light ..... 22**

# 1 INTRODUCTION

## 1.1 Purpose of the Report

The Ecology Co-operation was commissioned by Enso Energy Ltd to produce a Biodiversity Enhancement Management Plan for a proposed access track associated with a proposed solar farm at Huddlestone Farm, Steyning. This document outlines site-wide mitigation for habitats and protected species as well as targeted enhancement measures. It also includes the management objectives, responsibilities and maintenance schedules, including remedial responsibilities, should they be necessary. It will be submitted to Horsham District Council as part of planning application reference: DC/24/1534.

The prescribed mitigation measures described within this document will be issued to relevant works contractors to ensure that they are carried out in full. Implementation of this will be overseen by a suitable ecological consultancy, and the works contractor will be given contact details for an ecologist so that any issues can be resolved promptly.

## 1.2 Background

The site is located at Huddlestone Farm, Horsham Road, Steyning, West Sussex BN44 3AD. The farm comprises a dairy farm with a complex of buildings and associated arable and pastureland. The proposed access track for the approved solar farm follows the route of an existing earthen farm track. The grid reference for the centre of the track section is TQ 18054 14082.

The farm is situated in a rural area within a mosaic of arable and pastureland, hedgerows, woodland and scattered trees across the wider landscape.

The proposed new access route follows the line of an existing bare earth farm track, which is orientated north to south. This track runs to the west of Huddlestone Wood, which is listed as the priority habitat, Ancient and Semi-natural Woodland. A ditch runs to the east of the track, between the track and the woodland. This ditch is orientated south to north and adjoins a ditch, which runs under the track from east to west. Together these contribute to a network of drains over the River Adur catchment. Overhead power cables are also present on the site. Figure 1 shows the track section which has been surveyed as part of this planning application. Figure 2 outlines the site location plan with proposed access route in orange as provided by the client.




**Figure 1**. An aerial image showing the location of the site. The approximate site extent is indicated in orange. Image produced courtesy of Google maps (map data ©2024 Google).

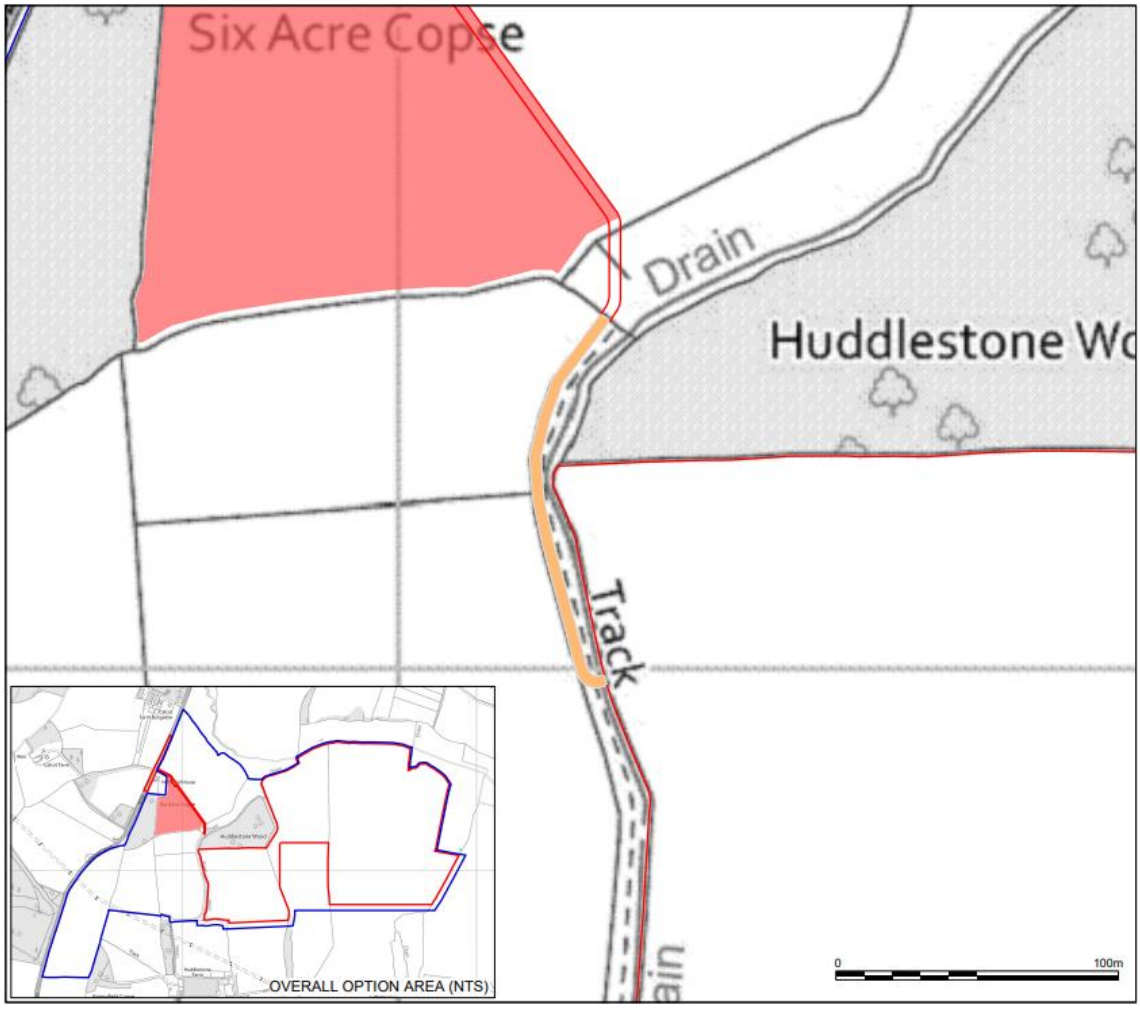


**Figure 2.** Proposed access track location in orange as provided by the client Enso Energy Ltd.

### *1.3 Summary of Previous Survey Work*

A Preliminary Ecological Appraisal[1], completed by The Ecology Co-op in June 2024, identified the potential for the following species on site:

- nesting birds in the trees;
- roosting bats in the trees and nearby woodland, and commuting bats;
- reptiles and amphibians associated with the grass verges on site and the nearby woodland edge and hedgerows.

**The proposed works will result in an impact to the bare earth track and grassland, the woodland trees and ditch will not be directly impacted. Due to the restriction of the works to the earth track and grass verges, no further Phase 2 surveys were recommended.**

## *2 LEGAL PROTECTION*

Legal protection applying to relevant bird, mammal and herpetofauna species is detailed in Appendix 1 of this report. This includes both national and European legislation that protects badgers, bats, dormice, reptiles, and breeding birds.

### *2.1 Management Plan Strategic Vision*

The aims and objectives for the landscape and biodiversity elements of this development project are as follows:

- retain and protect valuable existing 'green assets' where possible, including grass verges;
- creation of new green assets including native tree planting;
- minimise impacts and ensure compliance with legislation on key species: bats, breeding birds, reptiles and amphibians; and
- provide targeted and appropriate habitat enhancement features for bats, breeding birds, reptiles and amphibians.

## *3 CONSTRUCTION PHASE MITIGATION MEASURES*

### *3.1 General Housekeeping*

The following measures must be implemented throughout the entirety of the construction phase in order to prevent negative impacts to wildlife as a result of development works:

- chemicals, liquids, fuel oils or waste products, leachates or surface water used or produced by the development should be stored and disposed of correctly according to COSHH regulations. No chemicals will be allowed to leak on to the site at any time and must be stored away from the ditches.

[1] The Ecology Co-op (2024). *P6603 Huddlestone Farm* Preliminary Ecological Appraisal

- any refuelling of vehicles or tools is to be done on a plant nappy only, and spill kits must be kept on site at all times;
- any trenches must be covered at night or have a rough-sawn plank placed inside to act as a ramp that will enable any wildlife to escape should they fall in;
- all materials must be stored on raised pallets or on hardstanding to prevent being used by amphibians as resting places; and
- all vehicles must stay within the construction zone and hard landscaping areas, avoiding habitats which are being retained.

## 3.2 Bats

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Guidelines issued by the Bat Conservation Trust must be considered while designing the lighting scheme (see Appendix 2). This includes the following measures:

- no 'upward pointing' or bare bulb lights will be used anywhere on site. The lighting scheme will be designed to minimize light spill onto any established or created semi-natural habitats;
- the frequency spectrum of light sources should be selected that has reduced attraction to insects.
- 'dark corridors' must be established around the site boundary and trees through the development site. This means that no light columns shall be positioned within or adjacent to the no-light zones and all artificial lighting should be screened to direct light away from these areas;

No lights are included in the proposed design of the access track, if any lights are to be permanently installed during the operational phase, they must also follow the above measures.

## 3.3 Breeding Birds

The trees on site will be retained. However, the works should be timed outside of the breeding bird season (March to August inclusive) to avoid disturbance to breeding birds. Where this is not possible, a nesting bird check by a suitably qualified ecologist will be required to confirm the absence of any nests in trees within 5m of the construction footprint prior to works starting. If any active nests are identified a buffer of at least 5m will be maintained and the nest left undisturbed until the young have fledged or works will be postponed.

## 3.4 Reptiles and Amphibians

The grass verges on site provide small areas of suitable habitat for reptiles, great crested newts *Triturus cristatus* (GCN) and other amphibians. Furthermore, the adjacent hedgerow and woodland edge habitats provide suitable habitat for common reptile species and GCN. Where grass verges are to be altered/removed, these should be subject to a precautionary method statement (see below) to include reasonable avoidance measures such as the strimming of grassland in stages down to ground level to minimise risk of harm to amphibian and reptile species.

All grass verges which are to be altered or removed must undergo a fingertip search by a suitably

qualified ecologist, followed by a two-phase strim under ecological supervision.

A full Method Statement for the working methods in relation to reptiles, GCN and other amphibians in the grass verges are provided in a separate document[2]. This includes a toolbox talk to the contractors and supervision of strimming and the dismantling of the potential refugia (such as log and rubble piles) by a suitably qualified ecologist.

# 4 BIODIVERSITY ENHANCEMENT MEASURES

## 4.1 Enhancement for Grass Verges

Wildflower habitat will benefit biodiversity by encouraging insect diversity and in turn provide improved foraging habitats for bats, birds and small mammals.

The retained grass verges either side of the access track should be seeded with a wildflower seed mixture to maximise the ecological value of these features. A suitable seed mixture containing not less than 20 wildflower and grass species should be sown in this area at a density of four grams per square metre. The species included must all be of native British origin. A recommended seed mixture is EM3 – Special General Purpose Meadow Mixture**,** which is available from Emorsgate Seeds (www.wildseed.co.uk). Table 1 details the composition of this mixture.

Good ground preparation is essential to the success of establishing a wildflower meadow followed by sowing a suitable seed mix between late August and the end of September during mild and wet weather, or during mid-March to mid-May when the ground has sufficient moisture and there is very little risk of frosts, to ensure the best conditions for seedling establishment. Subsoil should be included in the seed bed to reduce fertilization and increase the suitability for wildflower seed growth. The area should be rotavated to create an area of largely bare ground to allow the seeds to establish.

**Table 1.** Composition of EM3 – Special General Purpose Meadow Mixture, to be sown on the grass verges on site.

| **Wildflowers (20%)** | | |
|---|---|---|
| % | Latin name | Common name |
| 0.5 | *Achillea millefolium* | Yarrow |
| 0.4 | *Agrimonia eupatoria* | Agrimony |
| 0.4 | *Anthyllis vulneraria* | Kidney vetch |
| 2.0 | *Centaurea nigra* | Common knapweed |
| 0.4 | *Centaurea scabiosa* | Greater knapweed |
| 1.6 | *Daucus carota* | Wild carrot |
| 0.2 | *Echium vulgare* | Viper's-bugloss |
| 0.3 | *Filipendula ulmaria* | Meadowsweet |
| 1 | *Galium album* | Hedge bedstraw |
| 0.8 | *Galium verum* | Lady's bedstraw |
| 0.2 | *Geranium pratense* | Meadow crane's-bill |

[2] The Ecology Co-Op (2024) Huddlestone Farm Precautionary Method Statement.

| | | |
|---|---|---|
| 0.3 | *Knautia arvensis* | Field scabious |
| 0.8 | *Leucanthemum vulgare* | Oxeye daisy |
| 0.3 | *Lotus corniculatus* | Birdsfoot trefoil |
| 1 | *Malva moschata* | Musk mallow |
| 0.6 | *Medicago lupulina* | Black medick |
| 0.2 | *Onobrychis viciifolia* | Sainfoin |
| 0.4 | *Pastinaca sativa* | Wild parsnip |
| 1.6 | *Plantago lanceolata* | Ribwort plantain |
| 0.4 | *Plantago media* | Hoary plantain |
| 1.2 | *Poterium sanguisorba ssp sanguisorba* | Salad burnet |
| 0.4 | *Primula veris* | Cowslip |
| 0.2 | *Prunella vulgaris* | Selfheal |
| 1.4 | *Ranunculus acris* | Meadow buttercup |
| 0.8 | *Rhinanthus minor* | Yellow rattle |
| 0.8 | *Silene dioica* | Red campion |
| 1.2 | *Silene vulgaris* | Bladder campion |
| 0.2 | *Taraxacum officinale* | Dandelion |
| 0.2 | *Vicia cracca* | Tufted vetch |
| 0.2 | *Vicia sativa ssp. segetalis* | Common vetch |
| **Grasses (80%)** | | |
| 8 | *Agrostis capillaris* | Common bent |
| 28 | *Cynosurus cristatus* | Crested dogstail |
| 24 | *Festuca rubra* | Red fescue |
| 4 | *Phleum bertolonii* | Smaller cat's-tail |
| 16 | *Poa pratensis* | Smooth-stalked meadow-grass |

## 4.2 Native Tree Planting

In order to meet the 10% BNG requirement set out by the Environment Act 2021, ten trees will be planted alongside the existing ditch on site. Only native trees sourced from UK stock will be used. This will create greater habitat for a variety of birds and invertebrates. Given the arrival of ash dieback, it is not recommended that ash saplings are planted anywhere on the site. It is best to plant while the trees are dormant between November and March in the absence of heavy frost. Guards to protect these trees from rabbits and deer will be necessary for the first 3 years to aid their development.

Due to the close proximity of the ditch, hardy species that thrive in wet soils must be used, including:

- Alder *Alnus glutinosa;*
- Grey willow *Salix cinerea; and,*
- White willow *Salix alba.*

Figure 3 illustrates suitable locations for the proposed trees. The trees will be planted at least 6m apart along the western edge of the existing ditch.



**Figure 3.** Proposed locations for trees on site, indicated with white circles. The site boundary is shown with a red outline.

## *4.3 Enhancements for Bats*

In order to enhance the site for bats, three 2FN Schwegler bat boxes (Figure 4) will be hung on the mature oak trees to the east of the existing track. The installation of the boxes will be overseen by a suitably qualified ecologist to ensure that the positioning is most suitable, but generally locations above 3.5 metres in the most south-easterly aspect of a tree is best.

## *4.4 Enhancements for Nesting Birds*

In order to enhance the site for nesting birds, three nesting bird boxes, such as Schwegler 1B nest box (Figure 5), will be hung on the mature oak trees to the east of the existing track. The nest boxes should be installed at a height of at least 1.5m.



**Figure 4.** 2FN Schwegler Bat Box



**Figure 5**. Schwegler 1B nest box

## 4.5 Enhancements for Reptiles and Amphibians

To compensate for the small amount of reptile and amphibian habitats to be lost on site, one hibernaculum should be created within the site to provide shelter and hibernation opportunities. These can be built from logs and branches, piled on top of each other, with grass cuttings, earth and turf laid over the top to provide insulation (see Figure 6). These hibernacula will also provide benefits for wasps, solitary bees and other insects. The hibernaculum must be located near to grassland, with regular sunlight and the construction must be overseen by an ecologist.

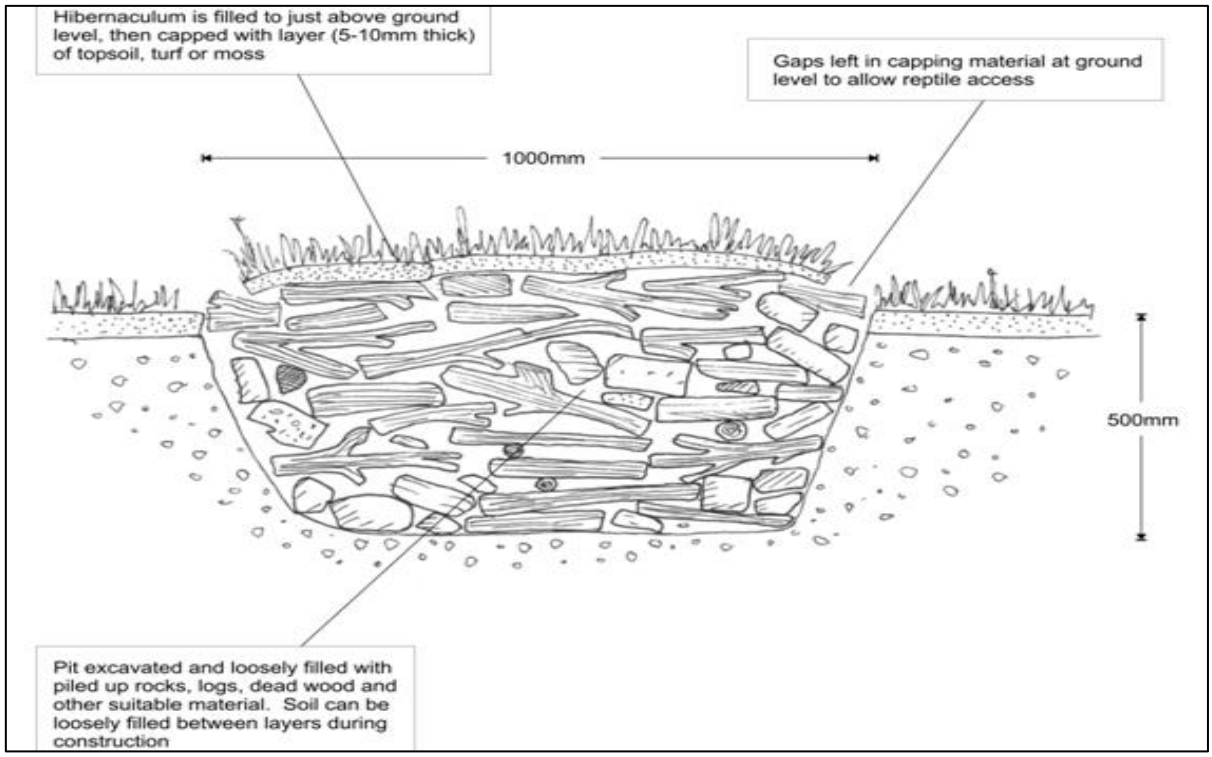

**Figure 6.** Illustration on how to build a reptile hibernaculum. Image taken from the 'Reptile Habitat Management Guidelines' by Herefordshire Amphibian and Reptile Team and the Herefordshire Nature Trust.

# 5 POST CONSTRUCTION MANAGEMENT PLAN

## 5.1 Wildflower Verges

**Optimal Habitat**

Areas with good species diversity across the site including both grassland and wildflowers. The wildflower habitat must support a variety of flowering plant species to provide colour, texture and ecological value.

**Management**

As part of on-going management, the wildflower habitat should be cut and gathered each year to a height of approximately 40–60mm after flowering. This process can be carried out through strimming. This is important to ensure that species diversity of the area is maintained, and grass species do not become dominant. Where necessary, a second cut could be taken in March each year if the sward is growing too coarsely. The grassland should not be cut between the 1st of April and mid-August so that plants are given the opportunity to flower. A yearly check for invasive species and appropriate removal of any invasive species identified should be undertaken.

Cutting the wildflower verges should be undertaken during the winter months, November to February, which is outside of the active season for reptiles. It is also important that the grassland habitat is mown to a minimum height of 10cm. Once the wildflower habitat establishes, it will require little management.

## 5.2 Native Tree Management

**Optimal Habitat**

A variety of healthy, semi-mature and mature native tree species across the development site.

**Management**

Tree saplings must be kept well-watered during establishment, particularly during long, dry spells. Weeds must be controlled at the base of the trees.

Tree guards to protect the new saplings from rabbits and deer must be installed and trees will be inspected twice annually to remove weeds and any soil build up inside the tubes for first 3 years, with the guards removed when planting is well established. Tree stakes and ties will be checked annually and after string winds, ensuring that any cable supports are not cutting into the bark.

Signs of disease will be checked for and, if identified, advice sought from an arboriculturist regarding the appropriate method of treatment.

Cutting of trees must be timed outside the bird nesting season (avoiding 1st March to 31st August). Where possible, shrubs shouldn't be cut until February so that valuable winter food associated with fruiting shrubs/trees is retained for over-wintering birds.

Replacement planting will be required where trees fail to establish.

### *5.3 Bat and Bird Boxes*

The bat and bird boxes on the site will be largely maintenance-free apart from an annual check that they remain in position. Any damaged boxes are to be replaced like for like. Bird nesting boxes should be emptied of nesting material in winter to prevent the build-up of parasites. Bat boxes should only be checked and maintained by a suitably qualified/licensed ecologist, as they may support roosting bats.

## *5.1 Reptile and Amphibian Hibernacula*

The hibernaculum on site must be maintained in perpetuity and replaced immediately if damaged. Checks for damage can be done from May to September (inclusive). Should the hibernaculum ever need dismantling, it should be done by hand and under the supervision of an ecologist.



# 6 WORK SCHEDULE

Table 2 below provides the timetable to aid correct timing of the annual 'green asset' management at the site.

**Table 2.** Annual Work schedule for the 5-year management period.

| Action | Jan | Feb | Mar | April | May | June | July | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yearly check for invasive species across woodland edges and grass verges | | | | | | X | X | X | | | | |
| Check trees for signs of any disease | | | | | | | X | X | X | | | |
| Cutting and gathering of wildflower habitat from year 2 | | | | | | | | | X | X | | |
| Keeping saplings and well-watered | X | X | X | X | X | X | X | X | X | X | X | X |
| Replacement planting of failed trees | X | X | X | | | | | | | | X | X |
| Inspection of bat and bird boxes | | | | | | | | | X | X | X | |
| Clearance of old bird nests from bird boxes | | | | | | | | | X | | | |
| Check of reptile hibernacula for damage | | | | | X | X | X | X | X | | | |

# 7 MONITORING AND REVIEW

Monitoring of the retained and new biodiversity assets should be undertaken to determine the success or failure of each compartment through a site visit by a suitably qualified ecologist 5-years post-construction. If necessary, changes to management actions can be prescribed and, if plants fail to establish, replanting will be prescribed. Furthermore, if invasive species are identified within any of the compartments suitable control methods would be outlined in detail.

# 8 COMPETENCIES, STANDARD AND SPECIFICATIONS OF WORKS

- All tree works are to be undertaken by a suitably qualified arboriculturalist.
- The installation and maintenance of bat boxes is to be undertaken or overseen by a suitably qualified ecologist.
- A site inspection of all green assets post-construction should only be undertaken by a suitably qualified ecologist.

**Should you need any further advice on the information provided above, please do not hesitate to contact The Ecology Co-op.**

# APPENDIX 1 - Wildlife Legislation and National Planning Policy

## Introduction

The following text is intended for general guidance only and does not constitute comprehensive professional legal advice. It provides a summary of the current legal protection afforded to wildlife in general and certain species. It includes current national planning policy relevant to nature conservation.

## The 'Birds Directive', 'Habitats Directive' and 'Natura 2000 Sites'

The Council Directive 79/409/EEC on the Conservation of Wild Birds ("the Birds Directive") sets a framework for the protection of wild birds. Under the Directive, several provisions are made including the designation and protection of 'Special Protection Areas' (SPAs) – areas which support important bird populations, and the legal protection of rare or vulnerable species.

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the "Habitats Directive") directs member states of the EU to take measures to maintain the favourable conservation status of important habitats and species. This requires the designation of a series of sites which contain important populations of species listed on Annex II of the Directive (for example Bechstein's bat *Myotis bechsteinii*, Barbastelle bat *Barbastella barbastellus* and white-clawed crayfish *Austropotamobius pallipes*. Together with 'Special Areas of Conservation' (SACs), SPAs form a network across Europe of protected areas known as the 'Natura 2000 sites'.

Annex IV lists species in need of more strict protection, these are known as "European Protected Species (EPS)". All bat species, common dormice *Muscardinus avellana*, otter *Lutra lutra* and great crested newts *Triturus cristatus* are examples of EPS that are regularly encountered during development projects.

## The 'Habitats Regulations'

The Conservation of Habitats and Species Regulations 2017, as amended (the "Habitats Regulations") is the principle means of transposing the Habitats Directive and the Birds Directive, and updates the Conservation (Natural Habitats, &c.) Regulations 1994 ("the 1994 regulations") in England and Wales.

'Natura 2000' sites, now known as National Site Network sites under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, receive the highest level of protection under the Regulations which requires that any activity within the zone of influence of these sites would be subject to a Habitats Regulations Assessment (HRA) by the competent authority (e.g. planning authority), leading to an Appropriate Assessment (AA) in cases where 'likely significant effects' to the conservation oibjectives are identified.

For European Protected Species, Regulation 41 makes it a criminal offence to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb wild animals of such species;
- deliberately take or destroy their eggs (where relevant);
- damage or destroy a *breeding or resting place* of such an animal;
- possess, control, sell or exchange any live or dead animal or plant, of such species;
- deliberately pick, collect, cut, uproot or destroy a wild plant of such species.

The Habitats Directive and Habitats Regulations provide for the derogation from these prohibitions for

specific reasons provided certain conditions are met. An EPS licensing regime allows operations that would otherwise be unlawful acts to be carried out lawfully. Natural England is the licensing Authority and, in order to grant a license, ensures that three statutory conditions (sometimes referred to as the 'three derogation tests') are met:

- a licence can be granted for the purposes of "preserving public health or safety or for other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment" (Regulation 53 (2) (e);
- a licence can be granted if "there are no satisfactory alternatives" to the proposed action;
- a licence shall not be granted unless the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

## Wildlife and Countryside Act (1981) as amended

This remains one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).

Under the Wildlife and Countryside Act (WCA) 1981, all wild birds (with the exception of those listed on Schedule 2), their eggs and nests are protected by law and it is an offence to:

- take, damage or destroy the nest of any wild bird while it is in use or being built
- take or destroy the egg of any wild bird
- disturb any bird listed on Schedule 1, while it is nest building, or at a nest with eggs or young, or disturb the dependant young of any such bird.

Schedule 5 lists all non-avian animals receiving protection to a varied degree. At its strongest, the Act makes it an offence to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturb animals while occupying such places. Examples of species with *full protection* include all EPS, common reptile species, water vole *Arvicola amphibius*, white-clawed crayfish *Austropotamobius pallipes* and Roman snail *Helix pomatia*. Other species are protected from sale, barter or exchange only, such as white letter hairstreak *Satyrium w-album*.

The Act makes it an offence to intentionally pick, uproot or destroy any plant or seed, and sell or possess any plant listed on Schedule 8. It is also an offence to intentionally uproot any wild plant not listed on Schedule 8 unless authorised [by the land owner]. Species on Schedules 5 and 8 are reviewed every 5 years when species can be added or removed.

Measures for the prevention of spreading non-native species which may be detrimental to native wildlife is included in the Act, which prohibits the release of animals or planting of plants into the wild of species listed on Schedule 9 (for example Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandifera*, New Zealand Pygmyweed *Crassula helmsii*).

The Wildlife and Countryside Act 1981 (as amended) also prohibits certain inhumane methods of traps and devices for the capture or killing of wild animals and certain additional methods such as fixed trap, poisoning with gas or smoke, or spot-lighting with vehicles for killing species listed on Schedule 6 of the Act (this includes all bat species, badger, otter, polecat, dormice, hedgehog and red squirrel).

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

The NERC Act (2006) created the statutory nature conservation body Natural England, and places a statutory duty on all public bodies, including planning authorities, under Section 40, to take, or promote the taking by others, steps to further the conservation of *habitats and species of principal importance for the conservation of biodiversity* in England (commonly referred to as the 'Biodiversity Duty'). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers. Section 41 of the NERC Act lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants, invertebrates through to mammals and birds. It originates from the priority species listed under the UK Biodiversity Action Plan (UK BAP) with some omissions and additions.

## Environment Act (2021)

The Environment Act sets a target of halting the decline in species through the inclusion of a legally binding 2030 species abundance target. Aiming to restore natural habitats and enhance biodiversity, the Act requires new developments to improve or create habitats for nature (through mechanisms such as mandatory Biodiversity Net Gain), and tackle deforestation. Going forwards, UK businesses will need to look closely at their supply chains as amongst other measures they will be prohibited from using commodities associated with wide-scale deforestation. Woodland protection measures are also strengthened through the Act.

The Act enables the reform of the Habitats Regulations and further improves protection for nature through the establishment of Local Nature Recovery Strategies that support national Nature Recovery Networks. In addition, the Act provides for the production of Protected Site Strategies and Species Conservation Strategies, aimed at supporting the design and delivery of strategic approaches to deliver better outcomes for nature.

## Protection of Badgers Act (1992)

The Badger *Meles meles* is afforded specific legal protection in Britain under the Protection of Badgers Act (1992), and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) (see above).

Under this legislation, it is a criminal offence to:

- intentionally kill, injure, take, possess, or cruelly ill-treat, a Badger, or to attempt to do so;
- interfere with a sett, by damaging or destroying it;
- to obstruct access to, or any entrance of, a badger sett; or
- to disturb a badger when it is occupying a sett.

A licence may be obtained from Natural England to permit certain prohibited actions for a number of defined reasons including interference of a sett for the purpose of development, provided that a certain number of conditions are met. Note that licenses are not normally granted for works affecting badgers between the end of November and the start of July.

## National Planning Policy Framework

The National Planning Policy Framework (NPPF 2023)[3] sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

[3] HM Government (2023). National Planning Policy Framework. Department for Communities and Local Government. Available online at: https://assets.publishing.service.gov.uk/media/64f991c99ee0f2000fb7c001/NPPF_Sept_23.pdf.

Paragraph 185b, states that council plans should "*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*."

The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005) [4]. In accordance with the NPPF, it is important that developments should contribute to and enhance the natural and local environment by:

- minimising impacts on existing biodiversity and habitats;
- providing net gains in biodiversity and habitats, wherever possible;
- establishing coherent ecological networks that are more resilient to current and future pressures.

## UK Post-2010 Biodiversity Framework

The UK Biodiversity Action Plan (UK BAP), first published in 1994, was the UK's response to the commitments of the Rio Convention on Biological Diversity (1992) until 2010, when the UK BAP was replaced by the UK Post-2010 Biodiversity Framework. This framework covers the period 2011 to 2020 and forms the UK government's response to the new strategic plan of the United Nations Convention on Biodiversity (CBD) published in 2010. This promotes a focus on individual countries delivering target for protection for biodiversity through their own strategies.

The most recent biodiversity strategy for England, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra (2011), and a progress update was provided in July 2013 (Defra 2013).

'Biodiversity 2020' builds on the Natural Environment White Paper for England – 'The Natural Choice', published on 7 June 2011, and sets out the strategic direction for biodiversity policy for the next decade.

Biodiversity 2020 deliberately avoids setting specific targets and actions for local areas and species because the Government believes that local people and organisations are best placed to decide how to implement the strategy in the most appropriate way for their local area or situation.

## Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non-governmental bird conservation organisations listed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every five years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2021 (Stanbury et al, 2021), which provides an up to date assessment of the conservation status of birds in the UK.

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# APPENDIX 2 – Reducing Impacts of Artificial Light

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts to other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness.

Guidelines issued by the Bat Conservation Trust[5] should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

**Avoid lighting key habitats and features altogether**

There is no legal duty requiring any place to be lit. British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so. It is acknowledged that in certain situations lighting is critical in maintaining safety, such as some industrial sites with 24-hour operation; however, in the public realm, while lighting can increase the perception of safety and security, measurable benefits can be subjective. Consequently, lighting design should be flexible and be able to fully consider the presence of protected species.

**Apply mitigation methods to reduce lighting to agreed limits in other sensitive locations – lighting design considerations**

Where bat habitats and features are considered to be of lower importance or sensitivity to illumination, the need to provide lighting may outweigh the needs of bats. Consequently, a balance between a reduced lighting level appropriate to the ecological importance of each feature and species, and the lighting objectives for that area will need to be achieved. The following are techniques which have been successfully used on projects and are often used in combination for best results:

- dark buffers, illuminance limits and zonation;
- sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill;
- consideration of the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consideration should be given to the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cats eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times;
- screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding;
- glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and

[5] Bat Conservation Trust and Institute for Lighting Professionals (2018) Guidance note 8. Bats and Artificial Lighting. https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/

features;

- creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for any such habitat being lost to the development;
- dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

**Demonstrate compliance with illuminance limits and buffers**

- *Design and pre-planning phase*; it may be necessary to demonstrate that the proposed lighting will comply with any agreed light-limitation or screening measures set as a result of your ecologist's recommendations and evaluation. This is especially likely to be requested if planning permission is required.
- *Baseline and post-completion light monitoring surveys*; baseline, pre-development lighting surveys may be useful where existing on or off-site lighting is suspected to be acting on key habitats and features and so may prevent the agreed or modelled illuminance limits being achieved.
- *Post-construction/operational phase compliance-checking;* as a condition of planning, post-completion lighting surveys by a suitably qualified person should be undertaken and a report produced for the local planning authority to confirm compliance. Any form of non-compliance must be clearly reported, and remedial measures outlined. Ongoing monitoring may be necessary, especially for systems with automated lighting/dimming or physical screening solutions.

**Lighting Fixture Specifications**

The Bat Conservation Trust recommends the following specifications for lighting on developments to prevent disturbance:

- Lighting spectra: peak wavelength >550nm
- Colour temperature: <2700K (warm)
- Reduction in light intensity
- Minimal UV emitted
- Upward light ratio of 0% and good optical control

**Further reading:**

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