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Mitigation Statement

Orchard Way, Fontwell

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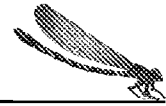
Reviewed by: Sam Lunn MSc, ACIEEM

30th January 2020

Project No: 2996

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Issue No	Issue Date	Additions/Alterations	Initials	Notes
1.0	30/01/2020	Mitigation Statement	KL	
1.1	30/01/2020	Amendment to proposed bat roost feature, as requested by N. Boswijk	KL	



Report Summary

- 1. The Ecology Co-op was commissioned by nb:architects+ to outline necessary mitigation for a proposed development at Orchard Way in Fontwell, West Sussex, where it was determined that the site has the potential to support nesting birds, foraging bats and foraging hedgehogs. The site contains suboptimal habitat for dormice.**
- 2. Necessary pre-construction work includes a fingertip search of all vegetation prior to removal. Should nesting birds or evidence of dormice be found, further mitigation will be required prior to the commencement of works (as detailed in Section 2). A sensitive lighting scheme will be implemented during the construction phase and the subsequent operational phase.**
- 3. The proposed landscape design includes multiple enhancement measures, such as the planting of native hedgerows and climbing plants and the installation of bat and bird boxes.**
- 4. Post construction management is detailed in Section 5, and includes suitable vegetation management and inspection of bat/bird boxes to ensure they remain operational and in good condition.**

This report has been prepared by The Ecology Co-operation Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client. This report only becomes the property of the client once payment for it has been received in full.

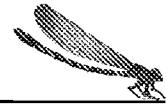
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CONTENTS PAGE

1 INTRODUCTION	4
1.1 Purpose of the Report	4
1.2 Background	4
1.3 Rationale	9
2 PRE-CONSTRUCTION MITIGATION MEASURES.....	9
2.1 Nesting Birds	9
2.2 Dormice	10
2.3 Hedgehogs	10
3 Construction Phase Mitigation Measures	10
4 Enhancements	10
4.1 Habitat Creation	10
4.1.1 Creation and Enhancement of Hedgerows	10
4.1.2 Native climbing species	11
4.1.3 Plant borders	11
4.2 Enhancements for Bats	12
4.3 Enhancements for nesting birds	13
5 POST CONSTRUCTION MANAGEMENT	13
5.1 Management Plan Operations	13
APPENDIX 1 – Wildlife Legislation and National Planning Policy	14
APPENDIX 2 – Reducing Impacts of Artificial Lights	19



1 INTRODUCTION

1.1 Purpose of the Report

This document has been produced to demonstrate how a residential development upon land at Orchard Way, Fontwell, West Sussex BN18 0SH will minimise its impact upon protected species and provide targeted enhancement measures for nesting birds and bats. It outlines all mitigation and compensation measures that are designed to ensure that valuable habitats are either protected, replaced or enhanced further to a proposal for a residential development at the site.

All of 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.

This report was commissioned and produced at the request of nb:architects+.

1.2 Background

The Ecology Co-op has been commissioned to outline mitigation works for the development of two residential units at Orchard Way in Fontwell.

The site is located approximately 0.7km north-east of Fontwell in West Sussex (Figure 1). The central grid reference for the site is SU 9536 0719. The site is a residential garden, measuring approximately 0.1 hectares, comprising a manicured lawn that is bordered by cherry laurel *Prunus laurocerasus* and cypress *Cupressus × leylandii* hedgerows (Photograph 1 & Photograph 2).

An initial Preliminary Ecological Appraisal (PEA), undertaken by The Ecology Co-op in 2018¹ assessed the site as unsuitable for reptiles, roosting bats and great crested newts *Triturus cristatus* and no further surveys for these species were recommended.

The site contains sub-optimal habitat for dormice *Muscardinus avellanarius* as it comprises almost entirely non-native species not typically associated with dormouse habitat. However, the habitat structure and interconnectivity of the site, combined with the known presence of dormice within the local area, means that dormouse presence from time to time cannot be completely disregarded. Therefore, the initial PEA recommended precautionary mitigation, in the form of a fingertip search prior to removal of vegetation.

The bordering hedgerows, shrubs within the site and the mature oak *Quercus robur* in the north-west corner of the site, all provide suitable nesting habitat for birds and the margin of vegetation between the hedgerows and the boundary fence provides good foraging habitat for hedgehogs *Erinaceus europaeus*.

The existing layout of the site and the proposed layout are shown in Figure 2 & Figure 3. The proposed plans include the removal of the Leyland cypress hedgerows and ornamental beds, to be replaced with

¹ The Ecology Co-op (2018) – Preliminary Ecological Appraisal, Orchard Way, Fontwell.



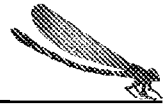
native, species-rich hedgerows (see section 4).



Figure 1. An aerial image of the site. The site boundary is outlined in red. Images produced courtesy of Google maps (Map data ©2020 Google).



Photograph 1. A view from the south-west corner of site (2018). Note the cypress hedge bordering the west, the row of ornamental and native shrubs that divides the site to the east and the mature oak tree to the north.



Photograph 2. View from the southeast corner of site (2018). Note the existing building to the right and the central row of ornamental and native shrubs to the left.

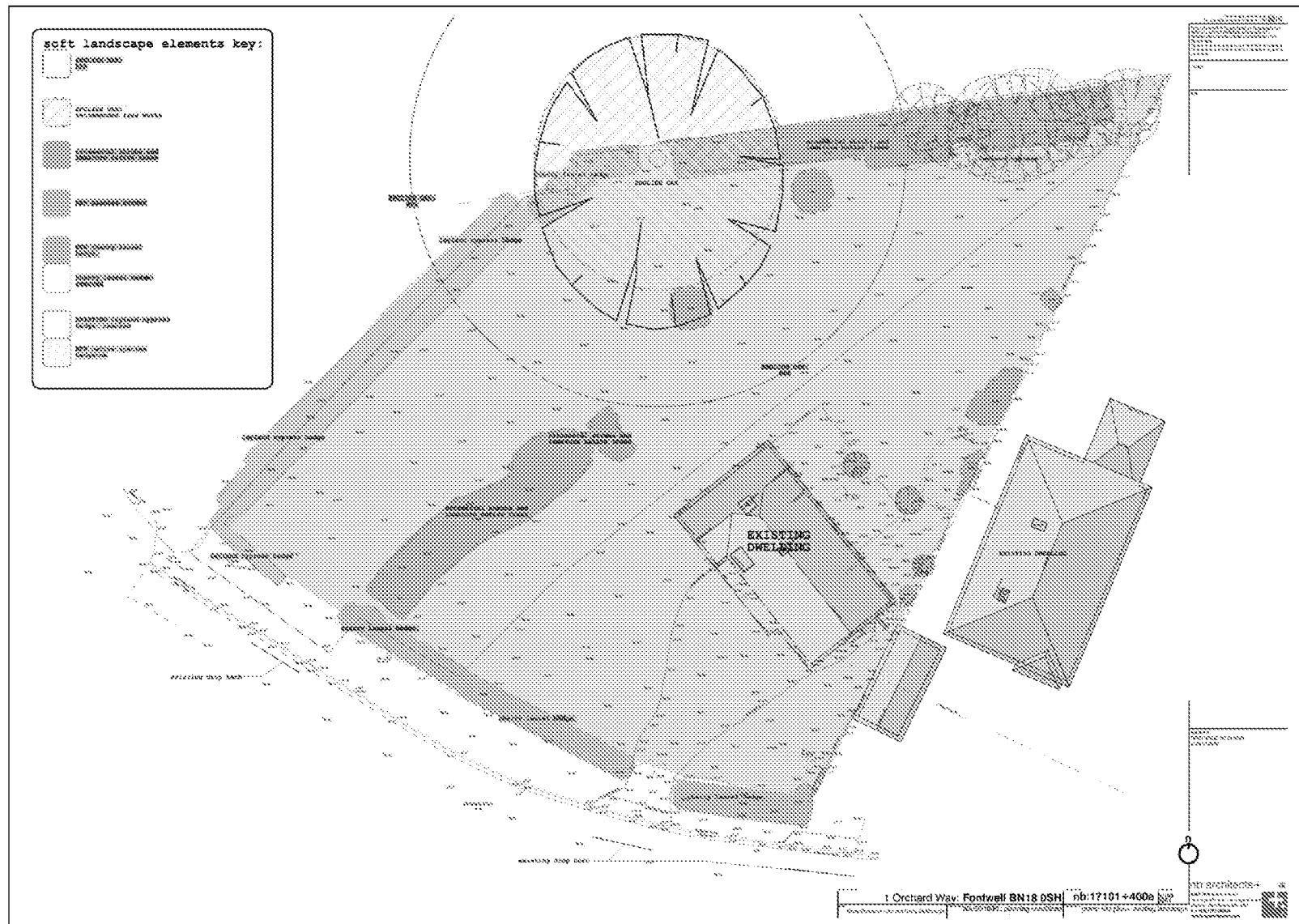
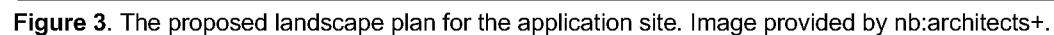


Figure 2. The existing landscape plan of the application site. Image provided by nb:architects+.





1.3 Rationale

Birds

All species of bird are protected under Section 1 of the Wildlife and Countryside Act 1981 (Appendix 1). Protection was extended by the Countryside and Rights of Way (CROW) Act 2000. Under the above legislation it is an offence to intentionally:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

Certain species are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and receive protection under Sections 1(4) and 1(5). The protection was extended by the Countryside and Rights of Way (CROW) Act 2000. There are special penalties where the offences listed above are committed for any Schedule 1 species and it is also an offence to intentionally or recklessly:

- disturb any such bird when it is building its nest or while it is in or near a nest containing dependent young; or
- disturb the dependent young of any such birds

Dormice

Dormice are protected by the Wildlife and Countryside Act 1981, CROW Act 2000, The Natural Environment and Rural Communities Act 2006 and the Conservation of Habitat and Species Regulations 2010. It is an offence to intentionally capture, injure, kill or disturb (i.e. impair their ability to breed, hibernate or significantly affect the local population) dormice as well as damage or destroy a breeding or nesting site.

Hedgehogs

Hedgehogs are protected by British law under Schedule 6 of the Wildlife and Countryside Act 1981, making it illegal to kill or capture them using certain methods. They are also protected in Britain under the Wild Mammals Protection Act (1996), prohibiting cruelty and mistreatment. They're listed as a Species of Principle Importance in England under the Natural Environment and Rural Communities (NERC) Act 2006 Section 41.

These laws make hedgehogs a material consideration for Local Planning Authorities (LPAs) during the planning process. Developments should also be consistent with Local Plans (LPs) and Neighbourhood Area Plans (NAPs), some of which may explicitly refer to hedgehog conservation and connectivity of the landscape².

2 PRE-CONSTRUCTION MITIGATION MEASURES

2.1 Nesting Birds

Any scrub, trees or hedgerows to be cleared must be removed outside of the nesting bird season (1st March to 31st August) unless features are first hand-searched by a suitably qualified ecologist. A visual check of the oak tree (using binoculars) should be carried out prior to being pruned. If an active nest is

² Peoples Trust for Endangered Species (2019) Hedgehogs and development.



found, a 4m buffer zone will be marked around the vegetation to reduce the potential impacts from indirect disturbances such as noise, vibrations and dust. The vegetation can only be removed once the chicks have fledged and left the nest.

2.2 Dormice

All vegetation to be removed must first be hand searched by a suitably qualified ecologist to confirm the absence of dormice or their nests. If any evidence of dormice is found, work must stop until a licence is granted by Natural England.

2.3 Hedgehogs

The dense shrubs and the margin of leaf litter between the hedgerows and the boundary fence must be searched for hedgehogs immediately prior to the commencement of works. If any hedgehogs are found, they should be moved to the hedgerow in the north-east corner of the site, which will not be impacted by the development, and a hedgehog house should be installed to provide the hedgehog with additional protection (see Figure 4 for an example hedgehog house). Measures must be put in place to ensure the hedgehog has free movement into the surrounding habitats.

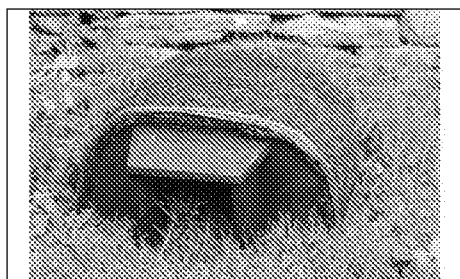


Figure 4. An example of a hedgehog house, to be installed in the north-east hedgerow should a hedgerow be found within the construction zone.

3 Construction Phase Mitigation Measures

As the site may be used by foraging and commuting bats, it is important that the potential for disturbance from artificial lights is considered, both during the construction phase and the subsequent operational phase. The proposed development will include an 'ecologically sensitive lighting scheme' in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 2).

To minimise impacts from noise and air pollution, construction works will be limited to daylight hours, the ground will be moistened on hot dry days to reduce dust and works will stop in high winds.

4 Enhancements

4.1 Habitat Creation

4.1.1 Creation and Enhancement of Hedgerows

The proposed landscape plan (Figure 3) includes supplementing the pre-existing cherry laurel hedgerows and the planting of new native, species-rich hedgerows throughout the site. The new hedgerows will be planted 5 plants per linear meter, with 3 in front and 2 behind, during the trees dormant



Orchard Way, Fontwell – Mitigation Statement

period, between November and March, and in the absence of heavy frost. The quantity of new cherry laurel planting will be kept to a minimum, with the majority of the hedgerows comprising a minimum of five of the following native species:

- Hazel (*Corylus avellana*)
- Holly (*Ilex aquifolium*)
- Blackthorn (*Prunus spinosa*)
- Hawthorn (*Crataegus monogyna*)
- Field maple (*Acer campestre*)
- Elder (*Sambucus nigra*)
- Oak (*Quercus robur*)
- Wild privet (*Ligustrum vulgare*)
- Rowan (*Sorbus aucuparia*)
- Dog rose (*Rosa canina*)
- Honeysuckle (*Lonicera periclymenum*)
- Guelder rose (*Viburnum opulus*)
- Crab apple (*Malus sylvestris*)

The native species-rich planting will be beneficial to insect diversity, and consequently also benefit foraging bats, birds and hedgehogs, whilst enhancing the linear features for commuting bats, and providing good quality nesting habitat for birds and dormice.

As recommended in the initial PEA, the margin of leaf litter between the western hedgerow and the boundary fence should be retained as it provides vital foraging and commuting habitat for hedgehogs. This can be achieved by planting the new hedgerow in the same footprint as that of the existing Leyland cypress.

4.1.2 Native climbing species

The proposed landscape plan includes the planting of climbers along the boundary fences between the properties. These will benefit pollinators, invertebrates, and birds and will comprise predominantly native species, such as Ivy *Hedera helix*, Travellers joy *Clematis vitalba*, Dog rose *Rosa canina* and Honeysuckle *Lonicera periclymenum*.

The following non-native species, which are highly beneficial to wildlife, can also be incorporated into the landscape design at a ratio of 1 non-native to 3 native plants: passionflower *Passiflora caerulea*, star jasmine *Trachelospermum jasminoides* and wisteria *Wisteria sinensis*.

4.1.3 Plant borders

Any planting scheme should include shrub species and flowering species known to encourage insect diversity. The species list should include plants that flower throughout the seasons and native species where possible, such as wild thyme *Thymus polytrichus*, cowslip *Primula veris*, foxglove *Digitalis purpurea*, red currant *Ribes rubrum* and dogwood *Cornus sanguinea*.



4.2 Enhancements for Bats

As a measure to enhance roosting opportunities for bats, a minimum of one self-contained batten cavity will be incorporated into the roof of both of the buildings, at the ridge. This will provide a roost feature for crevice dwelling bats such as the common pipistrelle *Pipistrellus pipistrellus*. As the roof will be lined with Tyvek underlay, a breathable roof membrane which has a tendency to fray and poses an entanglement risk to bats, bitumen roofing felt will be used to line the new cavity and it will be essential that bats cannot access areas of the roof lined with the breathable membrane; timber battens can be used to achieve this. Mortar will be used to seal the cavity at each end. See Figure 5 for a cross section of the proposed design of the batten cavity, with associated dimensions. Please note that there will be no bat access into internal roof voids.

One bat box will be installed on the north-east or south-west wall of the western most building, so that the box is within close proximity of the bordering hedgerow but not facing the prevailing westerly wind. See Figure 6 for example bat roost features.

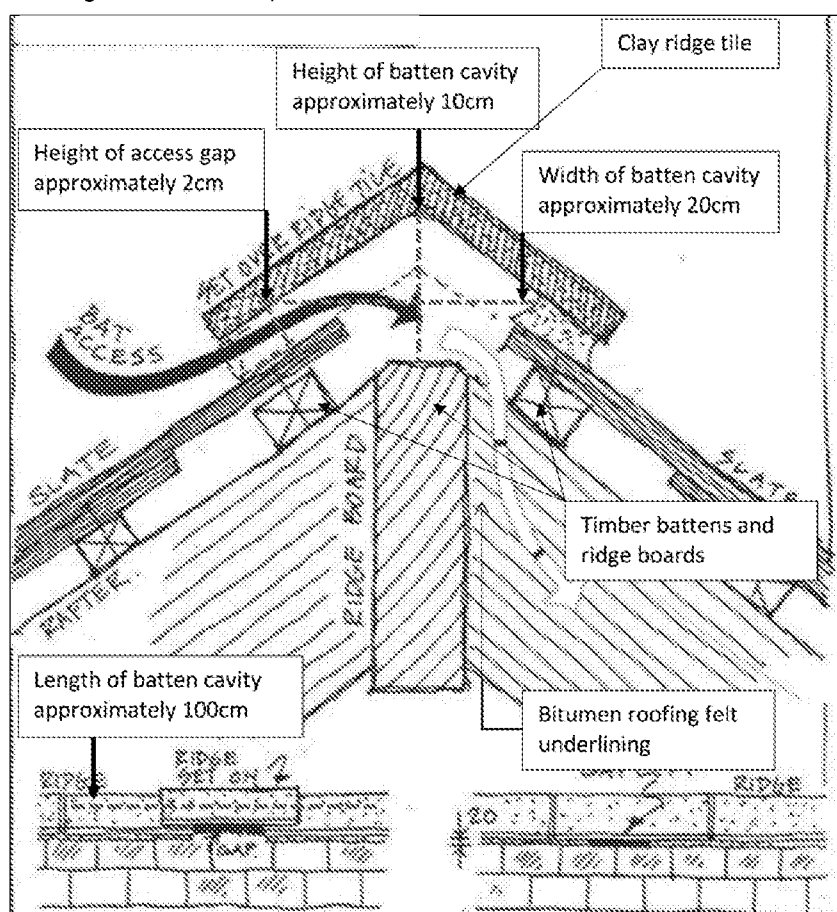


Figure 5. A plan showing the proposed design for the batten cavities at Orchard Way.

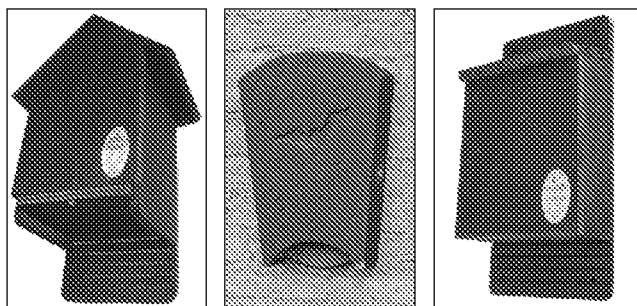


Figure 6. Examples of bat roosts. From left to right: Improved cavity bat box, Beaumaris woodstone bat box and improved crevice box. Images produced by NHBS.

4.3 Enhancements for nesting birds

In addition to the landscaping enhancements mentioned above which will benefit foraging and nesting birds, a minimum of one bird box and 5 nest pockets will be incorporated into the development. Each nest box will be installed on the side of a building, at a minimum of 3m high and away from the prevailing westerly wind, whilst nest pockets will be inserted into the hedgerows to provide shelter for small bird species such as wren *Troglodytes troglodytes* and goldcrest *Regulus regulus*.

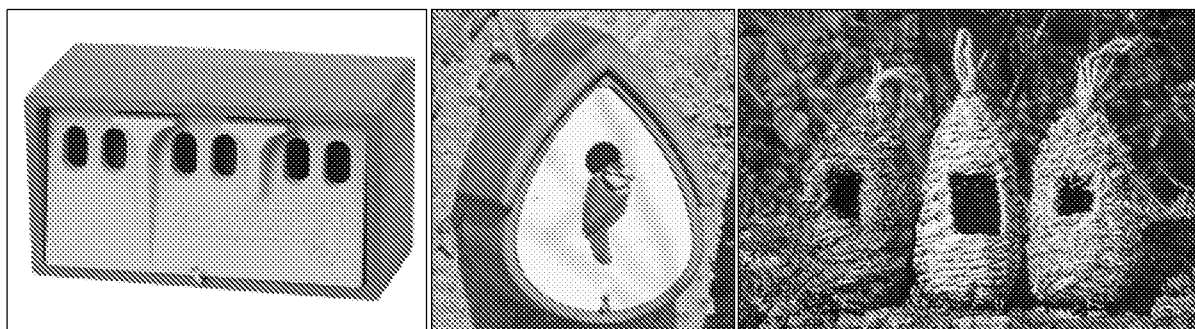


Figure 7. Example enhancements for nesting birds. From left to right: 1SP Schwegler sparrow terrace, Schwegler 1B nest box and nest pockets, all available from NHBS.com.

5 POST CONSTRUCTION MANAGEMENT

5.1 Management Plan Operations

All hedgerows and shrubs must only be cut outside the bird nesting season (1st March to 31st August) and where possible hedges should be left alone until February, so that valuable winter food associated with fruiting hedge trees is retained for over-wintering birds.

All bird boxes should be cleared of old nesting material during the winter months and both bat and bird boxes should be annually inspected for any damage and replaced where necessary.

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 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’ (SPAs), designated under the Birds Directive, SACs 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.

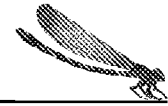
The ‘Habitats Regulations’

The Conservation of Habitats and Species Regulations 2010 (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 receive the highest level of protection under this regulation 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 on the integrity of the site 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.



Orchard Way, Fontwell – Mitigation Statement

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 licence, 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:

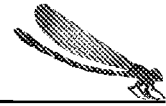
- Take, damage or destroy the nest of any wild bird while it is in use or being built.
- Take or destroy the egg of any wild bird.
- Disturb any bird listed on Schedule 1, while it is nest building, or at a nest with eggs or young, or disturb the dependant young of any such bird.

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 *Satyrrium 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.

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 2012) 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.

The NPPF states that the wider benefits of an ecosystem should be recognised, and the presence of a protected species is a material consideration for a development proposal (Circular 06/2005, 2005).

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



Orchard Way, Fontwell – Mitigation Statement

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 5 years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2015 (Eaton et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

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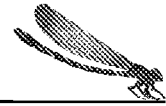


Orchard Way, Fontwell – Mitigation Statement

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<http://www.legislation.gov.uk/ukpga/1981/69/contents>



APPENDIX 2 – Reducing Impacts of Artificial Lights

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 on 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 Trust³ should be considered while designing the lighting scheme. A simple process which should be followed where the impact on bats is being considered as part of a proposed lighting scheme. It contains techniques which 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 on 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
- Consider 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. Consider 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 cat's 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 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.

³ 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/>



Orchard Way, Fontwell – Mitigation Statement

- 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.

Further reading:

Buglife (2011) *A review of the impact of artificial light on invertebrates*.

Royal Commission on Environmental Pollution (2009) *Artificial light in the environment*. HMSO, London.
Available at: <https://www.gov.uk/government/publications/artificial-light-in-the-environment>

Rich, C., Longcore, T., Eds. (2005) *Ecological Consequences of Artificial Night Lighting*. Island Press.
ISBN 9781559631297.

CPRE (2014) *Shedding Light: A survey of local authority approaches to lighting in England*. Available at: <http://www.cpre.org.uk/resources/countryside/dark-skies/item/3608-shedding-light>

Planning Practice Guidance guidance (2014) When is light pollution relevant to planning? Available at: <https://www.gov.uk/guidance/light-pollution>

Institution of Lighting Professionals (2011) *Guidance Notes for the Reduction of Obtrusive Light* GN01:2011. Available at: <https://www.theilp.org.uk/resources/free-resources/>