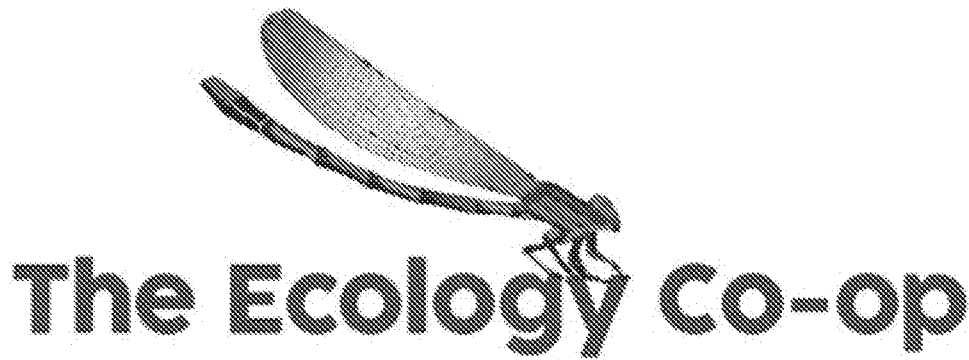




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Preliminary Ecological Appraisal

Orchard Way, Fontwell

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Project No: P2996

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Report Summary

1. The Ecology Co-op has been commissioned by Quay Contracts to undertake a Preliminary Ecological Appraisal at Orchard Way. A site walkover survey visit was carried out on the 29th October 2018, to evaluate the site for habitats potentially suitable to support EU and UK protected species. The purpose of this report is to record the findings of the survey and identify potential ecological constraints to a proposed residential housing development of up to two units.
2. This survey was undertaken by Kate Lewis BSc (Hons) MSc.
3. The site is a residential garden, measuring approximately 0.1 hectares, comprised of a manicured lawn that is bordered by cherry laurel and cypress hedgerows and contains a number of immature ornamental and native trees, as well as ornamental shrubs and plants. There is one mature oak tree in the northeast corner of the site that will likely be removed if the development goes ahead.
4. The site was assessed as unsuitable for reptiles, roosting bats, and great crested newts and therefore no further surveys are recommended. However, all trees, shrubs and hedgerows have the potential to support a variety of common nesting birds. It is therefore essential that any future development considers the nesting bird season and any vegetation removal and/or building demolition should be timed outside the nesting bird season (typically 1st March to 31st August), unless features are first searched by a suitably qualified ecologist and no active nests are found.
5. A fingertip search for dormice and hedgehogs will need to be carried out by a suitably qualified ecologist prior to the removal of vegetation.
6. To enhance the site for biodiversity, it is recommended that the bordering hedgerows are improved with native species planting, any planting scheme should include native shrub species and flowering species known to encourage insect diversity and, where possible, bat access tiles and bird boxes should be incorporated into the design of the new buildings.

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.

We disclaim responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.



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1 INTRODUCTION

1.1 Purpose of the Report

The Ecology Co-op has been commissioned to undertake a Preliminary Ecological Appraisal of 1 Orchard Way, Fontwell, West Sussex BN18 0SH by Quay Contracts. This report presents the findings of a walkover survey undertaken by Kate Lewis BSc (Hons) MSc on 29th October 2018. It provides details on the potential for any protected species and/or habitats to be present at the site and provides an assessment of the potential ecological constraints to the proposed housing development of up to two units. Recommendations for further surveys that are likely to be required to inform a planning application and Ecological Impact Assessment (EclA) of the proposal are provided. Where appropriate, measures to avoid, mitigate and/or compensate for impacts are outlined.

1.2 Background

The site is located approximately 0.7km north-east of Fontwell in West Sussex. The central grid reference for the site is SU95360719.

The site is a residential garden, measuring approximately 0.1 hectares, comprised of a manicured lawn that is bordered by cherry laurel *Prunus laurocerasus* and cypress hedgerows and contains a number of immature ornamental and native trees, as well as ornamental shrubs and plants. There is one mature oak tree in the northeast corner of the site that will likely be removed if development goes ahead. The site is currently connected to an existing residential property and associated garden to the east, the north border of cherry laurel and cypress hedgerows backs on to the busy A27 road and the southern cherry laurel hedgerow backs on to a minor road and residential housing. There is a small patch of land, outside of the development boundary, adjacent to the cherry laurel and cypress western border which contains immature trees, such as cherry and ash, as well as a large amount of compost, dead wood and leaf litter. Figure 1 shows the boundary of the site.

The proposed project includes development of the site into residential houses with up to two units.

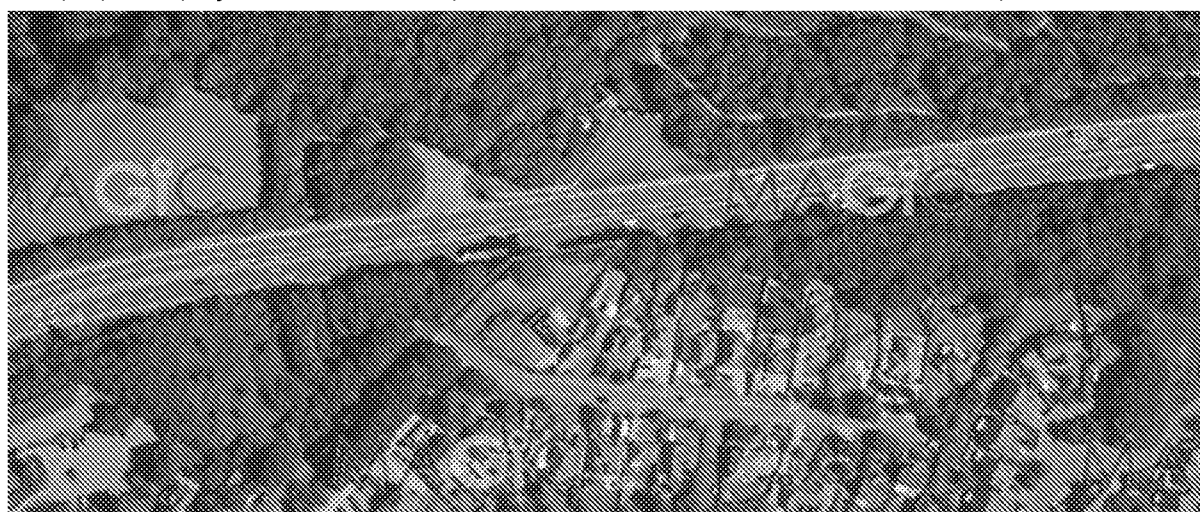


Figure 1. An aerial image showing the location of the site. The approximate site boundary is outlined in red. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>)

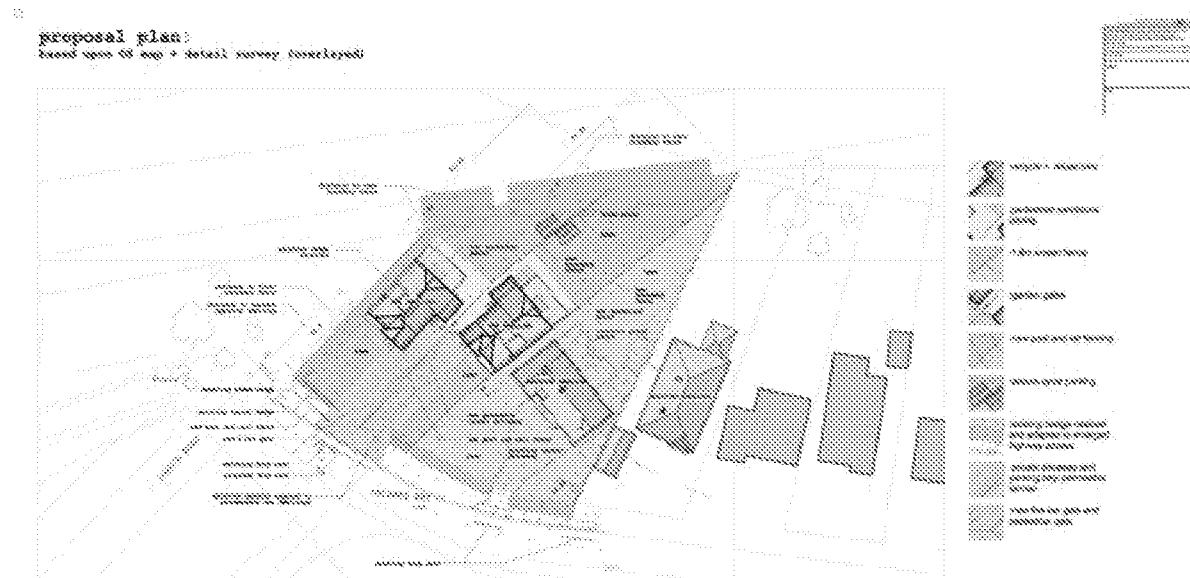


Figure 2. Site plan, highlighted brown. The existing property is highlighted in light beige. Image produced courtesy of nb:architects+.



Figure 3. Building elevations for the proposed development. Image produced courtesy of nb:architects+



1.3 Policy and Legislation

Legal protection applying to relevant bird, mammal, herpetofauna and invertebrate species and current nature conservation planning policy is outlined in Appendix 1 of this report.

2 METHODOLOGY

The methodology used for this survey are in accordance with the Guidelines for Preliminary Ecological Assessment (CIEEM 2017)¹.

2.1 Desk Study

A search for existing records of protected species, species of conservation concern and invasive non-native species was requested from the Sussex Biodiversity Records Centre (SxBRC) within a radius of 1km of the site.

A search of on-line mapping resources was undertaken to identify the location of any features of potential ecological interest including ponds within 500m (relevant to great crested newts), watercourses (relevant to riparian mammals and crayfish) and connectivity to woodland, scrub, and hedgerow networks (relevant to bats, dormice) in the wider landscape around the site. The connectivity of the site to these features, buildings, and other semi-natural habitats such as grassland and heathland are also relevant to bats, great crested newts and reptiles.

The MAGIC website resource (www.magic.gov.uk) was used to identify the location of designated sites for nature conservation and EPS licences granted in relation to the survey site.

2.2 Field Survey

A site walkover survey was undertaken on 29th October 2018, during which the habitats contained within the site were described and evaluated. Since this site is relatively small scale and contains limited semi-natural habitat diversity, it was not considered necessary to undertake comprehensive Phase 1 Habitat Mapping of the site, although a basic map can be seen in figure 5. All habitat types contained within the site, together with the dominant botanical species and indicators of important habitat types such as ancient woodland or unimproved grasslands, were simply listed and described.

Habitats and features at the site were evaluated for their potential to support legally protected species. In addition, observations of any important plant communities, bird assemblages or other potentially valuable ecological features were recorded.

Details of the preliminary survey methods for each legally protected species are given below. Any site specific limitations to the survey, e.g. access constraints or seasonal constraints are set out in Section 3.11.

¹ CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.



2.3 Badgers

Habitats within the site and surrounding areas were broadly assessed for their potential to support badgers. Any signs of badger activity, for example setts, footprints, latrines, well-worn paths, foraging marks, were recorded.

2.4 Bats

Bats can use a wide range of features including loft spaces, cavity walls, loose tiles, mortice joints and cracks/gaps in a variety of built structures. They can also be found in trees with holes, splits, cracks, cavities, ivy, and loose bark.

Trees, buildings, and other structures were broadly assessed for their potential to support roosting bats and further surveys are recommended as appropriate.

The potential for roosting bats for each feature, or group of features was assessed as either negligible, low, moderate, or high, in accordance with the Bat Conservation Trust Survey Guidelines (Collins, J.(ed.) (2016)². Any evidence confirming the presence of bats that was found was clearly recorded including photos and samples (e.g. droppings) where appropriate. Further surveys are recommended where necessary.

2.5 Breeding Birds

The habitats contained within the site and adjacent areas were broadly assessed for their potential to support important bird species/assemblages, and breeding birds. Any birds identified during the site visit were recorded. Special attention was paid to notable species such as red-listed Birds of Conservation Concern (Eaton *et al.* 2015)³ and those species afforded special protection on Schedule 1 of the Wildlife and Countryside Act (1981). Further surveys are recommended as appropriate.

2.6 Dormice

The site was broadly assessed for its potential to support hazel dormouse. This included use of on-line mapping resources to assess the surrounding area for connectivity to large blocks of woodland, scrub and extensive hedgerow networks. Further surveys are recommended as appropriate in accordance with best practice guidance (Bright *et al* 2006)⁴.

² Collins, J.(ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London.

³ Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, Leigh., Musgrove, A., Noble, D., Stroud, D., Gregory, R. (2015) *Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man*. British Birds 108, pp 708-746.

⁴ Bright, P., Morris, P. and Mitchell-Jones, T. (2006) *The dormouse conservation handbook 2nd Ed*. English Nature, Peterborough.



2.7 Great Crested Newt

A desk study was undertaken to identify ponds within 500m of the site. Where access permission was granted, or ponds could be viewed from public roads or footpaths, the ponds were assessed for their potential to support great crested newts using the Habitat Suitability Index (H.S.I.) (Oldham et al 2000)⁵.

Further surveys are recommended as appropriate, in accordance with best practice guidance (English Nature 2001)⁶.

2.8 Reptiles

Habitats on the site were broadly assessed for their potential to support reptiles. Particular attention was paid to those features that provide suitable basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, piles of rotting vegetation) and opportunities for foraging (rough grassland and scrub). The common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*) grass snake (*Natrix natrix*) and adder (*Vipera berus*) are widespread species that can be found in any of these habitats, whereas smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*) have much more restricted and isolated populations on lowland heathland and sand dunes.

2.9 Other notable species

The site habitats were broadly assessed for their potential to support species of principle importance for nature conservation (Section 41 NERC Act 2006) and other notable species. This includes mammals such as harvest mouse, hedgehog, brown hare, and many bird species. The site was broadly assessed for its potential to support important invertebrate assemblages with particular attention paid to features such as standing dead-wood, wet flushes, bare earth banks and botanically rich areas.

3 BASELINE CONDITIONS

3.1 Designated Sites

The South Downs National Park lies approximately 25 metres north of the site, separated from the site by a major road (figure 4). There are no other designated sites within 3km from the site.

There are no granted EPS licenses for mitigation projects within 1km of the site boundaries. The closest EPS licence to the site concerns damage of a resting place for brown long-eared bats, common pipistrelle bats and soprano pipistrelle bats 1.3km north-east, dated 31/10/2015.

⁵ Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000) Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal* 10, 143-155.

⁶ English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

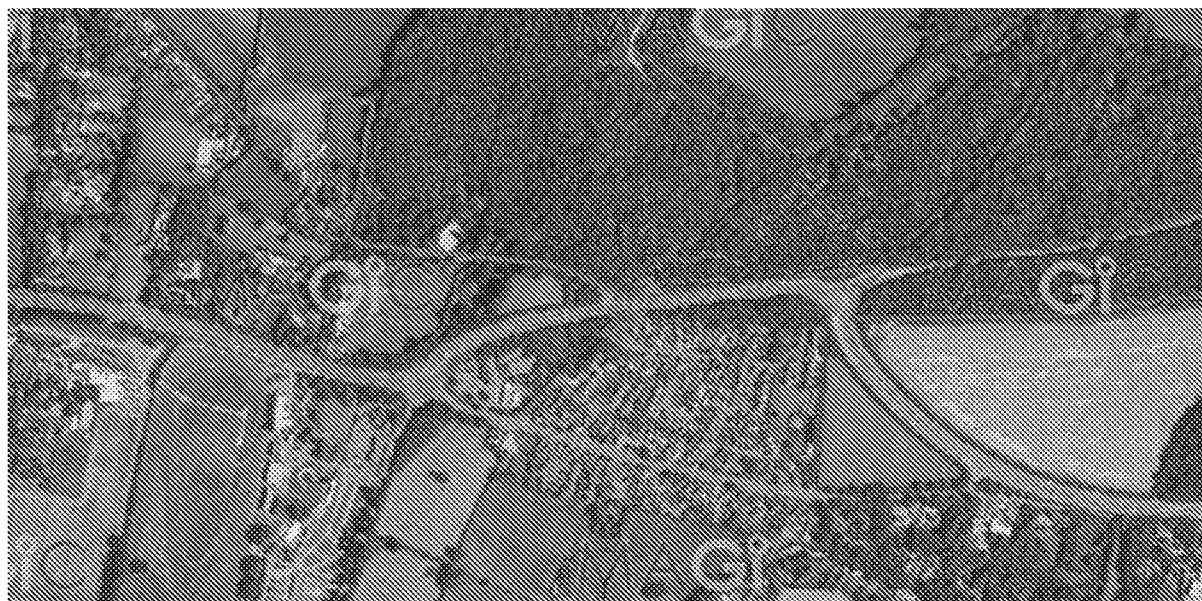


Figure 4. The site (outlined in red) and the South Downs National Park (outlined in green). Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

3.2 Habitats

The site is a residential garden, measuring approximately 0.1 hectares, comprised of a manicured lawn that mostly consists of perennial rye grass *Lolium perenne* and red fescue *Festuca rubra* with occasional creeping bent *Agrostis stolonifera*, meadow fescue *Festuca pratensis*, cocksfoot *Dactylis glomerata*, daisy *Bellis perennis*, dandelion *Taraxacum officinale*, yarrow *Achillea millefolium*, doves-foot cranesbill *Geranium molle*, moss, ground ivy *Glechoma hederacea*, germander speedwell *Veronica chamaedrys*, selfheal *Prunella vulgaris*, greater plantain *Plantago major*, red deadnettle *Lamium purpureum*, spotted medic *Medicago arabica*, wild strawberry *Fragaria vesca*, bristly oxtongue *Helminthotheca echioides*, clovers *Trifolium* sp., sedge *Carex* sp., bedstraws *Galium* sp., thistles *Cirsium* sp, and hawkbit *Leontodon* sp.

The east boundary is a continuation of the lawn habitat into the pre-existing residential property.

The southwest boundary is formed of a cherry laurel hedge, measuring approximately 4 m in length and 1.8 m high, and a cypress hedge measuring approximately 3.5 m in length and 1.8 m high. There is a small gap, measuring approximately 2.5 m, between these two hedgerows that leads onto the access road to the existing property. A row of ornamental shrubs and immature native trees extends perpendicular from the end of the cherry laurel hedge to the centre of the lawn, measuring approximately 16 m, including lilac *Syringa* sp., *Buddleia* sp., red robin *Photinia x fraseri*, holly *Ilex aquifolium*, bracken *Pteridium* sp., yew *Taxus baccata*, bramble *Rubus fruticosus*, maple *Acer campestre*, *Rhododendron* sp., and ash *Fraxinus excelsior* (marked as introduced shrub on the phase one map, figure 5). A small area of ornamental plant species sits at the end of this protrusion, measuring approximately 1 m².

The northern boundary is formed of a cherry laurel hedge, measuring approximately 13 m in length and 2.5 m high, and a cypress hedge, measuring approximately 8 m in length and 4 m high. There is a



wooden fence behind this hedgerow and a thick layer of leaf litter, as well as an understory of ivy *Hedera helix* beneath the cypress section.

The northwest boundary is formed of a cypress hedge, measuring approximately 22 m in length and 2.5 m tall, and a cherry laurel hedge measuring approximately 5 m in length and 2.5 m tall. This hedgerow backs onto a plot of land, outside the development boundary, measuring approximately 0.09 hectares, that is formed of immature native trees including wild cherry *Prunus avium* and ash, and a large amount of compost material, dead wood and leaf litter.

Between the northwest hedgerow and the northern hedgerow lies a mature oak tree that is lightly covered in ivy and travelers joy *Clematis vitalba*. This tree will likely be removed if the development goes ahead.

There is a large bay laurel *Laurus nobilis* bush in the centre of the lawn and a large ornamental plant, likely New Zealand Flax *Phormium tenax Variegatum*, in front of the northern hedgerow.

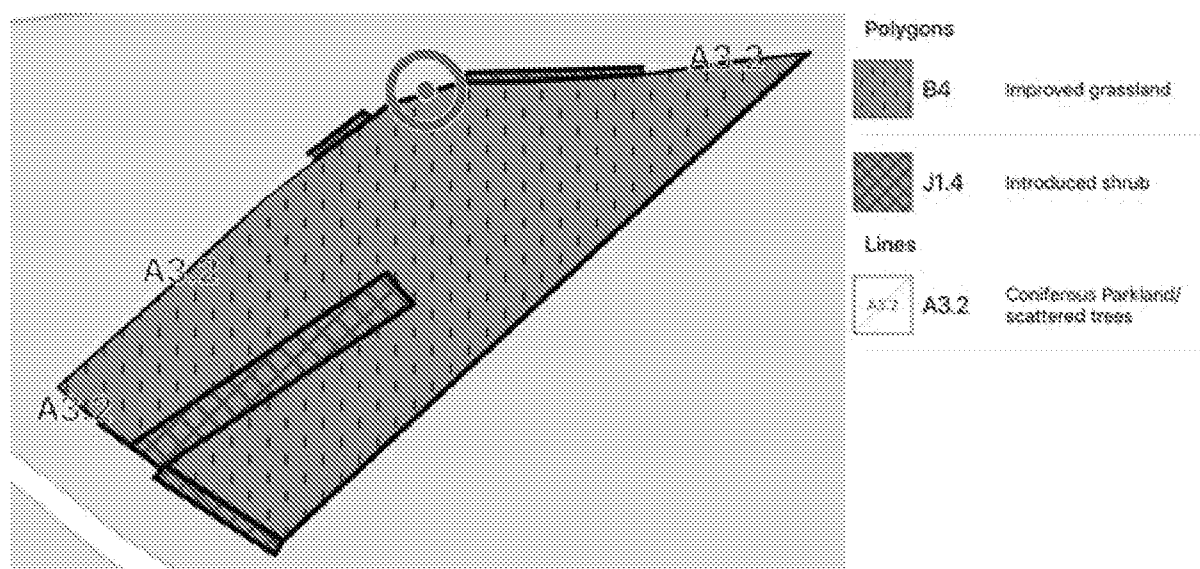


Figure 5. Phase one map of the site. The target note marks the mature oak tree.



Photograph 1. View from the southwest corner of site. 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 rear.



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



Photograph 3. View from the northeast corner. Note the cherry laurel hedge that borders the south.



Photograph 4. View of the north border. Note the cherry laurel and cypress hedgerow, the bay laurel in the centre of the lawn and the ornamental plant, likely New Zealand Flax *Phormium tenax Variegatum*, towards the rear.



Photograph 5. View of the eastern border. A section of this will be retained as the garden of the existing property (see figure 2).



Photograph 6. A small area of immature trees, compost, dead wood and leaf litter lies outside of the development boundary, north-west of the site.



3.3 Badgers

No signs of any badger activity were seen during the survey assessment and, as the surrounding area consists of residential housing and a main road, it is unlikely badgers would be found to be using the site. If any setts were situated within 30m of the site boundary, it is likely that some evidence of badger activity would have been observed.

Records of badgers are not provided by the SxBRC, due to the sensitive nature of this information.

3.4 Bats

There is one mature oak tree on site that would be potentially suitable for bat roosting, however, no potential roost features were seen during a ground level inspection. The hedgerows bordering the site provide potential commuting and foraging habitat for bats and the neighbouring building to the east of the site has a few bat roosting features, namely lifted tiles.

SxBRC provided 64 bat records in the search area comprising 11 identified species within the search area western barbastelle *Barbastella barbastellus* – 26 records, serotine *Eptesicus serotinus* – 2 records, Bechstein's bat *Myotis bechsteinii* – 1 record, noctule *Nyctalus noctule* – 1 record, common pipistrelle *Pipistrellus pipistrellus* – 15 records, soprano pipistrelle *Pipistrellus pygmaeus* – 3 records, brown long-eared bat *Plecotus auritus* – 8 records, whiskered bat *Myotis mystacinus* – 2 records, Brandt's bat *Myotis brandtii* – 2 records, Natterer's bat *Myotis natterii* – 2 records, *Myotis sp.* – 1 record, *Pipistrelle sp.* – 1 record. The closest of these was a common pipistrelle and a serotine bat record approximately 130m north of the site, dated 16/09/2000.

3.5 Breeding Birds

All the hedgerows bordering the site, the mature oak tree and the strip of ornamental and native species that protrudes from the southwest border have the potential to support a variety of common nesting birds. A robin was observed on site during the survey.

SxBRC provided numerous bird records for the search area concerning a total of 93 species. Most of these species are relatively common and widespread, but the list includes 20 species of principle importance for conservation (S41 NERC Act 2007), and 11 species listed on Schedule 1 of the Wildlife and Countryside Act. In addition, 24 species are red listed on the Birds of Conservation Concern.

A high proportion of the records are wetland birds or are found in habitats not relevant to the application site. However, the following S41 species could potentially breed on the site: dunnock *Prunella modularis* and song thrush *Turdus philomelos*.

3.6 Dormice

The site contains no woodland, scrub or hedgerows suitable for dormice and the species is highly unlikely to be present.



SxBRC provided 2 dormouse records in the search area, both of which were recorded approximately 440m southeast of the site.

3.7 Great Crested Newts and other amphibians

There is one artificial pond containing ornamental carp in the east neighboring garden that is unsuitable for great crested newts. There are two more ponds within 500 m of the site (figure 6), however, as the ponds are separated from the site by approximately 440 m (nearly the maximum distance great crested newts are recognized to travel), and as there is an extensive network of roads between, it is highly unlikely that great crested newts will be present on the proposed development site.

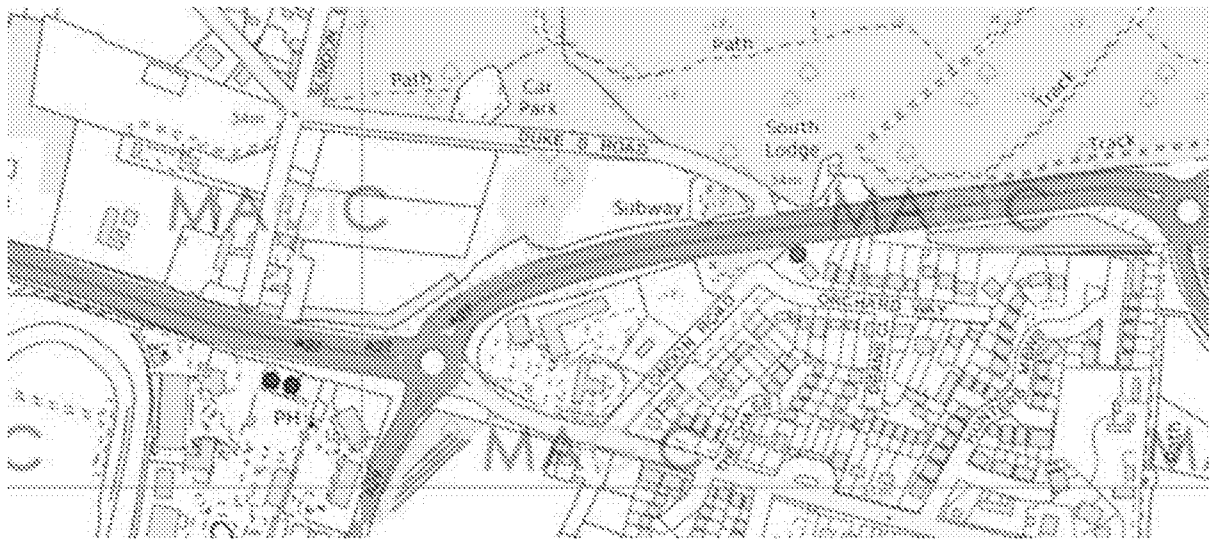


Figure 6. Two ponds (blue dots) lie 440 m southwest of the site (red dot)

SxBRC provided 8 amphibian records in the search area. This did not include any records for great crested newt *Triturus cristatus*. The records concerned common frog *Rana temporaria* – 5 records and common toad *Bufo bufo* – 3 records. The closest of these was at 450m west of the site, dated 3/11/2015.

3.8 Reptiles

The site contains no suitable habitat for reptiles, comprised almost exclusively of a close-mown garden lawn. The small plot of land adjacent to the western border does contain suitable hibernation material but this is heavily shaded and there is no connected suitable foraging and basking habitat such as tussocky grassland. It is therefore unlikely that reptiles will be on site.

SxBRC provided 18 reptile records in the search area, concerning slow worms, grass snakes and common lizards. The closest of these was at 520m northeast from the boundary of the site, dated 06/05/2014.

3.9 Invasive non-native species

The strip of ornamental and native species that projects from the southwest border contains a rhododendron species, which could potentially be *Rhododendron ponticum*, a schedule 9 invasive



species. Cherry laurel and buddleia are also present which, although not schedule 9 species', are considered by many to be invasive.

SxBRC provided records for 18 invasive species found within the search area, including *Rhododendron ponticum* and cherry laurel *Prunus laurocerasus*.

3.10 Other notable species

The strip of leaf litter that runs behind the cherry laurel hedgerows of the west and north borders, and the garden lawn, both provide potential resting places and foraging habitat for hedgehogs *Erinaceus europaeus*. SxBRC provided 6 records for hedgehogs within the search area between 1988 and 2012.

SxBRC also provided records for the following S41 species: stag beetle *Lucanus cervus*, spreading hedge-parsley *Torilis arvensis*, Pearl-bordered fritillary *Boloria euphrosyne*, small heath *Coenonympha pamphilus*, white admiral *Limenitis camilla*, grizzled skipper *Pyrgus malvae*, grey dagger *Acronicta psi*, knot grass *Acronicta rumicis*, ear moth *Amphipoea oculea*, mouse moth *Amphipyra tragopoginis*, mottled rustic *Caradrina morpheus*, dark crimson underwing *Catocala sponsa*, white-spotted pinion *Cosmia diffinis*, small square-spot *Diarsia rubi*, small phoenix *Ecliptopera silaceata*, dusky thorn *Ennomos fuscantaria*, galium carpet *Epirrhoe galiata*, small emerald *Hemistola chrysoprasaria*, ghost moth *Hepialus humuli humuli*, rustic *Hoplodrina blanda*, rosy rustic *Hydraecia micacea*, shoulder-striped wainscot *Leucania comma*, lackey *Malacosoma neustria*, dot moth *Melanchra persicariae*, pretty chalk carpet *Melanthia procellata*, white ermine *Spilosoma lubricipeda*, buff ermine *Spilosoma lutea*, blood-vein *Timandra comae*, cinnabar *Tyria jacobaeae*, oak hook-tip *Watsonalla binaria*, lesser smoothcap *Atrichum angustatum*,

Whilst there are deadwood habitats close to the proposed development site and habitats of value for some of these species within the wider landscape, the site itself does not hold significant value for the above identified S41 species.

3.11 Survey Limitations

An initial site assessment such as this is only able to act like a 'snapshot' to record any flora or fauna that is present at the time of the survey. It is therefore possible that some species may not have been present during the survey, but may be evident at other times of the year. For this reason, habitats are assessed for their potential to support some species, even where no direct evidence (such as droppings) has been found.

4 ECOLOGICAL CONSTRAINTS AND OPPORTUNITIES

4.1 Designated Sites

The site is separated from the South Downs National Park by a main road which, when combined with the small scale nature of the proposed project, means it is unlikely the proposed development will have any impact on the park. The site is outside the zone of influence from all other designated sites.



4.2 Habitats

If the development is to proceed, the mature oak tree in the northwest corner of site and the introduced shrubs and immature native trees within the site will be removed. A large section of the southern cherry laurel hedge will also be removed, as well as a smaller section of the northern cherry laurel border (see figure 2). A large amount of lawn will be removed for the building foundations and the driveway.

As the majority of habitat loss concerns non-native and invasive species, the impact on biodiversity is not substantial. However, the removal of hedgerows and the mature oak tree will result in a loss of the biodiversity value associated with these features.

4.3 Bats

As there are no buildings or trees suitable for roosting bats within the site, the development should not have a direct impact on this group of species. However, removal of parts of the bordering hedgerows may impact on any bats using the site for foraging and commuting. Additionally, the neighbouring building to the east of the site has a few bat roosting features, namely visible gaps between roof tiles. These potential features will not be affected by the hedge removal, but may be affected by lighting, either during development or in relation to external lighting for the new builds. It is therefore important that the potential for disturbance from artificial lights be considered and as such the proposed development should include an 'ecologically sensitive lighting scheme' in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 2).

The developer is also encouraged to consider including integral bat roosting opportunities into the building fabric such as bat tiles and internal voids/access points for bats (see appendix 3).

4.4 Breeding Birds

All the hedgerows bordering the site, the mature oak tree and the strip of ornamental and native species that projects from the southwest border have the potential to support a variety of common nesting birds. It is therefore essential that any future development considers the nesting bird season and any vegetation removal and/or building demolition should be timed outside of the nesting bird season (typically 1st March to 31st August), unless features are first searched by a suitably qualified ecologist and no active nests are found.

To compensate for the removal of the mature oak tree, and to enhance the site for the benefit of nesting birds, it is recommended that bird boxes are incorporated into the design of the new buildings (see appendix 3).

4.5 Invasive non-native species

The strip of non-native shrubs and immature native trees that protrudes from the southwest border is due to be removed if the development goes ahead. A section of cherry laurel will also be removed from the south and north hedgerows. In the event that ornamental plants are to be included in the garden design of the new builds, it is recommended that invasive species such as rhododendron, cherry laurel



and buddleia are avoided, and where possible, native species are planted.

4.6 Dormice

The site contains sub-optimal habitat for dormice as it is comprised almost entirely of non-native species, not typically associated with dormouse habitat. However, the habitat structure and interconnectivity of the site, combined with the local records, means that dormouse presence from time to time cannot be completely disregarded. Therefore, if the development is to proceed, a thorough fingertip search above and below ground should be carried out by a qualified ecologist prior to removal of any vegetation as a precautionary measure.

4.7 Other notable species

The margin of leaf litter between the north and west hedgerows and the wooden fencing has the potential to provide valuable habitat for hedgehogs, including hibernating hedgehogs during the winter months. A fingertip search of the leaf litter and surrounding vegetation will need to be carried out by a suitably qualified ecologist prior to disturbance as well as a watching brief during the vegetation removal as a precautionary measure.

4.8 Enhancement opportunities

It is recommended that the loss of habitat for nesting birds and foraging bats be mitigated by the introduction of native species such as hawthorn, hazel and holly into the bordering hedgerows as well as the incorporation of bat access tiles and bird boxes into the design of the new buildings.

It is recommended that the margin of leaf litter between the north and west hedgerows and the wooden fence be retained, or replicated in the event that native hedgerows are planted.

The proposed development represents an opportunity for habitat enhancement to benefit insects, birds, and bats. Any planting scheme should include native shrub species and flowering species known to encourage insect diversity. Such enhancement measures are in line with the recommendations of the NPPF and as such would be considered favourably when determining the planning application.

4.9 Conclusions.

This site consists mostly of closely-mown lawn and non-native shrubs and hedgerow species and therefore has low ecological value for biodiversity. However, all the hedgerows bordering the site, the mature oak tree and the strip of ornamental and native species that projects from the southwest border into the garden have the potential to support a variety of common nesting birds. It is therefore essential that any future development considers the nesting bird season and any vegetation removal and/or building demolition should be timed outside of the nesting bird season (typically 1st March to 31st August), unless features are first searched by a suitably qualified ecologist and no active nests are found.

A fingertip search for dormice and hedgehogs will need to be carried out by a suitably qualified ecologist



prior to the removal of vegetation.

It is recommended that the bordering hedgerows are improved with native species planting, any planting scheme should include native shrub species and flowering species known to encourage insect diversity and, where possible, bat access tiles and bird boxes should be incorporated into the design of the new buildings.

If any protected species are found during the proposed work, work should be stopped immediately and an ecologist must be contacted immediately for advice.

Should you need any further advice on the information provided above, please do not hesitate to contact The Ecology Co-op, [REDACTED] www.ecologyco-op.co.uk, [REDACTED]



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.

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 *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 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.

References

Protection of Badgers Act (1992). HMSO London. Available at: <http://www.legislation.gov.uk/ukpga/1992/51/contents>

Circular 06/2005 (2005). *Government Circular: Biodiversity and geological conservation – statutory obligations and their impact within the planning system*. Office of the Deputy Prime Minister, London. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf

Council Directive 79/409/EEC on the Conservation of Wild Birds ("the Birds Directive"). Available at: <http://jncc.defra.gov.uk/page-1373>

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the "Habitats Directive"). Available at: <http://jncc.defra.gov.uk/page-1374>

The Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations). Available at: <http://jncc.defra.gov.uk/page-1379>

Countryside and Rights of Way (CROW) Act (2000). HMSO London. Available at: <http://www.legislation.gov.uk/ukpga/2000/37/contents>

Defra (2011) *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*. Available at: www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services.

Defra (2013) Progress Update. Available at: www.gov.uk/government/publications/biodiversity-2020-simple-guide-and-progress-update-july-2013.

Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D. and Gregory, R. (2015) *Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man*. Available at: British Birds 108 • December 2015 • 708–746 <https://britishbirds.co.uk/wp-content/uploads/2014/07/BoCC4.pdf>

Natural Environment and Rural Communities (NERC) Act (2006). HMSO London. Available at: http://www.legislation.gov.uk/ukpga/2006/16/pdfs/ukpga_20060016_en.pdf



National Planning Policy Framework (NPPF) (2012) Department for Communities and Local Government. Available at:
www.gov.uk/government/uploads/system/uploads/attachment_data/file/60777/2116950.pdf

Wildlife and Countryside Act (WCA) (1981). HMSO London. Available at:
<http://www.legislation.gov.uk/ukpga/1981/69/contents>



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 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 Trust⁷ should be considered while designing the lighting scheme. This includes the following measures:

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.

Do:

- consider employing a competent lighting designer who will apply the principals of providing the right light, in the right place, at the right time and controlled by the right system.
- minimise the spread of light to at, or near horizontal and ensure 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 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.
- use temporary close-boarded fencing until vegetation matures, to shield sensitive areas from lighting.
- limit the times that lights are on to provide some dark periods. The task being lit often varies, for example roads are less used after 23.00hrs and car parks are empty. A lighting designer can vary the lighting levels as the use of the area changes reducing lighting levels or perhaps even switching installations off after certain times. This use of adaptive lighting can tailor the installation to suit human health and safety as well as wildlife needs.

⁷ Bat Conservation Trust (2014) Artificial Lighting and Wildlife - Interim Guidance: Recommendations to help minimise the impact artificial lighting. Available at: http://www.bats.org.uk/pages/bats_and_lighting.html



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.thelip.org.uk/resources/free-resources/>



APPENDIX 3 - Roosting bat and nesting bird enhancements

Bat enhancements

Bat access tiles and bat tubes (Figure 7) could be installed in the new properties, providing suitable roosting sites for species such as common and soprano pipistrelle bats. There should also be access to the enclosed loft space where appropriate, by incorporating gaps in the lining. The roof voids should have a floor area of no less than 40m², and height at ridge beam of at least 2.5m to provide suitable roosting spaces for brown long-eared bats

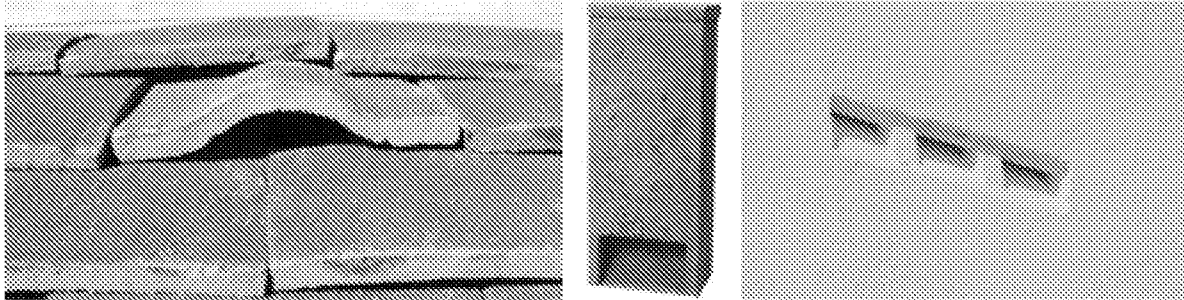


Figure 7. Example of bat access tile (left), Schwegler 2FR bat tube (middle), example of three 2FR bat tubes installed in a series and rendered to blend in with building fabric (right). They can equally be faced with bricks to match the walls.

Bird enhancements

In order to enhance the site for nesting birds some common nesting bird boxes could be included in the new building design e.g. 1SP Schwegler 'sparrow terrace' and 1MR Schwegler 'Avianex' (figure 8).

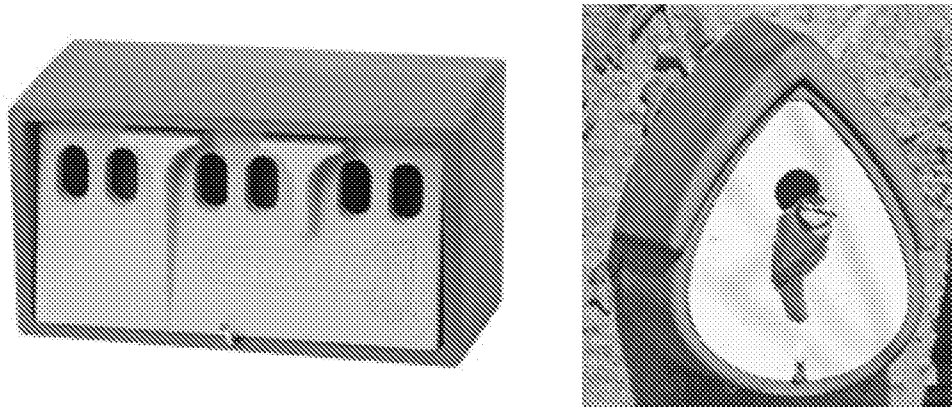


Figure 8. 1SP Schwegler Sparrow Terrace (left), 1MR Schwegler Avianex (right)

End.