



Preliminary Ecological Appraisal

Land South of Dukes Road, Fontwell

Author: Sophie Bradfield BSc ACIEEM

Reviewed by: Dr Ryan Walker, MCIEEM, CEnv

6th April 2022

Project No: P4715

The Ecology Co-operation Ltd
Registered Office: Greens Court, West Street, Midhurst, West Sussex, GU29 9NQ
Company number: 8905527



Document Control

Issue No	Author	Reviewer	Issue Date	Additions/alterations	Notes
Original	SB	RW	23/03/22	N/A	
Amendment	SB	-	06/04/22	Changes to dormouse impact appraisal	Information regarding area of hedgerow removal provided

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.



Report Summary

1. The Ecology Co-op has been commissioned by Progress Planning to undertake a Preliminary Ecological Appraisal at land south of Dukes Road, Fontwell. A site walkover survey visit was carried out by Sophie Bradfield BSc ACIEEM on the 15th of February, to evaluate the habitat value of the site and its potential to support EU and UK protected and notable species. The purpose of this report is to record the findings of the survey and identify potential ecological constraints and opportunities in relation to an outline proposal to create nine residential units, including removal of two sections of hedgerow spanning 12.3 metres along the north to create access routes.
2. The site is a horse-grazed field comprising neutral grassland lined with species rich hedgerow-with-trees, a UK BAP Priority Habitat, along the north and south boundaries and species-poor hedgerows along the east and west. The site is situated adjacent to deciduous woodland and within 500m of lowland grassland and ancient woodland.
3. UK BAP Priority habitat deciduous woodland exists immediately southwest of the application site, whilst Slindon Bottom Local Wildlife Site, supporting ancient woodland exists 90m east, and the South Downs National Park dark skies reserve lies immediately north.
4. The planting scheme must comprise of native, locally provenant species to avoid the spread of invasive fauna into local vulnerable habitats. The isolated patch of buddleia must be eradicated, and green waste removed. A comprehensive sensitive lighting scheme will be essential to reduce impact upon nocturnal species. Sources of construction-phase pollution must be controlled to avoid impacts to these sites. All removed hedgerow and shrubs/scrub replaced at a ratio of 2:1m² and 24m in length. All tree and shrub planting must comprise of native deciduous plants.
5. A single very mature oak tree was identified along the southern boundary, which is thought to have moderate bat roosting potential. Hedgerows and trees along both the northern and southern boundaries are considered to have potential to support commuting and foraging bats and commuting hazel dormice, using the local landscape.
6. The following surveys are required to inform a detailed Ecological Impact Appraisal, associated mitigation plans:
 - Bat activity surveys between April and October involving a walked transect and deployment of two bat loggers each month
 - Tree climbing and endoscope survey of a mature oak tree between May and September, combined with checking the girth of the oak to see if it is a 'veteran' tree. Veteran trees require a buffer zone at least 5 metres wider than the canopy edge, or 15 times the diameter of the trunk (whichever is greater).



7. To reduce impacts on dormice, hedgehogs, reptiles, moths, butterflies and nesting birds, as much of the hedgerow should be retained as possible, with appropriate root protection zones, including a minimum buffer of 1.5m from the edge of the northern and southern hedgerows.

8. The herbaceous understory will be subject to phased clearance and hand search for dormice, reptiles, hedgehogs and breeding birds supervised by a suitably qualified ecologist, during May and/or late September. If evidence of hazel dormice is identified, a full EPS licence would be required to legally proceed.

9. All fences within the site must incorporate hedgehog access features to allow the free movement of hedgehogs. A wildflower meadow must be incorporated into the scheme, which will include at least one of the following grasses to benefit butterflies and moths: meadowgrass, bent, fescue. Bird boxes must be erected on trees and buildings at a ratio of 1 per square metre of scrub/shrub removed.



CONTENTS PAGE

1	INTRODUCTION	1
1.1	Purpose of the Report	1
1.2	Background	1
1.3	Policy and Legislation	3
2	METHODOLOGY	3
2.1	Desk Study	3
2.2	Field Survey	3
2.3	Badgers	4
2.4	Bats	4
2.5	Breeding Birds.....	4
2.6	Dormice.....	5
2.7	Great Crested Newt	5
2.8	Reptiles	5
2.9	Other Notable Species	6
3	BASELINE CONDITIONS	6
3.1	Designated Sites and Granted EPS Licences.....	6
3.2	Habitats	8
3.3	Badgers	11
3.4	Bats	11
3.5	Breeding Birds.....	14
3.6	Dormice.....	14
3.7	Great Crested Newts and other Amphibians.....	15
3.8	Reptiles	16
3.9	Invasive Non-native Species	17
3.10	Other Notable Species	17
3.11	Survey Limitations.....	17
4	IMPACT APPRAISAL	17
4.1	Designated Sites	17
4.2	Habitats	18
4.3	Badgers	18
4.4	Bats	19
4.5	Breeding and Wintering Birds	19
4.6	Dormice.....	19
4.7	Reptiles	20
4.8	Invasive Non-native Species	20
4.9	Other Notable Species	20
5	OPPORTUNITIES FOR ENHANCEMENT	21
6	CONCLUSIONS	21
	APPENDIX 1 – Wildlife Legislation and National Planning Policy	24
	APPENDIX 2 - Arun Local Plan 2011-2031 (July 2018)	29
	APPENDIX 3 – Additional Photographs	31
	APPENDIX 4 – Reducing Impacts of Artificial Light	33



1 INTRODUCTION

1.1 Purpose of the Report

The Ecology Co-op has been commissioned to undertake a Preliminary Ecological Appraisal (PEA) of land south of Dukes Road, Fontwell by Progress Planning. This report presents the findings of a walkover survey undertaken by Sophie Bradfield BSc, an Associate member of the Chartered Institute of Ecology and Environmental Management (ACIEEM), on the 15th of February 2022. It provides details on the potential for any protected/notable species and/or habitats to be present at the site and a simple assessment of the potential ecological constraints and opportunities in relation to the proposed housing development. 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 necessary, and possible measures to avoid, mitigate and/or compensate for significant adverse effects are summarised. The potential to incorporate ecological enhancement measures as part of the scheme is discussed, in addition to any requirement to achieve biodiversity net gain.

This PEA report is designed to inform the client and their team (as appropriate) about the initial findings of the site walkover and desk study research in relation to the site proposals, highlighting the key ecological constraints and opportunities, and any further survey requirements. It is not intended for submission in support of a planning application but can be used to inform a future Ecological Impact Assessment (EclA).

1.2 Background

This site measures approximately 0.8ha and is situated within Fontwell in Arundel, West Sussex. The site is situated in a semi-rural location amongst low density housing, deciduous woodland and hedge lined arable fields, whilst ancient woodland lies northeast of the site. Figure 1 shows the boundary of the site.

The proposed project is in the outline application stage so are subject to changes. The plans include development of the site to support up to 9 residential units, with associated hard and soft landscaping. Two sections of hedge along the northern boundary will be removed to create access to the site, totalling 12.3 metres in length, and excludes standing trees. The overall width of the hedgerow will be retained. All other hedgerows along the east south and west of the site will be retained. An undeveloped area has been created to the south of the site which could be used for ecological enhancements, this measures approximately 0.2ha, see Figure 2.



Figure 1. An aerial image showing the location of the site. The approximate site boundary is outlined in red. Image produced courtesy of Google maps (map data ©2022 Google)



Figure 2. Proposed site layout courtesy of Progress Architecture. Drawing No. L1001. Rev P2. Dated 01/03/2022.



1.3 Policy and Legislation

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

Where possible, this report provides guidance on how the proposal can be designed to meet the requirements of both local planning policy and the National Planning Policy Framework (NPPF). Details of the NPPF can be found in Appendix 1 and relevant local planning policy by Arun District Council is provided in Appendix 2.

2 METHODOLOGY

The methodologies used for this survey are in accordance with the Guidelines for Preliminary Ecological Appraisal¹, but also consider the Guidelines for Ecological Report Writing, Second Edition².

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 Record Centre (SxBRC) within a radius of 2km 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 *Triturus cristatus*), watercourses (relevant to riparian mammals and crayfish) and connectivity to woodland, scrub, and hedgerow networks (relevant to bats and dormice *Muscardinus avellanarius*) 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 great crested newts, reptiles and a wide variety of notable species of conservation concern.

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

2.2 Field Survey

A site walkover survey was undertaken on the 15th of February 2022, during which the habitats contained within the site were described and evaluated. Since this site is relatively small in scale and contains limited semi-natural habitat diversity, it was not considered necessary to undertake comprehensive UKHab mapping of the site. All habitat types contained within the site, together with the dominant botanical species and indicators of important habitat types, such as ancient woodland or

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

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



unimproved grassland, have simply been listed and described where identified.

Habitats and features at the site were evaluated for their potential to support legally protected species and/or species of conservation interest. 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.

2.3 Badgers

Badgers *Meles meles* exploit a range of habitats, including gardens, coniferous woodland, deciduous woodland, mixed woodland and arable land. They live in an underground system of tunnels and nesting chambers, known as a sett, with territories ranging from 30ha to 150ha or more.

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

2.4 Bats

Bats can use a wide range of features for roosting purposes, 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 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 negligible, low, moderate, or high, in accordance with best practice. Any evidence confirming the presence of bats was clearly recorded including photos and samples taken (e.g. droppings), where appropriate. Further surveys have been recommended as appropriate.

The habitats surrounding the site and wider landscape were broadly assessed for their potential to support foraging and commuting bats. Further surveys have been recommended as appropriate.

2.5 Breeding Birds

Birds can use a wide range of natural and artificial habitats when breeding, including trees, hedgerows, fields, houses and garden sheds. 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 Concern³ and those species afforded special protection on Schedule 1 of the Wildlife and Countryside Act (1981).

2.6 Dormice

Dormice are found in deciduous woodland and hedgerows, feeding on flowers, pollen, fruits, insects and nuts, favouring hazel *Corylus avellana* and honeysuckle *Lonicera periclymenum* for food and as bedding. The site was broadly assessed for its potential to support dormice. 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 have been recommended as appropriate.

2.7 Great Crested Newt

Great crested newts breed in ponds during the spring and spend the rest of the year feeding on invertebrates primarily in semi-natural habitats including woodland, hedgerows, marshes and tussocky grassland. A desk study was undertaken to identify ponds and wet ditches within 500m of the site that might support breeding great crested newts. 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 (HSI) (Oldham et al 2000)⁴. The value of the site for terrestrially foraging great crested newts and any features that might be used by hibernating newts has also been assessed.

2.8 Reptiles

The common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, grass snake *Natrix helvetica* 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.

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).

³ Stanbury, A., Eaton, M., Aebischer, N., Balmer, N., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). Birds of Conservation Concern 5: the status of bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man. British Birds 114, pp 723-747.

⁴ 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.



2.9 Other Notable Species

The site's habitats were broadly assessed for their potential to support species of principal importance for nature conservation (Section 41 NERC Act 2006) and other notable species. This includes mammals such as harvest mouse *Micromys minutus*, hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus*, 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 and Granted EPS Licences

There are three designated sites within 2km of the application site, see Table 1 corresponding to Figure 3.

There is one granted EPS licence for the destruction of a breeding site and resting place for Hazel dormouse *Muscardinus avellanarius*, approximately 600m southeast of the site, for the years 2020 – 2029, see Figure 4.

Table 1. Designated sites within a radius of 2km

Site name	Designation	Features listed on citation	Proximity
Statutory designated sites			
South Downs	National Park	The south downs national park is one of 16 international dark sky reserves. The park is home to a number of globally important habitats including chalk grassland lowland heath, whilst the designated site supports a number of rare species.	40 metres (m) north
Non-statutory designated sites			
Slindon Bottom	Local Wildlife Site (LWS)	Ancient woodland comprising pedunculate oak <i>Quercus robur</i>, ash <i>Fraxinus excelsior</i> and beech <i>Fagus sylvatica</i>. The site lies at the junction of Valley Gravel and Upper chalk, supporting a varied flora whilst some of it has been replanted with conifers. Several notable breeding birds have been recorded in 1992 including the following amber listed bird species according to the Birds of Conservation Concern (BOCC): willow warbler <i>Phylloscopus Trochilus</i>, stock dove <i>Columba oenas</i>, and red listed species mistle thrush <i>Turdus viscivorus</i>. green woodpecker <i>Picus viridis</i> is also a notable breeding bird. Records at Slindon Bottom refer to the presence of bluebells <i>Hyacinthoides non-scripta</i> (protected by the Wildlife and Countryside Act, Section 8) and Section 41 species rustic moth <i>Hoplodrina blanda</i>. Barbastelle <i>Barbastella barbastellus</i> is an Annex 2 species under the Habitats Directive and maternity roosts have also been recorded here in 2014 and 2013. Other rare and 'data deficient' bats trapped here include Annex 4 species alcahloe <i>Myotis alcahloe</i>, whiskered myotis, <i>Myotis</i>	90m east



		<i>mystacinus</i> , <i>brandts</i> , <i>Myotis brandti</i> and <i>Serotines Eptesicus serotinus</i> in the year 2013 amongst other more common species.	
Fontwell Race Course	Local Wildlife Site (LWS)	Grassland around the side and in the centre of the racetrack are managed as hay meadow and consist of species-rich swards. The site lies over calcareous alluvium and presents as unimproved species rich grassland with calciodes. The flora supports a number of rare plants including notable Near Threatened species green winged orchid <i>Orchis morio</i> .	0.2km south
Unknown	Designated Road Verge	Unknown	0.6km west
Unknown	Designated Road Verge	Unknown, although records refer to the presence of Wild Clary <i>Salvia verbenaca</i> in this area. Wild clary is a red listed near threatened plant of typically chalk or limestone soils, protected under schedule 8 of the Wildlife and Countryside Act.	1.8km south

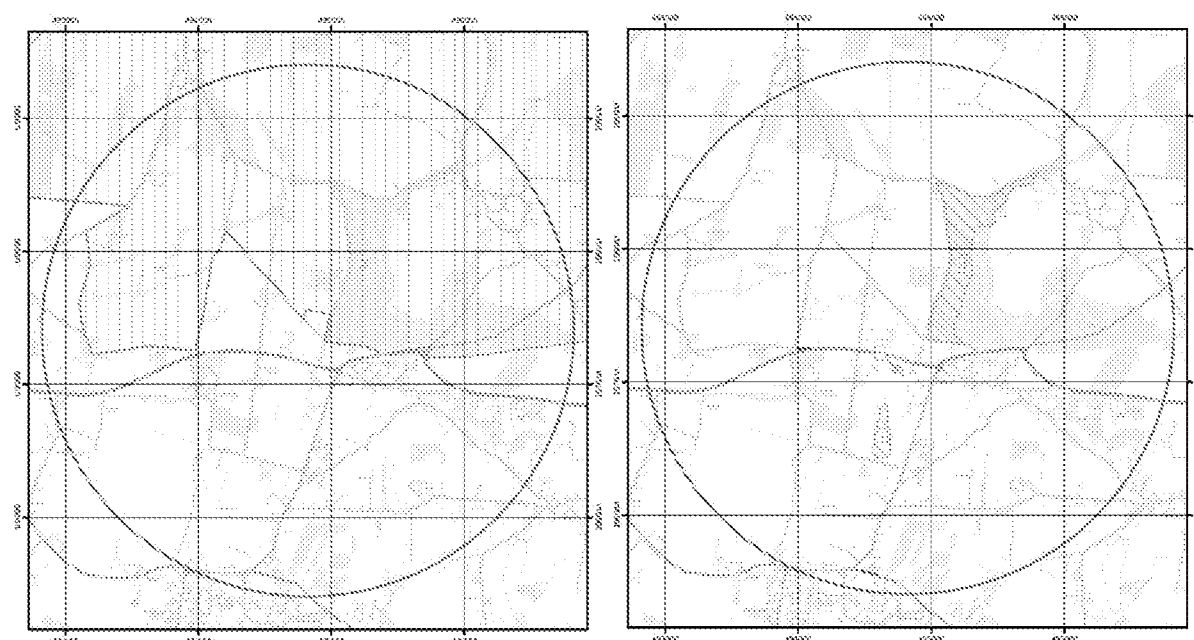


Figure 3. Left: Statutory designated sites (The South Downs National Park only) within a radius of 2km of the application site. Right: Non-statutory designated sites within a radius of 2km of the application site. 1= Fontwell Racecourse. 2= Slindon Bottom. Image produced courtesy of SxBRC, dated 08/02/22.



Figure 4. Granted dormouse mitigation licence 0.6km southeast of the application site. Image 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

UK BAP Priority broadleaved deciduous woodland habitat exists immediately southwest of the site, whilst ancient woodland associated with Slindon Bottom Local Wildlife Site is situated 90m east. Additional deciduous woodland parcels and a parcel of lowland meadow exist within a 500m radius, see Figure 5.

Most of the application site comprises tightly grazed grassland. The northern and southern hedgerow with trees are species rich with a herbaceous understory and variety of woody species, see Photographs 1 and 2.

Grassland: Tightly grazed neutral grassland indicative of a moist but well drained soil type.

Plants include common bent *Agrostis capillaris*, yarrow *Achillea millefolium*, heath bedstraw *Gallium saxatile*, Yorkshire fog *Holcus lanatus*, common mouse ear *Cerastium fontanum*, creeping buttercup *Ranunculus repens*, common nettle *Urtica dioica*, great mullein *Verbascum thapsus*, and ragwort *Jacobaea vulgaris*. Isolated ornamental garden escapes were identified along the east boundary.

South boundary: Species rich hedgerow with trees (UK BAP Priority Habitat) measuring 3m wide (W) by 100m in length (L)

One mature oak, a mature field maple and a very mature oak tree was identified here and were subject to ground level tree assessments. Semi mature trees include blackthorn *Prunus spinosa*, elder *Sambucus nigra*, hawthorn *Crataegus monogyna*, sycamore *Acer pseudoplatanus*, holly *Ilex aquifolium* and one ornamental tree. The shrub layer included bramble *Rubus fruticosus* and non-native invasive species cherry laurel *Prunus laurocerasus*. The understory comprised of ivy *Hedera helix*, lords and ladies *Arum maculatum*, ferns *Tracheophyta* sp., ground ivy *Glechoma hennipferacea*, and a



continuation of grassland species, whilst leaf litter was abundant. Some log piles were situated along this boundary.

North boundary: Species rich hedgerow with trees (UK BAP Priority Habitat) measuring 1.5m W x 100m L

Mature trees include sycamore and hawthorn, whilst a row of coppiced semi-mature dogwood *Cornus sanguine*, sycamore and hawthorn were also present. The shrub layer consists of bramble, bittersweet nightshade *Solanum dulcamara* and travellers joy *Clematis vitalba*. The ground flora includes lords and ladies, ferns, hogweed *Heracleum spp.*, ivy, ground ivy, as well as ornamental plants including snow drops *Gelanthus spp.*, and daffodils *Narcissus sp.*. The hedge is connected to an area of 3 x 4m bramble scrub in the far east corner.

Isolated Scrub

A small, isolated area of bare ground and scrub was located in the far southwest corner, comprising buddleia *Buddleja spp.*, brambles and feather moss *Hypnales sp.*

East boundary: Chain link fence adjacent to a 1m W x 43m L species poor hedgerow with trees

Tree species include semi-mature hawthorn, blackthorn and silver birch *Betula pendula*. The shrub layer includes box *Buxus sempervirens*, holly and beech. The understory comprises of ornamental garden escapes, ground ivy and a continuation of the neutral grassland.

West boundary: A species poor hedgerow with trees measuring 4m W x 70m L

Comprises largely mature cherry laurel, with smaller amounts of bramble, cypress *Cupressus sp.*, elder and sycamore. There is no herbaceous understory present.

Southwest boundary: Scattered trees

Comprises semi-mature hawthorn, sycamore, elder, whilst some isolated bramble scrub was also present. Within the open grassland close to the southwest boundary, a mature sycamore and three semi mature elder trees were present.

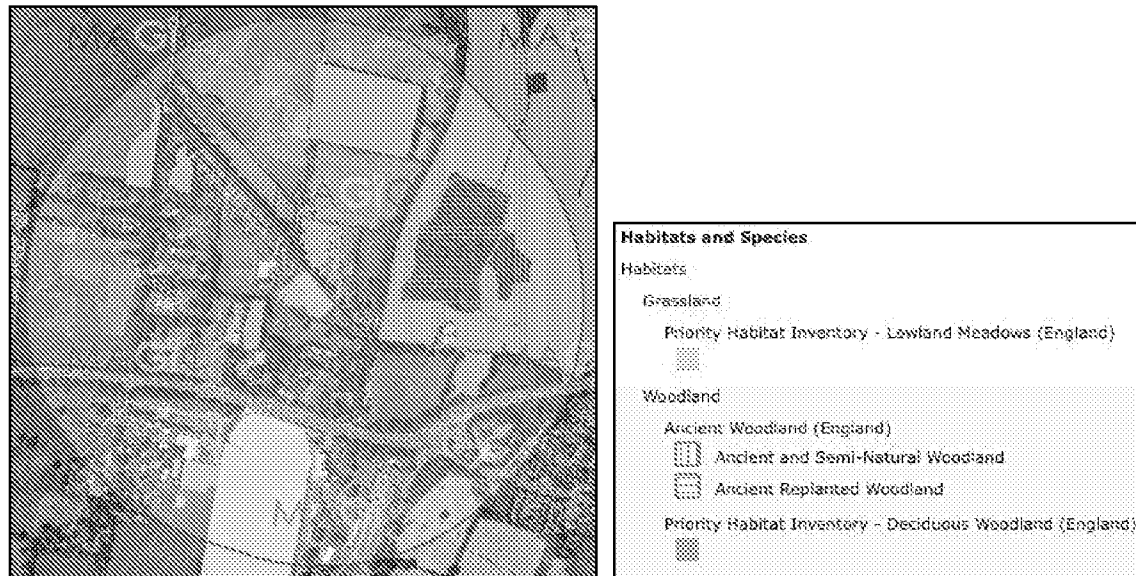


Figure 5. Left: UK BAP Priority Habitat within 500m of the application site (identified by the red shape). Right: Correlating key.



Photograph 1. Tightly grazed neutral grassland in the foreground with species-rich hedgerow with trees along the southern boundary in the background.



Photograph 2. Northern hedgerow with trees UK BAP Priority Habitat.

3.3 *Badgers*

No signs of any badger activity were seen during the survey assessment, though there are habitats of value for this species within the site and surrounding landscape. It is likely that if any setts were situated within 30m of the site boundary, then evidence of badger activity would have been observed.

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

3.4 *Bats*

A very mature oak tree exists along the southern hedgerow boundary, which possessed at least 5 potential roosting features, the numbered features correlate to Photograph's 3 - 7.

North facing feature

1. Toward the centre of the tree a limb was snapped off, revealing crevices in the branch splits and at the edges of the healing bark. The feature is considered to have moderate bat roosting potential.

West Facing Features

2. At the lower section of the tree a limb has been severed, and large limb splits at the surface lead into the tree. The north facing cracks and south-facing peeled bark on the limb could support crevice dwelling bats, and the feature is thought to have moderate roosting potential.



3. To the centre of the tree there is a healing break wound, although it was not possible to identify how deep the crevice was. This feature is considered to have low roosting potential.

South facing features

4. The centre of the tree had a snapped limb, which possessed limb splits that could potentially be used by roosting bats, although the potential is reduced to low roosting potential where some of the crevices are exposed to rainfall.

East facing features

The upper section of the east face of the tree had a healing limb break wound, although it was not possible to see whether the entrance was hollow and led to a crevice. The feature is considered to have low roosting potential (no photograph, however it resembled feature 3, see Photograph 5).

Several other features identified on the tree were reduced to negligible potential for roosting bats based on the likely accumulation of rainwater.

A second mature oak was inspected for bat roost potential, the upper section of the main trunk had snapped off, however due to exposure to rain this feature was ruled out as having negligible bat roost potential.

The north and south boundary comprises a species rich hedgerow with trees, and these features are considered to have significant value for commuting and foraging bats, particularly when considering the context of the site, situated amongst deciduous and ancient woodland.

SxBRC indicates the presence of seven maternity roost sites and three hibernation sites (hibernacula) for 5 identified species within 2km of the site, see Table 2. The closest hibernacula is situated 1.3km northeast and concerns a hibernating natterers bat, identified in 2017.

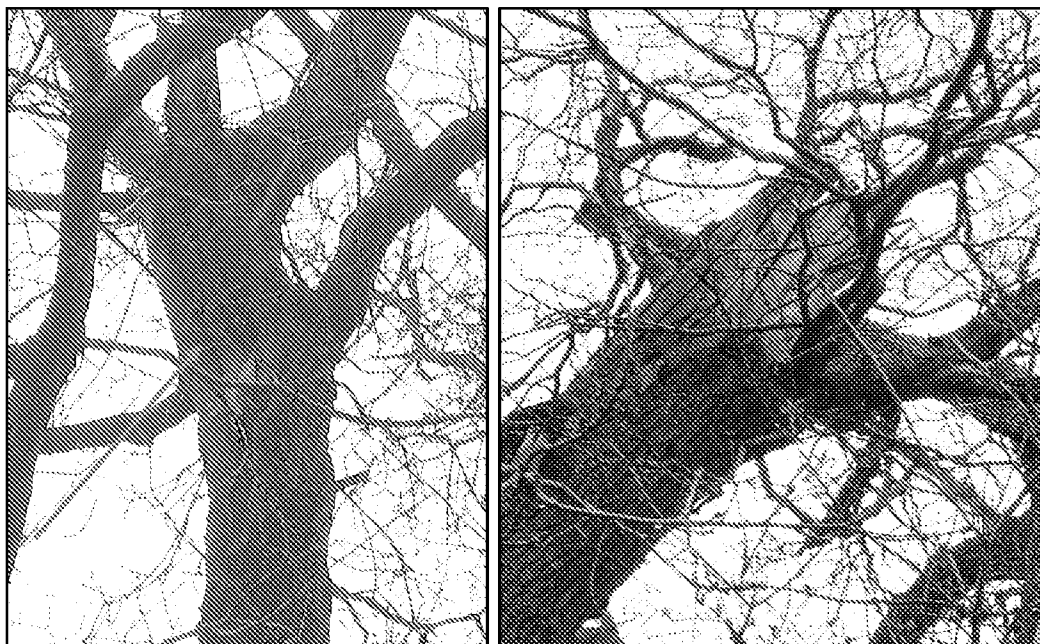
Table 2. Maternity and hibernation roosts within 2km of the application site. Mat = Maternity roost. Number of locations identified from the number of grid reference variations.

Species	No. of Maternity locations	No. of hibernation locations	Closest distance from site
Western barbastelle	3	0	0.4km southeast
Whiskered Myotis	1	-	1.8km northeast
Natterers myotis <i>Myotis nattereri</i>	2	1	1.1km southeast (Mat)
Brown long-eared bat <i>Plecotus auritus</i>	2	1	0.4km southeast (Mat)
Pipistrelle species <i>Pipistrellus spp.</i>	1	1	1.6km northeast (Mat)
No ID bat <i>Chiroptera</i> <i>spp.</i>	-	1	1.6km northeast

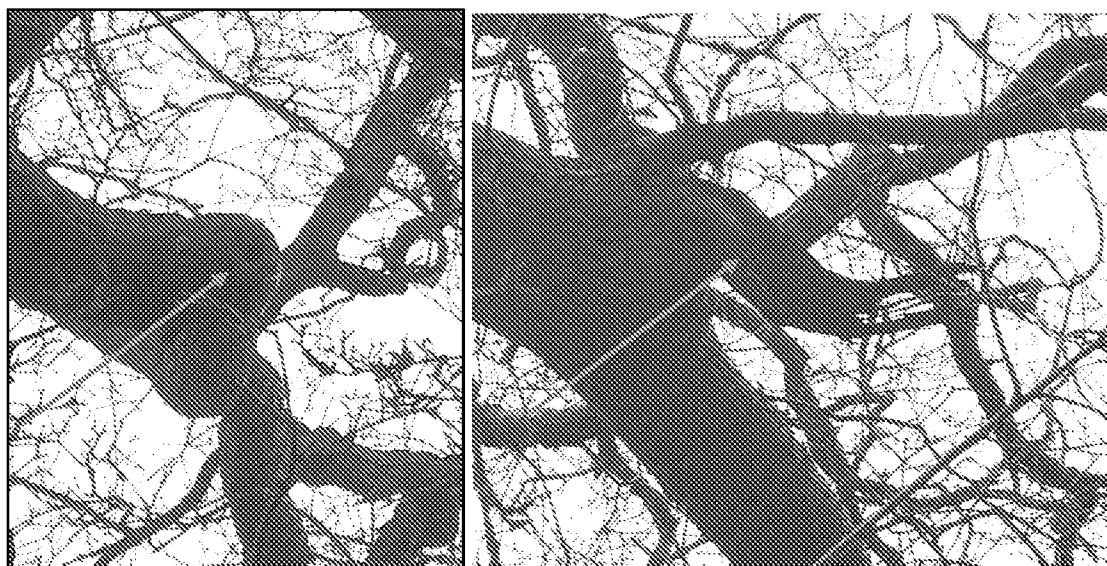
Other bat species identified within 2km of the site include Bechsteins *Myotis bechsteinii*, serotine *Eptesicus serotinus*, alcathoe *Myotis alcathoe*, Brandts *Myotis brandtii*, Nathusius pipistrelle *Pipistrellus nathusii* Daubentons *Myotis daubentonii*, Common noctule *Nyctalus noctule*.



Photograph 3. Very mature oak tree with moderate potential to support roosting bats. Potential roosting features correlating to the above text are highlighted by the red arrows.



Photographs 4 - 5. Left: North facing healing limb snap (1). Right: West facing limb with splits and peeled bark (2). Both have been assigned as having moderate bat roost potential.



Photographs 6 – 7. Left: west facing healing break wound (3). Right: South facing limb snap (4). Both were assigned low bat roost potential.

3.5 Breeding Birds

All the hedgerows including semi-mature and occasional large mature trees have the potential to support a variety of common nesting birds. NERC S41 species Dunnock *Prunella modularis* was identified on site whilst common species greater woodpecker *dendrocopos major* and green finch *Chloris chloris* were also identified during the survey.

The following amber species are associated with the adjacent Local Wildlife Site and could nest within habitats on the site: Willow warbler, stock dove, and red listed species mistle thrush. Green woodpecker is also a notable breeding bird which could use the site.

According to SxBRC the following NERC S41 species were identified within a 2km radius and could nest within trees and hedgerow upon the site: song thrush *Turdus philomelos*, starling *Sturnus vulgaris*, house sparrow *Passer domesticus*, marsh tit *Poecile palustris*, bullfinch *Pyrrhula pyrrhula* and Schedule 1 species fieldfare *Turdus pilaris*.

3.6 Dormice

The hedgerow and scrub habitats contained within the site have moderate potential to support common dormouse. These habitats are ecologically well connected to an extensive network of similar habitats across the local landscape, such as deciduous woodland and ancient woodland. Whilst their preferred foodplant of hazel is not present in the shrub layer, the other woody species (oak, bramble, sycamore, birch, blackthorn, hawthorn) could be used as part of their foraging range and as shelter for nests. The locality of deciduous woodland and ancient woodland in the local landscape increases the potential of encountering dormice within the hedgerows.

The southern boundary is the most potentially suitable for dormice, whilst the northern boundary appeared less suitable given the structure and connectivity was dense and interwoven, however the



structure of the vegetation is likely to be subject to seasonal variation. The west and east boundaries have a poor species diversity and connectivity which reduces the likelihood of dormice utilising these features.

According to Magic Maps there is one granted EPS licence for the destruction of a breeding site and resting place for hazel dormouse *Muscardinus avellanarius*, approximately 600m southeast of the site, for the years 2020 – 2029, see Figure 5.

SxBRC identified records of dormice in six locations in the search area. The closest of these was 1.1km southeast from the boundary of the site. All records are south of the A27 which acts as a significant barrier; however, dormice are under-recorded and could exist in any suitable habitat, whilst not all grid references provide exact locations.

3.7 Great Crested Newts and other Amphibians

The terrestrial quality of the site is sub-optimal, as the grassland which comprises most of the site is tightly horse grazed. The hedgerows, scrub and log piles at the boundaries could be used by amphibians, should they exist in the surrounding habitat.

Three ponds were identified within 500m of the site, using satellite imagery, Magic Maps and on-site observation, see Figure 6. A letter requesting access was issued to the furthest pond, and the homeowner confirmed this pond was now filled-in and the pond was no longer present. The remaining two ponds were visible from the survey site.

A single duck pond exists 26m south of the site and could be viewed from the southern edge of the survey boundary. The pond was surrounded by hardstanding and tightly mown amenity grassland. Very little vegetation was present, apart from a few reeds. Given the presence of waterfowl, poor terrestrial quality, and lack of aquatic plants, it is considered extremely unlikely that great crested newts should exist here.

A second ornamental pond exists immediately east of the site within an adjacent garden. The pond supports a population of large fish and the entire pond is surrounded by hardstanding. The presence of fish and absence of terrestrial habitat indicates the pond is unsuitable for great crested newts.

SxBRC highlights the presence of a single record of great crested newt approximately 800m southeast of the application site. All other amphibian records are situated south of the A27, which is a significant barrier to commuting amphibians. It is considered extremely unlikely that great crested newts should exist upon the site, whilst the poor habitat quality of nearby ponds would also indicate a reduced potential for common amphibians to occupy the site.

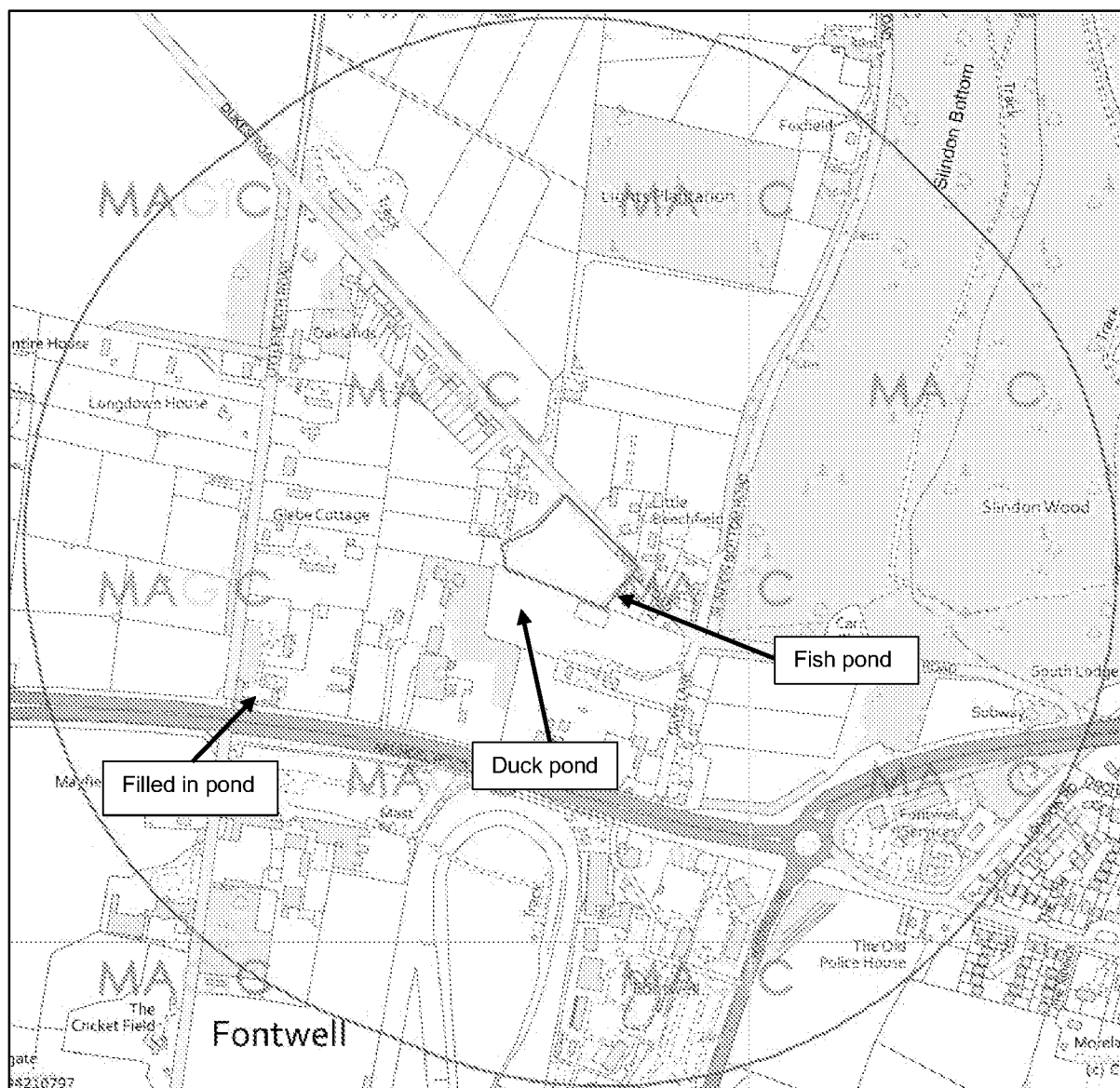


Figure 6. Ponds within 500m of the site as illustrated by the labels. Image produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

3.8 Reptiles

The site is sub-optimal for reptile species, given the grassland is tightly grazed by horses. The hedgerow, scrub, tree and log piles at the boundaries could be used by reptiles as part of their habitat range, providing a hibernaculum during winter and a cool refuge during extreme heat, as well as cover from predation.

SxBRC indicates the presence of slow worms, grass snake and common lizard within a 2km radius. Only slow worms and common lizard are situated to the northern boundary of the A27. The closest record is a common lizard record, situated 500m east of the application site, dated 2014.



3.9 Invasive Non-native Species

Buddleia and Cherry laurel were present within the site. The buddleia was isolated to a patch of scrub in the southwest corner, whilst cherry laurel formed almost the entire hedgerow to the west and was identified in the understory to the south.

Neither species are listed under Schedule 9 of the Wildlife and Countryside Act (1981), however, they are considered invasive, removing nutrients from other plants and outcompeting vulnerable native species.

SxBRC identifies cherry laurel within Slindon Bottom Local Wildlife Site which is situated close to the application site. Buddleia is not highlighted by the record search.

3.10 Other Notable Species

Multiple records exist for European hedgehog, both north and south of the A27. The closest record is situated 180m south of the application site.

A significant number of Section 41 moth and butterfly records were returned. Included was the rustic moth, identified within Slindon Bottom, which feeds upon nettle and dandelion, and the small heath butterfly also situated within woodland close to Slindon Bottom, which consumes fescues *Festuca spp.*, meadow grass *Poa spp.*, and bents *Agrostis spp.*. Common bent and common nettle were both recorded at the site and could be used as a food plant for these 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 IMPACT APPRAISAL

4.1 Designated Sites

The site does not lie within any SSSI Impact Risk Zones, and whilst it is situated close to the South Downs National Park, this statutory designation is not solely associated with biodiversity value and therefore a Habitat Regulations Assessment in relation to increased recreational pressure is not considered necessary.

The site is situated close to Slindon Bottom Local Wildlife Site. Therefore, measures must be taken to reduce the effects of pollution, including preventing run off, reducing noise, and actions to remove dust



at the source. All chemicals must be stored appropriately according to COSHH regulations.

To maintain the quality of habitats within the local wildlife site, there should be a focus on plants being of native origin and of local provenance. Landscape architects must ensure that no invasive species are planted anywhere on the site.

The South Downs is a dark skies reserve; therefore, a comprehensive sensitive lighting scheme will be essential to ensure that light pollution does not negatively impact the dark sky status. Construction phased lighting must be kept to the minimum and must not be used past sunset or before sunrise.

4.2 Habitats

The north and south boundaries are comprised of species rich hedgerows; a UK BAP Priority Habitat. The southern boundary is particularly significant, with a variety of woody species of varying ages, including a very mature oak tree, whilst this boundary is also ecologically connected to an area of UK BAP Priority Habitat deciduous woodland.

These hedgerows are likely to attract a rich and diverse species assemblage and as such a suitable buffer zone should be created for all retained sections of these hedgerows. Buffer zones must exclude all built areas and associated gardens.

According to Natural England and Forestry Commission 'standing advice' if the mature oak situated along the southern boundary is considered to be veteran, the tree will require a buffer zone of at least 15 times larger than the diameter of the tree, or 5 metres from the canopy edge (whichever is greater).

All retained trees must be protected within the site in accordance with BS 5837:2012 including the establishment of root protection zones. No trees will be removed as part of the proposal. A buffer zone of at least 1.5 meters from the base of the hedges along the north and south boundaries must be incorporated.

Areas of hedgerow to the north will need to be cleared to create access to the site. Any section of scrub or shrub should be replaced with native deciduous species of local provenance at a ratio of 2:1m².

4.3 Badgers

No signs of badger activity were identified during the assessment and no badger setts are situated on or near to the proposed construction zone. No further surveys or mitigation for badgers is advised, however, if any signs of digging by large animals is identified on or near to the site in the future, prior to development or the submission of a planning application, further surveys would likely be required.



4.4 Bats

In accordance with the Bat Conservation Trust guidelines, the overall potential for the very mature oak tree along the southern periphery is rated as 'medium', and a detailed tree climbing survey is required to determine the importance of this tree to bats. The survey must be conducted during the peak activity period between May and September.

The hedgerows at the site are likely to be used by foraging and commuting bats as part of a wider resource across the landscape, particularly where maternity and hibernation roosts have been identified in the local landscape. Bat activity surveys are recommended to allow a better understanding of the importance of the site to bats and potential effects of the development proposals on the existing bat population using the site and within the zone of influence. In accordance with current survey guidelines, this should include a minimum of one walked transect survey each month and two static logger assessments each month during the active season (April to mid-October)."

As the site may be used by foraging and commuting bats, it is important that the potential for disturbance from artificial lights is considered. The proposed development is likely to require an 'ecologically sensitive lighting scheme' in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 3). If bats are found to be using the habitats on site, a dark buffer zone of approximately 5 metres may be required along important hedgerow boundaries.

4.5 Breeding and Wintering Birds

Further surveys are not required; It will be essential for any future development to consider the nesting bird season (1st March to 31st August) and any vegetation removal should be first searched by a suitably qualified ecologist and no active nests are found. If an active birds nest is identified, a buffer zone will be created around the nest until chicks have fledged.

The removal of hedgerow along the northern boundary must account for the loss of potential nesting sites, by replacing hedgerow at a ratio of one bird box per square metre of hedge being removed. Nest boxes must be species specific, appropriate to species identified in section 3.5.

4.6 Dormice

Habitats are present that are suitable for foraging and commuting dormice, including species-rich hedgerows with connectivity to deciduous and ancient woodland in the wider landscape.

The development will result in the creation of two severances across the northern boundary measuring 12.3 metres in total. The lack of an interwoven structure along the northern hedgerow might indicate that this area of the site is sub-optimal for breeding dormice. Dormice have been known to cross gaps of up to 20 metres, whilst this is considered sub-optimal for the conservation of this species.

Given that the removal of the sections of hedgerow will not cause a significant impact to a potential dormouse population, precautionary mitigation, as opposed to a survey, is appropriate to the scale of the development.



Precautionary mitigation will involve a hand search immediately prior to the staged removal of hedgerow during May and late September to avoid impacts to breeding dormice.

To compensate for losses to potential dormouse habitat, at least 25 metres of native hedgerow and scrub must be created within the site, situated mainly along the west and east boundaries, with buffer planting to the north, to improve connectivity around the site.

If direct evidence of dormice is identified during the hand search, for example a nest or a dormouse, an EPS licence would be necessary to allow the development to proceed legally. Tailored mitigation and compensation measures would be required under such a licence.

As dormice are nocturnal, it is important that the potential for disturbance from artificial lights is considered, as for bats (see Appendix 3).

4.7 Reptiles

The proposed development would result in the loss of a small area of potentially suitable reptile habitat along the northern hedgerow.

Given the size of suitable habitat being removed is small and the entire site is suboptimal for reptiles, a reptile survey is not considered appropriate to the scale of the impact.

Instead, precautionary mitigation must be adopted. Once the hedgerow is removed to stump level, the ground vegetation should be subject to a hand search in conjunction with staged clearance, assisted by a suitably qualified ecologist. The works should be carried out between March and October, when the temperature is above 9 degrees, whilst reptiles are active.

4.8 Invasive Non-native Species

Cherry laurel was present along most of the western boundary and some of the southern boundary. Because this forms a hedgerow along this boundary, it is not recommended that it is removed in this instance, as this would potentially negatively impact any wildlife relying on this hedgerow. If any section of the hedge requires removal at a later stage, extra care should be taken to remove roots and all off cuts to prevent self-seeding.

The buddleia should be removed by digging out the entire plant and the roots and discarding the plant material securely to prevent the plant from self-seeding.

4.9 Other Notable Species

Hedgehogs and rare moths and/or butterflies could be using the site.

The development proposal has potential to create a significant barrier to the commuting range of



hedgehogs in the local landscape. Proposals must incorporate hedgehog access features at the bottom of fences to allow hedgehogs to move through the site.

The proposal could reduce the availability of the food plant for the rustic moth and the small heath butterfly. All retained hedgerows must have a minimum buffer zone of 1.5 metres from the outer edge of hedgerows along the north and south boundary to retain herbaceous and ruderal plants that are used by moths and butterflies. Meadow planting must be incorporated into the landscape plans and must include either meadow grass, fescues or bent within the species composition.

5 OPPORTUNITIES FOR ENHANCEMENT

The proposed development represents an opportunity for habitat enhancement to benefit biodiversity. 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.

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. As best practice, the lighting scheme should be designed to minimize light spill (see Bat Conservation Trust website), around these roosting features and potential commuting routes.

6 CONCLUSIONS

The land south of Dukes Road contains priority hedgerow habitats along the north and south boundaries, although the majority of the site comprises tightly grazed well-drained neutral grassland, which is considered to be of low significance. The species poor hedgerows along the east and west boundaries and areas of scattered trees are of moderate value and the small area of isolated buddleia scrub has low value within the context of the site.

The construction of 9 residential units, including removing two sections of hedgerow along the northern boundary totalling 12.3 metres for access and implementation of artificial lights has potential to have negative impacts on bats, dormice, and the South Downs National Park dark skies reserve status. Building close to the northern and southern boundaries could deteriorate the roots of the hedgerows and the very mature oak tree identified south of the site. Hedgehog commuting routes could also be affected whilst the development risks removal of herbaceous plants important to the rustic moth and small heath butterfly.

In the absence of precautionary mitigation, dormice, reptiles and nesting birds could be disturbed, and nesting sites for birds would be permanently lost. If not appropriately mitigated, construction phase pollutants and/or inappropriate planting schemes could negatively impact Slindon Bottom Local Wildlife Site and/or deciduous and ancient woodland in the surrounding landscape.

The following further surveys are required to identify presence or absence, provide targeted mitigation measures:



- Bat activity surveys, including two static loggers and one walked transect per month timed between April and October.
- A tree climbing survey for roosting bats timed between May and September, combined with checking the girth of the tree to assess whether it is considered to be veteran.

Avoidance measures must include the following:

- Buffer zones, at least 1.5 metres from the canopy edge of the north and south boundary
- If the mature oak tree is classified as veteran, it will require a tailored buffer zone that is at least 15 times the diameter of the tree, or 5 metres from the edge of the canopy, whichever is larger
- All retained trees must be protected within the site in accordance with BS 5837:2012 including root protection zones.
- All buffer zones and root protection zones must exclude publicly accessible areas, gardens and structures

Mitigation Measures:

- Buddleia should be carefully removed from the isolated area of scrub in the southwest corner to ensure it does not self-seed and spread.
- The hedgerow understory must be removed in phases, with a hand search for dormice, reptiles hedgehogs and nesting birds under the supervision of a suitably qualified ecologist, in May or late September. If evidence of dormice are identified, a full EPS licence would be required to legally proceed.
- During the construction phase, the site manager must actively prevent and reduce sources of pollution (noise, light spill, dust, chemicals etc).
- Construction phase lighting must not be used before sunrise or after sunset
- All soft landscaping plans must incorporate native species of local provenance, no invasive plants may be planted anywhere on site.
- A comprehensive sensitive lighting scheme must be included into the design of the site. The findings of further surveys may require the implementation of a 5-metre dark buffer zone along boundaries.
- All new fences within the site must incorporate hedgehog access features
- Meadow planting must be incorporated into the scheme, which will include either meadow grass, bents and/or fescues

Compensation Measures:

- All hedgerow and scrub replaced at a ratio of 2:1m² creating at least 25 metres of new hedgerow to replace the 12.3 metres that are being lost. Replacement planting must comprise native, deciduous trees and shrubs of local provenance.
- Species-specific bird boxes will be erected to replace nesting habitat. This will include 1 bird box per one metre squared of shrub or scrub.

Further detail regarding the specific type and location of mitigation, compensation and enhancement features will be provided in subsequent reports following further survey effort, which will inform a full Ecological Impact Assessment (EclA). In the absence of further surveys, a full assessment of the likely impacts of the development is not possible.



It is important that no habitat clearance or other site preparation work should be undertaken until planning permission has been granted and all relevant protections for habitats of importance and protected species have been detailed and implemented. Please be advised that any work to remove or modify habitats outside of typical management may undermine a future planning application.

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

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 2021)⁵ sets out the Government's view on how planners

⁵ HM Government (2021). National Planning Policy Framework. Department for Communities and Local



should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

Paragraph 179b, which states that council policies 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)⁶. 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.

Government. Available online at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

⁶ HM Government (2005) ODPM Circular 06/05 Government Circular: *Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf.



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 2017 (the Habitats Regulations”). Available at:
<http://jncc.defra.gov.uk/page-1379>

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at:
<https://www.legislation.gov.uk/ukdsi/2019/9780111176573>

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.

Stanbury, A., Eaton, M., Aebischer, N., Balmer, N., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). Birds of Conservation Concern 5: the status of bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 114, pp 723-747.

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) (2021) Ministry of Housing Communities & Local Government. Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

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



APPENDIX 2 - Arun Local Plan 2011-2031 (July 2018)

Policy Number/Title	Policy Summary
C SP1 - Countryside	7 Settlement Structure & Green Infrastructure The Council will take into account cumulative impact of development in the consideration of planning applications. To ensure better management of the rural-urban fringe in those areas where significant new development is proposed, early consideration will need to be given to landscape and biodiversity enhancement, woodland management, recreation provision and access routes.
ENV SP1 - Natural Environment	Arun District Council will encourage and promote the preservation, restoration and enhancement of biodiversity and the natural environment through the development process and particularly through policies for the protection of both designated and non-designated sites. Where possible it shall also promote the creation of new areas for habitats and species.
ENV DM1 - Designated Sites of Biodiversity or Geological Importance	a. Proposed development likely to have an adverse effect on land with the designated features of any Site of Biodiversity or Geological Importance or any subsequently designated sites (either individually or in combination with other developments), will not normally be permitted. Consideration will be given to the exact designated features present on the site, their scarcity/rarity and recognition of the protection offered by their existing status. Development on wildlife sites with the highest value will only be permitted exceptionally where the following can be demonstrated: - There is no alternative solution (which shall be adequately demonstrated by the developer). - There are reasons of public health or public safety or - There are benefits of primary importance to the environment or - There are imperative reasons of overriding public interest. b. In determining any planning application affecting Sites of Biodiversity or Geological Importance the Council will ensure that the intrinsic natural features of particular interest are safeguarded or enhanced having regard to; - The European, National or Local status and designation of the site; - The nature and quality of the site's features, including its rarity value; - The extent of any adverse impacts on the notified features of interest; - The need for compensatory measures in order to re-create remaining features of habitats on or off the site. c. Where appropriate the Council will ensure the effective management of designated sites through the imposition of planning conditions or Section 106 agreements as appropriate.
ENV DM3 - Biodiversity Opportunity Areas	Development shall: - Retain and sympathetically incorporate locally valued and important habitats, including wildlife corridors and stepping stones - Be designed in order to minimise disturbance to habitats Development proposals that do not reasonably address opportunities for enhancing these through their design, layout and landscaping or access/management shall not be permitted. Where a development scheme would result in a habitat loss, mitigation measures will be proposed as part of the proposed scheme and such measures agreed with the Local Planning Authority prior to the determination of any planning application. Within Biodiversity Opportunity Areas (BOAs) identified on the Policies Maps or where likely to have an impact on species or habitats within the BOAs, any application for

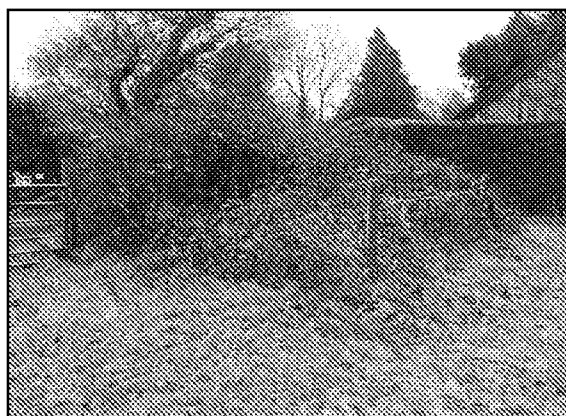


	planning permission shall include a properly conducted survey of the presence must be proposed within the planning permission.
ENV DM4 - Protection of Trees	Development will be permitted where it can be demonstrated that trees protected by a Tree Preservation Order(s), (TPO) identified as Ancient Woodland, in a Conservation Area or contributing to local amenity, will not be damaged or destroyed now and as they reach maturity, unless development: a. Would result in the removal of one or more trees in the interests of good arboricultural practice. This shall be demonstrated by the developer following the advice of a suitably qualified person which shall be guided by BS 5837 (2012). Details of any advice received having regard to BS 5837 (2012) shall be submitted, in writing, as part of a planning application; or b. Would enhance the survival and growth prospects of other protected trees; c. The benefits of the proposed development in a particular location outweigh the loss of trees or woodland, especially ancient woodland. Where planning permission is granted in any of the above instances, conditions shall be used to ensure that, for any trees which are removed as part of a development, at least an equivalent number of a similar species and age (where practical) are planted on the proposed development site. Sufficient space for replacement trees to mature without causing future nuisance or damage shall be provided. The planting of new trees shall form an integral part of the design of any development scheme. Proper provision must be made for the protection and management of trees or areas of woodland on-site when undertaking development. A management plan shall be provided as part of a planning application in accordance with BS 5837 (2012) in order to ensure that trees are adequately protected during development and appropriately maintained in the future. Conditions for the continued protection of trees on sites shall be included in any planning permission given. Where there are existing trees on or adjacent to a development site, developers shall be required to provide: d. Land and tree surveys e. A tree constraints plan f. An arboricultural impact assessment to include a tree protection plan and arboricultural method statement These will ensure that development is planned to take a comprehensive view of tree issues at an early stage in the design process and that development works do not have a negative impact on existing trees.
ENV DM5 - Development and Biodiversity	Development schemes shall, in the first instance, seek to achieve a net gain in biodiversity and protect existing habitats on site. They shall also however incorporate elements of biodiversity including green walls, roofs, bat and bird boxes as well as landscape features minimising adverse impacts on existing habitats (whether designated or not). Development schemes shall also be appropriately designed to facilitate the emergence of new habitats through the creation of links between habitat areas and open spaces. Together, these provide a network of green spaces which serve to reconnect isolated sites and facilitate species movement. Where there is evidence of a protected species on a proposed development site, planning applications shall include a detailed survey of the subject species, with details of measures to be incorporated into the development scheme to avoid loss of the species. This involves consideration of any impacts that will affect the species directly or indirectly, whether within the application site or in an area outside of the site, which may be indirectly affected by the proposals. All surveys shall be carried out at an appropriate time of year and shall be undertaken by a qualified and, where appropriate, suitably licensed person. All developments shall have regard to Natural England's standing advice for protected

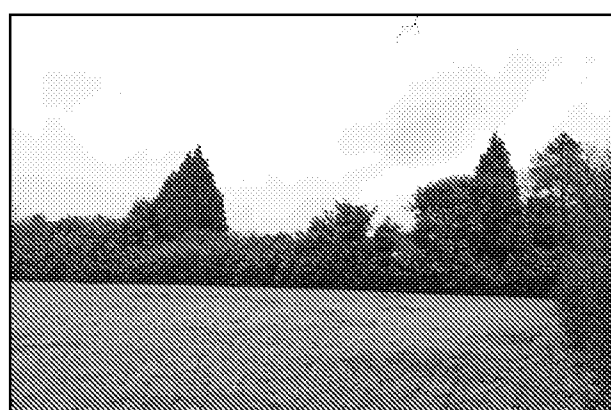
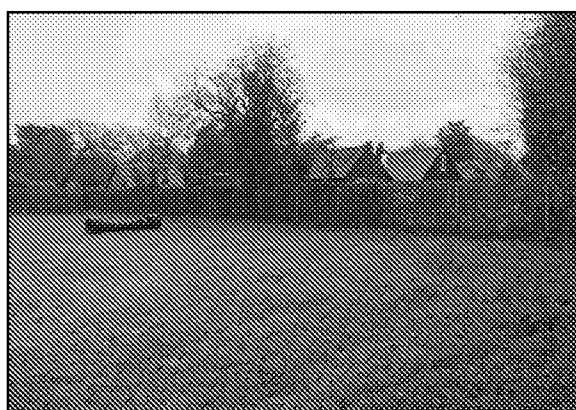


	species.
W SP1 - Water	Development will be encouraged to make active use of surface water as a design feature and permitted where it identifies measures to improve and enhance waterbodies, coastal habitats or provides additional flood relief. The Council will also support development that: a) is appropriately located, taking account of flood risk and promotes the incorporation of appropriate mitigation measures into new development, particularly Sustainable Drainage Systems that reduces the creation and flow of surface water and improves water quality; 63 Water stressed areas - final classification (July 2013) b) reduces the risk to homes and places of work from flooding whilst increasing biodiversity; c. delivers a range of community benefits including enhancing the quality of life and providing greater resistance to the impact of climate change.

APPENDIX 3 – Additional Photographs



Photographs 8 & 9: Left: Bramble scrub in the northeast corner of the site. Right: isolated buddleia in the southwest corner of the site.



Photographs 10 & 11: Left: species-poor hedge with trees along the east boundary. Right: Species poor hedge with trees along the west boundary.



Photograph 12: Duck pond south of the site.



APPENDIX 4 – 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 Trust⁷ 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 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

⁷ 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/>



- 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;
- 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:

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 (2021) Guidance Notes for the Reduction of Obtrusive Light GN01:2011. Available at: <https://www.theilp.org.uk/resources/free-resources/>

Voigt, C.C., Azam, C., Dekker, J., Ferguson, J., Fritze, M., Gazaryan, S., Hölker, F., Jones, G., Leader, N., Lewanzik, D. and Limpens, H., 2018. *Guidelines for consideration of bats in lighting projects*. Unep/Eurobats. Available at: https://cdn.bats.org.uk/uploads/pdf/Resources/EUROBATGuidelines8_lightpollution.pdf?v=1542109376
