



ENVIRONMENTAL CONSULTANTS

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Ecological Assessment

Land at Highground Lane

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Report Summary

1. The Ecology Co-op has been commissioned by Mr Michael Bates to undertake a Preliminary Ecological Appraisal at land north of Highground Lane. A site walkover survey visit was carried out by Sophie Bradfield, BSc, ACIEEM and Holly Waters, BSc (Hons), MSc, on the 22nd July 2021, to evaluate the habitat value of the site and its potential to support EU and UK protected/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 a proposal, which will comprise the construction of a single dwelling and the placement of a block paved driveway.
2. The site is approximately 0.2ha in size and currently consists of a mown grassland area with a small outbuilding in the north-west corner and hedgerows along the boundaries.
3. There are no designated sites within a 2km radius and no granted European Protected Species licences within a 1km radius of the site.
4. There is the potential for the presence of breeding birds and foraging bats within the hedgerows, therefore these are an important habitat. However, as these habitats are to remain and are not included in the scope of works, no further surveys are recommended.
5. Ecological enhancements have been recommended through the implementation of wildflower planting at the base of hedgerows and the installation of bat and bird boxes on the proposed building.



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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 (PEA) of land north of Highground Lane, Barnham by Michael Bates.

This report presents the findings of a walkover survey undertaken by Sophie Bradfield, BSc, Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM), and Holly Waters, BSc (Hons), MSc, on 22nd July 2021. It provides details on the potential for any protected/notable species and/or habitats to be present at the site and an assessment of the potential ecological constraints and opportunities in relation to the proposed construction of a single dwelling and a block paved driveway. 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.

1.2 Background

The site is located in Barnham, Bognor Regis. The central grid reference for the site is SU 95404 03780.

This site measures 0.2ha and is situated to the south-west of Barnham. It is situated in a rural location, with scattered housing, farmland and hedgerows present in all directions. Figure 1 shows the boundary of the site.

The proposed development includes the construction of a single dwelling close to the eastern boundary, and a block paved driveway north of the dwelling (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 ©2020 Google).

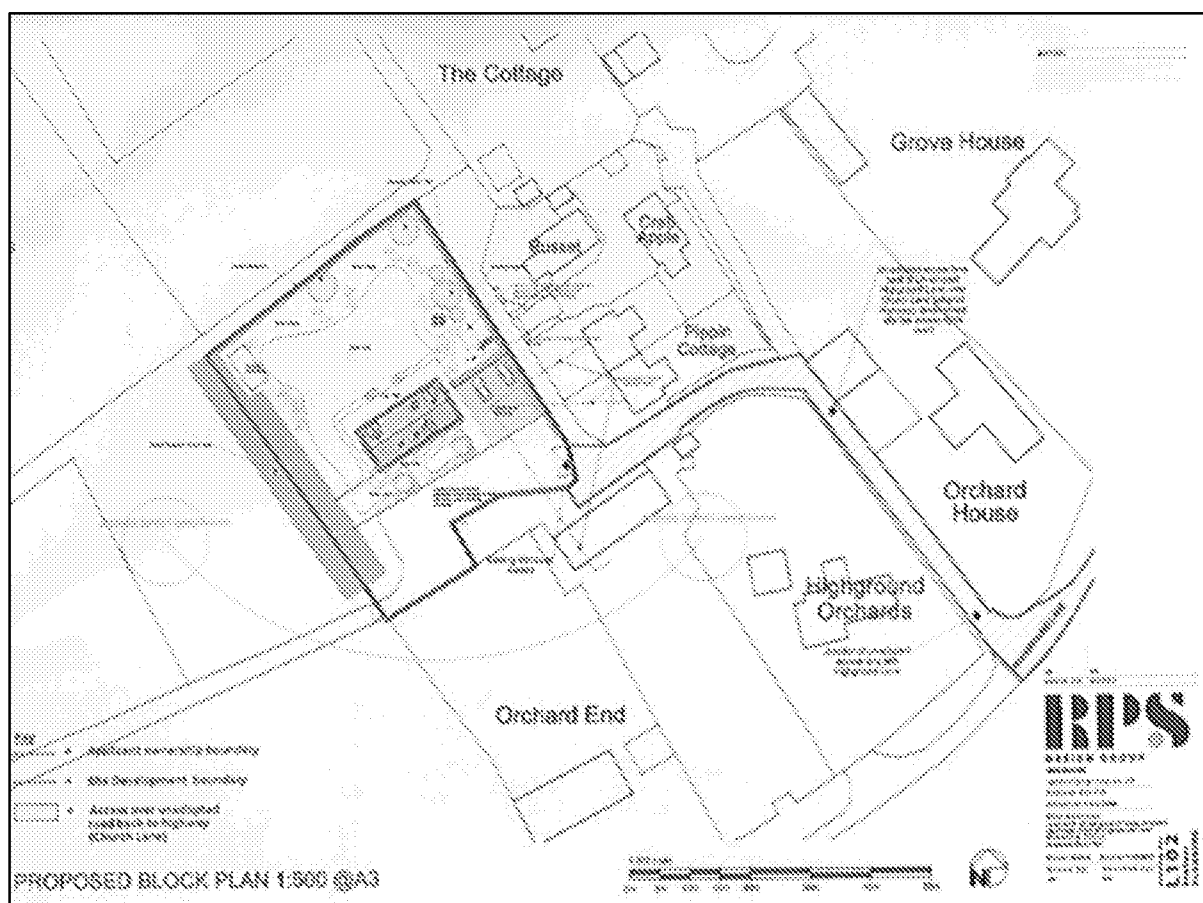


Figure 2. Development layout plan of the proposed new dwelling and paved driveway. RPS Design Group. [05/03/2021].



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 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 avellanrius*) 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 22nd July 2021 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 Phase 1 Habitat 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 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,

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.



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. Further surveys are recommended as appropriate.

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

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.



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 are recommended as appropriate in accordance with best practice guidance⁴.

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)⁵. 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.

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

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). Further surveys are recommended as appropriate.

2.9 Other Notable Species

The site's habitats were broadly assessed for their potential to support species of principal importance

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

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.



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 no designated sites within the zone of influence of the site and therefore sites designated for nature conservation are unlikely to be a consideration for the proposed development.

There are no granted EPS licences for mitigation projects within 1km of the site boundary.

Priority habitat Traditional Orchard exists immediately south-west of the site, within an adjacent garden, whilst deciduous woodland lies 87m south of the site. There are no National Network Habitats upon or adjacent to the site, see Figure 3.



Figure 3. Priority habitats within 250m of the site, as indicated by the red circle. The red crosses indicate 'No main habitat but additional habitat exists' whereas the bright green immediately southwest of the site highlights an area of Traditional Orchards. The pastel green to the far south is an area of deciduous broadleaved woodland. 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

Northern and western boundaries:

Extending along both the northern (see Photograph 1) and western boundaries (see Photograph 2), there is a species-rich hedgerow comprising the following species: spindle *Euonymous alatus*, bramble *Rubus fruticosus*, midland hawthorn *Crataegus laevigata*, common hawthorn *Crataegus monogyna*, crab apple *Malus sylvestris*, blackthorn *Prunus spinosa* and hazel *Corylus avellana*. Nettle *Urtica dioica* and white bryony *Bryonia dioica* is also present. The hedgerow is approximately 3m wide and 4m tall.

Southern boundary:



The southern boundary consists of two sections, an area of hardstanding with gravel as the base, with cherry laurel *Prunus laurocerasus* saplings along a wooden fence along the eastern section (see Photograph 3), and a defunct, species-poor hedgerow measuring 5m tall and 2m wide along the western section (see Photograph 4). The hedgerow consists of the species, *Cypress* sp., blackcurrant *Ribes nigrum*, ash *Fraxinus excelsior*, bramble and white bryony.

Eastern boundary:

Along the eastern boundary, there is a young, species poor cherry laurel hedgerow, measuring approximately 1m high by 1m wide (see Photograph 5). The understorey consists of tall herbaceous plants including field bindweed *Convolvulus arvensis*, buttercup *Ranunculus* sp., tufted hairgrass *Deschampsia cespitosa*, cinquefoil *Potentilla* sp., creeping thistle *Cirsium arvense*, ground ivy *Glechoma hederacea*, bristly oxtongue *Helminthotheca echinoides*, broad-leaved dock *Rumex obtusifolius*, nettle, scentless mayweed *Tripleurospermum inodorum*, perennial ryegrass *Lolium perenne* and great willowherb *Epilobium hirsutum*.

Centre of site:

The centre of the site is comprised of tightly mown amenity grassland comprising the grassland and herbaceous plants detailed under 'Eastern boundary' (see Photograph 6), with three small areas of ornamental plants located towards the south of the centre of the site (see Photograph 7). The mown grassland also contains the following species: scarlet pimpernel *Anagallis arvensis*, white clover *Trifolium repens*, scentless mayweed, selfheal *Prunella vulgaris*, dandelion *Taraxacum* sp., cinquefoil, buttercup, daisy *Bellis perennis*, field bindweed, thistle *Cirsium* sp., and mouse-ear *Cerastium* sp. The ornamental plants consist of pendulous sedge *Carex pendula*, nettle and field bindweed.



Photograph 1a (left) and 1b (right). Hedgerow along the north boundary, looking west (1a) and full view including outbuilding in north-west corner (1b).



Photograph 2a (left) and 2b (right). Hedgerow along the western boundary, looking south (2a) and full view including outbuilding (2b).



Photograph 3a (left) and 3b (right). View of the wooden fence with cherry laurel saplings along the eastern section of the southern boundary.



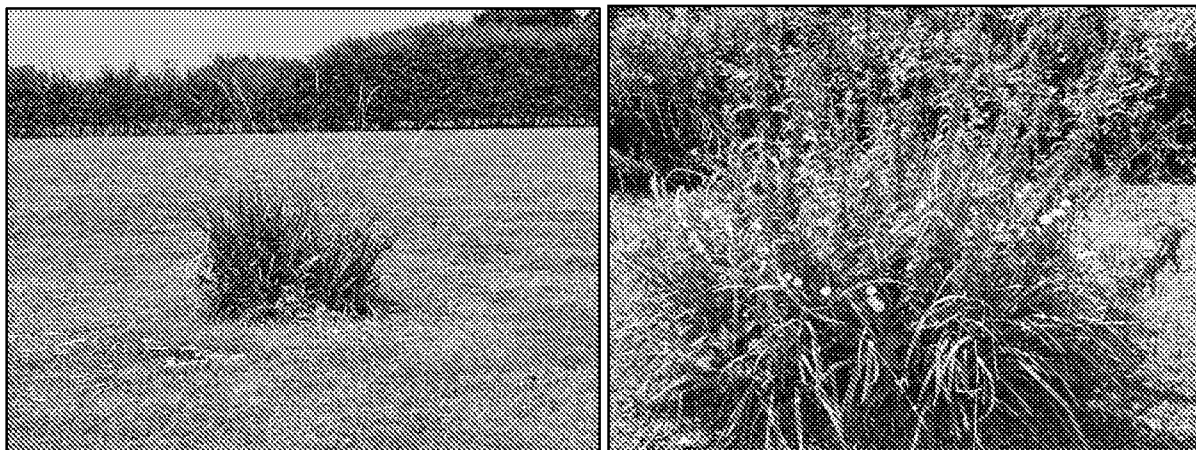
Photograph 4a (left) and 4b (right). Hedgerow along the western section of the southern boundary, view looking west (4a) and looking south (4b).



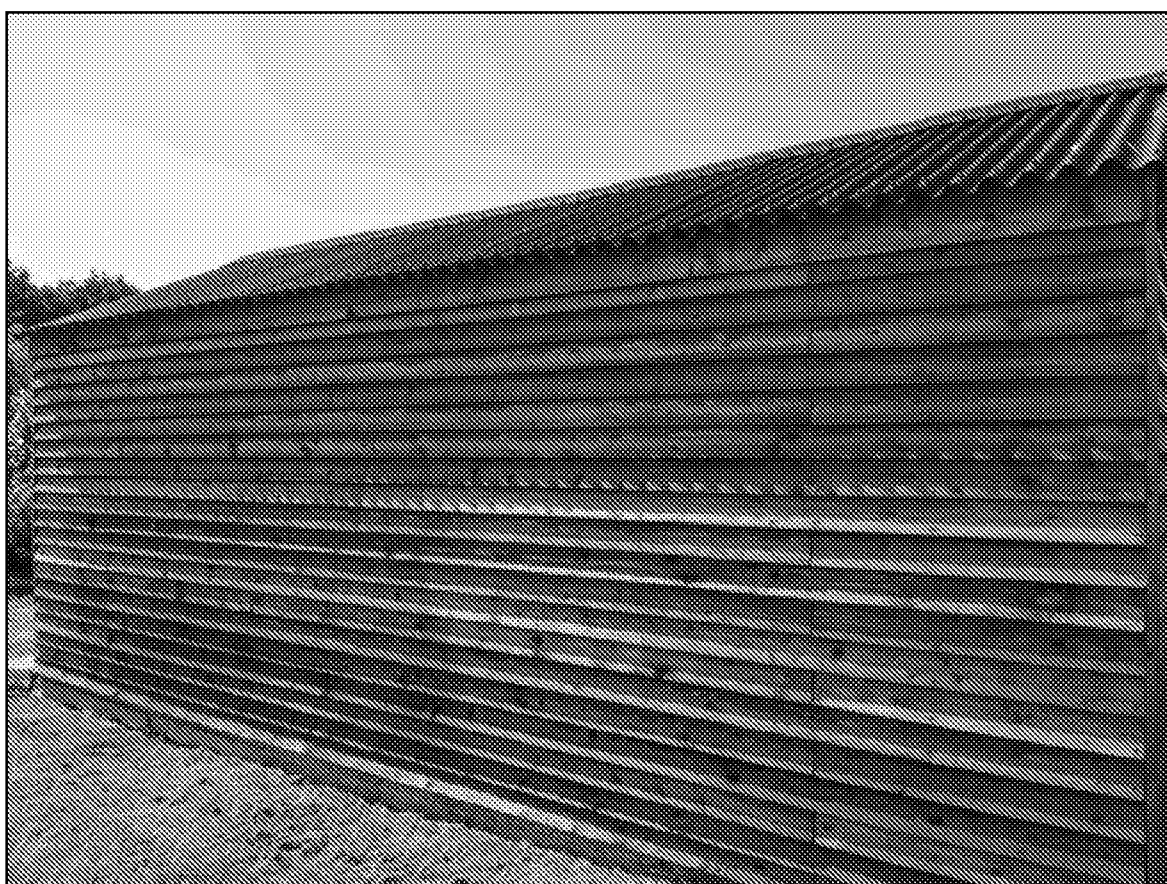
Photograph 5. View of the eastern boundary with the beginnings of a hedgerow planted.



Photograph 6a (left) and 6b (right). View of the centre of the site, the mown grassland, looking north (6a) and looking south (6b).



Photograph 7a (left) and 7b (right). View of the ornamental plants within the centre of the site.



Photograph 8. The outbuilding in the north-west corner of the site, with tightly fitted weatherboarding and a corrugated roof.

3.3 *Badgers*

No evidence of badgers was observed during the site assessment and limited habitats of value for badger is present on the site.



3.4 *Bats*

One wooden shed is present on the site. It is a fairly new structure, with tightly fitted weatherboarding and a corrugated roof (see Photograph 8). No visible potential roosting features were observed and as such the potential for bats is negligible.

No mature trees are present on the site therefore there is no tree roosting potential.

The hedgerows on site could be used by commuting bats, leading to hedge-lined arable fields and pasture, as well as small traditional orchards and woodlands in the wider landscape.

3.5 *Breeding Birds*

All of the scrub and saplings present in the hedgerows along the boundaries of the site have the potential to support a variety of common nesting birds. However, as the hedgerows are excluded from the scope of works, there will be no impact on breeding birds and therefore no further surveys are recommended.

3.6 *Dormice*

The hedgerows are isolated from the orchard and woodlands to the south of the site, and the northern hedgerow boundary appears to have poor connectivity to hedgerows in the wider landscape. Hazel dormice prefer habitats with good connectivity to species-rich woodlands and scrub. Whilst the northern and western hedgerow boundary had a suitable species assemblage for hazel dormice, the northern hedgerow was still relatively unestablished, and not suitably connected to support breeding dormice. Habitats on site have low potential to support hazel dormice within their commuting range.

3.7 *Great Crested Newts and other Amphibians*

The hedgerows at the sites boundaries could potentially support commuting amphibian's, whilst the mown grassland within the center of the site is considered to have negligible potential for amphibian species.

There are several ditches within 250m of the site, which is within their known commuting range, see Figure 4. The ditch systems to the east and south are disconnected from the site, with lanes and housing separating the application site boundary from the water bodies.

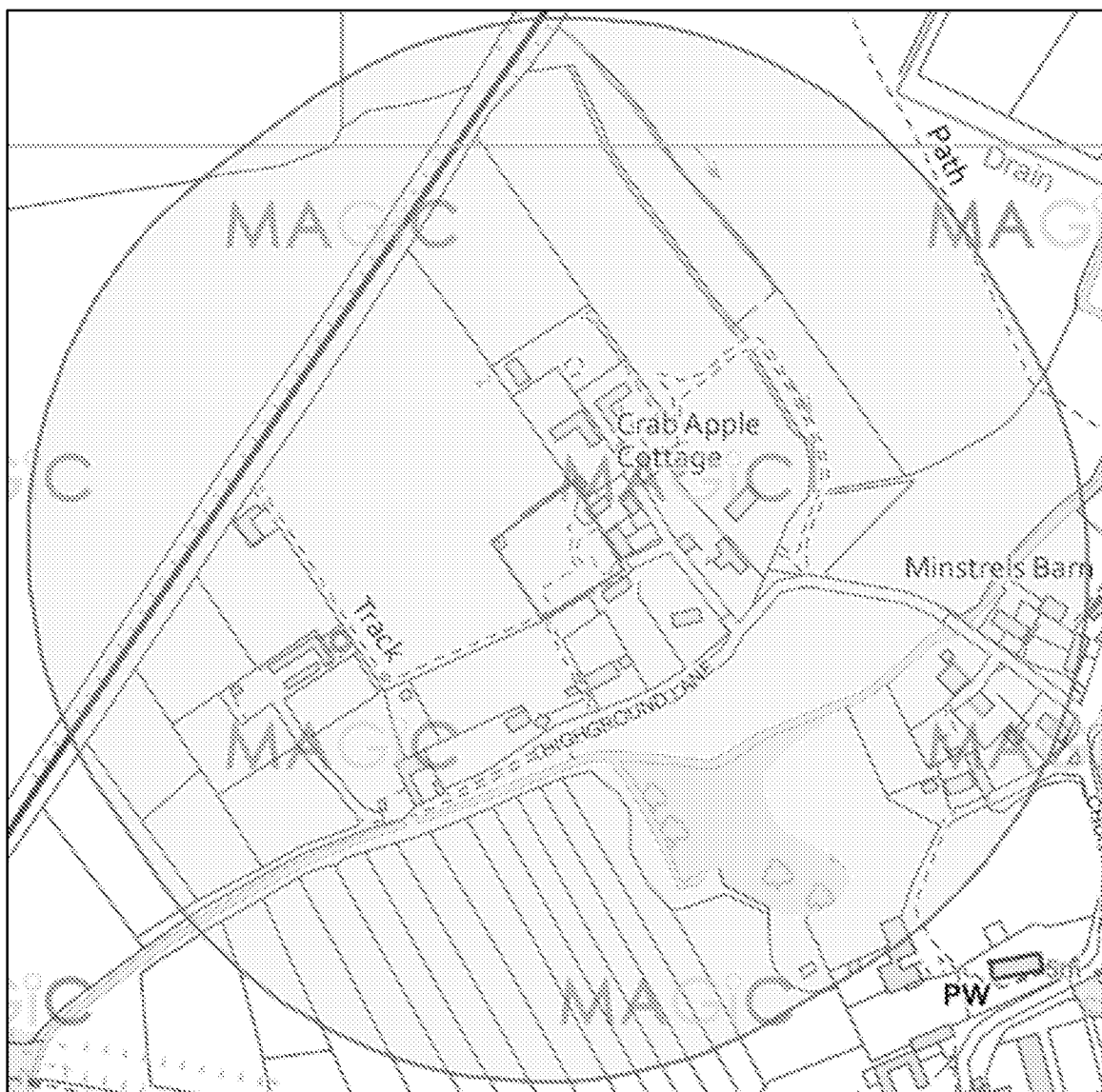


Figure 4. Location of waterbodies within 250m of Land North of Highground Lane. Image produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

3.8 Reptiles

The developed site does not contain any suitable habitat for reptiles and comprises almost exclusively hard standing and close-mown amenity grassland. The hedgerows at the boundaries may provide suitable commuting features.

3.9 Invasive Non-native Species

Cherry laurel was identified in the hedgerows upon the site. Whilst cherry laurel is not a schedule 9 plant and therefore does not require removal by a specialist, it has potential to become highly invasive and detriment native plants within the site and surrounding landscape.



3.10 Other Notable Species

No evidence of any other notable species was found during the walkover survey.

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 is outside the zone of influence of all designated sites and, based on this and the small scale of the development, there are no identified mechanisms of impact on designated sites as a result of the proposed development.

There will be no foreseeable impacts to the traditional orchard to the southwest of the site, given the development lies several metres away from the orchard, and none of the hedgerows on site which might support fauna which use the orchards are being removed.

Therefore, in relation to designated sites and priority habitats, the proposed development is considered to pose a 'neutral' impact risk.

4.2 Habitats

In accordance with the proposed site plan, the development of the site will result in the loss of an area of tightly mown amenity grassland. This habitat is common and widespread and considered to have low ecological value. The hedgerows with higher ecological value will be retained.

In the absence of mitigation, there will be a low negative impact at site level because of losing amenity grassland within the site.

With the implementation of wildflower planting detailed in section 5, the impact of this development upon habitats post development is likely to be positive at site level.

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.

With no badger presence identified upon the site for this species, the impact of the development upon badgers is considered to be neutral.

4.4 Bats

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).

With the implementation of an 'ecologically sensitive lighting scheme', the impact of this development upon bats is negligible. With the installation of a bat box as detailed in section 5, there will be a positive impact at site level for roosting bats.

4.5 Breeding and Wintering Birds

All the hedgerows and trees contained in the site, have the potential to support a variety of common nesting birds. As these will be retained, there are no foreseeable impacts to breeding birds.

The impact of this development upon breeding birds is negligible. With the enhancements detailed in section 5, which includes the installation of a bird box, there is likely to be a positive impact for nesting birds at a site level.

4.6 Dormice

The proposed development is extremely unlikely to impact dormice given the hedgerows are suboptimal for breeding dormice and proposals do not involve the removal or severance of hedgerows within the site. Impacts to hazel dormice are neutral.

4.7 Great Crested Newts

The hedgerows surrounding the site have a low potential for supporting great crested newts, whilst the grassland has negligible potential to support amphibians. The development and hard landscaping separating the waterbodies and the site greater reduces the risk of any newts using the site.

Given that there are no foreseeable impacts to the hedgerows, impacts to terrestrial great crested newts and other amphibians is neutral.



4.8 Reptiles

As no suitable habitat for reptiles is present within the proposed development boundary, no further surveys or mitigation is required. Therefore, the impact of this development on reptiles is negligible. Wildflower planting as described in section 5 will increase suitable basking sites, cover and foraging habitat around the site for common reptiles.

4.9 Invasive Non-native Species

No Schedule 9 invasive species were identified during the site visit. Cherry laurel was identified in the hedgerows on site which can become vigorous and invasive. To avoid impacts resulting from new non-native species, any planting scheme should comprise of native species only.

As the hedgerows will not be removed or severed, the risk of spreading the spores of invasive species cherry laurel is negligible.

5 OPPORTUNITIES FOR ENHANCEMENT

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.

It is recommended that to offset the loss of amenity grassland, wildflower planting is implemented as an enhancement. For example, a hedgerow wildflower mix could be planted, providing a 1.5m buffer zone of existing and newly planted hedgerows. A recommended mix is EH1F Wildflowers for Hedgerows which can be found on the Emorsgate Seeds website.

To enhance the value of the site for roosting bats it is recommended that a minimum of one bat box is installed upon the new building. Recommended boxes are:

- 2FE Schwegler Wall-Mounted bat shelters which are designed to be fixed to an external wall;
or
- Beaumaris Woodstone Bat Box Midi which are designed to be installed upon an external wall;
or
- 1FR Schwegler Bat Tubes which are designed to be built into the masonry of an external wall.
It can either be built flush with the wall or beneath a rendered surface (see Figure 5).

Any box/roosting feature must be positioned upon the south and east facing elevations, which are most favourable to bats, increasing chances of uptake. They must be positioned at a minimum height of 3.5m from the ground. As best practice, the lighting scheme should be designed to minimise light spill (see Appendix 3), around these roosting features and potential commuting routes.

Furthermore, to enhance the value of the site for nesting birds, it is recommended that one bird box be installed in a suitable location on the proposed new dwelling. A recommended box is the 1SP Schwegler Sparrow Terrace (see Figure 5), although other boxes are commercially available. The box can be



installed onto the surface of a suitable wall at a minimum of 3.5m above the ground, facing north or east, with clear unobstructed access to the entrance.

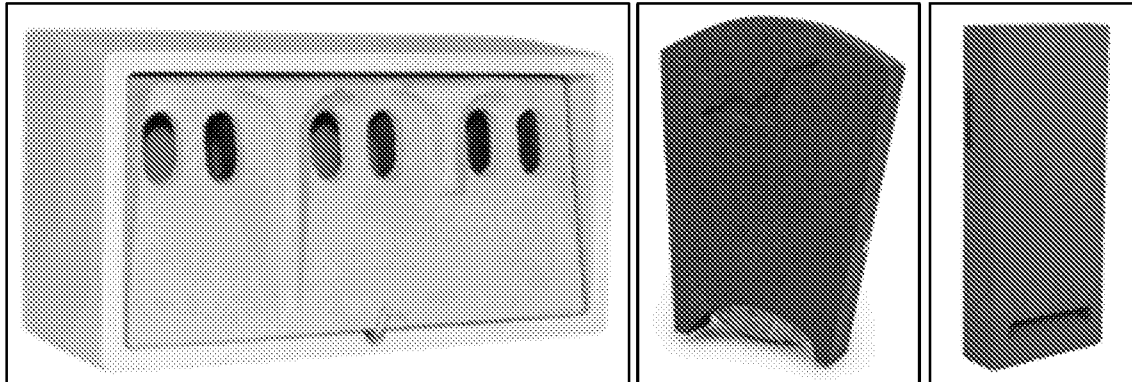


Figure 5. Left to right: 1SP Schwegler Sparrow Terrace, Beaumaris Woodstone bat box midi, 1FR Bat Tube.

6 CONCLUSIONS

The land north of Highground Lane is comprised of an area of tightly mown amenity grassland, surrounded by a border of hedgerow on the north, west and part of the south boundaries, shrubs in the beginning stages of a hedgerow on the east boundary, and an area of hardstanding at the southern boundary. A shed is also present at the northeastern corner of the site. The construction of a new dwelling and paved driveway, as set out in Figure 2 of this report, will likely have minimal to no impact on habitats of importance and protected species.

No further surveys are recommended for protected species due to the small scale of the proposed building and the absence of direct impacts to protected species and habitats.

An ecologically sensitive lighting scheme, designed in line with the Bat Conservation Trust's Guidelines (see Appendix 3), will be required to minimize light spill around the hedgerows at the boundaries which could be used by commuting and foraging bats.

The enhancement opportunities identified in section 5 of this document will result in new opportunities for nesting birds and roosting bats, offset losses to the grassland whilst increasing plant diversity. These enhancements will provide an increase to biodiversity at the site should they be implemented in full.

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, info@ecologyco-op.co.uk, www.ecologyco-op.co.uk, Office: 01798 861800.



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 2017 (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 2019)⁷ 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.

Paragraph 174b, 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)⁸. 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

⁷ HM Government (2019). National Planning Policy Framework. Department for Communities and Local Government. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728643/Revised_NPPF_2018.pdf.

⁸ 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.



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.

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<https://britishbirds.co.uk/wp-content/uploads/2014/07/BoCC4.pdf>

Natural Environment and Rural Communities (NERC) Act (2006). HMSO London. Available at:
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National Planning Policy Framework (NPPF) (2018) Department for Communities and Local Government. Available at:
www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

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



APPENDIX 2 – Arun District Council

Arun District Council – Adoption Arun Local Plan 2011–2031 (July 2018)

Policy number/title	Policy summary
Policy C SP1 Countryside	Outside the Built-Up Area Boundaries (as identified on the Policies Maps) land will be defined as countryside and will be recognised for its intrinsic character and beauty. Development will be permitted in the countryside where it is: a. for the operational needs of agriculture, horticulture, forestry, the extraction of minerals or the management of waste as part of a waste site allocation within the West Sussex Waste Local Plan; or b. for quiet, informal recreation; or c. for green infrastructure; or d. for the diversification of the rural economy; or e. for road and/or cycle schemes; or f. in accordance with other policies in the Plan which refer to a specific use or type of development. 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.
Policy LAN DM1 Protection of landscape character	Development within the setting of the South Downs National Park must have special regard to the conservation of that setting, including views into and out of the Park, and will not be permitted where there would be harmful effects on these considerations. Development throughout the plan area should respect the particular characteristics and natural features of the relevant landscape character areas and seek, wherever possible, to reinforce or repair the character of those areas The historic character and development pattern of settlements within the District should be respected, taking into account their distinct identity and setting.
Policy 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. In relation to designated sites, development will be permitted where it protects sites listed in Tables 17.1-17.7 that



Policy number/title	Policy summary
	are recognised for the species and habitats contained within them.
Policy 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 as listed in Tables 17.1 - 17.7 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: i. There is no alternative solution (which shall be adequately demonstrated by the developer). ii. There are reasons of public health or public safety or iii. There are benefits of primary importance to the environment or iv. There are imperative reasons of overriding public interest Notwithstanding the above however, the presumption in favour of sustainable development does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered, planned or determined. 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; i. The European, National or Local status and designation of the site; ii. The nature and quality of the site's features, including its rarity value; iii. The extent of any adverse impacts on the notified features of interest; iv. 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.



Policy number/title	Policy summary
Policy ENV DM3 Biodiversity Opportunity Areas	Development shall: a. Retain and sympathetically incorporate locally valued and important habitats, including wildlife corridors and stepping stones b. 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 of that species and habitat and impact(s) that development may have on the BOA.
Policy 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.



APPENDIX 3 – 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 Trust⁹ should be considered while designing the lighting scheme. A simple process which should be followed where the impact on bats is being considered as part of a proposed lighting scheme. It contains techniques which can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting on key habitats and features altogether

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

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

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

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

⁹ 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/>



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.

Further reading:

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End.