



The Ecology Co-op

ENVIRONMENTAL CONSULTANTS

Unit 4, Langham Stables, Langham Lane, Lodsworth, Petworth, West Sussex, GU28 9BU.

Tel: 01798 861 800 – E-Mail: info@ecologyco-op.co.uk – Website: www.ecologyco-op.co.uk

Ecological Impact Assessment

Site Name

Langley Bottom Farm Field

Issue Date

27th June 2025

Client

Fairfax Acquisitions Ltd

Author

Paul Whitby

Project No: P2851

The Ecology Co-operation Ltd

Registered Office: Unit 4, Langham Stables, Langham Lane, Lodsworth, GU28 9BU

Company number: 8905527





Document Control

Issue No	Author	Reviewer	Issue Date	Additions/alterations	Notes
Original	Neil Carter-Whitehead BSc MSc	Paul Whitby BSc, MCIEEM, CEcol	27.06.25	N/A	

Conditions of use

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.

About the Author

This report has been prepared by Neil Carter Whitehead, a Senior at The Ecology Co-op, with 6 years' experience. He has worked on a mixture of housing and national infrastructure development proposals.

About the Reviewer

This report has been prepared by Paul Whitby, a Principal Ecologist at The Ecology Co-op, with 19 years' experience. He holds protected species survey licenses for bats, great crested newts and dormice in England and has extensive experience in Ecological Impact Assessment, working and on projects at a wide variety of scales.



Report Summary

Purpose	The Ecology Co-op has been commissioned by Fairfax Acquisitions Ltd. to undertake an Ecological Impact Assessment for a development on land at Langley Bottom Farm, Epsom. Following a Preliminary Ecological Appraisal, including UKHab mapping of the site, further ecological surveys have been undertaken across 2019, with updated surveys undertaken in 2024. This document presents the findings of these surveys, and a full Ecological Impact Assessment in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines to inform a planning application for the construction of up to 110 new homes.
Context	The vast majority of the site comprises of an arable field with narrow grass field margins. A small area of grassland is present at the northern end of the site bordering Langley Vale Road, which supports some calcareous characteristics. Residential properties associated with Langley Vale border the site to the northeast, whilst Ebbisham Lane borders the site to the west. A single residential property is present within the site at the northern boundary with an associated garden space.
Impact on Protected Species	The protected species surveys identified the presence of a low population of grass snakes within the narrow field margins that whilst requiring precautionary mitigation through the construction phase, will benefit from increased habitat availability post development. Nesting skylark have been identified within the arable field and would be displaced by the development, with new nesting opportunities proposed for creation within an adjacent field. No other notable protected species impacts are considered likely, though as past use of the site by foraging badgers has been identified,
Impact on Habitats	The site forms part of a Site of Importance for Nature Conservation (SINC), that is known to have value for rare arable plants, with field gromwell and narrow-fruited cornsalad present at the site margins in very small numbers. The loss of the arable habitats risks a reduction in these species and increases the risk of local extinction.
Compensation and Enhancements	Compensation measures are proposed for skylark and rare arable plants through the creation of new suitable habitat within a retained part of the arable field. This habitat could be created and managed in perpetuity, secured vis an appropriate Section 106 agreement where necessary. In line with the National Planning Framework, the site's ecological value will be enhanced and a separate Biodiversity Impact Calculation (BIC) has confirmed that the development will achieve 33.03% gain in habitat units. Further detail is provided in section 5.



CONTENTS PAGE

1	INTRODUCTION.....	1
1.1	Background	1
1.2	Purpose of this Report.....	1
1.3	Policy and Legislation.....	2
2	SURVEY METHODOLOGY.....	4
2.1	Desk Studies	4
2.2	Habitat Survey	4
2.3	Detailed Botanical Assessment.....	5
2.4	Bats	5
2.5	Reptiles	7
2.6	Common Dormouse	9
2.7	Breeding birds	9
2.8	Badgers	9
2.9	Other Notable Species	9
2.10	Invasive Non-native Species.....	9
2.11	Impact Assessment Methodology and Mitigation.....	9
2.12	Constraints/Limitations to Surveys.....	11
3	ECOLOGICAL BASELINE.....	11
3.1	Designated Sites	11
3.2	Habitats	14
3.3	Botanical Assessment.....	17
3.4	Bats	17
3.5	Breeding Birds.....	22
3.6	Dormice	24
3.7	Reptiles	25
3.8	Badgers	26
3.9	Other Notable Species	27
3.10	Invasive Non-native Species.....	27
4	IMPACT ASSESSMENT	28
4.1	Designated Sites	28
4.2	Priority Habitats	29
4.3	Bats	30
4.4	Breeding Birds.....	30
4.5	Reptiles	31
4.6	Other Notable Species	31



4.7	Cumulative Effects	31
5	MITIGATION PROPOSALS	32
5.1	Designated Sites	32
5.2	Priority Habitats	33
5.3	Bats	34
5.4	Breeding Birds	35
5.5	Reptiles	35
5.6	Other Notable Species	36
6	BIODIVERSITY ENHANCEMENTS	36
7	CONCLUSIONS.....	37
APPENDIX 1 – LEGISLATION AND POLICY.....		38
APPENDIX 2 – LOCAL PLANNING POLICY		42
APPENDIX 3 - IMPORTANCE OF ECOLOGICAL FEATURES.....		43
APPENDIX 4 - BOTANICAL ASSESSMENT.....		44
APPENDIX 5 - ARTIFICIAL LIGHTING AND WILDLIFE		46



1 INTRODUCTION

1.1 Background

The Ecology Co-op was commissioned by Fairfax Acquisition Ltd. to undertake an Ecological Impact Assessment (EclA) of Langley Bottom Farm. This report presents the findings of baseline ecological surveys and desk-study research and assesses the likely impacts and significance of effects of the proposed works in relation to protected/notable species, habitats and designated sites.

The site is approximately 5.22 ha in area and is currently used as an arable field. It is bordered by ancient semi-natural woodland, hedgerows and fence lines. There is a portion of semi-improved calcareous grassland present in the north of the site. The whole site is designated as a Site of Nature Conservation Importance (SNCI). There are three statutory designated sites within 5km of the site.

Figure 1 shows the boundary of the site and local context.

The proposed development comprises the construction of up to 110 new dwellings (including affordable homes), with new access from Langley Vale Road to the northwest.

The Ecology Co-op undertook a Preliminary Ecological Appraisal (PEA) and Phase 1 Habitat survey¹ in 2018 to establish the potential ecological constraints and opportunities to the development of this site. Based on the findings of this assessment, presence/likely absence surveys for badgers, bats, reptiles and breeding birds were recommended, in addition to a focussed botanical assessment of arable habitats. The potential for impacts to dormice are referred to in this report, however based on the absence of suitable breeding sites identified within 250m of the site, coupled with the poor general terrestrial habitat for this species.

1.2 Purpose of this Report

Following the recommendations of the PEA, The Ecology Co-op undertook further protected species surveys for common reptiles and birds, and undertook activity surveys for bats.

The purpose of this report is to:

- present the findings of surveys and desk-study research (baseline ecological information);
- identify and evaluate ecologically important features present on the site and within the zone of influence of the proposed development;
- describe the potential impacts of the proposed development and determine the significance of effects on these ecologically important features;
- set out the proposed impact avoidance, mitigation, compensation measures that will be undertaken to reduce significant adverse effects to an acceptable level;
- outline the habitat creation and enhancement measures that will be put into place as part of the proposed development. These are designed to ensure that the proposals contribute to both local and national biodiversity objectives.

This report is intended for submission as part of the planning application for the proposed development.

¹ The Ecology Co-op (2018) *Preliminary Ecological Appraisal and Phase 1 Habitat Survey*



The surveys and report were carried out and produced at the request of Fairfax Homes and supervised by Neil Carter-Whitehead and Paul Whitby.

1.3 Policy and Legislation

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

Where possible, this report provides information on how the development proposal will be designed to meet the requirements of both the National Planning Policy Framework (NPPF) and local planning policy. Details of the NPPF is provided in Appendix 1 and relevant local planning policy by Epsom and Ewell Borough Councils provided in Appendix 2.

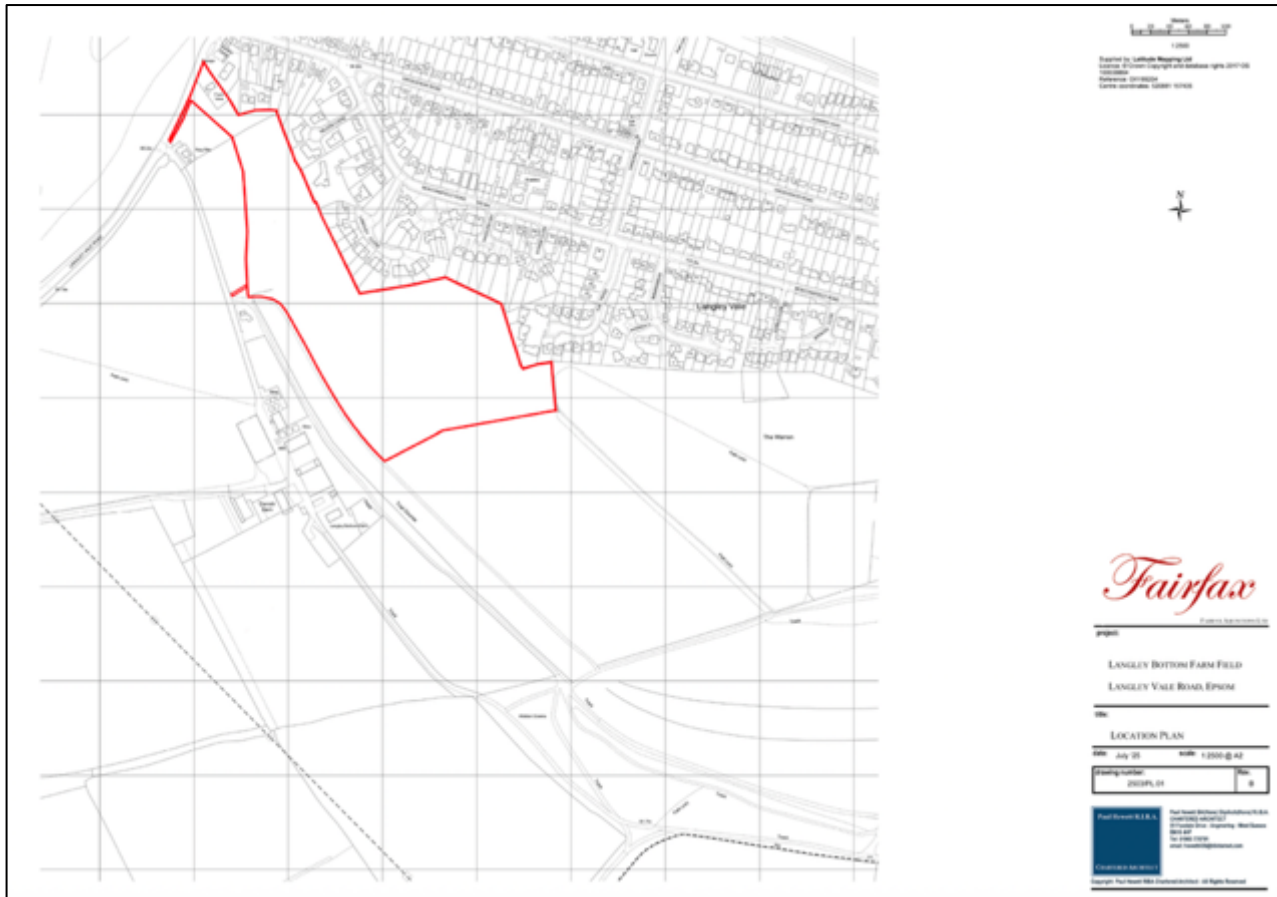


Figure 1. An aerial image showing the location of the site. The approximate construction site boundary is outlined in red. Replicated from Location Plan produced Paul Hewitt RIBA Chartered Architect (Drawing Number 2504/PA.01).



Figure 2. Proposed scheme layout, reproduced from Paul Hewitt Architect.



2 SURVEY METHODOLOGY

The following sections describe the methods used in the desk study and protected species/habitat survey(s). All survey methods are in accordance with current best practice guidance for the respective species/taxonomic group and any limitations encountered during the survey are explained in section 2.12.

This document is written in accordance with the CIEEM Guidelines for Ecological Impact Assessment² and CIEEM Guidelines for Ecological Report Writing³ Details of the ecological assessment methods are provided within section 2.11 below.

2.1 Desk Studies

A search of on-line mapping resources was undertaken to identify potential site connectivity to woodland, scrub, and hedgerow networks (relevant to bats) in the wider landscape around the site. The connectivity of the site to these features, buildings and other semi-natural habitats are also relevant to species such as bats, great crested newts and reptiles.

A search for pre-existing records of protected species, priority species for conservation and invasive non-native species from Surrey Biodiversity Information Centre (SBIC) within a radius of 2km of the site boundary was undertaken of a site that partially overlaps this site in 2024. This data is considered to be applicable.

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 Habitat Survey

A site walkover survey was undertaken on 23rd May 2024, with a survey of additional land undertaken on 5th February 2025, during which the habitats contained within the site were described and evaluated in accordance with standard UK Habitat Classification (UKHab)⁴. The dominant species and indicators of important habitat types such as ancient woodland or unimproved grassland, were recorded.

UKHab survey presents a standardised system for classifying and mapping wildlife habitats in all parts of Great Britain, including urban areas. The aim of the survey is to provide, relatively rapidly, a record of the vegetation and wildlife habitats present. The habitat classification is based principally on vegetation, augmented by reference to topographic and substrate features, particularly where vegetation is not the dominant component of the habitat.

Data was gathered through a site walkover survey and use of on-line aerial photography to broadly categorise the habitats present using the UKHab classifications⁵. The results are presented as a map showing the distribution of habitat categories across the site. Target notes are used to describe specific features of biodiversity interest and record indicator species where appropriate. In addition to this, notable habitats, such

² CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester.

³ CIEEM (2017) *Guidelines for Ecological Report Writing, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

⁴ The UK Habitat Classification Working Group (2018) *The UK Habitat Classification User Manual* at <http://ecountability.co.uk/ukhabworkinggroup-ukhab>

⁵ UK Habitat Classification Working Group (2018). *UK Habitat Classification – Habitat Definitions V1.0* at <http://ecountability.co.uk/ukhabworkinggroup-ukhab>



as habitats listed under the NERC Act, 2006, are highlighted.

The UKHab methodology is a recognised tool for initial scoping of potential ecological constraints and opportunities, and for identifying potential effects of the proposed development as part of the planning application process.

As part of the Preliminary Ecological Appraisal, the site features were evaluated for their potential to support legally protected species and 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 and any specific limitations to the survey(s), such as access constraints, are set out in section 2.12.

2.3 Detailed Botanical Assessment

As an extension to the UKHab survey, a botanical survey was undertaken on the 9th May 2019 and again on the 12th June 2024 to assess the arable field margins and update habitat mapping for the site to UKHab codes. This is the optimum time of year for botanical surveys when most flora is actively growing and is a good time to focus on arable plants. The aim of the survey was to identify rare arable plants associated with the SINC site designation. The botanical assessment in 2019 was undertaken by Paul Whitby, a FISC Level 4 surveyor and in 2024 was undertaken by Libby Morris.

2.4 Bats

There are 18 species of bat resident in the UK, each with their own specific habitat requirements. 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. Bats are generally active at night and utilise a wide range of habitats for foraging and commuting between roost sites, hibernation sites and foraging habitats. Linear features such as hedgerows, woodland edges, even fences can be important for navigation between roosting and foraging habitats.

2.4.1 Preliminary Roost Assessment – Farm View

A detailed building inspection of the residential property was carried out in accordance with best practice guidance as set out by the Bat Conservation Trust⁶; the inspection comprised identification of potential access points and 'Potential Roost Features' (PRFs) that bats could use and any evidence indicating the presence of bats using the building, such as rub marks, feeding remains, staining or droppings. The survey included a ground-based external inspection around the building and internal inspection of any enclosed loft spaces or roof voids, where safe access was possible.

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 are recommended as appropriate.

⁶ Collins, J.(ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th edn). The Bat Conservation Trust, London.



2.4.2 Bat Activity Surveys – Walked Transects

Bat activity surveys followed best practice guidelines⁶. Pre-determined transect routes were followed by surveyors (Figure 3), focussing on all linear features within the site boundary (tree-lines, woodland edge and hedgerows). The transect routes were walked at a slow pace during the period from sunset to two hours after sunset by a team of surveyors, such that each part of the route was passed approximately every twenty minutes. All surveys were undertaken during weather conditions suitable for bat activity and at ambient temperatures above 10°C. The surveyors recorded bat activity using 'Echo Meter Touch' bat detectors featuring auto-identification of bat species and automatically triggered recording for later review. The locations of all bat 'registrations' was recorded onto a field map during the survey to correspond with all sound recordings.

2.4.3 Bat Activity Surveys – Automated Static Bat Detecting

Two Song Meter Mini static bat detectors were deployed at two locations on the site (see Figure 3) on three separate occasions, in April, July and September. The detectors were left in the field for a minimum of five days – the expected maximum lifetime of the battery. Static bat detectors comprise a passive recording device with real-time full-spectrum calls that can be viewed in detail once downloaded on analysis software, allowing accurate identification of most bat calls to species level (or genus level in the case of *Myotis* and *Plecotus* spp.).



Figure 3. The transect routes (yellow line) of surveyors with stops (black numbers) and the two static bat detector locations (white numbers). Images produced courtesy of Google maps.

The data was processed using the British Trust for Ornithology's (BTO) Acoustic Pipeline v5.502⁷, an auto-identification system. The Acoustic Pipeline uses classifiers to detect and identify bat calls within files and

⁷ BTO (2023). BTO Acoustic Pipeline. Available from: <https://www.bto.org/our-science/products-and-technologies/bto-acoustic-pipeline>



assign them a probability or confidence percentage of the call belonging to a particular species. The data output from the pipeline was then processed differently depending on the species identified, but groups of species' calls underwent some degree of post-classification manual analysis by a suitably accomplished bat acoustic analyst using Kaleidoscope Lite software v5.6.3⁸. Data management was facilitated using the R Shiny App through R Studio v2023.09.1+494⁹, which assisted with creating random samples of some datasets to establish error rates.

Common and Soprano Pipistrelles

All calls with a confidence score of below 50% were discarded from the dataset. 10% of remaining calls from each detector then underwent post-classification validation through manual analysis to establish false positive error rates within the dataset. Each static detector was validated as bat calls can vary between habitats, meaning that the location in which the bat static detector is placed can influence the effectiveness of species detection. For the purpose of reporting, some results were adjusted in light of the error rate found to create a more representative number of calls, accounting for positive error rates. The data that has undergone this modification are clearly labelled as such.

Barbastelle and Serotine

All 'low confidence' calls (i.e. calls with a confidence score of below 50%) were discarded from the dataset. All remaining calls were manually analysed due to the small call sample size for this species. All calls found to be incorrectly identified as barbastelle during verification were then also discarded from the dataset. The false positive error rate for this species was 1% for the central hedgerow static detector and 0% for the northern hedgerow static detector.

Myotis, Plecotus and Nyctalus species

All calls from *Myotis*, *Plecotus* and *Nyctalus* species were analysed, regardless of their confidence score. This is because calls from these genera overlap and are often very difficult to distinguish. Therefore, it is likely that the Acoustic Pipeline may otherwise underestimate the numbers of calls from these genera as it assigns them a lower confidence score, whilst the confidence in correctly analysing the genera the call belongs to is still high.

Noise Files

10% of all noise files identified by BTO Acoustic Pipeline were manually analysed to establish a false negative error rate. Individual error rates were established for each static detector deployment location (over the three seasonal deployments) due to possible variation in noise production from static detector placement.

The walked transect and static bat detector ('bat logger') survey methods complement each other with the transect surveys providing information on foraging and commuting patterns, and distribution across the site; and automated static detector surveys giving more prolonged coverage through consecutive nights, thus increasing the likelihood of detecting scarce species.

2.5 Reptiles

The common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis* grass snake *Natrix natrix* and adder *Vipera berus* are widespread species that can be found in many semi-natural habitats, such as rough grassland,

⁸ Wildlife Acoustics (2023) Kaleidoscope Lite Analysis Software. Available from: <https://www.wildlifeacoustics.com/account/downloads/kaleidoscope>

⁹ RStudio Team (2020). RStudio: Integrated Development for R. Available from: <http://www.rstudio.com>



scrub, heathland and open woodland where there is good vegetation cover, an abundance of invertebrate, amphibian or small mammal prey and areas of open ground for basking.

Standard reptile presence/likely absence surveys involve setting out artificial refugia (reptile 'mats' or 'tins') in potentially suitable habitat. Reptile mats are pieces of roofing bitumen felt and reptile tins are pieces of corrugated metal sheet approximately 1m x 0.5m in size, which absorb heat from the sun more rapidly than the surrounding vegetation and provide cover and basking places attractive to reptiles. These are then checked for presence of animals under suitable weather conditions. They are placed in areas of potentially suitable habitat at an approximate density of 20 per ha, or 20m apart along linear features. There are no up-to-date best practice guidelines for reptile surveys, but a minimum of seven survey visits under suitable weather conditions is generally considered to be adequate when determining their presence/likely absence, and 15–20 visits are used to calculate a 'peak count' for population size class assessment.

A total of 70 roofing felt mats were used in this survey (see Figure 4). The mats were left *in situ* for a minimum of one week to 'bed in' and allow reptiles to locate them before the first check. The mats were checked seven times over the period 10th May – 14th June 2024.

and all observations of reptiles were recorded, together with the weather conditions, temperature and time of day.



Figure 4. Location of reptile refuges (identified with red dots). This figure uses map data from Mapbox and OpenStreetMap and their data sources. To learn more, visit <https://www.mapbox.com/about/maps/> and <http://www.openstreetmap.org/copyright>.



2.6 Common Dormouse

Common dormice are typically associated with broadleaved woodland habitat, hedgerows and scrub. They tend to occur at low density and good habitat connectivity is important. Common dormice need a constant supply of food throughout the active season over a large home range. A diversity of tree and shrub species will provide a range of fruit, nuts and insects. They hibernate during the winter – typically at ground level amongst leaf litter and mosses, protected by coppice stools, tree stumps or piles of brash wood.

2.7 Breeding birds

The methods used for the breeding bird survey was adapted from a methodology developed by the Bird Survey and Assessment Steering Group (RSK Biocensus)¹⁰. This methodology requires six visits spread evenly between late-March and early-July. Any deviation from this number should be justified. These should be carried out approximately 30 minutes before sunrise through to mid-morning (10am to 11am). At least one of these visits should be in the evening, extending past sunset. All bird surveys were only undertaken during favourable weather conditions for bird activity, with periods of persistent or heavy rain, high winds or fog avoided. The transect route followed the outside edge of the site boundary in its entirety to ensure appropriate coverage of the site.

2.8 Badgers

A walkover assessment of the site in 2019 identified the presence of badger latrines in the field margin on the eastern boundary of the site. Further walked assessments of the site were undertaken to establish if further field signs were present, in addition to searches for any potential badger setts.

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 specific attention paid to features such as standing dead-wood, wet flushes, bare earth banks and botanically rich areas.

2.10 Invasive Non-native Species

No specific surveys for invasive non-native species (INNS) were undertaken. However, the presence of any invasive non-native species encountered during other fieldwork, was recorded.

2.11 Impact Assessment Methodology and Mitigation

The assessment of ecological impacts and mitigation recommendations in this report follow CIEEM Guidelines for Ecological Impact Assessment (EclA)². This involves evaluating the importance of an 'ecological feature' (habitat, vegetation community, population of a single species or assemblages of species) in terms of nature conservation priority, followed by the application of the 'mitigation hierarchy'.

¹⁰ <https://birdsurveyguidelines.org/methods/survey-method/>



2.11.1 Importance of Ecological Features

A level of importance was assigned to all existing ecological features through consideration of the rarity and distribution of a habitat or species, the population size, ecological function, and trends (declining/expanding), together with any designations, legal status, or conservation policies. CIEEM recommend that the importance of an ecological feature, in terms of nature conservation priority, should be considered within a defined geographical context (for definitions used by The Ecology Co-op, see Appendix 3):

- international and European
- national
- regional
- county
- local or parish
- site/negligible.

Where protected species are present and there is the potential for a breach of the legislation as a result of the development proposals, those species are considered as 'important' features and included in the EclA. However, the level of importance assigned to the affected population of a protected species will vary depending on contextual information about the population size, distribution, abundance and trends across the range of geographical scales.

Similarly, irreplaceable habitats such as ancient broadleaved woodland are considered as important features and included in the EclA. The level of importance will vary depending on the size of the habitat parcel, its distribution and abundance at different geographical scales.

Features that are considered to be important at site level only, or are of negligible importance (such as paved ground or amenity grassland) are excluded from this EclA and it should be reasonable to assume that if a feature is not mentioned, it is not ecologically important.

2.11.2 Significance of Effects

In accordance with EclA (CIEEM 2018)², a significant effect is defined as "an effect that either supports or undermines biodiversity conservation objectives for important ecological features". Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy). The effects may be described as significant at a range of geographic scales as defined above.

The impacts are identified and described in relation to the following characteristics:

- *adverse or positive* – does the impact result in the loss or gain in biodiversity/quality of the environment?
- *extent, magnitude* – the spatial area over which the impact may occur, the area of habitat lost, or the number of individuals/populations affected
- *timing* – in relation to the life cycle of the ecological feature (e.g. nesting bird season)
- *duration, frequency* – is the impact temporary or permanent, frequently repeated or a one-off event?
- *reversibility* – is the impact temporary or permanent? Would the ecological feature recover after the impact?
- *cumulative impacts* – in combination with other plans/projects.



2.11.3 The 'Mitigation Hierarchy'

The assessment of the significance of an effect is made initially in the absence of mitigation. This is followed by a sequential process of determining the most appropriate way to remove or minimise significant effects. The preferred option is to avoid impacts in the first place, for example by redesigning the scheme to retain an important area of habitat, or timing works sensitively. Mitigation measures such as translocation or displacement of populations is only applied as a last resort where significant effects are unavoidable.

When residual significant adverse effects remain after all practicable measures to avoid and/or minimise impacts have been applied, compensation measures are required. Compensation measures include habitat creation in alternative locations that offset unavoidable habitat loss.

Finally, enhancements are proposed that do not relate to a specific impact and effect but provide net gains in biodiversity – taking advantage of opportunities in the design and operation of the proposed development. These measures are intended to ensure that the proposed development contributes towards national and local biodiversity objectives.

2.12 Constraints/Limitations to Surveys

Surveys record any flora or fauna that is present at the time of the survey visits. It is therefore possible that some species may not have been present during the surveys but may be evident at other times of the year and may appear or disappear from the site if habitat conditions change. For this reason, the surveys are considered valid for up to eighteen months for badgers and bats, two years for reptiles and three years for great crested newts and dormice. If the habitat conditions change significantly in the intervening period, then it is recommended that the surveys be updated.

3 ECOLOGICAL BASELINE

3.1 Designated Sites

There are 13 statutory designated sites within 5km of the site, including five Sites of Special Scientific Interest (SSSIs). The nearest is Ashted Park Local Nature Reserve (LNR), situated 1.3km due north-east of the site. Table 1 summarizes the desk study findings. The site lies within a Site of Nature Conservation Interest (SNCI).

A number of priority habitats were identified adjacent to or in close proximity to the site. These are shown in Figure 6.

No granted EPS licences for mitigation projects were identified within 1km of the site boundary.

Table 1. Designated sites within 5km of the site

Site name	Designation	Features listed on citation	Proximity	Ecological importance
Surrey Hills	National Landscape	Designated for its woodland, heathland, and wetland habitats.	2.9km south	National
Ashted Park	LNR	Cited for its oak woodland.	1.3km north-east	County
Cuddington Meadows	LNR	Designated for its chalk grassland and butterfly species.	4.6km north-west	County
Epsom	LNR	Designated for rare insects and breeding bird	1.5km north-	County



Common		habitat.	east	
Horton Country Park	LNR	Designated for its range of habitats, including ancient woodland grassland, and ponds.	4km north-west	County
Banstead Woods and Chipstead Downs	LNR	Designated for its calcareous grassland and woodlands.	4.7km east	County
River Mole	LNR	Designated for its riparian flora.	4.3km south-west	County
Ashted Common	National Nature Reserve (NNR)	Designated for its wood pasture and woodland.	2.4km north-west	National
Stones Road Pond	SSSI	Designated for its great crested newt population.	3.7km north	National
Epsom and Ashted Commons	SSSI	Designated for its rare invertebrates, breeding birds, wet grasslands, and woodland.	2.5km north-west	National
Mole Gap to Reigate Escarpment	Special Area of Conservation (SAC) and SSSI	Designated for calcareous grassland and woodland, as well as rare invertebrates, birds, and bats.	3.1km south	National
Banstead Downs	SSSI	Designated for its scrub, woodland, and calcareous grassland, as well as rare invertebrates and birds.	4.7km east	National
Chipstead Downs	SSSI	Designated for its steeply sloping calcareous grassland, scrub, and ancient woodland, as well as its rich butterfly and bird fauna.	4.6km north-east	National
Langley Bottom Farm	Site of Nature Conservation Importance	Designated for its arable plant interest, including at least 10 Nationally Rare plant species and 7 rare or scarce species within Surrey.	Within the site	County

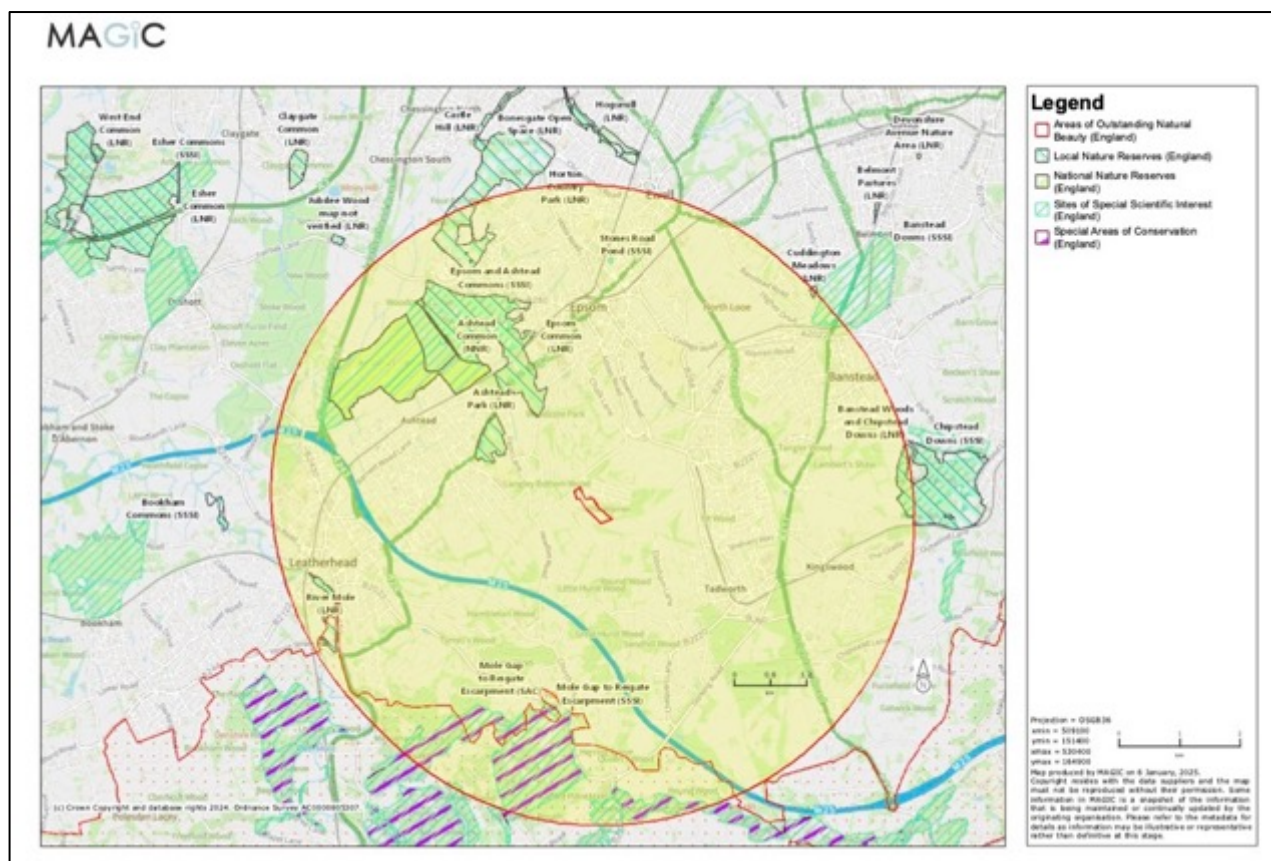


Figure 5. Statutory designated sites within a radius of 5km of the application site. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

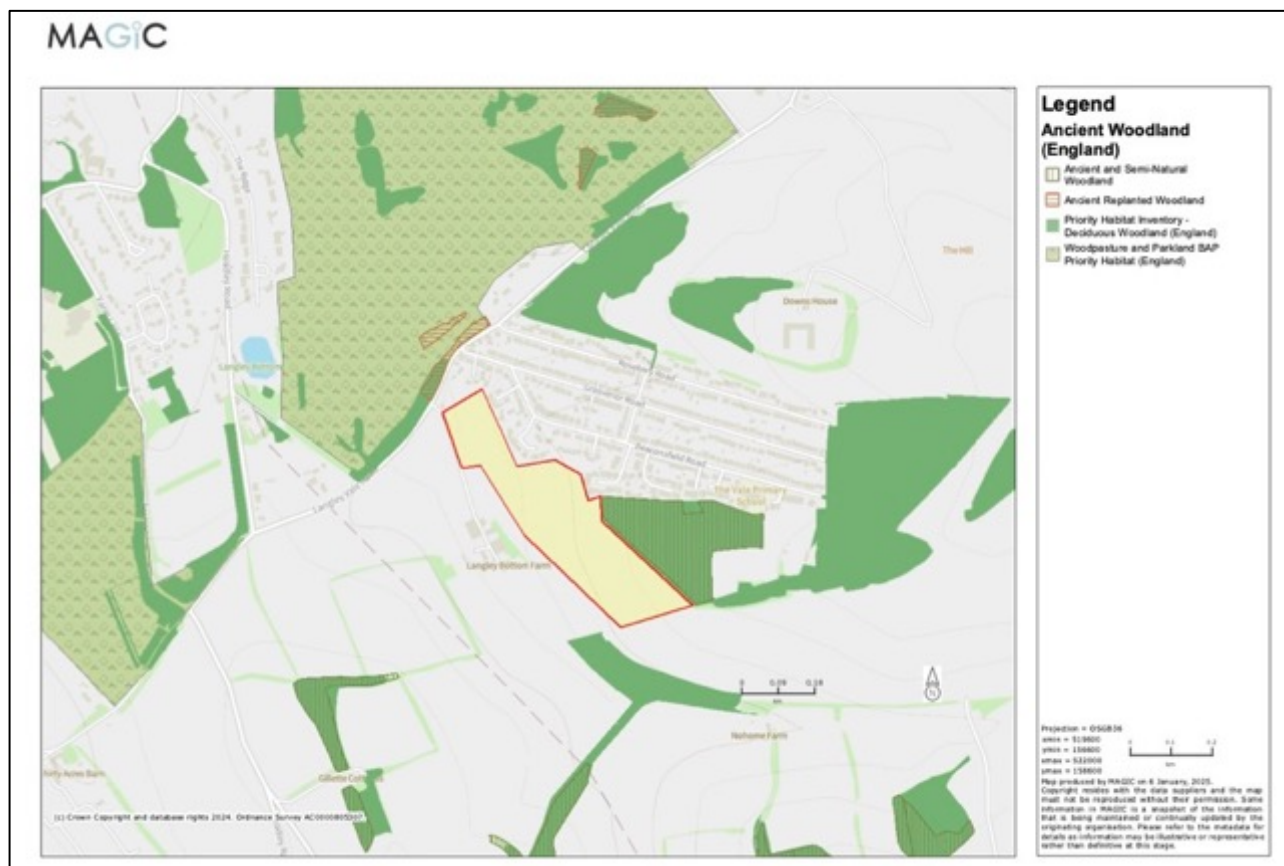


Figure 6. Priority Habitats adjacent to and in close proximity to the application site. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



3.2 Habitats

The majority of the site comprises of an arable field that in most years grows a cereal crop. The margins around this field are very narrow, but includes two notable arable plants – field gromwell *Lithospermum arvense* and narrow-fruited cornsalad *Valerianella dentata*, though both are scattered and rare at the site. Some of the site boundary grassland has calcareous grassland characteristics, though with poor overall diversity, typical for chalk grassland that has been improved or has been under unfavourable management for grassland diversity.

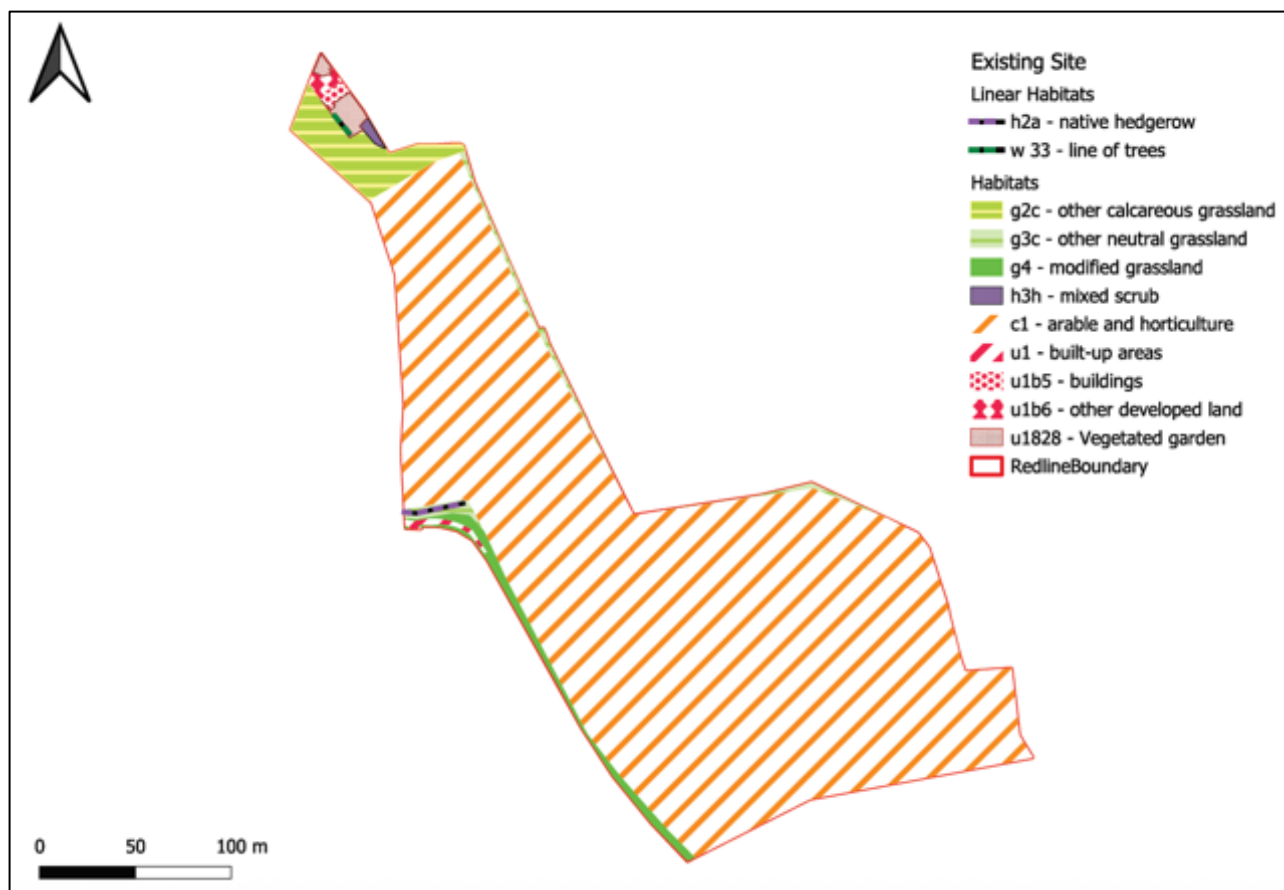


Figure 7. Habitat survey map of the site with the site boundary is outlined in red. Images prepared using QGIS version 3.16.3 - Hannover.



Photograph 1. A view of the site from the southern side of the site looking northwards.



Photograph 2. A view from the northern end of the arable field looking southwards.



Photograph 3. The boundary with residential properties at Langley Vale, with a very narrow arable field margin visible.



Photograph 4. The grassland area at the northern boundary of the site bordering Langley Vale Road.



3.3 Botanical Assessment

As an extension to the UKHab survey the detailed botanical survey provides a full species list for the habitats present on the site. A full list of the species identified is presented in Appendix 4.

The main purpose of this assessment was to identify the presence and distribution of notable arable plants at the site, further to the identification of the site as a SINC

3.4 Bats

3.4.1 Preliminary Roost Assessment – Farm View

An interior and exterior survey of the residential dwelling at Farm View was undertaken on the 5th of February. The structure is a brick built residential property with an interlocking tile roof.

The results of this survey are shown in the table below.

Table 2. The UKHab habitat contained within the site.

Building section	Description of features	Assessment of suitability ¹¹
Northern aspect	A brick constructed building with a pitched roof of interlocking tiles. The upper storey is clad with hanging tiles that are in good repair. The walls are in good repair, with no cracks or gaps in the brickwork. The interlocking tiles are largely in good condition.	Negligible bat roost suitability
Western aspect	There is a lean-to extension with interlocking tiles and a flat roofed garage on this aspect of the building. There are some gaps between the tiles on the lean to extension, which may provide roosting habitat for bats. There are gaps the length of the gable end between the barge boarding and the hanging tiles which may provide roosting habitat for bats.	Low bat roost suitability
Southern Aspect	The upper storey is clad with hanging tiles which are in good repair. The interlocking tiles on the eastern side of the southern aspect are damaged and lifted, creating gaps which may provide roosting habitat for bats.	Low bat roost suitability
Eastern Aspect	The upper storey is clad with hanging tiles which are in good repair. There are gaps the length of the gable end between the barge boarding and the hanging tiles which may provide roosting habitat for bats.	Low bat roost suitability

Overall, the building at Farm view has 'Low' suitability to support roosting bats, and as such one dusk emergence survey was recommended to determine the importance of the building for bats.

A single bat emergence survey was undertaken on the 18th June 2025 by two surveyors situated on the western, southern and eastern aspects of the property, supported by two night-vision aids (infra-red cameras with supporting Infra-red torches). This survey identified two common pipistrelle bats emerging from the southwestern corner of the property, confirming the presence of a day roost for thus species. A second emergence survey will subsequently be carried out to form a 'roost characterisation' assessment.

¹¹ Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. Bat Conservation Trust, London.



3.4.2 Bat Activity Surveys – Walked Transects

Survey conditions and timings are presented in Table 8. The results of each walked transect survey is summarised in Figures 8-10. These show the distribution of all bat observations on each walked transect, during which the route was covered at least three times in a session.

Overall, recorded bat activity was low on site. The most active ‘hot spot’ for bat activity was the southeastern corner of the site which borders the adjacent woodland. This was the only survey area to have bat activity recorded during all three surveys. Other survey areas never had more than five recorded passes in an evening.

A limited range of common species were recorded during the activity surveys, those being common pipistrelle, soprano pipistrelle and noctule. There was no evidence of rare or scarce bat species. Common pipistrelle was the only species recorded during all three surveys.

Table 3. Walked transect metadata: dates, times, temperature, weather conditions and personnel.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
17/04/2024	20:01-22:00 Sunset: 20:01	18°C, 25% cloud cover, BF1, dry	Neil Carter-Whitehead Rebecca Carter-Whitehead
17/07/2024	21:20- 23:20 Sunset: 21:20	Max/min temp: 19°C /16°C, 10% cloud cover, no wind, dry	Neil Carter-Whitehead Jason Short
17/09/2024	19:240 21:24 Sunset: 19:27	10°C, 0% cloud cover, BF1, dry	Neil Carter-Whitehead Jason Short

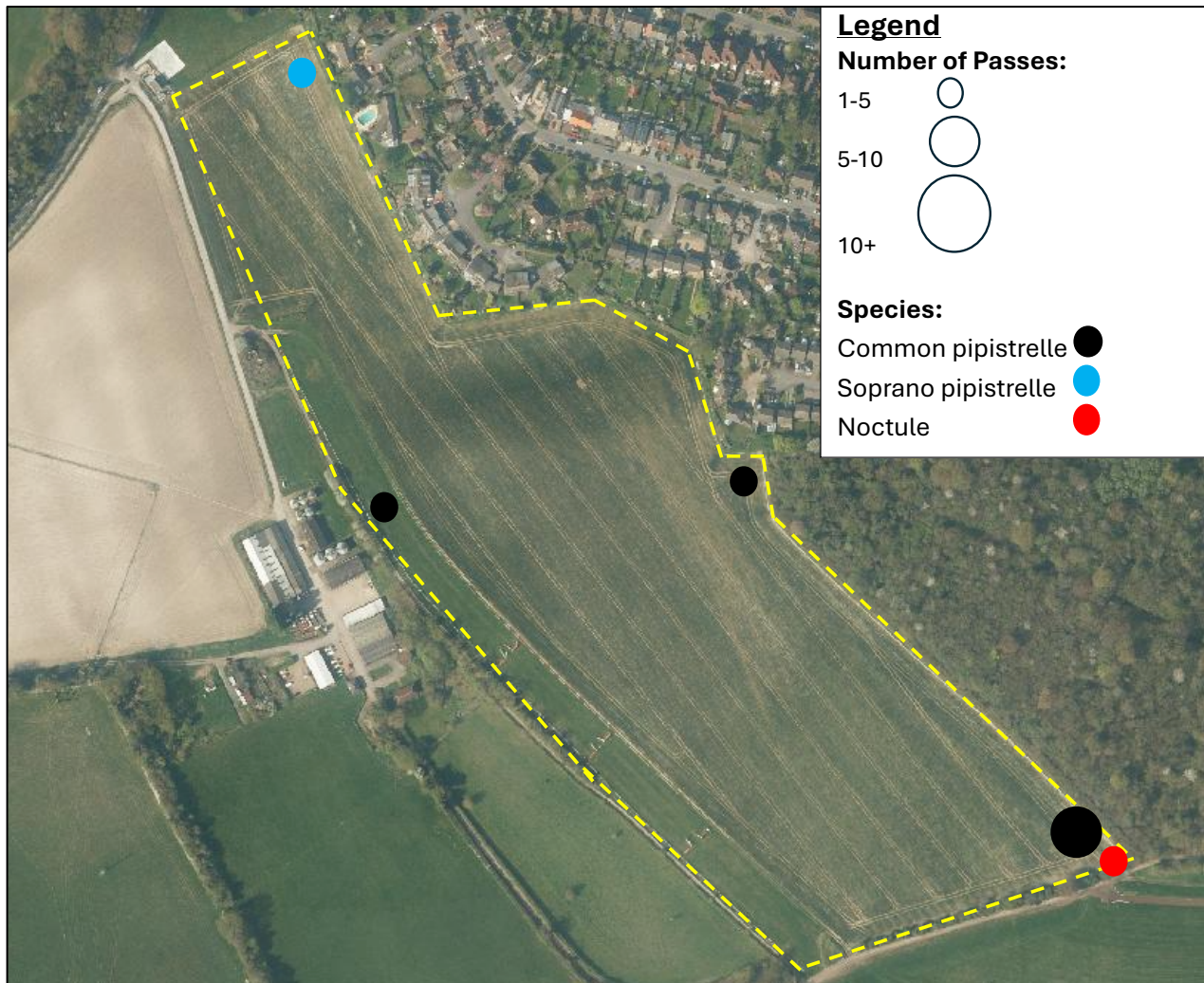


Figure 8. Approximate distribution of bats detected during the April walked transect survey. Coloured dots represent bat activity. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



Figure 9. Approximate distribution of bats detected during the July walked transect survey. Coloured dots represent bat activity. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



Figure 10. Approximate distribution of bats detected during the September walked transect survey. Coloured dots represent bat activity. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

3.4.3 Bat Activity Surveys – Automated Static Bat Detecting

The results of the automated static bat detector surveys are summarised in Table .

A total of seven species and one genera were recorded across the site by the static detectors: common pipistrelle, soprano pipistrelle, Leisler's bat, brown long-eared bat, serotine, noctule, barbastelle and *Myotis* species.

Higher activity overall was detected along the eastern woodland edge, mainly driven by the common pipistrelle passes. Barbastelle and *Myotis* species passes were highest along the central hedgerow, with an average of 78 and 129 passes recorded per night for each species respectively. The number of serotine, noctule, brown long-eared bat passes were low during all of the deployments. Less than one barbastelle pass per night was recorded in July and in no other months were barbastelles recorded.

Table 4. Mean number of passes recorded by each static detector (rounded to nearest whole number) per night. Percentage error rates are shown where applicable, where error rates are not shown the error rate was 0. Statics marked with * were subject to a full manual analysis due to error rates being too high within the dataset.

Location	Date	C. pip	S. pip	Leislars	Brown long-eared	<i>Myotis</i> sp.	Serotine	Noctule	Barbestelle
----------	------	--------	--------	----------	------------------	-------------------	----------	---------	-------------



East boundary (woodland edge)	April (6 nights)	31	1	5	-	-	-	<1	-
	July (7 nights)*	109	2	-	1	4	10	9	<1
	September (7 nights)	247	<1	24	2	8	<1	5	-
Northern boundary (hedgerow)	April (6 nights)	3	-	<1	-	-	-	-	-
	July (7 nights)	131	18	3	1	3 ($\pm 7.7\%$)	7	3	-
	September (7 nights)	2	<1	-	-	<1	-	-	-

3.4.4 Pre-existing Records

The SBIC records request returned three bat records within 2km of the site boundaries. One record for common pipistrelle and noctule was returned in a 1km grid square: 1.6km north of the site, dated 2017. A record for brown long-eared bat was also returned within a 1km grid square, within 2km of the site boundary, dated 2013.

3.4.5 Interpretation

The activity surveys have demonstrated that the habitats contained within the development site do support commuting bats, but in relatively low numbers that do not remain consistent throughout the season. Bats are opportunistic and will exploit a range of habitats across the landscape in response to the rise and fall of insect populations. These surveys indicate that the habitats contained on the site are utilised intermittently as part of the wider landscape by common and widespread bat species.

As such, the development site is not considered to be important to bats beyond the **local level**.

Based on the above findings, the site is not considered to be important to foraging and commuting bats beyond the local level.

Table 5. Conservation status and distribution of bats recorded on site.¹²

Species	Conservation status England	Distribution in England
Barbastelle	Vulnerable	South and central England
Serotine	Vulnerable	South and south-east of England
Common pipistrelle	Least concern	Widespread
Soprano pipistrelle	Least concern	Widespread
Brown long-eared	Least concern	Widespread
Noctule	Least concern	Widespread

*It is not possible to identify the species of *Myotis* without droppings for DNA analysis or the capture of a live animal.

3.5 Breeding Birds

3.5.1 Survey Results

In total, 29 species of bird were recorded during the survey; of these, three species are 'red' listed under the Birds of Conservation Concern (BoCC) and 7 are 'amber' listed.

Table presents the bird survey results combined for all three visits. The table is divided into red, amber and

¹² The Mammal Society (2020): <https://www.mammal.org.uk/science-research/red-list/>



green lists from the BoCC categories. A full list of results presented on a map for each survey visit is presented in Appendix 5. Table 12 presents the dates, times and survey conditions recorded for each visit.

Table6. Breeding bird survey summary list.

RESULTS Species	Apr (1)	Apr (2)	May (1)	May (2)	Jun e (1)	Jun (2)	Breeding status
Herring gull <i>Larus argentatus</i>		2	1	4	1	1	Non-breeding
Skylark <i>Alauda arvensis</i>	3						Confirmed
Starling <i>Sturnus vulgaris</i>		7			5	4	Non breeding
Dunnock <i>Prunella modularis</i>	4	2	2	1	2	2	Likely breeding
Greylag goose <i>Anser anser</i>		1					Non-breeding
Mallard <i>Anas platyrhynchos</i>				1			Non-breeding
Rook <i>Corvus frugilegus</i>					1		Non-breeding
Song thrush <i>Turdus philomelos</i>	4	3	3	2	2	2	Possible
Stock dove <i>Columba oenas</i>						1	Non-breeding
Wren <i>Troglodytes troglodytes</i>	4	4	3	3		2	Likely breeding
Blackbird <i>Turdus merula</i>	5	8	4			1	Non-breeding
Blackcap <i>Sylvia atricapilla</i>		2	1	1		1	Non-breeding
Blue tit <i>Cyanistes caeruleus</i>	9	4	2	2	2	3	Likely breeding
Carrion crow <i>Corvus corone</i>	2	2				2	Non-breeding
Chaffinch <i>Fringilla coelebs</i>		1					Non-breeding
Chiffchaff <i>Phylloscopus collybita</i>	1	2	1	1	1	1	Non-breeding
Goldcrest <i>Regulus regulus</i>	3	3					Non-breeding
Goldfinch <i>Carduelis carduelis</i>	1		2	1	3	3	Non-breeding
Great spotted woodpecker <i>Dendrocopos major</i>	1	1	1		2	1	Non-breeding
Great tit <i>Parus major</i>	4	5	1	3	2	2	Likely breeding
Green woodpecker <i>Picus viridis</i>						1	Non-breeding
Jackdaw <i>Coloeus monedula</i>		2					Non-breeding
Magpie <i>Pica pica</i>	4	3	1	2	1	3	Possible
Pied wagtail <i>Motacilla alba yarelli</i>						1	Non-breeding
Pheasant <i>Phasianus colchicus</i>	1						Possible
Robin <i>Erithacus rubecula</i>	7	9	7	5	2	2	Likely breeding



RESULTS Species	Apr (1)	Apr (2)	May (1)	May (2)	Jun e (1)	Jun (2)	Breeding status
Siskin <i>Carduelis spinus</i>		1	2	1	1	4	Non- breeding
Wood pigeon <i>Columba palumbus</i>	2	7	2	3		40	Non- breeding
Ring-necked parakeet <i>Psittacula krameri</i>						2	Non- breeding

Table 7. Breeding bird transect metadata: dates, times, temperature, weather conditions.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
14 th April 2024	05:26–6:38	Temp.: 5.5°C 40% cloud cover, calm, dry.	Libby Morris
26 th April 2024	05:45–	Temp.: 4°C 30% cloud cover, calm, dry.	Libby Morris
1 st May 2024	05:20–06:02	Temp.: 10°C Breezy, clear, and dry.	Libby Morris
23 rd May 2024	5:36–6:30	Temp.: 15°C Clear and dry.	Libby Morris
12 th June 2024	05:28–6:30	Temp.: 15°C Clear, still, and dry.	Libby Morris
26 th June 2024	5:30–06:30	Temp.: 16°C Clear and dry.	Libby Morris

3.5.2 Pre-existing Records

SBIC returned multiple bird records within 2km of the site, concerning a total of twenty-eight species, many of which are not relevant to the habitats on the application site. However, records for dunno, which is a S41 species, as well as great tit and coal tit, which were observed during the site visit. A record for a greater spotted woodpecker was also returned in a 1km grid square within 2km of the site, dated 2000. This species may use the woodland north of the site. The records also included two species listed on Schedule 1 of the Wildlife and Countryside Act: peregrine falcon *Falco peregrinus* and red kite *Milvus milvus*.

3.5.3 Interpretation

The majority of the birds observed incidentally at the site are common and widespread, listed as 'Green' status under the Birds of Conservation Concern (BoCC) list. However, dunno is 'Amber' listed under the BoCC and is also listed as a NERC species. Starling is also 'Red' listed under BoCC. While starling was confirmed to be breeding adjacent to the site, the field that dominates the site is not suitable to support nesting starling.

Skylark are 'Red' listed under BoCC and declining in the UK. Though one nesting site was observed, arable fields suitable to support this species are not uncommon in the local area.

Based on these findings, the breeding bird assemblage supported by Langley Bottom Farm is considered to be important for the conservation of birds at the **local** level.

3.6 Dormice

3.6.1 Survey Results

The woodland parcel in the south-eastern corner of the site contains ancient woodland and could provide suitable habitat for this species. This woodland is fairly isolated, with limited connectivity to other suitable



habitat. These suitable habitats will not be directly impacted by the proposed works and as such the likelihood of this species being impacted by the works is considered negligible.

3.6.2 Pre-existing Records

While no records of this species were provided by SBIC, this species is known to be under-recorded and could occur in any suitable habitat. However, a search of records from the National Biodiversity Network (NBN) Atlas indicated this species is poorly distributed in the area.

3.6.3 Interpretation

While the isolated habitat at the site is unlikely to support dormice, the woodland in the south-eastern corner of the site may support dormice, and their presence cannot be confidently discounted meaning this habitat has the potential to be important for dormice at the **site** level.

3.7 Reptiles

3.7.1 Survey Results

The survey confirmed presence of grass snake (four records). All of these were found on the eastern boundary of the site within the field margin adjacent to the houses on 'The Hayes' within Langley Vale village.

The survey findings, dates and conditions are presented in Figure and Table 8 below.

Table 8. Reptile survey results. Results of reptile survey undertaken at Langley Bottom Farm Industrial Buildings, Epsom. SW – slow worm, GS – grass snake, CL – common Lizard, SS- smooth snake, Juv – juvenile, SA – sub adult, F– female, M – male.

Date	Start time	Start temp. °C	Finish temp. °C	Weather conditions	Results
30/04/2024	0900	12.8	16.2	0% cc, BF1, dry	N/A
10/05/2024	1030	12.2	16.4	25% cc, BF1, dry	N/A
17/05/2024	0730	11.2	16.8	10% cc, BF1, dry	N/A
27/05/2024	1300	17.6	18.3	25% cc, BF1, dry	Juv GS – refugium 22 Juv GS – refugium 24
31/05/2024	1230	13.3	13.4	100% cc, BF2, dry	SA GS – refugium 24
07/06/2024	0930	13.3	15.6	50% cc, BF2, dry	SA GS – refugium 22
14/06/2024	1300	15.6	15.3	40% cc, BF1, dry	N/A



Figure 11. Reptile survey results. Red dots indicate refugia locations and, yellow dots indicate where reptiles were identified. Images produced courtesy of Coreo.

3.7.2 Pre-existing Records

The SBIC data search identified a single record for adder within a 1km grid square, 2km north of the site, dated 2014; a record for a grass snake within a 1km grid square, 1.5km north of the site, dated 2015; and a record for common lizard within a 1km grid square, 1.2km east of the site boundary dated 2002.

3.7.3 Interpretation

Grass snakes are common and widespread species in south-east England and likely to be present in most areas of suitable habitat. Based on the small numbers involved, the small extent of habitat and absence of other reptile species, the population contained within the development site is not considered important to common reptiles beyond the **local level**.

3.8 Badgers

3.8.1 Survey Results

Whilst badger activity was identified in the form of a latrine on the edge of the field margin in 2019, no direct evidence of badger activity was identified in 2024 and it is considered highly unlikely that any badger setts are therefore situated within 30m of the site boundary.

3.8.2 Pre-existing Records

Badger records are considered sensitive data and records were not provided within the SBIC dataset.



3.8.3 Interpretation

Badgers are widespread within Surrey and are likely to still be present locally, despite the absence of direct evidence of activity. As a mobile species, it will be important that the site is subject to an updated survey assessment prior to development, but as no direct impact risks have been identified, badgers are not considered further in this report.

3.9 Other Notable Species

3.9.1 Survey Results

The woodland parcel bordering the south-eastern corner of the site, as well as the scrub and hedgerow at the site, may provide suitable habitat for west European hedgehog *Erinaceus europaeus* and there is the potential this species will traverse the site.

3.9.2 Pre-existing Records

A record for west European hedgehog was returned within a 1km grid square, located 600m east of the site in 2005.

In a 1km grid-square, 1.4km east of the site, a record was returned for Roman snail *Helix pomatia*, which can be found in woodlands, preferring chalk-based habitats.

3.9.3 Interpretation

Although the woodland parcel adjacent to the site might support roman snail, given that the habitats that border it within the site, such as arable fields and verges, it is highly unlikely this species will be found on the site and snails or old shells would likely be evident. Therefore, the site is considered to be of **negligible** importance to roman snails and as such no mitigation will be necessary with regards to this species.

The woodland parcel, as well as the scrub and hedgerows at the site, may support west European hedgehog, and as such, the application site has the potential to be important for hedgehogs at the **site** level.

3.10 Invasive Non-native Species

3.10.1 Survey Results

No evidence of invasive non-native species was found during the walkover survey.

3.10.2 Pre-existing Records

The SBIC records search provided no records of invasive species within 2km of the site boundaries.

3.10.3 Interpretation

There are no invasive species present on the site and no mitigation is considered necessary. There will therefore be no further consideration of invasive species within this assessment.



4 IMPACT ASSESSMENT

In this section, the predicted impacts and effects of the proposed scheme are described for each important ecological feature in turn. This is based on the best available information, both on the baseline ecological condition and on the method of construction, timescale and other development/planning constraints known at the time. The significance of the impact on nature conservation is recorded in accordance with CIEEM guidance and the degree of uncertainty relating to the occurrence and severity of an impact is discussed.

The proposed scheme comprises redevelopment of an arable field into residential housing with associated access roads, hard and soft landscaping, private garden space and areas of public open space

Activities that will occur during the proposed construction and operational phases that could give rise to significant ecological impacts include:

Construction:

- direct harm from pollution, noise, lighting, vibration and the movement of people and construction machinery
- soil compaction
- habitat severance caused by construction works on-site
- habitat destruction during site clearance activities

Post construction/operation:

- permanent habitat loss
- chronic disturbance from noise, lighting, vibration and the movement of people, vehicles on-site; risk of traffic collisions
- increased recreational use of adjacent habitats leading to soil compaction, human/dog disturbance, littering, physical damage to trees
- increase in numbers of people and pets on site.

4.1 Designated Sites

4.1.1 Impact Characterisation

The application site encompasses a small portion of Langley Bottom Farm SNCI which also borders the site. As such, in the absence of mitigation, direct impacts such as the removal of the valuable arable margins and the arable plants they support. Additionally, to the remaining adjacent SNCI habitat there may be physical damage, waterborne pollution, airborne pollution and dust deposition during the construction phase, in the absence of adequate mitigation.

Given the distance of the application site from Ashstead Park LNR, Epsom Common LNR/SSSI and the Mole Gap to Reigate Escarpment SAC, these are unlikely to be directly impacted by the proposed development.

As Langley Bottom Farm SNCI can be accessed easily by public footpaths, the increased number of residents at the site will likely cause increased recreational pressure. The area of the SNCI bordering the site can be accessed freely by a public footpath, which is already well-worn and frequently used by dog walkers. However, much of this area is fenced off, protecting it from trampling and littering. Additionally, much of the SNCI east of the site is regularly used arable farmland, meaning it will already be subject to compaction from farm vehicles as well as herbicide treatment, both of which are likely to damage any notable arable plants. As such, the



projected increased footfall through this SNCI may cause cumulative impacts in conjunction with these pre-existing pressures, but considered in isolation, these impacts are small.

Similarly, the ancient and semi-natural woodland/ Deciduous Woodland parcel east of the site can be accessed from Langley Bottom Farm via footpaths, and there are public right of ways running throughout this woodland parcel. Therefore, during the operational phase of the development it is likely there will be increased recreational pressure upon this habitat. As observed during multiple site visits, these footpaths are well-worn and used by horse riders, dog walkers and cyclists. As such, the projected increased footfall through this habitat will cause a cumulative impact in conjunction with pre-existing pressure, but considered in isolation, these impacts are small.

In general, although these sites may see an increased footfall as a result of the development, aerial imagery indicates that the site is located within a semi-urban area, with large areas of open land, with recreational value, thereby somewhat decreasing the projected recreational pressures on the ancient woodland and designated sites.

In summary, the proposed development will have a **certain negative** effect upon Langley Bottom Farm SNCI, and a **likely negative** effect Epsom Common LNR/SSSI, Ashstead Park LNR, Mole Gap to Reigate Escarpment SAC, and the ancient and semi-natural woodland east of the site.

4.1.2 Significance of Effects

Unmitigated there will be:

- **Certain negative** effects upon Langley Bottom Farm SNCI, significant at the **local** level through direct and indirect impacts from the construction and operational phases of the development.
- **Negligible** effects upon Ashstead Park LNR and Epsom Common LNR/SSSI.
- **Negligible** effects upon the Mole Gap to Reigate Escarpment SAC.
- **Likely negative** effects upon the ancient and semi-natural woodland south-east of the site, significant at the **local** level through cumulative impacts from increased recreational pressure.

4.2 Priority Habitats

4.2.1 Impact Characterisation

The only priority habitat present is Deciduous Woodland situated immediately east of the, which is also classified as ancient and semi-natural woodland.

4.2.2 Significance of Effects

The proposed development will result in the loss of primarily low distinctiveness habitat, comprising of cultivated arable land. There is however some medium distinctiveness grassland at the northern end of the site and along the western boundary, some of which has calcareous characteristics, with greater knapweed identified (a calcareous soils plant).

This is to be replaced with amenity grassland garden spaces, buildings and access roads, which have very low distinctiveness value. However, there will be enhancements to the site including the creation of wildflower areas across the site and within the swale, new tree and hedgerow planting. These habitats are of higher



ecological value and will help to offset the impact of the development proposals.

However, the habitats of most value to be impacted are the arable field margins which were found to support the rare plants field gromwell and narrow-fruited cornsalad and are associated with the Langley Bottom Farm SNCI.

Overall, there would be a certain negative effect on the arable field margins and calcareous grassland in the absence of mitigation.

4.3 Bats

4.3.1 Impact Characterisation

A single dwelling will be demolished to make way for the development, identified to support a common pipistrelle bat roost supporting two individual bats and a second bat emergence survey will be undertaken to form a 'roost characterisation' assessment.

The scheme does not have any potential to impact on bats roosting in trees, with all trees present within the site boundary associated with the residential property found to lack suitable features for roosting bats.

The proposed development has potential to result in disturbance to common species of commuting and foraging bats, both during construction and in the long term after completion, through increased artificial lighting, disruption of commuting corridors and direct loss of the semi-improved grassland habitat that could be an important source of insect prey for bats.

4.3.2 Significance of Effects

Given the small amount of suitable habitat to be removed, and the relatively low numbers and common species of bats recorded on the site and the proposed destruction of a property supporting a common pipistrelle bat day roost, the proposed development will have a **likely negative** effect on commuting and foraging bats, not considered to be significant beyond the **local** level in the absence of mitigation.

4.4 Breeding Birds

4.4.1 Impact Characterisation

Before mitigation, the removal of vegetation at the site will directly impact upon breeding birds through the removal of habitat, destruction of nests and injury to birds or their eggs/young. Furthermore, dust and noise disturbance from machinery during the construction works at the site may displace birds from the retained habitats on the site such as the woodland parcel and tree line. Moreover, during the operational phase there will be an increase in people on the site and increased vehicular movements which have the potential to cause further disturbance and a likely increased risk of predation by cats to breeding birds on the site, as a result of the change of use.

Unmitigated, these indirect and direct impacts upon breeding birds will cause a **certain negative** effect on breeding birds.

4.4.2 Significance of Effects

Although starling and dunnock were observed on the site, they were not observed to be breeding within the site and are present in fairly low numbers. Impacts to these species in particular are not considered to be long-term, and as such, the development will have a **certain negative** effect on breeding birds not considered to



be significant beyond the **site** level.

With regards to skylark, this species is Red listed on the BoCC and have shown declines in recent years. Given that only one plot was observed within the application site, and the prevalence of similar habitats in the area, the development will have a **certain negative** effect on breeding birds not considered to be significant beyond the **local** level.

4.5 Reptiles

4.5.1 Impact Characterisation

Grass snakes are a highly transient species, moving through the landscape to utilise foraging resources at different times of the year. The habitat suitable for reptiles at the site is restricted to the narrow grassy field margins and the grassland habitat to the north and west, which forms only a small part of the site as a whole. As this population of reptiles small and localised, forming likely only a small part of their territorial range it is considered that the risk of direct impacts is very low and at a **site level** only.

4.6 Other Notable Species

4.6.1 Impact Characterisation

The proposed development is directly adjacent to woodland and hedgerow parcels, and as such without mitigation has the potential to impact hedgehogs, as well as removing suitable habitat which will result in fragmentation of hedgehog foraging and resting areas. This may be exacerbated by the placement of fencing between units, which could restrict the movement of hedgehogs, which forage over fairly large ranges. Therefore, in the absence of mitigation the proposed development will have a **possible negative** effect on hedgehogs.

4.6.2 Significance of Effects

The hedgehog has suffered dramatic declines in population in recent decades, although it remains fairly widespread and has declined less in urban areas than rural areas¹³. Given the small amount of suitable habitat to be removed across the site, in the absence of mitigation the proposed development will have a **possible negative** effect on hedgehogs, not considered to be significant beyond the **site** level.

4.7 Cumulative Effects

4.7.1 Impact Characterisation

The Epsom and Ewell Borough Council Planning Portal was used to identify proposed residential developments that may cause additive or synergistic effects. Only one proposed residential development concerning more than one new residential unit was identified within 2km, which is the conversion of a stable building into 5 one bedroom residential units. In 2022 a planning appeal was granted for the demolition of existing buildings at Langley Bottom Farm to make way for the construction of twenty new dwellings, with this development situated just to the southwest of the site. The Ecology Co-op undertook baseline surveys for this development proposal, which is now under construction. The development was largely brownfield in nature, comprising of modern agricultural buildings and areas of hardstanding to be replaced by new dwellings, whilst some green spaces were enhanced to achieve biodiversity net gain (measured under the DEFRA metric 2.0).

¹³ British Wildlife (December 2016) [28.2] Britain's Hedgehogs: research and the conservation effort in the face of serious decline, pp78-86.



No impacts to roosting bats was identified and a reptile population was not identified in this location. As such, there are considered to be no significant cumulative impacts associated with the proposed works at Langley Bottom Farm.

5 MITIGATION PROPOSALS

Impact assessment should be approached sequentially:

Avoidance: negative impacts should always be avoided where possible, e.g. not to locate a project in a particular area or making a change to scheme layout. Avoidance can also be part of mitigation.

Mitigation: includes **measures to avoid or reduce the negative impacts** of a project, for example careful timing of an activity to prevent an impact occurring. Mitigation measures incorporated into the scheme design are often described as 'embedded mitigation' or 'mitigation by design'. This can include the re-design of the layout of the scheme, or adjusting the location of certain activities.

Residual effects: those effects that are still significant after avoidance and mitigation measures have been applied.

Compensation: measures taken to **offset residual effects** resulting in the loss of, or permanent damage to, ecological features despite mitigation. It may take the form of replacement habitat or improvements to existing habitats].

5.1 Designated Sites

5.1.1 Impact Avoidance

The loss of the arable field and thus the very narrow field margins presently supporting field gromwell and narrow-fruited cornsalad cannot be avoided.

5.1.2 Mitigation Measures

Impacts to adjacent parts of the SINC site known to support rare arable plants can be mitigated through the production of an appropriate Construction Environment Management Plan (CEMP). This document must set out measures to ensure that the construction zone is clearly defined (reducing the risk of construction activity encroaching onto adjacent habitats) and mitigation including dust suppression, appropriate fuel storage, noise and artificial light management are in place through the construction process.

5.1.3 Residual Effects

The loss of available habitat for rare arable plants would still be reduced in the absence of compensation measures, resulting in a decline in the local population of these plant species and exposing them to a greater risk of local extinction.

5.1.4 Compensation Measures

An opportunity exists through the development to secure appropriate habitat and management for arable plants in the long-term. The current management of arable habitats for these plants is not favourable, with the field gromwell and narrow-fruited cornsalad found in very low numbers and restricted to very narrow field margins. Both arable plants, in addition to the sharp-leaved fluellen, require ground that is regularly cultivated and is not treated with herbicides. Cultivated and unseeded field margins are a regular conservation tool for arable plants that are incorporated into farm stewardship schemes and can be employed at the Langley Bottom farm site. A cultivated strip, no less than 8m wide can be incorporated into the retained part of the site immediately to the south of the development bordering a proposed new hedgerow along the development boundary and



bordering the woodland to the northeast. Thus strip would be cultivated each year, in line with the rotational management of the rest of the field, but would not be seeded with crops and crucially must be kept free of all chemical sprays, particularly broad application herbicides.

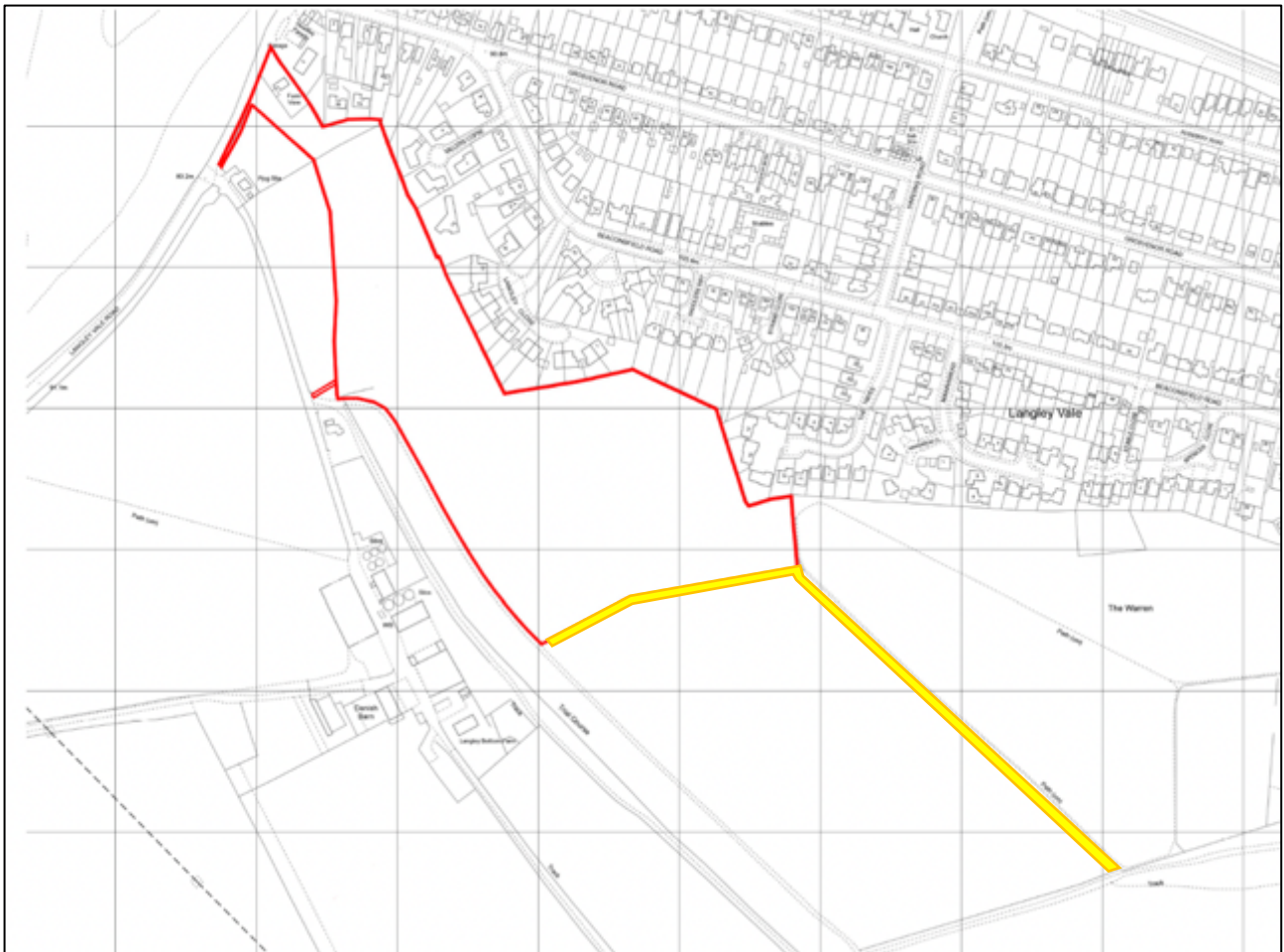


Figure 12. The proposed location of a new 8m wide cultivated field margin to be managed in perpetuity on a retained part of the arable field to the south of the development site.

A Detailed Management Plan will need to be produced to set out how this habitat will be created and managed in the long term and the commitment to the management of this cultivated field margin could be secured through a suitable Section 106 agreement. The habitat establishment will need to detail how existing seed stock will be harvested, stored and spread onto the new cultivated margins to ensure the greatest changes of success. Seed can be collected between July and August, appropriately stored and spread onto this receptor area following cultivation. Some propagation of seed to ensure the retention of seed stock can also help to insure against the risk of failure in the event of unfavourable weather or initial management issues.

5.2 Priority Habitats

5.2.1 Impact Avoidance

The ancient woodland habitat will be protected from development impacts through the establishment of a suitable development buffer between the construction site and the woodland of no less than 15m. The cessation of cultivation in this area will lead to some benefits for the woodland environment, due to the effects of spray drift, applications of fertiliser and the lack of any development of a woodland ecotone due to ongoing past cultivation.



5.2.2 Mitigation Measures

The CEMP prescribed in section 5.1.2 must also set out mitigation measures necessary to protect the woodland, including the erection of appropriate fencing to demarcate the 15m buffer, erection of appropriate acoustic barriers to reduce noise and visual disturbances to the woodland environment and dust suppression measures.

This habitat will further be protected from direct access by new residents through the planting of thorny scrub along the edge of the woodland boundary, creating a 'graded ecotone' within the buffer to this woodland.

5.2.3 Residual Effects

The ancient woodland will benefit from the removal of cultivation at its northern end and will also benefit from the creation of an uncultivated margin. Whilst there is some risk of future access by future residents, this is mitigated through the planting of thorny scrub and the residual effects overall are considered negligible.

5.2.4 Compensation Measures

None required.

5.3 Bats

5.3.1 Impact Avoidance

As the demolition of the residential property at the northern end of the site is essential for the development, the avoidance of the destruction of the common pipistrelle bat roost cannot be avoided.

5.3.2 Mitigation Measures

A European Protected Species license must be obtained in order to legally destroy the identified bat roost and as part of the licensing process, suitable mitigation measures will be detailed, including the soft-demolition of roost features and rescue of bats to be placed safely in a pre-installed bat box as necessary.

Bat activity was found to be very low across the majority of the site, with most activity adjacent to the woodland at the south-eastern corner of the site. The development should adhere to best practices on the restriction of artificial light at the site as set out within Appendix 5, which are based on Guidance by the Bat Conservation Trust and Institute of Lighting Professionals.

5.3.3 Residual Effects

The impact to foraging habitats used by bats will be positive, simply through the removal of arable habitat to be replaced by a mosaic of urban environments with gardens and the creation of a mixture of new grassland and scrub habitats and adherence to restrictions on artificial lighting.

The loss of the common pipistrelle bat roost would however remain as a residual negative effect.

5.3.4 Compensation Measures

A combination of habitat enhancements at the site, leading to biodiversity net gain and the creation of new roost features will not only compensate for impacts to bats, but lead to likely enhancements for this group of species. No less than 50 integrated bat boxes must be designed into the development, leading to a significant increase in roosting resources locally for bats. These bat boxes should include at least three separate designs, targeted at providing for a broad variety of species found locally.



5.4 Breeding Birds

5.4.1 Impact Avoidance

The loss of arable habitat supporting nesting skylarks is unavoidable, however where possible all boundary habitats will be retained and protected from disturbance to ensure these potential nesting resources by other common birds remain.

5.4.2 Mitigation Measures

The commencement of construction activity must either be timed to be outside the nesting bird season to avoid the risk of harm to nesting skylark, or follow an appropriate precautionary approach, whereby skylark nesting is deterred prior to commencement during the nesting bird season and following a check to confirm the absence of active nests.

5.4.3 Residual Effects

The development will result in the unavoidable loss of a nesting resource for skylark through direct habitat loss. Habitats for other common nesting bird species would be negligible and indeed may naturally improve as a result of the proposed landscape plan.

5.4.4 Compensation Measures

Alternative nesting sites can be incorporated into the retained area of the arable field to the south. Nesting was identified close to this habitat parcel and this may be made more favourable through the incorporation of a 'skylark plot' within the field.

A skylark plot is another feature commonly incorporated into stewardship schemes as part of conservation efforts to support this species. A plot should have a minimum area of 5x5m and is created by momentarily turning off drilling equipment to create an unsown area of habitat within the middle of a field. This 'edge' habitat creation within the field favours nesting skylark, who prefer to nest away from field boundaries and utilise tall grasses and cereal crops where they create an arched structure.

5.5 Reptiles

5.5.1 Impact Avoidance

Grass snakes are a very mobile and transient species. They will readily move away from construction activity during the active season and tend to have a large foraging range. Retention of habitats utilised by this species has naturally been adopted within the site design, but significant restriction on construction zones has not been considered necessary.

5.5.2 Mitigation Measures

A mitigation Statement must be produced to set out how measures including habitat manipulation and hand searches will be adopted to ensure the risk of direct harm to grass snakes is minimised. In particular, potential reptile hibernacula should be identified and care would need to be taken to ensure that removal of potential hibernacula within construction zones is undertaken outside the hibernation period (November to mid-March).

5.5.3 Residual Effects

Residual risk of harm to reptiles is considered likely negligible with these mitigation measures in place and the scheme offers the opportunity to create new habitats of value for reptiles that will be considered further in the landscaping scheme.



5.6 Other Notable Species

5.6.1 Impact Avoidance

Impact avoidance measures are not considered possible for hedgehogs through site design changes.

5.6.2 Mitigation Measures

Care must be taken to ensure that habitat removal is undertaken sensitively and using hand-tools only, particularly along the boundary between the site and adjacent properties, where some taller slightly ruderal characteristics are evident. Such precautions must be detailed within a site-wide Mitigation Statement.

5.6.3 Residual Effects

With suitable mitigation measures in place the risk of direct harm to hedgehogs is significantly reduced. Though there would be a short-term possible loss of available habitat during the construction process, the landscaping design of the site includes a number of opportunities for hedgehogs, which have suffered notable declines in arable habitats, likely as a result in declines in invertebrate prey and the use of insecticides and slug pellets.

6 BIODIVERSITY ENHANCEMENTS

A proposed site landscaping plan is provided in Figure 13 below. This landscaping plan illustrates biodiversity enhancements for the site have been designed into green spaces around the site boundary and incorporated into a site drainage feature running east-west through the site. Specific habitat enhancements proposed include:

1. The enhancement of other calcareous grassland in poor condition to moderate condition.
2. The creation of new other calcareous grassland and other neutral grassland habitat in place of arable habitat.
3. The creation of mixed scrub habitat around the southern and parts of the eastern site boundary.
4. The creation of bioswales that will be seeded with a broad species mixture of native plants that favour wetter habitat conditions.
5. The planting of new species-rich site boundary hedgerows

With these enhancements in place, the development has been able to demonstrate the following changes in biodiversity values as calculated in the statutory biodiversity metric:

1. A 33.03% increase in habitat units (3.93 units).
2. A 2745.45.% increase in hedgerow units (4.06).



Figure 13. The proposed landscaping for the development, incorporating new grassland meadows and mixed scrub habitat.

7 CONCLUSIONS

The development of this site at Langley Bottom Farm will result in the loss of largely arable habitat that supports a small assemblage of notable arable plants and nesting skylarks. Further a single common pipistrelle bat roost supporting two individual bats has been identified in a residential property

Appropriate mitigation and compensation measures have been set out across section 5 of this report to ensure that the risk of ecological harm resulting from this proposed development is considered appropriate, whilst the development is further able to demonstrate calculated biodiversity net gain through the replacement of arable habitat with more ecologically valuable habitats, including mixed scrub, other calcareous grassland, trees and bioswales.



APPENDIX 1 – LEGISLATION AND 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. Together with ‘Special Areas of Conservation’ (SACs), SPAs form a network across Europe of protected areas known as the ‘Natura 2000’.

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

The Wildlife and Countryside Act (1981)¹⁴ 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)¹⁵ places a statutory duty under Section 40 on all public bodies, including planning authorities, 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 lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants,

¹⁴ Wildlife and Countryside Act (WCA) (1981). HMSO London.

¹⁵ Natural Environment and Rural Communities Act (2006). HMSO London.



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)¹⁶, and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) (see above).

Under this legislation, it is a criminal offence to:

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

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

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2023)¹⁷ 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 185b, states that council plans should “*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.*”

The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005)¹⁸. 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;

¹⁶ Protection of Badgers Act (1992). HMSO London.

¹⁷ HM Government (2023). National Planning Policy Framework. Department for Communities and Local Government. Available online at: https://assets.publishing.service.gov.uk/media/64f991c99ee0f2000fb7c001/NPPF_Sept_23.pdf.

¹⁸ 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.



- 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), published in 1994, was the UK's response to the commitments of the Rio Convention on Biological Diversity (1992). 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)¹⁹, and a progress update was provided in July 2013 (Defra 2013)²⁰.

'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 because Government believes that local people and organisations are best placed to decide how to implement the strategy in the most appropriate way for their area or situation.

Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non-governmental bird conservation organisations reviewed 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 2021²¹ (Stanbury et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

¹⁹ Defra (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services. Available at: <https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services>.

²⁰ Defra (2013) Progress Update. Available at: <https://www.gov.uk/government/publications/biodiversity-2020-simple-guide-and-progress-update-july-2013>.

²¹ 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.



APPENDIX 2 – LOCAL PLANNING POLICY

Epsom and Ewell Borough Council – Local Development Framework Core Strategy 2007

Policy number/title	Policy summary
CS 3 (Biodiversity and designated conservation areas)	SSSIs and ancient woodland are afforded the highest level of protection from the council. Development that would harm Grade 2, Grade 3 SNCIs or Local Nature Reserves will not be permitted unless: suitable mitigation measures are put in place, and it has been demonstrated that the benefits of a development would outweigh the harm caused. Elsewhere, development that is detrimental to the Borough's biodiversity will be minimised, and where it does take place, adequate mitigating measures should be provided. Wherever possible, new development should contribute positively towards the Borough's biodiversity.



APPENDIX 3 - IMPORTANCE OF ECOLOGICAL FEATURES

Table 1. Determining importance of an ecological feature.

Level of importance	Criteria
International	Internationally designated site; Special Protected Area (SPA), Special Areas of Conservation (SAC), Ramsar, Biosphere Reserves; Regularly occurring population of internationally important species listed in Annex 1, 2 or 4 of the Habitats Directive and Annex 1 of the Birds Directive; A viable area of a habitat listed in Annex 1 of the Habitats Directive or area important for maintaining viability listed as in Annex 1 of the Habitats Directive; Areas outside designated sites that are important for supporting and maintaining the viability of the above designated habitats and/or species.
National	Nationally designated sites; Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Local Nature Reserves (LNR). A sufficiently large population of a species or area of habitat listed as a priority for nature conservation (S41 NERC Act) to make a significant contribution to the national conservation status (e.g. greater than 1% of the national total). A viable or regularly occurring population of a species that is nationally scarce, threatened or declining on a national scale. A habitat type that is nationally scarce, threatened or declining on a national scale.
Regional	A habitat type that is scarce, threatened or declining on a regional scale. A sufficiently large population of a species or area of habitat listed as a priority for nature conservation (S41 NERC Act) to make a significant contribution to the regional conservation status (e.g. greater than 1% of the national total).
County	Locally designated sites; Local Wildlife Sites (LWSs), Sites of Nature Conservation (SNCIs) and Site of Importance for Nature conservation (SINCs). A sufficiently large population of a species or area of habitat listed as a priority for nature conservation (S41 NERC Act) to make a significant contribution to the conservation status of the species at county level (e.g. greater than 10% of the county total). A viable or regularly occurring population of a species that is rare in the county, but may be common and widespread elsewhere, For example, a population at the edge of a species' range. A habitat type that is scarce in a county but may be more frequent elsewhere.
Local/parish	Habitats and species which are scarce in the local area but are sufficiently common and widespread elsewhere that they do not meet the above criteria.
Site/negligible	Habitats with little to no ecological value (e.g. amenity grassland and hardstanding)



APPENDIX 4 - BOTANICAL ASSESSMENT

Table 2. Species list and abundance (DAFOR Scale – D=dominant; A=abundant; F=frequent; O=occasional; R=rare) in each habitat compartment

Arable Field Margins	Plant Scientific Name	Common Name	DAFOR
	<i>Tripleurospermum inodorum</i>	Scentless Mayweed	Frequent
	<i>Matricaria discoidea</i>	Pineapple Weed	Frequent
	<i>Geranium pyrenaicum</i>	Hedgerow Cranesbill	Occasional
	<i>Viola arvensis</i>	Field Pansy	Rare
	<i>Lithospermum arvens</i>	Field Gromwell	Rare
	<i>Valerianella dentata</i>	Narrow-fruited Corn Salad	Rare
	<i>Kickxia elatine</i>	Sharp-leaved fluellen	Rare
	<i>Artemisia vulgaris</i>	Mugwort	Occasional
	<i>Rumex crispus</i>	Ribwort Plantain	Occasional
	<i>Arctium minus</i>	Burdock	Occasional
	<i>Cirsium arvense</i>	Creeping Thistle	Occasional
	<i>Papaver rhoeas</i>	Yorkshire Fog	Abundant
	<i>Epilobium parviflorum</i>	Perennial Rye	Abundant
	<i>Plantago major</i>	Greater Plantain	Occasional
	<i>Poa trivialis</i>	Rough Meadow Grass	Occasional
	<i>Bromus hordeaceus</i>	Soft Brome	Rare
	<i>Bromus sterilis</i>	Barren Brome	Occasional
	<i>Senecio vulgaris</i>	Common Groundsel	Occasional
	<i>Persicaria maculosa</i>	Redshank	Frequent
	<i>Senecio biserratus</i>	Lesser Swinecress	Rare
	<i>Viola arvensis</i>	Field Pansy	Rare
	<i>Rumex crispus</i>	Curled Dock	Occasional
	<i>Alopecurus myosuroides</i>	Black grass	Occasional
	<i>Trifolium pratense</i>	Red Clover	Frequent
	<i>Centaurea nigra</i>	Common Knapweed	Frequent
	<i>Capeslla bursa-pastoris</i>	Shepherds Purse	Occasional
	<i>Polygonum aviculare</i>	Knotgrass	Frequent
	<i>Poa annua</i>	Annual Meadow Grass	Frequent

Grassland in smaller field	Plant Scientific Name	Common Name	DAFOR
	<i>Lolium perenne</i>	Perennial Rye	Abundant
	<i>Tripleurospermum inodorum</i>	Scentless Mayweed	Rare
	<i>Dactylis glomerata</i>	Cock's-foot	Abundant
	<i>Poa pratensis</i>	Smooth meadow grass	Frequent
	<i>Helminthotheca echioides</i>	Bristly oxtongue	Frequent
	<i>Jacobea vulgaris</i>	Common ragwort	Occasional
	<i>Polygonum aviculare</i>	Knotgrass	Occasional
	<i>Sonchus asper</i>	Prickly sowthistle	Occasional
	<i>Epilobium</i>	Willowherb sp.	Rare



<i>Arctium minus</i>	Lesser Burdock	Rare
<i>Cirsium vulgare</i>	Spear thistle	Rare
<i>Arrhenatherum elatius</i>	False oat	Frequent
<i>Veronica anagallis-aquatica</i>	Creeping Cinquefoil	Frequent
<i>Veronica catenata</i>	Common Vetch	Rare
<i>Achillea millefolium</i>	Yarrow	Frequent
<i>Phleum bertolonii</i>	Smaller Cat's-tail	Occasional
<i>Holcus lanatus</i>	Yorkshire Fog	Abundant
<i>Daucus carota</i>	Wild carrot	Occasional

Site boundary grassland	<i>Arrhenatherum elatius</i>	False Oat-grass	Dominant
	<i>Clematis alba</i>	Traveller's Joy	Frequent
	<i>Anthriscus sylvestris</i>	Cow Parsley	Occasional
	<i>Galium aparine</i>	Cleavers	Occasional
	<i>Lamium album</i>	White Deadnettle	Occasional
	<i>Rubus fruticosus agg</i>	Bramble	Frequent
	<i>Agrimonia eupatoria</i>	Common Agrimony	Rare
	<i>Oxybasis rubra</i>	Greater Knapweed	Rare
	<i>Sambucus niger</i>	Elder	Occasional
	<i>Tripleurospermum inodorum</i>	Scentless Mayweed	Occasional
	<i>Convolvulus arvensis</i>	Field Bindweed	Frequent
	<i>Geranium molle</i>	Dove's-foot Cranesbill	Frequent
	<i>Avena fatua</i>	Common Wild Oat	Occasional
	<i>Sherardia arvensis</i>	Field Madder	Rare
	<i>Crepis capillaris</i>	Smooth Hawksbeard	Rare
	<i>Geranium dissectum</i>	Cut-leaved Cranesbill	Occasional
	<i>Anagallis arvensis</i>	Scarlet Pimpernel	Frequent
	<i>Euphorbia helioscopia</i>	Sun Spurge	Frequent
	<i>Agrostis stolonifera</i>	Creeping Bent	Abundant
	<i>Sisymbrium officinale</i>	Hedge Mustard	Occasional
	#N/A	Willowherb sp.	Rare
	<i>Medicago lupulina</i>	Black Medic	Rare
	<i>Leucanthemum vulgare</i>	Ox-eye Daisy	Occasional
	<i>Myosotis arvensis</i>	Field Forget-me-not	Occasional
	<i>Veronica arvensis</i>	Wall Speedwell	Rare
	<i>Taraxicum officinale agg</i>	Dandelion	Occasional
	<i>Aruncus dioicus</i>	Goat's Beard	Rare
	<i>Aethusa cynapium</i>	Fool's Parsley	Rare



APPENDIX 5 - ARTIFICIAL LIGHTING AND WILDLIFE

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 Trust²² 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 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;

²² 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/>



- 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