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Ecological Impact Assessment

Site Name

Thakeham Tiles, Rock Road, Storrington

Client

Thakeham Concrete Products Ltd.

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Author

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01	**Joshua Harwood,** BSc (*Hons*), ACIEEM	**N/A**	07.04.25	Amend Section 2.4.1 and adjusted red line boundary in Figure 1.	
02	**Joshua Harwood,** BSc (*Hons*), ACIEEM	**N/A**	03.11.25	Inclusion of updated masterplan document. Amend section 2.4.5 to correct	

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About the Author

This report has been prepared by Ben Small, an Assistant Ecologist at The Ecology Co-op, with 2 years' experience. He has prepared numerous ecological appraisal reports and has undertaken mitigation measures to support proposed developments. As a qualifying member of the Chartered Institute for Ecology and Environmental Management (CIEEM) and as Chartered Ecologist through this body, he is bound by their code of professional conduct.

About the Reviewer

This report has been reviewed by Paul Whitby, who is a Senior ecologist with 19 years of experience. He has a Level 2 bat survey license and has prepared several European Protected Species licenses for bats. As a Full member of the Chartered Institute for Ecology and Environmental Management (CIEEM), he is bound by their code of professional conduct.

Report Summary

Purpose	The Ecology Co-op has been commissioned by Thakeham Concrete Produts Ltd to undertake an Ecological Impact Assessment for a development on land at the Thakeham Tiles site, Storrington. Following a Preliminary Ecological Appraisal by Phlorum in July 2023, further ecological surveys were undertaken, including a repeat site walkover and protected species surveys and desk-top studies between April and November 2024 in order to provide sufficient baseline information for this assessment. 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 an outline planning application for the demolition of all existing buildings to make way for the erection of 108 dwellings, with associated landscaping and access.
Context	The site is currently in use as a working yard in the manufacture of concrete products with regular machinery usage, with the majority of habitats located on site being urban. Woodland is present on the eastern, western and southern boundary, and a man made pond in woodland to the north-eastern corner. The site is bordered by adjacent woodland habitat and a public footpath runs through the centre of the site.
Impact on Protected Species	The protected species surveys identified commuting and foraging bats using the site. Surveys also identified; the absence of roosting bats within the buildings on site, the likely absence of dormouse and great crested newts on site.
Impact on Habitats	The north-eastern woodland parcel will be retained and enhanced, and the north-western woodland parcel will be partially removed with the remainder proposed for enhancement. Predicted impacts are detailed within the report and relate mostly to adjacent designated sites with limited designated or protected species noted on or directly adjacent to the site.

CONTENTS PAGE

1 INTRODUCTION

1.1 Background

The Ecology Co-op was commissioned by Thakeham Concrete Produts Ltd to undertake an Ecological Impact Assessment (EcIA) of Thakeham Tiles, Rock Road, Storrington. 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 measures 6.12ha and is situated on the eastern outskirts of Storrington, West Sussex RH20 3AD. The site is in use as a working yard in the manufacture of concrete products, and comprises industrial buildings and hard standing, surrounded by woodland, scrub and lines of trees. The grid reference for the site is TQ 10392 15033. The site is bordered by residential housing to the east, south and west, woodland to the north-east and south, pastoral farmland to the north. Figure 1 shows the boundary of the site and local context.

The proposed development comprises an outline planning application for the demolition of all existing buildings, the erection of 108 new dwellings with associated landscaping and open space, as well as the formation of new access onto Rock Road. All matters will be reserved, except for means of access. A proposed layout of the development is shown in Figure 2.

Phlorum undertook a Preliminary Ecological Appraisal (PEA)[1] at the site on the 2nd March 2023. Based on the findings of this assessment, the following surveys were recommended:

- Bat Activity Survey
- Bat Preliminary Roost Assessment
- Great Crested Newt eDNA Assessment
- Hazel Dormice Presence/Absence Survey
- Reptile Presence/Absence Survey

1.2 Purpose of this Report

Following the recommendations of the PEA, The Ecology Co-op undertook a repeat site walkover and further protected species surveys for common dormice *Muscardinus avellanarius*, great crested newts *Triturus cristatus*, common reptiles, as well as a scoping assessment and emergence and 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

[1] Phlorum (2023). Preliminary Ecological Appraisal – Woodlands, Rock Road (July 2023).

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 outline planning application for the proposed development.

The surveys and report were carried out and produced at the request of Thakeham Concrete Produts Ltd and supervised by Josh Harwood ACIEEM, who holds protected species licenses for great crested newt, smooth snake and sand lizard.

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 Horsham District Council is provided in Appendix 2.

Figure 1. An aerial image showing the location of the site. The approximate site boundary is outlined in red. Images produced courtesy of Google maps (map data ©2025 Google).

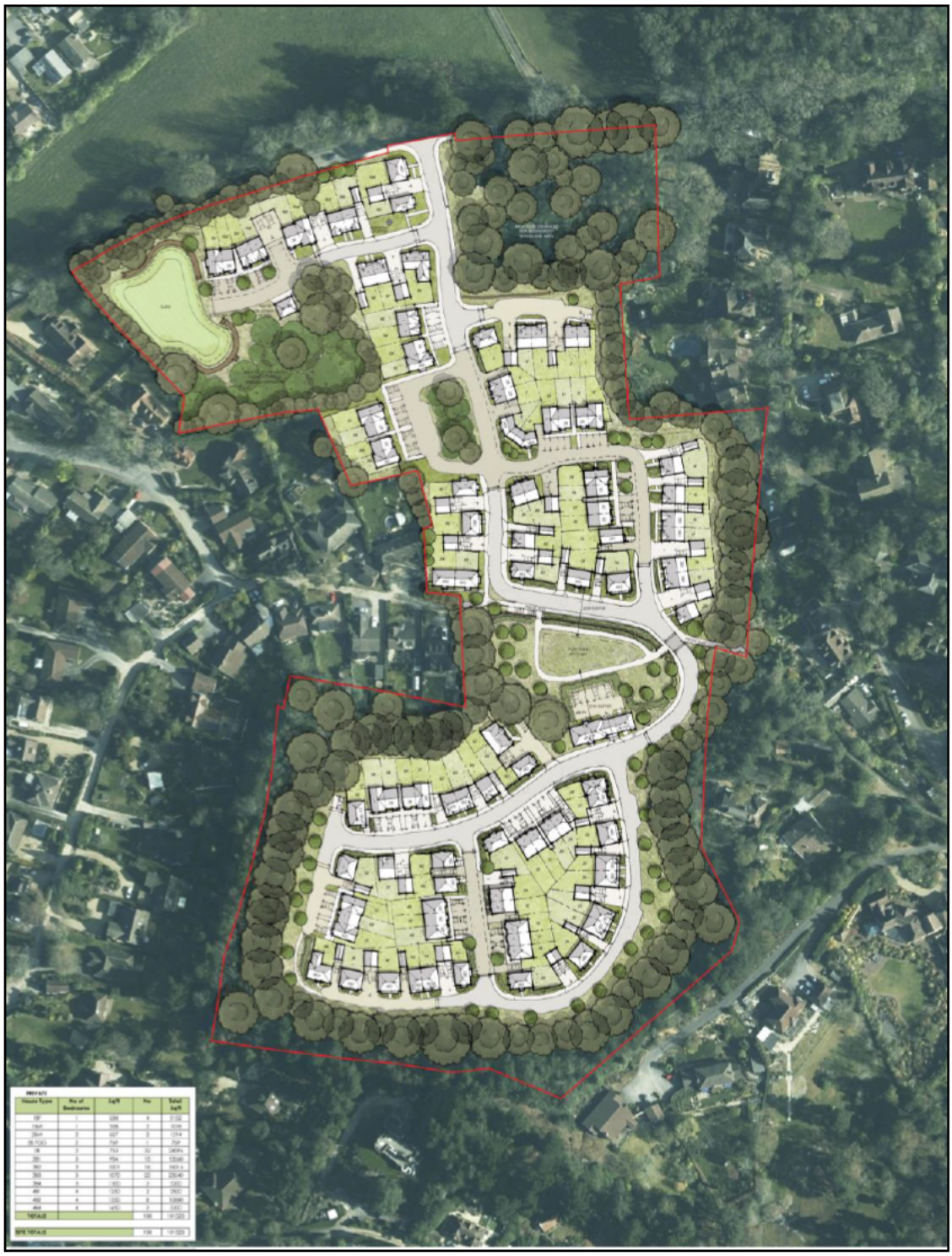

Figure 2. Proposed scheme layout, courtesy of Thrive Archtects (job no. THAK230417, dwg no. IMP-04, 10.09.25).

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 Assessment[2] and CIEEM Guidelines for Ecological Report Writing[3] 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 the location of any features of potential ecological interest including ponds within 500m (relevant to great crested newts *Triturus cristatus*), watercourses (relevant to riparian mammals and crayfish for example) and connectivity to woodland, scrub, and hedgerow networks (relevant to bats and dormice *Muscardinus avellanarius* for example) 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.

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 of the two northern woodland parcels was undertaken by Phlorum on 2nd March 2023, with an updated walkover visit of the whole site completed by The Ecology Co-op on 9th January 2024, 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 classifications[5]. 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 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.

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[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 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 2.14.

[redacted]

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 Natural Roost Features – Trees

In the current proposed scheme, sections of woodland to the western boundary will be removed to facilitate works due to a large number of trees being located on site and trees not being specifically identified for removal at this stage, individual trees were not assessed for their potential to support roosting bats. If plans are updated to include the removal of trees, these may require a ground-based visual inspection to identify potential roost features, followed (where necessary) by climbing inspections where necessary and safe, to look for evidence of roosting bats and to further assess the suitability of the feature.

[redacted]

2.4.2 Built Structures

A bat scoping assessment of the buildings on site was completed by Paul Whitby MCIEEM, a level 2 Natural England licensed bat surveyor on the 18th July 2024. A detailed ground based visual assessment was carried out, looking for features with potential to support roosting bats (e.g. gaps under tiles, soffits, cracks or gaps in brickwork and cladding) and any evidence indicating the presence of bats, such as rub marks, staining or droppings beneath potential roost features. Where possible and safely accessible, internal inspections of potentially suitable enclosed loft spaces were made to search for evidence of use by bats (live bats, dead bats, droppings, rub marks or staining of timbers). Any identified features were closely inspected, where possible, using a torch to update assessment of potential for roosting bats.

Table 1 Potential suitability of structures for bats[7].

Suitability	Description of roosting habitats
None	No habitat features on the structure likely to be used by any roosting bats at any time of year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).
Negligible	A structure that does not have any obvious habitat features that are likely to be used by roosting bats. However, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.
Low	A structure that has one or more potential roosting features that could support individual roosting bats opportunistically. These features however lack the space, shelter or appropriate conditions, to support larger numbers of bats (such as a maternity roost).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter and suitable conditions for roosting, but are unlikely to support a roost of high conservation significance.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potential for longer periods of time due to their size, shelter, protection and conditions.

2.4.3 Emergence/Re-entry Surveys

In accordance with survey findings and best practice guidance, one bat emergence/ survey was undertaken on the 13th August 2024, using six experienced surveyors and four night-vision cameras. The survey was carried out using methodology provided by the Bat Conservation Trust[7].

The surveys focused on all features identified during the initial assessment as potential roosting sites or access points for bats, with surveyors positioned according to Figure 3. From these locations, surveyors could see all features potentially suitable for roosting bats that were identified during the initial bat scoping survey. Surveyors were positioned to start surveillance at approximately 30 minutes before sunset and continued until at least one and a half hours after sunset and up to two hours depending on the level of activity.

The surveyors recorded any bat activity on or around the potential roosting entry/exit features. 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.

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

Figure 3. An aerial image of the site, showing the positions of surveyors (red dots) and infrared cameras (yellow dots), with potential roost features identified during the scoping assessment marked by red lines. Images produced courtesy of Google maps (map data ©2025 Google).

2.4.4 Bat Activity Surveys – Walked Transects

Bat activity surveys followed best practice guidelines[6]. Pre-determined transect routes were followed by surveyors (Figure 4), focussing on the woodland and all linear features within the site boundary (tree-lines and woodland edge). 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.

2.4.5 Bat Activity Surveys – Automated Static Bat Detecting

Three Song Meter static bat detectors were deployed across the site (Figure 4) on separate occasions, in June, August and October 2024, and 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 4. The transect routes of surveyors (yellow line) and the position of the three static bat detectors deployed on the site (red dots); given the site layout and habitats present there were no stopping points during the survey transects. Images produced of GIS 3.36 – Maidenhead, using Google Satellite aerial imagery (2025).

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 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 experienced 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, including to choose a random sample 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 logger then underwent post-classification validation through manual analysis to establish false positive error rates within the dataset. Each logger was validated as bat calls can vary between habitats, meaning that the location in which the bat logger 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

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 logger and 0% for the northern hedgerow logger.

Myotis, Plecotus and Nyctalus species and Serotine

All calls from Myotis, Plecotus, Nyctalus and Eptesicus 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 logger location (over the three seasonal deployments) due to possible variation in noise production from logger 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 Breeding Birds

A PEA by Phlorum assessed the northern section of the site to have potential for nesting birds in the trees and scrub, and recommended that breeding bird surveys were conducted if a significant number of trees would be removed as part of the proposed scheme. The habitats contained within the rest of the site and adjacent areas were broadly assessed for their potential to support important bird species/assemblages and breeding birds. Any birds identified during the site visit were recorded. Special attention was paid to notable species such as red-listed Birds of Conservation Concern (Stanbury *et al.* 2021)[8] and those species afforded special protection on Schedule

[8] 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.

1 of the Wildlife and Countryside Act (1981). Further surveys were recommended as appropriate.

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.

2.6.1 Nest Tube/Box Survey

The PEA by Phlorum determined there to be potential for dormice in the woodland on site, and recommended further surveys be completed on this species. Dormouse surveys are undertaken by attaching purpose-built 'nest tubes' on trees and shrubs in suitable habitat such as woodland, scrub and hedgerows. Nest tubes are used by dormice as places of shelter and they will often construct their nests within them during their periods of activity (typically between April and November). In accordance with current best practice guidelines[9], 50 nest tubes were deployed approximately 20m apart in the woodland and tree lines on site on 26th April 2024 and left *in situ* for the survey season (see Figure 5). These were checked on a monthly basis for presence of animals and evidence of dormouse presence (distinctively woven nests) from April to November 2024. Since the likelihood of use by dormice varies through the year, an index of probability score is used to determine confidence in a particular survey (see Table 2 below) comprising checks over several months. A minimum score of 20 is normally accepted to establish 'likely absence' in the event that no signs of dormice are found during the survey.

Table 2. Search effort score for each month that dormouse tubes are out on the site and subject to checks for occupation.

Month of check	Index of probability
April	1
May	4
June	2
July	2
August	5
September	7
October	2
November	2

Dormice checks were undertaken in the mornings and commenced one month after the nest-tubes were positioned. Surveys were undertaken under the supervision of licensed surveyor Paul Whitby.

[9] Bright, B., Morris, P., Mitchell-Jones, A.J. and Mitchell-Jones, T (1997) *The Dormouse Conservation Handbook*. English Nature.

Figure 5. Dormouse nest tube locations (identified as red dots) across all suitable habitat. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

2.7 Great Crested Newts and Other Amphibians

Great crested newts require ponds for breeding that meet a series of habitat criteria including good quality water, aquatic plants and an absence of predatory fish. The ponds must have good connectivity to semi-natural terrestrial habitats that provide their invertebrate food sources and suitable safe places to rest and hibernate outside the breeding season. Great crested newts tend to occur more frequently in areas of high pond density across the landscape in 'metapopulations' where habitat occupancy ebbs and flows according to changes in conditions.

Common toad *Bufo bufo* are a priority species in England under Biodiversity 2020: A strategy for England's wildlife and ecosystem services and under section 41 of The Natural Environment and Rural Communities (NERC) Act 2006, where UKBAP species were recognised as of principal importance for the conservation of biodiversity. This species should therefore be considered during planning and development. No surveys have been undertaken at the site that specifically target common toad, but a record has been made if they are found during any other site visit/survey.

2.7.1 Habitat Suitability Assessment

The Thakeham Tiles site contains one pond within its boundaries, located in the north-eastern woodland parcel on-site. The PEA from Phlorum[1] had also identified a drainage channel and area of standing water in the north-western woodland parcel, but upon repeat inspection these were discovered to have dried up. The desk study revealed a further 14 waterbodies within 500m of the site boundary. Where ponds were visible from public rights of way or access permission was granted, they were assessed for their potential to support great crested newts using the Habitat Suitability Index (HSI) (Oldham et al, 2000).

Those ponds within 250m of the site's boundaries, and with 'average' or 'above average' suitability for breeding great crested newts, were carried forward for Environmental DNA (eDNA) sampling.

2.7.2 Environmental DNA Sampling and Analysis

This relatively new technique allows a quick and reliable qualitative measure of the presence/likely absence of great crested newts. It involves collection of water samples from a pond, using a standard protocol set out by Natural England[10]. The samples are sent to an approved laboratory to isolate and determine presence of eDNA shed into the water by amphibians during the breeding season. The eDNA samples were taken on 26th April 2024 and 16th May 2024, led by Josh Harwood BSc (Hons) ACIEEM, a Level 1 licensed surveyor.

Ponds that were confirmed as positive for great crested newt DNA were then carried forward to full field survey (population size class assessment).

2.8 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, scrub, heathland, and open woodland where there is good vegetation cover, an abundance of invertebrate, amphibian

[10] Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. *Analytical and methodological development for improved surveillance of the Great Crested Newt.* Defra Project WC1067. Freshwater Habitats Trust: Oxford.

or small mammal prey and areas of open ground for basking.

The site is in use as a working factory, with heavy traffic present throughout the day and regular shifting of potential refugia. As such it was not possible to conduct further reptile presence/absence surveys on this site.

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 (EcIA)[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'.

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 EcIA. 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 EcIA. 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 EcIA 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 EcIA (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 [redacted] 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

Two designated statutory sites are located within a 2km buffer of the proposed site (Sullington Warren and Chantry Mill) and a further eight designated sites are located within a 5km buffer (see Table 1 for details).

Deciduous woodland is located within the site boundaries as well as directly northeast and south of the site. Lowland heath is located 0.5km southwest of the site. Wood pasture and Parkland BAP Priority Habitat is scattered within the periphery of the site, with the two areas located 0.4km to the south and 0.8km southwest.

Table 3. Designated sites within 2km and 5km of Thakeham Tiles, Storrington.

Site name	Designation	Features listed on citation	Proximity
Statutory designated sites within a 2km buffer zone			
Sullington Warren	SSSI	This heathland has declined somewhat in recent years largely as a result of agricultural improvement and encroachment of woodland onto neglected heaths. The site contains wet and dry heath. An area of dry grassland exists in the centre. Woodland surrounds these habitats, and a variety of birds breed within this woodland.	0.53km southwest
Chantry Mill	SSSI	Chantry Mill provides the best available exposure of the unusual 'iron-grit' horizon which characterises the Gault/Folkestone Beds junction in this part of Sussex and which contrasts strongly with the type of transition seen between these formations elsewhere in south-east England. The 'iron-grit' represents a condensed deposit associated with prolonged nondeposition over a structural axis, (probably the northern margin of the major Portsdown Axis), which separated the Vectian and Wealden provinces in the Lower Cretaceous.	1.8km southwest
Statutory designated sites within a 5km buffer zone			
Amberley Mount to Sullington Hill	SSSI	Contains some of the richest chalk grassland in Sussex. Includes rare juniper scrub and the shrub layer contains one of the largest remaining colonies of the rare fly honeysuckle *Lonicera xylosteum*, a species confined to Sussex. Also supports a locality of several nationally restricted invertebrates including butterflies and molluscs. Chantry Hill is the foremost district in Sussex for the light feathered rustic moth *Agrotis cinerea*, and the juniper carpet moth *Thera juniperata* has also been recorded.	2.5km south-southwest
Hurston Warren	SSSI	Area of heathland that contained woodland, wet and dry heath, open water and bog. A quaking bog has developed over an old lake and is regarded as one of the best examples of this habitat in the South East. It contains several locally rare plants. Much of the remainder of the heathland is managed as a golf course.	3.2km northwest

Parham Park	SSSI	Medieval deer park rich in epiphytic lichen floras. One section of the site contains lowland raised bog with adjacent alder carr. There are a number of artificial ponds throughout the site and ancient woodland. The oaks in the Northpark wood are rich in lichen flora. Among the 165 recorded species is *Thelopsis rubella*, here in its only known locality east of the New Forest. This site is the locality of two rare beetles *Ampedus cardinalis* and *Procraerus tibialis*.	3.5km west
Chanctonbury Hill	SSSI	Steep chalk escarpment with a nationally uncommon woodland type as well as chalk grassland with areas of scrub. The site supports a range of butterflies associated with chalk grassland as well as records for over sixty species of breeding bird such as meadow pipit *Anthus pratensis* corn bunting *Emberiza calandra* and nightingale *Luscinia megarhynchos.*	3.8km southeast
Pulborough Brooks	SSSI	Wet meadows on the floodplain of the River Arun, managed with grazing and cutting. These support rich aquatic flora and invertebrate fauna. Much of the site is managed as a nature reserve. Invertebrate fauna within wet ditches is varied and important. A large area of the site is now managed as wet grassland, principally for the benefit of breeding waders and controlled flooding of this area allows for the site to support internationally important assemblages of wintering wildfowl.	4.9km northwest
Arun Valley	SPA/SAC	The site supports Ramshorn snail *Aniscus vorticulus* which is an Annex II species. This snail is found along a range of sites in the south and east of England. The Arun Valley is one of three main population centres for this species within the UK.	4.9km northwest
Arun Valley	Ramsar Site	Wetland of International importance.	4.9km northwest

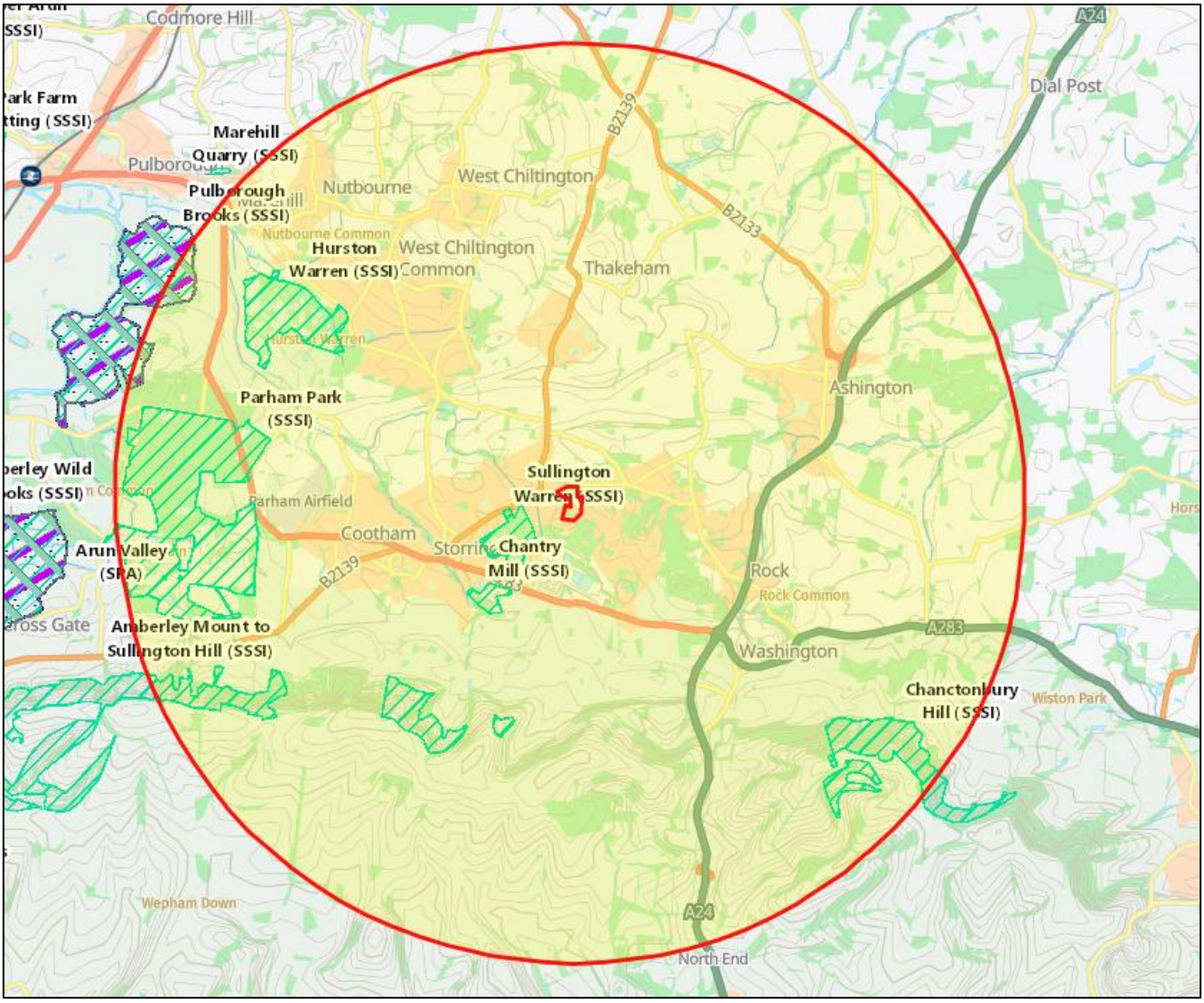

Figure 6. Statutory designated sites within a radius of 5km of Thakeham Tiles, Storrington. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

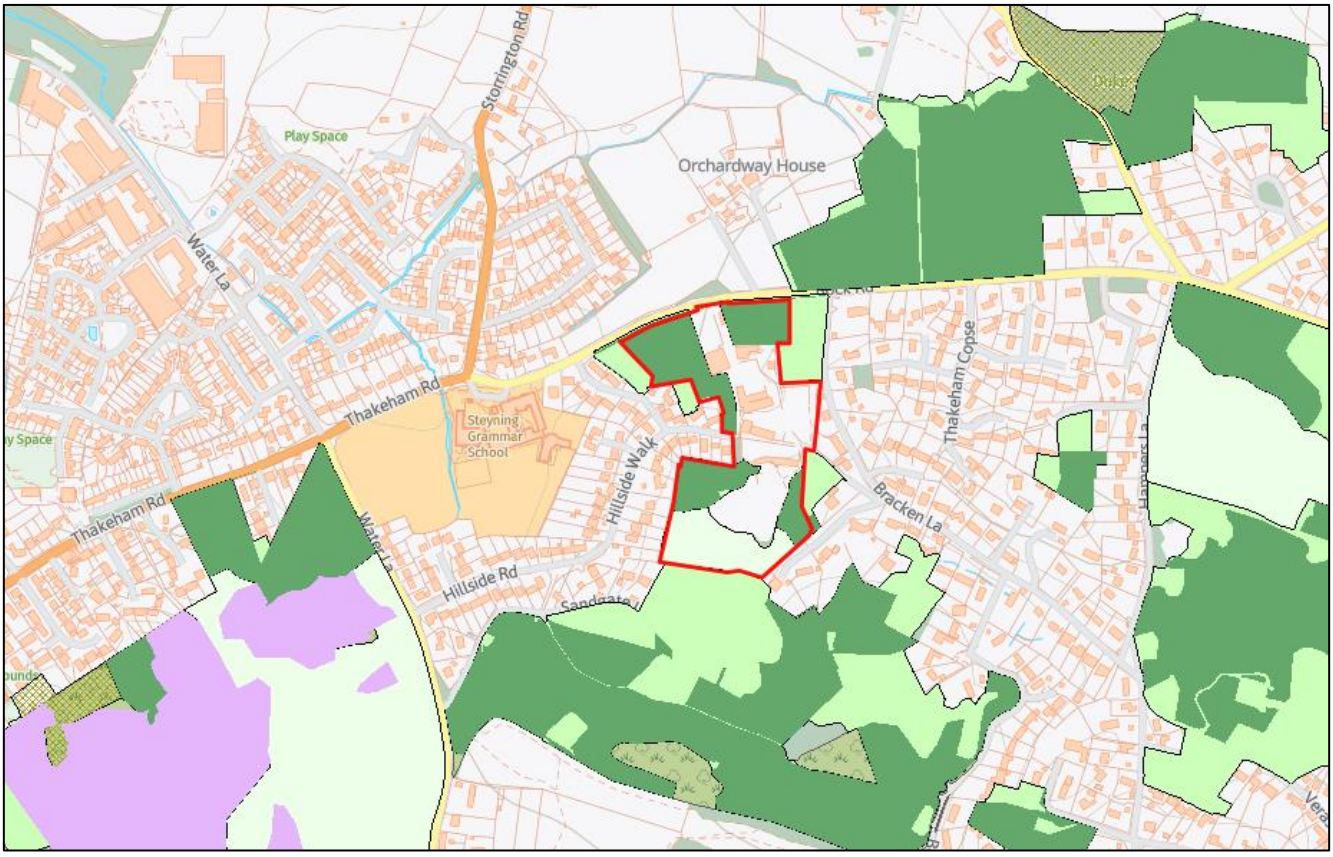

Figure 7. Priority Habitats contained by and adjacent to Thakeham Tiles, Storrington Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

There is one granted EPS licence for mitigation projects within 1km of the site boundary. The closest EPS licence is located 0.1km south-west of the site and concerns the destruction of a breeding roost for soprano pipistrelle *Pipistrellus pygmaeus*.

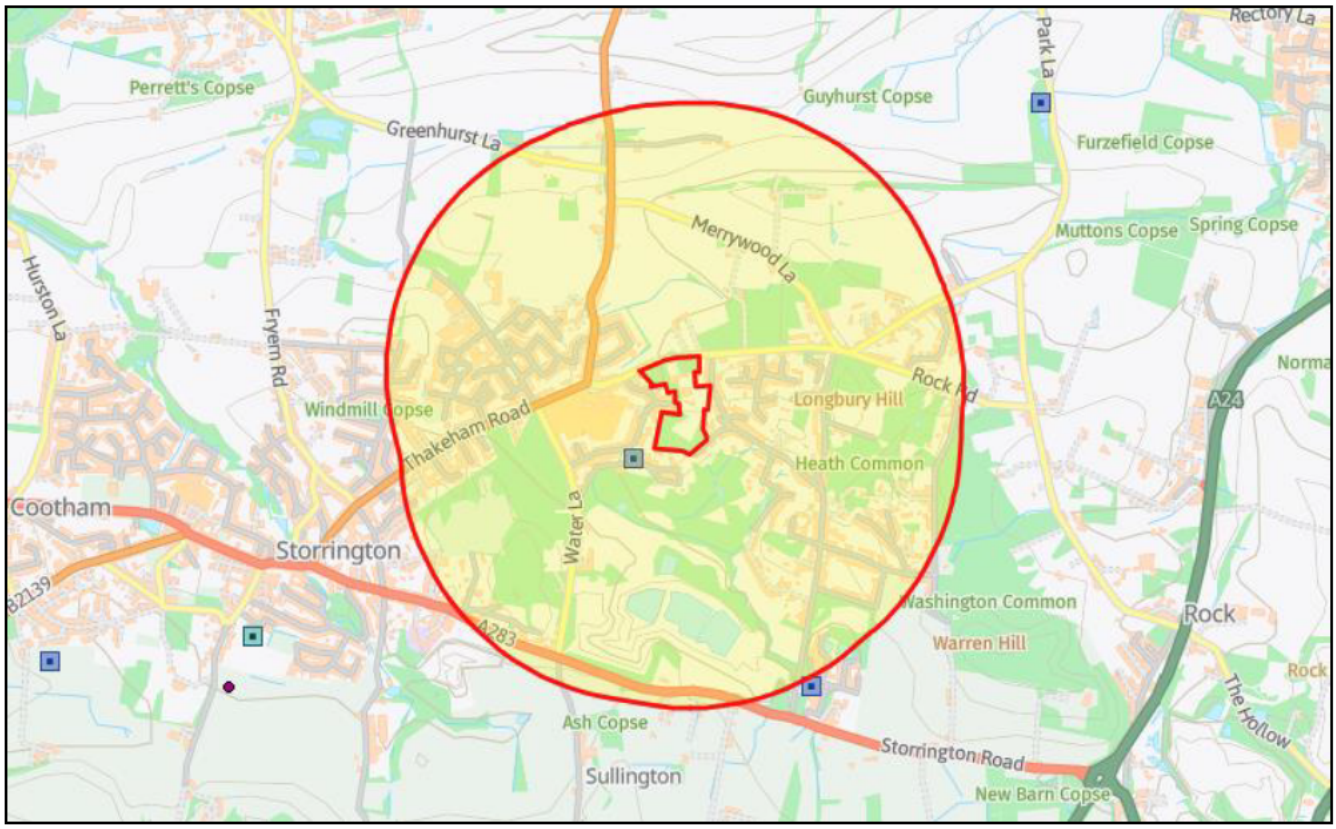

Figure 8. Granted EPS licences within 1km of the Thakeham Tiles, Storrington. Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

3.2 Habitats

Table 4 below lists the UKHab habitats found at the site during a walkover visit conducted by Libby Morris BSc (Hons) on 9th January 2024, with the general species composition of these habitats. Note that detailed information on buildings is presented in the following sections. The habitat map for the site and key to the standard mapping symbols used is presented in Figure 9.

Table 4. The UKHab habitats contained within Thakeham Tiles.

Habitat type	UKHab Code	Area (ha)/ length (m)	Species composition	Ecological importance
Developed Land; Sealed Surface/ Buildings	u1b/u1b5	1.86ha	N/A	Site
Artificial Unvegetated Unsealed Surface	u1c	0.69ha	An open area used for waste and material storage, with abundant buddleia *Buddleia davidii* with silver birch *Betula pendula* and goat willow *Salix caprea* and some bramble *Rubus fruticosus* developing at the fringes.	Site
Lowland Mixed Deciduous Woodland	w1f	1.51ha	Species present across these woodland parcels include oak *Quercus robur*, hazel *Corylus avellana*, silver birch, downy birch *Betula pubscens*, dog rose *Rosa canina* goat willow, Scots pine *Pinus sylvestris*, ash *Fraxinus excelsior*, poplar *Populus* sp., yew *Taxus* sp., holly *Ilex aquifolium*, ivy *Hedera helix*.	Local

			The condition assessment was completed during winter, and as such most ground flora was not present. Some species were identified however, and these include bramble, male fern *Dryopteris filix-mas*, hart's-tongue fern *Asplenium scolopendrium,* bracken *Pteridium* sp., pendular sedge *Carex pendula* as well as non-native laurel *Prunus* sp., and Schedule 9-listed rhododendron *Rhododendron ponticum* and cotoneaster *Cotoneaster sp.*	
Other Scots Pine Woodland	w2b	1.55ha	These woodland sections are dominated by Scots pine with some sweet chestnut *Castanea sativa*, oak, beech *Fagus sylvatica* and willow, with additional silver birch, goat willow and hawthorn *Crataegus monogyna* present on the woodland margins. Non-native laurel and rhododendron and cotoneaster (both Schedule 9) dominate the understories of these woodland parcels.	Site
Dense Scrub	h3	0.26ha	This parcel is dominated by bracken and non-native laurel, with additional sweet chestnut, oak, bramble and cotoneaster also present.	Site
Line of Trees	w22	0.21km	Several lines of trees are present on site and are comprised of Scots pine, holly, oak, silver birch, yew *Taxus baccata*, sweet chestnut, beech, willow as well as non-native cypress *Cupressus* sp., laurel, buddleia and rhododendron.	

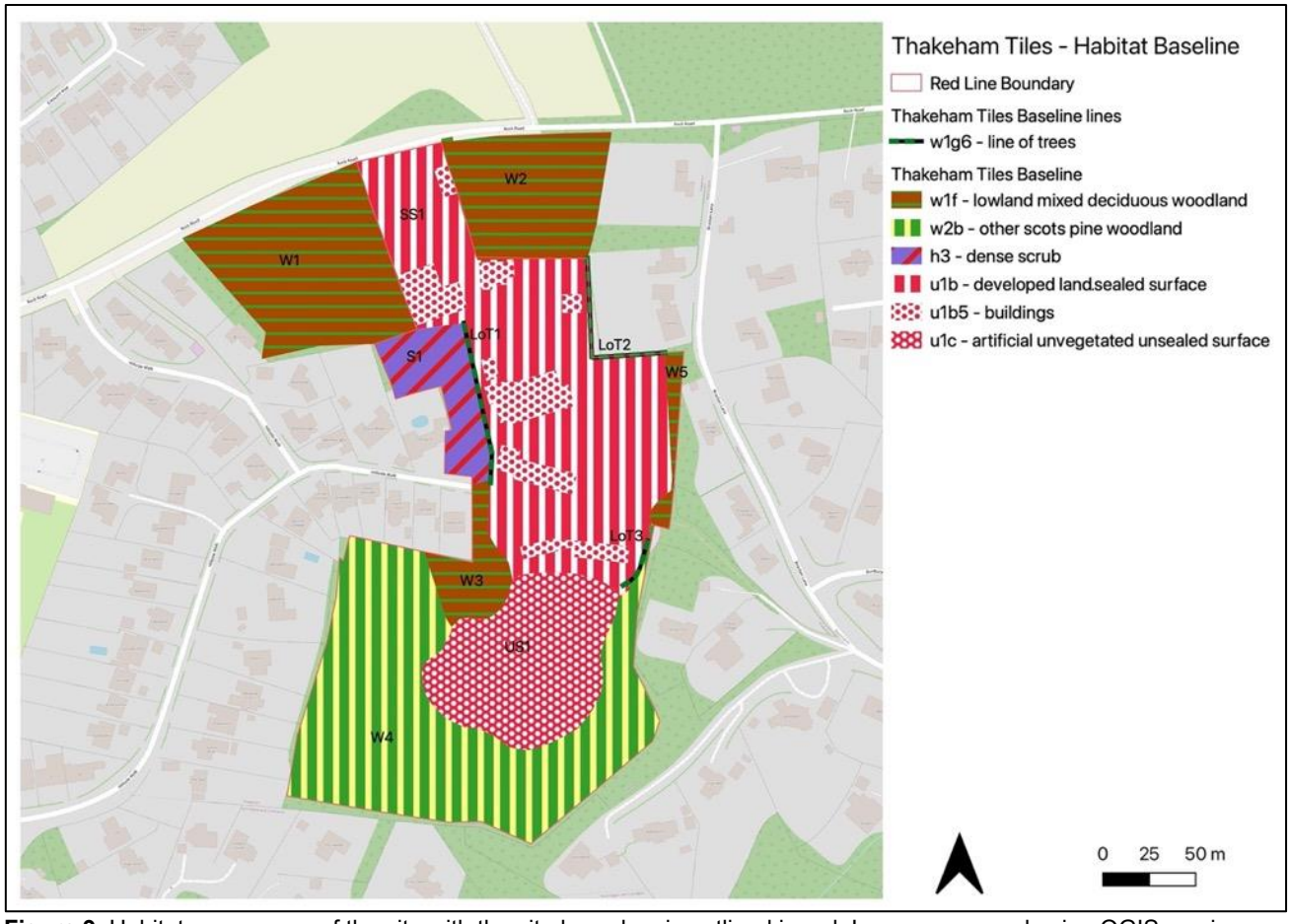

Figure 9. Habitat survey map of the site with the site boundary is outlined in red. Images prepared using QGIS version 3.16.3 - Hannover.


Photograph 1a & 1b. Examples of the buildings and hard standing the covers the north and centre of the site.

Photograph 2. View of the artificial unvegetated, unsealed surface present in the south of the site.

Photograph 3a, 3b & 3c. Views of the lowland mixed deciduous woodland on site, including the north-western parcel (left), north-eastern parcel (centre) and a parcel on the central western boundary (right).

Photograph 4a & 4b. Views of the other Scots pine woodland on site, including the parcel covering the south of the site (left), and a smaller section on the eastern boundary (right).

Photograph 5a & 5b. Views of the dense scrub present on the western boundary.

Photograph 6a, 6b & 6c. Examples of the lines of trees present on the eastern and western boundaries of the site.

[redacted]

3.4 Bats

3.4.1 Natural Roost Features – Trees

Sections of woodland on the western boundary will be removed as part of the works. Ground level tree assessments (GLTAs) will need to be conducted on any trees that will be removed to determine their suitability for roosting bats, with further assessment potentially required on any potential roost features.

3.4.2 Built Structures

A bat scoping assessment of the site in July 2024 assessed 11 buildings for their potential to support roosting bats. These are detailed in Table 7.

Table 5. Potential roost features for bats in buildings at Thakeham Tiles.

Building/section of building	Description of features	Survey findings
Weighbridge Office	A modern site office is present in the northern entrance to the site constructed of rendered concrete block, with a flat, bitumen-lined roof and plastic soffits. No potential roost features or evidence of bats was found.	None
Toilet Block	A small building of concrete block construction is present in the north of the site and measures approximately 5m (l) x 3m (w), with a flat bitumen-lined roof. There is no cavity present within the block. A gap was identified between a wooden board and the wall below the bitumen lining overhang on the side of the roof, however this was heavily cobwebbed and close inspection with a torch identified no evidence of bats.	Negligible
Storage Warehouse	A light industrial building with concrete block walls and a corrugated chrysotile roof is located just south of the toilet block in the north of the site. Chrysotile fascias are present, with gaps identified underneath on the southern elevation, along with several shallow gaps under the clockwork on the same elevation, and these may be suitable for individual bats.	Low
Garage	A two-storey building of concrete block construction covered in corrugated sheet metal cladding is located adjacent to the storage warehouse. The domed metal roof is covered cladded in corrugated metal sheets, with fibreboard sheets present in the interior space underneath (with some peeling away from the roof). The interior of the building is open to roof height. Some small overlaps between metal sheets on the roof and walls provide gaps, however these materials have very poor thermal properties for bats and as such it is unlikely these are suitable.	Negligible
Workshop	A workshop is present just east of the garage and storage warehouse and is constructed of concrete block and corrugated sheet metal. The building has some corrugated plastic sheet roof panels to provide light, and internally the roof has a fibre lining that has largely come away from the ceiling, exposing the metal sheeting above. No gaps or evidence of bats was identified in this building.	Negligible
Canteen	A canteen is present immediately adjacent to the workshop in the north of the site, constructed of concrete block and corrugated chrysotile, with a corrugated chrysotile shallow-pitched roof. A section of the roof was flat and lined with bitumen felt, although the sides appeared to be tightly sealed. Some overlaps in chrysotile sheeting were identified that could be accessed by individual bats, however these are likely to be too shallow. The canteen has an interior loft void, estimated to measure 6m (l) x 8m (w) x 1.2m (h), although a false ceiling prevented access.	Negligible
Main Office	A converted bungalow is present in the north-east of the site, with rendered concrete block walls and a square hipped roof, covered in concrete tiles with timber sarking underneath. Timber soffits are present on all elevations are mostly tightly sealed, with the exception being a potentially accessible gap on the southern elevation. An interior void space measures approximately 5.5m (l) x 5.5m (w) x 2.8m (h), and is heavily cobwebbed, with no evidence of bats or daylight gaps identified.	Low
Factory	A large and complex structure in the west of the site, with concrete block and corrugated chrysotile walls. The roof is constructed of corrugated chrysotile and metal, with a flat section that has partially collapsed and a corrugated metal extension that projects from the north side. Gaps were identified on the northern face around fascias, however these are mostly unsuitable for bats,	Low

Building/section of building	Description of features	Survey findings
	being too wide and having poor thermal properties.	
Manufacturing Warehouse	A warehouse of concrete block construction is located just south of the factory on the western boundary, covered by a bitumen felt roof that is mostly flat but has a single pitched section. This warehouse includes some very noisy equipment, with these buildings subject to notable vibration whilst these are in operation. Three small gaps were identified between fascia boards at the top of the walls; all of these were torched, and no evidence of bats was noted.	Low
Air Compressor Building	A small concrete block building with a flat bitumen felt roof is present south of the manufacturing warehouse in the west of the site and houses a noisy air compressor. A gap was identified between a wooden board that is present around the sides of the roof and the wall; this was found to be heavily cobwebbed under close inspection, with no evidence of bats.	Negligible
Storage Facility	Two connected, open-sided building sections are present south of the manufacturing warehouse in the south of the site. These are comprised of concrete block walls and corrugated chrysotile roofs supported by a metal frame, with clear plastic roof sections providing light. Part of the roof section at the western end is covered by corrugated metal sheeting. No potential roost features or evidence of bats was identified.	Negligible

3.4.3 Bat Emergence Surveys

The buildings identified as having potential to support roosting bats were subject to a single emergence survey in August 2024. The dates, times, weather conditions, temperatures and personnel for the survey visit is presented in Table 6 below:

Table 6. Details of the emergence survey undertaken at Thakeham Tiles, including timings, weather conditions and personnel.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions throughout survey	Surveyors
13th August 2024	Start time: 19:55 Sunset: 20:25 End time: 21:55	Max/min temp: 19–16°C. 5-95% cloud cover and light air (BF1), dry.	Sam Lunn Josh Harwood Alice Motola Kate Lewis Patrick Kitchener Destiny Stevinson

The following descriptions summarise bat activity and emergence from the building for each survey visit.

- 13th August 2024

  No emerging bats were identified. Commuting and foraging activity was typically more frequent in the north of the site, with lots of activity observed outside the storage warehouse and cottage, and relatively fewer passes recorded around the factory and storage facility. At least eight species were recorded throughout the survey, including foraging activity from common pipistrelle *Pipistrellus pipistrellus*, serotine *Eptesicus serotinus*, barbastelle *Barbastella barbastellus* as well as unidentified long-eared *Plecotus* sp., *Nyctalus*, and *Myotis* bat species. Additional commuting passes were recorded from soprano pipistrelle *Pipistrellus pygmaeus*.

3.4.4 Bat Activity Surveys – Walked Transects

Survey conditions and timings are presented in Table 8. The results of each walked transect survey is summarised in Figure 10, Figure 11 and Figure 12. This shows the distribution of all bat observations on each walked transect, during which the route was covered once in a session.

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

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions	Surveyors
31st May 2024	21:10–23:10 Sunset: 21:05	Max/min temp.:14–11°C 20% cloud cover, light air, dry.	Josh Harwood BSc (Hons), Level 1 Licensed Bat Surveyor Destiny Stevenson
7th August 2024	20:33-22:36 Sunset: 20:36	Max/min temp: 17°C 90% cloud cover, gentle breeze, dry.	Josh Harwood BSc (Hons) Alice Motola BSc, MSc (Hons)
10th October 2024	18:20-20:20 Sunset: 18:20	Max/min temp: 9°C 35% cloud cover, calm, dry.	Josh Harwood BSc (Hons), ACIEEM Kate Lewis, Level 1 Licensed Bat Surveyor

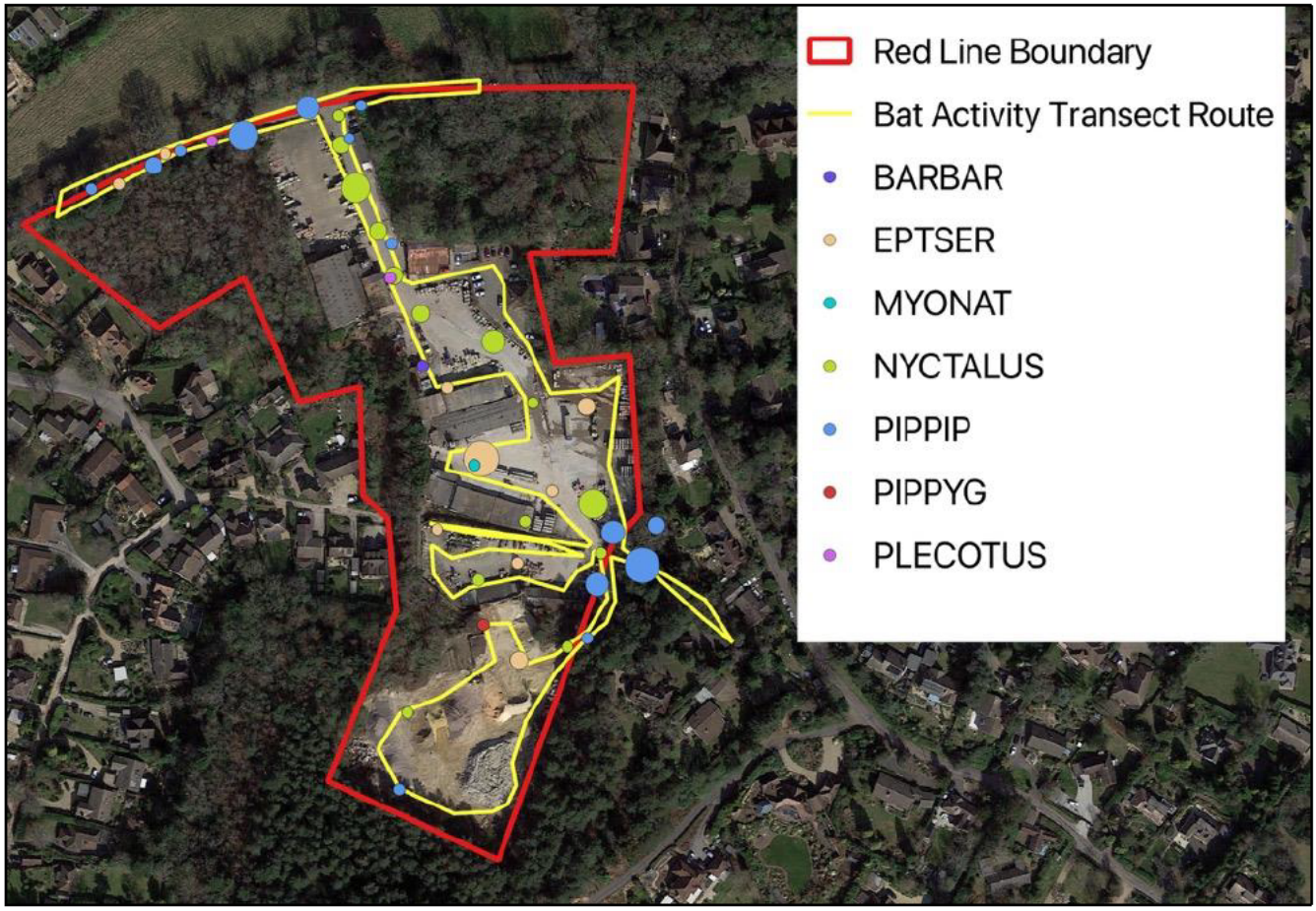

Figure 10. Approximate distribution of bats detected during the walked transect survey in May 2024. Coloured dots represent bat activity. Size of dots represents number of passes. Image created using QGIS version 3.36 - Maidenhead.

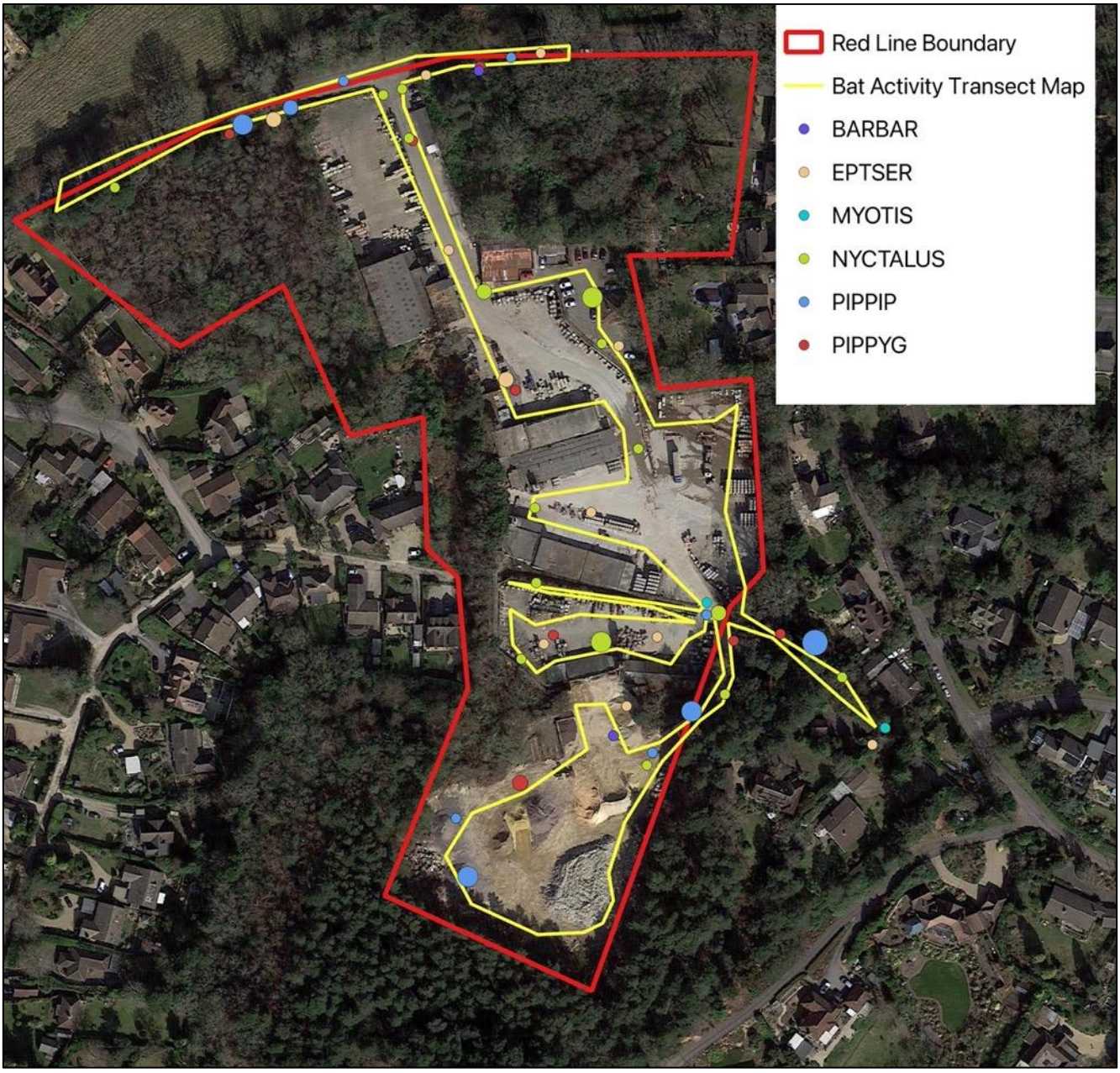

Figure 11. Approximate distribution of bats detected during the walked transect survey in August 2024. Coloured dots represent bat activity. Size of dots represents number of passes. Image created using QGIS version 3.36 - Maidenhead.

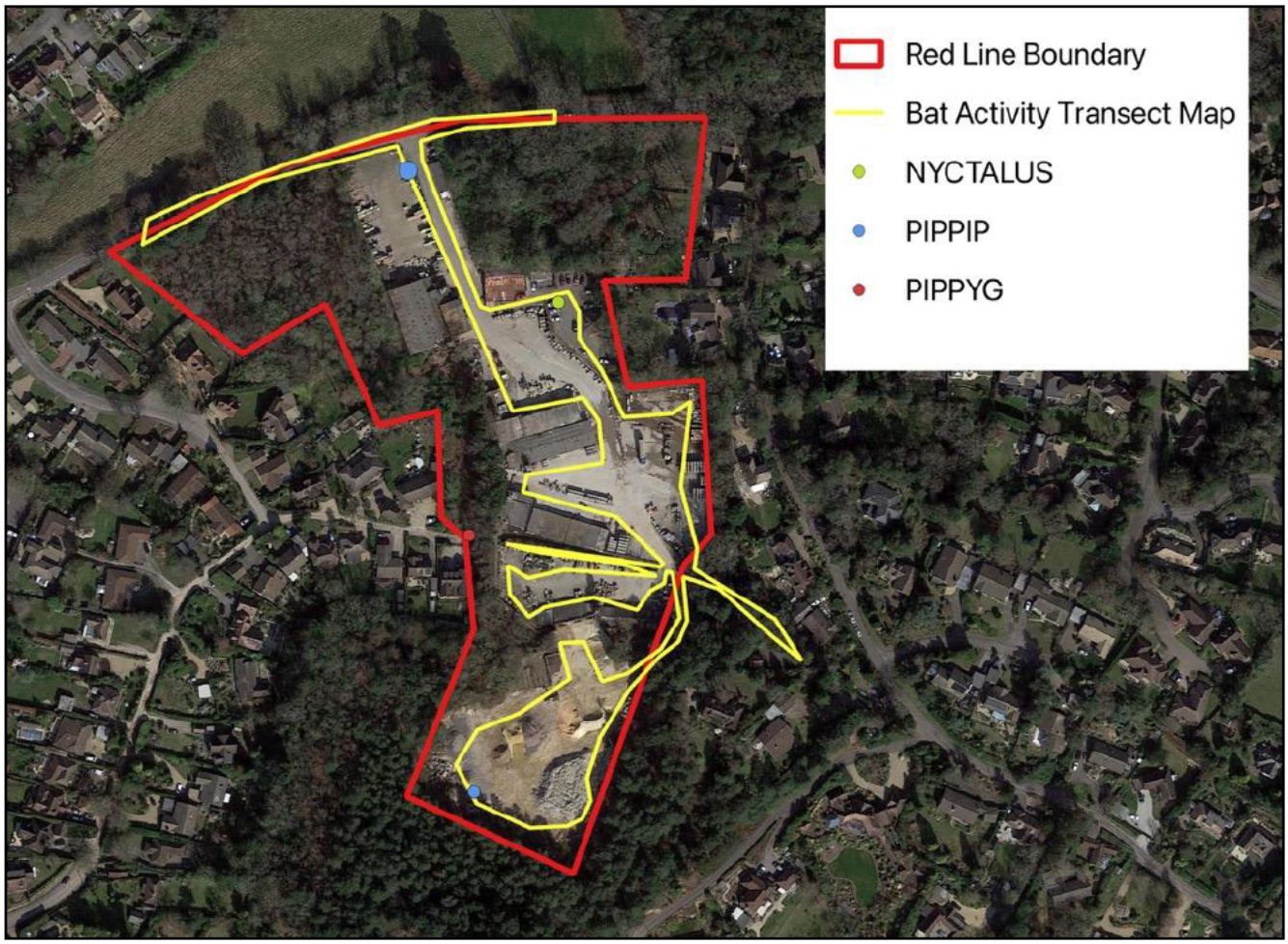

Figure 12. Approximate distribution of bats detected during the walked transect survey in October 2024. Coloured dots represent bat activity. Size of dots represents number of passes. Image created using QGIS version 3.36 - Maidenhead.

3.4.5 Bat Activity Surveys – Automated Static Bat Detecting

The results of the automated static bat detector surveys are summarised in Table 8. At least seven species were recorded by detectors, with the site frequently used by common pipistrelles and serotines. The north-eastern woodland parcel was the most-used by bats, with August seeing peak bat activity. Species recorded on site include common pipistrelle, soprano pipistrelle, long-eared bats (*Plecotus* sp.), *Myotis* species bats, *Nyctalus* species bats, serotine, and barbastelle.

Table 8. Mean number of passes recorded by each static detector per night, as well as error rates where applicable. Please note that a logger deployment in the north-eastern woodland parcel was only completed on the August and October deployments.

Location	Date	Common pipistrelle	Soprano pipistrelle	*Plecotus* sp.	*Myotis* sp.	Serotine	*Nyctalus* sp.	Barbastelle
North-western Woodland Edge	June (5 nights)	3.6	0.2	0	0.4	8.6 (±0.6)	1.4	0
	August (5 nights)	35	2	0.4	0.6	24.2	7.4	0
	October (5 nights)	12.2	0.6	0	0.2	0.2	1	0
North-eastern Woodland Edge	June (N/A)	–	–	–	–	–	–	–
	August (5 nights)	157	56.4	53.6	8.4	33.7	132.8	0.2
	October (5 nights)	33	11.4	3.4	3.4	0.4	0	0

Southern Public Footpath	June (5 nights)	47.2 (±0.4)	1	0.2	2.6	48.4	2.4	0.8
	August (5 nights)	281.8 (±6)	3.4	0.8 (±0.2)	7 (±0.2)	24.6	21.8	0.2
	October (5 nights)	9.6	2.2	1.4	0.8	0.4	0.4	0

3.4.6 Interpretation

The buildings on site have limited value to bats, due to the poor suitability of potential roost features and active nature of the site, with no evidence of roosting bats found. The woodland and scrub on site have some notable value for foraging bats, as these habitats provide an abundance of invertebrate prey to support a range of species. The woodland edge and lines of trees also provide linear features for commuting bats.

The activity surveys have demonstrated that the habitats contained within the development site support a range of species in relatively large numbers; the site is particularly important for common pipistrelle and serotine bats, who utilise the woodland parcels on site throughout the breeding season, with soprano pipistrelle, long-eared, *Myotis* and *Nyctalus spp.* bats also frequently utilising the site. Barbastelle bats were recorded in low numbers in the north-eastern and southern sections of the site, indicating these bats have visited very infrequently or have passed through the site. The conservation status of bats recorded at the site is detailed in Table 9, along with their local distribution.

Whilst barbastelle and serotine bats are listed as 'vulnerable' according to the Mammal Society (see Table 10), serotine bats are locally common and the use of the site by barbastelle bats is sporadic through the year and in very low numbers. Given the size of the size of the site and value for foraging bats, it is considered important to bats at a **local level**.

Table 9. Conservation status and distribution of bats recorded on site.[11]

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
Leislers	Near Threatened	Widespread
Myotis species	Least concern (common species)	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 Ecological Potential

Given the woodland parcels on site are mostly being retained as part of the proposed development, and the rest of the site is mostly covered in hard standing, it was assessed that further detailed bird surveys were not necessary for this development, whilst casual records were taken during other surveys. A pass by a tawny owl *Strix aluco* was recorded during the bat emergence survey on the 13th of August 2024.

[11] The Mammal Society (2020): https://www.mammal.org.uk/science-research/red-list/

3.5.2 Interpretation

The woodland, lines of trees and scrub all have potential to support breeding birds, although these will be retained for the most part during the proposed development and as such breeding birds are not considered further in this EcIA. If any updates to the proposed plan include the removal of a significant number of trees, breeding bird surveys may be required to determine the assemblage of birds present on site and the site's importance to these species.

3.6 Dormice

3.6.1 Nest-tube Survey

The dormouse nest-tube survey provided a total survey 'score' of 20 as per the Dormouse Conservation Handbook 2006. No evidence of dormice was identified at any time during the surveys of the site.

3.6.2 Interpretation

The surveys indicate that there was a "likely absence" of hazel dormice in this locality, despite the apparent presence of suitable habitat. As such, potential impacts to dormice are not considered further in this EcIA.

3.7 Great Crested Newts and Other Amphibians

3.7.1 Habitat Suitability, eDNA Testing and Field Survey Results

In total, one pond was confirmed on site, with the desk study identifying 14 ponds within 500m of the proposed development boundary. The owners of the majority of these ponds did not grant permission to undertake further surveys, with only the pond on site and two other ponds carried forward for eDNA testing. eDNA surveys were conducted in April and May 2024, and all three ponds tested negative for the presence of great crested newts. A drainage channel and an area of standing water in the north-western woodland parcel on site had additionally been identified by a previous PEA by Phlorum, however these were discovered to have dried up at the time of the eDNA survey and as such were not assessed.

Table 10 presents a summary of all surveys undertaken at ponds within 500m of the proposed development boundary. The location of each pond is presented in Figure 14.

Table 10. Summary of great crested newt eDNA assessments at Thakeham Tiles.

Ref.	NGR	Distance/ direction	Description	Survey results
P1	TQ 10453 15073	0m	Heavily shaded small woodland pond	eDNA sampling completed in April 2024 with negative results. No further action taken.
P2	TQ 10044 14620	250m SW	Shaded woodland edge pond	eDNA sampling completed in May 2024 with negative results. No further action taken.
P3	TQ 10155 14510	250m S	Large woodland edge pond that is partially shaded	eDNA sampling completed in May 2024 with negative results. No further action taken.

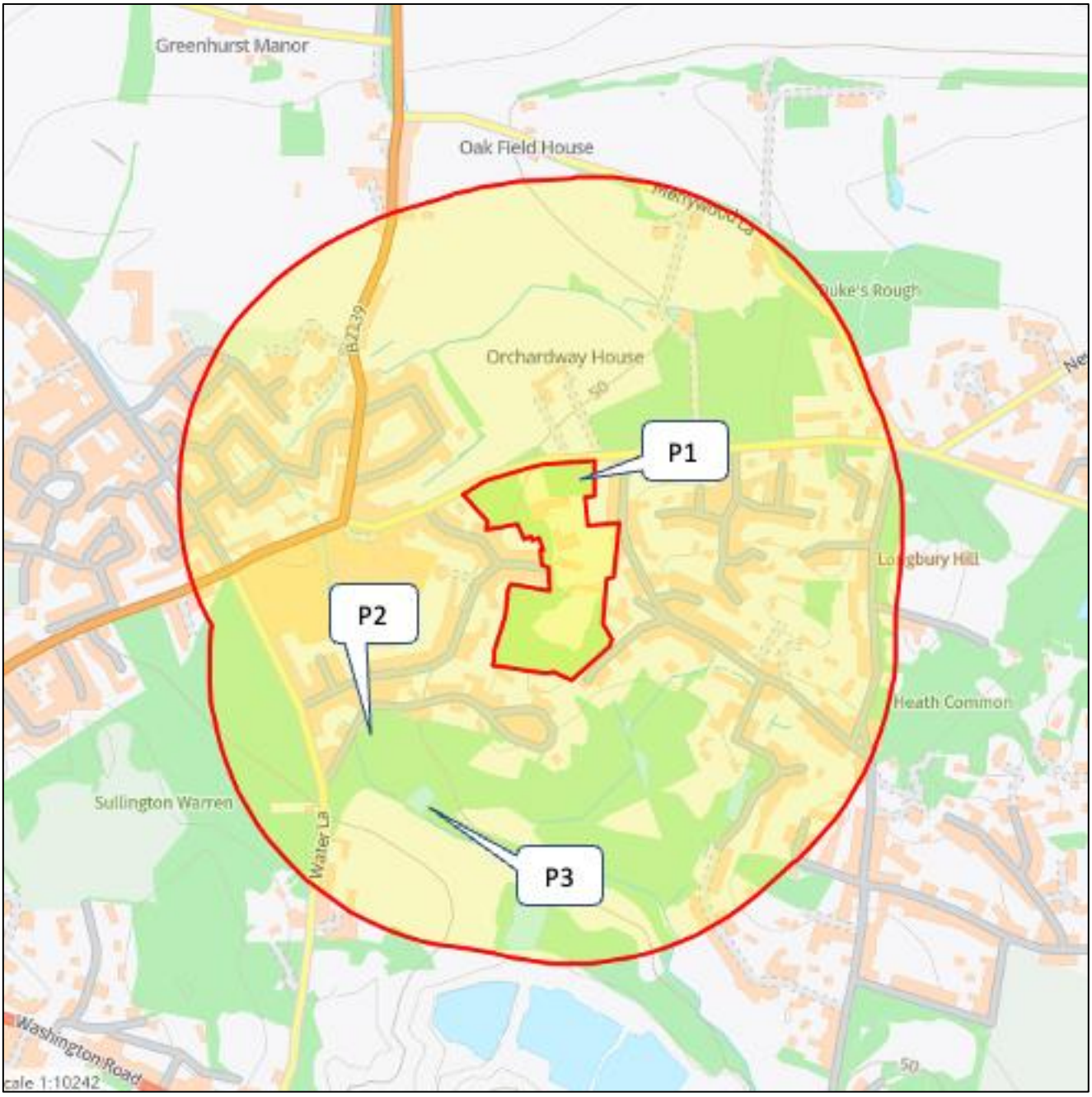

Figure 13. Ponds that underwent eDNA surveys within 500m of Thakeham Tiles (shown with red outline). Images produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

3.7.2 Interpretation

As the eDNA assessments for the pond on site and two neighbouring ponds returned negative results for great crested newts and the site is therefore considered unlikely to support this species. However, given that there are still ponds within 250m of the site that could not be assessed, the presence of great crested newts on site cannot be ruled out. In the case any populations of great crested newts are present on site, these are not considered to be important beyond a **local level**.

3.8 Reptiles

3.8.1 Survey Results

The site is in use as a working factory, with heavy traffic present throughout the day and regular shifting of potential refugia. As such it was not possible to safely conduct detailed reptile presence/absence surveys on this site using artificial or natural refugia. Visual surveys searching for basking reptiles were undertaken ad-hoc by site surveys where possible across the survey period to see if any reptiles could be identified basking on site. This survey method did not yield any results however is a sub-optimal survey method and the sites layout and usage would restrict the effectiveness of visual searching. The woodland, scrub on site have potential to provide sheltering opportunities for reptiles, however these will mostly be retained as part of the proposed development. Individual reptiles may additionally shelter under stored building materials on site, however given the active nature of the site these are regularly moved and would be unlikely to be able to provide permanently suitable habitat.

3.8.2 Interpretation

The site has limited potential for reptiles in the scrub and woodland on site, while individual reptiles may temporarily shelter under stored building materials. Any population of reptiles present on site is not considered to be important beyond a **site level.**

3.9 Other Notable Species

3.9.1 Survey Results

No notable invertebrate or mammal species have been identified on the site during the 2024 surveys. The woodland and scrub on site have potential to support hedgehogs, however these will be mostly retained as part of the proposed development.

3.9.2 Interpretation

The proposed development is expected to have a **negligible** impact upon other notable species.

3.10 Invasive Non-native Species

3.10.1 Survey Results

During the walkover survey Schedule 9-listed invasive rhododendron and cotoneaster, as well as non-native cypress, laurel and buddleja were identified in the woodland, scrub, and tree lines on site.

3.10.2 Interpretation

As rhododendron and cotoneaster are listed under Schedule 9 of the Wildlife and Countryside Act (1981), these should be completely removed as part of any proposed works, with controlled dispersal off-site. Removal of these species would likely improve the biodiversity of the site. As the cypress, laurel and buddleia are not listed under Schedule 9, removal of these species is not necessary, however care should be taken to ensure that they do not spread.

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.

This assessment is based on the most up to date available plan shown on THAK230417, as supplied by Thrive Architects in September 2025.

The proposed scheme comprises demolition of all existing buildings and the creation of 108 new dwellings with associated landscaping and open space, with the formation of new access onto Rock Road.

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.
- Increased recreational pressure on the nearby Sullington Warren and Chantry Mill SSSIs

4.1 Designated Sites

4.1.1 Impact Characterisation

Sullington Warren and Chantry Mill SSSIs lie within 2km of the site, and noise, air and dust pollution could impact upon these designated sites in the absence of mitigation. Post development there will be a large increase in recreational pressure, which may impact upon these designated sites.

4.1.2 Significance of Effects

Based on the above – with regards to designated sites – in the absence of mitigation the proposed development is considered to be significant at the **regional level.**

4.2 Priority Habitats

4.2.1 Impact Characterisation

The mixed deciduous and other Scots pine woodland on site are considered to be highly valuable habitats suitable for a range of species. Sections of the western parcel of mixed deciduous woodland and the other Scots pine woodland in the south of the site, as well as a line of trees on the western boundary will be removed as part of the proposed development, which in the absence of mitigation may impact [redacted] bats, nesting birds, great crested newts, reptiles and hedgehogs. Additional woodland parcels are present in the surrounding landscape to the north-east and south of the site. A large parcel of dense scrub on the western boundary will also be removed as part of the proposed development, although this is dominated by bracken and non-native species and has limited ecological value. The buildings, hard standing, and unvegetated, unsealed surface on site are all common and widespread habitats with little ecological value.

4.2.2 Significance of Effects

Given that the majority of the woodland and tree lines will be retained on site, as well as additional parcels of this habitat in the wider landscape, in the absence of mitigation the impacts of the proposed developments are not expected to be significant beyond a **local level.** The removal on the scrub on site is expected to be significant at a **site level.** There is expected to be no significant impacts from the removal of the buildings, hard standing and unvegetated, unsealed surface on site.

[redacted]

4.4 Bats

4.4.1 Impact Characterisation

No bat roosts were identified during the emergence survey, and as such no direct impacts on bats roosts are predicted as part of the development. The scheme does have potential to impact on bats roosting in trees, although the scale of this impact is unclear until GLTAs have been completed on trees scheduled for removal, in advance of the development.

The proposed development has potential to result in disturbance to 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.

4.4.2 Significance of Effects

The bat activity surveys identified the presence of at least seven bat species on site, including notable species such as barbastelle and serotine bats. The removal of the woodland and line of trees will result in the loss of potential roosting and commuting features for these species, with the potential to impact upon these species in the absence of mitigation. However, given that most of the woodland on site will be retained as part of the development, as well as the presence of alternative habitat in the surrounding landscape, these impacts are not expected to extend beyond a **local level.**

4.5 Breeding Birds

4.5.1 Impact Characterisation

The woodland, line of trees and scrub on site have potential to support nesting birds, and the removal of these habitats will reduce the site's suitability to support these species. Additional long-term impacts resulting from the residential development such as noise pollution and predation from domestic cats may additionally significantly impact upon these species, in the absence of mitigation.

4.5.2 Significance of Effects

While some sections of woodland, scrub and lines of trees will be removed as part of the proposed development, the majority are being retained, with other suitable habitat present within the close surrounding landscape. Any impacts upon these species are unlikely to be significant beyond a **local level.**

4.6 Common Dormouse

4.6.1 Impact Characterisation

While no evidence of dormice was identified during the nest tube surveys, there is suitable habitat on site for this species and individuals may nest and forage in the woodland and scrub. Removal of this habitat has potential to decrease the site's suitability for this species, and construction activity has potential to cause disturbance to any dormice present through noise and vibration, although given the site's current use as an industrial development these impacts are expected to be limited. Dormice are a nocturnal species and increased artificial lighting from the proposed scheme during and after development may additionally reduce suitability for this species in the woodland parcel edges.

4.6.2 Significance of Effects

The scheme will result in the loss of woodland and scrub that is potentially important to dormice for foraging and nesting. However, suitable habitat for dormice exists all around the construction zone and this loss represents a small proportion of the total resource available. With connections off-site to additional woodland habitat in the surrounding landscape, the impact of the proposed development on dormice is considered to be **neutral.**

4.7 Great Crested Newts and Other Amphibians

4.7.1 Impact Characterisation

Based on the survey results, the great crested newt is likely to be absent on site, however given that several ponds in the close surrounding area could not be surveyed, it is possible individual newts are present during their terrestrial phase in the woodland and scrub. Removal of these habitats have the potential to impact upon this species in the absence of mitigation.

4.7.2 Significance of Effects

A rapid risk assessment , which assumed that the closest pond not surveyed contained a population of great crested newts (conducted using a template produced by Natural England), determined that an offence to great crested newts was “highly unlikely” (see Figure 13). While the removal of woodland and scrub will remove some suitable terrestrial habitat for this species, any impacts are unlikely to be significant beyond a **site level.**

Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	1 - 5 ha lost or damaged	0
Land >250m from any breeding pond(s)	1 - 5 ha lost or damaged	0.04
Individual great crested newts	No effect	0
	Maximum:	0.04
Rapid risk assessment result:	**GREEN: OFFENCE HIGHLY UNLIKELY**	

Guidance on risk assessment result categories

"Green: offence highly unlikely" indicates that the development activities are of such a type, scale and location that it is highly unlikely any offence would be committed should the development proceed. Therefore, no licence would be required. However, bearing in mind that this is a generic assessment, you should carefully examine your specific plans to ensure this is a sound conclusion, and take precautions (see **Non-licensed avoidance measures tool**) to avoid offences if appropriate. It is likely that any residual offences would have negligible impact on conservation status, and enforcement of such breaches is unlikely to be in the public interest.

Figure 14. ‘Rapid risk assessment’ extracted from Natural England’s great crested newt mitigation method statement template instructions[12].

[12] Available from https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence

4.8 Reptiles

4.8.1 Impact Characterisation

Presence/absence surveys for reptiles were not possible given the active nature of the site, however there is limited potential on site to support these species through the woodland and scrub, as well as temporarily under stored materials. It is expected that if present the site supports only a small population of reptiles, who may be impacted through the removal of the woodland and scrub.

4.8.2 Significance of Effects

Given the limited potential for reptiles on site and likely small population size, any impacts upon these species are not considered to be significant beyond a **site level.**

4.9 Other Notable Species

4.9.1 Impact Characterisation

The woodland and scrub have potential to support hedgehog, although no evidence of this species was recorded during the surveys. Some of the woodland and the scrub (as well as previously unsuitable hard standing and unsealed surface) will be replaced by residential development and the associated mosaic of private gardens and greenspace created would, in time, become suitable for hedgehogs and largely replace the habitat lost. In the absence of mitigation, there remains a risk of direct harm to hedgehogs during construction activities, if present on the development site. In the long term, the proposed development could result in fragmentation of hedgehog foraging and resting areas as fencing between properties could restrict the movement of hedgehogs.

4.9.2 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 areas (Warwick, H. (2016) Britain's Hedgehogs: research and the conservation effort in the face of serious decline. British wildlife Vol. 28, pp78-86). There is a high degree of uncertainty of impacts occurring but based on the relatively low removal of suitable habitat for hedgehogs and eventual compensation through residential gardens, the proposed scheme is unlikely to result in impacts that are significant beyond **local level**.

4.10 Invasive Non-native Species

4.10.1 Impact Characterisation

Schedule 9-listed rhodondendron and cotoneaster were identified on site. Removal of these species should be conducted to improve biodiversity on site. Non-native cypress, laurel and buddleia were also identified on site and care should be taken to ensure that these do not spread.

4.10.2 Significance of Effects

In the absence of mitigation, removal of habitats where this species is present may inadvertently contribute to its spread. In this case any resulting impacts would likely be significant at a **site level.**

4.11 Cumulative Effects

4.11.1 Impact Characterisation

Currently there are no plans to complete the development in stages, and as such no cumulative effects are anticipated. If plans are updated to complete the development in phases, an updated assessment will be needed to assess potential cumulative effects.

4.11.2 Significance of Effects

At this current stage there are no plans to complete the development in stages, and as such it is considered that any cumulative effects of the development would be **negligible.**

5 MITIGATION PROPOSALS

5.1 Designated Sites

5.1.1 Impact Avoidance

The proposed development includes the creation of 108 new residential dwellings, and appropriate amenity space should be included within the proposal to discourage homeowners and dog walkers from visiting the nearby Sullington Warren SSSI.

5.1.2 Mitigation Measures

To mitigate against the risk of high levels of suspended dust being produced, following periods of very dry weather or very windy days, construction should be avoided, or dust suppression measures carefully managed with dampening implemented through the use of hoses and sprinklers when there is a risk of elevated dust levels and a risk of deposition onto the nearby designated site. Additionally, there must be no burning of vegetation or waste materials on site to ensure ash and other particulate matter does not settle within these habitats.

During construction work should be minimised where possible when a south-westerly wind is blowing, to avoid dust and air pollution of the nearby Sullington Warren SSSI.

5.1.3 Residual Effects

The proposed development could result in increased recreational pressure on the nearby SSSIs through the creation of 108 new dwellings.

5.1.4 Compensation Measures

The design of appropriate public amenity spaces within the development should discourage residents to visit the nearby SSSIs and minimise recreational pressure on these designated sites.

5.2 Priority Habitats

5.2.1 Impact Avoidance

In the first instance the mixed deciduous and other Scots pine woodland should be retained where possible. Any proposed ground works construction works or landscaping work within the root protection zones (RPZ) of the

trees within the retained woodland edges and treelines must be undertaken using hand tools only, in accordance with specialist arboriculturist advice. The retained woodland sections and lines of trees will be protected by the installation of barrier fencing (such as Heras fencing) outside the Root Protection Areas (RPAs), and permanent and temporary ground protection as required, in accordance with specialist arboriculturist advice.

5.2.2 Mitigation Measures

The implementation of mitigation measures detailed in section 5.1.2 regarding dust should minimise the risk of these habitats becoming polluted.

When machinery is not in use it should be switched off immediately and not left to idle as this will result in unnecessary noise and air pollution. Any materials must further be handled and placed with care to reduce noise and vibration.

5.2.3 Residual Effects

The removal of some sections of mixed deciduous and other Scots pine woodland, as well as the dense scrub will result in the loss of ecologically valuable habitat on site, which has the potential to further impact several protected species.

5.2.4 Compensation Measures

New scrub planted with native species could be planted at roadside verges and site boundaries. Once established this would provide more ecologically valuable habitat than the previously existing scrub. Removal of invasive species will also likely improve biodiversity on site.

[redacted]

5.4 Bats

5.4.1 Impact Avoidance

In the first instance, trees with potential for roosting bats will be retained if possible. Mitigation for bats, depending on the results of surveys, will either use precautionary felling techniques ('soft-felling') at an appropriate time of year, or, exceptionally, may require a European Protected Species (EPS) licence if bats are clearly using the feature on a regular basis, or could be present at the time of the works. In any case, it is important that detailed records are kept, and trees are not felled before being thoroughly checked for bats.

It is important that the proposed scheme incorporates a 'sensitive lighting plan' developed as part of the detailed design, in accordance with guidelines set out by the Bat Conservation Trust (summarised in Appendix 6). This should include measures to create 'dark corridors' through the development site along the retained hedgerows and tree belts, and measures to minimize light spill onto all semi-natural habitats. All street lighting should be directed downwards and use light sources that are not attractive to insects. Reflective white line marking should be used in preference to artificial lighting in all non-essential applications.

5.4.2 Mitigation Measures

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. Guidelines issued by the Bat Conservation Trust must be considered while designing the lighting scheme (see Appendix 2). This includes the following measures:

- no 'upward pointing' or bare bulb lights will be installed anywhere on the development. The lighting scheme will be designed to minimize light spill onto any established or created semi-natural habitats;
- any street lighting lamp-posts or flood lights will be limited to 3.5m in height and will have shields installed to focus light towards footpaths and roads only (see Figure 3 for example). No lamps will be allowed to emit light past horizontal (90 degrees from the ground). No external lights will be installed on new buildings above a height of 2m and all external lights will have shields to direct light to prevent light spill;
- 'dark corridors' must be established around the site boundary and retained hedgerow and trees through the development site. This means that no street light columns shall be positioned within or adjacent to the no-light zones and all artificial lighting should be screened to direct light away from these areas;
- lighting on pedestrian routes will be kept to a minimum required to maintain safety and security. Where possible, reflective white line-painting will be used as an alternative to lights, and where lighting cannot be avoided, these should be mounted on 1m high pillars and directed down towards the path to minimize light spill;
- the frequency spectrum of light sources should be selected that has reduced attraction to insects.

5.4.3 Residual Effects

The removal of the woodland and line of trees will result in the permanent loss of valuable roosting, foraging and commuting habitat for bats. Increased artificial lighting across the site has the potential to fragment the retained woodland habitats, with species such as *Myotis* bats avoiding lit areas and potentially losing foraging opportunities as a result.

5.4.4 Compensation Measures

New lines of trees could be planted between the retained parcels to improve commuting routes for foraging bats once grown and established as 'dark corridors' to allow all species to disperse to other ecologically valuable habitats.

Loss of roosting habitat used by bats could be adequately compensated for through measures set out in an accompanying Landscape and Ecology Management Plan (LEMP).

5.5 Breeding Birds

5.5.1 Impact Avoidance

Trees and scrub should be retained where possible to provide nesting opportunities for birds. Any tree removal or scrub clearance must be completed outside of the breeding bird season (avoiding 1st March to 31st August), unless features are first searched by a suitably qualified ecologist and no active nests are found.

5.5.2 Mitigation Measures

Any tree removal or scrub clearance must be completed outside of the breeding bird season (avoiding 1st March to 31st August), unless features are first searched by a suitably qualified ecologist and no active nests are found. If a nest is found, a minimum buffer of 5m must be maintained around the nest until all of the young have fledged safely.

Additionally, construction vehicles may disturb breeding birds through noise or direct damage of the habitat. As such, to prevent construction vehicles coming too close to the retained woodland and lines of trees, a minimum buffer of 5m must be maintained from these features and secured with a physical barrier such as Heras fencing.

5.5.3 Residual Effects

The removal of the woodland and scrub will result in the permanent loss of suitable habitat for nesting birds. Increased recreational pressure may additionally bring increased predation risk from domestic cats.

5.5.4 Compensation Measures

New trees could be planted to provide compensatory roosting habitat once grown. Additional roosting opportunities could be provided for the installation of bird boxes on the retained trees and new houses on site (which could be detailed in an accompanying LEMP).

5.6 Common Dormouse

5.6.1 Impact Avoidance

The dormouse surveys confirmed likely absence of this species on site, and as such there is expected to be no

impacts as part of the development.

5.6.2 Mitigation Measures

Implementing a "sensitive lighting plan" (as described in Section 5.4.2) will likely ensure impacts of artificial light upon any dormice (if present) is minimised.

5.6.3 Residual Effects

Dormice have been confirmed to be likely absent from site and as such there is expected to be no residual effects from the development upon this species.

5.6.4 Compensation Measures

There is expected to be no residual effects of the development upon this species and as such no compensation measures are required. Enhancement opportunities to improve the site's suitability to support dormice could be set out in an accompanying LEMP.

5.7 Great Crested Newts and Other Amphibians

5.7.1 Impact Avoidance

Based on the above analysis, the proposed development does not require mitigation under an EPS licence. However, the presence of the occasional individual great crested newt cannot be completely discounted and therefore it is recommended that the scheme proceeds under 'reasonable avoidance measures': the preparation of the site for earthworks, including all areas used for storage of materials, haulage routes and temporary accommodation, should be subject to careful habitat management in advance (i.e. careful hand searches prior to removal), to reduce the refuge suitability for great crested newt. This will be set out under a brief method statement, coupled with a tool box talk and watching brief by a licensed ecologist. In the unlikely event that a great crested newt is encountered at any stage during this process, all works should cease, and this assessment re-evaluated to determine whether an EPS licence is now required.

5.7.2 Mitigation Measures

Immediately prior to removal of woodland and scrub on site, a hand search should be completed by a suitably licensed ecologist. If any great crested newts are identified during this search, all works must cease until an EPS licence has been obtained.

5.7.3 Residual Effects

The removal of the woodland and scrub has the potential to permanently reduce potential sheltering habitat for newts (if present).

5.7.4 Compensation Measures

Given the likely absence of great crested newts from the site, compensation measures are not required for this species. However, the creation of scrub along roadside verges could improve suitability for this species in its terrestrial phase. A pond could additionally be created and planting with native species to provide potential breeding habitat.

5.8 Reptiles

5.8.1 Impact Avoidance

The woodland and scrub should be retained where possible to retain suitable sheltering habitat for reptiles.

5.8.2 Mitigation Measures

Prior to development all stored materials should be carefully removed under the supervision of a suitably licensed ecologist to reduce potential of individual reptiles sheltering underneath.

5.8.3 Residual Effects

The removal of the woodland and scrub will result in the loss of habitat for reptiles, although this habitat is considered to be sub-optimal and as such any impacts are not expected to be significant.

5.8.4 Compensation Measures

Timber from the removed trees could be retained and relocated to the roadside verges and site boundaries in the form of artificial hibernacula, to provide additional sheltering opportunities for these species. Grassland in these areas should also be allowed to grow and form tussocks (cut once a year in September) to facilitate dispersal of reptiles across the site.

5.9 Other Notable Species

5.9.1 Impact Avoidance

Woodland and scrub should be retained where possible to provide suitable habitat for hedgehogs.

5.9.2 Mitigation Measures

Immediately prior to removal of the woodland and scrub, a suitably qualified ecologist should conduct a hand search of the zone of impact. Any hedgehogs identified should be safely relocated to retained woodland on site.

5.9.3 Residual Effects

The woodland and scrub will be replaced with residential dwellings and gardens, which in time will become suitable habitat again for hedgehogs. Given this and the large amount of suitable habitat that is being retained as part of the proposed development, there are unlikely to be residual effects of the development upon this species.

5.9.4 Compensation Measures

Replacement scrub could be planted along side roadside verges and fenced off to provide compensatory habitat for hedgehogs.

5.10 Invasive Non-native Species

5.10.1 Impact Avoidance

Any fragments of rhododendron and cotoneaster that occur as part of the site's current industrial use should undergo controlled disposal off-site at a licensed landfill to prevent the spread of this species. Care should be taken to ensure that non-native cypress, laurel and buddleja also do not spread.

5.10.2 Mitigation Measures

All Schedule 9-listed rhododendron and cotoneaster should be removed through clearance and herbicide treatment of stumps, to prevent further spread on site. Any cuttings of these species should undergo controlled disposal off-site at a licensed landfill. Regular monitoring checks should be made to ensure that the rhododendron and cotoneaster have not been able to re-establish.

5.10.3 Residual Effects

The removal of these species should improve the overall biodiversity of the site.

5.10.4 Compensation Measures

No compensatory measures are required, as removal of these species will lead to an overall benefit to biodiversity.

6 BIODIVERSITY ENHANCEMENTS

A number of ecological enhancements are recommended on site that would benefit the local wildlife value of the site and surrounding areas post development. Specific recommendations (such as location) have not been determined at this stage and are considered appropriate to determine post planning through a Landscape and Ecology Management Plan (LEMP), or similar. To provide sufficient housing for bird and bat species to be enhanced on a site a minimum of one bird housing feature and one bat housing feature is recommended for every proposed residential unit on site (in line with BS 42021:2022[13]), where possible the features are recommended as integral features for the increased long term security of the feature and ability to reduce their visual impacts on the surrounding land. Some examples of suitable bird and bat boxes are illustrated in Appendix 7 below. Other brands and specifications are available.

Additional ecological enhancements on site would include features such as insect boxes/houses and hedgehog houses scattered around the site. These features provide sufficient resting areas for notable species which are not always available. Similar to bird and bat boxes specific locations cannot be determined at this time. Provisionally it is proposed that insect features are to be integrated on buildings where possible, with additional features sporadically installed to the boundary trees/woodland parcels. Similar recommendations for hedgehog houses are proposed to the site boundary parcels where they can be managed by the developer/estate manager opposed to individual residents.

Hibernacula and log piles are also a good ecological feature that can be implemented to the site borders and woodland parcels, these features will provide suitable resting and foraging areas for a wide range of species such as invertebrates, amphibians and reptiles. It is proposed that a minimum of two are incorporated into the final design of the development.

Prior to implementation any ecological feature such as (but not limited to), bird boxes, bat boxes, and insect houses must first be approved by a suitably qualified ecologist.

These measures could be secured through the production of a LEMP document that sets out the number, type

[13] British Standards Institute (2022) *Integral nest boxes. Selection and installation for new developments. Specification*.

and location of habitat enhancements that will be provided, the on-going maintenance needs and responsibilities. It is noted that as a result of the independent Biodiversity Net Gain report and calculation a Habitat Management and Monitoring Plan (HMMP) will also be required in order to secure the on and off-site habitat classifications and conditions, this report will not detail individual habitat enhancements such as; bird and bat boxes, invertebrate hotels/houses, hedgehog houses and access gates which will need to be illustrated and secured independently.

7 CONCLUSIONS

A summary of the EcIA process is presented in Table 11 below.

Table 11. EcIA summary table.

Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/ Mitigation	Residual effects	Compensation
Sullington Warren SSSI	National	Construction impacts through dust and noise pollution. No direct loss but indirect damage through increased recreation pressure	Regional	Construction and environmental management plan to minimize construction risks. Incorporation of amenity green.	County	None required or provide details
Chantry Mill SSSI	National	As above	Regional	As above	County	None required or provide details
Amberley Mount to Sullington Hill SSSI	National	No direct loss but indirect damage through increased recreation pressure, site is over 2km from the site.	Regional	As above	County	None required or provide details
Hurston Warren SSSI	National	As above	Regional	As above	County	
Parham Park SSSI	National	As above	Regional	As above	County	
Chanctonbury Hill SSSI	National	As above	Regional	As above	County	
Pulborough Brooks SSSI	National	As above	Regional	As above	County	
Arun Valley SAC/SPA/RAMSAR	International	As above	Regional	As above	County	
Habitats contained within site	Local	indirect impacts on adjacent woodland parcels	Local	Biodiversity enhancements incorporated into soft landscape and drainage schemes	Site	None required
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Foraging and commuting bats	Local	Temporary loss of foraging habitat and change of	Local	Biodiversity enhancements incorporated into soft landscape	Site	None required

Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/ Mitigation	Residual effects	Compensation
		habitat characteristics		and drainage schemes; ecologically sensitive lighting design.		
Roosting bats (trees)	Uncertain; site	Impact uncertain due to GLTAs not being completed. Based on data available and habitats removed on site impacts are predicted to be restricted to woodland removal.	Uncertain – site.	Retention of trees and woodland where possible, Depending on surveys removal of trees through soft-felling techniques or under an EPS licence	Site	None required
Roosting bats (buildings)	Site	Loss of existing buildings and introduction of large number of buildings	Site	Incorporating integral bat roosts into new built environment;	Local Positive impact	None required
Breeding bird assemblage on development site	Site	Loss of small woodland parcels;	Local.	Appropriate Construction methods (timed outside breeding season); biodiversity enhancements incorporated into hard and soft landscape and drainage schemes	Site	None required
Common dormouse population	Negligible	None	Negligible	None	Negligible	None required
Great crested newts	Uncertain; local	Impact uncertain due to survey limitations. Based on data available and habitats removed on site impacts are predicted to be restricted to woodland removal.	Uncertain - site	Precautionary approach to construction methods; 'reasonable avoidance measures'; biodiversity enhancements incorporated into soft landscape and drainage schemes	Site	None required
Common reptiles	Uncertain - Site	Impact uncertain due to survey limitations. Based on data available and habitats removed on site impacts are predicted to be restricted to woodland and scrub removal.	Uncertain - site	Precautionary approach to construction methods; 'reasonable avoidance measures'; biodiversity enhancements incorporated into soft landscape and drainage schemes	Site	None required
Other notable species:	Uncertain; local	Temporary loss of foraging habitat and change of	Uncertain; local	Appropriate Construction methods (timed	Site	None required

Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance/ Mitigation	Residual effects	Compensation
European hedgehog		habitat characteristics		outside breeding season); biodiversity enhancements incorporated into soft landscape and drainage schemes		

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 *Satyrium 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, [redacted] otter, polecat, dormice, hedgehog and red squirrel).

Natural Environment and Rural Communities (NERC) Act (2006)

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

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, 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.

[redacted]

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2024)[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 192, states that council plans should "*promote the conservation, restoration and enhancement of priority*

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

[redacted]

[17] HM Government (2024). National Planning Policy Framework. Department for Communities and Local Government. Available online at: https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf.

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;
- 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 2021[21] (Stanbury et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

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[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.

[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

Table 12. Horsham District Planning Framework (Excluding South Downs National Park) (Nov 2015)

Policy number/title	Policy summary
Policy 24 (Strategic Policy: Environmental Protection	The high quality of the district's environment will be protected through the planning process.
Policy 25 (Strategic policy, the natural environment and landscape character)	The council will support development that: • Maintains and enhances the Green Infrastructure Network and addresses any identified deficiencies in the District. • Maintains and enhances the existing network of geological sites and biodiversity, including safeguarding existing designated sites and species, and ensures no net loss of wider biodiversity and provides net gains in biodiversity where possible. • Conserves and where possible enhances the setting of the South Downs National Park.
Policy 26 (Strategic policy: countryside protection)	The rural character and underdeveloped nature of the countryside will be protected against inappropriate development. It may be considered if it protects or enhances the character area in which it is located, such as: the ecological qualities of the area, the pattern of woodlands, fields, hedgerows, trees, waterbodies and other features.
Policy 31 (Green infrastructure and biodiversity)	Development proposals will be required to contribute to the enhancement of existing biodiversity and should create and manage new habitats where necessary. It should ensure the ecosystem services of that area are maintained. The council will favour development that retains and enhances significant features of nature conservation on development sites, as well as development which makes a positive contribution to biodiversity through the creation of green spaces, and linkages between habitats to create local and regional ecological networks. Where protected trees must be felled, replacement planting with a suitable species will be required. SPAs, SACs and SSSIs as well as Local Nature Reserves (LNR) and National Nature Reserves (NNR) will be given particular consideration. If the development is thought to have an indirect/direct adverse effect on biodiversity, development will be refused unless the reason for development outweighs the need to protect the site, or mitigation will be provided. Any development with the potential to impact Arun Valley SPA or the Mens SAC will be subject to a HRA to determine the need for an Appropriate Assessment. In addition, development will be required to be in accordance with the necessary mitigation measures for development set out in the HRA of this plan.

Table 13. Emerging Local Plan - Horsham District Council – Horsham District Local Plan 2023-2040 (December 2023).

Policy Number/Title	Policy Summary
Strategic Policy 13: The Natural Environment and Landscape character	The Natural Environment and landscape character of the District, including the landscape, landform and development pattern, together with protected landscapes and habitats, will be protected against inappropriate development. The Council will expect development proposals to be landscape-led from the outset so that they clearly inform the design and layout. Proposals will also be required to: 1. Protect, conserve and enhance the landscape and townscape character, taking into account features / areas identified as being of landscape importance and the individual settlement characteristics, and maintain settlement separation; 2. Maintain and enhance the Green Infrastructure Network, the Local Nature Recovery Strategy and national Nature Recovery Network and, where practicable, help to address any identified needs and deficiencies in these networks across the District; 3. Maintain and enhance the existing network of geological sites and biodiversity, including safeguarding existing designated sites and species, and secure measurable net gains in biodiversity; and 4. Incorporate SuDS into a scheme in an optimal location for their purpose whilst also securing landscape and biodiversity enhancements and delivering high-quality green spaces. Proposals will be expected to provide details to demonstrate that the 62 whole life management and maintenance of the SuDS are appropriate, deliverable and will not cause harm to the natural environment and/or landscape.
Strategic Policy 14: Countryside Protection	1. Outside built-up area boundaries and secondary settlements, the rural character and undeveloped nature of the countryside will be protected against inappropriate development. Any proposal must be essential to, and justify, its countryside location, and must meet one of the following criteria: a) Support the needs of agriculture or forestry b) Enable the extraction of minerals or the disposal of waste; c) Provide for quiet informal recreational use; or d) Enable the sustainable development of rural areas. 2. In addition, all proposals must be appropriately integrated within the landscape and be of a scale appropriate to its countryside character and location. Development will be considered acceptable where it does not lead, either individually or cumulatively, to a significant increase in the overall level of activity in the countryside, and protects, conserves, and seeks to enhance, the key features and characteristics of the landscape character area in which it is located, including; a) The development pattern of the area, its historical and ecological qualities, tranquillity and sensitivity to change; b) The pattern of woodlands, fields, hedgerows, trees, waterbodies and other features; c) The landform of the area; and d) The protection of dark skies, in particular where it may impact on a designated International Dark Sky Reserve (IDSR), Neighbourhood Plan designations and High Weald AONB Management Plan objectives.
Strategic Policy 16: Protected Landscapes	1. Development proposals within and adjacent to the High Weald AONB must demonstrate how their development proposals conserve and enhance the natural beauty of the AONB, having appropriate regard to the setting and views into and out of the AONB, the High Weald AONB Management Plan, any updates and any other

	relevant documents. Proposals will be required to set out any proposed mitigation or compensation measures needed to address any harm. 66 2. Small scale development that helps to support the social and economic well-being of the AONB will be supported, provided that the scheme is compatible with the purpose of the designation. 3. Major development within the AONB will only be permitted in exceptional circumstances. Applicants will be required to demonstrate why the proposal is in the public interest and what alternatives to the proposal have been considered. 4. Proposals within land that contributes to the setting of the South Downs National Park should be consistent with National Park purposes and have regard to the South Downs Local Plan, the South Downs Integrated Landscape Character Assessment, the South Downs Partnership Management Plan and any other relevant document and updates. In particular, proposals should not cause harm to the special qualities (including dark skies), local distinctiveness or sense of place, by negatively affecting views into and out of the National Park. Proposals will be required to set out any proposed mitigation or compensation measures needed to address any harm.
Strategic Policy 17: Green Infrastructure and Biodiversity	Green Infrastructure 1. Development will be supported where it can demonstrate that it maintains and enhances the existing network of green infrastructure and contributes to the delivery of public open space, the Local Nature Recovery Strategy, Nature Recovery Network, natural capital, ecosystem services and / or biodiversity. Green Infrastructure should be integral to the design and layout of development, and new provision, including green linkages, should be provided taking into account Natural England's green infrastructure guidance and the council's green infrastructure strategy. Provision should seek to optimise public access to open space and nature via foot, bicycle, wheeling, and also horse as appropriate. 2. Proposals that would result in any loss, degradation or harmful impacts to green infrastructure, or core areas of the Local Nature Recovery Strategy and Nature Recovery Network will be resisted unless it can be demonstrated that new opportunities will be provided that appropriately mitigates and / or compensates for the respective harm and ensures that the ecosystem services of the area are retained and enhanced. Development proposals will be expected to remove invasive species. 3. Proposals will be expected to retain and enhance existing priority habitats and trees, and accord with the aims and objectives of the Green Infrastructure and Local Nature Recovery Strategies. Habitat enhancement including additional hedgerow and tree planting must take account of the local landscape and habitat context. It should seek to optimise biodiversity, ecological connectivity and function, and climate change resilience. a) Development likely to affect a watercourse and its associated corridor should seek to conserve and enhance its ecological, landscape and recreational value. This should include providing adequate natural buffer zones to the watercourse. Biodiversity

	5. The Council will support appropriate new development which delivers at least 12% biodiversity net gain and: a) Retains and enhances significant features of nature conservation value on development sites; b) Makes a positive contribution to biodiversity and accords with the aims and objectives of the Green Infrastructure and Local Nature Recovery Strategies, through the creation of appropriate green spaces, that provide linkages between habitats to create local and regional ecological networks that enable the movement of wildlife through development sites; and / or c) Following the principle of 'right habitat in the right place', significantly increases woodland or other habitats for the purpose of appropriately enhancing biodiversity, carbon sequestration, pollution control, and / or flood mitigation. 6. Relevant development proposals will be expected to deliver 12% biodiversity net gain and must submit Biodiversity Net Gain information to show how this will be achieved using the mandated Biodiversity Metric or the Small Sites Metric as appropriate and must abide by the metric trading rules. Submissions must make clear what will be provided to meet no net loss and what will deliver net gains. The net gain must be achieved through the delivery of appropriate on-site biodiversity net gain or, where this is not practicable, through off-site net gain within the District especially areas, as suitable to the habitats subject to gain, identified in the District's Green Infrastructure Strategy or the Local Nature Recovery Strategy, or as agreed by the Council. All such schemes, excluding any respective element using statutory biodiversity credits, must submit for approval by the Council a funded maintenance and management plan, including monitoring / reporting and appropriate enforcement processes, that secures the biodiversity net gains for at least 30 years. 7. All other development proposals must seek to demonstrate how measurable biodiversity net gains will be delivered. Protected Sites and Species 8. Proposals must give appropriate consideration to protected and notable species. They will be expected to protect priority species and seek to aid their recovery, and must conserve, restore and enhance priority habitats, and should create and manage appropriate new habitats, taking into account pollination, where practicable. 9. Particular consideration will be given to the hierarchy of sites and habitats, including buffer areas, within the District, or functionally linked to, as follows: a) Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites; b) Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), Veteran Trees, Ancient Woodland and other irreplaceable habitats; 75 c) Local Wildlife Sites (LWS), Local Nature Reserves (LNRs) and any areas of priority habitats including traditional orchards, local geodiversity, Core Sites in the emerging NRN and other irreplaceable habitats not already identified in a & b above. 10. An appropriate buffer around woodland will be required, this will be at least 15m around Ancient Woodland or greater in accordance with good practice, and consideration should be given to the potential for protected species, such as bats, and impacts on hydrology. Around ancient and veteran trees a minimum buffer zone of at least 15 times larger than the diameter of the tree, or 5 metres from the edge of the tree's canopy whichever is the larger, will be required.

	11. Where the felling of a tree is necessary, for example due to disease, replacement planting with a suitable tree species, age and location to retain and enhance the link with the wider network of habitats and Green Infrastructure, will be required. 12. Where development is anticipated to have a direct or indirect adverse impact on sites or features of importance to nature conservation, development will be refused unless it can be demonstrated that: a) The mitigation hierarchy has been applied and the objectives of a site's designation, where applicable, and integrity of the area will not be undermined; b) The reason for the development clearly outweighs the likely impact to notified features and / or the need to protect the value of the site; and c) Appropriate mitigation and compensation measures will be provided alongside the delivery of measurable biodiversity net gain as relevant. 13. Any development with the potential to impact the Arun Valley SPA / SAC / Ramsar site, The Mens SAC and / or Ebernoe Common SAC will be subject to a Habitats Regulation Assessment to determine the need for an Appropriate Assessment. In addition, development will be required to be in accordance with the necessary mitigation measures for development set out in the Habitat Regulation Assessment of this Plan.
Policy 18: Local Green Space	1. Local green and open spaces should be protected. Areas designated as Local Green Space, as identified on the Policies Map, will be safeguarded from development unless it can be demonstrated that: a) Development is proposed to enhance Local Green Space functions, for example through improvements to access, recreation and wildlife; or b) It is required for a statutory utility infrastructure purpose, for example water, gas, electricity or telecommunications provision. 2. Within Neighbourhood Plans, the creation of new areas of Local Green Space will be supported providing it is within reasonably close proximity to the community it serves, is local in character and is not an extensive track of land. It must also meet the relevant criteria, as set out in any relevant national planning guidance documents, in relation to scale, beauty, historic significance, recreational value, tranquillity and ecological value, and does not conflict with the strategic policies of this Local Plan.

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 – COMMON DORMOUSE SURVEY RESULTS

Abbreviations: DM=dormouse; WM=wood mouse; YN=yellow-necked mouse; ad=adult; juv=juvenile, N=nest only; NM=nest material, not woven, unspecified; F=food cache (wood mouse); bee=tree bumblebee *Bombus hypnorum* nest. Bird=bird nest (BTO codes apply to species); E=empty; nf=tube not found or tube damaged.

Table 1. Full dormouse presence/absence survey results.

Completion date	5th June 2024	8th July 2024	19th August 2024	20th September 2024	24th October 2024	20th November 2024
Temp/ºC	**16-15**	**14**	**16**	**17**	**14**	**2**
Cloud cover	**10%**	**80%**	**60%**	**90%**	**0%**	**20%**
Precipitation	**Dry**	**Dry**	**Dry**	**Dry**	**Dry**	**Dry**
1	E	E	E	E	E	E
2	E	E	E	E	E	E
3	E	E	E	E	E	E
4	E	E	E	E	E	E
5	E	E	E	E	E	E
6	E	E	E	E	E	E
7	E	E	E	E	E	E
8	E	E	E	E	E	E
9	E	E	E	E	E	E
10	E	E	E	E	E	E
11	E	E	E	E	E	E
12	E	E	E	E	E	E
13	E	E	E	E	E	E
14	E	E	E	E	E	E
15	E	E	E	E	E	E
16	E	E	E	E	E	E
17	E	E	E	E	E	E
18	E	E	E	E	E	E
19	E	E	E	E	E	E
20	E	E	E	E	E	E
21	E	E	E	E	E	E
22	E	E	E	E	E	E
23	E	E	E	E	E	E
24	E	E	E	E	E	E
25	E	E	E	E	E	E
26	E	E	E	E	E	E
27	E	E	E	E	E	E
28	E	E	E	E	E	E
29	E	E	E	E	E	E
30	E	E	E	E	E	E
31	E	E	E	E	E	E
32	E	E	E	E	E	E
33	E	E	E	E	E	E
34	E	E	E	E	E	E
35	E	E	E	E	E	E
36	E	E	E	E	E	E

37	E	E	E	E	E	E
38	E	E	E	E	E	E
39	E	E	E	E	E	E
40	E	E	E	E	E	E
41	E	E	E	E	E	E
42	E	E	E	E	E	E
43	E	E	E	E	E	E
44	E	E	E	E	E	E
45	E	E	E	E	E	E
46	E	E	E	E	E	E
47	E	E	E	E	E	E
48	E	E	E	E	E	E
49	E	E	E	E	E	E
50	E	E	E	E	E	E

APPENDIX 5 - GREAT CRESTED NEWT eDNA SURVEY RESULTS

Folio No: 1438-2024
Purchase Order: P6018
Contact: The Ecology Co-Operation
ssue Date: 03.06.2024

SureScreen Scientifics

GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus* , inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
1277	Thakeham Tiles, Pond A	TQ1004414620	Pass	Pass	Negative	0/12
1285	Thakeham Tiles, Pond B	TQ1015514510	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Daisy Chambers

Approved by: Lauryn Jewkes

Folio No: 822-2024
Purchase Order: P6018
Contact: The Ecology Co-Operation
ssue Date: 14.05.2024

SureScreen Scientifics

GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus* , inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
GCN R736	Thakeham Tiles - Right Pond	TQ 10453 15073	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Lauryn Jewkes

Approved by: Chelsea Warner

APPENDIX 6 - 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 Trust[22] 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 cats eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times;
- screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding;

[22] Bat Conservation Trust and Institute for Lighting Professionals (2023) Guidance note 08/23. Bats and Artificial Lighting. https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/

- glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and features;
- creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for any such habitat being lost to the development;
- dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

Demonstrate compliance with illuminance limits and buffers

- *Design and pre-planning phase*; it may be necessary to demonstrate that the proposed lighting will comply with any agreed light-limitation or screening measures set as a result of your ecologist's recommendations and evaluation. This is especially likely to be requested if planning permission is required.
- *Baseline and post-completion light monitoring surveys*; baseline, pre-development lighting surveys may be useful where existing on or off-site lighting is suspected to be acting on key habitats and features and so may prevent the agreed or modelled illuminance limits being achieved.
- *Post-construction/operational phase compliance-checking;* as a condition of planning, post-completion lighting surveys by a suitably qualified person should be undertaken and a report produced for the local planning authority to confirm compliance. Any form of non-compliance must be clearly reported, and remedial measures outlined. Ongoing monitoring may be necessary, especially for systems with automated lighting/dimming or physical screening solutions.

Lighting Fixture Specifications

The Bat Conservation Trust recommends the following specifications for lighting on developments to prevent disturbance:

- Lighting spectra: peak wavelength >550nm
- Colour temperature: <2700K (warm)
- Reduction in light intensity
- Minimal UV emitted
- upward light ratio of 0% and good optical control.

Further reading:

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

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

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

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APPENDIX 7 - EXAMPLE OF ECOLOGICAL ENHANCEMENT FEATURES

Figure 15. Left to right, the 2F, 2FN and the 1FS bat boxes produced by Schwegler. These and other brands are available at many on-line wildlife stores. These are constructed of 'woodcrete' (a mixture of cement and woodchip) and are designed to be durable and replicate the stable thermal properties of trees and buildings. They may be attached to trees or buildings.

Figure 16. Examples of integral bespoke bat roosting features that may be incorporated into buildings during construction/renovation. From left to right: an example of bat access tile into loft space; the 2FR bat tube; and an example of 2FR bat tubes installed into a house wall in a series of three. Other brands and designs are available.

Figure 17. Left to right; Vivara Pro Seville 28mm WoodStone Nest Box, Starling Nest Box, Four 3s Schwegler Starling Nest, and 1ZA Schwegler Wren Roundhouses Box.

Figure 18 (left to right). Solitary bee brick(s), National Trust Apex insect house, National Trust Hexagon Insect House.

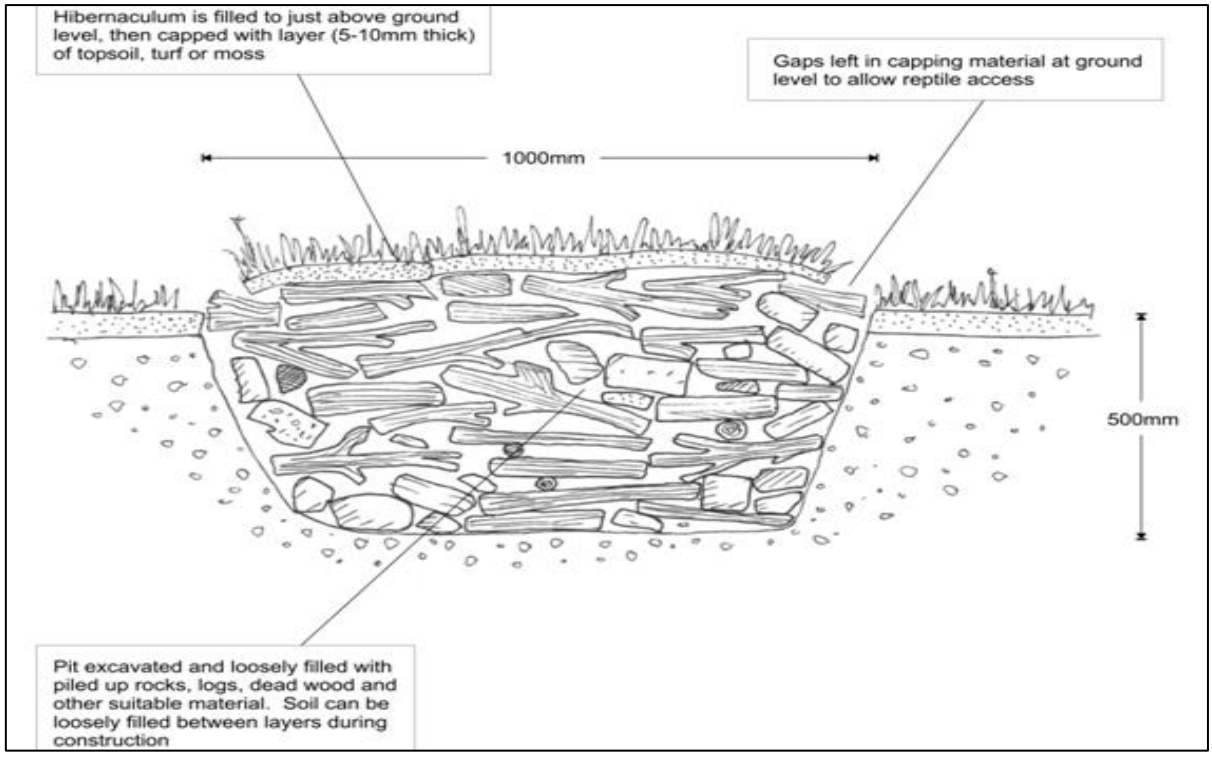

Figure 19. Illustration on how to build a reptile hibernaculum. Image taken from the 'Reptile Habitat Management Guidelines' by Herefordshire Amphibian and Reptile Team and the Herefordshire Nature Trust.

Figure 20. Example of a "hedgehog highway" with attached signage to inform residents of its purpose.