



Ecological Impact Assessment

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Report	Ecological Impact Assessment (EcIA)
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Client	Miller Homes
Date of Issue	6 th August 2024 – Interim EcIA
Revision(s)	20 th December 2024 – Full EcIA 10 th January 2025 - 4.11 / 6.2.7 / Fig 30 3 rd February 2025 – 4.6.3 / 6.5 3 rd April 2025 – 4.3.2.1 / 4.3.5.2 / 6.2.1.1 / 6.4 / 6.7 8 th July 2025 – 3.2.4.2 / 4.6.5
Status	Final for submission

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Executive Summary

Ecosupport Ltd was instructed by Miller Homes to undertake phase I & II survey work to inform an Ecological Impact Assessment (EcIA) of Land at North Colwell Farm. This was required in order to identify any potentially important ecological features that may be affected by the proposed development. This document serves the purpose of providing the findings of the ecological work that has taken place on site. As part of this assessment, the following surveys were undertaken:

- Desktop survey submitted to the Sussex Biological Records Centre (SxBRC)
- Walkover with UKHab assessment (December 2024)
- Bat Activity Transects and Static Monitoring (April-Oct 2024)
- Reptile Presence/Absence Surveys (May 2024)
- Dormouse Surveys (April – October 2024)
- Breeding Bird Surveys (March-June 2024)
- Biodiversity Net Gain Assessment (Results provided in separate BNG report)

In the absence of any mitigation measures, the proposed development is anticipated to result in **certain adverse impacts** although mitigation / compensation measures will be employed to minimise the scale of the impact.

1.0 INTRODUCTION

1.1 Brief

Ecosupport Ltd was instructed by Miller Homes to undertake phase I & II survey work to inform an Ecological Impact Assessment (EcIA) of Land at North Colwell Farm (hereafter referred to as 'the site'). The purpose of this survey was to assess any ecological impacts that may arise as a result of the proposed development. The objectives of the survey were as follows:

- Identify and classify any priority habitats;
- Assess the ecological value of the site;
- Identify any signs of protected species and potential features that may support them
- Make recommendations for further survey work as necessary;
- Make recommendations for any necessary ecological avoidance and mitigation.

NB: If the works do not take place within 18 months of this report¹ then the findings of this survey will no longer be considered valid and certain aspects may require updating.

1.2 Site Description & Location

The site comprises of three grassland parcels separated by mature tree lines located at North Colwell Farm, Lewes Road, Haywards Heath, RH17 7SX (centred on OS grid reference TQ 35293 23299) (**Fig 1**). The site is bound by residential dwellings and Lewes Road to the north, ancient woodland to the east and south and an access track and patches of woodland to the west. The immediate wider environ is predominantly semi-rural located on the southern outskirts of the town of Haywards Heath.

¹ <https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf>

Figure 1. Redline boundary of the site (Google Satellite 2024)



1.3 Proposed Development

Proposals involve the construction of up to 80 dwellings with associated landscaping, open space, infrastructure and access.

2.0 RELEVANT LEGISLATION AND POLICY

2.1 Legislation

2.1.1 *The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations (2019)*

This instrument makes changes to the three existing instruments which transpose the Habitats and Wild Birds Directives so that they continue to work (are operable) upon the UK's exit from the European Union (EU). These include The Conservation of Habitats and Species Regulations 2017 and The Conservation of Offshore Marine Habitats and Species Regulations 2017. This instrument also amends section 27 of the Wildlife and Countryside Act 1981 to ensure existing protections continue. The intention is to ensure habitat and species protection and standards as set out under the Nature Directives are implemented in the same way or an equivalent way when the UK exits the EU.

This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into UK domestic law. It provides protection for sites and species deemed to be of conservation importance across Europe. It is an offence to deliberately capture, kill or injure species listed in Schedule 2 or to damage or destroy their breeding sites or shelter. It is also illegal to deliberately disturb these species in such a way that is likely to significantly impact on the local distribution or abundance or affect their ability to survive, breed and rear or nurture their young.

In order for activities that would be likely to result in a breach of species protection under the regulations to legally take place, a European Protected Species (EPS) licence must first be obtained from Natural England.

2.1.2 *The Wildlife and Countryside Act (1981) (as amended)*

This is the primary piece of legislation by which biodiversity is protected within the UK. Protected fauna and flora are listed under Schedules 1, 5 and 8 of the Act. They include all species of bats, making it an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost. Similarly, this Act makes it an offence to kill or injure any species of British reptiles and also makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built).

The Wildlife & Countryside Act (1981) states that it is an offence to 'plant or otherwise cause to grow in the wild' any plant listed in Schedule 9 part II of the Act. This list includes over 30 plants including Japanese Knotweed (*Fallopia japonica*), Giant Hogweed (*Heracleum mantegazzianum*) and Parrot's Feather (*Myriophyllum aquaticum*).

2.1.3 *The Countryside and Rights of Way Act (2000)*

This Act strengthens the Wildlife & Countryside Act by the addition of "reckless" offences in certain circumstances, such as where there is the likelihood of protected species being present. The Act places a duty on Government Ministers and Departments to conserve biological diversity and provides police with stronger powers relating to wildlife crimes.

2.1.4 Natural Environment and Rural Communities Act (2006)

The Natural Environment and Rural Communities (NERC) Act 2006 requires that public bodies have due regard to the conservation of biodiversity. This means that Planning authorities must consider biodiversity when planning or undertaking activities. Section 41 of the Act lists species found in England which were identified as requiring action under the UK Biodiversity Action Plan and which continue to be regarded as conservation priorities under the *UK Post – 2010 Biodiversity Framework*.

2.1.5 Protection of Badgers Act

The Protection of Badgers Act (1992) relates to the welfare of Badgers (*Meles meles*) as opposed to nature conservation considerations. The Act prevents:

- The wilful killing, injury, ill treatment or taking of Badgers and / or
- Interference with a Badger sett
- Damaging or destroying all or part of a sett
- Causing a dog to enter a set and
- Disturbing a Badger while it is occupying a sett

Provisions are included within the Act to allow for the lawful licensing of certain activities that would otherwise constitute an offence under the Act.

2.1.6 The Environment Act (2021)

The Environment Act 2021 is the UK's new legislation for environmental protection in the UK, which includes protection of water quality, clean air, and biodiversity among other key protections. This Act provides the government power to set targets to reach long-term aims relating to the environment, which will be periodically reviewed and updated. This legislation also establishes a new environmental watchdog organisation, the Office for Environmental Protection (OEP), which will hold the government accountable on environmental issues.

Part 6 of The Environment Act relates to nature and biodiversity. This section makes provision for biodiversity net gain to be a condition of planning permission in England and a requirement for nationally significant infrastructure projects. Biodiversity net gain will require maintenance for a period of at least 30 years after the completion of enhancement works to be achieved.

The legislation also includes updates to existing environmental legislation, such as the NERC Act 2006, to strengthen biodiversity enhancement rather than just conservation and includes a requirement for local, or relevant, authorities to publish biodiversity reports. Further, The Environment Act places a requirement on responsible authorities to prepare local nature recovery strategies, which will outline nature conservation sites and priorities and opportunities for recovering or enhancing biodiversity within the local area. Within England, the legislation also provides Natural England with the power to publish 'species conservation strategies' and 'protected site strategies' to identify activities that may affect a species or site's status and outline their opinions on measures that would be appropriate to avoid, mitigate or compensate any adverse impacts.

2.2 Policy

2.2.1 National

The National Planning Policy Framework (NPPF) (2024) sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced.

Chapter 15 'Conserving and enhancing the natural environment' states that planning policies and decisions should contribute to and enhance the natural and local environment by protecting and enhancing sites of biodiversity, the wider benefits from natural capital and ecosystem services, minimising impacts on and minimising impacts on and providing net gains for biodiversity including by incorporating features which support priority or threatened species such as swifts, bats and hedgehogs.

The NPPF states that plans should distinguish between the hierarchy of international, national and locally designated sites and land should be allocated with the least environmental or amenity value and take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure for the enhancement of natural capital at a catchment or landscape scale.

To protect and enhance biodiversity, plans should identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation and promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species and identify and pursue opportunities for securing measurable net gains for biodiversity.

The NPPF states determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a SSSI, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of SSSIs;
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists;
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should

be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

Potential SPAs and possible SACs, listed or proposed Ramsar sites and sites required as compensatory measures for the previous should be given the same protection as habitats sites.

2.2.2 Local – Mid-Sussex District Council

Adopted in March 2018 the District Plan states nearly 50% of the District is within the High Weald Area of Outstanding Natural Beauty, and over 10% is within the South Downs National Park. Mid Sussex is the tenth most wooded District in the South East and two-thirds of this woodland is classified as 'ancient'. It also has many sites valued for their biodiversity including Sites of Special Scientific Interest, Sites of Nature Conservation Importance, Local Nature Reserves and Biodiversity Opportunity Areas.

Strategic Objectives to protect and enhance the environment include:

1. To promote development that makes the best use of resources and increases the sustainability of communities within Mid Sussex, and its ability to adapt to climate change
2. To promote well located and designed development that reflects the District's distinctive towns and villages, retains their separate identity and character and prevents coalescence
3. To protect valued landscapes for their visual, historical and biodiversity qualities
4. To protect valued characteristics of the built environment for their historical and visual qualities
5. To create and maintain easily accessible green infrastructure, green corridors and spaces around and within the towns and villages to act as wildlife corridors, sustainable transport links and leisure and recreational routes
6. To ensure that development is accompanied by the necessary infrastructure in the right place at the right time that supports development and sustainable communities. This includes the provision of efficient and sustainable transport networks

DP37: Trees, Woodland and Hedgerows

The District Council will support the protection and enhancement of trees, woodland and hedgerows, and encourage new planting. In particular, ancient woodland and aged or veteran trees will be protected.

Development that will damage or lead to the loss of trees, woodland or hedgerows that contribute, either individually or as part of a group, to the visual amenity value or character of an area, and/ or that have landscape, historic or wildlife importance, will not normally be permitted.

Proposals for new trees, woodland and hedgerows should be of suitable species, usually native, and where required for visual, noise or light screening purposes, trees, woodland and hedgerows should be of a size and species that will achieve this purpose.

Trees, woodland and hedgerows will be protected and enhanced by ensuring development:

- incorporates existing important trees, woodland and hedgerows into the design of new development and its landscape scheme; and
- prevents damage to root systems and takes account of expected future growth; and
- where possible, incorporates retained trees, woodland and hedgerows within public open space rather than private space to safeguard their long-term management; and
- has appropriate protection measures throughout the development process; and
- takes opportunities to plant new trees, woodland and hedgerows within the new development to enhance on-site green infrastructure and increase resilience to the effects of climate change; and
- does not sever ecological corridors created by these assets.

Trees, woodland and hedgerows form part of the District's green infrastructure, and in particular, are important for health and well-being, biodiversity, and increasing resilience to the effects of climate change. Ancient woods are irreplaceable wildlife habitats with complex ecological conditions that have developed over centuries. They contain a wide range of wildlife including rare species, however, because the resource is limited and highly fragmented, ancient woodland and their associated wildlife are particularly vulnerable and must be protected from damaging effects of adjacent and nearby land uses that could threaten the integrity of the habitat and survival of its special characteristics.

The District Plan recognises this contribution and will support the protection of trees, woodland and hedgerows, as well as encouraging new planting. Development will be required to incorporate trees, woodland and hedgerows into the design and landscaping scheme.

All hedgerows on farmland and open land are protected and consent is required from the District Council to remove them. The Hedgerow Regulations 1997 also define 'important' hedgerows as being of particular archaeological, historical, wildlife or landscape value.

DP38: Biodiversity

Biodiversity will be protected and enhanced by ensuring development:

- Contributes and takes opportunities to improve, enhance, manage and restore biodiversity and green infrastructure, so that there is a net gain in biodiversity, including through creating new designated sites and locally relevant habitats, and incorporating biodiversity features within developments; and
- Protects existing biodiversity, so that there is no net loss of biodiversity. Appropriate measures should be taken to avoid and reduce disturbance to sensitive habitats and species. Unavoidable damage to biodiversity must be offset through ecological enhancements and mitigation measures (or compensation measures in exceptional circumstances); and
- Minimises habitat and species fragmentation and maximises opportunities to enhance and restore ecological corridors to connect natural habitats and increase coherence and resilience; and
- Promotes the restoration, management and expansion of priority habitats in the District; and

- Avoids damage to, protects and enhances the special characteristics of internationally designated Special Protection Areas, Special Areas of Conservation; nationally designated Sites of Special Scientific Interest, Areas of Outstanding Natural Beauty; and locally designated Sites of Nature Conservation Importance, Local Nature Reserves and Ancient Woodland or to other areas identified as being of nature conservation or geological interest, including wildlife corridors, aged or veteran trees, Biodiversity Opportunity Areas, and Nature Improvement Areas. Designated sites will be given protection and appropriate weight according to their importance and the contribution they make to wider ecological networks.

Policy DP38 'Biodiversity' reflects the requirements of the National Planning Policy Framework (section 11) where it relates to biodiversity and the natural environment. It takes into account the duty on the District Council to have regard to the purpose of conserving biodiversity. Development proposals should be informed by local ecological and geological evidence and national guidance. Local ecological evidence should include protected and notable species as well as considering the potential effects of the development on the habitats and species on the Natural Environment and Rural Communities Act 2006 section 41 list.

DP17: Ashdown Forest Special Protection Area (SPA) and Special Area of Conservation (SAC)
In order to prevent adverse effects on the Ashdown Forest SPA and SAC, new development likely to have a significant effect, either alone or in combination with other development, will be required to demonstrate that adequate measures are put in place to avoid or mitigate any potential adverse effects. Within a 400 metres buffer zone around Ashdown Forest, mitigation measures are unlikely to be capable of protecting the integrity of the SPA and, therefore, residential development will not be permitted.

Within a 7km zone of influence around the Ashdown Forest SPA, residential development leading to a net increase in dwellings will be required to contribute to mitigation through:

- 1) The provision of Suitable Alternative Natural Greenspace (SANG) to the minimum level of 8Ha per 1,000 net increase in population; or a financial contribution to SANGs elsewhere; or the provision of bespoke mitigation; and
- 2) A financial contribution to the Ashdown Forest Strategic Access Management and Monitoring (SAMM) Strategy.

Large schemes proposed adjacent or close to the boundary of the 7km zone of influence may require mitigation for the SPA. Such proposals for development will be dealt with on a case-by-case basis.

Where bespoke mitigation is provided, these measures will need to be in place before occupation of development and must be managed and maintained in perpetuity. The effectiveness of such mitigation will need to be demonstrated prior to approval of the development. Bespoke mitigation will need to be discussed and agreed by the District Council as the competent authority following advice from Natural England.

3.0 METHODOLOGY

3.1 Desk Study

3.1.1 Data Request

A data request was submitted to the Sussex Biodiversity Records Centre (SxBRC) to ascertain any records held of nature conservation designations and protected species within 2 km of the boundary of the site.

The data search covered:

- Statutory designated sites
- Non-statutory designations such as SNCIs
- Records of protected and notable species.
- Bat records within 2 km of the site

3.1.2 Waterbodies

Any ponds located within 500m of the proposed development were searched for using Ordnance Survey maps and available aerial images.

3.2 Field Survey

3.2.1 Habitats

The walkover survey which forms the basis of the findings of this report was carried out by Lewis Lakudzala BSc (Hons), MRes, ACIEEM and Amy Johnston BSc (Hons) on the 6th December 2023 with an updated habitat assessment completed on 7th June 2024 by Lewis Lakudzala BSc (Hons), MRes, ACIEEM and Shannon Dagnell MSc.

Habitats on site pre-development were identified in accordance with the categories specified for a UK Habitats survey, using Habitat Definitions Version 2.0 (UKHab Ltd., 2023). This was chosen as an appropriate habitat categorisation system as it fits within the Biodiversity Metric calculation. Where appropriate primary habitat codes were used although for some habitat types, the use of secondary habitat codes was necessary as well.

3.2.2 Badger

The site was thoroughly searched for evidence of use by Badgers (*Meles meles*), with the specific aim of identifying the presence and location of any setts. In accordance with the *Badgers and Development: A Guide to Best Practice and Licensing* (Natural England, 2011) guidance, the survey accounted for a 30m from the site's boundary (observed where possible i.e. does not conflict with private dwellings). Evidence of Badgers could include latrines, dung pits, feeding remains and foraging evidence, trails and setts.

3.2.3 Bats

3.2.3.1 Ground Level Tree Assessment

A non-exhaustive Ground Level Tree Assessment (GLTA) assessment of trees to be removed to facilitate the new access road on site was undertaken by Lyndsey Barratt (class level 2 survey licence number 2024-11993-CL18-BAT). This followed BCT (Collins (ed) 2023) best

practice survey which includes aiming to identify the following Potential Roost Features (PRFs):

- PRFs formed by disease and decay: woodpecker holes, squirrel holes, knot holes, pruning cuts, tear outs, wounds, cankers, compression, forks, butt rots
- PRFs formed by damage: lightning strikes, hazard beams, subsidence cracks, shearing cracks, transverse snaps, welds, lifting bark, desiccation features, frost cracks; and
- PRFs formed by association: fluting Ivy.

The presence or absence of any of the features listed above are then feed into the classification of the tree which is as follows (**Table 2**).

Table 2. Guidelines for assessing the potential suitability of sites for bats (Trees) (adapted from Collins, 2023).

Suitability	Description
	Roosting Features
Negligible	Tree does not support any suitable features that could be potentially utilized by roosting bats.
FAR	Further Assessment Required (FAR) to establish if any PRFs are present in the tree.
PRF - I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
PRF - M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

3.2.3.2 Night-time Bat Walkover

Based on the suitability of the habitat for foraging and commuting bats, Night-time Bat Walkovers ((NTBW) were carried out on site. The surveys followed the methodology of 'night-time bat walkover survey' outlined within best practise guidelines (BCT, 2023). The surveys started at sunset where surveys started at a point of interest for a minimum of 30 minutes, following which a route around the site was walked continuously for two hours. The surveys consisted of the surveyors recording a time-stamped narrative of bat observations including:

- Number of bats
- Flight direction
- Flight height
- Type of flight
- Behaviour

All habitats on site were sampled. All echolocation calls were recorded and were subsequently analysed to confirm species. Elekon Batlogger (for analysis of calls via sonogram) detectors were employed during all surveys. The surveys were carried out by Lewis Lakudzala, Tom Lane and Milo Henderson.

3.2.3.3 Static Detectors

The 'stratified' method of sampling locations was utilised where the location was identified by dividing the site into sub-areas and those of particular interest are surveyed more intensively. The detectors were deployed at a minimum of 1.5m away from flat surfaces and/or vegetation with care given to the direction of the microphone. A minimum of five nights of data per month (April – October) was collected, as specified in best practice guidelines (BCT, 2023). The samples were separated by at least three weeks. Similar locations was used for each survey to enable comparison as shown in **Figure 2** below.

Figure 2. The locations of the static detector placed out on site with the same location used each month.



3.2.4 Assessment of Ponds

3.2.4.1 Habitat Suitability Index

A Habitat Suitability Index (HSI) was carried out on a number of ponds located within proximity to the site using the following the guidance provided with ARG (2010). This considers the following factors when calculating the ponds suitability to support GCN:

- Location of Pond,
- Surface Area,
- Permanence,
- Water Quality,
- Shade,
- Presence of Waterfowl and Fish,
- Number of Ponds within 1km,
- Quality of Terrestrial Habitat,
- Macrophyte Cover.

Criteria are used to calculate scores according to ARC Guidelines (ARC 2010) using Oldham (2000) calculation formulae. This gives a score between 0-1 of pond suitability for GCN with:

0.40 – 0.50: Poor suitability for GCN

0.51 – 0.59: Below average suitability for GCN

0.60 – 0.69: Average suitability for GCN

0.70 – 0.79: Good suitability for GCN

0.80 – 1.00: Excellent suitability for GCN

3.2.4.2 eDNA Survey

Due to the results of the HSI assessments, an eDNA assessment was undertaken on Pond 1 during May 2024 and Pond 3 in May 2025 to determine the presence/likely absence of the species. The survey was undertaken in full compliance with best practice guidance published by Defra (Biggs et al., 2014). A total of 20 water samples were taken from the pond, spaced as evenly as possible around the pond margin and targeting in particular areas where suitable egg-laying vegetation was present, as well as areas of open water which could facilitate displaying male GCN. 30ml samples were taken at each survey point and mixed together in a sterile bag. Six individual 15ml samples of this water were then mixed thoroughly with ethanol to preserve the eDNA sample. These samples were then refrigerated at 2-4° C prior to being sent for analysis. Analysis of the eDNA samples was undertaken by Surescreen Scientifics, a recognised 'quality supplier' by Natural England.

3.2.5 Reptiles

The reptile surveys undertaken by Ecosupport were carried out in accordance with best practice guidelines as stated in various resources (Froglife 1999) (Gent & Gibson 1998) during April & May 2024. Artificial refugia comprising of bitumen roofing felt were distributed throughout the suitable reptile habitats on site. The distribution of 124 pieces of refugia throughout the identified suitable habitat on-site. Seven visits to the site were subsequently undertaken during suitable weather conditions during which all the refugia were checked for the presence of reptiles in combination with a visual observation transect.

This survey is considered sufficient to identify the presence or likely absence of reptiles on the site. It does not provide sufficient information to allow an accurate assessment of population sizes however, it does allow inferences to be made as to population size class in combination with other considerations such as the extent and quality of the habitat.

3.2.6 Dormice

The walkover identified suitable habitat for Dormouse (*Muscardinus avellanarius*) on the site and consequently recommended a survey should be undertaken to determine their presence or likely absence. Methodological guidance for Dormouse surveys is provided in the *Dormouse Conservation Handbook* (Bright et al 2006) whereby a minimum of 50 tubes is recommended to be used per site, at a spacing of 20m. Due to the size of the site, a total of 45 tubes were

deployed on site in March 2024 with the approximate locations of the areas covered are shown in **Fig 3**.

The *Dormouse Conservation Handbook* uses an “index of probability” to assess the likelihood of a survey detecting Dormice. This assigns a score for each month which nest tubes are on a site (see **Table 2**) and recommends that a total of 20 points is necessary. The surveys were carried out between April and November 2024 to ensure that all key parts of the season were covered and sufficient survey effort was achieved. The tubes were checked by Lyndsey Barratt (Level 1 Dormouse licence number 2020-44360-CLS-CLS) and Katalin Balazs (accredited agent working under the license of Ashley James 2018-35528-CLS-CLS).

Table 2. Index of probability of finding Dormice present in nest tubes in any one month. From the Dormouse conservation handbook (Bright et al 2006).

Month	Points	Month	Points
April	1	August	5
May	4	September	7
June	2	October	2
July	2	November	2

Figure 3. Areas of the site covered by the Dormouse nest tube surveys in 2024 with 45 tubes set out.



3.2.7 Breeding Bird Surveys

The survey methodology was broadly based upon the British Trust of Ornithology (BTO) Breeding Bird Survey (BBS) and Common Bird Census methods, including the BTO Standard Recording Codes (BTO, 2004). Four surveys were undertaken covering April-June during favourable weather conditions (with little or no rain, little to no wind and good visibility). The survey visits were carried out at dawn, taking approximately 140 minutes each. The surveys followed a pre-defined linear transect route (**Fig 4**) and comprised 22 No. 10-minute observational points from where the surveyor could observe bird activity and listen for birdcalls to establish territories and presence of breeding/nesting birds. Behaviour such as singing male birds, young, nests, feeding behaviour, territorial disputes and defensive behaviour around possible active nests were noted. Observations were marked on a site plan.

Figure 4. Linear transect route used for breeding bird surveys.



3.3 Assessment Methodology

3.3.1 Introduction

The methodology for the assessment of the likely ecological effects of the proposed development is based on CIEEM's *Guidelines for Ecological Assessment in the UK* (CIEEM 2018). Although this assessment does not constitute a formal Ecological/ Environmental Impact Assessment, the CIEEM guidelines provide a useful framework for assessing ecological impacts at any level.

3.3.2 Valuation

Features of ecological interest are valued on a geographic scale. Value is assigned on the basis of legal protection, national and local biodiversity policy and cultural and/or social significance.

3.4 Limitations

3.4.1 Habitats

The initial walkover conducted in December was carried out outside of the optimum time of year for vascular flowering plants. This is not considered to have affected the accuracy of the site's valuation as an updated habitat assessment was carried out in June 2024. Similarly, this survey does not constitute a full site assessment for invasive plant species such as Japanese Knotweed (*Fallopia japonica*).

3.4.2 Dormouse Surveys

Due to dense bracken cover along the boundaries of the site, and in compliance with the recommended distance between each tube as per the best practice guidelines, it was only possible to put out 45 Dormouse tubes. This is not considered to have any negative impacts on the survey findings as Dormice were recorded on site.

4.0 ECOLOGICAL BASELINE

4.1 Designated Sites

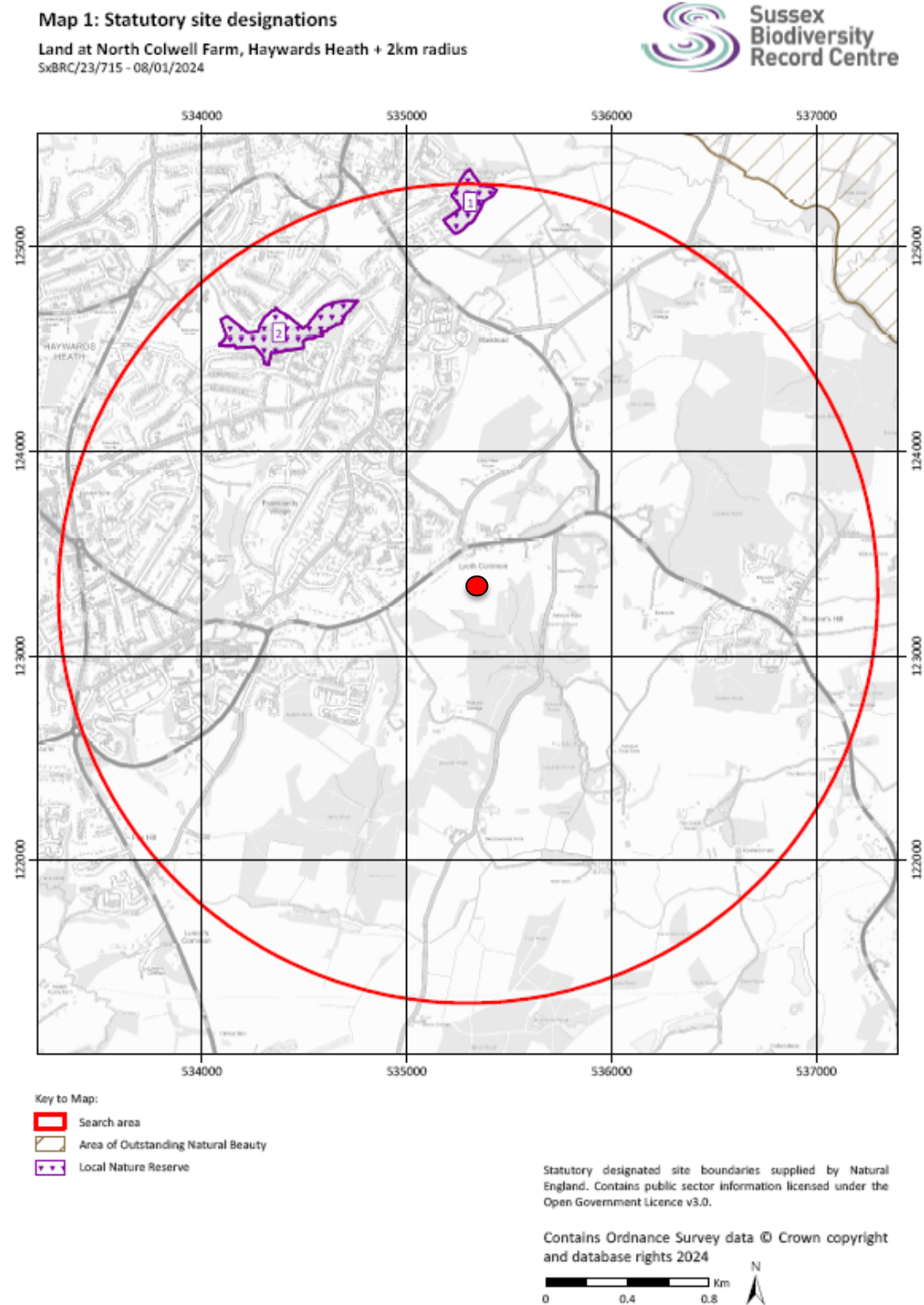
4.1.1 Statutory Designated

Fig 5 below displays the map provided by SxBRC with the statutory designated sites located within 2 km of the site. This has identified the following sites within the search radius (**Table 3**).

Table 3. Statutory designated sites located within 2 km as shown in the **Fig 5** map provided by SxBRC.

Site Code (as per Fig 8)	Name	Designation(s)	Distance to Site
1	Eastern Road Nature Reserve	Local Nature Reserve	2 Km N
2	Scrase Valley	Local Nature Reserve	1.6 Km NW

Figure 5. Statutory internationally designated sites located within 2km of the site as provided by SxBRC (2024).



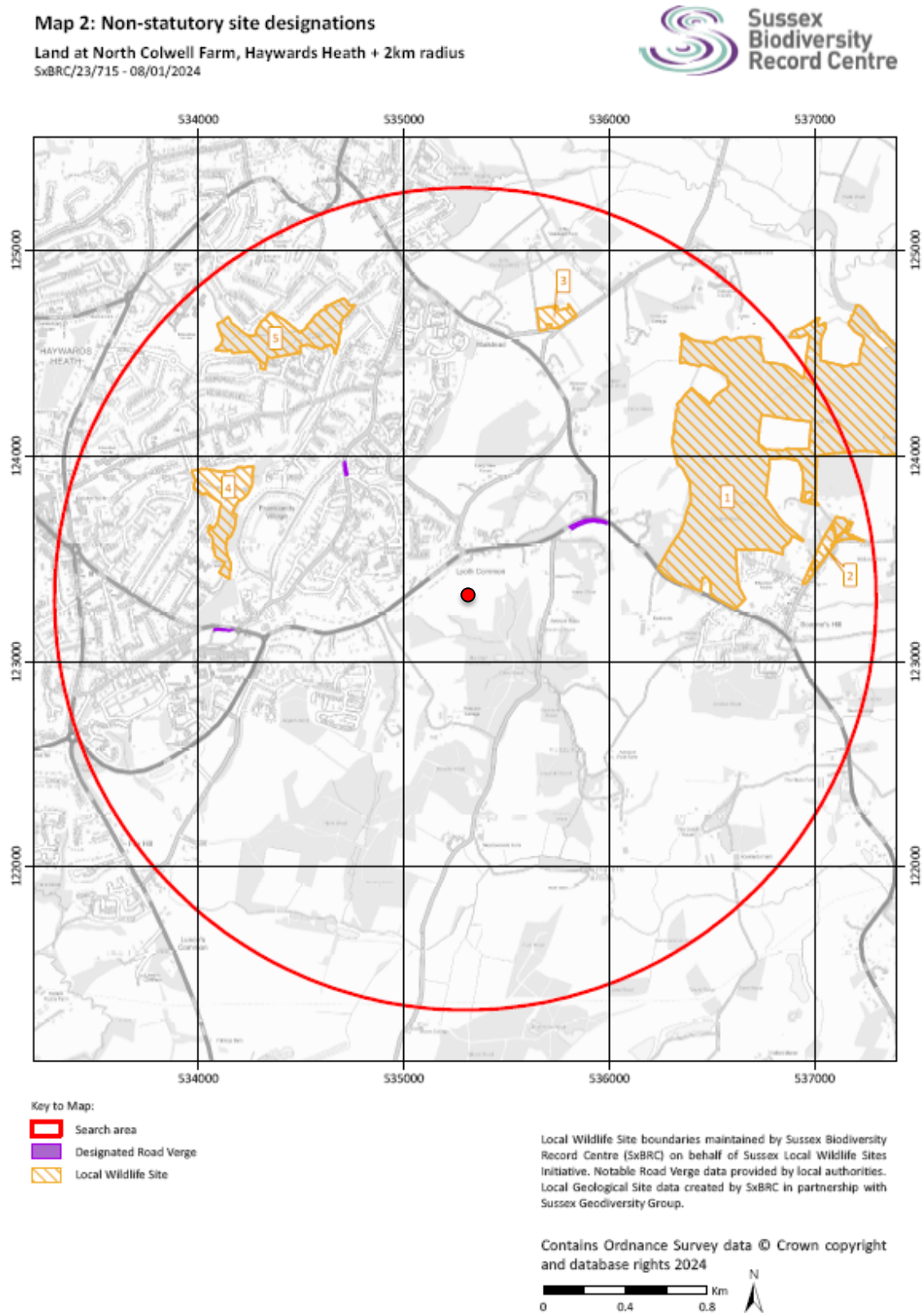
4.1.2 Locally Designated Sites

The locally designated sites identified by SxBRC are shown in **Fig 6** with a summary of these sites presented in **Table 4**.

Table 4. Summary of locally designated sites within 2 km of the site as provided by SxBRC and shown in **Fig 6** below.

Site Code (as per Fig 9)	Site Name / Designation	Distance to Site
1	M08 - Costells, Henfield and Nashgill Woods	1.1Km NE
2	M10 - Scaynes Hill Common	1.6 Km E
3	M18 - Walstead Cemetery	1.4 Km NE
4	M19 - Western Road Cemetery	1.2 Km NW
5	M25 - Scrase Valley	1.2 Km NW

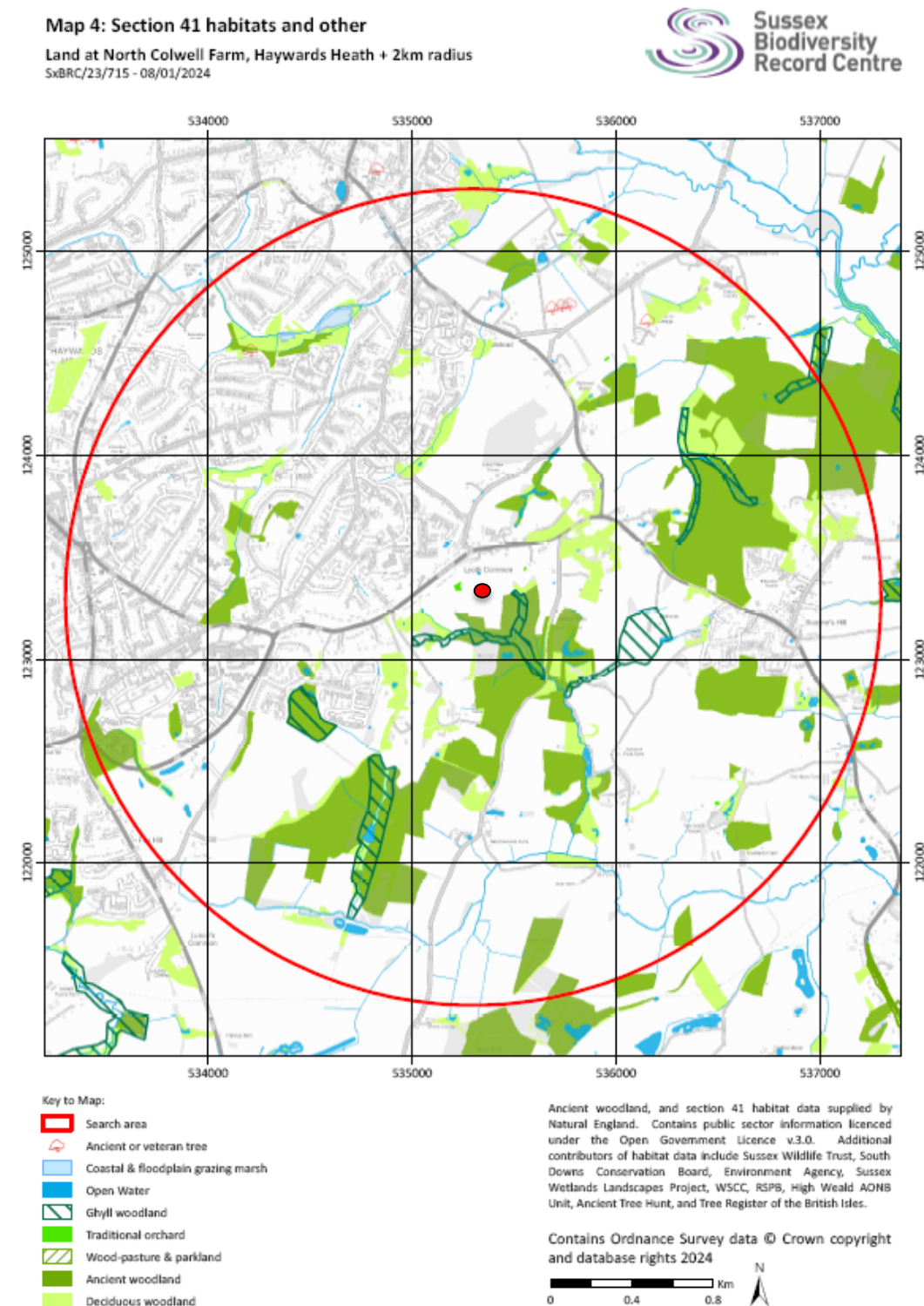
Figure 6. Non-statutory designated sites located within 2 km as provided by SxBRC (2024) and approximate location of the site (red dot).



4.1.3 Priority Habitat

There were priority habitats identified adjacent to the site (as protected under section 41 of the NERC Act). As shown in **Figure 7**, there is ancient woodland present south east of the site, in addition to a traditional orchard and open water north of the site. Ghyll woodland has been identified north of the site with water running through it and deciduous woodland north west of the site. Ancient trees have additionally been identified north east and north west of the site. A mixture of deciduous and ancient woodland, in addition to open water is present in the north eastern, south western and north western directions, 1.5km or less from the site.

Figure 7. Ancient, ghyll and deciduous woodland are in immediate proximity to the site, in addition to a traditional orchard and running water (SxBRC, 2024).



4.2 Vegetation Survey Results

The vegetation within the site has been described below using the UK Habs Habitat Definitions Version 2.0 (UKHab Ltd., 2023). The below species noted should not be considered an exhaustive list and instead refer to dominant, characteristic and other noteworthy species associated with each community within the survey area (approximate spatial extent shown in the habitat map appended). The habitat types on site comprise:

- *Other Neutral Grassland (g3c) with grazed (10) and scattered rushes (14)*
- *Bracken (g1c)*
- *Lowland Mixed Deciduous Woodland (w1f) – with line of trees (33) and ditch (50)*
- *Built Up Areas and Gardens (u1) – with vegetated garden (828)*

Please note, the below habitat descriptions should be read in conjunction to the UK Habs Map within Appendix 1.

4.2.1 Other Neutral Grassland (g3c) with grazed (10) and scattered rushes (14)

The majority of the habitat present on site consisted of other neutral grassland which was heavily grazed by Deer, therefore only present with a short sward (**Fig 8**). The grassland structure and species composition were similar across the three parcels. Grass species noted included: Cock's Foot (*Dactylis glomerata*), Yorkshire Fog (*Holcus lanatus*), Annual Meadow Grass (*Poa annua*), False Oat-grass (*Arrhenatherum elatius*) and Meadow Foxtail (*Alopecurus pratensis*). Forbs recorded include Meadow Buttercup (*Ranunculus acris*), Mouse-ear Chickweed (*Cerastium fontanum*), Bird's-foot Trefoil (*Lotus corniculatus*), Red Clover (*Trifolium pratense*), White Clover (*Trifolium repens*), Creeping Cinquefoil (*Potentilla reptans*), Creeping Buttercup (*Ranunculus repens*), Germander Speedwell (*Veronica chamaedrys*) and Soft Rush (*Juncus effusus*).

Figure 8. Grazed other neutral grassland present with scattered bracken and scrub (June 2024).



4.2.2 Bracken (g1c)

Patches of dense bracken were present along the boundaries of the site, adjacent to the boundary woodland (**Fig 9**). These areas supported only Bracken (*Pteridium aquilinum*) with no other vegetation present.

Figure 9. View of the bracken present within the western parcel (June 2024).



4.2.3 Lowland Mixed Deciduous Woodland (w1f) – with line of trees (33) and ditch (50)

Around all boundaries of the site there are mature line of trees present (**Fig 10**) some with connectivity into further woodland. Browsing damage caused by grazing Deer was noted on a number of the trees. There are also two small ditches present with these treelines (**Fig 11**). Species noted included; Yew (*Taxus Baccata*), Silver Birch (*Betula pendula*), Oak (*Quercus Spp.*), Hazel (*Corylus avellana*), Beech (*Fagus sylvatica*), Willow (*Salix spp.*), Sycamore (*Acer pseudoplatanus*) and Ash (*Fraxinus excelsior*).

Figure 10. Line of trees present on site (June 2024).



Figure 11. View of one of the ditches present on site (taken June 2024).



4.2.4 Built Up Areas and Gardens (u1) – with vegetated garden (828)

The final habitat present on site is garden located to the rear of North Colwell Farmhouse. This comprises of a managed lawn dominated by Perennial Rye grass (*Lolium perenne*) with Dandelion (*Taraxacum agg.*) and Daisy (*Bellis perennis*) also noted.

4.3 Bats

4.3.1 Pre-existing Data

The data request from SxBRC returned the following records within 2 km of the site (**Table 5**).

Table 5. List of Bat records within 2 km of the site provided by SxBRC.

Taxon Name	Common Name	Number of Records	Further Information
<i>Myotis spp.</i>	Myotis	9	Recorded from aural bat detector or during a dusk emergence, bat or field observation survey. Behaviours include foraging, commuting and flying over.
<i>Myotis bechsteinii</i>	Bechsteins	1	Singular male trapped
<i>Myotis daubentonii</i>	Daubentons	1	
<i>Nyctalus</i>	<i>Nyactlus spp</i>	1	
<i>Nyctalus noctula</i>	Noctule	4	Recorded from field transect, bat and dusk emergence surveys, in addition to field observation. One captured in flight. Actual count type and detector.
<i>Pipistrellus</i>	Pipistrelle	8	Droppings found at a building inspection. Singular grounded bat released.
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	46	Hibernacula roost found. Some detected by aural bat detector. Bats recorded foraging, commuting and in flight. One ground juvenile rehabbed and one grounded, injured bat healed but unable to be released. One died due to cat injury.
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	17	Juvenile female present that is permanently captive due to cat capture. Unspecified roost in school buildings. Some commuting and foraging.
<i>Plecotus spp</i>	Long-eared Bat species	5	Droppings found. Some bats foraging and commuting.
<i>Chiroptera</i>	Bat	6	Droppings found. Bats seen in flight.
<i>Eptesicus serotinus</i>	Serotine	5	Unspecified roosts in school buildings. Actual count type, identified via detector and observation.
<i>Myotis alcathoe</i>	Alcathoe Bat	1	Recorded from aural bat detector and found in a garden.
<i>Myotis mystacinus</i>	Whiskered bat	1	Bats rescued.

<i>Myotis mystacinus/brandtii</i>	Whiskered/Brandt's	3	Grounded bats. One found dead on arrival due to starvation. One released.
<i>Plecotus auritus</i>	Brown Long-eared Bat	19	Lactating females found. Maternity roosts present. Some unspecified roosts in school buildings. One dead bat and one education bat.

4.3.2 Preliminary Roost Assessment (PRA)

4.3.2.1 Ground Level Tree Assessment (Trees)

Trees within a line of trees were subject a Ground Level Tree Assessment (GLTA) on site. Four of the surveyed trees were identified to support potential for roosting bats (PRF-I).

The trees were located within the treeline adjacent to the proposed access location on the southwest of the site (see appended UK Habs Map for locations) (**Fig 12a**). Species included 2x Sycamore, 1x Ash and 1x Oak. Features recorded include split limbs, peeling bark and superficial damage with only external PRFs identified (**Fig 12b**). The trees were also immature with smaller DBHs (less than 20cm) recorded. The trees were all therefore classified as **PRF-I** as per the BCT Best Practice Guidelines (Collins, 2023). These trees are to be removed under current proposals. No additional tree removal is required beyond what has been previously identified on site.

Figure 12a. The locations of the trees on the SW of the site which were identified as PRF-I for roosting bats.



Figure 12b. View of the PRF – I's identified on the trees adjacent to the proposed access road (May 2024)



4.3.3 Foraging & Commuting Habitat Assessment

Whilst the site is largely dominated by heavily grazed grassland, there are some areas of longer sward grassland, scrub and a variety of mature trees forming commuting routes on site. Furthermore, the site borders woodland and could therefore provide an important foraging area for any nearby roosts upon emergence. Taking the above into account, and the abundance of local records the site is considered to be of **High** potential for foraging and commuting bats.

4.3.4 Walked Transects (2023)

Table 7 below indicates the dates and other relevant information recorded during the transect surveys with the results presented below in **Fig 13**.

Table 7. Relevant information recorded during the transect surveys. Wind speed is approximated in the Beaufort Scale. CW = Clockwise and CCW = Counter Clockwise (refer to **Fig 3** for route).

Date	Temp (°C)	Cloud Cover (%)	Precipitation	Wind (Beaufort scale)	Start Time	Finish Time
29/05/24	14	30	0	1	21:02	23:32
03/07/24	16	90	0	1	21:17	23:47
16/09/24	16	5	0	1	19:11	21:41

Figure 13. The number and species composition of bat recordings noted during the walked transects (n = 3) at the different listening points from all the surveys conducted to date (May, July & September 2024).

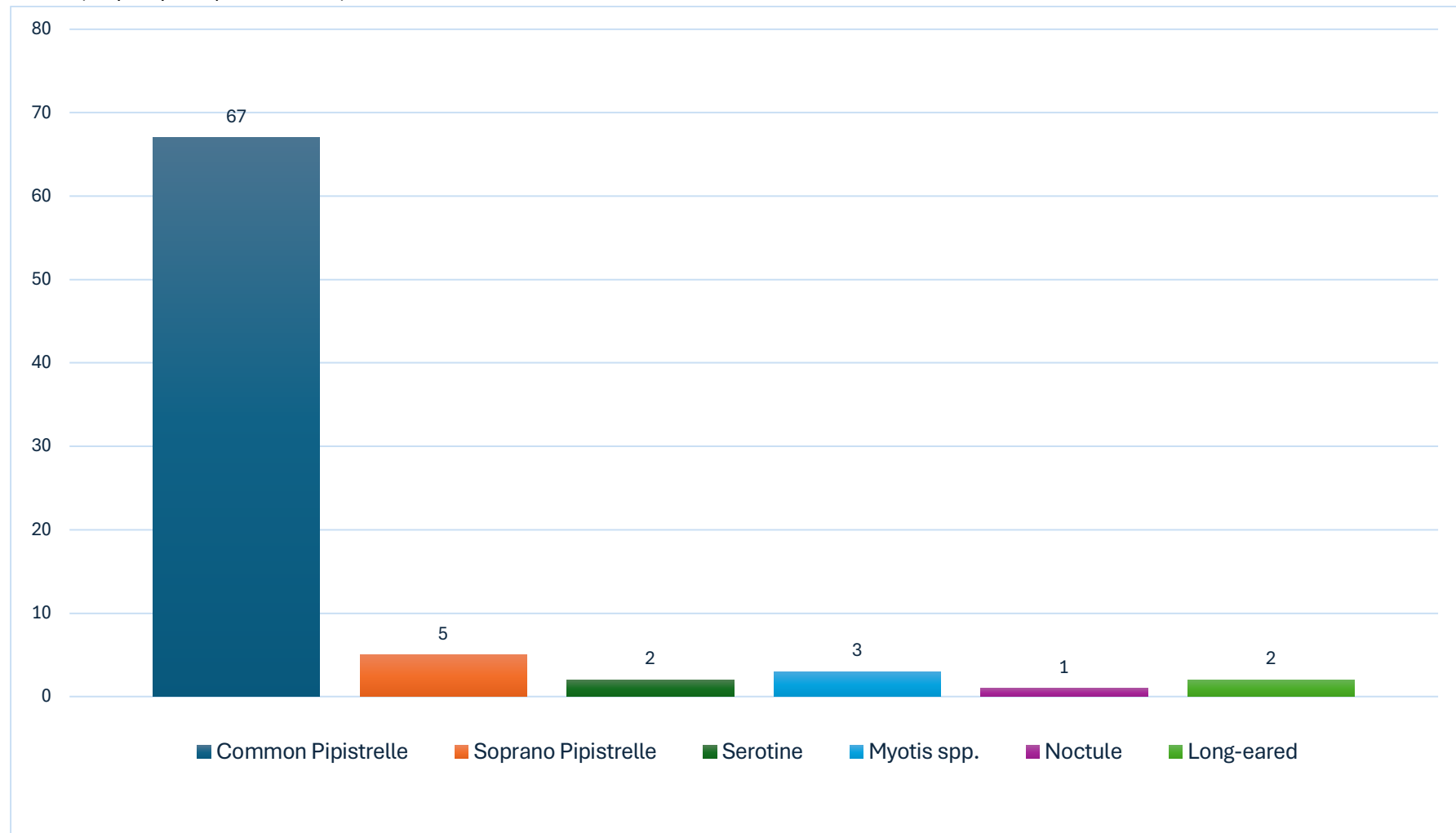
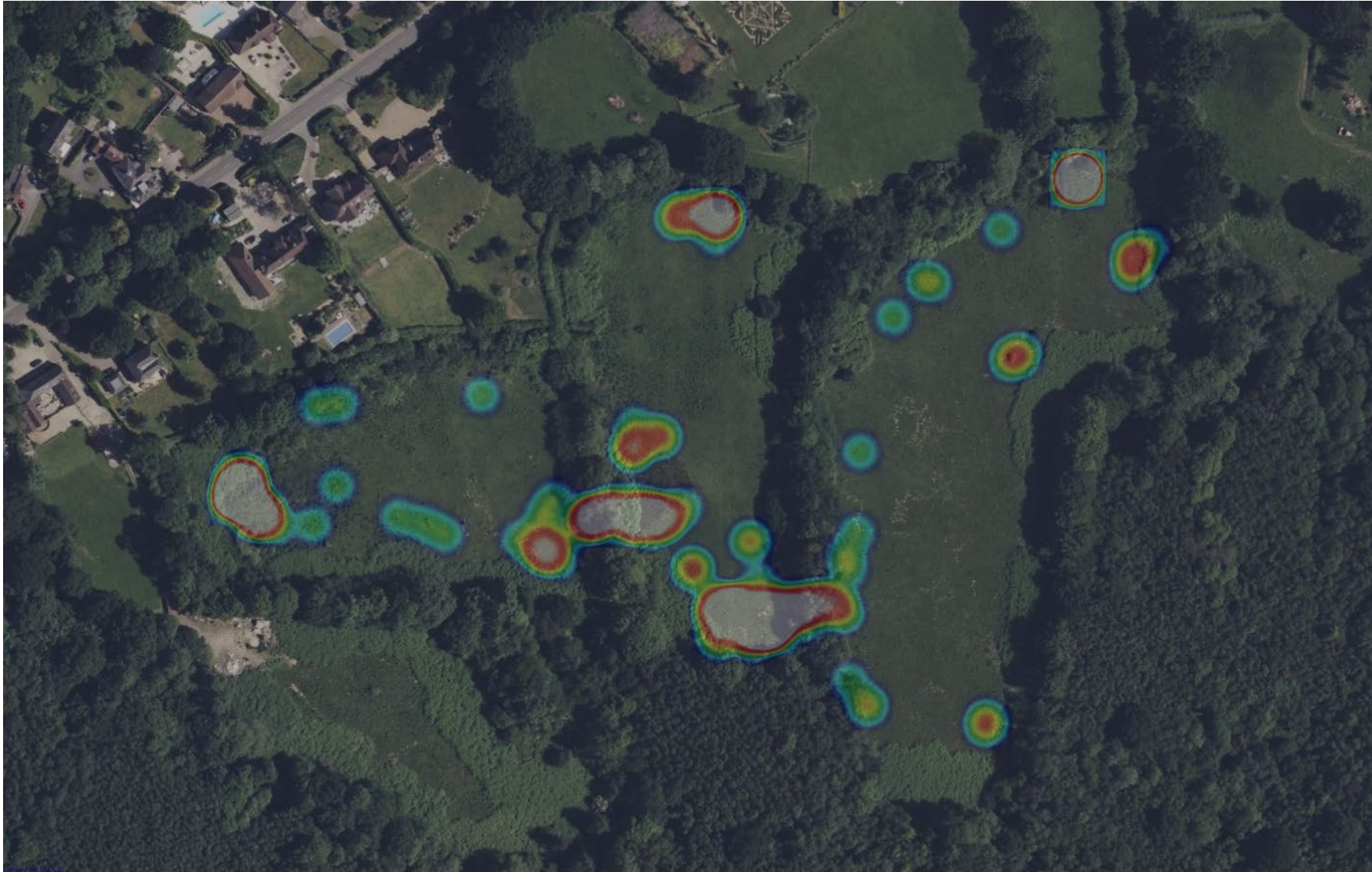


Figure 14. Heat map displaying activity levels recorded during the transect surveys (May, July, September 2024).



4.3.5 Static Monitoring

The results of the static detector monitoring carried out between April – October 2024 are provided in **Table 8** below.

Table 8. Analysis of static deployment from April – October (see **Fig 2** for locations).

Location	Date	Species	Total passes	Average passes per night	Average passes per hour
A1	15th - 22nd April 7 Nights 10.00 hrs p/n	C.pip	520	74.29	7.43
		S.pip	11	1.57	0.16
		Noctule	2	0.29	0.03
		<i>Plecotus</i> spp.	1	0.14	0.01
		<i>Myotis</i> sp.	3	0.43	0.04
A2	15th-22nd April 7 Nights 10.00 hrs p/n	C.pip	419	59.86	5.99
		S.pip	35	5.00	0.50
		Noctule	14	2.00	0.20
		<i>Plecotus</i> spp.	10	1.43	0.14
		Serotine	23	3.29	0.33
		<i>Myotis</i> sp.	6	0.86	0.09
		Barbastelle	3	0.43	0.04
		Leisler's	3	0.43	0.04
A3	15th - 22nd April 7 Nights 10.00 hrs p/n	C.pip	243	34.71	3.47
		S.pip	69	9.86	0.99
		<i>Plecotus</i> spp.	8	1.14	0.11
		<i>Myotis</i> sp.	2	0.29	0.03
B1	21st - 29th May 8 Nights 8.00 hrs p/n	C.pip	1005	125.63	15.70
		S.pip	7	0.88	0.11
		Serotine	15	1.88	0.23
		<i>Plecotus</i> spp.	24	3.00	0.38
		<i>Myotis</i> sp.	10	1.25	0.16
B2	21st - 29th May 8 Nights 8.00 hrs p/n	C.pip	599	74.88	9.36
		S.pip	204	25.50	3.19
		Noctule	1	0.13	0.02
		<i>Myotis</i> sp.	16	2.00	0.25
		Leisler's	12	1.50	0.19
		N. Pip	2	0.25	0.03
		Serotine	26	3.25	0.41
		<i>Plecotus</i> spp.	37	4.63	0.58
B3	21st - 29th May 8 Nights 8.00 hrs p/n	C.pip	2417	302.13	37.77
		S.pip	38	4.75	0.59
		Noctule	4	0.50	0.06
		Serotine	18	2.25	0.28

		Leisler's	4	0.50	0.06
		N. pip	1	0.13	0.02
		<i>Myotis</i> sp.	2	0.25	0.03
		Plecotus spp.	32	4.00	0.50
C1	21st-27th June 6 nights 7.50 hrs p/n	C.pip	828	138.00	18.40
		S.pip	44	7.33	0.98
		Noctule	5	0.83	0.11
		Plecotus spp.	20	3.33	0.44
		Serotine	17	2.83	0.38
		<i>Myotis</i> sp.	6	1.00	0.13
		Barbastelle	1	0.17	0.02
		N. pip	1	0.17	0.02
C2	21st-27th June 6 nights 7.50 hrs p/n	C.pip	400	66.67	8.89
		S.pip	38	6.33	0.84
		Noctule	9	1.50	0.20
		Plecotus spp.	76	12.67	1.69
		Serotine	32	5.33	0.71
		Barbastelle	5	0.83	0.11
		<i>Myotis</i> sp.	13	2.17	0.29
C3	21st-27th June 6 nights 7.50 hrs p/n	S.pip	63	10.50	1.40
		Serotine	52	8.67	1.16
		Noctule	10	1.67	0.22
		Plecotus spp.	63	10.50	1.40
		C.pip	805	134.17	17.89
		<i>Myotis</i> sp.	3	0.50	0.07
		Leisler's	1	0.17	0.02
D1	23rd - 29th July 7 nights 8.25 hrs p/n	C.pip	566	80.86	9.80
		S.pip	14	2.00	0.24
		Noctule	7	1.00	0.12
		Plecotus spp.	119	17.00	2.06
		Leisler's	2	0.29	0.03
		<i>Myotis</i> sp.	12	1.71	0.21
D2	23rd - 29th July 7 nights 8.25 hrs p/n	C.pip	1216	173.71	21.06
		S.pip	524	74.86	9.07
		Noctule	14	2.00	0.24
		Plecotus spp.	65	9.29	1.13
		Serotine	10	1.43	0.17
		<i>Myotis</i> sp.	15	2.14	0.26
		Barbastelle	7	1.00	0.12
D3	23rd - 29th July 7 nights 8.25 hrs p/n	C.pip	621	88.71	10.75
		S.pip	196	28.00	3.39
		Noctule	7	1.00	0.12
		Plecotus spp.	62	8.86	1.07

		Serotine	31	4.43	0.54
		Leisler's	12	1.71	0.21
		<i>Myotis</i> sp.	1	0.14	0.02
		Barbastelle	2	0.29	0.03
E1	19th - 26th August 8 nights 9.75 hrs p/n	C.pip	1940	323.33	43.11
		S.pip	85	14.17	1.89
		Noctule	1	0.17	0.02
		Plecotus spp.	48	8.00	1.07
		Serotine	18	3.00	0.40
		<i>Myotis</i> sp.	19	3.17	0.42
		Leisler's	1	0.17	0.02
		Barbastelle	5	0.83	0.11
E2	19th - 26th August 8 nights 9.75 hrs p/n	C.pip	625	104.17	13.89
		S.pip	55	9.17	1.22
		Plecotus spp.	57	9.50	1.27
		Leisler's	10	1.67	0.22
		Serotine	2	0.33	0.04
		<i>Myotis</i> sp.	30	5.00	0.67
		Barbastelle	35	5.83	0.78
E3	19th - 26th August 8 nights 9.75 hrs p/n	C.pip	478	79.67	10.62
		S.pip	40	6.67	0.89
		Noctule	5	0.83	0.11
		Plecotus spp.	67	11.17	1.49
		Serotine	12	2.00	0.27
		Leisler's	1	0.17	0.02
		<i>Myotis</i> sp.	11	1.83	0.24
F1	24th-29th September 5 nights 12 hrs p/n	C.pip	4817	963.40	80.28
		S.pip	457	91.40	7.62
		Plecotus spp.	95	19.00	1.58
		Leisler's	1	0.20	0.02
		<i>Myotis</i> sp.	128	25.60	2.13
		Barbastelle	31	6.20	0.52
F2	Static failed				
F3	24th-29th September 5 nights 12 hrs p/n	C.pip	40	8.00	0.67
		S.pip	35	7.00	0.58
		Plecotus spp.	75	15.00	1.25
		Serotine	6	1.20	0.10
		Barbastelle	1	0.20	0.02

		<i>Myotis</i> sp.	282	56.40	4.70
G1	23rd - 27th October 5 nights 13.75 hrs p/n	C.pip	196	49.00	3.56
		S.pip	15	3.75	0.27
		Plecotus spp.	14	3.50	0.25
		Serotine	5	1.25	0.09
		<i>Myotis</i> sp.	10	2.50	0.18
		Leisler's	1	0.25	0.02
G2	23rd - 27th October 5 nights 13.75 hrs p/n	C.pip	327	81.75	5.95
		S.pip	136	34.00	2.47
		Plecotus spp.	42	10.50	0.76
		Leisler's	4	1.00	0.07
		<i>Myotis</i> sp.	45	11.25	0.82
		Barbastelle	1	0.25	0.02
G3	23rd - 27th October 5 nights 13.75 hrs p/n	C.pip	133	33.25	2.42
		S.pip	142	35.50	2.58
		Plecotus spp.	43	10.75	0.78
		Leisler's	2	0.50	0.04
		<i>Myotis</i> sp.	66	16.50	1.20

4.3.5.1 *Myotis* spp. assemblages on site

During the static monitoring on site, up to 282 *Myotis* spp. passes were recorded on site with the peak counts in August (Static F3, September). In general, *Myotis* activity was low-moderate on site with around 10-60 passes recorded per month. No *Myotis* passes were recorded during activity transects (**Table 8**).

Following the analysis, it is considered likely that the following *Myotis* species were present on site (ordered from most to least common):

- Natterer's Bat (*Myotis nattereri*)
- Whiskered Bat (*Myotis mystacinus*)
- Daubenton's Bat (*Myotis daubentonii*)

Differing from the transect and the previous survey data, activity levels were low-moderate across all three static locations. Similar to the transect, Static A3 (April) recorded especially high activity levels but less activity was recorded in the same location in May (B3). A high diversity of species were recorded across the three locations included the Annex II Barbastelle.

4.3.5.2 Annex II species on site

The Barbastelle Bat (*Barbastella barbastellus*) was recorded on site during static monitoring surveys, with recordings obtained during April (A2, 3 passes) and June (C1 & C2, 6 passes total), July (D2 & D3, 9 passes total), August (E1 & E2, 40 passes total), September (F1 & F3, 32 passes total) and October (G2, 1 pass). Peak counts were recorded in August (40) with slightly fewer passes recorded in September (32). Although there was a failure in the static F2 deployment in September, the large quantity of data obtained from other deployments is considered sufficient enough that this limitation is not considered to have significantly

impacted the evaluation of the site's importance for Annex II bat species. Although there was a moderate number of passes during August and September, recordings were generally spread out across the evening, indicating foraging & commuting individuals rather than a nearby roost of conservation significance.

Figure 15a. The number of Barbastelle passes recorded per month on the static detectors on site.

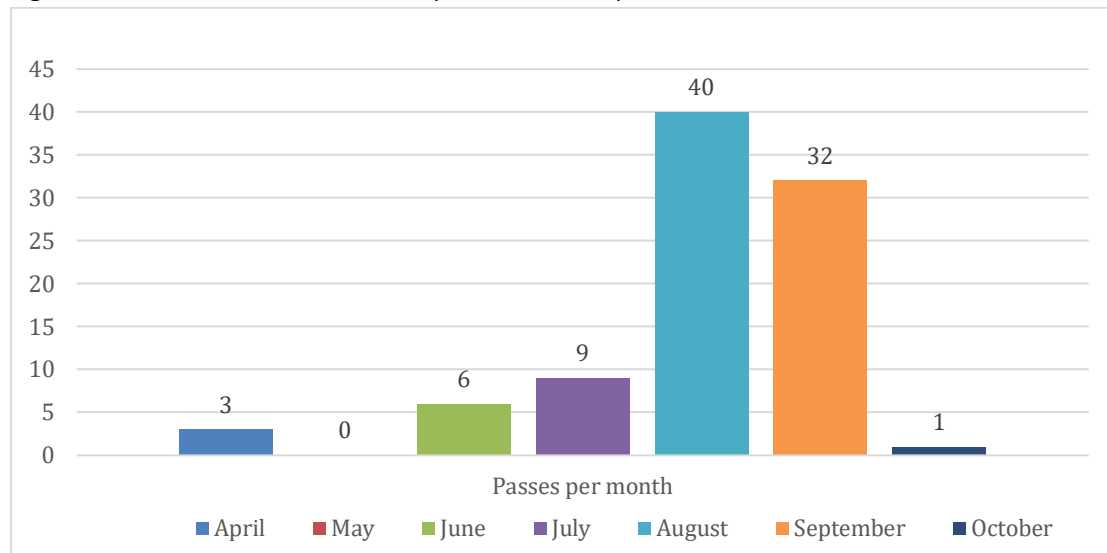


Figure 15b. Locations Barbastelle Bats were recorded during 2024 static deployment with recording month indicated.



4.3.6 Evaluation

During the activity surveys and static detector deployments, calls were dominated by *Pipistrellus* spp, in particular, Common Pipistrelles (*Pipistrellus pipistrellus*), which is to be expected based on a typical species composition sampled across an active season). Soprano Pipistrelles were also active on site. Noctules, *Plecotus* spp, Daubenton's, Natterer's, Whiskered, Leisler's, Serotine's and Nathusius' Pipistrelle's were also recorded on site, although were less abundant. A peak count of 35 Barbastelle passes (considered one of the rarest species) were recorded by the static detectors from in August. Guidance on valuing bat foraging and commuting habitat is provided by Wray *et al* (2010), which uses a points-based system.

The Bat Mitigation Guidelines (Collins, 2023) provides a standard method for assessing importance of bat assemblage. This approach has been developed to reflect geographic variations in species distributions. To determine the maximum possible score any site could achieve, a score is assigned to each species that could be present where:

- widespread in (almost) all geographies [score 1]
- widespread in many geographies, but not as abundant in all [score 2]
- rarer or restricted distribution [score 3]
- rarest Annex II species and very rare [score 4]

Once the score for each category has been calculated and summed to determine the maximum theoretical score, the threshold score needed for any assemblage to meet each geographic level of importance, can be calculated:

- Assemblage score meets or exceeds 45% of the maximum score: County importance
- Assemblage score meets or exceeds 55% of the maximum score: Regional importance
- Assemblage score meets or exceeds 70% of the maximum score: National importance

The threshold for any site in the Southern England achieving a score of –

- 20 would be classed as of at least 'County' importance,
- 25 would be classed as of 'Regional' importance,
- 32 classed as of 'National' importance.

Using this system, the site scores **25 points** for commuting and foraging bats (see **Table 9**) and is correspondingly considered to be of at least '**Regional**' importance.

Table 9. Valuation of habitat for (a) commuting and (b) foraging bats after Wray *et al.* (2010). The points scored by the site are indicated in bold / italic type.

Rarity Category	Species	Score
Widespread	Common Pipistrelle	1
	Soprano Pipistrelle	1
	Brown Long-eared	1
Widespread in many geographies but not as abundant in all	Whiskered	2
	Brandts	2
	Daubentons	2

	Natterers	2
	Noctule	2
Rarer or restricted in distribution	Alcathoe	3
	Serotine	3
	Leisler's	3
	Nathusius Pipistrelle	3
Rarest Annex II Species and very rare	Greater Horseshoe	4
	Lesser Horseshoe	4
	Bechstein	4
	Barbastelle	4
	Grey Long-eared	4
	Maximum Score (out of 45)	25

4.4 Badgers

4.4.1 Pre-existing Information

SxBRC provided no records of Badger presence from within 2 km of the site. Badger records have remained confidential following a request from the local badger groups.

4.4.2 Site Survey

During the walkover survey and follow up visits over the survey season in 2024, 14 Badger sett entrances were identified, predominantly outside of the site boundary, with 2 entrances on site to the south. Within the site boundary evidence of Badgers such as latrines and mammal runs were also identified. In addition, the site supports larger areas of short grassland with connectivity into woodland and is therefore considered part of the wider foraging resource for local Badgers. Therefore, the site is considered to hold **confirmed presence** of a Badger sett and foraging and commuting Badgers.

Figure 16. The locations of the Badger sett entrances (yellow dots) identified south of the site, with two entrances identified on site.



4.5 Reptiles

4.5.1 Pre-existing Information

SxBRC have provided the following records for reptiles within 2 km of the site; Common Lizard (*Zootoca vivipara*) 9 records, Slow Worm (*Anguis fragilis*) 13 records, Grass Snake (*Natrix Helvetica*) 22 records and Adder (*Vipera berus*) 1 record.

4.5.2 Reptile Surveys

Following identification of suitable reptile habitat on site, presence / likely absence surveys were undertaken by Ecosupport Ltd in accordance with best practice guidance (Froglife, 1999). Refugia was spread across the site and allowed two weeks to bed in. The refugia was then checked seven times during suitable weather conditions by experienced reptile workers.

4.5.3.1 Reptile Survey Results

The results of the reptiles surveys carried out on site are displayed below in **Fig 17** and **Table 10**.

Figure 17. The location and number of the artificial refugia used during the 2024 reptile presence/absence surveys. Blue = reptiles absent; yellow = Slow Worms present; green = Common Lizards present; red = Grass Snake present.



Table 10. Results of the reptile surveys undertaken on site in April-May 2024. Wind speed is measured in the Beaufort scale.

AM – Adult Male, AF – Adult Female, SA – Sub-adult, J – Juvenile

Date	Start Time	Weather Conditions (Temp, Wind, Cloud &, Precipitation)	Common Lizard	Grass Snake	Adder	Slow Worm				Reptile Mat Number/Location
						AM	AF	SA	J	
08/04	9:00	13°C, 1, 40%, 0	1	0	0	0	2	1	3	47,49,9,5,7
11/04	11.05	14°C, 1, 100%, 0	2	0	0	1	0	0	1	15, 48
29/04	1145	13°C, 1, 70%, 0	1	0	0	0	1	0	1	12,110,113
08/05	10:15	15°C, 1, 5%, 0	0	1	0	0	2	2	0	1, 13, 52
10/05	9:52	18°C, 0, 80%, 0	5	0	0	0	2	0	0	5,6,45,55,100,105
20/05	9:38	14°C, 1, 5%, 0	3	0	0	0	1	0	0	6,43,109,110
23/05	10:03	16°C, 2, 80%, 0	3	0	0	0	0	1	2	6,13,15,47,106

4.5.3.2 Evaluation

Given the size of the suitable areas of habitat, the number of refugia deployed and the maximum count of reptiles recorded (Slow Worms = 6; Common Lizards = 5; Grass Snakes = 1), '**Low**' populations of Slow Worms, Common Lizards and Grass Snakes are present on site (as defined by the Froglife guidance 1999). These reptile species are relatively widespread and as such the site is considered to be **Local Value** for reptiles.

4.6 Great Crested Newt

4.6.1 Pre-existing Information

SxBRC returned 14 records of Great Crested Newts (from within 2 km of the site) (**Fig 18**). Other amphibian records included 40 Smooth Newts (*Lissotriton vulgaris*), 25 Palmate Newts (*Lissotriton helveticus*), 34 Common Frogs (*Rana temporaria*) and 9 Common Toads (*Bufo bufo*).

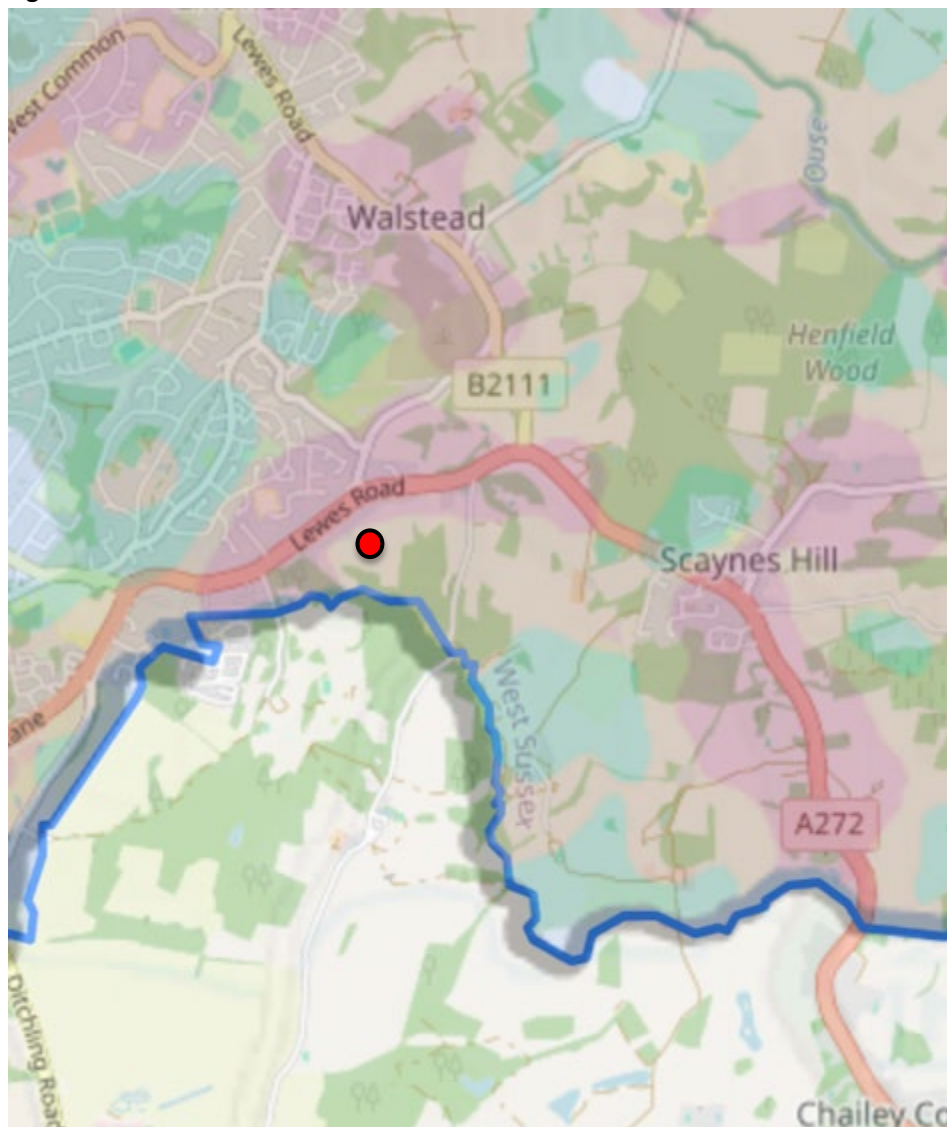
Figure 18. Locations of GCN records (red points) and site location (green point).



4.6.2 District Level Licensing

The site is situated within the 'amber' impact risk zone for Great Crested Newts (**Fig 19**).

Figure 19. Site location within the Mid-Sussex ‘amber’ risk zone for Great Crested Newts (2024).



4.6.3 Water Bodies Within 500 m

There were a number of ponds noted within 500m of the site, however several were separated by Lewes Road to the north. Seven ponds were located within 500m of the site with connectivity to the site (**Fig 20**). The closest ponds were located approximately 30m from the northern boundary (ponds 3 & 7) (**Figs 21c & 21e**) and southwest (pond 2) (**Fig 21b**), within a residential garden and the woodland to the south respectively.

Figure 20. Map of the site with the 7 ponds marked (blue circles) (Magic maps 2023).



4.6.4 On-Site Suitability

The habitats believed to be directly impacted from the proposals include areas of other neutral grassland and mature lines of trees with connectivity into woodland. This habitat, alongside the boundary habitats identified on site provide the structural heterogeneity required by GCN. A number of ponds within 500m of the site were not accessible due to landowner requests not to survey and/or no response from attempts to organise access. Ponds 1, 2, 3, 4 & 7 were subject to a HSI assessments (**Figs 21a-21e**):

- Pond 1 was found to be of 'Average' suitability for GCN and therefore, was subject to a further eDNA assessment. This returned a negative result for GCN (**Fig 22**).
- Pond 2 was found to be of 'Poor' suitability.
- Pond 3 was found to be of 'Average' suitability for GCN. and therefore, was subject to a further eDNA assessment. This returned a negative result for GCN (**Fig 23**).
- Pond 4 was found to be of 'Below Average' suitability.
- Pond 7 was found to be of 'Poor' suitability

Therefore, taking all the above into consideration, it is unlikely the site supports GCN.

Figure 21a. View of Pond 1 (December 2023).



Figure 21b. View of Pond 2 (December 2023)



Figure 21c. View of Pond 3 (January 2025)



Figure 21d. View of Pond 4 (April 2024)



Figure 21e. View of Pond 7 (January 2025)

4.6.5 Environmental DNA Survey (eDNA)

Due to the identified “average” suitability of Ponds 1 and 3 the to support GCN, and the location from the site boundary, they were subject to an eDNA assessment in order to determine the presence/likely absence of the species. The survey was undertaken in full compliance with best practice guidance published by Defra (Biggs *et al.*, 2014). The results concluded a **likely absence of GCN** within the pond.

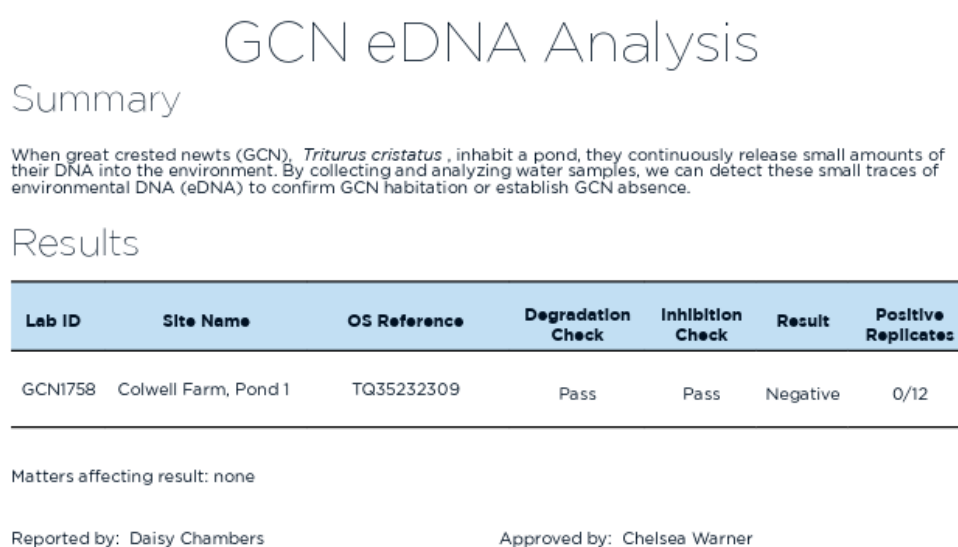
Figure 22a. Results of the eDNA assessment undertaken on Pond 1.

Figure 22b. Results of the eDNA assessment undertaken on Pond 3.

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
GCN25 2251	CF 01	TQ 3533 2342	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Amy Bermudez

Approved by: Vanessa Hind

4.7 Hazel Dormouse

4.7.1 Pre-existing Information

SxBRC provided 38 records of Dormouse (*Muscardinus avellanarius*) within 2km of the site.

4.7.2 Site Survey

Table 11 below indicates the dates on which the tubes were checked and any findings within the tubes (locations are indicated in **Fig 23**). Dormouse nests and one individual were observed during the surveys (**Figs 24a & 24b**).

Table 11. Results of the Dormouse nest tubes survey work on site carried out between April and October 2024.

Survey No	Date	Other Occupancy	Dormice				Dormice Evidence
			GEC	GEO	Juvenile	Adult	
1	22/04	-	-	-	-	-	Dormice nests found in tubes 16, 15 and 12
2	21/05	-	-	-	-	-	Dormice nests found in tubes 16, 15 and 12
3	21/06	-	-	-	-	1	Dormouse found in tube 40 and nests also found in 15 and 12
4	30/07	-	-	-	-	-	Dormouse nests found in tubes 40, 15 and 12
5	27/08	-	-	-	-	-	No Dormice or nests recorded
6	30/09	-	-	-	-	-	No Dormice or nests recorded
7	23/10	-	-	-	-	-	No Dormice or nests recorded

Figure 23. The Dormouse tube locations during the 2024 Dormouse surveys. The location of the dormouse is highlighted in orange and the dormice nests in blue.



Figure 24a. The Dormouse nest in tube 12.



Figure 24b. The Dormouse nest in tube 16.



4.7.4 Evaluation

With two Dormouse nests found within the western tree line, in addition to one torpid Dormouse found at the north of the western hedgerow, presence is highly likely to have been established within all areas of suitable habitat on site as well as within all connecting suitable habitat in the local area.

Due to the presence of nests, it is considered likely there is a breeding population on-site. Using the valuation criteria outlined within CIEEMs *Guidelines of Ecological Impact Assessment in the United Kingdom* (2018) the site can be considered to be of **County Value** for Dormice, although there is a significant amount of alternative suitable habitat within the immediate local area.

4.8 Notable and Birds of Conservation Concern (BoCC)

4.8.1 Pre-existing Information

SxBRC returned 865 records of 50 notable bird species of conservation concern within 1 km of the site including a number of records for red listed species including but not limited to; Skylark (*Alauda arvensis*), Swallow (*Hirundo rustica*), House Sparrow (*Passer domesticus*), Starling (*Sturnus vulgaris*), Song Thrush (*Turdus philomelos*) Barn Owl (*Tyto alba*), Starling (*Sturnus vulgaris*), Yellow Wagtail (*Motacilla flava*), Linnet (*Linaria cannabina*), Yellowhammer (*Emberiza citrinella*), Cuckoo (*Cuculus canorus*), Turtle Dove (*Streptopelia turtur*), Herring Gull (*Larus argentatus*) and Swift (*Apus apus*).

4.8.2 Breeding Bird Surveys (2024)

A total of 22 bird species have been recorded and breeding bird territories of 3 species.

Of the species observed, 6 appear on the Birds of Conservation Concern 5 (BoCC5) as declining (red or amber lists) (Stanbury et al., 2021) and / or are listed as Species of Principle Importance (SoPI) under the NERC Act (2006). The notable species recorded on site are detailed in **Table 12**.

Overall, the site was found to support an assemblage of species which are either considered generalist species, or which are widespread throughout the UK in urban, garden and marginal habitats, such as Blackbird (*Turdus merula*), Blue Tit (*Cyanistes caeruleus*), Robin (*Erithacus rubecula*), Great Tit (*Parus major*), Chaffinch (*Fringilla coelebs*), Wren (*Troglodytes troglodytes*), Wood Pigeon (*Columba palumbus*), Magpie (*Pica pica*), Goldfinch (*Carduelis carduelis*), Buzzard (*Buteo buteo*), Goldcrest (*Regulus regulus*), Barn Swallow (*Hirundo rustica*), Nuthatch (*Sitta europaea*), Blackcap (*Sylvia atricapilla*), Pheasant (*Phasianus colchicus*) and Coal Tit (*Periparus ater*). These were found throughout the site in a range of locations and were widespread across all habitats. The south-eastern corners of the lowland mixed deciduous woodland in the eastern and western parcels has been found to support a Greater Spotted Woodpecker (*Dendrocopos major*) and the woodland sections across the entire site support Chiffchaff's (*Phylloscopus collybita*).

Table 12. Protected bird species, BoCC5 Red and Amber listed species and Species of Principle Importance recorded on site.

Species	Legal/Conservation Status	Number of Pairs, nest locations, Males holding territory on site
Song Thrush (<i>Turdus philomelos</i>)	BoCC5 (amber) and SoPI	Individuals noted in the southern section of woodland within the eastern parcel. Individuals also noted in the eastern and southern

		sections of woodland within the western parcel
Dunnock (<i>Prunella modularis</i>)	BoCC5 (amber) and SoPI	Individuals found in the north-western and north-eastern corners and along the southern stretch of woodland of the western parcel.
Redwing (<i>Turdus iliacus</i>)	BoCC5 (amber)	Individuals were noted in the north-western woodland stretch of the western parcel.
Lesser Redpoll (A. f. cabaret)	BoCC5 (red) assessed at race level, and SoPI	Individuals noted in the north-eastern corner of the western parcel.
Wood Pigeon (<i>Columba palumbus</i>)	BoCC5 (amber)	Individuals within the south-western corner of the western parcel and the north-eastern corner of the eastern parcel.
Wren (<i>Troglodytes troglodytes</i>)	BoCC5 (amber)	Two territories found in along the north-western stretch of woodland within the western parcel. Individuals were singing and foraging across all three parcels.

Figure 25. The location of different bird species recorded in the 2024 survey (see **Appendix III** for BTO species codes).



4.8.3 Evaluation

A total of 1 Red-listed and 5 Amber-listed Birds of Conservation Concern 5, of which 3 are Species of Principle Importance (SoPI), were recorded as using the site as a resource, or likely using the site. Of these, 1 species was found to be nesting/breeding within the entire site and 2 species had territories on site. Red and Amber-listed species recorded on site with their HOS status description and approximate numerical range in Sussex (SOS, 2019) is as follows:

Species SOS Status Description Approximate Numerical Range (Breeding Pairs):

- Song Thrush – Very Common (but decreasing resident), 5001-30,000
- Dunnock – Very Common, 5001-30,000
- Redwing – Common, 1001-5000
- Lesser Redpoll – Scarce, 11-100
- Wood Pigeon – Abundant resident, 30,000+
- Wren – Abundant resident, 30,000+

Wren were the only species with a Red-listed or Amber-listed status that were found to be actually nesting/breeding, attempting to nest on site or indeed suspected as likely nesting, since they had two territories. Wren are regarded as either 'Abundant', within the County of Sussex. This status classification is based on the species having an average number of breeding pairs of 30,000+ annually within the County.

Given the relatively small, single figure numbers of breeding or suspected breeding pairs within the site, it is not considered that the displacement of these numbers of 'abundant, very common, common and scarce' Red and Amber listed bird species would be significantly detrimental to the overall County populations. The proposals for the site do include the retention of the woodland, where the species were concentrated. In addition, the creation of hedgerows and mixed scrub will provide suitable environments for the species to re-establish in the area. On a more local level there will be a reduction in nesting and foraging resources within the site, however, due to the considered low number of BoCC5 Red & Amber listed nesting pairs/territories present on site and the categorisation of the species using the site as a nesting and foraging resource during the nesting season, the site is considered to be of **Low ecological value** to breeding and nesting birds and it is not considered that the loss of bird populations and the communities present would be significantly detrimental.

A number of the Red & Amber listed species recorded on site are likely to be adaptive to the proposed housing scheme, associated landscaping and open space creation, including Wood Pigeon, Song Thrush, Dunnock and Wrens. These species will adapt fairly readily to semi-urban landscapes. With appropriate retention of habitats, linear features and the inclusion of suitable nesting features it would be considered reasonable that the housing proposal can provide suitable environments for these species to re-establish territories in the future.

4.9 Hedgehog

4.9.1 Pre-existing Information

SxBRC returned 38 records for Western European hedgehog (*Erinaceus europaeus*) presence within 2 km of the site.

4.9.2 Site Assessment

Suitable habitat for Hedgehogs is present on site in the form of grassland, hedgerows and mature tree lines. Therefore, the site itself is considered to support **high potential** for Hedgehogs

4.10 Riparian Mammals

4.10.1 Pre-existing Information

SxBRC returned 1 record for a European Water Vole (*Arvicola amphibius*) approximately 1.46km north west of the site.

4.10.2 Site Assessment

The ditches present on site do not offer the vegetation structure needed by Water Voles with largely unvegetated banks and very low levels of water. Therefore, the site itself is considered to be of **negligible** potential for Water Voles.

4.11 Other Mammals

4.11.1 Site Assessment

Suitable foraging habitat for Deer is present on and around the site in the form of grassland, woodland and scrub. In addition, large numbers of Fallow Deer (*Dama dama*) (up to 20) have been observed during visits to the site throughout the year. Therefore, the site is considered to support **confirmed presence** of Fallow Deer.

5.0 LIKELY ECOLOGICAL IMPACTS IN ABSENCE OF MITIGATION

5.1 Introduction

The CIEEM guidelines (CIEEM 2018) require that the potential impacts of the proposals should be considered in absence of mitigation. In order for a significant adverse effect to occur, the feature being affected must be at least of local value. However, in some cases, features of less than local value may be protected by legislation and/or policy and these are also considered within the assessment. Although significant effects may be identified at this stage of the assessment, it is often possible to provide appropriate mitigation.

5.2 Site Preparation and Construction

5.2.1 Impacts to Habitats

The development will primarily result in the loss of other neutral grassland which is considered to be of local value. The proposals will also result in the loss of small sections of treeline / scrub to facilitate access which are considered to be of regional value (due to the presence of Barbastelles on-site). In the absence of mitigation, the use of machinery on site could result in the damage of mature trees and boundary hedgerows / woodland through root compaction. Therefore, ***an adverse impact is likely at the local-regional level.***

5.2.2 Impacts to Wildlife

5.2.2.1 Bats

The site has been identified as being of regional importance for commuting bats and county importance for foraging bats with the Annex II Barbastelle bat recorded on site. The works will result in a loss of foraging resources (grassland / scrub) and any disruption to commuting routes (from external lighting or loss of portions of hedgerow) would likely have a ***moderate adverse impact*** at the ***Regional*** level of significance.

5.2.2.2 Reptiles

'Low' populations of Slow Worms, Common Lizards and single Grass Snake were recorded around the boundaries of the site and will be directly impacted upon by the proposed development. Without mitigation procedures put in place, this would result in the direct harm of individuals and a reduction in the local population. This would therefore be contrary to the provisions of the Wildlife & Countryside Act (1981) and would create a significant adverse impact to local reptile populations. This will have a ***moderate adverse impact*** at the ***Local*** level of significance.

5.2.2.3 Great Crested Newts

Ponds 1, 2 and 4 were ruled out for Great Crested Newt presence due to their limited suitability and/or negative eDNA result. Despite this, ponds 3, 5 and 6 could not be surveyed so Great Crested Newt presence could not be ruled out. With the site being situated within the 'amber' risk zone it is recognised that there is potential for Great Crested Newts to be on-site unless ponds within 500m have been ruled out due to distance, dispersal barriers, negative presence or poor suitability.

5.2.2.4 Dormice

The presence of Dormice was established on-site and some areas of suitable habitat will require removal in order to deliver the development (trees / scrub). Without mitigation procedures put in place, this would result in the direct harm of individuals and a reduction in the local population. This would therefore be contrary to the provisions of the Conservation of Species and Habitats Regulations (2019). This will have a **moderate adverse impact** at the **County** level of significance.

5.2.2.5 Birds

Whilst the woodland situated around the site boundaries will largely be retained, some scrub and trees require removal. This has the potential to directly impact nests and/or create disturbance if undertaken during bird nesting season. Therefore, it is considered the development will result in a **minor adverse impact** at the **Local** level of significance.

Small sections of the mature trees removal are proposed in order to facilitate site access. Given the area to be lost in comparison to the total area, it is not considered this will have a significant negative impact and is unlikely to impact the sites potential to support nesting birds.

Noise generated during on site activities has the potential to impact upon the nesting birds on site. This would have a **likely minor negative impact** at a local level.

5.2.2.6 Mammals

Potential indirect impacts to Badgers and Hedgehogs, associated with the construction phase, are considered to comprise disturbance by lighting, and the disruption to habitat connectivity. The loss of commuting corridors and foraging habitat would result in a **likely negative impact** at a **district** level. Works within 30m of a main Badger sett are considered likely to cause disturbance impacts to the clan, causing distress to the animals and possible abandonment of the sett. In addition, excavations within 20m of a sett risks breaching tunnels and/or chambers and causing tunnel collapse through the use of heavy machinery. With this considered, works within 30m of the sett will result in likely negative impacts at the **county** level.

Open excavations at night pose a threat to commuting and foraging nocturnal wildlife (i.e. Badgers and/or Hedgehogs can become trapped). There is a **potential negative impact** at **local** level.

5.3 Site Operation

5.3.1 Impacts to Wildlife

The development will result in an increase in lighting within the general area from streetlights and external lights on the new houses. This can affect the behaviour, particularly foraging, of nocturnal wildlife. Therefore, an **adverse impact is likely** on Badgers and bats at the **regional** level.

5.3.2 Impacts on Designated Sites

5.3.2.1 Increased Recreational Disturbance

Eastern Road Nature Reserve and Scrase Valley Local Nature Reserves lie 2 km north and 1.6 km northwest of the site. At this distance any increase in public recreational pressure as a result of the development is likely to be very minor. Therefore, resulting in a **likely minor negative impact** at a **national level**.

6.0 RECOMMENDATIONS

6.1 Introduction

The below sections outline a number of recommendations for further survey work required to fully assess the potential ecological impacts of the development and ensure and proposed mitigation and compensation appropriate and proportionate. In addition to this, measures are outlined to protect the existing features of value and provide enhancements post development.

6.2 Bats

6.2.1 Trees

If any trees other than those already assessed are to be removed under the current proposals an updated ground level roost assessment should be undertaken. If any trees that require removal have been identified as supporting PRFs, appropriate further surveys will be required to ascertain if they support any bat roots.

6.2.1.1 Precautionary Tree Removal

Prior to removal, the PRF's present within the trees on the northwest of site must be checked with an endoscope, and by a qualified ecologist, immediately prior to the trees being removed, to ensure no bats are present within them. When all features have been fully inspected and no evidence of bats is identified, the tree must be immediately felled. If any features cannot be fully inspected, the tree must be soft-felled. If evidence of bats is identified or if any PRF-Ms are found, further survey work will be required. In particular, if bats are found to be present, roost characterisation surveys will be carried out to inform a European Protected Species Licence and a full mitigation strategy will be required.

6.2.2 Roof Underlining

In-line with Natural England guidance non-bitumen coated roofing membrane that has passed a 'snagging propensity test' (2022) or bitumen roofing felt (2015) should be utilised as opposed to Breathable Roof Membrane (BRM) for all roofing works as there is considerable evidence to suggest that BRM poses a threat to bats occupying a structure due to entanglement in the fibres (Natural England, 2015).

6.2.3 Site Design

The layout has retained the areas of most importance for the commuting bats along the site boundaries in addition to the mature tree lines that separate the grassland parcels. New hedgerows providing further connectivity around the site are proposed as well as a SUDs in the southeast planted with wetland species. Furthermore, a 15m buffer is to be implemented along the southern boundary of the site in order to safeguard the foraging and commuting habitat provided by the neighboring ancient woodland. Generally, lighting on site will be kept to a level below 1 Lux on site, however it will be kept below 0.1 lux in areas of importance for light-sensitive bat species (see **section 6.2.6**) thus limiting the disturbance to foraging and

commuting bats and maintaining connectivity across the site. A number of areas will also be enhanced through planting of a number of new shrubs, trees and shade tolerant herbaceous species to generate an understorey.

6.2.4 Annex II Species - Barbastelle Bat

Although the site is not located within the impact zone for any nationally / internationally designated sites for bats, the Annex II Barbastelle Bat (*Barbastella barbastellus*) was recorded on site during Phase II Static Monitoring. Recordings were obtained during April (A2, 3 passes) and June (C1 & C2, 6 passes total), July (D2 & D3, 9 passes total), August (E1 & E2, 40 passes total), September (F1 & F3, 32 passes total) and October (G2, 1 pass) (see **Table 8 & Figure 2** for locations). As only low numbers were recorded it is considered unlikely there will be any significant impacts to roosts of significant importance, or severance to flight lines for bats associated with the SAC.

Notwithstanding this, the low numbers of Barbastelles recorded on site may be impacted upon by loss of hedgerow or artificial light from the dwellings. To mitigate impacts to the Barbastelles using the ecological areas on site, dark corridors are to be implemented into the scheme as detailed in **section 6.2.6** below.

6.2.5 Sensitive Lighting

A document (*Guidance Note 08/23 Bats and Artificial Lighting at night*) has been produced via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), which outlines the latest recommendations to minimise the impacts of increased artificial lighting on bats. The key recommendations within this document have been outlined below and will be implemented provided there are no conflicts with any legal limits of illumination (in which case a suitable compromise should be reached).

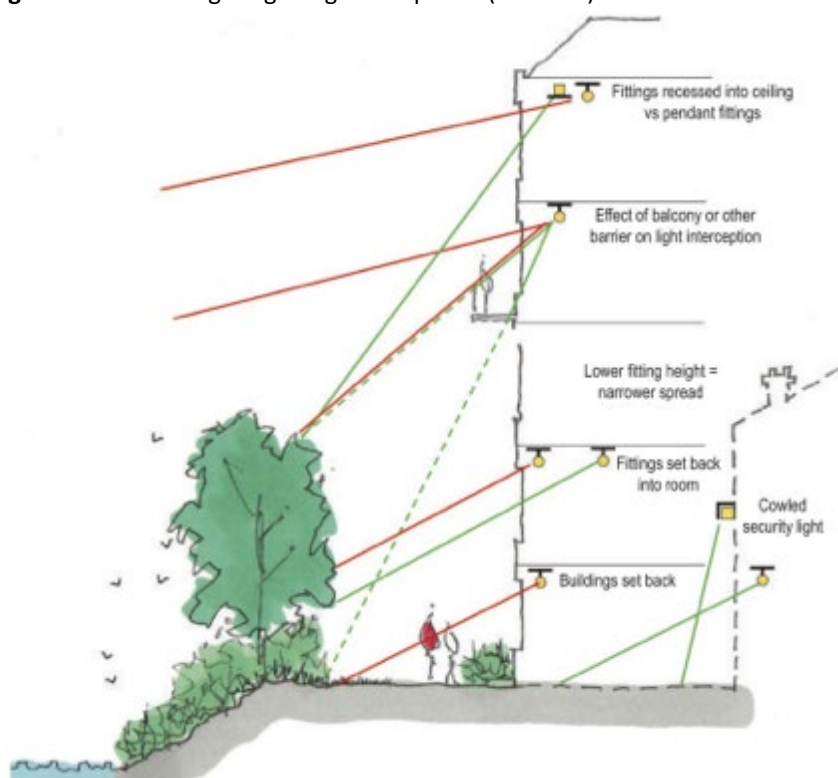
'Light sources, lamps, LEDs and their fittings come in a myriad of different specifications which a lighting professional can help to select. However, the following should be considered when choosing luminaires and their potential impact on Key Habitats and features:

- *All luminaires will lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used*
- *LED luminaires will be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability*
- *A warm white light source (2700Kelvin or lower) will be adopted to reduce blue light component*
- *Light sources will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012)*
- *Internal luminaires can be recessed (as opposed to using a pendant fitting - See **Figure 26**) where installed in proximity to windows to reduce glare and light spill*
- *Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges (see Case Study 1)*
- *Column heights will be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards*
- *Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01*

- Luminaires will always be mounted horizontally, with no light output above 90° and/or no upward tilt
- Where appropriate, external security lighting will be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS
- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues. See Case Study 6

Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely'

Figure 26. Internal lighting mitigation options (ILP 2023).



6.2.6 Dark Corridors

As light the sensitive Barbastelle Bat (*Barbastella barbastellus*), was recorded on site during static monitoring, dark corridors of at least 10m wide will be implemented into the scheme to preserve suitable commuting routes for this species. Within these areas light levels will be maintained at levels below 0.1 lux. The dark corridors will be situated along the retained boundary trees around the site with locations displayed below in **Fig 27**.

Figure 27. The location of the dark corridors to be implemented into the development, indicated by grey hashing. Light levels in these areas will remain below 0.1 lux.



6.2.7 Habitat Buffers

In order to safeguard the ancient woodland located to the south of the site, a 15m buffer will be set in which no construction works shall take place (**Fig 28**). To improve the habitats for nocturnal wildlife, the area will be enhanced with grassland and scrub planting to increase insect biodiversity for foraging and commuting bats, in addition to providing disturbance protection to the ancient woodland.

Figure 28. The location of the 15m ancient woodland buffer, in which no works will take place, to be implemented into the development.



6.2.8 Site Connectivity

The roads to be constructed around the site present a disruption to some of the existing linear features, presenting a potential impact to commuting bats. Excluding sections of hedgerow to be removed for roads and access along the eastern boundary, all trees are to be retained under current proposals. 'Hop overs' will be provided at locations where disruption of linear features is present in order to maintain site connectivity for commuting bats (**Fig 29**). These will be produced by planting native trees/shrubs either side of the crossing points to reduce the distance the bats need to travel across these points. As detailed in **section 6.2.5 & 6.2.6** these areas will utilize directional light and levels no higher than. Recommended species planting of tree/shrub species may include:

- Hazel (*Corylus avellana*)
- Hawthorn (*Crataegus monogyna*)
- Blackthorn (*Prunus spinosa*)
- Field Maple (*Acer campestre*)
- Oak (*Quercus robur*)
- Rowan (*Sorbus aucuparia*)
- Silver Birch (*Betula pendula*)
- Wild Cherry (*Prunus avium*)

Figure 29. The location of the hop overs (orange arrows) which will be planted with native tree/shrub species in order to maintain commuting routes for bats.



6.3 Badgers

During the construction phase, any open excavations left overnight should either be covered to prevent commuting Badgers falling in or escape ladders should be used to prevent them from becoming trapped. Any open pipework should be checked and then capped nightly.

A 20m buffer is being retained around the Badger sett as part of the current proposals (**Fig 30**).

Figure 30. Twenty metre buffer around the Badger sett.



6.4 Reptile Mitigation Strategy

6.4.1 Introduction

Due to the legal protection relating to reptiles, it is necessary to implement mitigation to ensure these animals are not harmed as a result of the impending construction works and to ensure that there is no net reduction in the conservation status of reptiles in the local area. Therefore, this mitigation strategy has been produced in accordance with best practice guidelines relating to reptiles and development, published by Gent & Gibson (1998) and the HGBI (1998).

The desirable approach is to avoid development within the areas used by reptiles. If this is not possible, reptiles should be moved to areas within the site that are to be retained, enhanced and managed to provide suitable habitat (relocation). The steps in the mitigation strategy for reptiles are as follows:

- Step 1:** Identification of suitable release area. If a separate site is to be used, it may be necessary to undertake a reptile survey of any potential receptor site to establish the status of existing reptile populations on the site;
- Step 2:** Production and agreement of mitigation strategy;
- Step 3:** Habitat creation, enhancement and/or management of receptor site area (if required);
- Step 4:** Set up of development site with appropriate numbers of artificial refugia and reptile exclusion fencing;
- Step 5:** Capture of reptiles on site and translocation/relocation. This stage must take place between March and September, in order to include the optimal period for reptile capture;
- Step 6:** Destructive search of suitable natural reptile refuges;
- Step 7:** Production of completion report;
- Step 8:** Monitoring success of mitigation.

6.4.2 Receptor Area

6.4.3 Location and description

Translocated reptiles will be retained on site within an area which will be temporarily excluded with fencing to prevent reptiles entering the construction area. The area allocated for reptiles will be on the eastern parcel, from the south of the field to the northeast corner (**Fig 31**). This area is 1.117ha, and grassland present will be left to grow and not cut by the landowner prior to the reptile translocation to allow further development of tussocks within this area. The location along the south of the site also maintains connectivity to the watercourses that run along the south of the site. Considering the low number of reptiles recorded on site this area is considered sufficient to support the reptile population on site. Upon the completion of works, the exclusion fencing will be removed and the reptiles will be able to disperse into the wider site. As part of the proposals the boundaries of the site will support species-rich grassland and there will also be a SUDs feature added to the southeast of the site to provide suitable habitat for reptiles on site.

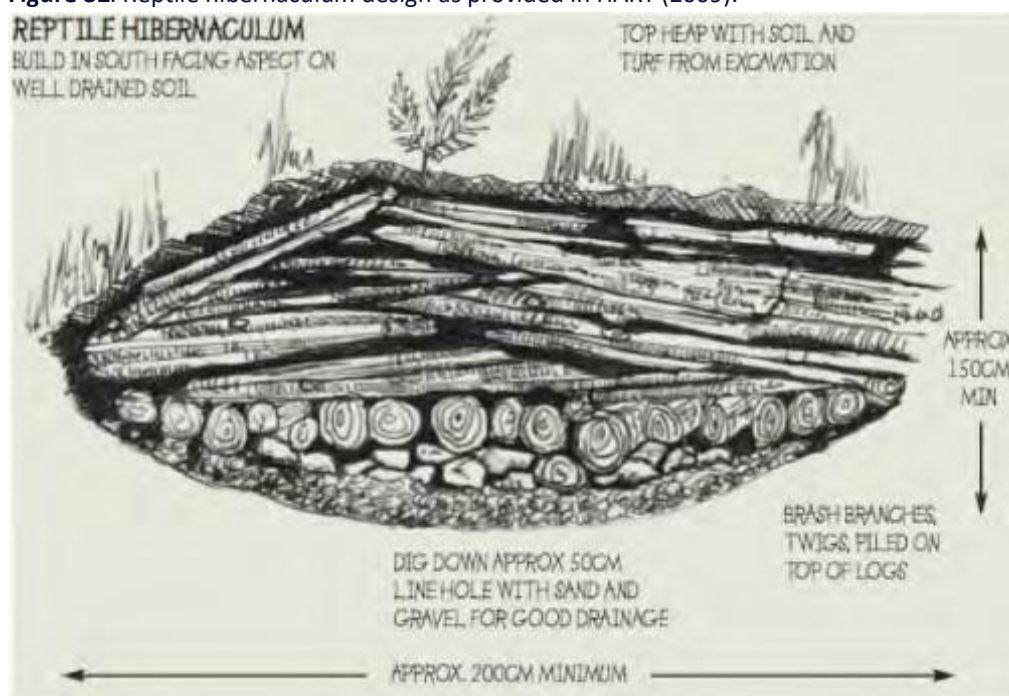
Figure 31. The location of the reptile receptor area on site (1.117ha).



6.4.4 Enhancement

To further improve the habitat and carrying capacity, the receptor area will be allowed to continue to grow prior to the translocation of reptiles to provide additional cover. Additionally, 2 new hibernacula will be created and retained in perpetuity following the specification outlined within Reptile Habitat Management: Guidelines for Landowners (HART, 2009) (**Fig 32**). This will provide shelter and hibernation opportunities as well as providing a significant habitat resource for invertebrates (a food resource for reptiles).

Figure 32. Reptile hibernaculum design as provided in HART (2009).



6.4.5 Receptor Management

6.4.5.1 Post Development Management / Protection of Receptor

The grassland within the receptor site will be left to grow for much of the year and will be cut once a year during early September to prevent the encroachment of scrub from the boundaries. This will be done to a height of 30cm to ensure that no reptiles are harmed during the management works and to enable the vegetation at ground level to establish dense tussocks. This will further improve the habitats on site for reptiles.

Given the future use of the receptor site as part of the ecological area, the area will be safeguarded from future development. The receptor is currently under the ownership of the landowners and can be subject to additional enhancement, management and protection measures as necessary and secured by a suitably worded condition or planning obligation. This will provide long term protection of the receptor area until the completion of works, where habitat management will be the responsibility of an external habitat management company.

6.4.5.2 Five Year Management Plan (Reptile Receptor Post Development Management and Landscaping)

Once the reptiles have been relocated into the defined receptor site, management works will need to be undertaken to ensure the area is maintained as a favourable habitat. This will be undertaken for the next five years and will be achieved through adopting the following prescriptions:

- Grassland cut to a depth of no less than 300mm (this should be done on rotation in different areas year to year. The relatively early cut will help to reduce vigour of the sward, allowing flowering species to persist)
- Cuts to take place twice yearly in late July and again in October
- Arisings from the cut will be left for a few days for seed to fall before being removed from site and composted. Location to be agreed with client and ecologist if kept on site.
- The proposed cutting regime is likely to be sufficient to control invasive broad-leaved species. However, if undesirable species such as invasive Canadian Goldenrod (*Solidago canadensis*), Thistles (*Cirsium* spp.) and Docks (*Rumex* spp.) reach more than approximately 5% cover then they should be spot treated with a non-residual herbicide.
- During each management visits, any rubbish and tipped garden waste (from residents) will be removed.
- Wildflower meadows and other planted areas must be kept clean and weed/ rubbish free.
- Avoid plug plants and bulbs.
- The existing pond edge is to be retained and enhanced.

6.4.6 Capture

6.4.6.1 Method

The methodology used for the capture of reptiles will be the same as that used during the survey. Artificial refugia, made from materials such as roofing felt or corrugated metal, allow reptiles to be detected and captured relatively easily. HGBI guidelines (1998) state artificial refugia should be distributed across the site at a minimum density of 50/ha. However, a considerably higher density of refugia will be used in order to maximise the catching potential. These will be distributed across the site. During suitable weather conditions captured reptiles will then be placed within the protected receptor area and transported within a bucket with a perforated lid.

6.4.6.2 Timing

The optimum period for capture of reptiles is April to June and September, however it is possible to capture reptiles outside of this period providing weather conditions are suitable. By ensuring that all reptiles are translocated by the end of September, it will allow sufficient time for reptiles to find suitable hibernation sites within the receptor site.

6.4.6.3 Capture Effort

The survey indicates that there are '**Low**' populations of Slow Worms, Common Lizards and

Grass Snakes present on site. The HGBI (1998) and Natural England (2011) guidelines recommend a minimum of 60 capture effort days are to be expended with a recommended refugia density of 50 per hectare (**Table 13**). Due to the large size of the site, this is considered a proportional effort, however given the low density of reptiles recorded per day (peak count 7) this may be reduced to 30 days. The capture effort will be reviewed on an *ad hoc* basis during the translocation (i.e. when 5 consecutive visits have been carried out in ideal weather conditions² where no reptiles are captured (or seen), it is considered that the relocation can come to an end).

Table 13. The minimum capture effort for common reptile species based on HGBI (1998). The figures relevant to this scheme are emboldened and italicised.

Species	Population Size (adult density)	Refugia Density / ha	Minimum No of Trapping Days in Good Weather
Slow Worm	<i>High (> 100 / ha)</i>	<i>100</i>	<i>All suitable days between March and September (min 90 suitable days)</i>

² Suitable weather conditions are generally considered to be between 10 and 18°C with intermittent sunshine and little or no wind and rain (see Froglife 1999).

	Medium (> 50 / ha)	100	All suitable days between march and September (min 70 suitable days)
	Low (< 50 / ha)	50	60 Suitable days

6.4.6.4 Destructive Search

Following the conclusion of the relocation, a destructive search of the site may be necessary. This would entail the sensitive stripping of vegetation on site using a toothed bucket where habitat is suitable for reptiles and can be focused on areas where reptile numbers were highest.

6.4.6.5 Protection of Receptor

The proposed receptor area must be located within an area that is safeguarded from future development. If applicable a small area of post and rail fencing will be installed, to ensure the protection of the reptile receptor area.

6.4.6.6 Post-completion Monitoring

Given the population size of slow worms present and the residential nature of the site, it is not considered necessary to conduct any monitoring post completion.

6.5 Great Crested Newts

Pond 3 will be subject to an Environmental DNA (eDNA) survey to determine if there are Great Crested Newts present in the pond. If GCN DNA is detected further survey work may be required. The eDNA assessment on the ponds should be carried out within the suitable period April – June.

Attempts are still being made to access ponds 5 & 6 the adjacent pond to the north of the site boundary to assess the pond's potential for supporting Great Crested Newts. The mitigation strategy will be compiled once further data has been obtained. This is likely to be in the form of either a PWMS (precautionary working method statement) or application to the district level licensing scheme.

6.6 Dormice

6.6.1 European Protected Species Licence

The proposed plans will require removal of sections of hedgerow / mature trees and bramble scrub on-site. These habitats may contain Dormice, as Dormouse nests were found (**Fig 19**) and all of these habitats are contiguous with the habitat to be directly impacted upon. Therefore, Dormice should be assumed to be present within all areas of the site. A European Protected Species Licence (EPSL) will be required for any works impacting the hedgerows / mature trees and bramble scrub and such works must be carried out under the EPSL.

6.6.2 Vegetation Clearance

At this stage the specific area of Dormouse habitat to be cleared is not known, however any clearance of suitable Dormouse habitat will take place under a single stage / two stage methodology. Any Dormice discovered during the works will be either be left undisturbed in place (if deemed safe by the ecologist) or will be relocated to a similar location to where they were found in retained habitat (e.g. if the animal is found within leaf litter, then the animal will be placed in leaf litter). Prior to the removal of the vegetation (to include Bramble scrub) on site, the retained trees / woodland along the western boundary of the site will have a total of 6 wooden nest boxes erected (**Fig 33**). These will act as receptors for any active Dormice found during the sensitive clearance works (outlined below) and will be located within 100 m of all cleared vegetation by the licenced ecologist.

Figure 33. Indicative locations of the 6 No. Dormouse boxes on site (yellow circles).



6.6.3 Clearance Methodology

The following methodologies outline both a single stage option and two stage option for the clearance work to be carried out once a NE EPSL has been granted.

Single stage:

- Fingertip search of all vegetation to be cleared, by the licenced ecologist, immediately prior to clearance commencing (on the same day and every day clearance occurs).
- Prior to works commencing, the named ecologist or accredited agent will provide all site operatives with a toolbox talk to inform them of the potential presence of Dormice, their legal status, means of identification, habitat requirements, the methodologies required to avoid impacts on the species and what they should do if a dormouse is found. A written record that this has been undertaken, signed by attendees, will be kept and made available to Natural England should it be required.
- Hand tools will be utilised to sensitively cut vegetation down to ground level in a **single stage**. This will be undertaken in a directional fashion to passively encourage

Dormice to move away from the works area towards retained, suitable hedgerow / treeline habitat. Where areas of scrub are being cut, this will be done directionally towards the retained habitats. All arisings will be chipped on site immediately.

- Cut material will be removed from the areas and chipped and removed from site or area of working operations.
- 6 Dormouse nest boxes will be placed into the areas of retained hedgerow / treeline around the site to act as receptors in the event of any Dormice being found (**Fig 32**).
- Works will take place outside of the core breeding periods (June - September inclusive) and avoid the hibernation period (late November – March) and as such, the most appropriate timings would be April - May and late September - October
- ***No more than 50m² of habitat will be cleared in a single day***

Two Stage methodology

Clearance of the vegetation within the site will be carried out sympathetically and under the supervision of a Licenced Ecologist (LE) who will search for nests by hand and capture Dormice (if necessary) before and during clearance works. If any active animals are discovered during the works then these animals will be captured and placed, with their original nest where present, within previously erected nest boxes (outlined above). If any hibernation nests/potential hibernation nests are identified during the first stage of the clearance over winter, these will be left undisturbed, with vegetation retained in a buffer around the nest, due to the vulnerable nature of hibernating or torpid Dormice. All arisings / cuttings will also be removed from site each day following a hand search by the licenced ecologist to prevent re-occupation.

- The licenced ecologist will deliver a toolbox talk to the vegetation clearance contractors, detailing the sensitive measures required. The ecologist will then supervise all vegetation clearance. No clearance will be undertaken without the supervision of the ecologist.
- To avoid any impacts to Dormice the removal of all vegetation will adopt a two staged approach with the upper sections removed over winter (when Dormice may be hibernating in the lower parts) and the trunk and roots removed during spring.

Winter clearance

This should remove sufficient vegetation to persuade Dormice emerging from hibernation in April or May to move to more appropriate habitat nearby. Once emergence is complete, by the end of May, full clearance of the area can continue. Winter clearance should thus be planned as a two- stage process.

Trees and shrubs within the area in question should be cut down between November and March inclusive, to avoid both the bird nesting season and the majority of the period when Dormice might be found in nests above ground. Clearance should be done by hand and in a sensitive manner, to minimise the likelihood of disturbing or killing hibernating Dormice. Similarly, the process of removing the cut material should, as far as possible, be designed to protect Dormice hibernating on the ground. This can involve such techniques as:

- Sacrificing a single 'haul- route', which has first been cleared by hand if necessary;

- Using a long-reach mechanical grab and/or limiting the number of 'drag-lines' along which stems are removed; and/or
- Directional felling to minimise the ground impact.

In addition to the above, all vegetation being removed, and the ground beneath, will first be hand searched as far as possible to identify the presence of any hibernation nests. Similarly, any proposed drag/haul routes will first be searched by hand before such usage commences. If any hibernation nests are identified, these will be retained and protected and, if present within a haul/drag routes these will be re-routed to avoid the retained nest.

Spring clearance

Once the above works have been completed, the roots will be removed using hand tools where possible or with a digger using a toothed bucket under the supervision of the licenced ecologist from mid-April onwards (provided the temperatures have been warm enough for Dormice to emerge from hibernation at the discretion of the ecologist).

6.6.4 Minimising Disturbance

Prior to construction works commencing the retained tree lines and hedgerows will be protected from damage during the works. They will be fenced using Heras fencing or similar to prevent access by machinery. Where large mature trees are present, they will be protected using standard arboricultural tree protection measures which include protection of the canopy and prevention of root compaction. Access will not be permitted behind this fencing by construction personnel. This will protect Dormouse habitat from direct damage/disturbance and dust. Signage will also be added (on top of the usual warnings for tree protective fencing) stating things such as:

"Protected Dormouse Habitat

It is an Offence to Damage / Disturb this Habitat"

This will also provide protection for wildlife species, including Badgers, that may be using the margins of the site as well as bats, invertebrates, reptiles and other mammals. No vehicles will enter the protective ring fencing and no materials will be stored within their circumference. All protective fencing must be in place prior to any construction machinery arriving on site, before any works on site get underway, and will remain in place until all work is completed. This will minimise the level of disturbance within the boundary habitat / buffer areas during the works and ensure the habitats and any wildlife species that may be using them are protected.

6.6.5 Habitat Compensation / Connectivity

Habitat compensation will be achieved through the provision of a new native tree planting or scrub of equivalent area or more to provide a greater level of connectivity (**Fig 27**). Species that should be considered within the hedgerow and compensational planting area will include Hazel, Wild Cherry (*Prunus avium*) Silver Birch (*Betula pendula*), Pedunculate Oak, Hawthorn

(*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and climbers such as Dog Rose (*Rosa canina*) and Honeysuckle (*Lonicera periclymenum*).

In addition, a planted trellis will be installed over the two cycle paths running through the tree lines to prevent fragmentation of Dormouse habitat.

6.6.6 Mitigating Operational Impacts

6.6.6.1 Lighting

A sensitive lighting scheme for the site will be implemented as described in **Section 6.2.5** which includes specific recommendations for lighting types to mitigate against the impact of artificial lighting on nocturnal species. Where there is any light spill into the newly created and retained boundary habitats, this is also kept to a minimum level of no higher than 0.5 Lux. By extension, this strategy also ensures the boundary vegetation areas being used by Dormice (and the new planting) will also avoid any additional light spill.

6.6.6.2 Dormouse Boxes

As iterated in the above sections, prior to the commencement of vegetation removal, at least 6 No Dormouse boxes will be installed by a suitably qualified ecologist in suitable habitat to be retained to enhance the site for Dormice (as per **Fig 32**). The boxes will be checked at years 1 – 10 post clearance works by a licenced ecologist and the data submitted to the National Dormouse Monitoring Programme (NDMP).

6.7 Breeding and Nesting Birds

In order to avoid disturbance of nesting birds or damage to their nests, all demolition and habitat removal works will be undertaken outside of the bird nesting season (typically March – August dependent on weather). If this is not possible, sections to be cleared should be thoroughly checked by a suitably qualified ecologist immediately prior to clearance. If any active nests are found they should be left undisturbed with a suitable buffer of vegetation (5m) until the nestlings have fledged.

6.8 Ancient Woodland

Ancient woodland is present adjacent to the site boundary to the south and east respectively (**Fig 34**, Natural England 2024³). The proposed development ensures to minimize impacts to the ancient woodland by implementing a 20-meter buffer zone in which no development will take place. The habitats within this corridor will be enhanced and actively managed to increase their biodiversity value, alongside the creation of a dark corridor to support commuting bats (see section **6.2.6**).

Fig 34. The location of the ancient woodland in relation to the site boundary. The ancient woodland buffer to be implemented is displayed in green.

³ Ancient woodland inventory - <https://www.data.gov.uk/dataset/9461f463-c363-4309-ae77-fdcd7e9df7d3/ancient-woodland-england>



6.9 BNG

Biodiversity Net Gain (BNG) report has been provided alongside this report. Please refer to this document for results of the BNG assessment for the site.

The full Biodiversity Net Gain report and metric calculations will be provided alongside this document for the planning submission.

6.10 Enhancements

The following section details the enhancements that will be implemented into the development.

6.10.1 Bats

6.10.1.1 Bat Bricks

It is recommended that at least 50% of the proposed dwellings should include one bat brick or suitable alternative. The bat bricks used should be the ibstock bat brick B as they are available in a variety of different brick colours and requires no maintenance (**Fig 35**). These should also be positioned as close to the eaves as possible, away from windows and in a position that will receive some direct sunlight.

Figure 35. The Ibstock bat brick 'B' that will be incorporated into the converted derelict buildings.



6.10.1.2 Bat Boxes

To enhance the site for roosting bats, 4 Schwegler 2F (general purpose), 2 Schwegler 1FF and 2 large multi-chamber bat boxes (or suitable alternative) will be erected on suitable retained trees around the site.

Schwegler 2F bat boxes: these are designed as a summer roosting space for crevice-dwelling species such as Pipistrelles. The bat box maintains a stable temperature inside and is painted black to absorb warmth. This box should be erected 3-6m high and in an open, sunny position (preferably facing a southern elevation). Once the works have been completed this box should be left in perpetuity to provide an additional long-term enhancement for local bats.

2 Schwegler 1FF bat boxes: These are spacious enough for bats to use as a summer roost or nursery site. The inner dimensions of the 1FF have a reducing width making it ideal for bat species which inhabit crevices such as Pipistrelle Bats but also larger bats such as Noctule (*Nyctalus noctula*).

Large Multi-chamber bat box: Designed as summer roosting spaces for crevice-dwelling species such as Pipistrelles with the Large Multi-Chamber bat box also providing a larger internal space suitable for Noctules.

6.10.1.3 Tree / Shrub Planting

Planting a mixture of flowering plants, trees (including fruit trees) and shrubs encourages a diversity of insects to sustain bats. It is beneficial that the flowers vary in colour (although pale flowers are more easily seen in poor light and so attract insects at dusk), fragrance, shape, amount of nectar and time of flowering (it is important to provide native flowering plants, shrubs and trees throughout spring, summer and autumn). Flowers with 'landing platforms' for insects increase opportunities for insects and in turn foraging bats and these will be included within marginal habitats where appropriate.

6.10.1.4 Maintaining Connectivity

Many bat species are reluctant to leave the cover of features such as tree lines and hedges as they move between their roost and foraging grounds. Fragmentation of the landscape can therefore be a serious issue for bats. To address these issues, key areas of suitable habitats for foraging and commuting bats are to be retained (particularly boundary trees) along with

enhancements provided to increase invertebrate biomass (further described in **Section 6.10.5**). This includes the provision of species rich grassland as well as trees / shrubs / hedgerows also being planted across the residential development.

6.10.2 Birds

6.10.2.1 Bird Bricks

To act as a biodiversity enhancement, 50% of the new dwellings will incorporate two Swift bricks (equivalent to over a 1:1 ratio).

The 'CJ Wildlife swift maxi nesting box' with entrance via a CJ Wildlife 'Cambridge swift fullface brick' is recommended as it provides ideal nesting opportunities for Swifts and the fullface brick is available in different colours and can also be painted if necessary, to blend in with the surrounding brickwork. If this model is not suitable for the building specifications, an alternative swift box with internal floor space exceeding 400cm squared must be used. This feature should be installed at 6- 7m above the ground, ensuring that there is unobstructed access for birds entering and leaving. The box should be installed under the eaves in shaded areas out of direct sunlight and away from windows.

Sparrow Terrace features will also be introduced on site. These can be fixed onto the surface of a suitable wall or incorporated into the brickwork. Although designed specifically for Sparrows it may also occasionally attract Tits, Redstarts and Spotted Flycatchers. Thus, it is recommended they be installed on 10% of properties.

6.10.2.2 Bird Boxes

It is proposed that there is the erection of nest boxes in trees that will provide compensation for the loss of trees, scrub and grassland on site. Using nest boxes of varying designs would maximise the species complement attracted to the site, and where possible these could be tailored to provide opportunities for red listed/BAP species known from the local area. This will comprise of 10 No open fronted nest boxes and 10 No traditional bird boxes erected within the mature trees around the site and within the tree lines separating the parcels.

6.10.3 Hedgehogs

To ensure permeability for small mammals across the site, any garden fences on site will ensure at least 2 gaps are present within the gravel boards / bases of each fence line to allow for movement of Hedgehogs between gardens and into the wider area. The gaps should be at least 15 cm high by 15 cm wide with permeability for small mammals.

Small signage could be installed at these points to ensure they remain open upon completion of the development. The People's Trust for Endangered Species provide such signage, the purchase of which also supports conservation efforts (**Fig 36**).

Fig 36. Example of Hedgehog Highway signage to be placed above fence gaps provided to allow movements between gardens.



6.10.4 Mammals – Avoidance of Entrapment

In the case that proposals are to impact the Badger setts identified to the south of the site or further evidence of Badger activity is identified on site, further survey works may be required to assess the status of any potential Badger setts on site.

As a precautionary approach, during the construction phase any open excavations left overnight should either be covered to prevent commuting Badgers and falling in or escape ladders should be used to prevent them from becoming trapped. Any open pipework should be checked and then capped nightly.

6.10.5 Invertebrates

To increase opportunities for invertebrates within the site, bee bricks will be included within 50% of the new units on the site (**Fig 37**). The brick can be used in place of a standard brick and provides cavities for solitary bee species such as Red Mason bees (*Osmia bicornis*) or Leafcutter bees (*Megachile* sp.), both non-aggressive native species. The bricks should be placed in a sunny location at a minimum height of 1m. It is highly recommended the brick is placed in a location where landscaping will include nearby pollinator-friendly plants.

Figure 37. Bee Bricks (NHBS)

6.10.6 Tree / Shrub Planting

As a general enhancement, any new landscape planting will aim for a minimum 70:30 ratio in favour of native species over non-natives and ornamentals (in line with the CIEEM guidance outlined within Smith & Day (2012)). Species that can be considered within any planting include: Rowan (*Sorbus aucuparia*), Alder (*Alnus glutinosa*), Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*), Silver Birch (*Betula pendula*), Small-leaved Lime (*Tilia cordata*) and Willow (*Salix* spp.). Non-natives and ornamentals should only be given a bias in formal locations where aesthetics is a priority.

Planting a mixture of flowering plants, trees (including fruit trees) and shrubs encourages a diversity of insects to sustain bats. It is beneficial that the flowers vary in colour (although pale flowers are more easily seen in poor light and so attract insects at dusk), fragrance, shape, amount of nectar and time of flowering. (It is important to provide native flowering plants, shrubs and trees throughout spring, summer and autumn). Flowers with 'landing platforms' for insects increase opportunities for insects and in turn foraging bats and these will be included within marginal habitats where appropriate.

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Legend

-  Redline boundary
-  4x tree with bat roost potential (PRF-I)
-  Line of trees (w1f)
-  Ditch
-  Bracken (g1c)
-  Other neutral grassland (g3c)
Secondary code(s):
(10) Grazed
(14) Scattered rushes
-  Lowland mixed deciduous woodland (w1f)
Secondary code(s):
(33) Line of trees
(50) Ditch
-  Dense scrub (h3)
-  Built-up areas and gardens (u1)
Secondary code(s):
(828) Vegetated garden



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Map	UK Habs Map
Site	Land North of Colwell Farm
Client	Miller Homes
Date	05/08/2024
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BTO SPECIES CODES

AC	Arctic Skua	GA	Gadwall	LE	Long-eared Owl	SM	Sand Martin
AE	Arctic Tern	GX	Gannet	LT	Long-tailed Tit	SS	Sanderling
AV	Avocet	GW	Garden Warbler	MG	Magpie	TE	Sandwich Tern
BO	Barn Owl	GY	Garganey	MA	Mallard	VI	Savi's Warbler
BY	Barnacle Goose	GC	Goldcrest	MN	Mandarin Duck	SQ	Scarlet Rosefinch
BA	Bar-tailed Godwit	EA	Golden Eagle	MX	Manx Shearwater	SP	Scaup
BR	Bearded Tit	OL	Golden Oriole	MR	Marsh Harrier	CY	Scottish Crossbill
BS	Berwick's Swan	GF	Golden Pheasant	MT	Marsh Tit	SW	Sedge Warbler
BI	Bittern	GP	Golden Plover	MW	Marsh Warbler	NS	Serin
BK	Black Grouse	GN	Goldeneye	MP	Meadow Pipit	SA	Shag
TY	Black Guillemot	GO	Goldfinch	MU	Mediterranean Gull	SU	Shelduck
BX	Black Redstart	GD	Goosander	ML	Merlin	SX	Shorelark
BJ	Black Tern	GI	Goshawk	M.	Mistle Thrush	SE	Short-eared Owl
B.	Blackbird	GH	Grasshopper Warbler	MO	Montagu's Harrier	SV	Shoveler
BC	Blackcap	GB	Great Black-backed Gull	MH	Moorhen	SK	Siskin
BH	Black-headed Gull	GG	Great Crested Grebe	MS	Mute Swan	S.	Skylark
BN	Black-necked Grebe	ND	Great Northern Diver	N.	Nightingale	SZ	Slavonian Grebe
BW	Black-tailed Godwit	NX	Great Skua	NJ	Nightjar	SN	Snipe
BV	Black-throated Diver	GS	Great Spotted Woodpecker	NH	Nuthatch	SB	Snow Bunting
BT	Blue Tit	GT	Great Tit	OP	Osprey	ST	Song Thrush
BU	Bluethroat	GE	Green Sandpiper	OC	Oystercatcher	SH	Sparrowhawk
BL	Brambling	G.	Green Woodpecker	PX	Peafowl/Peacock	AK	Spotted Crake
BG	Brent Goose	GR	Greenfinch	PE	Peregrine	SF	Spotted Flycatcher
BF	Bullfinch	GK	Greenshank	PH	Pheasant	DR	Spotted Redshank
BZ	Buzzard	H.	Grey Heron	PF	Pied Flycatcher	SG	Starling
CG	Canada Goose	P.	Grey Partridge	PW	Pied Wagtail	SD	Stock Dove
CP	Capercaillie	GV	Grey Plover	PG	Pink-footed Goose	SC	Stonechat
C.	Carrion Crow	GL	Grey Wagtail	PT	Pintail	TN	Stone-curlew
CW	Cetti's Warbler	GJ	Greylag Goose	PO	Pochard	TM	Storm Petrel
CH	Chaffinch	GU	Guillemot	PM	Ptarmigan	SL	Swallow
CC	Chiffchaff	FW	Guineafowl (Helmeted)	PU	Puffin	SI	Swift
CF	Chough	HF	Hawfinch	PS	Purple Sandpiper	TO	Tawny Owl
CL	Cirl Bunting	HH	Hen Harrier	Q.	Quail	T.	Teal
CT	Coal Tit	HG	Herring Gull	RN	Raven	TK	Temminck's Stint
CD	Collared Dove	HY	Hobby	RA	Razorbill	TP	Tree Pipit
CM	Common Gull	HZ	Honey Buzzard	RG	Red Grouse	TS	Tree Sparrow
CS	Common Sandpiper	HC	Hooded Crow	KT	Red Kite	TC	Treecreeper
CX	Common Scoter	HP	Hoopoe	ED	Red-backed Shrike	TU	Tufted Duck
CN	Common Tern	HM	House Martin	RM	Red-breasted Merganser	TT	Turnstone
CO	Coot	HS	House Sparrow	RQ	Red-crested Pochard	TD	Turtle Dove
CA	Cormorant	JD	Jackdaw	FV	Red-footed Falcon	TW	Twite
CB	Corn Bunting	J.	Jay	RL	Red-legged Partridge	WA	Water Rail
CE	Corncrake	K.	Kestrel	NK	Red-necked Phalarope	W.	Wheatear
CI	Crested Tit	KF	Kingfisher	LR	Redpoll (Lesser)	WM	Whimbrel
CR	Crossbill (Common)	KI	Kittiwake	RK	Redshank	WC	Whinchat
CK	Cuckoo	KN	Knot	RT	Redstart	WG	White-fronted Goose
CU	Curlew	LM	Lady Amherst's Pheasant	RH	Red-throated Diver	WH	Whitethroat
DW	Dartford Warbler	LA	Lapland Bunting	RE	Redwing	WS	Whooper Swan
DI	Dipper	L.	Lapwing	RB	Reed Bunting	WN	Wigeon
DO	Dotterel	TL	Leach's Petrel	RW	Reed Warbler	WT	Willow Tit
DN	Dunlin	LB	Lesser Black-backed Gull	RZ	Ring Ouzel	WW	Willow Warbler
D.	Dunnock	LS	Lesser Spotted Woodpecker	RP	Ringed Plover	OD	Wood Sandpiper
EG	Egyptian Goose	LW	Lesser Whitethroat	RI	Ring-necked Parakeet	WO	Wood Warbler
E.	Eider	LI	Linnet	R.	Robin	WK	Woodcock
FP	Feral Pigeon	ET	Little Egret	DV	Rock Dove (not feral)	WL	Woodlark
ZL	Feral/hybrid goose	LG	Little Grebe	RC	Rock Pipit	WP	Woodpigeon
ZF	Feral/hybrid mallard type	LU	Little Gull	RO	Rook	WR	Wren
FF	Fieldfare	LO	Little Owl	RS	Roseate Tern	WY	Wryneck
FC	Firecrest	LP	Little Ringed Plover	RY	Ruddy Duck	YW	Yellow Wagtail
F.	Fulmar	AF	Little Tern	RU	Ruff	Y.	Yellowhammer

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