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Ecological Impact Assessment

Land to the rear of Sturt Avenue, Haslemere

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DOCUMENT CONTROL

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Rev 1.1	OC		19/07/21	<ul style="list-style-type: none"> July bat activity transect and dormouse survey added BIC updated to reflect inclusion of brown roofs and enhancement of retained ecological buffer zone Description of development altered for consistency with other documents Draft watermark removed 	
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Rev 1.3	OC		03/11/21	<ul style="list-style-type: none"> BIC updated to DEFRA Metric 3.0 	

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Report Summary

1. Casa Coevo instructed the Ecology Co-op to undertake an Ecological Impact Assessment of a proposed development at Land to the rear of Sturt Avenue, Haslemere. Following a Preliminary Ecological Appraisal, including Phase 1 Habitat mapping of the site by The Ecology Co-op on 6th August 2020, further ecological surveys were undertaken, including protected species surveys and desk-top studies between August 2020 and August 2021, in order to provide sufficient baseline information for this assessment. This document presents the findings of these surveys and a full Ecological Impact Assessment in accordance with CIEEM Guidelines, to inform detailed planning application for residential development comprising nine dwelling houses together with associated access, infrastructure, parking and landscaping.

2. The current study also includes a Biodiversity Impact Calculation (using the DEFRA Metric 3.0) to quantify change in biodiversity post-development.

3. The site measures 0.62ha in area and is comprising woodland, with some scrub also present. The site is bordered on three sides by residential properties within the suburban setting of Haslemere. The north-eastern site boundary is demarked by a watercourse.

4. Habitats identified within the site include:

- woodland
- scrub
- a pond
- a watercourse

5. The woodland and watercourse habitats within the site are considered to meet the criteria of priority habitats as 'lowland mixed deciduous woodland' and 'rivers' (respectively) within Section 41 of the NERC Act, 2006.

6. Protected species surveys are ongoing at the site, however surveys completed to date revealed:

- an active badger sett (outlier sett)
- likely absence of roosting bats
- foraging/commuting activity by at least nine bat species including high levels of activity by common pipistrelle and soprano pipistrelle – surveys on-going
- common and widespread species of garden and woodland birds
- possible likely absence of hazel dormice – surveys on-going
- likely absence of great crested newts
- presence of common reptiles (slow worm and grass snake)
- a significant number of and extensive coverage of invasive non-native plant species (including Japanese knotweed, Himalayan balsam and variegated yellow archangel)
- presence of signal crayfish within the watercourse



- likely absence of water vole and otter within the watercourse
- suitable habitat for hedgehog and stag beetle

7. The proposed development will result in the loss of 0.44ha of priority lowland mixed deciduous woodland and 0.1ha of bramble scrub. Habitats to be created within the site include buildings and hard-standing and gardens. A 5m wide length of woodland, along the north-western and north-eastern site boundaries will be retained and enhanced. This will serve as an ecological buffer zone to the watercourse as well as a reptile receptor area.

8. The Biodiversity Impact Calculation shows the proposed development will result in the loss of 1.62 Biodiversity Units (a net change of -45.68%) and the gain of 1.72 Hedgerow Units.

9. Loss of priority lowland mixed deciduous woodland is considered to result in a significant adverse residual effect at the local level. Off-site compensation for the loss of the woodland will be required.

10. A badger mitigation licence will be required to allow the exclusion of badgers from the sett and to close the sett prior to the commencement of site clearance.

11. Loss of bat foraging/commuting habitat is considered to result in a significant adverse residual effect at the local level. Off-site compensation for the loss of bat foraging/commuting habitat will be required.

12. A reptile mitigation strategy will be adopted and will incorporate a trapping and translocation programme to move reptiles from the construction zone to a receptor area.

13. Other avoidance, mitigation and compensation measures will be required to address effects of development on nesting/foraging birds, invertebrates, hedgehogs, riparian wildlife and invasive/non-native species.



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1 INTRODUCTION

1.1 Background

The site is located to the rear of Sturt Avenue in Haslemere. The nearest postcode for the site is GU27 3SJ. The central grid reference for the site is SU 8889 3232. Figure 1 shows the boundary of the site and local context.

The site covers a total area of 0.62ha and comprises of deciduous woodland. The site is bordered on three sides by residential properties within the suburban setting of Haslemere. The north-eastern site boundary is demarked by a watercourse.

This report is to be submitted alongside a detailed planning application for residential development comprising nine dwelling houses together with associated access, infrastructure, parking and landscaping. An indicative proposals plan is provided in Figure 2.

1.2 Purpose of this Report

The Ecology Co-op was commissioned to undertake a Preliminary Ecological Appraisal (PEA) of Land to the rear of Sturt Avenue, Haslemere by Casa Coevo. Owen Crawshaw BSc (Hons), a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and Charlie Gardiner BSc (Hons), an associate member of CIEEM, undertook the walkover survey on 6th August 2020. The PEA identified the potential for any protected/notable species and/or habitats to be present at the site and provided a simple assessment of the potential ecological constraints and opportunities in relation to the proposal to construct up to nine residential units within the site with associated hard and soft landscaping. The potential to incorporate ecological enhancement measures as part of the scheme was also discussed, in addition to any requirement to achieve biodiversity net gain.

Following the PEA, the Ecology Co-op undertook further protected species surveys for badgers *Meles meles*, hazel dormice *Muscardinus avellanarius*, great crested newts *Triturus cristatus*, common reptiles, crayfish and bats.

The purpose of this report is to:

- present the findings of these surveys (baseline ecological information);
- identify and evaluate the most ecologically important features present on the site and within the zone of influence of the proposed development;
- describe the impacts of the proposed development and determine the significance of effects on ecologically important features;
- set out the proposed impact avoidance/mitigation/compensation measures that will be undertaken to reduce these effects to an acceptable level; and
- finally, detail the habitat creation and enhancement measures that will be put into place during the development. These are designed to ensure that it contributes to both local and national biodiversity objectives.



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

The surveys and report were carried out and produced at the request of Casa Coevo and supervised by Owen Crawshaw BSc (Hons) MCIEEM.

1.3 Policy and Legislation

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

The NPPF sets out the government's view on how planners should balance nature conservation with development and helps ensure that government meets its biodiversity commitments with regards to the operation of the planning system.

Paragraph 174a, states that council policies should contribute to and enhance the natural and local environment by;

“protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils.”

Paragraph 175d, council policies should contribute to and enhance the natural and local environment by; *“minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures”*

Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system¹.

In accordance with the NPPF, it is important that developments should contribute to local policies that enhance the natural environment by:

- minimising impacts on existing biodiversity, habitats and designated features;
- establishing coherent ecological networks that are more resilient to current and future pressures; and
- providing net gains in biodiversity and habitats, wherever possible.

¹ HM Government (2005) ODPM Circular 06/05 Government Circular: *Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf.



Figure 1. Top – a location plan showing the extent of the Land to the rear of Sturt Avenue, Haslemere (outlined in red). Supplied by Pegasus via email on 23/06/20. Bottom – an aerial image showing the location of the site. The approximate site boundary is outlined in red. Images produced courtesy of Google maps (map data ©2021 Google).



Figure 2. Proposed scheme layout for Land to the rear of Sturt Avenue, Haslemere. Reproduced from dsp architecture (Drawing No. STU 001 Rev. P1).



2 SURVEY METHODOLOGY

The following sections describe the methods used in the desk study and protected species/habitat survey(s). All survey methods are in accordance with current best practice guidance for the respective species/taxonomic group and any limitations encountered during the survey are explained in section 2.15.

This document is written in accordance with the CIEEM Guidelines for Ecological Impact Assessment² and CIEEM Guidelines for Ecological Report Writing³. Details of the ecological assessment methods are provided within section 2.13 below.

2.1 Desk Studies

A search for pre-existing records of protected species, priority species for conservation and invasive non-native species was requested from the Sussex Biological Records Centre (SxBRC) and the Surrey Biodiversity Information Centre (SBIC) within a radius of 1km of the site boundaries.

A search of online mapping resources was undertaken to identify the location of any features of potential ecological interest including ponds within 500m (relevant to great crested newts), watercourses (relevant to riparian mammals and crayfish for example) and connectivity to woodland, scrub, and hedgerow networks (relevant to bats and dormice for example) in the wider landscape around the site. The connectivity of the site to these features, buildings and other semi-natural habitats are also relevant to species such as bats, great crested newts and reptiles.

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

2.2 Phase 1 Habitat Survey

A site walkover survey was undertaken on 6th August 2020, during which the habitats contained within the site were described and evaluated in accordance with standard Phase 1 Habitat Survey methodology⁴. The dominant species and indicators of important habitat types, such as Ancient Woodland or unimproved grassland, were recorded.

A Phase 1 habitat survey presents a standardised system for classifying and mapping wildlife habitats in all parts of Great Britain, including urban areas. The aim of Phase 1 survey is to provide, relatively rapidly, a record of the vegetation and wildlife habitats present over large areas of countryside. The habitat classification is based principally on vegetation, augmented by reference to topographic and

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

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

⁴ JNCC (2010) *Handbook for Phase 1 habitat survey: A technique for environmental audit*. Joint Nature Conservation Committee, Peterborough.



substrate features, particularly where vegetation is not the dominant component of the habitat.

Data was gathered through a site walkover survey and use of on-line aerial photography to broadly categorise the habitats present using the JNCC Phase 1 classifications. The results are presented as a map showing the distribution of habitat categories across the site. Target notes are used to describe specific features of biodiversity interest and record indicator species where appropriate. In addition to this, notable habitats, such as local and national Biodiversity Action Plan habitats are highlighted.

The Phase 1 survey methodology is a recognised tool for initial scoping of potential ecological constraints and identifying potential impacts as part of the planning application process.

As part of the 'Extended' Phase 1 Habitat Survey, the site features were evaluated for their potential to support legally protected species and observations of any important plant communities, bird assemblages or other potentially valuable ecological features were recorded. Details of the preliminary survey methods for each legally protected species are detailed below and any specific limitations to the survey, such as access constraints, are recorded in section 2.15.

2.3 Badgers

Badgers tend to live in family groups with clearly defined territories, with the main sett used throughout the year as a focal point. The territory often also contains a number of 'annex', 'subsidiary' and outlier setts that are used intermittently. Badgers can exist in a variety of habitats, but a mixed farmland landscape containing pasture and arable land, studded with woodland, scrub and hedgerows support the highest population density.

A comprehensive walkover survey of the site was undertaken on 6th August 2020, covering all field parcels, woodland and boundary features. Special attention was paid to boundary features such as hedgerows, woodland edge, earth banks and fence-lines, where signs of badger activity is often concentrated. Surveyors searched for badger setts, latrines, foraging marks, footprints, worn pathways, trapped hairs on fences and any other evidence of badger activity.

Any setts identified were subject to on-going monitoring during other survey visits to determine the type of sett and current occupation by badgers. Where necessary, motion sensitive cameras, 'trail cams', or other non-intrusive methods (e.g. laying soft damp sand, placing dead leaves or straw or sticky hair traps at entrances) were used to confirm occupation by badgers.

2.4 Bats

There are 18 species of bat resident in the UK, each with their own specific habitat requirements. Bats can use a wide range of features for roosting purposes including loft spaces, cavity walls, loose tiles, mortice joints and cracks/gaps in a variety of built structures. They can also be found in trees with holes, splits, cracks, cavities, ivy and loose bark. Bats are generally active at night and utilise a wide range of habitats for foraging and commuting between roost sites, hibernation sites and foraging habitats. Linear features such as hedgerows, woodland edges, even fences can be important for navigation between roosting and foraging habitats.



2.4.1 Trees – Ground-based Scoping Assessment

All trees likely to be affected directly or indirectly by the proposed development were subject to a ground-based visual inspection to identify potential roost features, followed by climbing inspections where necessary and safe, to look for evidence of roosting bats and to further assess the suitability of the feature. Each tree/feature was categorised for its potential to support roosting bats as shown in Table 1 in accordance with best practice guidance⁵.

Table 1. Characterising potential roost features in trees

Category	Description
Negligible	A tree with negligible roosting habitat features likely to be used by bats.
Low	A tree of sufficient size to potentially support roosting features, but with none seen from the ground or features identified of limited roosting potential.
Medium	A tree with one or more potential roost sites that could be used by bats due to their size, condition and surrounding habitat, but unlikely to support a roost of high conservation status such as a maternity or hibernation roost.
High	Trees with one or more potential roost sites that appear suitable for large numbers of bats or use as maternity or hibernation roosts.

2.4.2 Trees Potential Roost Feature Inspection Survey

A Potential Roost Feature (PRF) (tree climbing) survey was undertaken on 22nd September 2020 by Owen Crawshaw, BSc (Hons), MCIEEM and Ryan Walker, MSc, PhD, MCIEEM. Both surveyors hold a certificate from the National Proficiency Test Council (NPTC) in Tree Climbing & Aerial Rescue and are Natural England licensed bat surveyors (level 2 survey class licence).

Trees noted to contain PRFs were climbed using a ladder, or ropes and harnesses, in order to allow the climber to undertake a close-up inspection of the features using a torch and an endoscope. Any trees displaying significant damage/decay and/or specimens from which a suitable anchorage of ropes could not be established were subjected to a ground level assessment only.

Each PRF was assessed in terms of their suitability for roosting bats as having either: negligible, low, moderate or high roost potential (Table 1). The assessment of a tree's overall suitability for roosting bats is assigned in accordance with the assessment of the most suitable PRF present on the tree.

2.4.3 Bat Activity Surveys – Walked Transects

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

⁵Collins, J.(ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.



recording for later review. The locations of all bat ‘registrations’ was recorded onto a field map during the survey to correspond with all sound recordings.



Figure 3. The transect route walked during all bat activity surveys at Land to the rear of Sturt Avenue, Haslemere. Listening stations along the route are numbered.

2.4.4 Bat Activity Surveys – Automated Static Bat Detecting

Two static bat detectors (Elekon Batlogger A and Wildlife Acoustics Song Meter Mini) were deployed across the site (Figure 4) on five separate occasions during September–October 2020 and June–August 2021, and left in the field for a minimum of five days – the expected maximum lifetime of the battery. Static bat detectors comprise a passive recording device with real-time, full-spectrum calls that can be viewed in detail once downloaded on analysis software, allowing accurate identification of most bat calls to species level (or genus level in the case of *Myotis* and *Plecotus* spp.).



Figure 4. The position of static bat detectors (indicated by the yellow and green stars) deployed at Land to the rear of Sturt Avenue, Haslemere.

The data sets collected by the static bat detectors were interpreted using ECOBAT⁶: an online resource which is used to interpret static detector data by calculating percentiles through comparison of the data with a national database of bat activity. Levels of bat activity were qualified according to Table 2.

Table 2. Qualification of bat activity levels at Land to the rear of Sturt Avenue, Haslemere detected by static bat detectors and using ECOBAT outputs

Bat activity level	Bat passes/night (median percentile range)
Low	0-20 th Percentile
Low–Moderate	21 st –40 th Percentiles
Moderate	41 st –60 th Percentiles
Moderate–High	61 st –80 th Percentiles
High	81 st –100 th Percentiles

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

⁶ <http://www.ecobat.org.uk>



2.5 Breeding Birds

The method used for the breeding bird survey was adapted from the Breeding Bird Survey (BBS) methodology, designed by the British Trust for Ornithology (BTO)⁷ as an accessible means of monitoring British bird population trends over the UK using volunteers and frequently adapted for EclA. The original methodology requires two visits per season to be carried out over many seasons, allowing data sets to be built up. The number of visits has been increased to three for this survey to provide a more representative 'snapshot' of the bird assemblages present at the site during one survey season.

A pre-determined transect (Figure 5) was walked on each visit, during which, the observer recorded all birds encountered. As recommended in the BTO guidelines, all bird survey visits were carried out between 6am and 11am and were only undertaken during favourable weather conditions for bird activity, with periods of persistent or heavy rain, high winds or fog avoided. The transect route was walked at a constant slow pace by a competent bird observer, recording all birds detected either by sight or calls/song. The transect route was split into numbered sections and birds were counted within each of these sections. Notes regarding the behaviour of birds identified were made, to determine their breeding status. Birds were said to be 'confirmed as breeding' if they were observed carrying nesting material, food or faecal pellets; or nests, eggs, or recently fledged young were discovered. Birds were recorded as 'likely breeding' if observed singing or displaying, repeatedly visiting the same locations and showing agitated or distraction behaviour. Each bird 'registration' was recorded on a field map of the survey site using standard BTO Common Birds Census (CBC) notation, which includes behaviours and flight movements.

⁷ <https://www.bto.org/about-birds/birdtrends/2018/methods/breeding-bird-survey>



Figure 5. The transect route walked during all breeding bird surveys at Land to the rear of Sturt Avenue, Haslemere

2.6 Hazel Dormouse

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

2.6.1 Nest Tube/Box Survey

Dormouse surveys are undertaken by attaching purpose built 'nest tubes' on trees and shrubs in suitable habitat such as woodland, scrub and hedgerows. Nest tubes are used by dormice as places of shelter and they will often construct their nests within them during their periods of activity (typically between April and November). In accordance with current best practice guidelines⁸, 50 nest tubes were deployed within the site's woodland habitat on 6th August 2020 and left *in situ* for the survey season (Figure 6). These were checked on a monthly basis for presence of animals and evidence of dormouse presence (distinctively woven nests) from August 2020 to August 2021 (checks not undertaken November–February). Since the likelihood of use by dormice varies through the year, an

⁸ Bright, B., Morris, P., Mitchell-Jones, A.J. and Mitchell-Jones, T (1997) *The Dormouse Conservation Handbook*. English Nature.



index of probability score is used to determine confidence in a particular survey (see Table 3 below) comprising checks over several months. A minimum score of 21 is normally accepted to establish 'likely absence' in the event that no signs of dormice are found during the survey.

Table 3. Search effort score for each month that dormouse tubes are out on the site and subject to checks for occupation.

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

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



Figure 6. Dormouse nest tube locations (identified as red dots) across all suitable habitat deployed at Land to the rear of Sturt Avenue, Haslemere.

2.7 Great Crested Newts

Great crested newts require ponds for breeding that meet a series of habitat criteria including good



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

2.7.1 Habitat Suitability Assessment

Land to the rear of Sturt Avenue contains a single pond within its boundaries. The desk study revealed an additional three ponds within 500m of the site boundary. Where ponds were visible from public rights of way or access permission was granted, they were assessed for their potential to support great crested newts using the Habitat Suitability Index (HSI)⁹.

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

2.8 Invertebrates

A single moth-trapping session was undertaken within the site on 24th June. During the trapping session of 14th June 2018, a single Robinson's Moth Trap was deployed overnight and collected the following morning. All moths captured were identified to species level the following morning and then released.

⁹ Oldham, R.S., Keeble, J., Swan, M.J.S and Jeffcote, M. (200) *Evaluating the suitability of habitat for the great crested newt (Triturus cristatus)*. Herpetological Journal 10, 143-155.



Figure 7. The position of the single Robinson's Moth Trap (shown as the purple star) deployed at Land to the rear of Sturt Avenue, Haslemere.

2.9 Reptiles

The common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis* grass snake *Natrix helvetica* and adder *Vipera berus* are widespread species that can be found in many semi-natural habitats, such as rough grassland, scrub, heathland and open woodland where there is good vegetation cover, an abundance of invertebrate, amphibian or small mammal prey and areas of open ground for basking.

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

A total of 15 roofing felt mats were used in this survey (see Figure 8). The mats were left *in situ* for a minimum of one week to 'bed in' and allow reptiles to locate them before the first check. The mats were checked at least seven times over the period September 2020–June 2021 and all observations of



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



Figure 8. Location of reptile refugia (identified with red dots) deployed at Land to the rear of Sturt Avenue, Haslemere.

2.10 Riparian Wildlife

Watercourses and waterbodies can support a range of protected species, principally otter *Lutra lutra*, water vole *Arvicola amphibius* and white-clawed crayfish *Austropotamobius pallipes*.

Any watercourses identified during the desk study were visually assessed for their suitability to support these species, with subsequent targeted surveys undertaken as required.

2.10.1 Water Vole

Water vole surveys of the watercourse running along the north-eastern edge of the site were undertaken by Dan Bennet, MSc, MCIEEM and Charlie Gardiner, BSc Hons on 26th August 2020 and by Owen Crawshaw, BSc (Hons), MCIEEM and Charlie Gardiner on 11th May 2021. The surveyors walked an approximate 240m length of the ditch looking for evidence of water voles including: burrows, latrines, feeding stations, gnawed vegetation and footprints. The surveyors combined wading in the channel as well as walking along the toe of the banks, searching at least 1m into the water and 1m up the banks. The survey was undertaken in accordance with best practice guidance¹⁰.

¹⁰ Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.



2.10.2 Crayfish

A crayfish survey was undertaken by Dan Bennet, MSc, MCIEEM and Charlie Gardiner on 26th August 2020. Mr Bennet holds a licence from Natural England to survey for white-clawed crayfish. During the survey, surveyors used a high-powered torch to search for crayfish, with a net used to catch and identify any crayfish encountered during the survey. The survey included the watercourse running along the north-eastern boundary of the site as well as off-site areas upstream where public access could be achieved or where access permission had been granted by the landowner.

2.11 Other Notable Species

The site's habitats were broadly assessed for their potential to support species of principal importance for nature conservation (Section 41, NERC Act 2006) and other notable species. This includes mammals such as hedgehog *Erinaceus europaeus*. The site was broadly assessed for its potential to support important invertebrate assemblages with specific attention paid to features such as standing deadwood, wet flushes, bare earth banks and botanically rich areas.

2.12 Invasive Non-native Species

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

2.13 Impact Assessment Methodology and Mitigation

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

2.13.1 Importance of Ecological Features

A level of importance was assigned to all existing ecological features, through consideration of the rarity and distribution of a habitat or species, the population size, ecological function and trends (declining/expanding), together with any designations, legal status, or conservation policies. CIEEM recommend that the importance of an ecological feature, in terms of nature conservation priority, should be considered within a defined geographical context (for definitions used by The Ecology Co-op, see Appendix 2):

- international and European
- national (UK)
- regional (south-east England)
- county (Surrey)
- district (Chichester)
- local or parish (Haslemere)
- site/negligible



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

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

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

2.13.2 Significance of Impacts and Effects

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

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

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

This report has only sought to describe in detail the impacts that are likely to be significant. Impacts that are either unlikely to occur, or if they did occur are unlikely to have a significant effect, have been discounted or ‘scoped out’ at an earlier stage. Effects on the conservation status of ecological features are only assessed in detail if they have a high enough value (local or above) and impacts upon them may be a material consideration in decision-making in terms of legislation and planning policy. Impacts on features below local value are categorised as of neutral significance and are not considered further. However, where it has not been possible to robustly conclude that there are no significant effects (due to insufficient survey data or scientific research for example), then the precautionary principle will be applied and a significant effect is assumed.



2.13.3 The ‘Mitigation Hierarchy’

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

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

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

2.14 Biodiversity Impact Calculation

This report includes a Biodiversity Impact Calculation, uses the Biodiversity Metric 3.0 Calculation Tool published by Natural England¹¹. This uses the Government Biodiversity Metric developed by DEFRA (‘the DEFRA Biodiversity Metric’) to calculate ‘habitat units’ and ‘hedgerow units’ by multiplying the area (ha) or lengths (km), ‘distinctiveness’ (habitat type), ‘condition’ (quality), and strategic significance (location in relation to the authority’s local strategy) of each habitat parcel.

The calculation provides a negative value to the biodiversity units where habitat is being directly lost to the footprint of development. Where habitats are enhanced or created on-site, or off-site, the calculation gives a positive value but adds risk factors that account for uncertainty - difficulty in creating new habitats and time delays while they establish; habitats that are more difficult to restore or that will take a long time to reach a set target condition will score lower and therefore make a smaller positive contribution.

Where on-site gains are equal to or larger than the losses, the project is deemed to have neutral biodiversity impact or biodiversity ‘net gain’ respectively.

Where on-site gains do not outweigh on-site losses and a biodiversity ‘net loss’ is calculated, this becomes an ‘offset requirement’. Offsets can be provided by further habitat creation or enhancement in-situ or elsewhere and are assessed using the same metric to balance the predicted gains against the losses to ensure no net loss will be achieved. It follows that a biodiversity net gain can still be achieved by providing higher biodiversity gains through the offset than the net loss resulting from the development.

¹¹ Natural England (2021) The Biodiversity Metric 3.0 – Calculation Tool. Available online at: <http://publications.naturalengland.org.uk/publication/6049804846366720>



Note that the Biodiversity Metric does not allow for ‘trading down’; one of the key principles in measuring biodiversity net losses or gains is that habitats of high ecological importance cannot be offset by the creation of larger areas of habitats with lower value. The Biodiversity Metric 3.0 Calculation Tool includes a ‘trading down correction’ that deducts the number of biodiversity units that are not accounted for through the creation of equivalent high distinctive habitats than that lost. For example, the loss of a small area of unimproved hay meadow priority habitat (high distinctiveness) will not be offset by a larger area of semi-improved grassland (medium distinctiveness) and will only be offset by an equivalent area of habitat of the same distinctiveness or higher.

2.14.1 Data Sources

This calculation uses the most up to date Phase 1 habitat survey information using botanical data gathered during the site visit in August 2020 with extra information from site visits undertaken in 2021. The areas of each habitat category were measured using GIS mapping tools (QGIS). Condition assessments were made in accordance with the Condition Tables within The Biodiversity Metric 3.0 Technical Supplement¹² and condition assessment sheets¹³.

A site visit to undertake condition assessments of habitats was undertaken by Owen Crawshaw BSc (Hons) MCIEEM on 29th October 2021. Applying the precautionary principle, a presumption for the higher condition was used where there was any uncertainty in the condition of existing habitats.

To predict biodiversity units supported after the development is constructed, the aerial imagery was overlaid by the current proposed scheme layout (see Figure 2). This allowed direct losses of habitats to be measured where the built environment overlaps with pre-existing habitat, with gardens and amenity areas treated separately. The habitats that are ‘created’ after development are assumed to achieve the highest level of condition as appropriate.

The Biodiversity Metric uses a separate calculator spreadsheet for linear features. This works under the same principles as above but replaces areas of habitat with linear length of a feature. It should be noted that because linear features often have higher ecological importance, linear habitats are assigned higher distinctiveness and must be offset with other linear features. The biodiversity units generated for linear features are not equivalent or interchangeable with biodiversity calculations for areas of habitat.

2.15 Constraints/Limitations to Surveys

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

¹² Natural England (2021) *Biodiversity Metric 3.0 – Technical Supplement* Available online at: <http://publications.naturalengland.org.uk/publication/6049804846366720>

¹³ Natural England (2021). *Biodiversity Metric 3.0 – habitat condition assessment sheets with instructions*. Available online at: <http://publications.naturalengland.org.uk/publication/6049804846366720>



intervening period, it is recommended that the surveys be updated.

Specialist training is required for condition assessments of watercourses under the DEFRA Metric 2.0. Watercourses are therefore not included within the Biodiversity Impact Calculation for the current study.

3 ECOLOGICAL BASELINE

3.1 Designated Sites

There are no statutory/non-statutory designated sites within the site or adjacent to its boundaries. Details are provided for statutory sites and non-statutory sites within 5km and 1km of the site, respectively, in Table 4.

Table 4. Statutory designated sites within 5km and non-statutory designated sites within 1km of Land to the rear of Sturt Avenue, Haslemere

Site name	Designation	Features listed on citation	Proximity	Ecological importance
Hammer Moor	Local Wildlife Site (LWS)	The LWS is designated for its neutral grassland, acid grassland, woodland and watercourse habitats.	330m NE	County
Lynchmere Commons	Local Nature Reserve (LNR)	The LNR contains woodland and heathland habitat.	450m SW	County
Marley Common	LWS	The LWS is designated for its heathland and woodland habitat. The site is also noted to support scarce invertebrates such as woodland grasshopper <i>Omocestus rufipes</i> and bee wolf <i>Philanthus triangulum</i> as well as priority (listed on Section 41, NERC Act. 2006) bird species including: nightjar <i>Caprimulgus europaeus</i> , crossbill <i>Loxia curvirostra</i> and willow tit <i>Poecile montanus</i> .	775m S	County
Bunch Lane Woodland	Site of Nature Conservation Importance (SNCI)	The SNCI is designated for its Ancient Semi-natural Woodland.	1km NE	County
Wealden Heaths Phase II	Special Protection Area (SPA)	The SPA is designated for its breeding bird assemblage, which includes nightjar, woodlark <i>Lullula arborea</i> and Dartford warbler <i>Sylvia undata</i> .	2km N	International
Devil's Punchbowl	Site of Special Scientific Interest (SSSI)	The SSSI is designated for its woodland and heathland habitat. The site is known to support a number of locally rare and scarce invertebrates including <i>Xylophagus ater</i> (a fly), <i>Mathodes maurus</i> (a beetle) and <i>Altica ericeti</i> (a beetle).	2km N	National



Site name	Designation	Features listed on citation	Proximity	Ecological importance
		The site is also know to support a number of priority (listed on Section 41, NERC Act. 2006 or Sch1 Wildlife and Countryside Act, 1981) bird species including: nightjar, Dartford warbler, firecrest <i>Regulus ignicapilla</i> , tree pipit <i>Anthus trivialis</i> and crossbill		
Bramshott and Ludshott Commons	SSSI	The SSSI is designated for its heathland habitat. The site is know to support smooth snake <i>Coronella austrica</i> as well as a number of priority (listed on Section 41, NERC Act. 2006 or Sch1 Wildlife and Countryside Act, 1981) bird species including: nightjar, Dartford warbler, woodlark and hobby <i>Falco subbuteo</i> .	2.4km NW	National

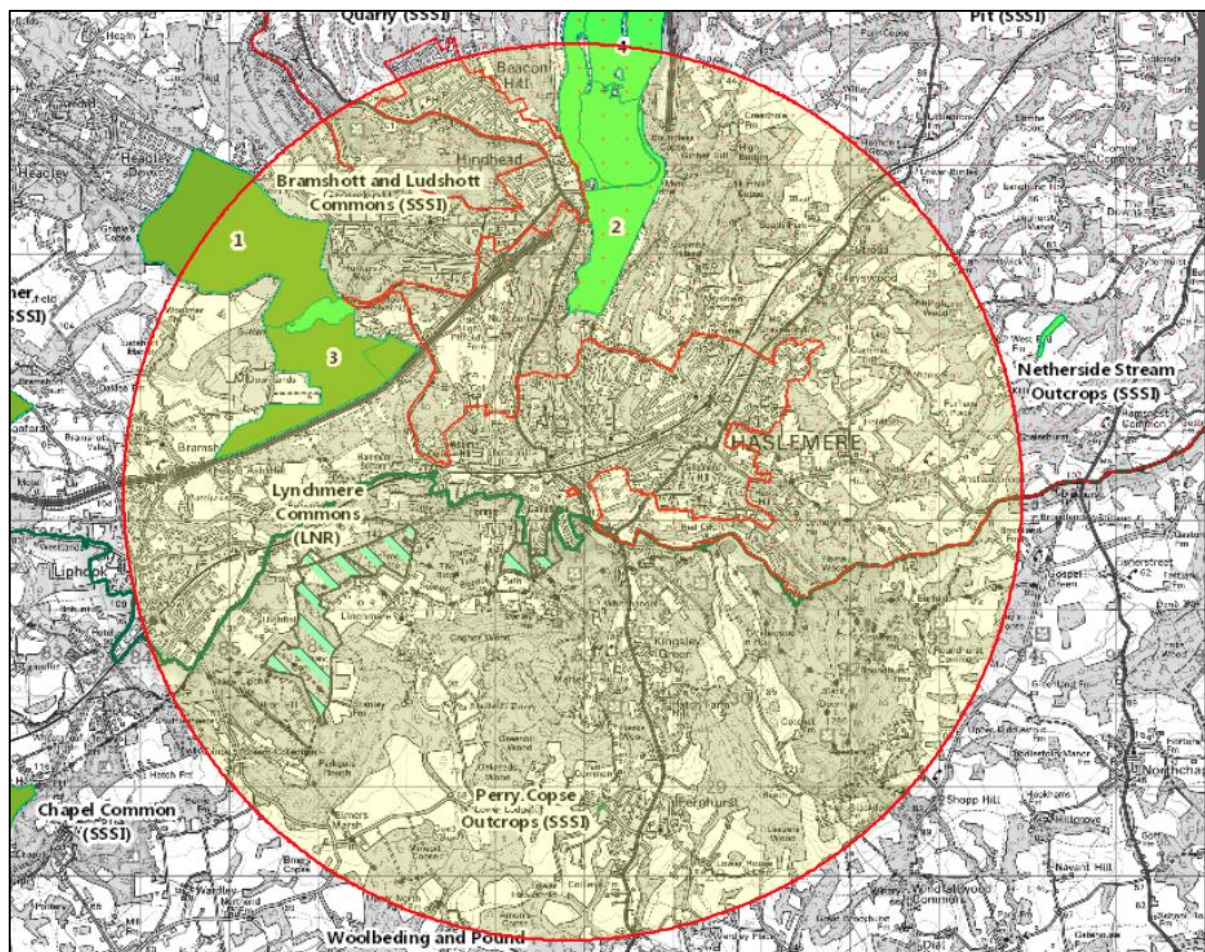


Figure 9. Statutory designated sites within a radius of 5km of the application site. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



Figure 10. Non-statutory designated sites within the 1km search radius covered by SxBRC. Reproduced courtesy of SxBRC.

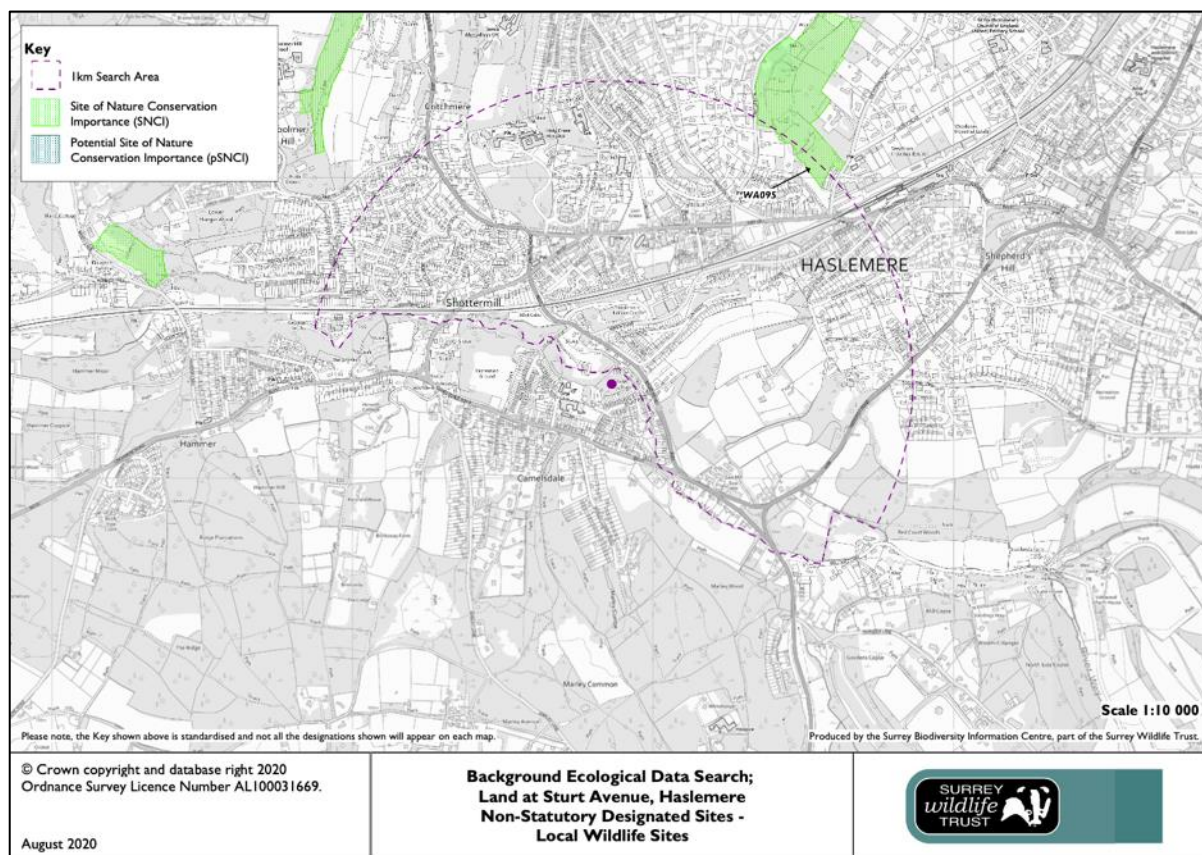


Figure 11. Non-statutory designated sites within the 1km search radius covered by SBIC. Reproduced courtesy of SBIC.

There are two granted EPS licences for mitigation projects within 1km of the site boundary (Figure 12). Details of the licences are provided in Table 5 below.

Table 5. Details of granted EPS licences within 1km of Land to the rear of Sturt Avenue, Haslemere

Reference number	Species concerned	Actions permitted	Dates	Proximity to site
2016-24164-EPS-MIT	Common pipistrelle <i>Pipistrellus pipistrellus</i>	Damage and destruction of a resting place	01/08/2016–31/07/2021	400m NE
2015-8173-EPS-MIT	Common pipistrelle Brown long-eared bat <i>Plecotus auritus</i>	Destruction of a resting place	27/04/2015–20/04/2020	950m NE

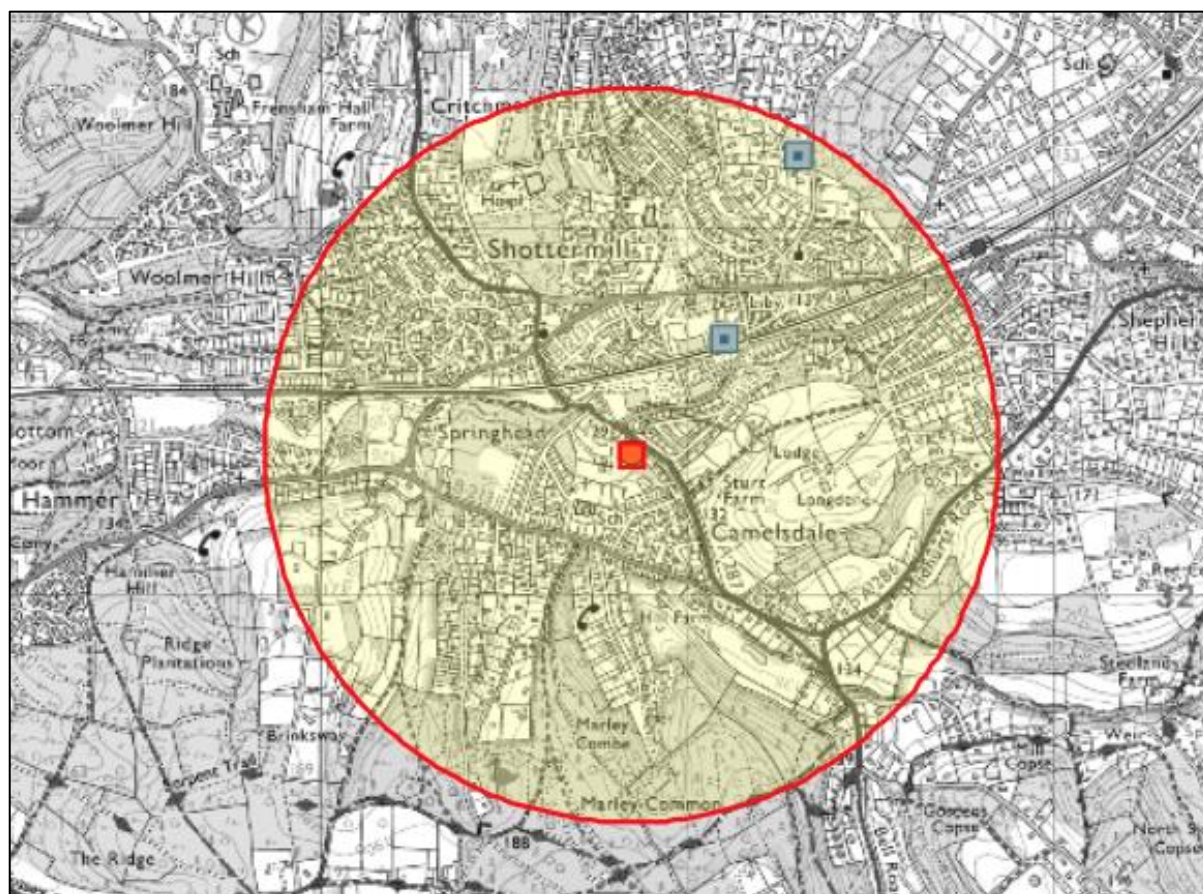


Figure 12. Granted EPS licences within 1km of the Land to the rear of Sturt Avenue, Haslemere. Licences concerning bats are shown as purple squares Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

3.2 Habitats

The majority of the site consists of woodland. A clearing exists within the western third of the site and is dominated by bramble scrub and other vegetation. The southern, and western site boundaries are demarked by fencing of adjacent properties. The site's woodland extends beyond the northern site boundary (marked by a wire fence), whilst a watercourse marks the eastern boundary.

Table 6 below lists the Phase 1 Habitat Survey categories found at the site, describes the general species composition, the habitat condition assessment and their relative ecological value. The Phase 1 Habitat Map for the site and key to the standard mapping symbols used is presented in Figure 13. Photographs of important areas of habitat are presented below.

Table 6. Phase 1 habitats contained within Land to the rear of Sturt Avenue, Haslemere

Habitat type	JNCC code	Area (ha) length (km)	Target note including species composition	Condition assessment ^{Er} or! Bookmark no defined.	Ecological importance
Woodland	A1	0.51ha	The woodland canopy is dominated by semi-mature downy birch <i>Betula pubescens</i> , other species present within the	Poor (see Appendix 8 for full	District



Habitat type	JNCC code	Area (ha) length (km)	Target note including species composition	Condition assessment <small>Er or! Bookmark no defined.</small>	Ecological importance
			<p>canopy include: beech <i>Fagus sylvatica</i>, sycamore <i>Acer pseudoplatanus</i>, ash <i>Fraxinus excelsior</i>, grey polar <i>Populus canescens</i>, alder <i>Alnus glutinosa</i>, crack willow <i>Salix fragilis</i>, grey willow <i>S. cinerea</i> and Norway spruce <i>Picea abies</i>.</p> <p>The woodland understorey contains: hazel <i>Corylus avellana</i>, elder <i>Sambucus nigra</i>, holly <i>Ilex aquifolium</i>, cherry laurel <i>Prunus laurocerasus</i>, blackthorn <i>Prunus spinosa</i>, hawthorn <i>Crataegus monogyna</i>, <i>Cotoneaster</i> sp. and rhododendron <i>Rhododendron ponticum</i>.</p> <p>Ground flora within the habitat is dominated by Himalayan balsam <i>Impatiens glandulifera</i>. Other species present within the ground flora include: wood avens <i>Geum urbanum</i>, nipplewort <i>Lapsana communis</i>, American skunk cabbage <i>Lysichiton americanus</i>, Japanese knotweed <i>Fallopia japonica</i>, pendulous sedge <i>Carex pendula</i>, herb Robert <i>Geranium robertianum</i>, cock's foot <i>Dactylis glomerata</i>, lords and ladies <i>Arum maculatum</i>, bamboo, great woodrush <i>Luzula sylvatica</i>, ground elder <i>Aegopodium podagraria</i>, bramble <i>Rubus fruticosus</i> agg., bracken <i>Pteridium aquilinum</i>, forget-me-not <i>Myosotis</i> spp., foxglove <i>Digitalis purpurea</i>, field bindweed <i>Convolvulus arvensis</i>, greater plantain <i>Plantago major</i>, broad-leaved dock <i>Rumex obtusifolius</i>, cleavers <i>Gallium aparine</i>, meadow grass <i>Poa</i> spp., meadow buttercup <i>Ranunculus acris</i>, rush <i>Juncus</i> spp., horsetail <i>Equisetum</i> sp., false wood-brome <i>Brachypodium sylvaticum</i>, stinging nettle <i>Urtica dioica</i>, variegated yellow archangel <i>Lamium galeobdolon</i> subsp. <i>argentatum</i>, enchanter's nightshade <i>Circaea lutetiana</i>, tutsan <i>Hypericum androsaemum</i>, green alkanet <i>Pentaglottis sempervirens</i> and potato <i>Solanum</i> species.</p> <p>The woodland is considered to meet the criteria of priority habitat under 'lowland</p>	condition assessment)	



Habitat type	JNCC code	Area (ha) length (km)	Target note including species composition	Condition assessment ^{Er} or! Bookmark no defined.	Ecological importance
			mixed deciduous woodland' within Section 41 of the NERC Act, 2006.		
Scrub	A2	0.1ha	The scrub at the western side of the site consists of dense brambles and stinging nettle.	Moderate (condition assessment not required)	Site
Running Water	G2	0.09km	<p>The north-eastern site boundary is demarked by a watercourse. The stream is relatively fast-flowing and the north-eastern bank is partially engineered at its north-western end; the stream is also crossed by a wooden footbridge at the eastern corner of the site.</p> <p>The channel is steep-sided along much of its length with the bed created from a combination of silt and stone substrate. The water flowing within the channel is described as clear, with no aquatic vegetation recorded. Vegetation lining the banks of the watercourse is conducive largely with that of the woodland ground flora, species of particular association with the watercourse include water dropwort <i>Oenanthe crocata</i> and American skunk cabbage.</p> <p>The watercourse is considered to meet the criteria of priority habitat under 'rivers' within Section 41 of the NERC Act, 2006.</p>	Not covered by the current study	District
Standing water	G1	0.01ha	<p>The small pond (P1) at the northern boundary is heavily shaded by dense bamboo growth. No aquatic vegetation exists within the pond.</p> <p>The pond had dried up in August 2020 but held discoloured water (choked with leaf litter) in April 2021.</p> <p>The pond is not considered to meet the criteria of priority habitat under 'ponds' within Section 41 of the NERC Act, 2006.</p>	Poor (see Appendix 8 for full condition assessment)	Site



Figure 13. A Phase 1 habitat map of Land to the rear of Sturt Avenue. Reproduced using QGIS Software.



Photograph 1. The lowland mixed deciduous woodland habitat within the site.



Photographs 2a (left) & 2b (right). 2a – the section of the watercourse at the northern corner of the site with an engineered bank. 2b – a section of the watercourse along the north-eastern boundary.



Photographs 3a (left) & 3b (right). 3a – the pond within the site, which had dried up almost entirely in August 2020. 3b – the pond holding water in April 2021.



Photograph 4. The western edge of the site, which consists of a clearing dominated by bramble scrub and ruderal vegetation.

3.3 Biodiversity Impact Calculation

The Biodiversity Impact Calculation shows that the proposed development will result in the loss of 1.62 Biodiversity Units (a net change of -45.68%) and the gain of 1.72 Hedgerow Units (a percentage change in Hedgerow Units cannot be calculated given that no Hedgerow Units exist within the on-site baseline).

The full Biodiversity Impact Calculation is supplied as an appendix to this report and should be viewed in conjunction with the report.



On-site baseline	<i>Habitat units</i>	3.54
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
On-site post-intervention <small>(Including habitat retention, creation & enhancement)</small>	<i>Habitat units</i>	1.92
	<i>Hedgerow units</i>	1.72
	<i>River units</i>	0.00
On-site net % change <small>(Including habitat retention, creation & enhancement)</small>	<i>Habitat units</i>	-45.68%
	<i>Hedgerow units</i>	100.00%
	<i>River units</i>	0.00%
Off-site baseline	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Off-site post-intervention <small>(Including habitat retention, creation & enhancement)</small>	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Total net unit change <small>(including all on-site & off-site habitat retention, creation & enhancement)</small>	<i>Habitat units</i>	-1.62
	<i>Hedgerow units</i>	1.72
	<i>River units</i>	0.00
Total on-site net % change plus off-site surplus <small>(including all on-site & off-site habitat retention, creation & enhancement)</small>	<i>Habitat units</i>	-45.68%
	<i>Hedgerow units</i>	100.00%
	<i>River units</i>	0.00%
Trading rules Satisfied?	No - Check Trading Summary	

Figure 14. Results of the Biodiversity Impact Calculation undertaken for Land to the rear of Sturt Avenue

3.4 Badgers

3.4.1 Survey Results

Two potential badger setts, each with a single entrance hole, were recorded within the site during the Phase 1 walkover survey in August 2020.

Deployment of a camera trap outside the entrance of sett A for a seven-night period from 13th October 2020 did not record any badger activity.

Deployment of a camera trap outside the entrance to sett B for a seven-night period from 27th May 2021 recorded at least two badgers, an adult and a cub, within the site. The badgers were observed to approach and investigate the sett entrance but were not observed to enter.



Photograph 5. Evidence of badgers, in the form of 'snuffle holes' recorded within the site



Photographs 6a (left) & 6b (right). 6a – sett A. 6b – sett B



Photographs 7a (left) & 7b (right). Badger activity recorded on a trail camera around sett B in June 2021



3.4.2 Pre-existing Records

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

3.4.3 Interpretation

Badger populations have been rising for several decades and they are now a common and widespread species across most of the UK countryside. Badgers are therefore not currently considered to be of great conservation concern within the UK, although the UK supports a significant proportion of the global population.

The survey effort has identified evidence of badger activity in the form of one active sett (sett B) classified as an ‘outlier sett’. Outlier setts typically exist a significant distance from the clan’s main sett within the home range. These small setts are used infrequently during extended foraging trips. Consequently, the site is not considered to be of importance to badgers beyond the local level.

3.5 Bats

3.5.1 Natural Roost Features – Trees

Results of the GLTA and subsequent PRF inspection survey for bats in trees are provided in Table 7 below, locations of trees referred to within the table are shown in Figure 15.

Table 7. Trees with potential roost features for bats at Land to the rear of Sturt Avenue, Haslemere

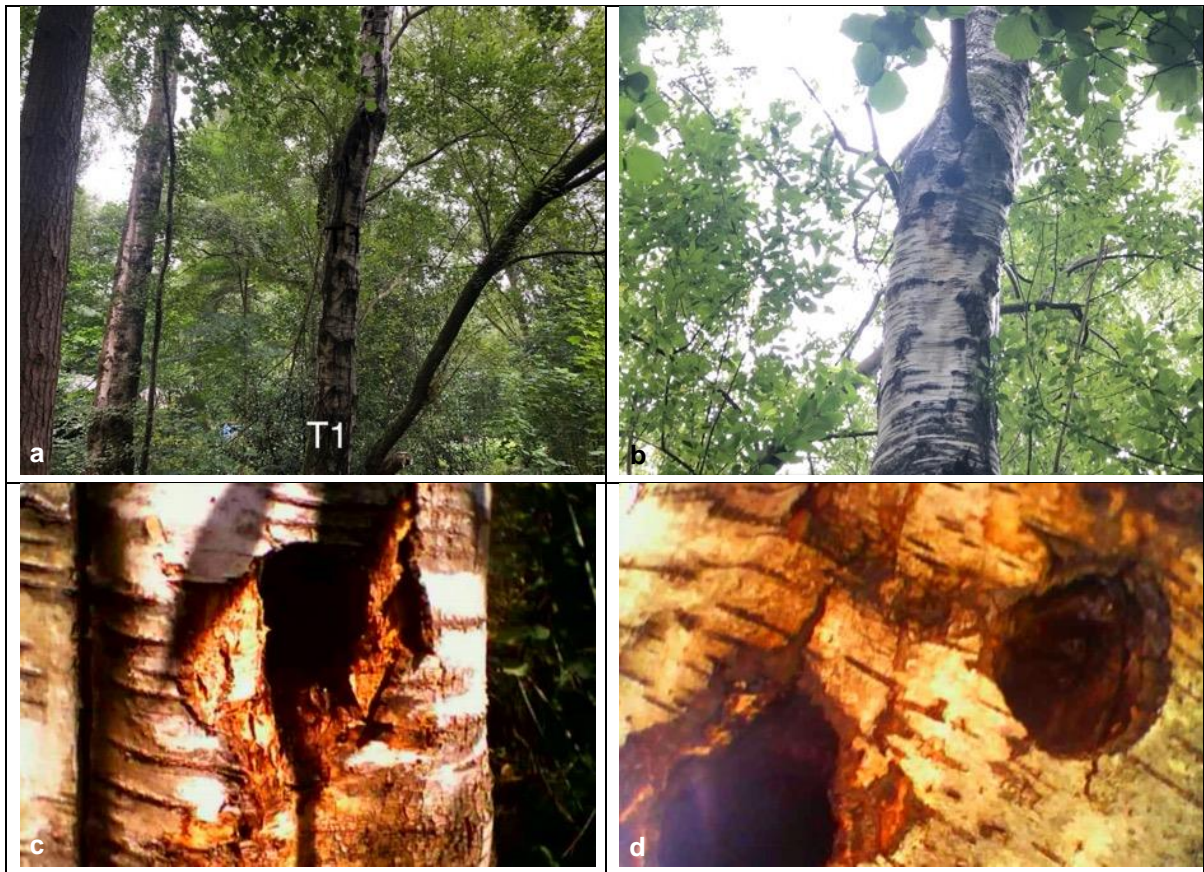
Tree ref.	Species	GR	Ground level description of features	Assessment following GLTA	Detailed PRF description	Revised Assessment following PRF inspection
T1	Downy birch	SU 8886 3235	3 x woodpecker holes	High	Woodpecker hole at 8m on W aspect, entrance 5cm diameter, extends back approximately 6cm, accumulation of sap. Woodpecker hole at 10m on E aspect. Upper entrance 6cm in diameter, extends back approximately 6cm, extends down 10cm. Very damp. Woodpecker hole at 10m on E aspect. Starter hole only. 5cm diameter entrance, extends back 4cm.	Negligible
T2	Downy birch	SU 8885 3232	Rot hole	Low	Rot hole at 4m on W aspect. Entrance approximately 6cm x 4cm. Leads in approximately 5cm.	Negligible



Tree ref.	Species	GR	Ground level description of features	Assessment following GLTA	Detailed PRF description	Revised Assessment following PRF inspection
T3	Downy birch	GU 8884 3232	Transverse snap	Moderate	The limb had snapped completely since the GLTA – no PRF created.	Negligible
T4	Downy birch	SU 8889 3323	Branch cavity	Moderate	Branch cavity at 10m on E aspect. Entrance 6cm diameter, leads down 10cm. Woodlice present. Likely to collect rain.	Negligible
T5	Downy birch	SU 8889 3233	Stem cavity	Moderate	Stem cavity at 0.5m on S aspect. Entrance approximately 4cm in diameter. Chamber extends up 10cm. Damp. Woodlice and slugs present.	Negligible



Figure 15. A plan showing the location of trees at Land to the rear of Sturt Avenue, Haslemere with bat roost potential. The trees were also included within the PRF inspection survey.



Photographs 8a-d. a – T1. b – two woodpecker holes on the E aspect of the stem viewed from the ground. c – a close-up external photograph of the single woodpecker hole on the W aspect of the stem. d – a close-up external photograph of the single woodpecker hole on the E aspect of the stem.





Photographs 9a–c. a – T2. b – a rot hole on the W aspect of the stem viewed from the ground. c – a close-up external photograph of the rot hole.



Photographs 10a–c. a – T3. b – a transverse snap in the stem viewed from the ground during the GLTA. c – photograph showing the snap which occurred between the GLTA and the PRF inspection.



Photographs 11a–d. a – T4. b – a branch cavity viewed from the ground. c – a close-up external photograph of the branch cavity. d – an internal photograph of the branch cavity taken with a video endoscope.





Photographs 12a–c. a – T5. b – a stem cavity viewed from the ground. c – an internal photograph of the stem cavity taken with a video endoscope.

3.5.2 Built Structures

There are no built structures within the site.

3.5.3 Bat Activity Surveys – Walked Transects

August 2020

During the walked transect of 2020, the common pipistrelle *Pipistrellus pipistrellus* was the only species of bat recorded. Sustained foraging behaviour was observed/recorded at the north-western and south-western edges of the site, with a peak count of three bats observed foraging concurrently at any one time. Fewer passes by foraging common pipistrelles were also recorded along the site's north-eastern boundary with the watercourse.

September 2020

Commuting behaviour by common pipistrelle and soprano pipistrelle *P. pygmaeus* was recorded at the north-eastern and north-western site boundaries. Reduced levels of foraging activity were recorded when compared with that of the previous survey; sustained foraging (10+ passes) was only encountered at the southern corner of the site. A non-echolocating bat (likely to be a brown long-eared bat *Plecotus auritus*) was seen to fly south-east–north-west, passing listening point 4 at the site's southern corner.

May 2021

Foraging common pipistrelles and soprano pipistrelles were the only species encountered within the site during the survey. Reduced activity levels (compared to the 2020 transects) were experienced, with only infrequent passes and no sustained foraging observed).

June 2021

Common pipistrelle and soprano pipistrelle were the only species recorded during the survey. Sustained foraging by up to two common pipistrelles was recorded at the northern corner of the site. Another common pipistrelle was also recorded foraging regularly within the clearing at the western side of the site.

July 2021

Common pipistrelle was the only species recorded during the survey. No sustained foraging was



recorded, with the greatest level of activity created by a single bat foraging regularly within the clearing at the western side of the site.

Survey conditions and timings are presented in Table 8. The results of each walked transect survey is summarised in

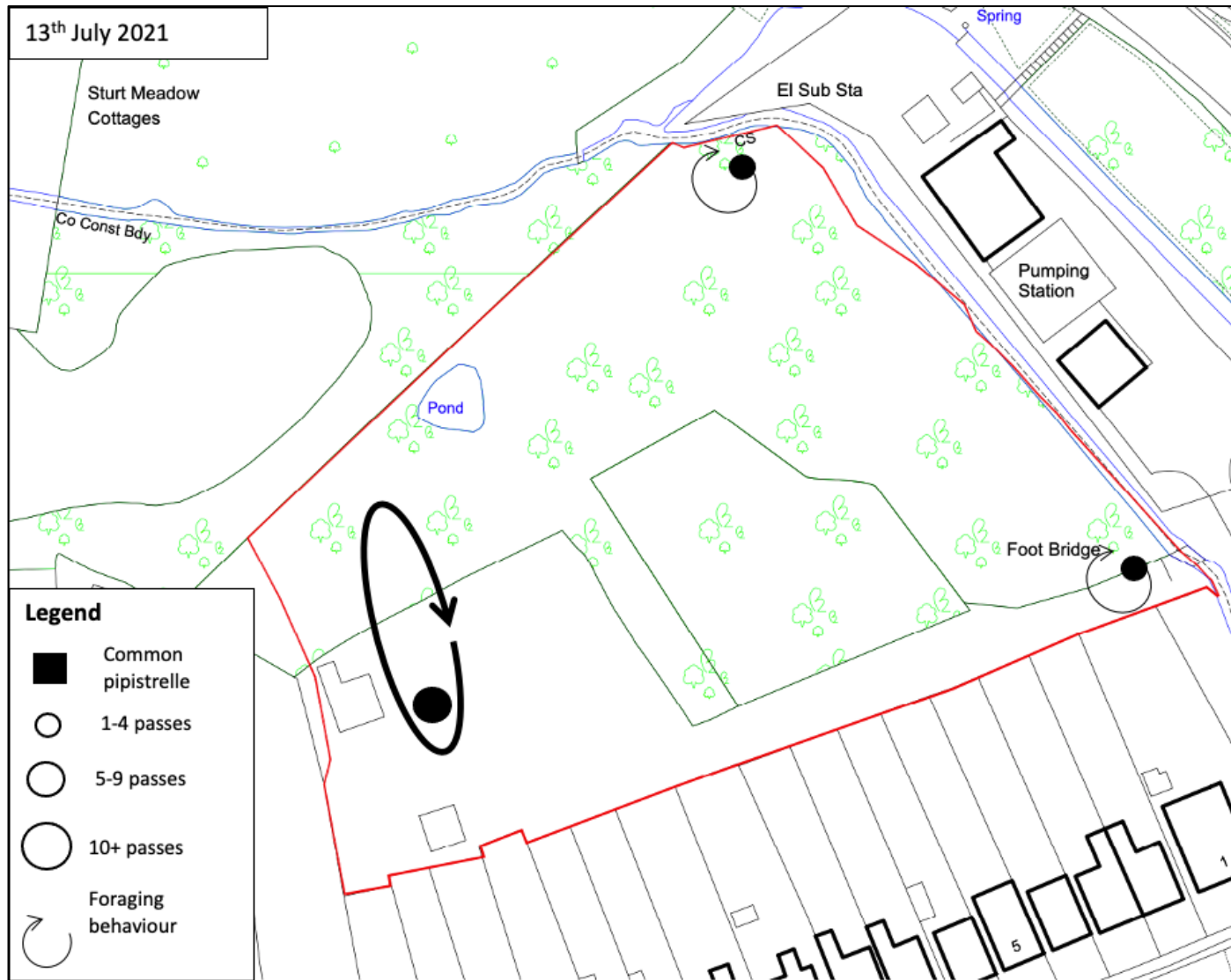
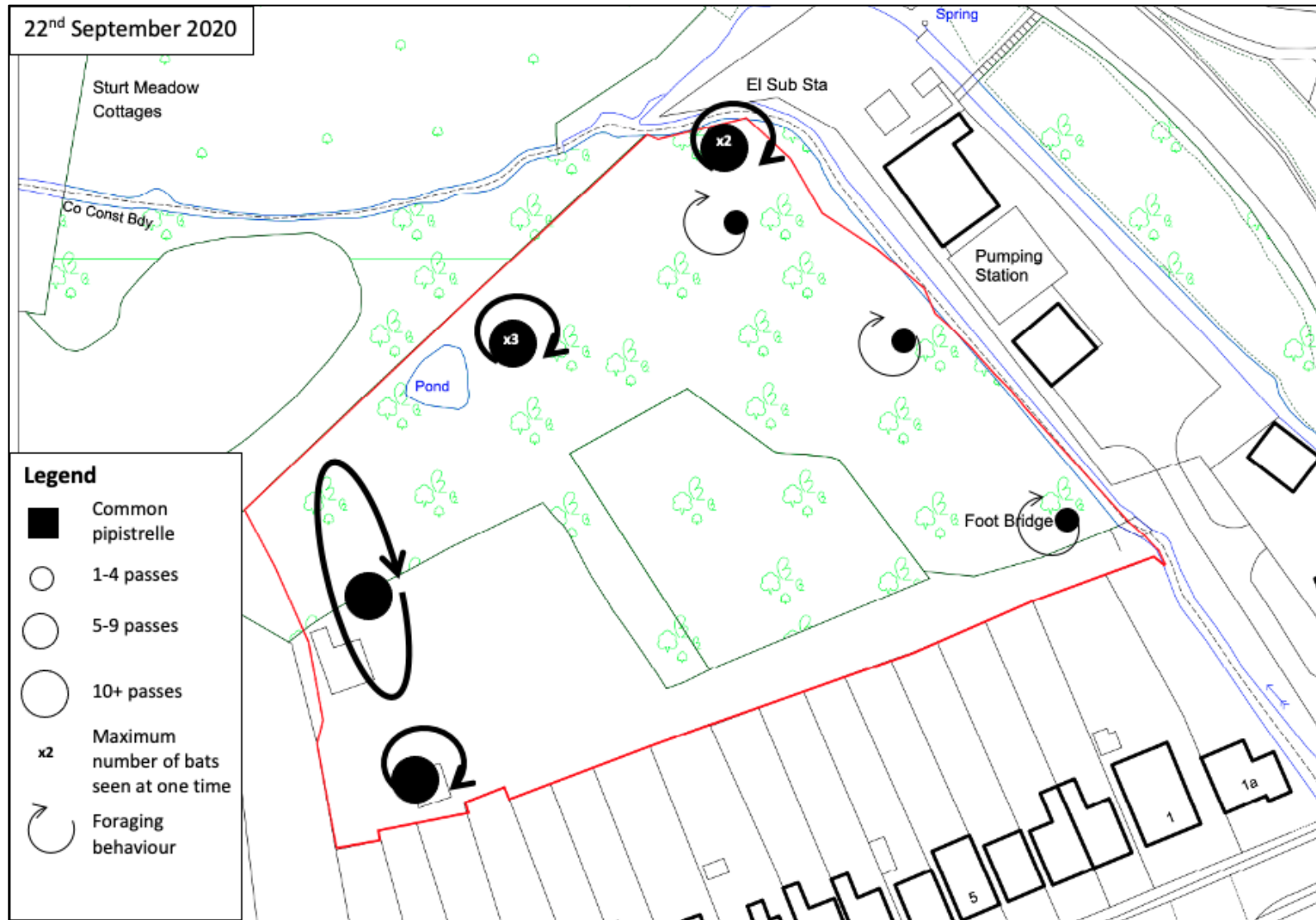
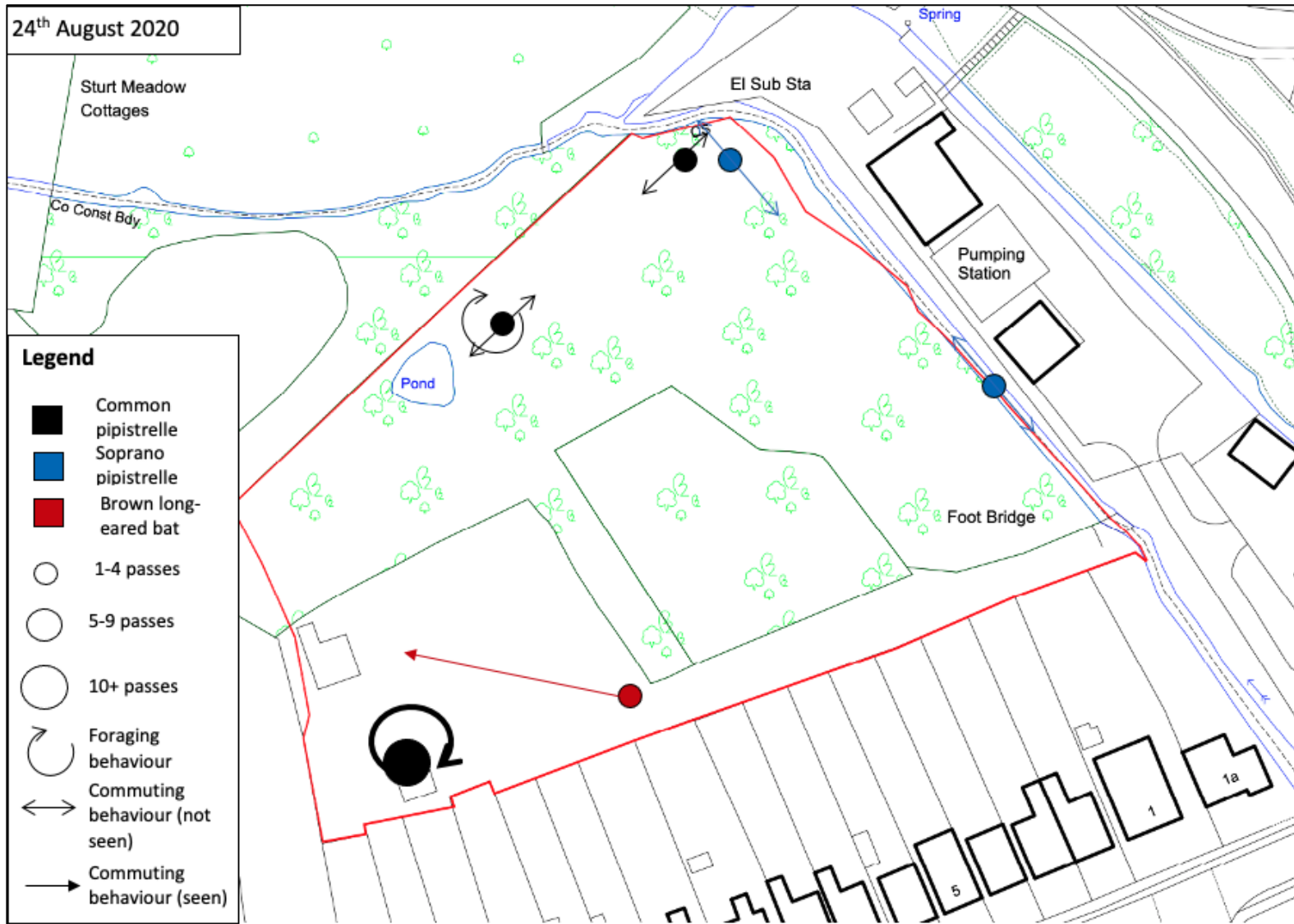


Figure 16. This shows the distribution of all bat 'observations' on each walked transect, during which the route was covered at least three times in a session.





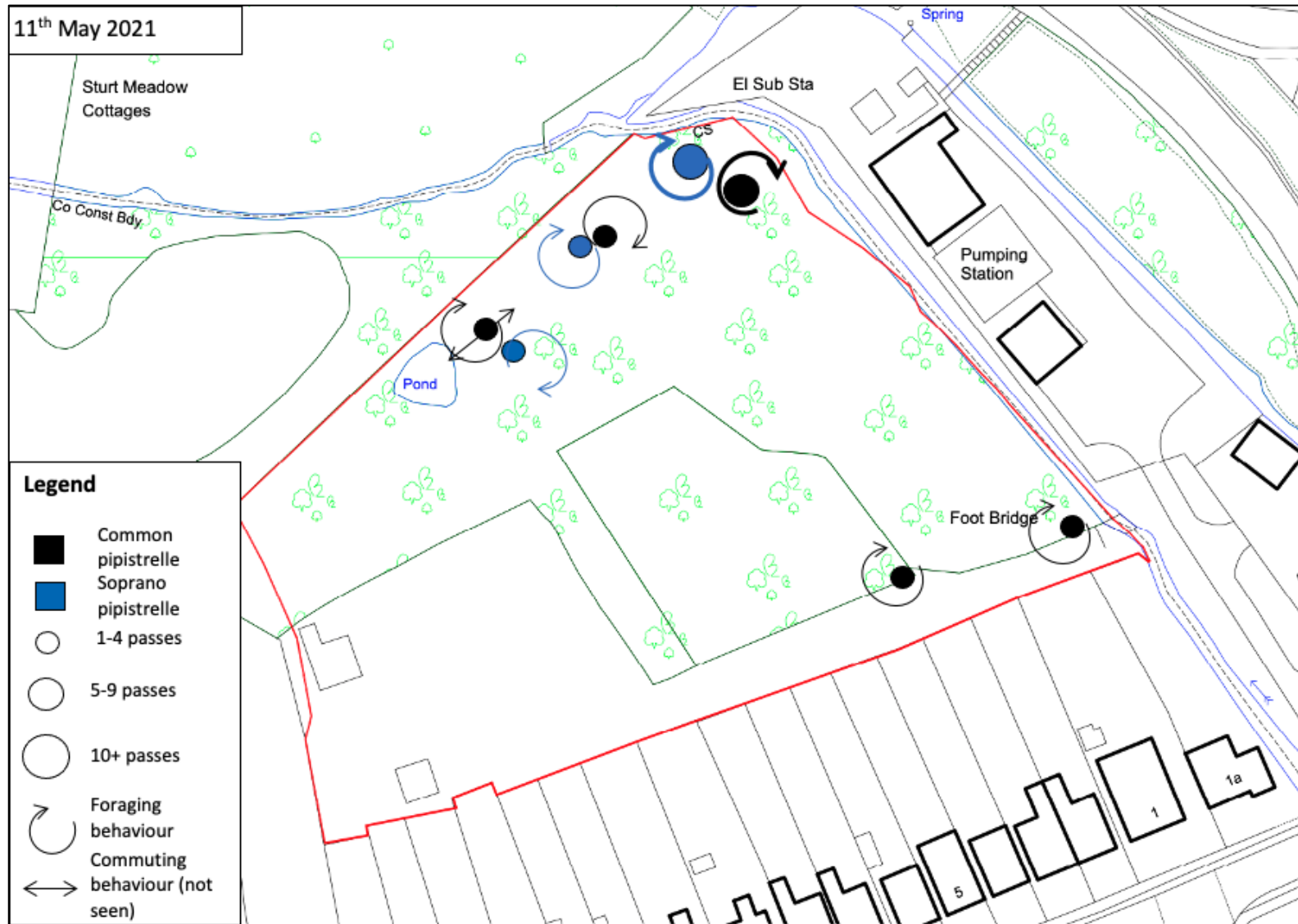






Figure 16. Bat activity maps showing the results of the walked transect surveys at Land to the rear of Sturt Avenue, Haslemere



Table 8. Bat activity – walked transect metadata: dates, times, temperature, weather conditions for surveys undertaken at the Land to the rear of Sturt Avenue, Haslemere

Date	Survey start time/end time	Temperature (°C), weather conditions	Surveyors
24/08/20	20:00–22:03 Sunset: 20:03	Max/min temp.: 17–16 100% cloud cover, light air (BF 1), dry with light rain at start of survey.	Owen Crawshaw BSc (Hons) MCIEEM Richard Angliss
22/09/20	19:00–21:00 Sunset: 19:00	Max/min temp.: 17 throughout 100% cloud cover, calm (BF 0), dry.	Owen Crawshaw BSc (Hons) MCIEEM
11/05/21	20:42–22:42 Sunset: 20:42	Max/min temp.: 11–10 100% cloud cover, light breeze (BF 2), dry.	Owen Crawshaw BSc (Hons) MCIEEM Charlie Gardiner BSc (Hons)
24/06/21	21:22 – 23:22 Sunset: 21:22	Max/min temp.: 18–15 15% cloud cover, calm (BF 0), dry.	Owen Crawshaw BSc (Hons) MCIEEM Charlie Gardiner BSc (Hons)
13/07/21	21:15 – 23:15 Sunset: 21:15	Max/min temp.: 19–17 0% cloud cover, calm (BF 0), dry.	Owen Crawshaw BSc (Hons) MCIEEM Charlie Gardiner BSc (Hons)

3.5.4 Bat Activity Surveys – Automated Static Bat Detecting

The results of the automated static bat detector surveys completed to date are summarised in Table 9 and represented in Figure 17.

The results show the site is used for foraging/commuting by at least nine species of bat. The greatest levels of activity are attributed to common and soprano pipistrelles, with seven night and three nights of high activity recorded at the green location (Figure 4), respectively; in addition, three nights of high activity by common pipistrelles were recorded at the yellow location. A single night of low activity by the rare barbastelle *Barbastella barbastellus* was recorded at the green location. A single night of low activity and five nights of low/moderate activity of Leisler’s bat *Nyctalus leisleri* was also recorded from this location

Table 9. A summary table showing key metrics for each species recorded during the automated static bat activity surveys.

Location	Species/species group	Nights of high activity	Nights of moderate/high activity	Nights of moderate activity	Nights of low/moderate activity	Nights of low activity
Green	<i>Barbastella barbastellus</i>	0	0	0	0	1
Green	<i>Eptesicus serotinus</i>	0	0	0	0	2
Green	<i>Myotis</i>	0	0	1	1	5
Green	<i>Nyctalus leisleri</i>	0	0	1	5	1
Green	<i>Nyctalus noctula</i>	0	0	0	2	1



Location	Species/species group	Nights of high activity	Nights of moderate/high activity	Nights of moderate activity	Nights of low/moderate activity	Nights of low activity
Green	<i>Pipistrellus nathusii</i>	0	0	0	1	0
Green	<i>Pipistrellus pipistrellus</i>	7	4	0	0	0
Green	<i>Pipistrellus pygmaeus</i>	3	7	2	0	0
Green	<i>Plecotus auritus</i>	0	0	0	2	2
Yellow	<i>Myotis</i>	0	0	1	1	2
Yellow	<i>Nyctalus leisleri</i>	0	0	0	0	1
Yellow	<i>Nyctalus noctula</i>	0	0	0	0	1
Yellow	<i>Pipistrellus pipistrellus</i>	7	1	0	2	0
Yellow	<i>Pipistrellus pygmaeus</i>	0	1	4	1	3
Yellow	<i>Plecotus auritus</i>	0	0	0	1	1

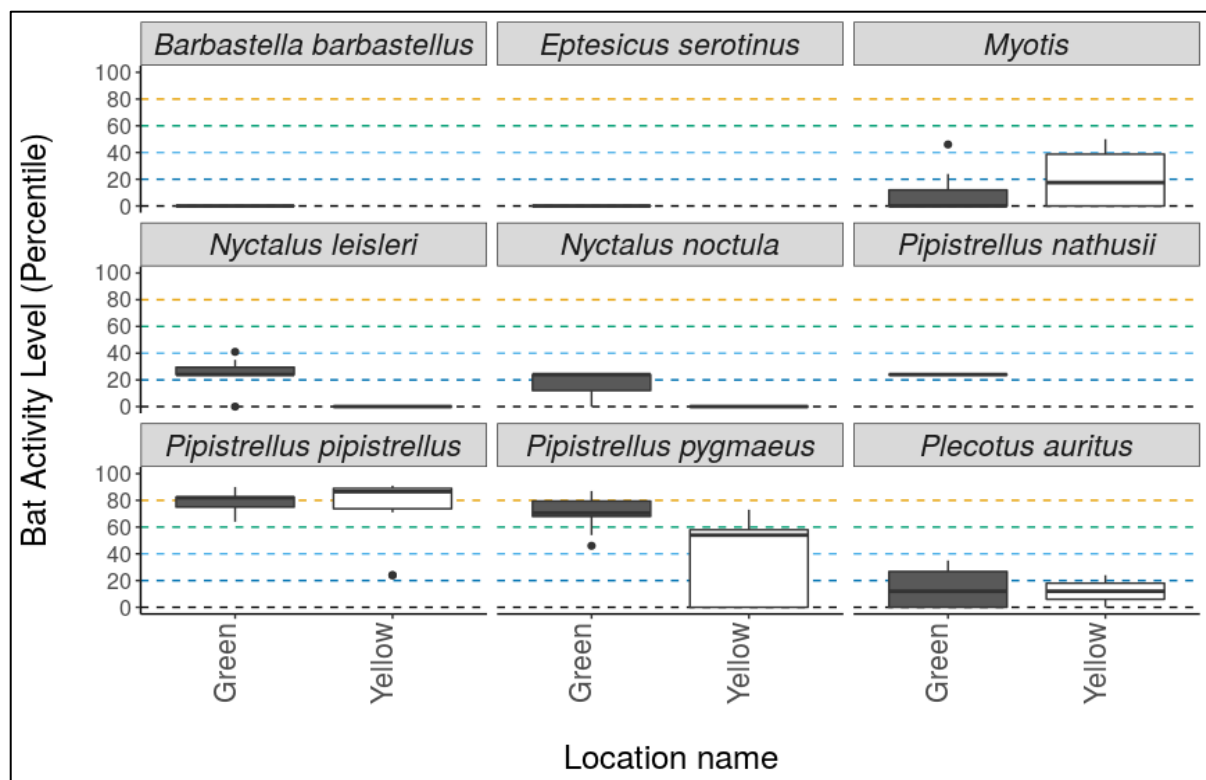


Figure 17. Differences in bat activity between static detector locations at Land rear of Sturt Avenue, Haslemere. The centre line indicates the median activity level whereas the box represents the interquartile range (the spread of the middle 50% of nights of activity).

3.5.5 Pre-existing Records

The SBIC and SxBRC provided ten bat records in the search area comprising four identified species, with two others identified to genus level. The number of records for each species is presented in Table 10.



Table 10. Number of pre-existing records of each bat species within 1km of Land to the rear of Sturt Avenue, Haslemere

Species	No. of records
Common pipistrelle <i>Pipistrellus pipistrellus</i>	4
Soprano pipistrelle <i>P. pygmaeus</i>	2
Long-eared bat <i>Plecotus</i> sp.	1
Serotine <i>Eptesicus serotinus</i>	1
Natterer's bat <i>Myotis nattererii</i>	1
<i>Myotis</i> sp.	1

3.5.6 Interpretation

The combined results of the GLTA and PRF inspection indicate the likely absence of roosting bats from within the site.

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

Based on the findings to date, Land to the rear of Sturt Avenue is not considered to be important to the majority of foraging/commuting bats beyond the site level. However, given that high levels of activity by common and soprano pipistrelle have been recorded, the site is considered to be of value to these species at the local level.

3.6 Breeding Birds

3.6.1 Survey Results

In total, 20 species of bird were recorded during the survey; of these, one species is 'red' listed under the Birds of Conservation Concern (BoCC)¹⁴ and two are 'amber' listed. Song thrush *Turdus philomelos* and dunnock *Prunella modularis*, recorded during the survey, are also listed under Section 41 of the NERC Act (2006).

Table 11 presents the combined bird survey results for all three visits. The table is divided into red, amber and green lists from the BoCC categories. Table 12 presents the dates, times and survey conditions recorded for each visit and full results, including territory mapping, is provided in Appendix 3.

¹⁴ BTO. (2015) *Birds of Conservation Concern 4: The Red List for Birds*.



Table 11. Breeding bird survey results for Land to the rear of Sturt Avenue, Haslemere. Each species is colour coded (red, amber, green) according to its conservation status¹⁴.

RESULTS Species	Apr (1)	May (2)	Jun (3)	Breeding status
Song thrush <i>Turdus philomelos</i>		1		Possible
Dunnock <i>Prunella modularis</i>		1	1	Confirmed
Swift <i>Apus apus</i>		2	1	Non-breeding
Wren <i>Troglodytes troglodytes</i>	3	3	2	Likely
Blackbird <i>Turdus merula</i>	3	4	3	Likely
Blackcap <i>Sylvia atricapilla</i>	1	1		Likely
Robin <i>Erithacus rubecula</i>			1	Possible
Blue tit <i>Cyanistes caeruleus</i>		2	3	Confirmed
Goldfinch <i>Carduelis carduelis</i>			2	Possible
Carrion crow <i>Corvus corone</i>	4			Possible
Chiffchaff <i>Phylloscopus collybita</i>	1		1	Likely
Goldcrest <i>Regulus regulus</i>		1		Likely
Great tit <i>Parus major</i>	3	3	4	Likely
Jackdaw <i>Coloeus monedula</i>	1	1	1	Possible
Jay <i>Garrulus glandarius</i>	1			Possible
Magpie <i>Pica pica</i>		1	1	Possible
Pied wagtail <i>Motacilla alba</i>		1		Non-breeding
Woodpigeon <i>Columba palumbus</i>	3	3	3	Likely
Great spotted woodpecker <i>Dendrocops major</i>			1	Possible
Cormorant <i>Phalacrocorax carbo</i>	1			Non-breeding



Table 12. Breeding bird transect metadata: dates, times, temperature and weather conditions, for surveys undertaken at Land to the rear of Sturt Avenue, Haslemere.

Date	Survey start time/end time	Temperature (°C), weather conditions	Surveyors
23/04/21	06:00–06:30	2, 0% cloud cover, calm (BF 0), dry.	Owen Crawshaw BSc (Hons) MCIEEM
27/05/21	07:10–07:50	9, 0% cloud cover, calm (BF 0), dry.	Owen Crawshaw BSc (Hons) MCIEEM
10/06/21	06:50–07:30	16, 100% cloud cover, calm (BF 0), dry.	Owen Crawshaw BSc (Hons) MCIEEM

3.6.2 Pre-existing Records

The SBIC & SxBRC provided bird records for a total of 87 species. Most of these species are relatively common and widespread, but the list includes 17 species of principal importance for conservation (S41 NERC Act 2006) and 9 species listed on Schedule 1 of the Wildlife and Countryside Act. In addition, 17 species are red listed on the Birds of Conservation Concern lists.

3.6.3 Interpretation

The bird species assemblage recorded within the site consists primarily of common and widespread species typical of garden and woodland habitats. Two species were confirmed as breeding on-site including dunnock, an amber listed species as well as a priority species under Section 41 of the NERC Act, 2006. Despite its conservation status the species remains common and widespread throughout England. Confirmed breeding by dunnock and blue tit is not considered significant beyond the site level. Similarly, other species assessed as being ‘possible’ or ‘likely’ breeders are relatively common and widespread.

Based on these findings, the breeding bird assemblage supported by Land to the rear of Sturt Avenue is considered to be important for the conservation of birds at the site level only.

3.7 Hazel Dormice

3.7.1 Nest-tube Survey

To date no dormice or evidence of dormice have been recorded within the site. A summary of survey timings, conditions and results is provided in Table 13, with full results of the nest tube survey provided in Appendix 4.

Table 13. Reptile survey results, including metadata, for Land to the rear of Sturt Avenue, Haslemere.



Date	Survey start time/end time	Temperature (°C), weather conditions	Results	Surveyor(s)
22/09/20	09:35 – 10:30	15, 0% cloud cover, dry, calm (BF 0)	No dormice/nests recorded	Owen Crawshaw BSc (Hons) MCIEEM
13/10/20	14:20 – 15:30	10, 80% cloud cover, dry, calm (BF 0)	No dormice/nests recorded	Charlie Gardiner BSc (Hons)
23/04/21	06:30 – 07:05	2, 0% cloud cover, dry, calm (BF 0)	No dormice/nests recorded	Owen Crawshaw BSc (Hons)
11/05/21	19:40 - 20:14	11, 40% cloud cover, dry, light breeze (BF 2)	No dormice/nests recorded	Owen Crawshaw BSc (Hons) MCIEEM Charlie Gardiner BSc (Hons)
24/06/21	20:20 – 20:50	18, 15% cloud cover, dry, calm (BF 0)	No dormice/nests recorded	Owen Crawshaw BSc (Hons) MCIEEM Charlie Gardiner BSc (Hons)
13/07/21	20:34 – 21:10	19, 0% cloud cover, dry, calm (BF 0)	No dormice/nests recorded	Owen Crawshaw BSc (Hons) MCIEEM Charlie Gardiner BSc (Hons)
10/08/21	12:51 – 14:20	21, 0% cloud cover, dry, calm (BF 0)	No dormice/nests recorded	Owen Crawshaw BSc (Hons) MCIEEM

3.7.2 Pre-existing Records

The SBIC provided a single record of a dormouse (2013 record) from within the search area (exact location unknown).

3.7.3 Interpretation

The results of the nest tube survey indicates a likely absence of dormice from the site. The species is not considered further within this report.

3.8 Great Crested Newts

3.8.1 Habitat Suitability, eDNA Testing and Field Survey Results

A single pond (Pond 1) exists within the site. A further two ponds were identified within 250m of the site, in addition to a collection of ponds located approximately 500m west of the site. Details of ponds included within the study and associated assessments of suitability to support great crested newts is provided in Table 14. A full breakdown of HSI scores is provided in Appendix 5.

Table 14. Summary of great crested newt assessments and surveys for ponds within 500m of Land to the rear of Sturt Avenue, Haslemere

Ref.	NGR	Distance/direction	Description	HSI value	Interpretation
P1	SU 8884	On-site	Pond 1 exists at the northern edge of the site and measures approximately 45m ² in	0.4	'Poor' suitability for breeding GCN



Ref.	NGR	Distance/ direction	Description	HSI value	Interpretation
	3233		<p>area. The pond was completely dry during the phase 1 survey in August 2020. A repeat visit in April 2021 revealed the pond to be holding water at this time, however, it was very discolored and choked by leaf litter.</p> <p>The pond is entirely shaded by extensive bamboo growth. No emergent, submerged or floating aquatic vegetation was recorded within the pond.</p>		
P2	SU 8899 3224	80m SE	Access permission was requested but was not granted. Email correspondence with the landowner (Thames Water) confirmed there is no pond at this location, the area in questions refers to the location of a spring (Spring B) – this has been out of service for some time and is overflowing – perhaps leading to an area of leakage, but not a permanent pond.	N/A	Given the information supplied by the landowner, it is considered unlikely that an ephemeral pool resulting from an overflowing spring owned and managed by a utilities company would support a breeding population of great crested newts.
P3	SU 8890 3203	250m S	Not accessed	N/A	Located at the upper limit of the accepted commuting range (250m) of GCN. Furthermore, a number of significant dispersal barriers (roads) separate the pond from the site.
P4	SU 8831 3232	500m E	Not accessed	N/A	Located beyond the accepted commuting range (250m) of GCN
P5	SU 8832 3225	500m E	Not accessed	N/A	As above
P6	SU 8832 3225	500m E	Not accessed	N/A	As above
P7	SU 8833 3220	500m E	Not accessed	N/A	As above
P8	SU 8833 3218	500m E	Not accessed	N/A	As above

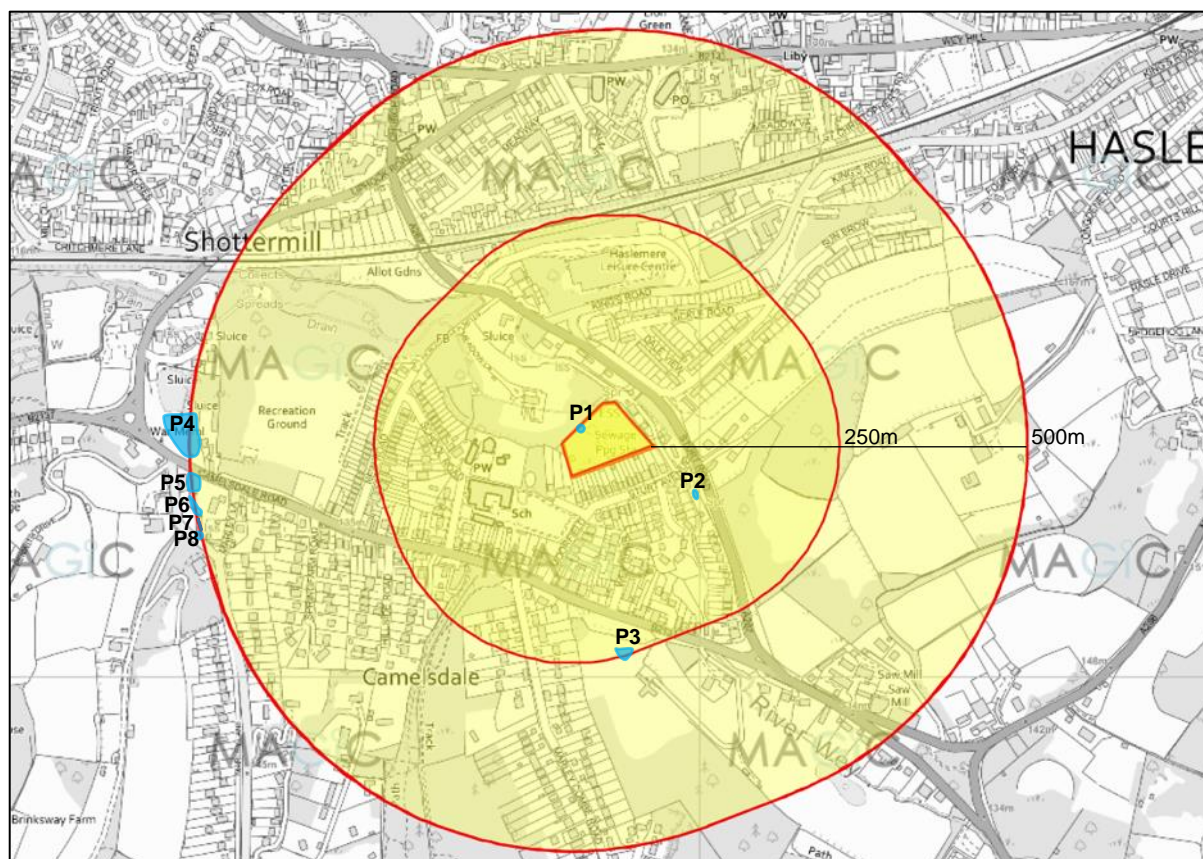


Figure 18. Ponds within 500m of the boundary to the site. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

3.8.2 Pre-existing Records

The SBIC provided 11 amphibian records in the search area. This included a single record of a palmate newt *Lissotriton helveticus*, nine records for common frog *Rana temporaria* and a single record of a common toad *Bufo bufo*. Neither the SBIC or the SxBRC returned any recorded of the great crested newt from within the search area.

3.8.3 Interpretation

Pond 1, located within the site, was assessed as offering 'poor' suitability for great crested. Furthermore, ponds considered suitable for the species have not been identified within 250m of the site – 250m is the accepted commuting range of great crested newts from breeding ponds and terrestrial habitat¹⁵. Whilst Pond 3 exists just within 250m of the site, Camelsdale Road is considered to present a significant dispersal barrier between the pond and the site.

Given the above assessment, it is considered that great crested newts are likely to absent from the site and its immediate surroundings. The site is of negligible importance to great crested newts and the species is not discussed further within this report.

¹⁵ Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001). *Great Crested Newt Conservation Handbook, Froglife, Halesworth.*



3.9 Reptiles

3.9.1 Survey Results

The survey effort has confirmed the presence of a population of slow worm and grass snake within the site. A peak count of six slow worm was recorded, with at least two individual grass snakes recorded on separate surveys. The survey findings, dates and conditions are presented in Table 15. A map showing where reptiles were recorded within the site is provided in Figure 19.

Table 15. Reptile survey results, including metadata, for Land to the rear of Sturt Avenue, Haslemere

Date	Start time	Air temp. °C	Refugia temp. °C	Weather conditions	Results
11/09/20	10:15	12	16	80% cloud cover, calm (BF 0), dry.	4 x Juv SW (Ref 12 – 1 Juv SW, Ref 13 – 3 Juv SW)
16/09/20	08:45	18	21	65% cloud cover, light air (BF 1), dry.	1 x SA SW & 1 x Juv SW (Ref 12)
22/09/20	09:00	15	19	0% cloud cover, calm (BF 0), dry.	2 x Juv SW & 1 x AM GS (Ref 12 & 13 – 1 x Juv SW, Ref 14 AM GS)
21/04/21	13:00	13	16	15% cloud cover, calm (BF 0), dry.	3 x Juv SW (Ref 13)
05/05/21	13:20	11	14	50% cloud cover, light air (BF 1), dry.	1 x Juv SW (Ref 14)
10/05/21	14:20	12	18	85% cloud cover, light air (BF 1), dry.	4 x Juv SW, 1 x SA SW, 1 x AF SW, 1 x AF GS (Ref 10 – AF GS, Ref 11 – AF SW, Ref 13 – 4 x Juv SW & 1 x SA SW)
03/06/21	09:20	17	22	10% cloud cover, calm (BF 0), dry.	4 x Juv SW, 2 x SA SW & 1 x AF GS (Ref 10 – AF GS, Ref 11 – 2 x SA SW, Ref 13 – 4 x Juv SW)



Figure 19. A plan showing the results of the reptile survey at Land to the rear of Sturt Avenue, Haslemere. Refugia from which reptiles were recorded during the surveys are shown in orange, refugia from which no reptiles were recorded are shown in red.



Photographs 13a (left) & 13b (right). 13a – a juvenile slow worm recorded within the site. 13b – an adult male grass snake recorded within the site.



3.9.2 Pre-existing Records

Together, the SBIC and the SxBRC provided 78 reptile records in the search area which refer to observations of grass snake, adder, slow worm and common lizard within 1km of the site.

3.9.3 Interpretation

The results of the reptile surveys undertaken have confirmed the presence of populations of grass snake and slow worm within the site, both of which are relatively common and widespread

The presence of common reptile species, present in relatively low numbers (peak count of 6 slow worm and 2 grass snake) is considered significant at the local level only.

3.10 Riparian Wildlife

3.10.1 Survey Results

3.10.1.1 Water Vole/Otter

26th August 2020

No evidence of water vole or otter was recorded along the watercourse.

2nd May 2021

No evidence of water vole or otter was recorded along the watercourse. A rat burrow (confirmed through droppings at entrance) was recorded within the bank at the northern-most end of the watercourse. A further two burrows were recorded within the western bank (SU 8887 32359), gnawed nuts were observed outside one of the entrances: both were considered to be rat burrows.

3.10.1.2 Crayfish

In addition to the approximate 80m-long section of watercourse accessible from the site, an approximately 360m long section located upstream of the site, was included within the survey. Permission to access an approximate 260m section immediately upstream of the site, located within the landholding of a neighbouring property, was requested by letter (sent in July 2020) – no response was received.



Figure 20. An aerial photograph showing the approximate sections of watercourse where access was achieved (shown in blue) to undertake the crayfish survey. The section of watercourse where permission was requested but was not given is shown in yellow and the site boundary of Land to the rear of Sturt Avenue is outlined in red. Images produced courtesy of Google maps (map data ©2021 Google).

No white-clawed crayfish were recorded in either of the surveyed sections of the watercourse during the survey of 26th August 2020. One juvenile signal crayfish *Pacifastacus leniusculus* was observed within the watercourse at the site's north-eastern boundary, whilst two adult signal crayfish were recorded within the section upstream of the site.



Photograph 14. An adult signal crayfish found within an upstream section of the watercourse, which runs adjacent to Land to the rear of Sturt Avenue.

3.10.1.3 Other Species

Three lampreys (unidentified species) were observed within the watercourse during the water vole survey of 2nd May 2021.



Figure 21. A lamprey (unidentified species) observed within the watercourse at the north-eastern site boundary during the water vole survey of 2nd May 2021.



3.10.2 Pre-existing Records

The SxBRC returned a single record of a water vole from a location approximately 920m south-east of the site in 1995. The record centres did not provide any records pertaining to other species of riparian wildlife.

3.10.3 Interpretation

3.10.3.1 Water Vole/Otter

Given the results of the surveys, water voles and otters are considered to be absent from the site. The site is considered to be of negligible value to water voles and otter and the species are not discussed further within this report.

3.10.3.2 Crayfish

Given that the presence of signal crayfish within the watercourse has been confirmed, it is likely that white-clawed crayfish are absent from the habitat: signal crayfish are carriers of crayfish plague and outcompete white-clawed crayfish. The site is considered to be of negligible importance for white-clawed crayfish and the species is not discussed further within this report.

Interpretation and assessment of the ecological importance of signal crayfish within the site is incorporated within section 3.12.

3.10.3.3 Other Species

All three species of British lamprey are listed on Annex II of the Habitats Directive, whilst not confirmed, it is likely that the species observed within the watercourse is the brook lamprey *Lampetra planeri* which is common and widespread within England. The site is considered to be of importance to lamprey species at the local level

3.11 Other Notable Species

3.11.1 Survey Results/Incidental Observations/Habitat Potential

3.11.1.1 Moths and Invertebrates

Eight species of moth were recorded within the site during the moth trap check of 25th June 2021 (Table 16). All of these species are common and widespread, A single species, buff ermine, is a priority species listed on Section 41 of the NERC Act, 2006 and were recorded.

Table 16. Results of the moth trapping survey undertaken at Land to the rear of Sturt Avenue

Common name	Scientific name	Habitat	Priority species (Section 41 NERC Act, 2006)
Peppered moth	<i>Biston betularia</i>	Generalist – woodland, scrub, hedgerows, parks	



		and gardens	
Heart and dart	<i>Agrostis exclamationis</i>	Generalist	
Heart and club	<i>Agrostis clavus</i>	Sand dunes and waste ground	
Small magpie	<i>Anania hortulata</i>	Generalist	
Large yellow underwing	<i>Noctua pronuba</i>	Generalist – grassy areas	
Buff ermine	<i>Spilarctia luteum</i>	Generalist	✓
Mother of pearl	<i>Patania ruralis</i>	Generalist	
White plume moth	<i>Pterophorus pentadactyla</i>	Grassland and gardens	

Whilst no evidence of the species was recorded, the site is considered to provide suitable habitat for hedgehogs *Erinaceus europaeus* (foraging and sheltering) and stag beetles *Lucanus cervus*.

3.11.2 Pre-existing Records

The SBIC & SxBRC provided numerous moth records from within the search area. Priority species that are considered relevant to the site given the habitats present include: ghost moth *Hepialus humuli humuli*, waved carpet *Hydrelia sylvata*, clay fan-foot *Paracolax tristalis*, rustic *Hoplodrina blanda* and a number of other species.

The SBIC & SxBRC provided two records of hedgehog from within the search area. The record centres did not return any records of stag beetle from within the search area.

3.11.3 Interpretation

The site is considered to be of value to moths at the local level.

If present, the site is considered to be of value to hedgehogs and stag beetle at the local level.

3.12 Invasive Non-native Species

3.12.1 Survey Results

Numerous invasive non-native species (INNS) are present within the site, notably Himalayan balsam, which is the dominant species within the ground flora across much of the site. A list of invasive non-native species present is provided in Table 17, with photographs of INNS within the site provided below.

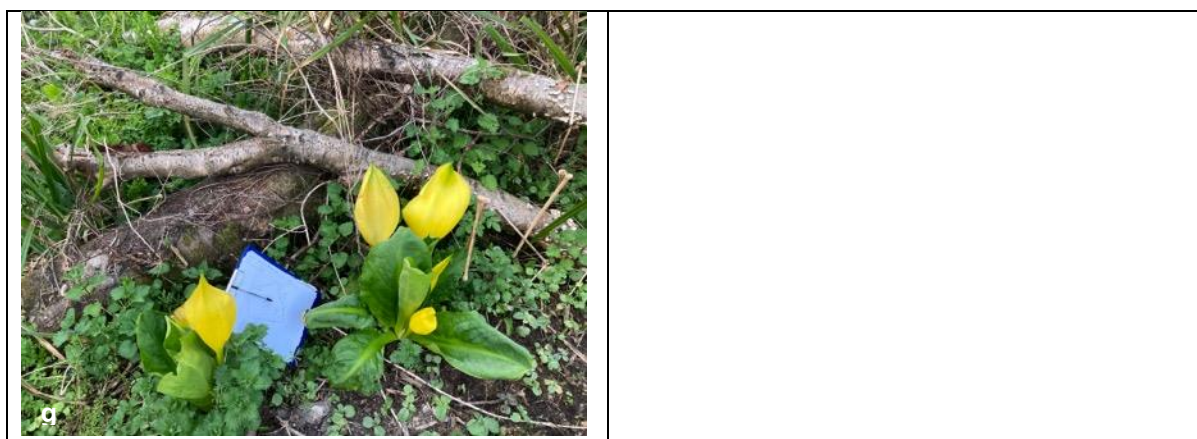
Table 17. Invasive/non-native species recorded within Land to the rear of Sturt Avenue, Haslemere

Species	Location within site	Listed in Section 9 – Wildlife and Countryside Act, 1981 as amended
Himalayan balsam	Woodland and watercourse	✓
Japanese knotweed	Woodland	✓
Variegated yellow archangel	Woodland	✓
<i>Rhododendron ponticum</i>	Woodland	✓
<i>Cotoneaster</i> sp.	Woodland	Some species
Bamboo	Pond	
American skunk cabbage	Woodland and watercourse	



Signal crayfish	Watercourse	✓
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Photographs 15a–15g. a – Himalayan balsam which is dominant across most of the site. b – Japanese knotweed. c – variegated yellow archangel. d – *Rhododendron ponticum*. e – *Cotoneaster* sp. f – bamboo. g – American skunk cabbage.

3.12.2 Pre-existing Records

The SBIC & SxBRC provided numerous records pertaining to 24 INNS in the search area.

3.12.3 Interpretation

The presence of the following INNS of plant: Himalayan balsam, Japanese knotweed, variegated yellow archangel, *Cotoneaster* sp., *Rhododendron ponticum*, bamboo and American skunk cabbage, as well as signal crayfish within the watercourse adjacent to the site's north-western boundary presents a significant ecological risk through the spread of the species, degradation of habitat through outcompeting native species and in the case of Japanese knotweed, potential damage to property/infrastructure.

The combined presence of all of the INNS listed above is considered significant at the local level.



4 IMPACT ASSESSMENT

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

This assessment is based on the most up to date available plan shown on “Sturt Avenue, Indicative Site Layout” as supplied by dsp architecture on 21st July 2021.

The proposed scheme comprises redevelopment of the whole site through the creation of up to nine residential units which will incorporate brown roofs with associated gardens and hard/soft landscaping including significant tree and hedge planting.

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

Construction:

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

Post construction/Operation:

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

4.1 Designated Sites

4.1.1 Impact Characterisation

Land to the rear of Sturt Avenue exists a significant distance from all statutory designated nature conservation sites. However, the site is hydrologically connected to Hammer Moor LWS being sited upstream of a shared watercourse. In the absence of appropriate avoidance and mitigation measures pollution of the watercourse both during the site construction and operational phases could see degradation of habitats downstream within the LWS.

The increase in residential capacity resulting from the development of the site has the potential to indirectly impacts Hammer Moor LWS as a result of increasing visitor numbers and footfall. Effects



resulting from increased visitor pressure include habitat degradation through, littering, dog fouling, soil compaction, pollution and increased disturbance.

4.1.2 Significance of Effects

In the absence of suitable avoidance and mitigation measures indirect habitat degradation of an off-site LWS as a result of hydrological transportation is considered to present a permanent, adverse, effect on the LWS. Depending on the level of pollution this effect could be significant at a range of local – county level.

Increased residency within the site, and subsequent increased footfall on area of public open space (including the Hammer Moor LWS, presents a possible, adverse effect on the LWS at the site level only. The site is located within a suburban environment with significant areas of residency. The additional nine residential units within the site are likely to have an insignificant cumulative effect when considered with existing visitor pressures.

4.2 Habitats

4.2.1 Impact Characterisation

The proposed development will result in the loss of woodland habitat within the site. Whilst the proposals show a significant number of trees retained within the development, these will become fragmented with little understorey and ground flora, effectively losing the woodland habitat in favour of scattered trees.

The woodland, along with the watercourse, serves as one of the features of greatest ecological value within the site and is priority habitat under Section 41 of the NERC Act, 2006; however, the habitat is currently in 'poor' condition due to the extent of invasive non-native species present within the understorey and ground flora. The site's scrub habitat will also be lost. The pond will be retained and enhanced.

The watercourse will be retained within the developed site, however, in the absence of suitable avoidance/mitigation measures there is the potential for pollution/degradation of the watercourse during the construction phase of the development, resulting from improper storage of materials/chemicals and run-off. Furthermore, during the operational phase of the development, there is the possibility of degradation/pollution of the habitat as a result of litter accumulation/fly tipping.

The existing pond will be enhanced under the current proposals, the habitat is in poor condition and does not meet the criteria of priority habitat under Section 41 of the NERC Act, 2006.

New habitats to be created within the site include buildings with brown roofs, gardens, hedgerows and hard-standing. A 5m wide buffer zone will be established and maintained along the site's north-western and north-eastern site boundaries.

The Biodiversity Impact Calculation shows the proposed development will result in the loss of 1.62 Biodiversity Units (a net change of -45.68%).



4.2.2 Significance of Effects

Loss of 1.62 Biodiversity Units (a net change of -45.68%), is considered to represent a certain, permanent, significant adverse effect on ecology at the local level.

4.3 Badgers

4.3.1 Impact Characterisation

The proposed development will result in the destruction of an active badger sett, which is considered to function as an outlier sett. In the absence of suitable avoidance and mitigation measures this could result in the disturbance of badgers occupying a sett and potential killing/injury of animals.

4.3.2 Significance of Effects

Given that significant impacts on badgers and their setts have been identified, a badger mitigation licence will be required from Natural England to allow the lawful closure of the sett.

The scheme will also result in the permanent loss of woodland that is potentially important to the badgers for foraging. However, suitable foraging habitat for badgers exists within adjacent habitat to the north of the site. Badgers are generally quite adaptable to some degree of human disturbance, with foraging, commuting routes and occupation or establishment of new setts, constantly adjusting in response to new food sources and disturbance.

Whilst the loss of an outlier sett is not considered significant beyond the site level, potential disturbance and killing/injury would see a likely, permanent, significant adverse effect on badgers at the local level.

Since badgers are common and widespread, the impact of this scheme on the badger sett is not considered significant in nature conservation terms, but it is important to consider badgers from a welfare perspective and to ensure compliance with legislation.

4.4 Bats

4.4.1 Impact Characterisation

The proposed development will have no foreseeable impacts on roosting bats given the absence of built structures and the results of the PRF inspection/tree climbing surveys.

The proposals will result in the permanent loss of bat foraging habitat in the form of woodland, which supports high activity by common and soprano pipistrelles as well as lower levels of activity by a further seven species.

4.4.2 Significance of Effects

The proposed development will result in a likely, permanent, adverse effect on foraging common and soprano pipistrelles bats, considered significant at the local level. The loss of foraging/commuting habitat is considered to represent a likely, permanent, adverse effect to other species of bat at the site level only.



4.5 Birds

4.5.1 Impact Characterisation

The proposed development will require significant vegetation clearance throughout the site. Without careful timing of works, clearance of vegetation may result in the destruction/disturbance of active nests and the killing/injury of eggs/young. As well as affecting common and widespread species, the identified impacts could potentially affect a number of priority/red-list species with declining populations and/or restricted range, including song thrush and dunnock.

Loss of woodland and scrub will result in the reduction of available nesting and foraging habitat within the application site for a variety of common and widespread bird species as well as temporary displacement resulting from disturbance during the construction phase of the development.

Residential development is likely to result in an increase of domestic cats within the site, which would likely result in increased predation of birds and subsequent reduced breeding success. Given the proximity of the site to areas of existing residency this is likely to result in a cumulative effect on the breeding bird population both within the site and the local surroundings.

4.5.2 Impact Characterisation

Habitat (nesting and foraging) loss is considered to present a likely, permanent, adverse effect on birds, significant at the site level only given that the site's woodland habitat represents a very small amount of the total woodland resource for birds within the local area.

Displacement during the construction phase is considered to present a likely, temporary, adverse effect on birds, significant at the site level only.

Destruction of active nests, killing/injury of eggs/young is considered to present a certain, permanent, adverse effect on birds, significant at the local level.

Increased predation by domestic cats is considered to present a likely, permanent, adverse effect on birds, significant at the local level.

4.6 Reptiles

4.6.1 Impact Characterisation

The proposed development will result in the loss of habitat used by a population of slow worm and grass snake. Whilst an area of suitable habitat will be retained on-site within an ecological buffer zone along the north-western and north-eastern site boundaries, the works are considered to result in a permanent reduction in suitable reptile habitat within the site. Furthermore, in the absence of suitable avoidance and mitigation measures being adopted, clearance of the site poses a risk of killing/injury of common reptiles.

Residential development is likely to result in an increase of domestic cats within the site during its operational phase, which would likely result in increased predation of reptiles. Given the proximity of



the site to areas of existing residency this is likely to result in a cumulative effect on the site's population.

4.6.2 Significance of Effects

The reduction in suitable habitat for reptiles on-site would see a likely permanent adverse effect on grass snake and slow worm at the site level. In addition, killing/injury of reptiles would see a certain permanent adverse effect on reptiles which would be considered significant at the local level.

Predation by domestic cats is considered to present a likely permanent adverse effect on reptiles, significant at the local level.

4.7 *Riparian Wildlife*

4.7.1 Impact Characterisation

Without the adoption of avoidance measures the proposed development could result in the degradation of lamprey habitat through pollution during the construction and operational phases of the development.

4.7.2 Significance of Effects

Degradation of the watercourse is considered to present a likely, permanent, adverse effect on lampreys, which is considered significant at the local level.

4.8 *Other Notable Species*

4.8.1 Impact Characterisation

Removal of woodland will result in the temporary loss of suitable habitat for a variety of moth species, including at least one priority species (buff ermine), although additional priority species are likely to be present within the site. New gardens will be created within the developed site, which will create suitable habitat for a number of generalist species.

Without the adoption of precautionary measures there is potential for hedgehogs to become trapped/injured/killed by uncovered excavations.

Loss of woodland will result in the temporary loss of habitat for hedgehogs and stag beetles.

In the absence of mitigation, there remains a risk of direct harm to hedgehogs during construction activities. In the long term, the proposed development could result in fragmentation of hedgehog foraging and resting areas as fencing between properties could restrict the movement of hedgehogs.

4.8.2 Significance of Effects

Permanent loss of woodland habitat, to be replaced by gardens, will see a likely, temporary, adverse effect on moths. Given that many of the species to be affected are likely to be generalists and will use garden habitat, as well as the fact that sufficient woodland habitat will remain within the local surroundings, effects of development on moths are not considered significant beyond the site level.



Killing/injury of hedgehogs and stag beetles would result in a likely permanent adverse effect on the species considered significant at the local level.

4.9 Invasive Non-native Species

4.9.1 Impact Characterisation

Development within the site would see the removal of existing INNS of plant. However, without the adoption of suitable avoidance/mitigation measures, removal and transportation of organic matter (including soil) off-site could result in the spread on INNS beyond the site.

There is the potential for the introduction of other INNS during both the construction phase (landscape planting) and operational phase (homeowner garden planting).

Development will have no foreseeable impacts with regard to the established population of signal crayfish present within the watercourse.

4.9.2 Significance of Effects

Removal of INNS would see a certain, permanent, positive effect on ecology at the site level.

Unintentional spread of invasive non-native species and the introduction of new INNS would see a likely, permanent, adverse effects at the local and site levels respectively.

The development is considered to have a neutral effect with regard to signal crayfish.

5 MITIGATION PROPOSALS

5.1 Priority Habitats

5.1.1 Impact Avoidance

Under the current proposals, impacts on priority woodland habitat cannot be avoided given that this habitat will be removed under current plans.

Pollution and degradation of the watercourse at the north-eastern site boundary will be avoided through the establishment of a 5m buffer zone from the habitat. No materials will be stored within 15m of the watercourse and works will adhere to the Environment Agency's *Pollution Prevention Guidelines*¹⁶ (note these guidelines have been withdrawn, however, in the absence of updated guidance, provide the most relevant advice regarding pollution prevention).

5.1.2 Mitigation Measures

To reduce the impact of significant adverse effects from increased recreational pressure, measures

¹⁶ Environment Agency (2013). *Pollution Prevention Guidelines: PPG1*.



shall be put in place to deter further public access to the watercourse. These measures will include use of dead-hedging, planting, fencing and signage to restrict access. The soft landscape scheme shall include planting of dense thorny shrubs, such as hawthorn and blackthorn, along the watercourse to discourage uncontrolled access.

5.1.3 Residual Impacts

The permanent loss of 0.51ha of priority lowland mixed deciduous woodland habitat constitutes a significant adverse effect at the district level. Given that residual impacts have been identified, compensation will be required.

5.1.4 Compensation Measures

The residual effect from the loss of priority woodland habitat is incorporated within the Biodiversity Impact Calculation, which has identified the need to secure 2.05 Biodiversity Units off-site.

5.2 *Non-priority Habitats*

5.2.1 Impact Avoidance

Under the current proposals, impacts on scrub and the pond cannot be avoided as these habitats will be removed under current plans.

5.2.2 Mitigation Measures

The loss of a pond and scrub habitat cannot be mitigated for under the current scheme.

5.2.3 Residual Effects

The loss of a pond and scrub habitat cannot be avoided or mitigated for and therefore a certain permanent adverse effect at the site level remains.

5.2.4 Compensation Measures

The residual effect from the loss of the pond and scrub habitat is incorporated within the Biodiversity Impact Calculation, which has identified the need to secure 1.62 Biodiversity Units off-site in order to achieve no net loss of biodiversity. Requirements to achieve net gain are discussed in section 6.

5.3 *Badgers*

5.3.1 Impact Avoidance

Given the position of the active badger sett and the small size of the site, impacts on badgers and their setts cannot be avoided under the current proposals.

5.3.2 Mitigation Measures

A badger mitigation licence will be required to permit the lawful closure of the active outlier sett.

The steps to exclude badgers from the sett are set out below. These steps follow best practice



guidelines from Natural England¹⁷:

1. No construction activity will be allowed to take place within 30m of the sett prior to closure. The sett and surrounding area will remain completely undisturbed before and during the sett closure process. Sett closure will only be undertaken between July and November, in accordance with best practice.
2. Standard badger gates¹⁸ will be installed on all entrances to the sett. It may be necessary to adjust the sett entrances by hand digging with a spade to ensure that the gates are set at the correct angle for the door to swing freely and sit flush with the entrance.
3. The badger gates and area around the sett entrance will be sealed to a radius of approximately 3m using heavy-duty (minimum 2.5mm galvanised wire) chain link fencing, fixed to the ground using metal pegs (using steel pins no longer than 300mm to minimise risk to badgers resting underground). Any vegetation will be cut back as necessary to achieve this and chain-link will be fixed neatly around the bases of large trees to ensure there are no opportunities for excavation to gain entry to the sett.
4. The gates will be set to automatically shut for a minimum period of 21 days. During this time, the sett will be monitored by a visiting ecologist at least once every three days. The movement of badgers out of the sett will be detected using 'trail cams'.
5. Following the minimum 21 days exclusion period, if monitoring has demonstrated beyond reasonable doubt that there are no animals remaining in the sett, the badger gate and chain-link mesh will be removed. The sett will be carefully excavated by hand, under the direction of the named ecologist, who will ensure that every burrow is followed to its terminal point and make a photographic record of the chambers and layout. If necessary, temporary chain-link fencing will be used overnight to ensure that badgers are not able to enter the area if this work overruns into the following days. The process will destroy this part of the sett and ensure badgers are not able to re-enter.

Once all remediation works and badger proofing measures have been completed, the chain-link and one-way gates will be removed and site clearance/ground works can commence.

5.3.3 Residual Impacts

Residual impacts resulting from the loss of an outlier sett and displacement of badgers from the site are considered to be negligible.

5.3.4 Compensation Measures

Given that residual impacts to badgers are considered negligible, no compensation measures (such as creation of an artificial sett) are required.

¹⁷ Natural England Standing Advice on Badger surveys and mitigation. <https://www.gov.uk/guidance/badgers-surveys-and-mitigation-for-development-projects> [accessed on 21 July 2017]

¹⁸ Natural England Technical Information Note TN025 (2007) *Using one-way gates on badger set entrances*. <http://adlib.eversysite.co.uk/resources/000/109/906/TIN025.pdf> [accessed on 21 July 2017].



5.4 Bats

5.4.1 Impact Avoidance

Given that the site's woodland will be removed under the current proposals, impacts on foraging/commuting bats cannot be avoided.

5.4.2 Mitigation Measures

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

5.4.3 Residual Impacts

With the adoption of the above mitigation measures, adverse residual effects on foraging bats are limited to **temporary** loss of foraging habitat within the development site (during the construction phase), which is considered significant at the local level for common and soprano pipistrelles, and significant at the site level for other bat species.

5.4.4 Compensation Measures

Creation of new garden habitats within the development site will provide partial compensation for the temporary loss of foraging habitat for bats during the construction phase of the development. However, gardens are of significantly lower value to foraging bats in comparison to woodland. Therefore, additional compensation in the form of off-site woodland creation will be required to offset impacts on foraging bats.

5.5 Birds

5.5.1 Impact Avoidance

Vegetation clearance and pruning will only be undertaken outside of the breeding bird season (avoiding March–August inclusive).

5.5.2 Mitigation Measures

Mitigating for the impact resulting from increased predation by domestic cats is often relatively ineffective and difficult to enforce. Education of residents, through the distribution of leaflets, will be undertaken, with advice provided, including fitting cats with bell collars and keeping cats indoors at night.

5.5.3 Residual Effects

With adoption of the above mitigation measures, impacts on birds resulting from increased predation by domestic cats cannot be negated entirely and a likely permanent adverse residual impact at the site—



local level remains.

5.5.4 Compensation Measures

The loss of nesting opportunities will be compensated for through the installation of a minimum of 30 bird nest boxes within the site. Most boxes will be installed on retained trees and new buildings, and will be positioned at least 3m above ground level on northern/eastern aspects, whereas open-fronted boxes will be installed low down within dense vegetation. Nesting provisions will include a minimum of:

- 10 x traditional wooden bird boxes (suitable for species such as blue tit and great tit)
- 10 x open-fronted wooden bird boxes (suitable for robins and wrens)
- 1 x tawny owl box
- 2 x woodpecker boxes
- 3 x larger wooden bird boxes (suitable for jackdaws, doves and thrushes)
- 2 x starling boxes
- 2 x treecreeper boxes

Compensation for the residual impacts posed by domestic cats in relation to breeding birds cannot be compensated for on-site. Off-site compensation will be required; this could be achieved through financial contribution to secure/enhance off-site areas of value to nesting garden and woodland bird species.

5.6 Reptiles

5.6.1 Impact Avoidance

Based on the assessment in section 4.6 it is considered that impacts on reptiles cannot be avoided and mitigation will be required (see following section).

5.6.2 Mitigation Measures

A reptile mitigation strategy will be implemented to avoid killing/injury of reptiles as well as including provisions designed to retain reptile populations within the site.

A temporary fencing material will be installed to a depth of not less than 20cm below ground and supported by stakes every 2.5m fixed with clout nails and washers (Figure 22). The fencing will be backfilled with earth and tightly compacted to make sure that it acts as an impassable barrier.



Figure 22. An example of the temporary fencing material that will be used.

The reptile fencing would be required to make a continuous fence line to envelop all of the construction zone and would need to remain in-situ until all construction work deemed a risk to reptiles has been completed, i.e. earthworks and associated landscaping. This will prevent any animals from the surrounding areas migrating onto the site during works. Figure 23 below shows the proposed route of the reptile fencing.

Given the size of the population present, it is considered appropriate to have a target total of at least 30 translocation visits, which would be made from no earlier than mid-March with 'refugia' (in this case bitumen and corrugated metal sheets) placed at a density of 100/ha, in line with national guidelines¹⁹. Translocation visits will be undertaken in suitable conditions (air temperature between 9 and 18°C, in the morning or mid-afternoon and in the absence of wet or very windy weather). Multiple visits can be made during suitable weather conditions on a single day, as long as they are spaced apart by at least 1 hour. All captured reptiles will be placed into a large smooth-sided bucket with green hay at the bottom and then released within one hour to the on-site receptor area.

The translocation process will have a target of 30 trapping visits, though the translocation effort will only be ceased once at least 10 visits in suitable weather conditions are made without identifying any reptile presence within the construction zone. Whilst the construction zone will be declared free of reptiles following 10 clear consecutive visits, an ecologist would still be present during the initial construction phases to undertake a 'watching brief' of all initial ground works with construction halted if any reptiles are identified within the construction zone. Site staff would be briefed prior to the commencement of construction on the importance of protecting the reptile fencing and contacting an ecologist in the event

¹⁹ Natural England (2011). *Reptile Mitigation Guidelines – Natural England Technical Information Note TIN102*.



that any reptiles or other wildlife is identified within the construction zone.

The receptor site is considered suitable as it incorporates the watercourse (likely to be used by grass snakes) and will allow movement of reptiles into adjacent habitat off-site.

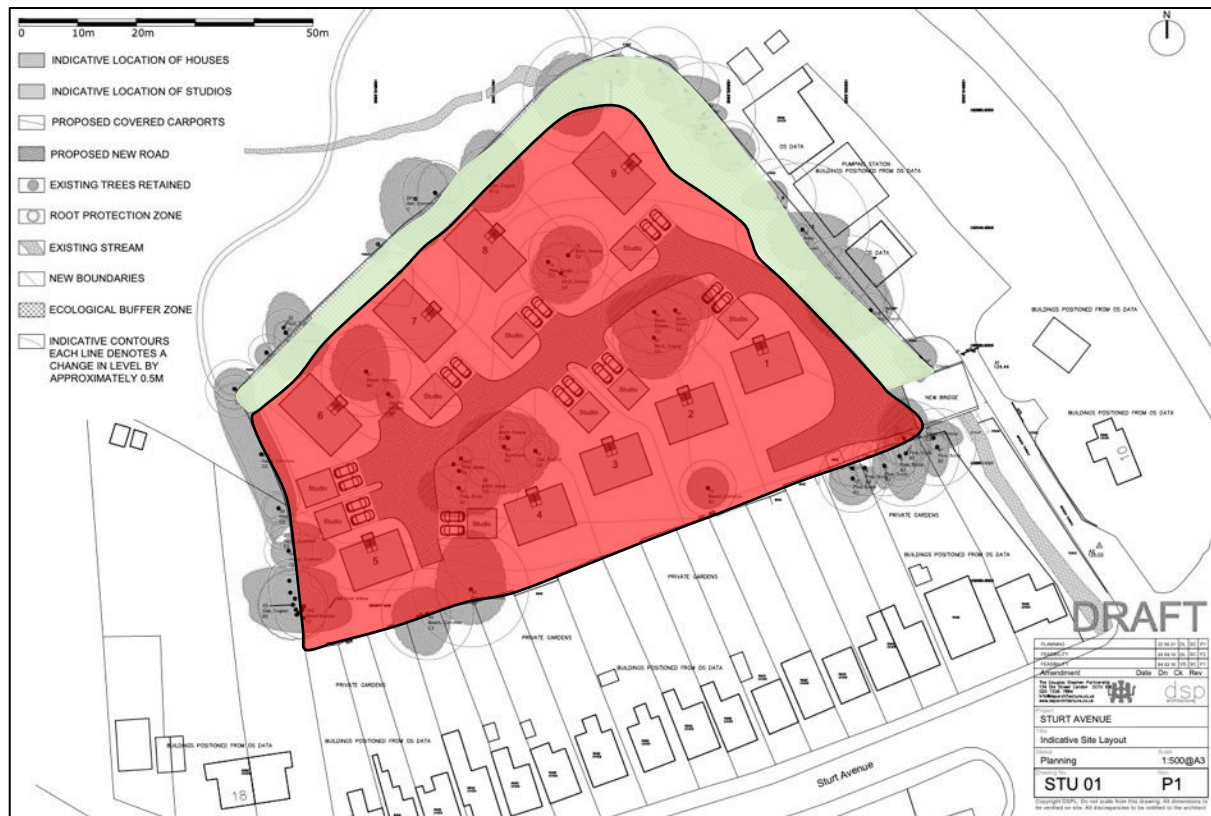


Figure 23. A plan showing the proposed reptile fencing route (black line) around the reptile exclusion zone (shown in red) and the on-site receptor area within the site (green) at Land to the rear of Sturt Avenue.

Mitigating for the impact resulting from increased predation by domestic cats is often relatively ineffective and difficult to enforce. Education of residents, through the distribution of leaflets, will be undertaken, with advice provided, including fitting cats with bell collars and keeping cats indoors at night.

5.6.3 Residual Effects

With adoption of the above mitigation measures impacts on reptiles resulting from increased predation by domestic cats cannot be negated entirely and a likely permanent adverse residual impact at the site–local level remains.

5.6.4 Compensation Measures

Compensation for the residual impacts posed by domestic cats to reptiles cannot be compensated on-site. Off-site compensation will be required; this could be achieved through financial contribution to secure/enhance off-site areas of value to reptiles.



5.7 Riparian Wildlife

5.7.1 Impact Avoidance

Impacts on riparian wildlife will be avoided through the adoption of a 5m buffer zone in conjunction with pollution prevention measures.

5.7.2 Mitigation Measures

No specific mitigation measures are considered necessary.

5.7.3 Residual Effects

With the adoption of the above avoidance measures residual effects on riparian wildlife are considered to be negligible.

5.7.4 Compensation Measures

Given that residual impacts on riparian wildlife are considered negligible, no compensation measures are required.

5.8 Other Notable species

5.8.1 Impact Avoidance

All excavations should be covered at night to prevent hedgehogs falling into any pits; failing that an escape mechanism should be provided to allow hedgehogs (and other wildlife) to climb out of an excavation.

Any removal of deadwood and stump removal will be overseen by a suitably qualified ecologist. If stag beetle larvae are encountered these will be rescued by the ecologist and moved to retained deadwood habitat within the ecological buffer zone.

5.8.2 Mitigation Measures

All new garden fencing should contain accessible gaps (10cm x 15cm) at their base to allow movement of hedgehogs between garden plots (Figure 24).



Figure 24. A hole at the base of garden fencing to allow hedgehog movement.



5.8.3 Residual Effects

With the adoption of the above avoidance and mitigation measures, residual effects on hedgehogs and invertebrates (moths and stag beetles) are limited to temporary loss of habitat within the development site; considered significant at the site level.

5.8.4 Compensation Measures

Creation of new garden habitats within the development site will provide suitable compensation for the temporary loss of habitat for hedgehogs and invertebrates during the construction phase of the development. Following compensation, impacts on foraging hedgehogs, moths and stag beetles are considered to be negligible.

5.9 Invasive Non-native Species

5.9.1 Impact Avoidance

In order to avoid the spread of Himalayan balsam, Japanese knotweed, variegated yellow archangel, *Rhododendron ponticum* and *Cotoneaster spp.* an eradication programme will be initiated and will utilise contractors versed in the eradication of invasive species. Eradication of the species will likely involve targeted glyphosate (a herbicide) spraying and injection of plants and burning on-site.

If treated plant material and/or soil is being transported off-site, a registered waste carrier must be used and the material transported to a disposal site authorised to dispose of invasive plants.

In order to prevent the introduction of INNS during the construction phase of the development, all proposed landscape planting should be of native origin.

5.9.2 Mitigation Measures

No mitigation measures specific to invasive non-native species are considered necessary.

5.9.3 Residual Effects

With the adoption of the above avoidance and mitigation measures, residual effects posed by INNS are considered to be negligible.

5.9.4 Compensation Measures

No compensation measures are considered necessary.

6 BIODIVERSITY ENHANCEMENTS

6.1 Habitats

6.1.1 Enhancement of Retained Ecological Buffer Zone

The retained 5m wide buffer zone along the northern and north-western site boundaries will be sown with a woodland seed mix (Emorsgate EW1 – woodland mixture) which contains the following species:



- garlic mustard *Alliaria petiolata*
- ramson *A. ursinum*
- cow parsley *Anthriscus sylvestris*
- lesser burdock *Arctium minus*
- rough chervil *Chaerophyllum temulum*
- foxglove *Digitalis purpurea*
- meadowsweet *Filipendula ulmaria*
- hedge bedstraw *Gallium album*
- bluebell *Hyacinthoides non-scripta*
- selfheal *Prunella vulgaris*
- red campion *Silene dioica*
- wood sage *Teucrium scorodonia*
- upright hedge-parsley *Torilis japonica*

Given that the buffer zone will serve as a reptile receptor area, the seed will be surface sown with no rotivation. Management of the habitat will be undertaken through an annual cut in mid-summer with management of nettle, bramble and other ruderal species undertaken as necessary.

6.1.2 Pond Enhancement

The retained pond will be enhanced to increase its value for wildlife through removal of invasive non-native bamboo and planting of new native aquatic plants. Only native species of aquatic plants should be introduced to the pond and must include a combination of marginal aquatic plants and oxygenating plants. The following species are recommended:

Emergent:

- Yellow iris *Iris pseudacorus*
- Meadowsweet *Filipendula ulmaria*
- Purple loosestrife *Lythrum salicaria*
- Rushes *Juncus* spp.
- Sedges *Carex* spp.
- Greater spearwort *Ranunculus lingua*
- Water mint *Mentha aquatica*
- Water forget-me-not *Myosotis scorpioides*

Floating:

- White water lily *Nymphaea alba*
- Ivy-leaved duckweed *Lemna trisulca*
- Frogbit *Hydrocharis morsus ranae*
- Water soldier *Stratiotes aloides*

Submerged:

- Spiked water-milfoil *Myriophyllum spicatum*
- Whorled water-milfoil *M. verticillatum*



- Curled pondweed *Potamogeton crispus*
- Hornwort *Ceratophyllum demersum*
- Water starwort *Allitriche stagnalis*
- Common spike-rush *Eleocharis palustris*
- Willow moss *Fontinalis antipyretica*
- Water violet *Hottonia palustris*
- Water crowfoot *Ranunculus aquatilis*

The plants listed above are available in early autumn and spring, dependent upon species, and should be planted as soon as possible following the ponds creation.

6.1.3 On-Site Hedgerow Creation

The proposed development will see the planting of at least 220m of new hedgerow habitat. These hedgerows will comprise of native species

These new species-rich hedgerows must use only native species from UK stock and include at least 6 species, with at least 50% of the new hedgerow comprising blackthorn *Prunus spinosa* or hawthorn *Crataegus monogyna* to remain consistent with a traditional hedge and provide a good hedge structure. The following species are recommended in addition to the hawthorn or blackthorn, which will make up 50% of the hedging:

- field maple *Acer campestre*
- wild privet *Ligustrum vulgare*
- dogwood *Cornus sanguinea*
- hazel *Corylus avellana guelder*
- rose *Viburnum opulus*
- beech *Fagus sylvatica*
- spindle *Euonymus europaea*

New hedgerows should be planted with 5 plants per linear metre as a minimum and it is best to plant the trees as bare root stock whilst they are dormant between November and March in the absence of heavy frost. Guards to protect these hedge trees from rabbits and deer may be necessary.

The Biodiversity Impact Calculation indicates that the proposed hedgerow planting will result in the gain of 1.36 Hedgerow Units (a percentage change in Hedgerow Units cannot be calculated given that no Hedgerow Units exist within the on-site baseline).

6.1.4 Tree Planting

A minimum of 64 new trees will be planted within the development and within the ecological buffer zone along the north-western and north-eastern boundaries. The landscaping plan will incorporate a variety of trees with most species to be UK natives sourced from UK stock. This will create greater habitat for a variety of birds and invertebrates. Given the arrival of ash dieback, it is not recommended that ash *Fraxinus excelsior* saplings are planted anywhere on the site. Tree species to be planted within the site



are:

- silver birch *Betula pendula*
- beech *Fagus sylvatica*
- pedunculate oak *Quercus robur*
- wild service tree *Sorbus torminalis*
- field maple *Acer campestre*
- alder *Alnus glutinosa*
- midland hawthorn *Crataegus laevigata*
- crab apple *Malus sylvestris*
- wild cherry *Prunus avium*
- common whitebeam *Sorbus aria*
- rowan *Sorbus aucuparia*

6.1.5 Off-site Enhancement

Off-site habitat creation will be required to compensate for the loss of 1.62 Habitat Units. A total of 1.974 Biodiversity Units would be required to compensate for the habitat loss as well as achieving a 10% net gain in biodiversity.

6.2 Bats

As a measure to enhance roosting opportunities for bats, ‘built in’ roosting features will be incorporated into the new dwellings at the site. Nine 1FR Schwegler bat tubes (or similar alternative designs) (Figure 25) will be integrated into the walls on the south or eastern face approximately 5m in height.



Figure 25. Left – A bat tube integrated into a brick wall. Right – a cross section diagram of a bat tube.



6.3 Birds

To enhance the site for nesting birds, a total of nine integrated swift nest boxes and nine integrated house sparrow nest boxes (Figure 26) will be integrated into the new buildings within the site. Swift boxes will be installed as high as possible below the eaves, whereas sparrow boxes will be installed at least 3m above ground in close proximity to areas of shrubs within new gardens. Boxes will be integrated into the northern or eastern elevations of buildings.



Figure 26. Left – Woodstone Build-in Swift Box B. Right – Vivara Pro Woodstone House Sparrow Nest Box.

6.4 Invertebrates

New deadwood habitat will be incorporated within areas of retained grassland at the southern and western edge of the development site. These areas of deadwood will provide an enhancement for a variety of saproxylic invertebrates including stag beetles (as well hibernating amphibians and reptiles).

A total of four large log piles will be created in shaded areas within the development site. Alternatively, larger logs can be sunk vertically into the ground with holes drilled into the wood to create opportunities for saproxylic invertebrates.

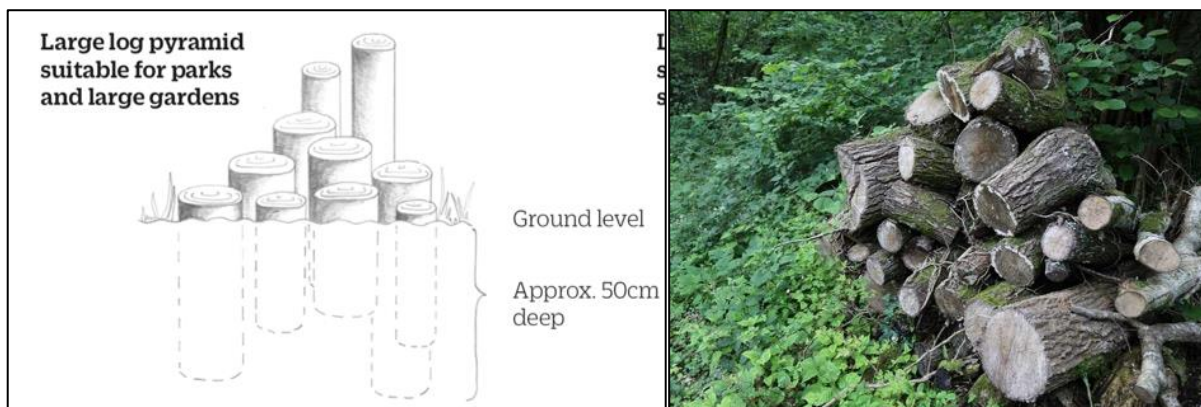


Figure 27. Left – a diagram of a vertical log pile designed specifically for stag beetles (Source: Peoples Trust for Endangered Species). Right – A traditional horizontal laid log pile.



7 CONCLUSIONS

The proposed development will see the loss of 0.46ha of priority woodland habitat. In the absence of compensation this would result in a certain, permanent adverse effect on the ecology of the site. Off-habitat creation will be required to offset the loss of the woodland. A summary of the EclA is provided in Table 18 below.

A summary of the EclA process is presented in Table 18 below.

Table 18. EclA summary.

Ecological feature	Importance	Impact characterisation	Level of significance	Avoidance	Mitigation	Residual impact	Compensation required? (Y/N)
Habitats	Local	Loss of priority woodland	Local	N/A	N/A	Local	Y
Badgers	Local	Destruction of outlier sett Disturbance Killing/injury	Site–Local	N/A	Mitigation Licence and badger mitigation strategy involving sett closure	Site	N
Foraging/commuting bats	Site - Local	Loss of foraging/commuting habitat	Site–Local	N/A	Sensitive lighting	Local	Y
Breeding birds	Site	Killing/injury Loss of nesting/foraging habitat Increased predation by domestic cats	Site–Local	Sensitive timing of vegetation clearance	Control/education of cats and owners	Site–Local	Y
Reptiles	Local	Killing/injury Habitat loss	Site–Local	N/A	Reptile mitigation strategy involving translocation	Negligible	N
Lamprey	Local	Degradation of habitat through pollution	Local	Pollution prevention	N/A	Negligible	N
Moths	Local	Habitat loss	Site	N/A	N/A	Site	Y
Stag beetle	Local	Killing/injury Habitat loss	Site-Local	Supervised removal of deadwood	N/A	Site	Y
Hedgehog	Local	Killing/injury Fragmentation of habitat	Local	Covering of excavations	Provision of holes in fencing	Site	Y
INNS	Local	Spread beyond the site	Local	Adoption of eradication programme	N/A	Negligible	N



APPENDIX 1 – LEGISLATION AND POLICY

Introduction

The following text is intended for general guidance only and does not constitute comprehensive professional legal advice. It provides a summary of the current legal protection afforded to wildlife in general and certain species. It includes current national planning policy relevant to nature conservation.

The ‘Birds Directive’, ‘Habitats Directive’ and ‘Natura 2000 Sites’.

The Council Directive 79/409/EEC on the Conservation of Wild Birds (“the Birds Directive”) sets a framework for the protection of wild birds. Under the directive, several provisions are made including the designation and protection of ‘Special Protection Areas’ (SPAs) – areas which support important bird populations, and the legal protection of rare or vulnerable species.

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the “Habitats Directive”) directs member states of the EU to take measures to maintain favourable conservation status of important habitats and species. This requires the designation of a series of sites which contain important populations of species listed on Annex II of the directive. Together with ‘Special Areas of Conservation’ (SPAs), designated under the Birds Directive, SACs form a network across Europe of protected areas known as the ‘Natura 2000’.

Annex IV lists species in need of more strict protection, these are known as “European Protected Species (EPS)”. All bat species, Hazel Dormice *Muscardinus avellana*, otter *Lutra lutra* and great crested newts *Triturus cristatus* are examples of EPS that are regularly encountered during development projects.

The ‘Habitats Regulations’

The Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations”) is the principle means of transposing the Habitats Directive and the Birds Directive, and updates the Conservation (Natural Habitats, &c.) Regulations 1994 (“the 1994 regulations”) in England and Wales.

‘Natura 2000’ sites receive the highest level of protection under this regulation which requires that any activity within the zone of influence of these sites would be subject to a Habitats Regulations Assessment (HRA) by the competent authority (e.g. planning authority), leading to an Appropriate Assessment (AA) in cases where ‘likely significant effects on the integrity of the site are identified.

For European Protected Species, Regulation 41 makes it a criminal offence to;

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb wild animals of such species;
- Deliberately take or destroy their eggs (where relevant);
- Damage or destroy a *breeding or resting place* of such an animal;
- Possess, control, sell or exchange any live or dead animal or plant, of such species;
- Deliberately pick, collect, cut, uproot or destroy a wild plant of such species.

The Habitats Directive and Habitats Regulations provide for the derogation from these prohibitions for specific reasons provided certain conditions are met. An EPS licensing regime allows operations that would otherwise be unlawful acts to be carried out lawfully. Natural England is the licensing Authority



and, in order to grant a license, ensures that three statutory conditions (sometimes referred to as the ‘three derogation tests’) are met:

- A licence can be granted for the purposes of “preserving public health or safety or for other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment” (Regulation 53 (2) (e).
- A licence can be granted if “there are no satisfactory alternatives” to the proposed action.
- A licence shall not be granted unless the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Wildlife and Countryside Act (1981) as amended.

The Wildlife and Countryside Act (1981)²⁰ remains one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).

Under the Wildlife and Countryside Act (WCA) 1981, all wild birds (with the exception of those listed on Schedule 2), their eggs and nests are protected by law and it is an offence to:

- Take, damage or destroy the nest of any wild bird while it is in use or being built.
- Take or destroy the egg of any wild bird.
- Disturb any bird listed on Schedule 1, while it is nest building, or at a nest with eggs or young, or disturb the dependant young of any such bird.

Schedule 5 lists all non-avian animals receiving protection to a varied degree. At its strongest, the Act makes it an offence to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturb animals while occupying such places. Examples of species with *full protection* include all EPS, common reptile species, water vole *Arvicola amphibius*, white-clawed crayfish *Austroptamobius pallipes* and Roman snail *Helix pomatia*. Other species are protected from sale, barter or exchange only, such as white letter hairstreak *Satyrium w-album*.

The Act makes it an offence to intentionally pick, uproot or destroy any plant or seed, and sell or possess any plant listed on Schedule 8. It is also an offence to intentionally uproot any wild plant not listed on Schedule 8 unless authorised [by the land owner]. Species on Schedules 5 and 8 are reviewed every 5 years when species can be added or removed.

Measures for the prevention of spreading non-native species which may be detrimental to native wildlife is included in the Act, which prohibits the release of animals or planting of plants into the wild of species listed on Schedule 9 (for example Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandifera*, New Zealand Pygmyweed *Crassula helmsii*).

The Wildlife and Countryside Act 1981 (as amended) also prohibits certain inhumane methods of traps and devices for the capture or killing of wild animals and certain additional methods such as fixed trap, poisoning with gas or smoke, or spot-lighting with vehicles for killing species listed on Schedule 6 of the Act (this includes all bat species, badger, otter, polecat, dormice, hedgehog and red squirrel).

²⁰ Wildlife and Countryside Act (WCA) (1981). HMSO London.



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

The NERC Act (2006)²¹ places a statutory duty under Section 40 on all public bodies, including planning authorities, to take, or promote the taking by others, steps to further the conservation of *habitats and species of principal importance for the conservation of biodiversity* in England (commonly referred to as the 'Biodiversity Duty'). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers. Section 41 lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants, invertebrates through to mammals and birds. It originates from the priority species listed under the UK Biodiversity Action Plan (UK BAP) with some omissions and additions.

Protection of Badgers Act (1992)

The Badger *Meles meles* is afforded specific legal protection in Britain under the Protection of Badgers Act (1992)²², and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) (see above).

Under this legislation, it is a criminal offence to:

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

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

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2019)²³ sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments regarding the operation of the planning system.

Paragraph 174b, which states that council policies should "promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity". In accordance with the NPPF, it is important that developments should contribute to and enhance the natural and local environment by:

- Minimising impacts on existing biodiversity and habitats,

²¹ Natural Environment and Rural Communities Act (2006). HMSO London.

²² Protection of Badgers Act (1992). HMSO London.

²³ HM Government (2019). National Planning Policy Framework. Department for Communities and Local Government. Available online at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf.



- Providing net gains in biodiversity and habitats, wherever possible,
- establishing coherent ecological networks that are more resilient to current and future pressures.

UK Post-2010 Biodiversity Framework

The UK Biodiversity Action Plan (UK BAP), published in 1994, was the UK's response to the commitments of the Rio Convention on Biological Diversity (1992). The UK BAP was replaced by the UK Post-2010 Biodiversity Framework. This framework covers the period 2011 to 2020 and forms the UK government's response to the new strategic plan of the United Nations Convention on Biodiversity (CBD) published in 2010. This promotes a focus on individual countries delivering target for protection for biodiversity through their own strategies.

The most recent biodiversity strategy for England, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra (2011)²⁴, and a progress update was provided in July 2013 (Defra 2013)²⁵.

'Biodiversity 2020' builds on the Natural Environment White Paper for England – 'The Natural Choice', published on 7 June 2011, and sets out the strategic direction for biodiversity policy for the next decade.

Biodiversity 2020 deliberately avoids setting specific targets and actions for local areas because Government believes that local people and organisations are best placed to decide how to implement the strategy in the most appropriate way for their area or situation.

Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non-governmental bird conservation organisations reviewed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every 5 years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2015²⁶ (Eaton et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

²⁴ Defra (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services. Available at: <https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services>.

²⁵ Defra (2013) Progress Update. Available at: <https://www.gov.uk/government/publications/biodiversity-2020-simple-guide-and-progress-update-july-2013>.

²⁶ Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D., and Gregory, R. (2015) Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. *British Birds* 108. December 2015. 708–746



APPENDIX 2 – IMPORTANCE OF ECOLOGICAL FEATURES

Table 1: Determining importance of an ecological feature

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



APPENDIX 3 – BREEDING BIRD SURVEY RESULTS

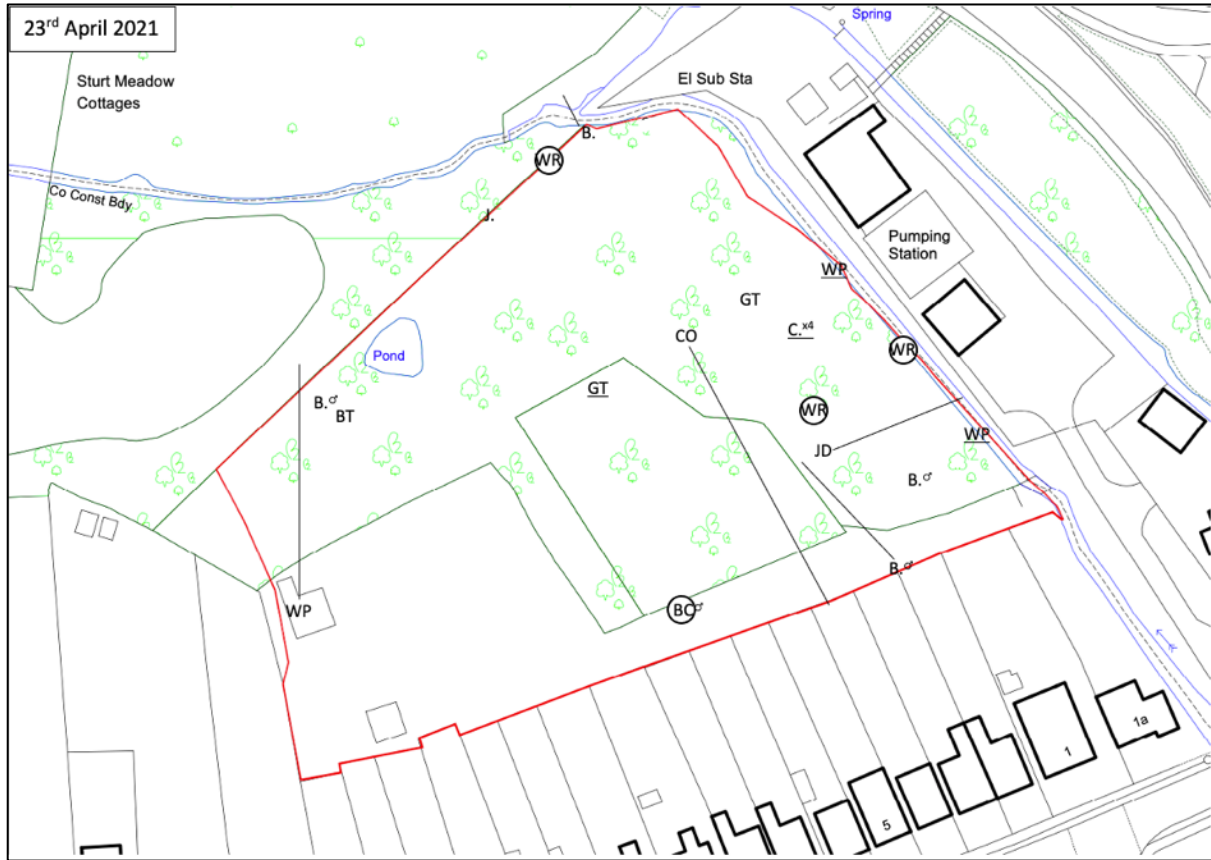


Figure 28. A territory map showing the result of the breeding bird survey undertaken at Land to the rear of Sturt Avenue, Haslemere on 23rd April 2021

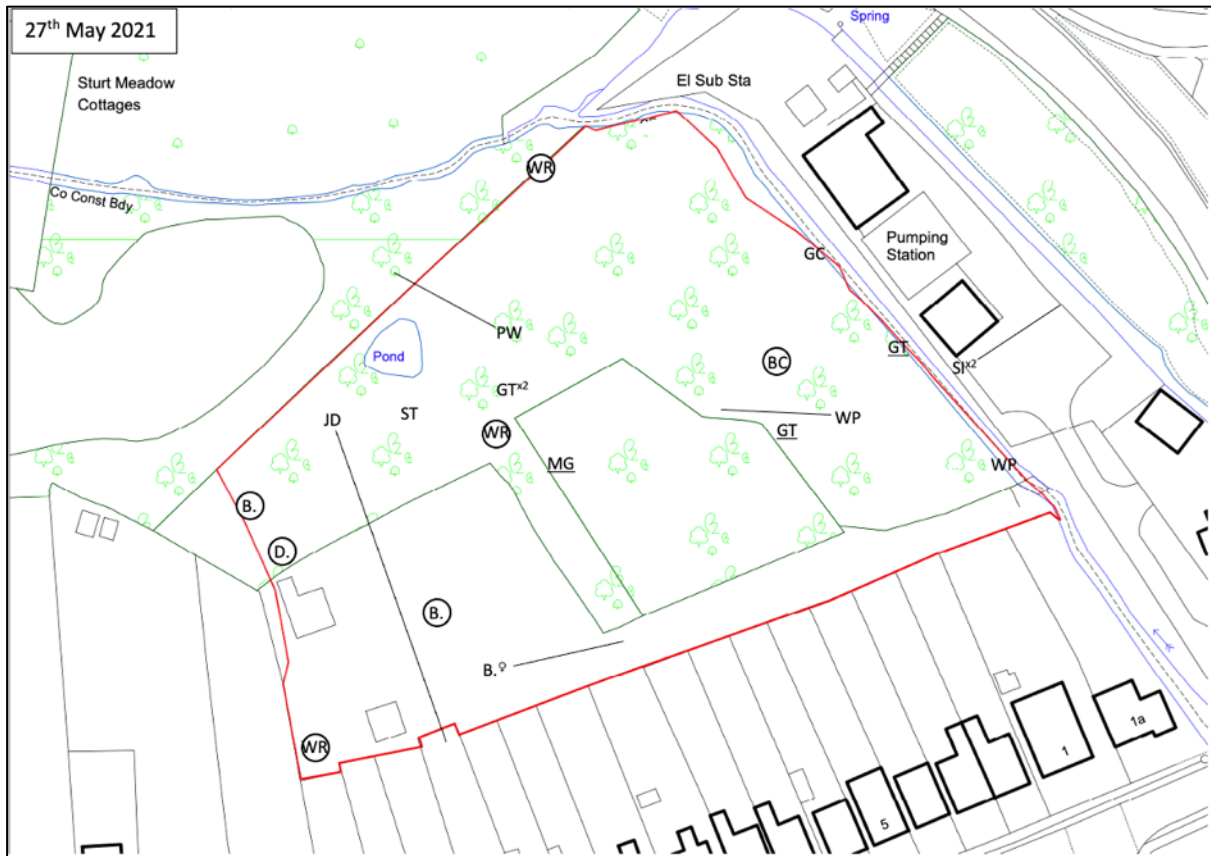


Figure 29. A territory map showing the result of the breeding bird survey undertaken at Land to the rear of Sturt Avenue, Haslemere on 27th May 2021

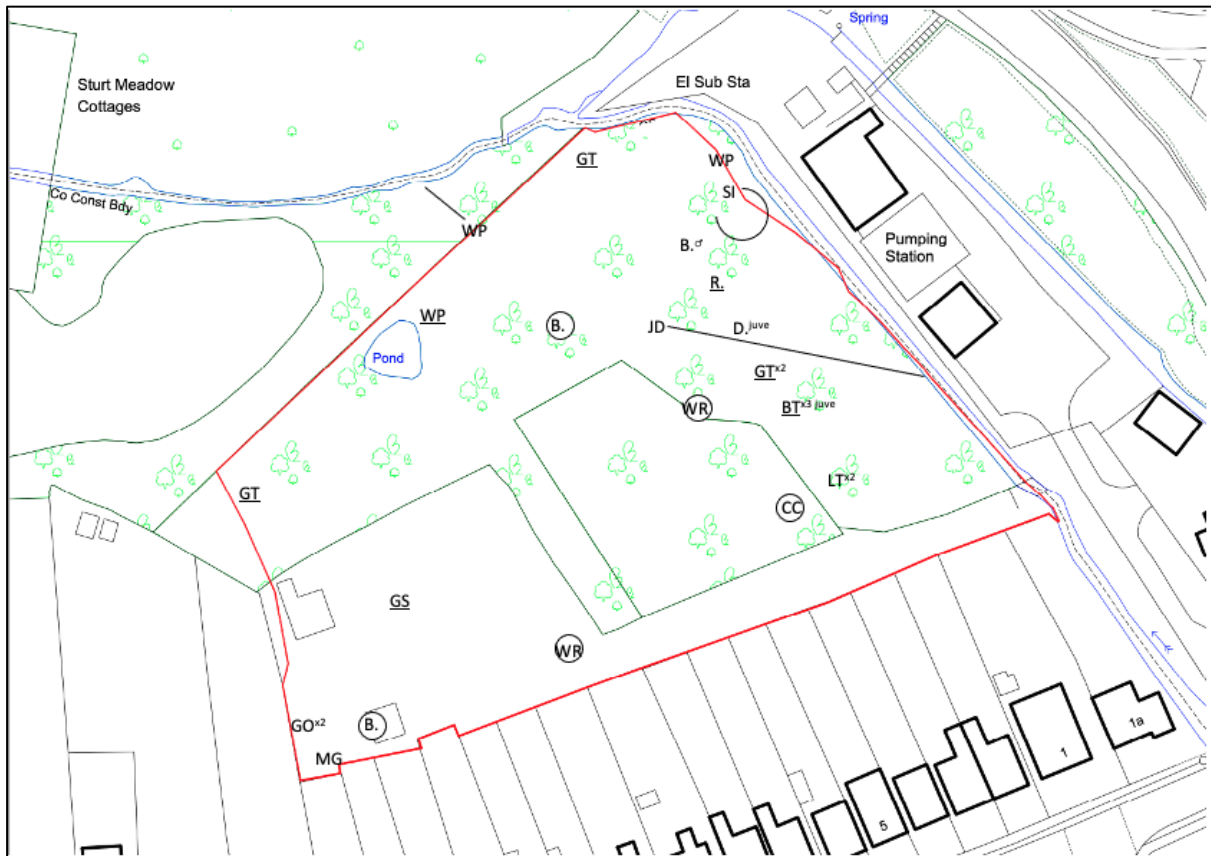


Figure 30. A territory map showing the result of the breeding bird survey undertaken at Land to the rear of Sturt Avenue, Haslemere on 10th June 2021



APPENDIX 4 – HAZEL DORMOUSE SURVEY RESULTS

Table 19. Full result of the dormouse nest tube survey undertaken at Land to the rear of Sturt Avenue, Haslemere. Abbreviations: F=food cache (wood mouse); B=bird; E=empty; nf=tube not found or tube damaged.

Survey date Tube	22/09/20	13/10/20	23/04/21	11/05/21	24/06/21	13/07/21	10/08/21
1	E	E	E	E	E	E	E
2	E	E	E	E	E	E	E
3	E	E	E	E	E	E	E
4	E	E	E	E	E	F	F
5	E	E	E	E	E	E	E
6	E	F	F	F	E	E	E
7	F	F	E	E	E	E	E
8	F	F	F	E	E	E	E
9	E	E	E	E	E	E	E
10	E	E	F	F	F	E	E
11	E	E	E	E	E	E	E
12	E	E	F	F	E	F	E
13	E	E	E	E	E	E	E
14	E	E	E	E	E	E	E
15	E	E	E	E	E	E	E
16	E	E	E	E	E	F	E
17	E	E	E	E	F	E	E
18	E	E	B (droppin gs)	E	E	E	F
19	E	E	E	E	E	E	E
20	E	E	F	B (droppin gs)	E	E	E
21	E	E	E	F	E	E	F
22	F	F	B (droppin gs)	E	E	E	E
23	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E
25	E	E	E	E	E	E	F
26	E	F	E	E	E	E	E
27	E	E	E	E	E	F	E



Survey date Tube	22/09/20	13/10/20	23/04/21	11/05/21	24/06/21	13/07/21	10/08/21
28	E	E	E	E	E	E	E
29	E	E	E	E	E	E	E
30	E	E	E	E	F	E	E
31	E	E	E	E	E	E	E
32	F	E	E	E	E	E	E
33	nf	E	E	E	E	E	E
34	nf	E	E	E	E	E	E
35	E	E	E	E	E	E	E
36	E	E	E	E	E	E	E
37	nf	E	E	E	E	E	E
38	F	E	E	E	E	F	E
39	E	E	E	E	F	E	E
40	E	E	E	E	E	E	E
41	E	E	nf	E	E	E	E
42	E	E	nf	E	E	F	E
43	E	E	E	E	E	E	E
44	E	E	E	E	E	E	E
45	nf	E	E	B (droppin gs)	E	E	E
46	nf	E	E	E	E	E	E
47	nf	E	E	E	E	E	E
48	nf	nf	nf	nf	nf	nf	nf
49	nf	nf	nf	nf	nf	nf	nf
50	nf	nf	nf	nf	nf	nf	nf



APPENDIX 5 – GREAT CRESTED NEWT SURVEY RESULTS

Table 20. HSI calculation for ponds assessed during the survey.

SI attribute	Pond 1	
	SI value	Notes
Location	1.00	A
Pond area	0.05	<50m ²
Pond drying	0.1	Dries annually
Water quality	0.33	Poor
Shade cover	0.2	100%
Waterfowl	1	Absent
Fish presence	1	Absent
No. ponds	1	>12
Terrestrial habitat	1	Good
Macrophytes	0.3	0%
HSI value	0.4	'poor'



APPENDIX 6 – ARTIFICIAL LIGHTING AND WILDLIFE

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts on other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness. Guidelines issued by the Bat Conservation Trust²⁷ should be considered while designing the lighting scheme. A simple process which should be followed where the impact on bats is being considered as part of a proposed lighting scheme. It contains techniques which can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting on key habitats and features altogether

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

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

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

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

²⁷ Bat Conservation Trust and Institute for Lighting Professionals (2018) Guidance note 8. Bats and Artificial Lighting. <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>



flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for any such habitat being lost to the development.

- Dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

Demonstrate compliance with illuminance limits and buffers

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



APPENDIX 7 – EXAMPLE PLANTING SCHEMES

Table 21. Recommended list of native trees and shrubs.

Native trees and shrubs		
	Latin name	Common name
1	<i>Prunus avium</i>	Wild cherry
2	<i>Sorbus aucuparia</i>	Rowan
3	<i>Malus sylvestris</i>	Crab apple
4	<i>Corylus avellana</i>	Hazel
5	<i>Cornus sanguinea</i>	Dogwood
6	<i>Crataegus monogyna</i>	Hawthorn
7	<i>Prunus spinosa</i>	Blackthorn
8	<i>Viburnum opulus</i>	Guelder rose
9	<i>Viburnum lantana</i>	Wayfaring-tree
10	<i>Ilex aquifolium</i>	Holly
11	<i>Rhamnus cathartica</i>	Buckthorn
12	<i>Eunonymus europaea</i>	Spindle
13	<i>Ligustrum vulgare</i>	Wild privet
14	<i>Quercus robur</i>	English oak
15	<i>Betula pendula</i>	Silver birch
16	<i>Prunus avium</i>	Wild cherry
17	<i>Carpinus betulus</i>	Hornbeam
18	<i>Fagus sylvatica</i>	Beech



APPENDIX 8 – HABITAT CONDITION ASSESSMENTS

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS														
Date	29/10/21						Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)							
Weather conditions							Unique polygon reference(s)							
Surveyor name(s)	Owen Crawshaw BSc (Hons) MCIEEM						Metric 3.0 habitat type			Lowland Mixed Deciduous Woodland				
Project / development name	Land rear of Sturt Avenue						Condition assessment required? (y/n)			Y				
Site name or location	Land rear of Sturt Avenue						Condition sheet used			Woodland				
Onsite or offsite?	Onsite													
<p>Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria. For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.</p>														
Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	TOTAL
Result	2	2	1	2	3	1	2	2	1	2	1	2	1	22
Photo ref														
Target note ref														
Are any criteria non-negotiable? (Y/N) If Yes are they passed?							Condition (Good/Moderate/Poor):			Poor				

CONDITION ASSESSMENT PROFORMA FOR USE WITH BIODIVERSITY METRIC 3.0 - AREA BASED HABITATS
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Land to the rear of Sturt Avenue, Haslemere – ECOLOGICAL IMPACT ASSESSMENT

Date	29/10/21		Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)											
Weather conditions														
Surveyor name(s)	Owen Crawshaw BSc (Hons) MCIEEM		Unique polygon reference(s)											
Project / development name	Land rear of Sturt Avenue		Metric 3.0 habitat type		Pond									
Site name or location	Land rear of Sturt Avenue		Condition assessment required? (y/n)		Y									
Onsite or offsite?	Onsite		Condition sheet used		Pond									
<p>Allocate pass 'P' or fail 'F'. Allocate 'NA' to any irrelevant criteria numbers where condition sheet contains fewer than 13 criteria. For Woodland & Intertidal condition sheets, allocate scores of '1' '2' or '3' against each criteria assessed.</p>														
Criterion	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	TOTAL
Result	F	P	P	P	P	F	P							
Photo ref														
Target note ref														
Are any criteria non-negotiable? (Y/N) If Yes are they passed?						Condition (Good/Moderate/Poor):			Moderate					