Liss Forest Nursery

Updated Ecological Impact Assessment

Prepared on behalf of

Cove Construction Ltd, Peter Catt, Neil Catt and Vincent Catt

Draft Report

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17/36 – 2D

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Liss Forest Nursery

Updated Ecological Impact Assessment

Contents

MAPS

APPENDICES

Liss Forest Nursery
Updated Ecological Impact Assessment

Executive Summary

Ecological Planning & Research Ltd (EPR) was commissioned by Cove Construction Ltd to provide ecological advice and conduct an Ecological Impact Assessment (EcIA) in relation to their proposals to construct a small-scale residential development at a site located at Liss Forest Nursery, in Greatham.

A programme of ecological surveys was undertaken in 2018 to establish information pertaining to the ecological baseline within the likely Zone of Influence (ZoI) of the proposals. This survey work comprised of an initial Ecological Appraisal, Great Crested Newt (GCN) survey, Hazel Dormouse nest tube survey, bat survey, reptile survey and Badger *Meles meles* survey. Following refusal of consent, the development proposals have been adjusted and as such, this report has been revised and updated for resubmission in 2021 to take account of the revised development proposals and any changes to the ecological baseline.

In 2021, targeted update surveys were carried out in respect of elements of the ecological baseline that were considered to have the possibility of having changed, to inform the new application submission.

Following on from this survey work it was established that the following ecological features would likely be impacted by the development in the absence of mitigation and are therefore brought forward for a full assessment;

- Bats
- Boundary features (hedgerows, mature trees)

Other features which were also assessed via these surveys 2018 in 2021 and were confirmed to be either absent from the Zone of Influence or not likely to be impacted by the proposals. These are as follows;

- Great Crested Newts
- Hazel Dormice
- Badgers
- A breeding bird assemblage of conservation importance
- Features of botanical importance

Impact avoidance, mitigation and compensation measures are proposed via the following;

- A lighting strategy specifically in relation to bats to be implemented at the construction and operational phase
- A Construction Environmental Management Plan (CEMP) containing measures to prevent impacts occurring during the site clearance and construction phase;
- A Landscape and Ecology Management Plan (LEMP) to guide habitat creation and long-term management;
- Installation of compensatory bat habitats such as a standalone bat loft and bat boxes and reptile habitat piles
- Retention and protection of existing hedgerows and trees.

In addition to the above, additional habitat creation and management measures have been specified to ensure that the proposals result in net gain for biodiversity in accordance with the aspirations of Local and National Planning Policy.

The EcIA concludes that, subject to the implementation of the above measures, there will be no significant negative effect on features of ecological importance that has not either been mitigated or compensated for, and consequently the proposals can proceed in accordance with applicable nature conservation related legislation and policy. Advice on legal compliance pertaining to the protection afforded to protected species has also been provided

Liss Forest Nursery
Updated Ecological Impact Assessment

1. INTRODUCTION

Brief

2017

1.1 An Ecological Appraisal of the site at Liss Forest Nurseries was undertaken by Ecological Planning and Research Ltd in August 2017. This comprised of a site walkover to assess habitats within the site and the likely Zone of Influence of the proposals (where accessible), and also a detailed desktop study. A report summarising our findings and recommendations was produced in October 2017 to inform the design of the scheme.

1.2 Following the Ecological Appraisal EPR were then commissioned to carry out a number of species-specific surveys in 2018 to establish the potential presence, importance and distribution of species within the Zone of Influence and provide further impact avoidance, mitigation, compensation and any enhancement advice.

2021

1.3 In 2021 EPR carried out an update Ecological Appraisal following the same methodology as the previous appraisal, with the objective of determining whether any aspects of the ecological baseline may have changed. A new detailed desktop study was also carried out. Following this survey, update surveys were carried out for Badgers, Great Crested Newts (GCN) and Bats. These surveys aimed to establish if the baseline with respect to these species has changed significantly since the original suite of surveys.

1.4 This Ecological Impact Assessment (EcIA) report is written to detail this information to be provided with the planning application for the proposals.

Site Location and Context

1.1. The site is located south-east of Petersfield Road and the settlement of Greatham, to the north of Liss town in East Hampshire. The location is shown on **Map 1.**

1.2. The site comprises glasshouses, polytunnels, open-air growing areas, ornamental planting, escaped garden plants, mature mixed Hazel-dominated native hedgerows, and rows of mature Oak trees on the south-west boundary. There are infrequent patches of species-poor improved grassland some with mildly acidic characteristics.

1.3. In the wider landscape, there is farmland with the A3 located 450 metres to the south, and the extensive areas of forest and heathland to the south-east and rural farmland to the west.

Outline of the Proposed Development

1.4. The site is proposed to be redeveloped with the existing horticultural nursery to be replaced by 37 residential units and associated infrastructure and landscaping.

Relevant Legislation, Policy and Guidance

1.5. Where relevant, legislative and policy considerations are highlighted, including:

- The Conservation of Habitats and Species Regulations 2017;
- The Wildlife and Countryside Act 1981 (as amended);
- The Protection of Badgers Act 1992;
- The Countryside and Rights of Way (CROW) Act 2000;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- National Planning Policy Framework, Section 15 Conserving and enhancing the natural environment;
- East Hampshire District Council Local Plan, Part 1, Joint Core Strategy; and
- South Downs National Park Authority Local Plan.

1.6. In addition to the above, biodiversity objectives detailed in the following documents have been considered:

- Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services.
- Hampshire Biodiversity Action Plan.
- HBIC, Hampshire Biodiversity Opportunity Areas - Statements: Rother Valley Biodiversity Opportunity Area.

2. ASSESSMENT METHODOLOGY

Introduction

2.1 The approach to Ecological Impact Assessment (EcIA) taken in this report accords with guidance presented in the Chartered Institute of Ecology and Environmental Management (CIEEM) *Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland* (CIEEM, 2018).

2.2 In summary, EPR takes the following step-wise approach to EcIA:

- Prediction of the activities associated with a proposed scheme that are likely to generate biophysical changes which may lead to significant effects (either positive or negative) upon ecological features of importance;
- Identification of the likely Zone of Influence (ZoI) of those activities;
- Scoping to select the ecological features (habitats, species, ecosystems and their functions/processes) that are likely to fall within the predicted ZoIs and be affected by the activities;
- Evaluation of ecological features likely to be affected – both negatively and positively;
- Identification of likely impacts (positive and negative) on important ecological features, together with an assessment of the geographic level at which they are likely to be significant;
- Refinement of the proposed scheme to incorporate enhancements, and mitigation for negative effects on important ecological features;
- Assessment of the significance of residual effects and identification of any policy drivers for additional mitigation or compensation in the event of residual significant negative effects; and
- Advice on conformance with policy and legislation.

2.3 Further information regarding the methods for ecological evaluation and impact assessment are provided in **Appendix 2**.

Likely Biophysical Changes and Zone of Influence

2.4 The activities associated with the Proposed Development which are likely to lead to biophysical changes, and could accordingly give rise to ecological impacts, are set out in **Table 2.1** below, which is drawn from Box 8 of the EcIA Guidelines (CIEEM, 2018).

2.5 The Zone of Influence (ZoI) of a proposed development is defined by the EcIA Guidelines as *"… the area over which ecological features may be affected by the biophysical changes caused by the proposed project and associated activities"*.

2.6 In this case, the Zone of Influence of the Proposed Development will encompass different areas, and thus potentially impact upon different ecological receptors, depending upon the spatial extent of the relevant biophysical change (e.g. light, noise, habitat loss, recreational disturbance). The Zone(s) of Influence relevant to this assessment are summarised in **Table 2.1** below.

Table 2.1: Activities and Biophysical Changes associated with the Proposed Development which may give rise to ecological impacts, and associated Zone(s) of Influence.

Predicted Change	Zone of Influence
Vegetation/habitat clearance	Site
Demolition of structures	Site
Generation of dust during site clearance and construction	Site and immediate surrounds
Acoustic disturbance and vibration from construction activities	Site and immediate surrounds
Increased traffic-related air pollution and potential to impact upon sensitive habitats during both construction and operational phase	Habitats within 200m of 'affected roads'
Lighting (during construction and in long term)	Site and immediate surrounds
Changes to local hydrology, including surface water runoff and groundwater	Zone of influence likely to include watercourses that receive surface water discharges, and downstream habitats
Increased recreational demand and associated effects including disturbance, trampling and eutrophication from dog fouling	Typically up to around 5km from site
Landscape planting and habitat creation / Green Infrastructure creation	Site

3. ECOLOGICAL BASELINE

Overview

3.1 The ecological baseline has been compiled following the programme of surveys set out in **Table 3.1 below**. Further information regarding the survey work carried out, including methodologies, metadata and results is provided in **Appendix 2**.

Table 3.1: Overview of ecological survey programme.

	Original surveys		Update surveys	
Survey Type	**Month**	**Year**	**Month**	**Year**
Ecological Appraisal	August	2017	April	2021
Bat	April – August	2018	May – July	2021
Great Crested Newt	March – May	2018	April	2021
Reptile	March – August	2018	Not carried out	
Dormouse	March – August	2018	Not carried out	

Ecological Appraisal

3.2 The Ecological Appraisal is the starting point for determining the ecological features potentially needing to be considered within an EcIA.

Desktop Study

3.3 A desktop study was carried out in August 2017 to identify features of conservation importance in the surrounding area, including protected and notable species and also any designated sites.

3.4 The desktop study was repeated in May 2021 to update the understanding of the distribution of ecologically important species, habitats and designated sites. Nature conservation designations are shown on **Map 1**, and potentially relevant species records are shown on **Map 1a.**

Field Survey

2017

3.5 An Ecological Appraisal visit and habitat survey was carried out on the site by Ben Kite of EPR on the 2nd August 2017. The potential for habitats and species of interest were noted and identified for further survey work.

2021

3.6 An update Ecological Appraisal visit and habitat survey was carried out by Ben Kite and Jo Doolin of EPR on the 29th April 2021 to determine if the site has changed significantly since the previous survey visits.

Features Scoped out of this EcIA

3.7 Following the Ecological Appraisal in 2017, certain features were scoped out from further consideration as part of this EcIA. These features were scoped out for a number of reasons, including unlikely presence within the zone of influence, unlikely to be affected by the proposals,

or unlikely to be of ecological importance. These features were not therefore considered for further surveys in 2017;

Species

- **Water voles and Otters** - as there are no waterbodies on the site or within the zone of influence which would be suitable for use by these species, further targeted surveys were not considered necessary.

- **Breeding Birds** – common bird species were noted flying through the site but the habitats available are not thought to be of significant value to any birds of conservation concern and it is thought that the site would only be used on a transient basis. The majority of bird use of habitats will be the boundary features (hedgerows and trees), and these features are being retained. Breeding bird surveys are therefore not recommended.

Habitats

- **Grassland –** Between the buildings on site there are small, scattered patches of species-poor improved grassland with mildly acidic characteristics in sandier areas. Species of forbs present very infrequently included Common Bird's Foot Trefoil *Lotus corniculatus*, Yarrow *Achillea millefolium*, Selfheal *Prunella vulgaris*, Meadow Buttercup *Ranunculus acris*, Germander Speedwell *Veronica chamaedrys*, Lesser Trefoil *Trifolium dubium* and Ragwort *Senecio jacobaea*. Typical indicators of acid grassland such as Sheep's Sorrel *Rumex acetosella* did not appear to be present.

  The site has been depicted from the first edition 25 inch to the mile map of c. 1870 onwards as 'cultivated' land, though the actual state of cultivation for most of this period is not known other than information from the Land Utilisation Survey (sheet 123, 1936), which shows the site as in arable use. The site was converted from agricultural land to a nursery in the late 20th century (precise date unknown). Desk research shows that the site is on the Folkestone Formation, a sandy bedrock. Commissioned data returns from HBIC show a list of many plant species of conservation interest in the search area (2km radius from the centre of the site) though most of these are associated the Woolmer Forest heathland landscape and thus very unlikely to occur within the nursery grounds. Further to this, EPR's appraisal survey of the site showed it to be comprised almost wholly of artificial habitat types that had been heavily influenced by activities at the nursery, with very little habitat that could consequently be considered semi-natural. Given the landscape history of the site and the negligible presence of semi-natural habitat, it is considered that this site is very unlikely to support vegetation and/or flora of significant conservation interest. On these grounds, botanical work beyond the Ecological Appraisal studies is not considered necessary.

Features Scoped in to the EcIA for Further Consideration

3.8 Following the Ecological Appraisal and desktop study in 2017 it was determined that the following features were potentially present within the ZoI and of ecological importance, and consequently require further survey and/or assessment effort to inform an Ecological Impact Assessment;

- Designated Sites
- Boundary Habitat Features
- Great Crested Newts

- Reptiles
- Dormice
- Badgers
- Bats

3.9 Details of each of these is outlined further below, and then where necessary taken forward for consideration in the impact assessment in **Section 4.**

2021 scoping

3.10 Following the update data search and Ecological Appraisal visit in April 2021, it was found that the features on site have not changed significantly since the original visit in 2017. As such it can be assumed the scoping decisions above are still valid and relevant. As the habitat had not changed significantly, Dormice and Reptile surveys were not repeated, as the status of both within the ZOI are unlikely to have changed (this is discussed further below). Bat, Badger and Great Crested Newt surveys were repeated to ensure the results were up to date as these species are more mobile and would be more likely to be impacted should they have occupied habitats within the ZoI.

Designated Sites

Statutory Designated Sites

3.11 There are three Internationally important designated sites within the likely ZoI of the proposals which were identified in the desktop study undertaken for the site, these are illustrated on **Map 1**.

- Wealden Heaths Phase II SPA - 592 metres East
- Woolmer Forest SAC – 1.04km North-east
- East Hampshire Hangers SAC 1.45km North-east

3.12 There are two nationally important designated sites within the likely ZoI, shown on **Map 1**.

Woolmer Forest SSSI (part of Woolmer Forest SAC and Wealden Heaths SPA)

Upper Greensand Hangers: Empshott to Hawkley SSSI (Part of East Hampshire Hangers SAC)

3.13 The SAC and SPA designations listed above are of **International** importance for nature conservation. The SSSI designations are of **National** importance for nature conservation.

3.14 Of the International level nature conservation designations listed above, the Wealden Heaths SPA may be particularly vulnerable to increases in recreational pressure caused by additional residents being brought into the area by residential development. This is because the qualifying features of this site include several species of bird (including Nightjar *Caprimulgus europeaus,* Woodlark *Lullula arborea* and Dartford Warbler *Sylvia undata)* that nest either on or close to the ground are which are therefore potentially vulnerable to increases in recreational pressure.

3.15 Woolmer Forest SAC is designated for its dry and wet heathland habitat, natural dystrophic lakes and ponds, and a wetland habitat type known as ‘depressions on peat substrates of the *Rhyncosporion*’ which also have the potential to be affected by recreational pressure and public

access impacts, although to a lesser degree than the Annex 1 birds of the Wealden Heaths SPA.

3.16 It is not thought that the proposals are likely to contribute towards a likely significant effect on the above designated sites alone, or in combination with other plans and projects. This is covered below in further sections of this report.

Non-Statutory Designated Sites

3.17 Nearby Sites of Importance for Nature Conservation (SINCs) are also shown on **Map 1** and listed below, and these represent a range of habitat types including Ancient Woodland and pasture woodland, unimproved grassland, heathland, as well fens. The closest SINCs to the proposals are:

- The Old Moor (Lower Groves Copse) SINC; and
- Greatham Moor (North) SINC

3.18 SINCs are a designation that in Hampshire reflects features of County importance for nature conservation.

3.19 None of the SINC in the ZoI are considered likely to be affected by the proposals. The two nearest – The Old Moor and Greatham Moor appear to be privately owned. The other SINCs, Due to their distance from the Site, having features that are not particularly sensitive to recreational activity, or lack of use or them not having access for recreational activities.

Habitats

3.20 As with grasslands above, the majority of habitats within the immediate potential ZoI are of no ecological importance. As shown on **Map 2**, these include an almost dry ornamental pond, a garden with areas of lawn, amenity planting and non-native Leylandii hedgerow, buildings and hardstanding, greenhouses, polytunnels and open plant storage areas, and ornamental flowerbeds and shrubs.

Boundary Habitats (Hedgerows and Tree Lines)

Field Survey

3.21 The potential ecological importance of boundary features was assessed during the Ecological Appraisal on 2nd August 2017 and 29th April 2021.

3.22 The northern-western and north-eastern boundary hedgerows are of no significant ecological importance.

3.23 The north-western hedgerow bordering the road is a relatively young and in places low planted Hawthorn Crataegus monogyna dominated hedgerow with Holly *Ilex aquifolium*, Pedunculate Oak *Quercus robur*, Ash *Fraxinus excelsior* and some Field Maple *Acer campestre*.

3.24 The north-eastern hedgerow bordering adjacent dwellings contains some sections of Privet and Hawthorn but is heavily modified due to already forming part of the curtilage of the dwellings to the North, with inclusions of various non-native ornamental species such as Bamboo.

3.25 The hedgerows along the eastern and southern boundaries of the site are of greater interest:

- The hedgerow forming the south-eastern boundary of the Site was of more interest than the others, being dominated by Hazel but also containing Hawthorn, Blackthorn, Holly, Oak (including some large standards) and Field Maple. This hedgerow's composition may indicate that it is older than others within the ZoI. There was also some Bracken in this hedgerow, indicating slightly more acidic conditions.
- A double row of large mature Oak trees with some understorey comprised of Hazel and planted non-native ornamental shrubs (on the side of the nursery) forms the south-western boundary, see TN6 on Map 2a. These trees may have historically flanked a trackway, now blocked by the electrical substation, and with Greatham Primary School to the south.

Evaluation

3.26 The boundary features described above along the south-eastern and south-western are considered to be of Local level importance for nature conservation. They are also of value to the site in terms of green connectivity, species diversity and also potentially as habitat corridors for species such as reptiles, bats and birds. Mitigation and enhancement measures are therefore required and are detailed in **Section 4** of this report.

Fauna

Great Crested Newts

2017

Desktop Study

3.27 The data from HBIC contained multiple records of Great Crested Newt, a European Protected Species, in the area (see **Map 1a&b)** including two records along Benhams Lane (the closest approximately 800 metres, and several records indicating a metapopulation in the ponds surrounding Woolmer Pond 1.2 km to the north.

Field Survey

3.28 Three ponds were identified within 500m of the site boundary (see **Map 8)**.

3.29 Following a Habitat Suitability Index (HSI) Assessment of these ponds which were confirmed to be of average suitability for GCN to be present, a dusk pond survey and an e-DNA test was performed on each pond. The details of these surveys can be found in Appendix 2 of this report.

2021

Desktop Study

3.30 The updated data search from HBIC did not contain any more recent records of Great Crested Newt. The only records returned were already present in the 2017 data search with only on record occurring in the last 10 years.

Field Survey

3.31 Update e-DNA tests were carried out on the three ponds identified in 2017 The details of these surveys can be found in **Appendix 2** of this report.

Evaluation

3.32 Following the dusk survey and the e-DNA tests the likely absence of GCN was confirmed from the ponds and therefore no further surveys were required. It can therefore be determined that there will be no impacts on any local GCN populations.

Reptiles

Desktop Study

3.33 A significant number of records of Smooth Snake and Sand Lizard, both European Protected Species, were received from HBIC. These are primarily heathland specialist species although can be found in other suboptimal habitats adjacent to heathland. The nearest records for these species are over 1 kilometre to the south on the Longmoor Enclosure and the heathland surrounding Woolmer Pond to the north. A healthy number of Adder records also occur within these areas. None of these species are likely to be present on habitats within or adjacent to the site itself.

3.34 Records for more common species such as Slow Worm, Common Lizard and Grass Snake were also returned most of which occur within the Wealden Heaths SPA. The majority of the Slow Worm records are grouped along the A3 to the north-east of the site.

Field Survey

3.35 Following the Ecological Appraisal, a series of presence/absence surveys were carried out on the site between and including the months of April to August (see **Appendix 2** for further details of the surveys).

3.36 The low level of suitable reptile habitat within the site meant it was not possible to deploy a large number of refugia, however a total 6 refugia were deployed on-site. These focused on compost heaps and any sheltered corners that could be used by Slow Worms and possibly Grass Snakes.

Evaluation

3.37 Two Slow Worms were recorded on these surveys. According to guidelines (Froglife 1999) this constitutes a **'Low'** population. Given the small areas of habitat and the low count of animals, this population is considered to be of importance at **within the Zone of Influence level only**. It is most likely in **unfavourable** but **stable** condition, due to lack of habitat. The suitability of habitats present for reptiles had not changed between the 2017 and 2021 Ecological Appraisal visits.

3.38 Whilst the reptile population is not of sufficient importance to justify consideration within this EcIA (i.e. of Local importance or greater), nor of sufficient size to warrant a full reptile translocation, it will be necessary to implement precautionary site clearance under a method statement in order to avoid accidental killing or injury of reptiles during site clearance. This is to accord with the Wildlife and Countryside Act. This is detailed in **Section 7**.

3.39 Further habitat enhancements are also proposed in **Section 5** to produce biodiversity net gain.

Hazel Dormice

Desktop Study

3.40 There are no records of Hazel Dormouse, a European Protected Species, within the data set provided by HBIC (**Map 1)**. However the arboreal habitat within the ZoI comprising hedgerows and ornamental planting were considered potentially suitable for this species. The south-eastern

hedgerow is Hazel dominated which is favoured by Dormice. The site also has good connectivity to the network of hedgerows and woodlands in the wider area.

3.41 The updated data search in 2021 did not return any new records of Hazel Dormouse (**Map 1b**).

Field Survey

3.42 To rule out the possibility of Dormice being present within the Zone of Influence, five monthly nest tube surveys were conducted between and including April to August (details of which are included in **Appendix 2**).

Evaluation

3.43 As no evidence of nesting Hazel Dormice were discovered on the surveys it is considered likely that they are absent from the Zone of Influence and can be scoped out from further consideration in this impact assessment. The quality of the habitat present for Hazel Dormice had not changed between the 2017 and 2021 Ecological Appraisals.

Badgers

Desktop Study

3.44 There is one record of Badger included in the HBIC record returns which is located approximately 1km north-east of the site on the edge of the Wealden Heaths SPA (see **Map 1a**).

3.45 The 2021 data search did not return any more recent records of Badger within the area.

Field Survey

3.46 The field assessment was carried out by Daniel O'Sullivan of EPR on the 20th March 2018 and no evidence of Badger activity was seen within the site boundary. It was noted that there is a disused fox den in the garden of the bungalow along and a further mammal hole along the north-west boundary of the site (see **Map 4**). There was also evidence of rabbits observed.

3.47 The 2021 field survey carried out by Jo Doolin of EPR on 29th April found no evidence of Badger activity within the site boundary.

Evaluation

3.48 Considering the results of the field survey Badgers are not considered to be currently using the site but the presence of a latrine 400m north-west of the site indicates territorial activity nearby. As this falls beyond the Zone of Influence it is not likely that the development will have any significant impacts on the local Badger populations.

3.49 Given the absence of field evidence, whilst some habitats on site such as the garden lawn areas and banks, are of some value to badgers, they are unlikely to be present within the Zone of Influence.

3.50 As Badgers are highly mobile animals that often dig new setts, precautions are recommended to avoid accidental commission of an offence during works. As this is a matter of ensuring compliance with the legal protection afforded to Badgers rather than mitigation to address a potentially significant ecological impact, it is addressed below in **Section 7.**

Bats

2017

Desktop Study

3.51 Records returned by HBIC included six species of bat which are listed below, not including non-specific records of Pipistrelle and Long-eared bat species.

- Noctule
- Common Pipistrelle
- Soprano Pipistrelle
- Serotine
- Whiskered
- Brown Long-eared

3.52 There were no records of rarer bat species returned. **Map 1a&d** shows a general distribution of bats within 2km from the site boundary.

Field Survey

3.53 An internal and external bat survey inspection was also carried out on all structures/buildings and trees within the site boundary by Rebecca Oswin of EPR on the 30th January 2018 the results of which then informed the requirements for further emergence or re-entry surveys.

3.54 Following the initial building inspection, a suite of emergence and re-entry surveys and walked transects were carried out over the active period for bats. This is typically April to September inclusive. Details of the surveys can be seen in **Appendix 2**.

Roosts

3.55 The emergence and re-entry surveys confirmed that buildings A and C (**Map 3**) were used as roosts by Common Pipistrelles and Brown Long-eared bats.

3.56 Six Long-eared bats were recorded emerging from building C. At the time it was thought this could potentially be a small maternity roost for this species. Building A is being used by at least two Common Pipistrelles which is classed as a minor day roost for this species.

Activity surveys

3.57 The transects revealed foraging patterns by Long-eared species which were observed flying within the greenhouses and polytunnels, most likely exploiting the sheltered environment to catch insects on the wing when shielded from predators. Up to three individuals were seen at any one time which are likely part of the roost in building C.

3.58 Common Pipistrelle were also observed foraging along the hedgerows around the site and within the wooded boundary to the south. A number of Common Pipistrelles were seen travelling in a north-easterly direction which suggests potential use of the connecting hedgerows to the

woodlands along the northern and eastern boundaries by commuting and foraging bats (see **Map 4 & 4a**).

Automated Detectors

3.59 Automated detector survey data collected over July and August also recorded Nathusius Pipistrelles and Barbastelle bats passing through the site. These are categorised as rarer species and have more specific habitat requirements such as riparian landscapes and broad-leaved woodlands. As these habitats are not present on site, it is therefore considered likely that these species are using the site on a transient basis as they travel through the landscape on route to more suitable habitats.

2021

Desktop Study

3.60 The updated desktop study returned the same species as found in the 2017 data search with some more recent records. These are shown in **Maps 1b, c and d**.

Field Study

Building Inspection

3.61 Following the update Ecological Appraisal, an update building inspection was carried out by licenced bat ecologist Clare Clarke (bat licence 2015-12208-CLS-CLS) on the 15th May 2021. Bat droppings were found in buildings A (Common pipistrelle bat), B (Brown long-eared bat) and C (Brown long-eared bat) and sent off for DNA analysis (**Appendix 6**, **Map 3**). Building C was found to be unlikely to be a maternity roost due to the number of droppings found within the building, and is likely just a day roost that has been in consistent use for a long period. Building D was downgraded to low suitability and building E remained as low suitability.

3.62 Following the building inspection, a suite of emergence and re-entry; transect and static detector surveys were carried out from May – July 2021.

Emergence and Re-entry surveys

3.63 The update emergence and re-entry surveys confirmed that buildings A is potentially in use, and C has been confirmed as being in use as Long-eared bat roosts (**Maps j-o**). No other bat species were recorded emerging during these surveys.

3.64 One suspected brown long-eared bat was seen in close proximity to building A on the dusk survey on 30th June 2021. Considering the time this occurred, it is likely this bat emerged from the building (**Map 3m**). No pipistrelles were seen to emerge, but as droppings were found it can be assumed this remains a minor day roost for Common Pipitstrelles.

3.65 Three brown long-eared bats were seen emerging from the roof of building C on the dusk survey on 30th June 2021 (**Map 3n**). It is unlikely building C represents a maternity roost for this species, but is likely a regularly used day roost.

3.66 No bats were seen emerging from building B.

Activity surveys

3.67 The update transect survey showed Pipistrelle, Serotine and Long-eared Bats using the greenhouse enclosures to forage in. Up to two Long-eared bats were seen foraging together at one time. Common Pipistrelles were also seen foraging around the gardens to the north-west, and the corner of the site in the north-east (**map 4a**).

Automated Detectors

3.68 The automated detector deployed in July recorded Common Pipistrelle, Long-eared bat, Noctule and low numbers of Barbastelle, Soprano Pipistrelle and Myotis bats. As in 2017, Barbastelle bats are likely using the hedgerows on site to commute to more suitable foraging areas.

Evaluation

3.69 Overall, the bat assemblage using the habitats within the Zone of Influence of the proposals is of **local** importance for nature conservation and considered to be of a **favourable and stable** condition. Therefore, appropriate impact avoidance and mitigation measures are required.

Summary of Important Ecological Features

3.70 With reference to the assessment criteria set out in **Appendix 2**, Important Ecological Features that are considered to be of Local importance or greater to be taken forward for impact assessment in **Section 4** are summarised in **Table 3.2** below.

Table 3.2: Important Ecological Features to be considered further in this EcIA

Feature	Importance
Wealden Heaths Phase II SPA Woolmer Forest SAC East Hampshire Hangers SAC	International
Woolmer Forest SSSI (part of Woolmer Forest SAC and Wealden Heaths SPA) Upper Greensand Hangers: Empshott to Hawkley SSSI (Part of East Hampshire Hangers SAC)	National
Boundary Features (Hedgerows and Tree Lines)	Local
Bat Assemblage	Local

4. IMPACT ASSESSMENT

Introduction

4.1 This section examines the potential for significant ecological impacts and effects on Important Ecological Features as a result of the biophysical changes arising from the Proposals; both during the site clearance and construction phase and operational phase. Where impacts are identified, opportunities for impact avoidance and mitigation are explored. If the potential for significant residual effects remains after mitigation, then opportunities for compensation are also set out.

Impact Avoidance by Design

4.2 In accordance with the principle of the mitigation hierarchy, the scheme has been designed to avoid ecological impacts as far as possible in the first instance, thus reducing the need for extensive mitigation measures.

4.3 Impact avoidance measures incorporated into the Proposed Development include:

- Protective buffers have been incorporated into the layout around retained boundary features such as mature trees and hedgerows along the south-eastern and south-western boundaries to protect them from construction works.

Mechanisms for Implementing and Securing Mitigation

4.4 Throughout this section reference is made to a suite of plans and strategies which will include and expand upon the key principles of the impact avoidance and mitigation measures described below, and which can be secured through planning conditions or obligations, including:

- A Construction Environmental Management Plan (CEMP)
- A Lighting Strategy
- A Landscape and Ecology Management Plan (LEMP)
- A European Protected Species Licence

Impact Assessment

Designated Sites

Wealden Heaths Phase II SPA

4.5 There are three nearby sites of international importance, two of which contain sites of national importance; these are as follows:

- Wealden Heaths Phase II SPA
- Woolmer Forest SAC and Woolmer Forest SSSI (part of Woolmer Forest SAC and Wealden Heaths SPA)
- East Hampshire Hangers SAC and Upper Greensand Hangers: Empshott to Hawkley SSSI (Part of East Hampshire Hangers SAC)

4.1 These nearby designated sites have been identified as vulnerable to increases in recreational pressure created by additional housing construction. The SDNPA Local Plan Habitats Regulations Assessment (AECOM, 2018) notes that the 'core catchment' for recreational disturbance of the Wealden Heaths SPA and Woolmer Forest SAC is 5 km (in that this is the zone from within which the majority of visitors, particularly dog-walkers, to the SPA originate).

4.2 An average of 33% of households own dogs (PFMA 2021), as such this 35-house development will potentially introduce 12 households that own dogs into the area which would potentially be taken for exercise around the local SPAs and SACs and create further recreational disturbance in these areas.

4.3 The additional construction will also create extra noise and light, and introduce a potential 10 households that own cats – increasing predation on the local wildlife populations.

4.4 Mitigation of the above pressures will be required. The site will need to provide impact avoidance for increases in recreational pressure in the form of either SANG, SAMM or WHIPS. A solution is currently being determined and a HRA detailing a full breakdown of the mitigation proposed will follow.

Boundary Habitat Features

Assessment of Impacts, Mitigation and Compensation - Site Clearance and Construction Phase

4.5 As mentioned above, the layout design of the proposals has retained all of the site boundary habitats, including the south-western and south-eastern boundaries considered to be of **Local** importance for nature conservation. As such, direct impacts on these features (i.e. from their removal) have been avoided.

4.6 Mitigation to prevent the accidental damage of boundary habitats during construction will involve the erection of tree protection fencing during works around the site boundaries under the auspices of the CEMP. This is also required for the purposes of implementing mitigation needed for bats and is discussed further below.

Assessment of Impacts and Mitigation - Operational Phase

4.7 In the absence of mitigation, the boundary features of ecological importance could be subject to impacts from the dumping of litter/waste and release of non-native garden species from residents of the new dwellings. However, given the existing level of impacts of this nature occurring as a result of the operation of the nursery, these impacts are unlikely to be significant and may actually be reduced from that currently occurring as part of the baseline. As the site boundaries are located within Public Open Space (POS), these impacts can nonetheless however be prevented, and a net biodiversity gain delivered, through the implementation of positive management measures through the vehicle of the LEMP. This is discussed further in **Section 5**.

Summary of Residual Effects and Compensation

4.8 Following the application of mitigation measures as described, impacts upon the ecologically important boundary habitat features will be reduced to being **not significant**. Compensation is therefore not required. Net biodiversity gain is possible and will be achieved through the measures outlined in **Section 5.**

Bats

Assessment of Impacts, Mitigation and Compensation - Site Clearance and Construction Phase

4.9 Due to the confirmed presence of roosting bats in buildings A, B and C it is highly likely that in absence of any mitigation the following impacts will occur;

- Killing/injury of roosting bats
- Destruction of bat roosts
- Disturbance to roosting bats via dust, noise, lighting and vibration
- Loss/fragmentation of commuting/foraging habitats

4.10 **Building A** is considered to be a minor day roost for a small number of Common Pipistrelles and therefore is of low significance in terms of the conservation status of the species, but mitigation is still required to accord with the Conservation of Habitats and Species Regulations 2017 and also the Countryside and Wildlife Act 1981 (as amended).

4.11 **Building B** is considered to be a minor day roost for a small number of Brown Long-eared bats.

4.12 **Building C** is considered to be frequently used Brown Long-eared day roost that has been regular use by a small number of bats for a long period of time.

4.13 Overall, the impacts are considered to be significant to the conservation status of the bat assemblage at up to **local** level in the absence of mitigation. The following mitigation will be required (see **Map 6** for locations of proposed mitigation features);

- Implementation of a Construction and Environment Management Plan for the duration of the construction works to include the following;
    - Lighting strategy to avoid direct lighting on confirmed roost access points during works
    - Avoid carrying out construction works outside of daylight hours
    - Establish protective buffer zones to protect confirmed roosts from noise, dust and vibration disturbance until they can be safely demolished as described below. This buffer should also be extended to sensitive habitat features such as wooded boundaries and hedgerows which are to be retained to enable bats to continue to use the site for foraging or commuting throughout the construction phase.
- In 2017 the mitigation proposed for building C was in the form of a standalone bat loft in the south west corner of the site. As this building has now been downgraded to a day roost, this stand-alone loft will not be required. Mitigation will still be required to compensate for the loss of this roost, but rather than a stand-alone loft, this could take the form of bat access tiles into some of the roof voids, or suitable bat boxes installed in the trees around the site.
- Features suitable for Long-eared bats should be included within at least two buildings on-site, these could include features such as bat tiles with bat access built in or bat boxes installed onto building walls.

- Provision of a compensatory bat box suitable for Pipistrelle bat species to be mounted on a suitable tree as close to the existing Common Pipistrelle roost as possible. This should be installed as part of the EPSL requirements along with a second bat box for any Long-eared bats discovered during the destructive search.
- A pre-demolition dusk emergence survey immediately prior to the demolition of confirmed roosts. This will follow the same guidelines as the scoping surveys (BCT, 2016) and will be specified within an EPSL.
- Supervised destructive search of buildings A, B and C via soft-stripping methods under an EPSL.
- Delivery of toolbox talk to all personnel prior to commencement of construction works informing of risks and legislation relating to bats. This should be read and signed by all and displayed in the site office at all times.

4.14 In addition to the above, the development will also result in the loss of foraging habitats for Pipistrelle, Serotine and Long-eared bats within the site. Mitigation for this will take the form of new habitat creation within the areas of proposed Public Open Space (POS) around the site boundaries. A substantial area will be sown with native wildflower-rich grassland (see **Map 6**), and new tree planting in this area will include native species associated with supporting high insect biomass such as Oak, Ash and Hazel. It would also be beneficial to have fast growing species such as Silver Birch to establish quickly. Additionally, the proposed SUDs attenuation pool and swales will be sown with an appropriate wildflower mix to support further insect fauna for foraging bats. This new habitat creation will ensure there is no reduction in the foraging resource available for the bat assemblage.

4.15 Overall, the above mitigation measures will reduce the site clearance and construction phase impacts to being **not significant.**

Assessment of Impacts and Mitigation - Operational Phase

4.16 The development will result in the loss of the greenhouses and polytunnels inside of which have been identified as foraging areas for Serotine and Long-eared bats. There will also be an increase in lighting around the site from carparking, housing and street lamps. The following mitigation is therefore required;

- Lighting strategy to include measures such as;
    - Elimination of superfluous lighting that is not necessary for the development, beyond public health and safety requirements, aided by the use of hoods and baffles on street lamps and use of low transmittance window glass on windows facing onto open space and boundaries to reduce domestic light spill; and
    - Maintenance of dark corridors along site boundaries insofar as possible to maintain connectivity with the wider landscape.

4.17 The above mitigation measures will reduce the operational phase impacts on the bat assemblage to being **not significant.**

Summary of Residual Effects and Compensation

4.18 As mitigation is expected to reduce all likely significant impacts on bats to the point where they are **not significant**, no compensation is required.

Summary of Impact Assessment

4.19 **Table 4.1** below provides a summary of the potential impacts of the Proposed Development on Important Ecological Features, opportunities for impact avoidance and mitigation, or compensation where significant residual effects have the potential to remain.

Table 4.1: Summary of Impact Assessment.

Feature	Importance	Unmitigated Impacts	Mitigation	Significance of Residual Effects	Compensation
Site Clearance and Construction Phase					
Boundary Features	Local	Accidental damage/destruction of trees and hedges causing them to die back	Protective buffers around hedgerows and trees using heras fencing	Not significant	None
Bat Assemblage	Local	Destruction of bat roosts in buildings resulting in the killing/injury of roosting bats Disturbance of roosting bats via noise and lighting Loss/fragmentation of foraging and commuting habitats	Pre-demolition dusk survey immediately prior to works beginning Delivery of bat toolbox talk to all personnel working onsite Installation of at least 2 bat boxes prior to the works Supervised soft strip of relevant buildings prior to demolition under an EPSL (to avoid hibernation season which is **October – March** inclusive) Implementation of lighting strategy within CEMP Restrict working schedule to daylight hours only – to be specified in the CEMP	Not significant	

			Install a protective buffer zone around confirmed bat roosts and sensitive habitat features to allow continuation of use by bats during the construction phase Installation of a compensatory pipistrelle roost box Provision of new foraging habitats within Public Open Space area		
Operational Phases					
Designated Sites	International / National	Recreational pressure from residents of new dwellings pursuing activity such as dog walking (in particular with the potential to affect the Wealden Heaths Phase II SPA	To be determined	N/A	N/A
Boundary Features	Local	Damage to boundary habitat features through dumping of waste/litter and release of non-native invasive species	None – potential for reduction of occurrence due to change in use	None	None
Bat Assemblage	Local	Disturbance of the bat assemblage from lighting ensuing from the new development	Implementation of Lighting strategy	Not significant	None

5. BIODIVERSITY NET GAIN

Introduction

5.1 This section describes the way in which the Proposals can achieve biodiversity net gain alongside development, in accordance with the relevant National and Local biodiversity policies and strategies summarised at **Appendix 1**.

5.2 In addition to the impact avoidance, mitigation and compensation outlined above, the proposals offer the opportunity for delivering a significant net gain for biodiversity, in accordance with the aspirations of Section 15 the NPPF.

5.3 Additionally, the proposals for delivering a net gain in biodiversity have been designed to help to deliver the following aspirations of the Hampshire Biodiversity Action Plan;

- Enhancement and restoration of species rich hedgerows within the site.

5.4 The measures that will deliver a biodiversity net gain are outlined below and illustrated on **Map 6** and **will be secured by condition through the LEMP.**

Measures to Achieve a Net Gain

Hedgerows and Grasslands

5.5 Areas of grassland could be created with a diverse composition through the import of wildflower seed-rich green hay from a nearby local donor site, or appropriate seed mixes where a donor site is not available. This, combined with subsequent long-term management to promote establishment of wildflowers will increase both floral diversity and invertebrate populations which will provide a valuable food source for birds and bats.

5.6 The grassland will be managed by mechanical cutting, with no more than two cuts per annum – one in Spring if required due to vigorous grass growth (April to May) and a second cut in late summer (mid-July to August). All arisings will be added to the habitat piles on site.

5.7 Hedgerows gaps should be planted up with appropriate native species of local provenance. This also presents an opportunity to diversify the more species-poor hedgerows with additional planting of both of woody species and of native climbers and ground flora. Thereafter, traditional management measures such as laying and coppicing would help to significantly increase the value of the existing hedgerow resource for nectar feeding invertebrates, small mammals, foraging birds and bats.

Species-Specific Enhancements

5.8 Installation of at least four Scwhegler or similar bat boxes to be positioned on retained mature trees. These can be bought in a range of designs and should be in addition to the boxes recommended for compensation.

- Up to four bat access tiles or integrated bat boxes will be installed within the new buildings to provide further roosting opportunities for Pipistrelle bats (see Map 6 for suggested locations and numbers)

- Up to four Schwegler or similar bird boxes also to be located within the wooded boundary
- At least one habitat pile for hibernating reptiles and amphibians, these can be created using materials left over from any vegetation clearance works
- Fences between residential gardens should be equipped with ‘hedgehog gates’ in the gravel board of the fences, which enable hedgehogs to move between gardens to forage.

6. CONSEQUENCES FOR DECISION MAKING

6.1 This EcIA has predicted that, subject to the implementation of the impact avoidance, mitigation and compensation measures set out in **Section 4**, the Proposed Development will not have any significant negative residual effects on Important Ecological Features, and will conform to all applicable nature conservation related legislation and policy, as set out at **Appendix 1.** This includes;

- The Conservation of Habitats and Species Regulations 2017;
- The Wildlife and Countryside Act 1981 (as amended);
- The Protection of Badgers Act 1992;
- The Countryside and Rights of Way (CROW) Act 2000;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- National Planning Policy Framework (2021), Section 15 Conserving and enhancing the natural environment;
- East Hampshire District Council Local Plan, Part 1, Joint Core Strategy; and
- South Downs National Park Authority Local Plan.

6.2 In relation to the Internationally designated sites this is subject to a solution being developed based on either SAMM, SANG or a WHIP (Wealden Heaths Infrastructure Project). Following the implementation of the agreed solution, there should be no net increase in recreational pressure on the Wealden Heaths Phase II SPA and consequently no adverse effect on the integrity of any Internationally designated site, either from the project alone or in combination with other plans and projects

Summary of Mechanisms to Secure Impact Avoidance, Mitigation and Compensation Measures

6.3 The following strategies, which will be secured by planning conditions and/or obligations, will be required to ensure the successful implementation of the impact avoidance, mitigation and compensation measures set out in **Section 4**:

- A Construction Environmental Management Plan (CEMP);
- A Lighting Strategy; and
- A Landscape and Ecology Management Plan (LEMP)

6.4 In order to demolish buildings A, B and C lawfully, a European Protected Species Licence for bats will be required post planning consent. Further update survey work may be required by Natural England in order to grant the licence depending on the age of the current survey data at the point of commencement of works. Survey data can typically be valid for up to 2 years however this will need to be reviewed following advice given by Natural England.

6.5 It is anticipated that the mitigation advice given in this report with regards to provision of compensatory roosts is not likely to change in the foreseeable future and should be incorporated into any future plans for the site.

6.6 Further advice is provided in **Section 7** below, in relation to legal requirements pertaining to species protection, where these do not amount to potentially significant impacts on important ecological features and have therefore not already been addressed above.

Biodiversity Net Gain

6.7 In accordance with national and local policy, the Proposed Development will deliver biodiversity enhancements which go above and beyond the measures required to avoid, mitigate and/or compensate for the potential impacts described in **Section 4**, as described in **Section 5**, thereby delivering biodiversity net gain. The enhancement measures are intended to benefit known features of ecological importance present within the ZoI, as well as biodiversity in general, and to contribute towards targets set out within the Hampshire Biodiversity Action Plan. Key deliverables include:

- Enrichment and preservation of existing habitats around the site such as hedgerows and grassland via native planting.
- Provision of wildlife boxes and habitat piles to encourage a more diverse species assemblage onto the site.

7. LEGAL CONSIDERATIONS

7.1 Should planning permission be granted for the Proposed Development, the following legal considerations will apply, in accordance with the following items of legislation:

- The Conservation of Habitats and Species Regulations 2017;
- The Wildlife and Countryside Act 1981 (as amended); and
- The Protection of Badgers Act 1992.

Great Crested Newts (GCN)

7.2 Although likely absence of this species is confirmed on the site and nearby waterbodies within the zone of influence, it is considered that transient individuals may possibly utilise the habitats available on a very occasional basis for hibernation or shelter outside of breeding season. which is typically October to February inclusive.

7.3 Due to the protection afforded to this species under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Conservation of Habitats and Species Regulations 2017 (as amended), a precautionary destructive search of features considered suitable for hibernating amphibians is recommended. Such features include; compost heaps, log piles, paving slabs with gaps underneath. Should GCN be unexpectedly encountered, work will need to stop and Natural England contacted for advice. In such circumstances it may be necessary to apply to Natural England for a European Protected Species Licence (EPSL) to enable works to continue lawfully, as outlined further in **Appendix 1.**

Reptiles

7.4 All four of the widespread British species of reptile, namely the Common Lizard, Slow Worm, Grass Snake and Adder, are Species of Principal Importance in England (listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006). They are protected under Schedule 5 (Sections 9.1, 9.5a, 9.5b) of the Wildlife & Countryside Act 1981 (as amended) from intentional or reckless killing, injury and trade (see **Appendix 1** for further details).

7.5 As small numbers of Slow Worms were found upon the surveys it is therefore necessary to implement precautionary site clearance measures under ecological supervision. Such measures can include;

- Delivery of toolbox talk to all personnel on site prior to site clearance works commencing
- A supervised destructive search of reptile habitats to incorporate the following steps:
    - Reduction of any above ground vegetation with a sward height greater than 10cm using strimmers/brushcutters.
    - Careful phased removal of topsoil using an excavator with a toothed bucket
    - Any reptiles found during the search will be removed to safety away from the works, e.g. retained edge habitats

- Spoil heaps will not be left to vegetate and will be removed from site or flattened following the completion of the search

- The search will only be carried out in the active season for reptiles (March – October) and will avoid adverse weather conditions such as heavy rain, wind or snow.

Nesting Birds

7.6 In order to avoid infringing the legal protection afforded to nesting birds, it is recommended that, where possible, all vegetation over 50cm in height is removed outside of the bird nesting season (March to August inclusive). Where this is not possible, the vegetation in question should be subject to a nesting bird check by an experienced ecologist not longer than 24 hours prior to clearance. If an active nest is discovered, it should be left in situ behind an appropriately sized protected area (to be advised by the ecologist) until any young have fledged the nest.

Badgers

7.7 No setts have been found within the area likely to be directly affected by the proposals. However, as Badgers are a highly mobile species it is recommended that an update check is carried out on the site if left undisturbed for a long period of time following vacant possession. If any new active Badger setts are found in an area that would be affected, then it may be necessary to apply to NE for a licence to close the sett.

7.8 Additionally, as Badgers are likely to be passing through the construction zone at night, care should be taken to avoid accidentally entrapping them in excavations. Such excavations should either be covered over overnight, or a suitable plank of wood placed into the hole to enable Badgers to escape.

8. REFERENCES

Bat Conservation Trust (2016) *Bat Surveys for Professional Ecologists – Good Practice Guidelines.*

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

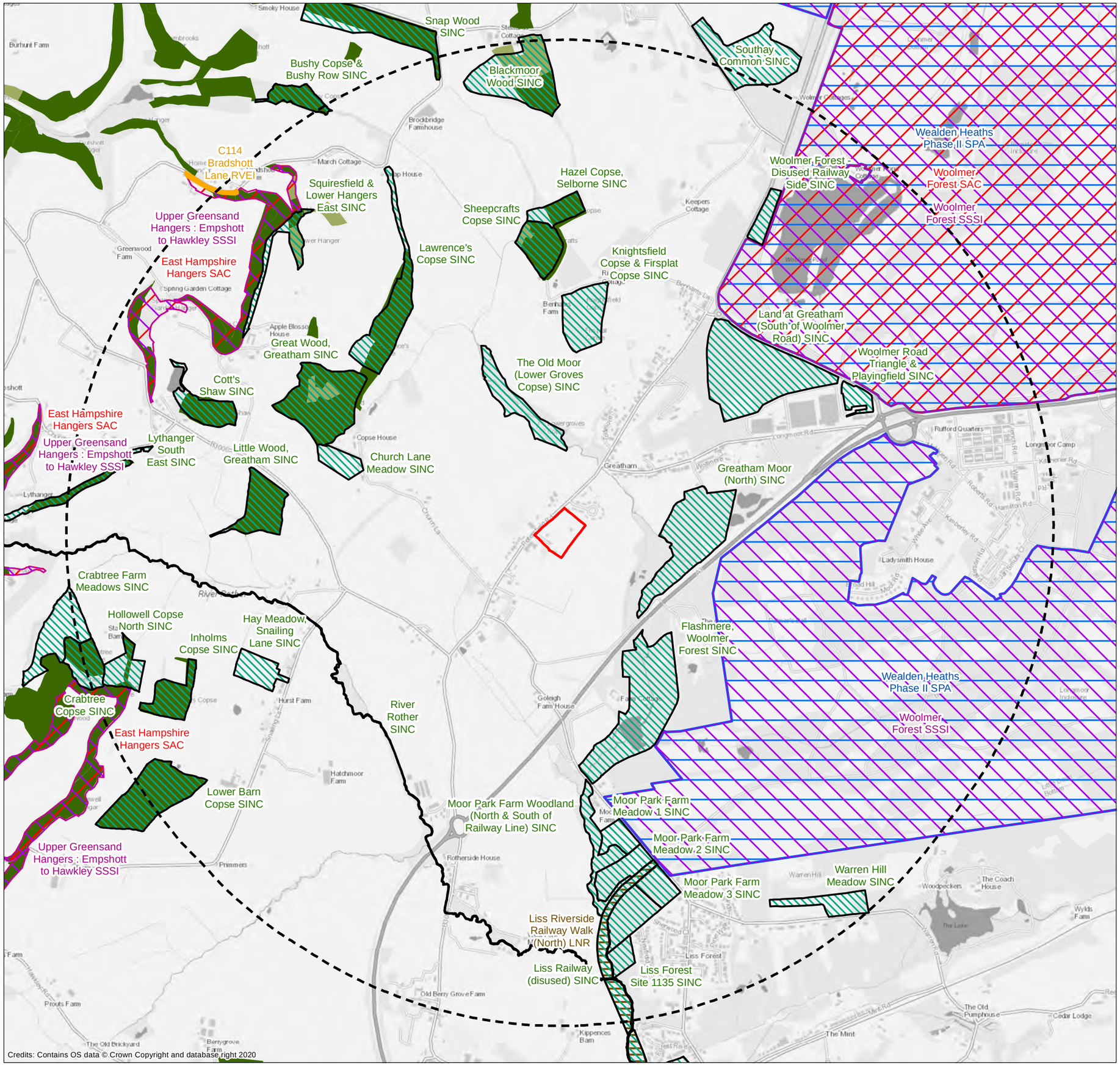
Department for Communities and Local Government (2019). *National Planning Policy Framework.*

East Hampshire District Council (2014) Local Plan, Part 1, Joint Core Strategy

English Nature (2004). *Bat Mitigation Guidelines.*

Froglife (1999). Reptile survey: and introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

South Downs National Park Authority (2017) Local Plan, Adopted July 2019.



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MAP 1 Site Location & Nature Conservation Designations

KEY

- Site boundary
- 2km linear distance from site boundary

Non-Statutory Sites

- Site of Nature Conservation Interest (SINC)
- Road Verges of Ecological Importance (RVEI)
- Ancient & Semi-Natural Woodland
- Ancient Replanted Woodland

Statutory Sites

- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)
- Sites of Special Scientific Interest (SSSI)
- Local Nature Reserves (LNR)

SCALE: 1:16,000 at A3

0 250 500 750 1,000 Metres

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CLIENT: Cove Construction Ltd

PROJECT: Liss Forest

DATE: 23 July 2021

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P17/36

MAP 1a Protected and Notable Species

KEY

Site Boundary

2km Linear Distance to Site Boundary

Herptiles

- Adder
- Common Lizard
- Grass Snake
- Great Crested Newt
- Natterjack Toad
- Sand Lizard
- Slow-worm
- Smooth Snake

Bats

- Brown Long-eared
- Long-eared Spp
- Noctule
- Common Pipistrelle
- Pipistrelle Spp
- Serotine
- Soprano Pipistrelle
- Myotis Spp
- Whiskered Bat

Mammals

- Brown Hare
- Badger
- European Otter
- Harvest Mouse

SCALE: 1:18,000 at A3

0 250 500 750 1,000 Metres

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Ecological Planning & Research

CLIENT: Coves Homes

PROJECT: Liss Forest

DATE: October 2017

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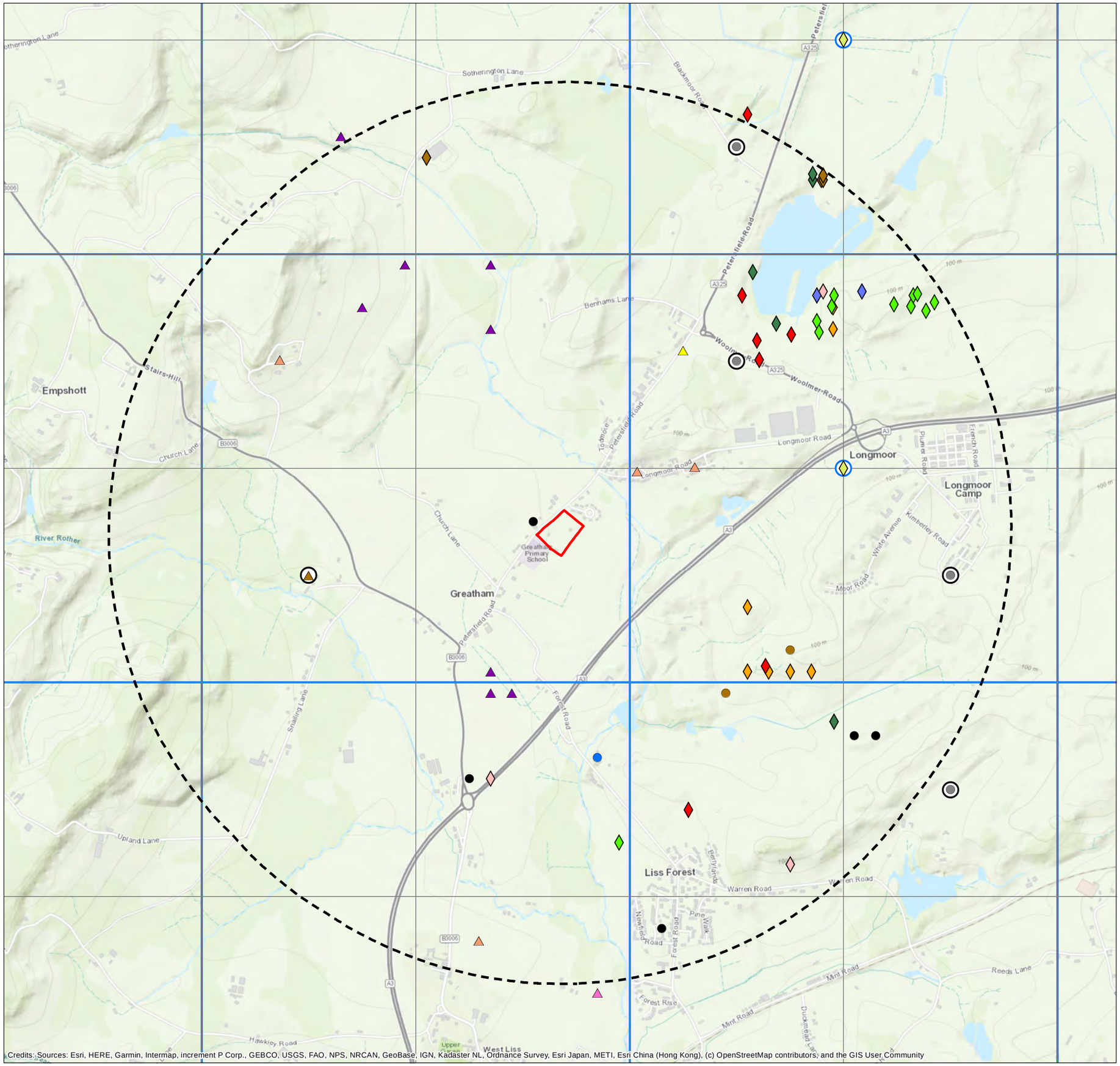

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MAP 1b Protected & Notable Species - Herptiles, Invertebrates & Mammals

KEY

- Site boundary
- 2km linear distance from site boundary

Amphibians & Reptiles

- Adder
- Common toad
- Common lizard
- Grass snake
- Great crested newt
- Natterjack toad
- Sand lizard
- Slow-worm

Invertebrates

- Grayling
- Silver-studded Blue
- Stag Beetle
- Wood Tiger Beetle

Mammals

- Brown Hare
- European Otter
- Harvest Mouse
- West European Hedgehog
- Yellow-necked Mouse

- Record accurate to 1km grid square
- Record accurate to 2km grid square
- 1km grid
- 2km grid

SCALE: 1:17,500 at A3

0 250 500 750 1,000 Metres

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CLIENT: Cove Construction Ltd

PROJECT: Liss Forest

DATE: 23 July 2021

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P17/36

MAP 1c Protected & Notable Species - Birds

KEY

- Site boundary
- 2km linear distance from site boundary
- Black Redstart
- Common (Mealy) Redpoll
- Cuckoo
- Dartford Warbler
- Eurasian Skylark
- Fieldfare
- House Sparrow
- Lesser Redpoll
- Linnet
- Mistle Thrush
- Nightjar
- Redwing
- Siskin
- Song Thrush
- Spotted Flycatcher
- Starling
- Woodlark
- Record accurate to 1km grid square
- 1km grid

SCALE: 1:17,500 at A3

0 250 500 750 1,000 Metres

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CLIENT: Cove Construction Ltd

PROJECT: Liss Forest

DATE: 23 July 2021

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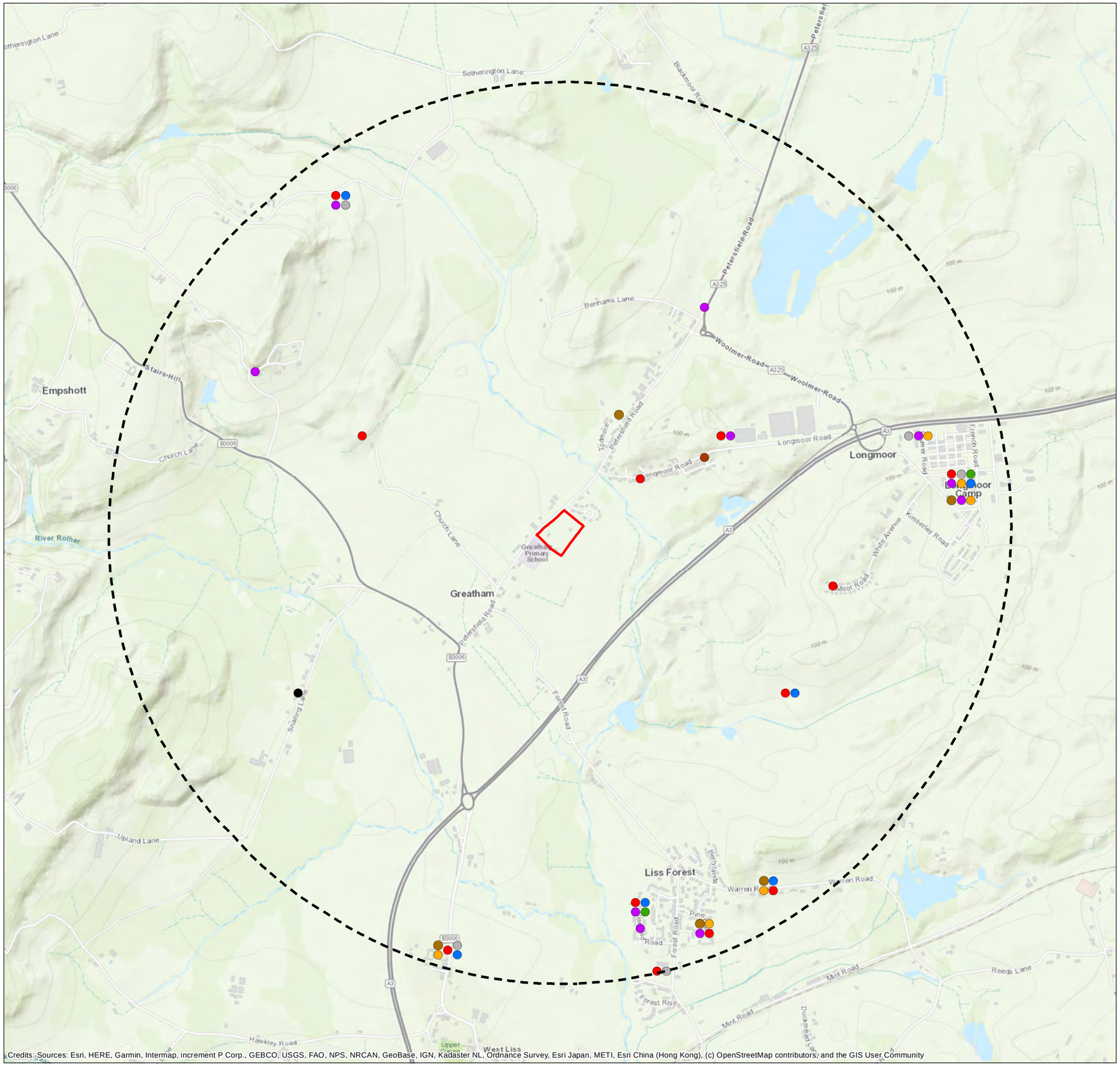

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MAP 1d Protected & Notable Species - Bats

KEY

- Site boundary
- 2km linear distance from site boundary
- Brown Long-eared bat
- Common Pipistrelle
- Long-eared bat species
- Noctule Bat
- Pipistrelle Bat Species
- Serotine
- Soprano Pipistrelle
- Unidentified Bat
- Whiskered Bat

SCALE: 1:17,500 at A3

0 250 500 750 1,000 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest

DATE: 23 July 2021

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P17/36

MAP 2 Habitats and Features

KEY

- Site Boundary
- Scattered Broadleaved Trees
- Target Note
- Amenity Grassland
- Buildings
- Conifer Hedge
- Greenhouses
- Hardstanding
- Hedgerow
- Improved Grassland
- Mature oak tree line
- Open Plant Storage
- Ornamental Planting & Shrubs
- Polytunnel

SCALE: 1:800 at A3

0 10 20 30 40 50 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest

DATE: 23 July 2021

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P17/36

MAP 3 Building Bat Roost Suitability

KEY

- Site Boundary
- Confirmed roosts
- Low suitability

SCALE: 1:800 at A3

0 10 20 30 40 50 Metres

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EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest

DATE: 23 July 2021

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P17/36

MAP 3a Building A - Dawn Bat Survey Results 12/07/2018

KEY

- Site boundary
- Building
- Common Pipistrelle (heard not seen)
- Noctule (heard not seen)
- Serotine (heard not seen)
- Soprano Pipistrelle observed flight
- Pipistrelle species observed flight
- Long-eared observed flight
- Emergence / Re-entry
- (c) Commuting
- (f) Foraging
- (p) Pass
- (s) Social calling

SCALE: 1:300 at A3

0 5 10 15 20 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Batmi2021\Map3a_Building_A_Dawn_Bat_Survey_120718_P1736_230721.mxd

P17/36

MAP 3b Building A - Dusk Bat Survey Results 01/05/2018

KEY

- Site boundary
- Building
- Common Pipistrelle (heard not seen)
- Myotis species (heard not seen)
- Common Pipistrelle observed flight
- Soprano Pipistrelle observed flight
- Long-eared observed flight
- Emergence / Re-entry
- (f) Foraging
- (p) Pass
- (s) Social calling
- x3 Number of bats

SCALE: 1:300 at A3

0 5 10 15 20 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Batsl2021\Map3b_Building_A_Dusk_Bat_Survey_010518_P1736_230721.mxd

P17/36

MAP 3c Building A - Dusk Bat Survey Results 21/08/2018

KEY

- Site boundary
- Building
- Serotine (heard not seen)
- Common Pipistrelle observed flight
- Long-eared observed flight
- Emergence / Re-entry
- (c) Commuting
- (f) Foraging
- (p) Pass
- (s) Social calling
- x3 Number of bats

SCALE: 1:300 at A3

0 5 10 15 20 Metres

N

EPR

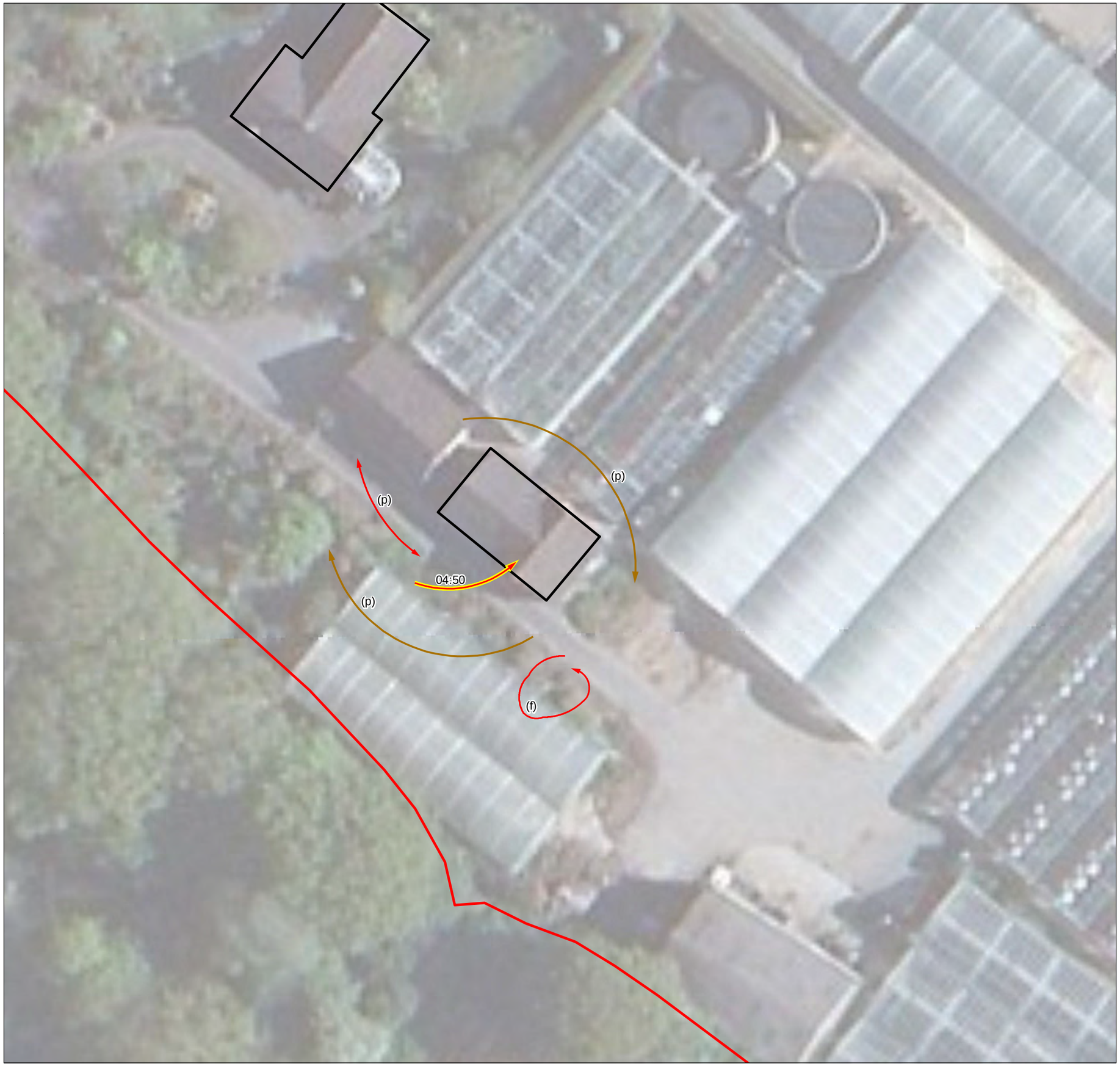
CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Batst\2021\Map3c_Building_A_Dusk_Bat_Survey_210818_P1736_230721.mxd

P17/36



MAP 3d Building C - Dawn Bat Survey Results 25/05/2018

KEY

- Site boundary
- Building
- Common Pipistrelle observed flight
- Long-eared observed flight
- Emergence / Re-entry
- (f) Foraging
- (p) Pass

SCALE: 1:300 at A3

0 5 10 15 20 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Batt\2021\Map3d_Building_C_Dawn_Bat_Survey_250518_P1736_230721.mxd

MAP 3e Building C - Dusk Bat Survey Results 11/07/2018

KEY

- Site boundary
- Building
- Serotine (heard not seen)
- Common Pipistrelle observed flight
- Soprano Pipistrelle observed flight
- Long-eared observed flight
- Emergence / Re-entry
- (f) Foraging
- (p) Pass
- x3 Number of bats

SCALE: 1:300 at A3

0 5 10 15 20 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Bats\2021\Map3e_Building_C_Dusk_Bat_Survey_110718_P1736_230721.mxd

P17/36

MAP 3f Building C - Dusk Bat Survey Results 21/08/2018

KEY

- Site boundary
- Building
- Noctule (heard not seen)
- Common Pipistrelle observed flight
- Long-eared observed flight
- Serotine observed flight
- (c) Commuting
- (f) Foraging
- (p) Pass
- (s) Social calling

SCALE: 1:300 at A3

0 5 10 15 20 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Bats\2021\Map3f_Building_C_Dusk_Bat_Survey_210818_P1736_230721.mxd

MAP 3g Building D - Dusk Bat Survey Results 21/08/2018

KEY

- Site boundary
- Building
- Common Pipistrelle observed flight
- Long-eared observed flight
- Serotine observed flight
- (f) Foraging
- (p) Pass

SCALE: 1:300 at A3

0 5 10 15 20 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Bats\2021\Map3g_Building_D_Dusk_Bat_Survey_210818_P1736_230721.mxd

P17/36

MAP 3h Building D - Dawn Bat Survey Results 25/05/2018

KEY

- Site boundary
- Building
- Common Pipistrelle (heard not seen)
- Long-eared species (heard not seen)
- Common Pipistrelle observed flight
- Long-eared observed flight
- (f) Foraging

SCALE: 1:300 at A3

0 5 10 15 20 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Batsl2021\Map3h_Building_D_Dawn_Bat_Survey_250518_P1736_230721.mxd

P17/36

MAP 3i Building E - Dusk Bat Survey Results 21/08/2018

KEY

- Site boundary
- Building
- Common Pipistrelle observed flight
- Long-eared observed flight
- (f) Foraging
- (p) Pass
- x3 Number of bats

SCALE: 1:300 at A3

0 5 10 15 20 Metres

N

EPR

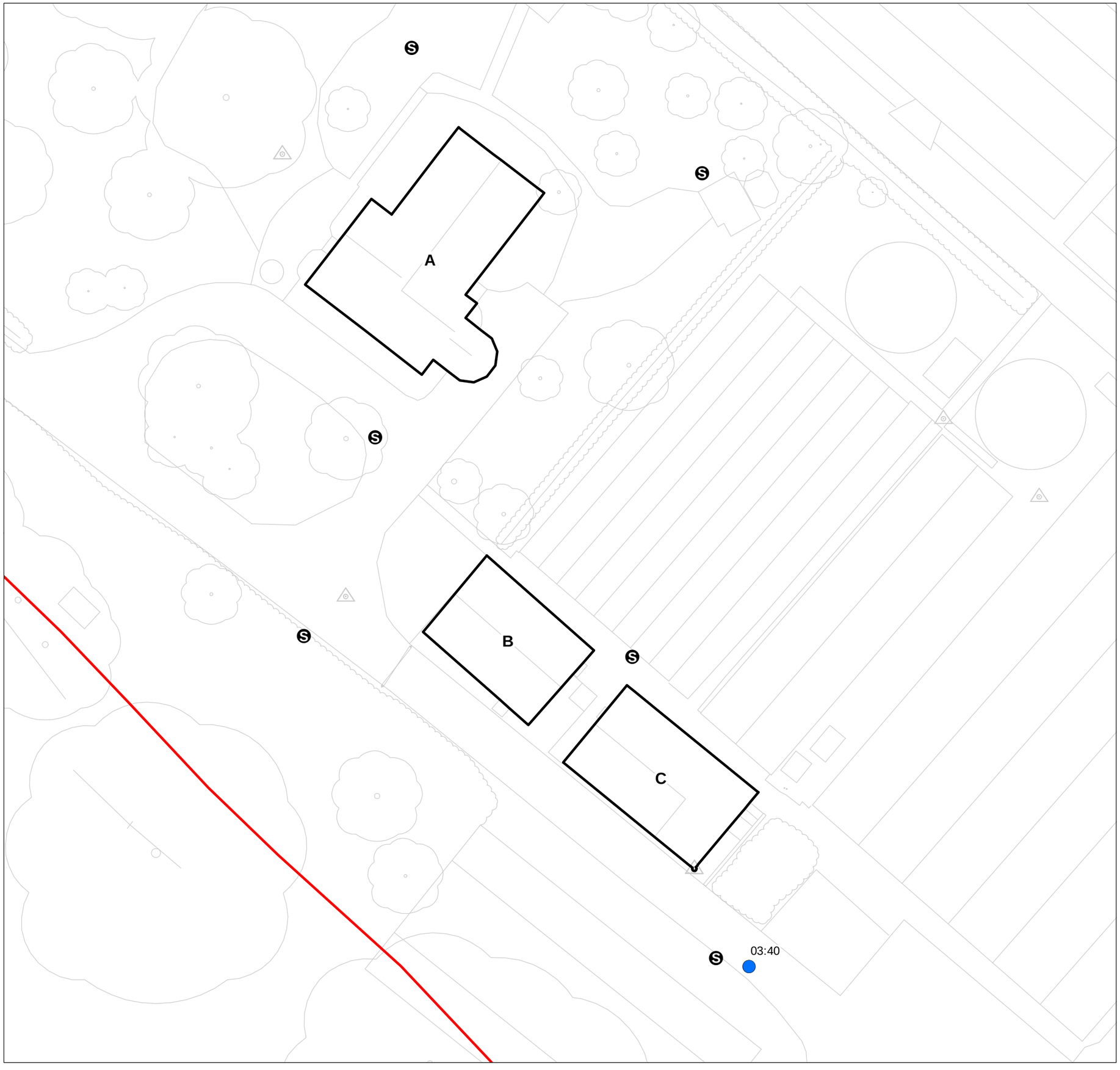
CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Batst\2021\Map3i_Building_E_Dusk_Bat_Survey_210818_P1736_230721.mxd

P17/36



MAP 3j Summary of Bat Re-entry Survey, Buildings A, B & C - 28th May 2021

KEY

- Site Boundary
- Building (with ID)
- Soprano Pipistrelle heard not seen
- Surveyor position

SCALE: 1:250 at A3

0 2.5 5 7.5 10 Metres

N

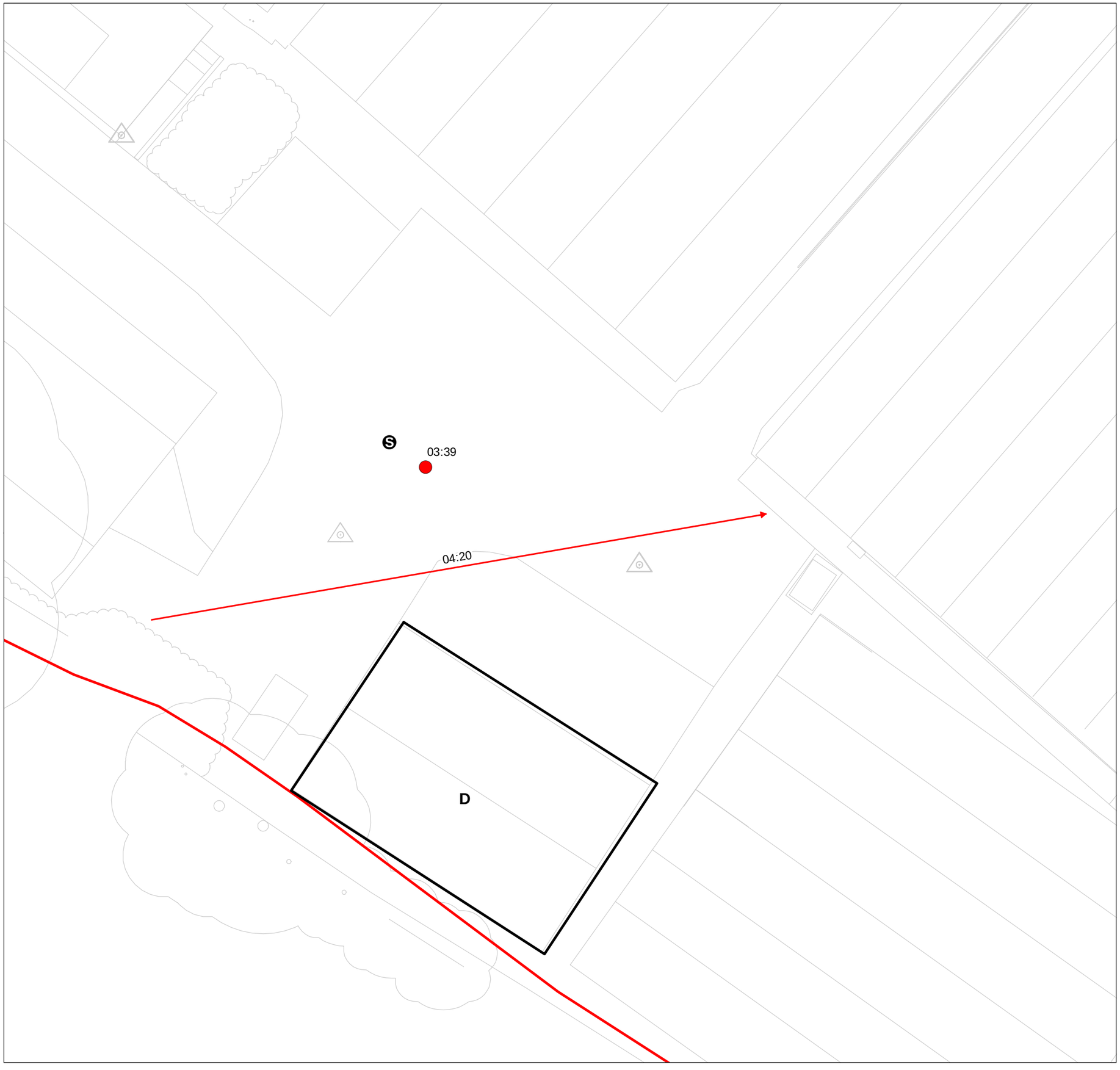
EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Batsl2021\Maps\j_BatReentry_BuildingsABC_P1736_230721.mxd



MAP 3k Summary of Bat Re-entry Survey, Building D - 28th May 2021

KEY

- Site Boundary
- Building (with ID)
- Common Pipistrelle observed flight
- Common Pipistrelle heard not seen
- Surveyor position

SCALE: 1:175 at A3

0 2.5 5 7.5 10 Metres

N

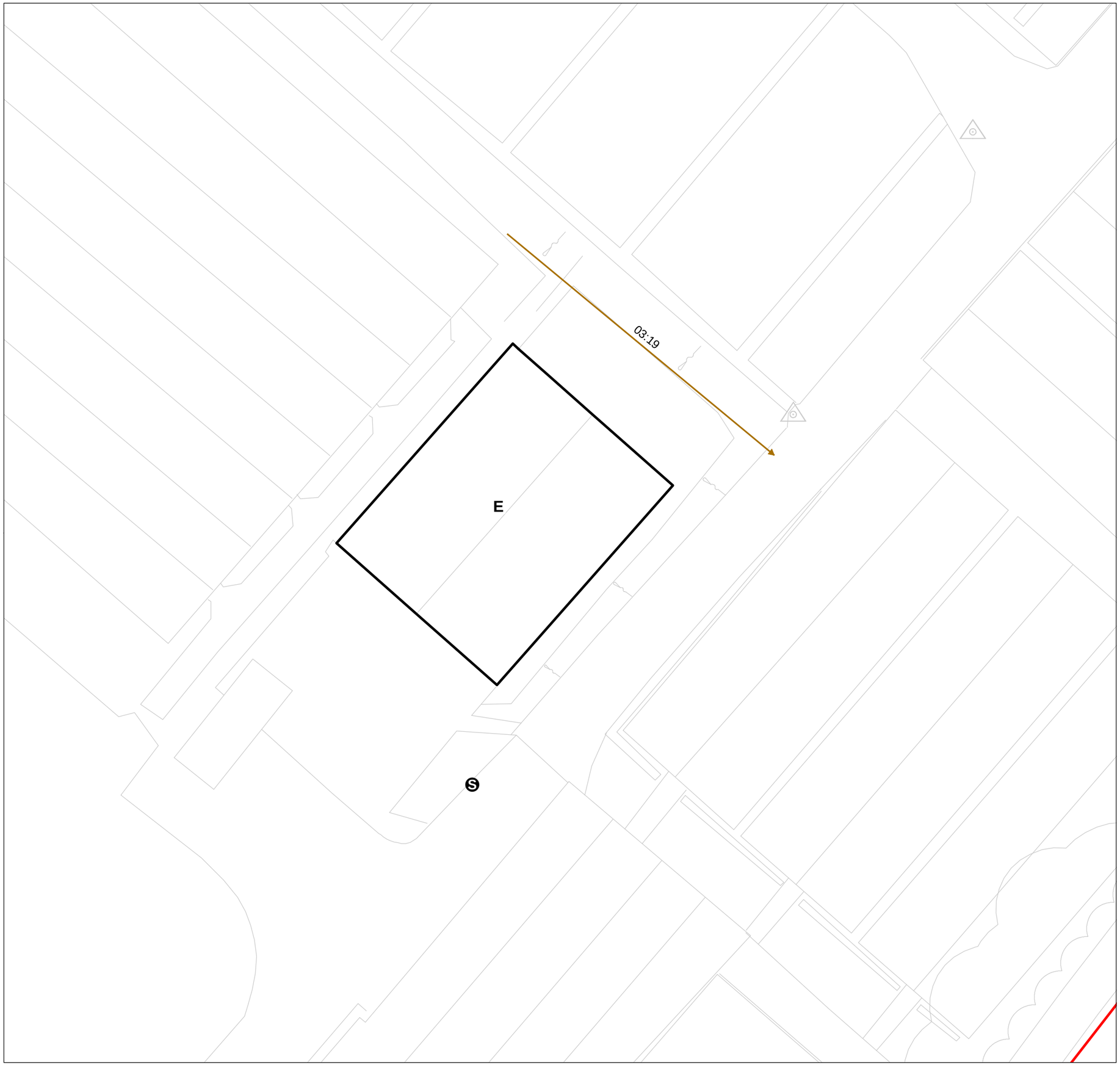
EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Batts\2021\Map3k_BatReentry_BuildingD_P1736_230721.mxd



MAP 3l Summary of Bat Re-entry Survey, Building E - 28th May 2021

KEY

- Site Boundary
- Building (with ID)
- Brown Long-eared bat observed flight
- Surveyor position

SCALE: 1:175 at A3

0 2.5 5 7.5 10 Metres

N

EPR

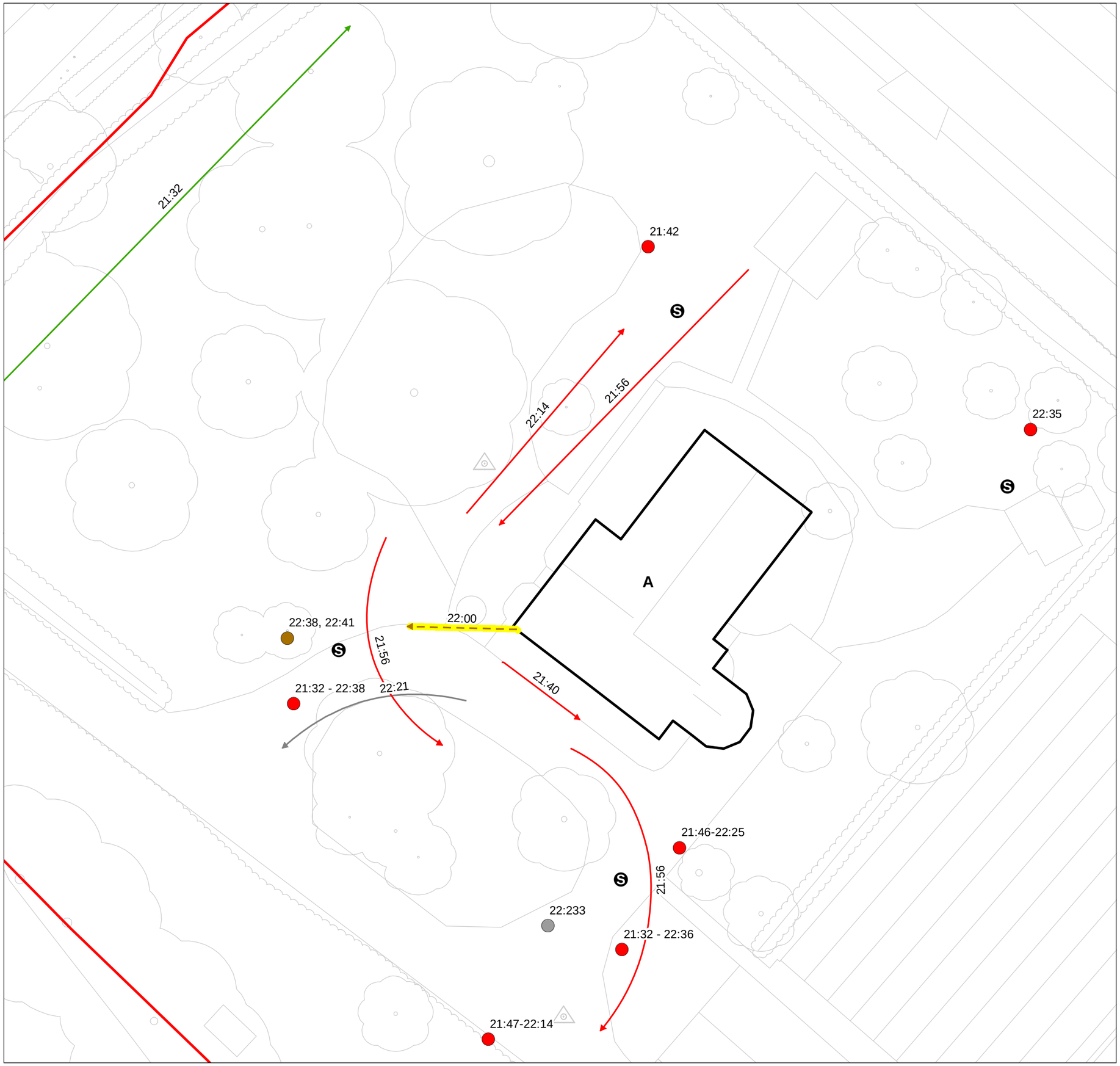
CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Batsl\2021\Map3ll_BatReentry_BuildingE_P1736_230721.mxd

P17/36



MAP 3m Summary of Bat Emergence Survey, Building A - 30th June

KEY

- Site Boundary
- Building (with ID)
- Brown Long-eared bat observed flight
- Brown Long-eared bat presumed flight
- Noctule observed flight
- Common Pipistrelle observed flight
- Unidentified bat observed flight
- Emergence/Re-entry
- Brown Long-eared bat heard not seen
- Common Pipistrelle heard not seen
- Unknown bat species heard not seen
- Surveyor Position

SCALE: 1:200 at A3

0 2.5 5 7.5 10 Metres

N

EPR

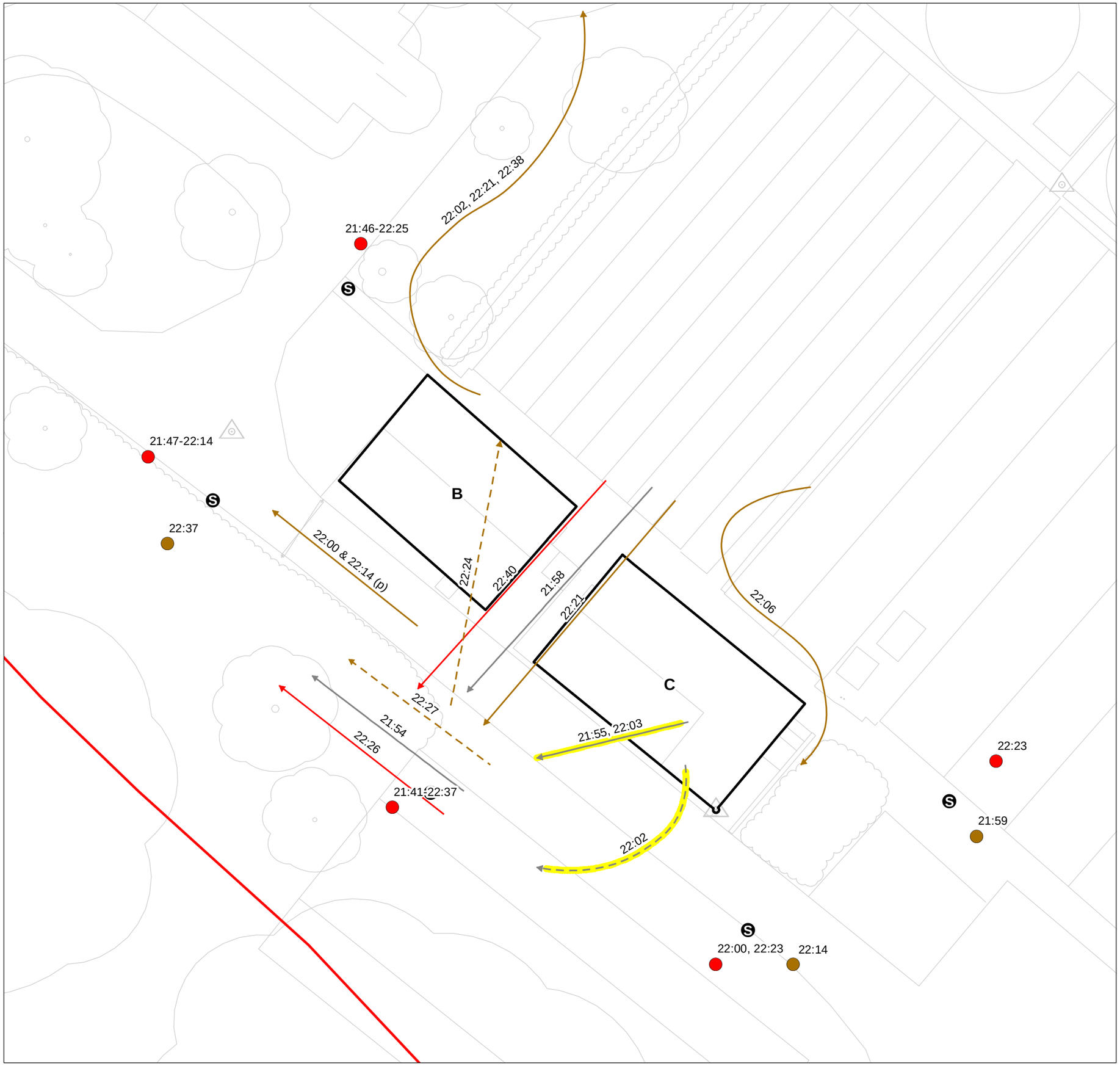
CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Bats\2021\Map3m_BatEmergence_BuildingA_P1736_230721.mxd

P17/36



MAP 3n Summary of Bat Emergence Survey, Buildings B & C - 30th June 2021

KEY

- Site Boundary
- Building (with ID)
- Common Pipistrelle observed flight
- Brown Long-eared bat observed flight
- Brown Long-eared bat presumed flight
- Unidentified bat observed flight
- Unidentified bat presumed flight
- Emergence/Re-entry
- Brown Long-eared bat heard not seen
- Common Pipistrelle heard not seen
- Surveyor Position

SCALE: 1:180 at A3

0 2.5 5 7.5 10 Metres

N

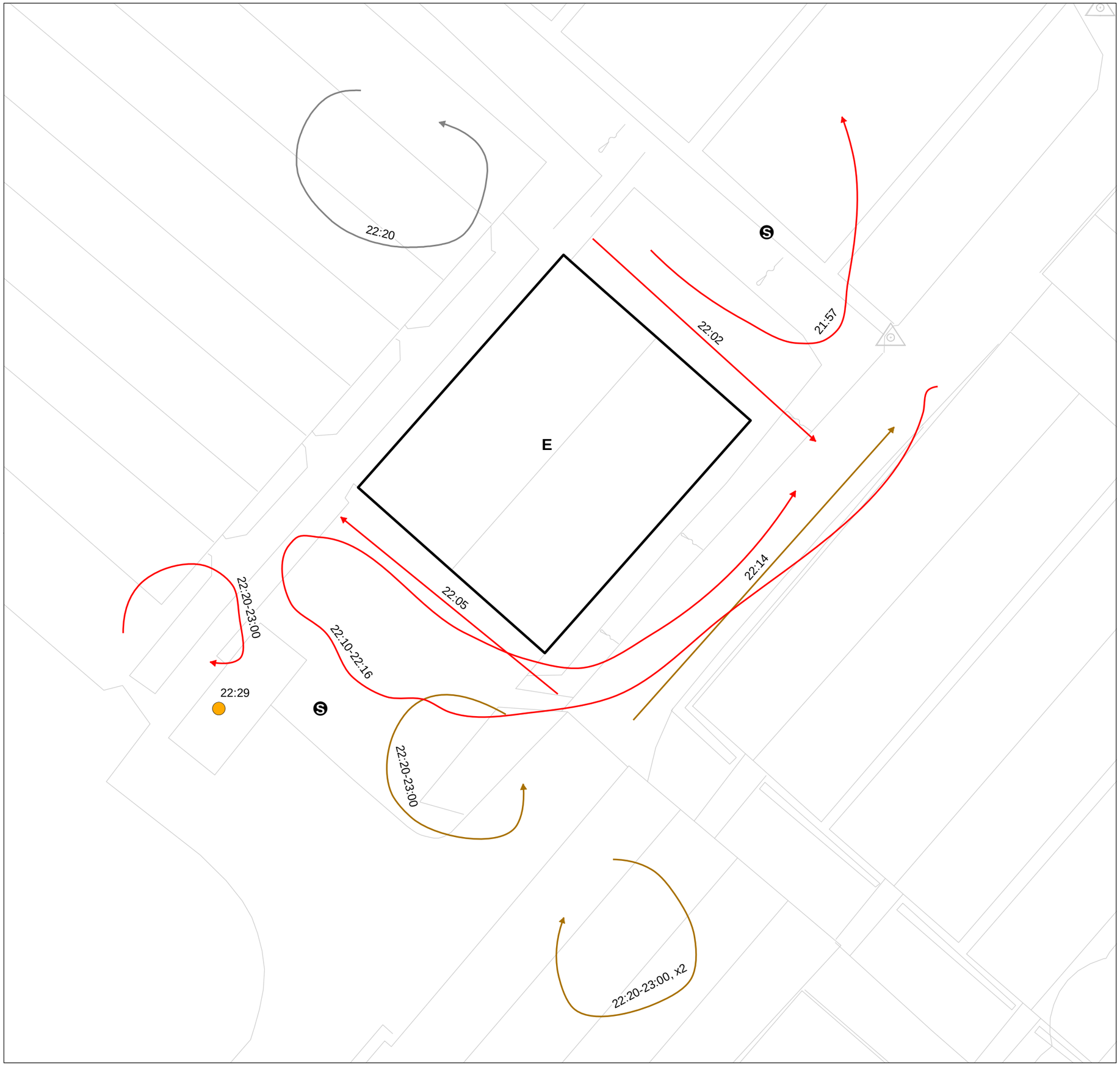
EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Batt\2021\Map3n_BatEmergence_Buildings\B_C_P1736_230721.mxd



MAP 3o Summary of Bat Emergence Survey, Building E - 30th June 2021

KEY

- Site Boundary
- Building (with ID)
- Brown Long-eared bat observed flight
- Common Pipistrelle observed flight
- Unknown bat species observed flight
- Serotine heard not seen
- Surveyor Position

SCALE: 1:150 at A3

0 2.5 5 7.5 10 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Bats\2021\Map3o_BatEmergence_BuildingE_P1736_230721.mxd

MAP 4 Bat Transect Survey Results Summary (May, July, August 2018)

KEY

- Site boundary
- Buildings (with ID)
- (A) Static detector
- Common Pipistrelle observed flight
- Soprano Pipistrelle observed flight
- Long-eared observed flight
- (c) Commuting
- (f) Foraging
- (p) Pass
- (s) Social calling
- x3 Number of bats

SCALE: 1:800 at A3

0 10 20 30 40 50 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

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P17/36

MAP 4a Summary of Bat Activity Survey - 30th June 2021

KEY

- Site boundary
- Buildings (with ID)
- Common Pipistrelle observed flight
- Soprano Pipistrelle observed flight
- Brown Long-eared bat observed flight
- Serotine observed flight
- (f) Foraging

SCALE: 1:800 at A3

0 10 20 30 40 50 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

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P17/36

MAP 5 Badger Survey Results 2018

KEY

- Site Boundary
- Fox den
- Rabbit burrow
- Rabbit burrow/Fox den
- Mammal path

SCALE: 1:1,000 at A3

0 10 20 30 40 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

Y:\Liss_Forest_Nurseries\GIS\Badgers\2021\Map5_Badger_Survey_Results_2018_P1736_230721.mxd

P17/36

MAP 6 Proposed Mitigation Compensatory and Enhancement Features

KEY

- Site boundary
- Compensatory Pipistrelle roost box
- Bat access tiles or integrated bat boxes
- Proposed enhancement bat boxes
- Proposed enhancement bird boxes
- Hedgehog gates
- Reptile habitat pile
- Approximate location of existing bat roosts
- Areas to be planted with wildflower and grass seed mix

SCALE: 1:800 at A3

0 10 20 30 40 50 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

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P17/36

Site Layout (37 Units) Planning Layout, Carlton Design Partnership, 150715/SL37/01 Rev Z6, 23 June 2021

MAP 7 Dormouse Tube/Reptile Refugia Locations and Survey Results 2018

KEY

- Site boundary
- Dormouse tubes

Retile refugia

- Felt
- Onduline
- Tin

Reptile Survey Results

- 2 x Slowworms (1x Female / 1 x Male)

SCALE: 1:850 at A3

0 10 20 30 40 50 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

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P17/36

MAP 8 Locations of Waterbodies within 500m

KEY

- Site boundary
- 500m buffer of site boundary
- Waterbody

SCALE: 1:4,500 at A3

0 50 100 150 200 Metres

N

EPR

CLIENT: Cove Construction Ltd

PROJECT: Liss Forest Nursery

DATE: 23 July 2021

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P17/36

Appendix 1
Relevant Legislation & Planning Policy

LEGISLATION

The Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) (known as the "Habitats Regulations") were originally drawn up to transpose the European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the "Habitats Directive") into UK legislation. Following the UK's exit from the European Union, the Habitats Regulations – as amended by Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – remain in force until such a time as they are superseded by new or updated domestic legislation.

The Habitats Regulations provide for the designation of both Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) in the UK, which previously formed part of the Natura 2000 network of protected areas across Europe and are now part of the UK's "National Sites Network". New National Sites may be designated under the Regulations.

The Regulations also prohibit certain actions relating to European Protected Species (EPS), which include *inter alia* Hazel Dormouse *Muscardinus avellanarius*, Great Crested Newt *Triturus cristatus*, European Otter *Lutra lutra* and all native species of bat.

Further information on SPAs, SACs and European Protected Species is provided in the relevant sub-sections of this Appendix.

Wildlife & Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 is the principal mechanism for the legislative protection of wildlife in Great Britain. Various amendments have occurred since the original enactment. Certain species of bird, animal and plant (including all of the European Protected Species listed above) are afforded protection under Schedules 1, 5 and 8 of the Act. Reference is made to the various Schedules and Parts of this Act (**Table A1.1**) in the section of this Appendix dealing with Legally Protected Species. The Act also contains measures for the protection of the countryside, National Parks, Sites of Special Scientific Interest (SSSIs) and public rights of way as well as preventing the establishment of invasive non-native species that may be detrimental to native wildlife.

Table A1.1: Relevant Schedules of the Wildlife & Countryside Act 1981 (as amended)

Schedule	Protected Species
Schedule 1 Part 1	Protects listed birds through special penalties at all times
Schedule 1 Part 2	Protects listed birds through special penalties during the close season
Schedule 5 Section 9.1 (killing/injuring)	Protects listed animals from intentional killing or injuring
Schedule 5 Section 9.1 (taking)	Protects listed animals from taking
Schedule 5 Section 9.2	Protects listed animals from being possessed or controlled (live or dead)
Schedule 5 Section 9.4a	Protects listed animals from intentional damage or destruction to any structure or place used for shelter or protection
Schedule 5 Section 9.4b	Protects listed animals from intentional disturbance while occupying a structure or place used for shelter or protection
Schedule 5 Section 9.5a	Protects listed animals from being sold, offered for sale or being held or transported for sale either live or dead, whole or part
Schedule 5 Section 9.5b	Protects listed animals from being published or advertised as being for sale
Schedule 8	Protects listed plants from: intentional picking, uprooting or destruction (Section 13 1a); selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative) (Section 13 2a); advertising (any of these) for buying or selling (Section 13 2b).
Schedule 9	Prohibits the release of species listed in the Schedule into the wild.
Schedule 9a	Allows environmental authorities to issue species control orders to landowners, obliging them to control/eradicate invasive and/or non-native species.

Further information on legally protected species, designated wildlife sites and invasive non-native species is provided in the relevant sub-sections of this Appendix.

Countryside & Rights of Way Act 2000

Many of the provisions of the Countryside and Rights of Way (CRoW) Act 2000 have been incorporated as amendments into the Wildlife and Countryside Act (1981) and some provisions have now been superseded by later legislation such as The Natural Environment and Rural Communities Act (2006).

The most relevant changes provided by the CRoW Act include the added protection given to SSSIs and other important sites for nature conservation. Importantly, under the Act it became a criminal offence to "recklessly disturb" Schedule 1 nesting birds and species protected under Schedule 5 of the Wildlife and Countryside Act. It also enabled heavier penalties on conviction of wildlife offences.

The Natural Environment and Rural Communities Act 2006

The Natural Environment and Rural Communities (NERC) Act 2006 was intended to raise the profile of biodiversity amongst all public authorities (including local authorities, and statutory undertakers) and to make biodiversity an integral part of policy and decision-making processes. The NERC Act also improved wildlife protection by amending the Wildlife and Countryside Act 1981.

Section 40 (S40) of the Act places a 'Biodiversity Duty' on all public bodies to have regard to the conservation of biodiversity when carrying out their normal functions. This includes giving consideration to the restoration and enhancement of species and habitats.

Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of Principal Importance for the conservation of biodiversity in England. This was published in 2007 and is commonly referred to as the "S41 list". Public authorities have a responsibility to give specific consideration to the S41 list when exercising their normal functions. For planning authorities, consideration for Species and Habitats of Principal Importance will be exercised through the planning and development control processes. Further information on Species and Habitats of Principal Importance is provided in the relevant sub-sections of this Appendix.

The Water Environment (Water Framework Directive) Regulations 2003

Currently, the overriding legislation relating to freshwater is the EU Water Framework Directive (WFD), which was enacted into law in England and Wales through the Water Environment Regulations in 2003. The Directive sets out objectives to deliver a better water environment based upon achieving a 'good status' for freshwater bodies. The new concept of 'good status' is a more rigorous measure of environmental quality than previous measures, which now takes into account not just the chemical status but also the ecological health and the extent of artificial physical modification to rivers.

The WFD is based upon the concept of protecting water through the management of river basin districts (RBDs), and requires the implementation of River Basin Management Plans (RBMPs). Regulation 17 of the WFD requires local authorities to 'have regard' of the RBMP when making planning decisions, for example through the granting of planning permission with appropriate planning conditions and/or obligations. These could require measures to be implemented (e.g. Sustainable Urban Drainage Systems (SUDS), grey water recycling etc.) or funds to be provided for habitat enhancement schemes.

The WFD also affects planning policy through the implementation of Programmes of Measures for each river basin district. This involves bringing together funding from various sources and co-ordination of the activities of organisations with an interest in the use of land and water, including developers.

SITES DESIGNATED FOR THE CONSERVATION OF NATURE

There is a hierarchy of nature conservation sites which is based on the level of statutory (legal) protection and the administrative level of importance. Other features of nature conservation interest outside designated sites may also be a material consideration in the determination of planning applications.

Ramsar Sites, Special Areas of Conservation (SAC) and Special Protection Areas (SPA)

The Conservation of Habitats and Species Regulations 2017 (as amended) provide the primary legal basis for the protection of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) in the UK.

SACs are sites which support internationally important habitats and/or species listed as being of Community Importance in the Annexes of the European Habitats Directive 92/43/EEC. SPAs are sites which support internationally important numbers of bird species listed as being of Community Importance in the Annexes of the European Birds Directive 2009/147/EC. Following the UK's exit from the EU, these now form part of the "National Sites" network rather than the EU Natura 2000 network.

To avoid confusion with the nationally designated sites described below, EPR refers to SACs and SPAs as 'International sites', given the reasons for their designation.

The local authority (or other 'competent authority') carries out the HRA, but the onus is on the developer to provide the necessary information to inform this process, usually in the form of a report.

Under the Habitats Regulations 2017 (as amended), the competent authority must determine in the first instance whether a proposed development is likely to have a significant effect on the SAC/SPA, either alone or in combination with other plans and projects. This stage of the HRA process is known as 'screening'.

If a likely significant effect cannot be precluded (screened out) on the basis of objective information, the competent authority must undertake an 'Appropriate Assessment' to fully assess these implications against the site's conservation objectives. A precautionary approach must be taken with respect to determining whether or not there would be a significant effect, and the appropriate nature conservation body (in most cases Natural England) should be consulted. Except in certain exceptional circumstances prescribed by the Regulations where there are imperative reasons of overriding public interest for allowing a development to proceed, the competent authority may not undertake or authorise the plan or project until they have established (based on the conclusions of the Appropriate Assessment) that the activity will not adversely affect the integrity of the SAC/SPA. This should be the case where no reasonable scientific doubt remains as to the absence of such effects.

Regulation 16A of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 sets out the management objectives of the National Site Network, which can be summarised as follows:

- to maintain or, where appropriate, restore habitats and species listed in Annexes I and II of the Habitats Directive within the UK's territory to a favourable conservation status (FCS); and

- contribute to ensuring, in their area of distribution, the survival and reproduction of wild birds and securing compliance with the overarching aims of the Wild Birds Directive.

The appropriate authorities must also have regard to:

- the importance of protected sites in meeting the above objectives, including breeding, moulting, staging and wintering areas for in the case of migratory bird species;

- their importance for the coherence of the national sites network; and

- the threats of degradation or destruction (including deterioration and disturbance of protected features) on SPAs and SACs.

Ramsar sites are wetlands of international importance and although not covered under the Habitats Regulations they are, as a matter of national planning policy, subject to the same strict protection as SACs and SPAs. The majority of terrestrial Ramsar sites in England are also notified as SPAs and/or Sites of Special Scientific Interest (SSSIs).

Any plan or project considered likely to affect an International site (SAC, SPA or Ramsar) must be subject to a Habitats Regulations Assessment (HRA), as set out under Regulation 63 (and Regulation 105 in respect of Land Use Plans) of the Habitats Regulations 2017 (as amended) and the National Planning Policy Framework (NPPF) 2019.

Statutory Sites: National

Nationally important sites include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs). A development proposal that is likely to affect a nationally important site will be subject to special scrutiny by the local planning authority and Natural England. Certain operations may be permitted. Any potentially damaging operations that could have an adverse effect directly or indirectly on the special interest of the site will not be permitted unless the reasons for the development clearly outweigh the nature conservation and/or geological value of the site itself and the national policy to safeguard such sites, as set out in Section 15 of the National Planning Policy Framework (NPPF).

Sites of Special Scientific Interest

The Wildlife and Countryside Act 1981 (as amended) and the CRoW Act 2000 provide the primary legal basis for the protection of Sites of Special Scientific Interest (SSSIs). These sites have been designated to capture the best examples of England's flora, fauna, geological or physiographical diversity.

National Nature Reserves

National Nature Reserves (NNRs) are declared under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981, as amended by the Environmental Protection Act 1990. They are managed to conserve their habitats or to provide special opportunities for scientific study of the habitats communities and species represented within them. NNRs represent the very best parts of England's SSSIs. The majority of NNRs also have European nature conservation designations.

Statutory Sites: Regional/Local

Local Nature Reserves

Local Nature Reserves (LNRs) are declared by local authorities under the National Parks and Access to the Countryside Act 1949 as living green spaces in towns, cities, villages and countryside. They provide opportunities for research and education, or for simply enjoying and having contact with nature. LNRs are usually protected from development through local planning documents which may be supplemented by local by-laws.

Non-Statutory Sites

Local Wildlife Sites

Local planning authorities may designate non-statutory sites for their nature conservation value based on important, distinctive and threatened habitats and species within a national, regional and local context. These sites are not legally protected but are given some protection through the planning system. These sites may be declared as 'County Wildlife Sites', 'Sites of Importance for Nature Conservation' (SINCs), or 'Sites of Nature Conservation Importance' (SNCIs) in local and structure plans. Non-statutory sites are a material consideration when planning applications are being determined. The precise amount of weight to be attached, however, will take into account the position

of the site in the hierarchy of sites as set out above. Further information is typically provided in local level planning policy.

Nature Conservation in Areas Outside Designated Sites

Various other features exist outside designated sites that are important for the conservation of nature and which are a material consideration in the planning system.

Habitats of Principal Importance in England

Fifty-six habitat types have been identified as Habitats of Principal Importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006. Although these habitats are not legally protected, the NPPF, Government Circular 06/05, good practice guidance and the NERC Act place a clear responsibility on planning authorities to further the conservation of these habitats. They can be a material consideration in planning decisions, and so developers are advised to take reasonable measures to avoid or mitigate impacts to prevent their net loss and to enhance them where possible. Additional guidance to developers is typically provided in local level planning policy.

The S41 list also includes species as explained below under ‘Species of Principal Importance in England’.

Networks of Natural Habitats

Networks of natural habitats link sites of biodiversity importance and provide routes or stepping stones for the migration, dispersal and genetic exchange of species in the wider environment. Examples include rivers with their banks, traditional field boundary systems (such as hedgerows), ponds and small woods. Local planning authorities are encouraged through the NPPF to maintain networks by avoiding or repairing the fragmentation and isolation of natural habitats through planning, policies and development control.

Hedgerows

Hedgerows can act as wildlife corridors that are essential for migration, dispersal and genetic exchange of wild species. Hedgerows that qualify as a Habitat of Principal Importance under S41 of the NERC Act 2006 are a material consideration in the planning system.

Under the Hedgerow Regulations 1997, it is an offence to remove a hedgerow without submitting a notice to the Local Planning Authority and waiting for their decision. The Regulations are aimed at countryside hedges and do not apply to hedges around private dwellings or where planning permission has been granted for a project that includes hedge removal. Hedgerows that satisfy wildlife, archaeological, historical or landscape criteria qualify as ‘important’ under the Regulations. If a hedgerow is not important, the Local Planning Authority may not prevent its removal; however, Local Planning Authorities are required under the Regulations to protect and retain Important hedgerows unless satisfied that the circumstances justify its removal.

Tree Preservation Orders

Tree Preservation Orders (TPOs) may be declared under the Town and Country Planning Act 1990 and the Town and Country Planning (Trees) Regulations 1999 to protect individual trees and woodlands from development and cutting. TPOs are designed to preserve amenity or landscape conservation. The important of trees as wildlife habitat may be taken into account, but alone is not sufficient to warrant a

TPO. For this reason, TPOs do not fit comfortably under the remit of nature conservation and are generally dealt with by an arboricultural consultant rather than an ecologist. Further guidance on TPOs in relation to development is available from the Department for Communities and Local Government.

Ancient Woodland & Veteran Trees

Ancient woodlands are defined as areas continuously wooded for at least 400 years. Even an ancient wood which has been replanted may still have remnants of ancient woodland wildlife and historical features and has potential to be restored. Ancient woodland is not a statutory designation and does not provide legal protection, but local authorities are advised under the NPPF and National Planning Practice Guidance (NPPG) not to grant planning permission for any development that would result in the loss or deterioration of ancient woodland or veteran trees unless under 'wholly exceptional circumstances'. Local Planning Authorities must take into account Natural England and the Forestry Commission's *Standing Advice for Ancient Woodland and Veteran Trees*.

Surface & Ground Waters

Surface waters (including flowing and standing water) and ground water can directly and indirectly impact upon the conservation of nature.

Guidance on pollution prevention is hosted on the Government's website and focuses on regulatory requirements. This covers topics including the prevention of pollution if you are a business, managing business and commercial waste, oil storage, working on or near water, and managing water on land. Careful planning and the application of these guidelines can help reduce the risk of construction and maintenance work causing pollution to surface and ground waters. Some activities with the potential to impact watercourses or groundwater may require consent under the Water Resources Act 1991.

Water Resources Act (WRA) 1991

Under the WRA there is strict regulation of discharges (including sediment, chemicals, nutrients) to rivers, lakes, estuaries and groundwaters. It also aims to ensure that polluters cover the costs associated with pollution incidents.

SPECIES PROTECTION

Legally Protected Species

The species listed in the following subsections are protected by law in England. When preparing a planning application, it is essential to determine the presence or likely absence of legally protected species and the extent to which they may be affected by a proposed development. This can best be achieved by undertaking surveys early in the planning process. Avoidance and/or mitigation measures may be required to address any predicted impacts upon protected species and may necessitate a licence. The Government website offers standing advice from Natural England and DEFRA which can be applied to planning applications that affect protected species.

Bats

There are 18 species of bat in the UK, seven of which are Species of Principal Importance in England. All bats and bat roosts are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as

amended). Bats are also a European Protected Species protected under the Habitats Regulations 2017. It is an offence to:

- Intentionally or deliberately kill, injure or capture bats;
- Intentionally, deliberately or recklessly disturb bats in such a way as to be likely to significantly affect the ability of any significant group of bats to survive, breed, or rear or nurture their young or the local distribution of or abundance of a species of bat;
- Intentionally, or recklessly damage, destroy or obstruct any place used for shelter or protection (i.e. bat roosts) or intentionally or recklessly disturb a bat whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a bat; and
- Possess, sell or transport a bat, or anything derived from it.

Development proposals affecting bats or their roosts require a European Protected Species mitigation licence from Natural England.

Great Crested Newt

The Great Crested Newt *Triturus cristatus* is a Species of Principal Importance in England. It is legally protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded significant further protection as a European Protected Species under the Habitats Regulations 2017. Collectively, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Great Crested Newts;
- Intentionally, deliberately or recklessly disturb Great Crested Newts in such a way as to be likely to significantly affect the ability of any significant group of Newts to survive, breed, or rear or nurture their young or the local distribution of or abundance the species;
- Intentionally or recklessly damage, destroy or obstruct any place used by Great Crested Newts for shelter or protection, or intentionally or recklessly disturb a Great Crested Newt whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a Great Crested Newt; and
- Possess, sell or transport a Great Crested Newt, or anything derived from it.

Development proposals affecting the Great Crested Newt require a European Protected Species mitigation licence from Natural England.

Intentional or reckless behaviour leading to an offence being committed as detailed above may result in maximum penalties of:

- Up to £5,000 fine per offence committed;
- A custodial sentence of up to six months instead of, or in addition to, a fine; and/or
- Items of equipment involved in committing the offence may be seized and detained.

In addition to the above penalties, it is likely that any EPS mitigation licence obtained for a site will be revoked whilst any wildlife offence is investigated. This will lead to immediate temporary and, depending on investigation outcomes, possible permanent restrictions on site works, as well as associated cost.

Reptiles

All four of the widespread British species of reptile, namely the Common Lizard *Zootoca vivipara,* Slow-Worm *Anguis fragilis*, Grass Snake *Natrix helvetica (*previously *Natrix natrix)* and Adder *Vipera berus*, are Species of Principal Importance in England. They are protected under Schedule 5 (Sections 9.1, 9.5a, 9.5b) of the Wildlife & Countryside Act 1981 (as amended) from intentional killing, injury and trade. The habitat of the four widespread reptiles is not legally protected; however the replacement of habitat lost through development may be required through the planning system. Mitigation for these species is not subject to licensing by Natural England but should nonetheless be planned to minimise disturbance and potential project delays.

The Smooth Snake *Coronella austriaca* and the Sand Lizard *Lacerta agilis* are the rarest reptile species in Britain. In addition to the protection that is afforded to the widespread species of reptile listed above, these species are protected further under Schedule 5 (Sections 9.4b and 9.4c) of the Wildlife and Countryside Act 1981 (as amended). They are also European Protected Species protected under the Habitats Regulations 2017. This legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Sand Lizards or Smooth Snakes;
- Intentionally, deliberately or recklessly disturb Sand Lizards or Smooth Snakes in such a way as to be likely to significantly affect the ability of any significant group of Sand Lizards or Smooth Snakes to survive, breed, or rear or nurture their young or the local distribution or abundance of either species;
- Intentionally or recklessly damage, destroy or obstruct any place used by Sand Lizards or Smooth Snakes for shelter or protection, or intentionally or recklessly disturb a Sand Lizard or Smooth Snake whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a Sand Lizard or Smooth Snake;
- Keep, sell, or exchange Sand Lizards or Smooth Snakes or their eggs; and
- Deliberately take or destroy their eggs.

Development proposals affecting Smooth Snake or Sand Lizard require a European Protected Species mitigation licence from Natural England.

Birds

49 species of bird are listed as Species of Principal Importance in England. All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended), making it an offence, with certain exceptions (e.g. game birds), to intentionally kill, injure or take any wild bird and to take, damage or destroy their nests or eggs.

Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) affords extra protection for certain species and applies harsher penalties for offences. Any intentional or reckless disturbance of a Schedule 1 bird, whilst it is nesting or rearing dependent young, constitutes an offence.

Regulation 10 of the Conservation of Habitats and Species Regulations 2017 requires appropriate authorities and conservation bodies, in the exercise of their functions, to take such steps that they consider appropriate in order to secure "*the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat (…)*".

European Badger

The Protection of Badgers Act 1992 offers considerable protection to both badgers and badger setts. This legislation was enacted to protect the European Badger *Meles meles* against baiting and not as a means of species recovery as it is common in England. It is an offence to cruelly treat, kill or take Badgers, but it is also illegal to intentionally or recklessly damage or disturb a badger sett while it indicates signs of current use by a Badger.

The Government website contains information to help developers and their proponents avoid sett disturbance and to identify setts that are in current use. It is important to maintain adequate foraging territory in development proposals affecting badgers as the destruction or severance of large areas of foraging territory could also be taken to include habitat loss. Licences to disturb Badgers and their setts in respect of development may be issued by Natural England provided provisions are made to minimise disturbance.

Wild Mammals

All wild mammals are protected against cruelty under the Wild Mammals (Protection) Act 1996, which makes it an offence to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

Licences for Development

Licences are required to permit activities prohibited under wildlife legislation, namely the disturbance or capture of protected species or damage to their habitats. Natural England is the licensing authority in England. Licences are only issued for certain purposes, which are set out in the legislation, and only where there is a valid justification. The licences most relevant to development scenarios are discussed below.

European Protected Species Mitigation Licences

A European Protected Species mitigation licence (EPSL) is required from Natural England to undertake any development that is reasonably likely to result in an offence in respect of a European Protected Species protected under Schedule 2 of the Habitats Regulations 2017; including inter alia all species of bats, Hazel Dormouse, Great Crested Newt and European Otter. Natural England must be satisfied that the following three tests are satisfied before it will issue a licence covering a European Protected Species:

1. The proposal is necessary to preserve public health or public safety, or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;
2. There is no satisfactory alternative; and
3. The proposal will have no detrimental effect to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Conservation Licences

In the context of development, conservation licences are normally only relevant to mitigation involving the capture of Water Voles or White-Clawed Crayfish. Conservation licences are granted to permit the trapping and translocation of these species on the condition that the development activity is properly planned and executed and thereby contributes to the conservation of the population of the species.

Badger Licences

Licences to disturb Badgers and their setts in respect of development may be issued by Natural England, provided provisions are made to minimise disturbance.

Species of Principal Importance in England

943 species have been identified as being of Principal Importance for the conservation of biodiversity in England under Section 41 (S41) of the NERC Act 2006. The S41 list includes species found in England which have been identified as requiring action under the now superseded UK Biodiversity Action Plan 2007 (plus the Hen Harrier). While many of these species may not be legally protected (some are protected under the legislation described above), there is a clear responsibility on local planning authorities to further their conservation. These species can be a material consideration in development control decisions and so developers are advised to take reasonable measures to avoid or mitigate impacts to prevent the net loss of these species, and to enhance their habitats where possible. Additional guidance to developers is typically provided in local level planning policies.

Invasive Non-Native Species

There are a number of species not ordinarily resident in the UK, such as Japanese Knotweed. Those which pose a significant threat, if uncontrolled, to our ecology and economy are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). For an offence to be committed, a species must be released or allowed to escape into the wild. For example, if a plant listed on Schedule 9 is not adequately controlled by a land owner, once they are aware that it is present, and the species is allowed to spread into adjoining areas, then this could constitute an offence.

Species Control Orders

A new schedule 9A was inserted into the Wildlife and Countryside Act 1981 (as amended) by Sections 23 to 25 of the Infrastructure Act 2015. This gives environmental authorities (in England the Secretary of State, Environment Agency, Natural England and the Forestry Commission) the power to offer ‘species control agreements’ to landowners in respect of invasive and/or non-native species, such as Japanese Knotweed. If the landowner does not comply with a species control agreement, or refuses to enter into one, the environmental authority may issue a ‘species control order’, requiring the owner to eradicate or control the species, or to allow the environmental authority access to carry out these operations themselves.

If the owner does not comply with the species control order, the maximum penalty if convicted is a fine of up to £40,000 and/or imprisonment for up to 51 weeks. The environmental authority can also recover costs for carrying out the necessary work themselves.

PLANNING POLICY & GUIDANCE

This section set out the main planning policy and government guidance that relates to the conservation of nature at all levels of government.

National Level

National Planning Policy Framework 2019

The National Planning Policy Framework (NPPF) 2019 sets out the Government's planning policies for England and how these should be applied in local-level policy and decision making. The NPPF has a clear "presumption in favour of sustainable development" (paragraph 11), with economic, social and environmental objectives. This presumption does not apply where a plan or project has failed the 'appropriate assessment' test under the Habitats Regulations (paragraph 177).

Section 15 of the NPPF provides guidance on conserving and enhancing the natural environment through the planning system, as summarised below.

Firstly, planning policies and decisions should contribute to and enhance the natural and local environment by applying the following key principles:

- protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; and
- preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.

Section 15 also requires planning policies and decisions to limit the impact of artificial light pollution on nature conservation.

Secondly, when determining planning applications, local planning authorities should apply the following key principles:

- if significant harm resulting from a development cannot be avoided, adequately mitigated or (as a last resort) compensated for, then planning permission should be refused;
- proposed development that is likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should normally be refused;
- planning permission should normally be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and aged or veteran

trees, unless there are 'wholly exceptional reasons' and a suitable compensation strategy exists; and

- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

In the case of SSSIs and irreplaceable habitats, exceptions may be made if it can be clearly demonstrated that the benefits of the development, in that location, clearly outweigh the costs in terms of loss or adverse impacts.

Section 15 specifies that listed or proposed Ramsar sites, potential European sites, and sites identified or required as compensatory measures for adverse effects on designated/listed or potential/proposed European and Ramsar sites should be given the same protection as designated European sites.

Section 15 includes the following text on air quality:

- Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas;
- Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications; and
- Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.

The NPPF also sets out principles for plan-making, including the allocation of land with the least environmental or amenity value, and taking a strategic approach to maintaining and enhancing networks of habitats and green infrastructure by identifying, mapping and safeguarding components of local wildlife-rich habitats, wider ecological networks, wildlife corridors and stepping stones, and those areas identified by national and local partnerships for habitat management, enhancement, restoration or creation.

Government Circular 06/05: Biodiversity and Geological Conservation

The Government produced Circular 06/05 to provide guidance on the application of the law to the conservation of nature. Although the document is in the process of being updated, Paragraphs 98 and 99 remain relevant as they set out the following principles and obligations:

- The presence of protected species is a material consideration when determining a development proposal;
- Local authorities should consult with Natural England before granting permission, and consider imposing planning conditions or obligations to secure the long-term protection of the species;

- The presence or otherwise of protected species, and the extent to which thy may be affected by the proposed development, must be established before permission is granted;
- Given the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development.

MHCLG Planning Practice Guidance

Revised and updated Planning Practice Guidance (PPG) was launched by the Department for Communities and Local Government (now the Ministry of Housing, Communities and Local Government, MHCLG) as a web-based tool in March 2014 to accompany the NPPF. The webpages are set out in a Q&A format. The PPG consolidates and supersedes existing guidance on a range of planning-related topics, clarifies some of the statements made in the NPPF, and provides links to relevant legislation and other sources of advice.

The Guidance outlines a number of important principles in relation to nature conservation and biodiversity, including the need to integrate biodiversity into all stages of the planning process and to consider opportunities to enhance biodiversity and contribute to the Government's commitments and targets set out in *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*.

The guidance also requires that "an ecological survey will be necessary in advance of a planning application if the type and location of development are such that the impact on biodiversity may be significant and existing information is lacking or inadequate", and recommends that "local planning authorities should only require ecological surveys where clearly justified, for example if they consider there is a reasonable likelihood of a protected species being present and affected by development."

Other guidance

In addition to the Planning Practice Guidance, various other forms of guidance and standards are available in relation to biodiversity and the development process. Of particular note is *British Standard BS42020:2013 Biodiversity – Code of practice for planning and development*, published in August 2013, which replaces *Planning to Halt the Loss of Biodiversity (PAS 2010): Biodiversity conservation standards for planning in the United Kingdom*.

This document is designed to complement the NPPF and is aimed at organisations concerned with ecological issues throughout the planning process, including local authorities, developers, planners and ecological consultants. It sets out step-by-step recommendations on how to incorporate biodiversity considerations at all stages of the planning process, with a focus on the provision of consistent, high quality and appropriate ecological information, effective decision making, and high standards of professional conduct and competence.

Regional Level

Regional plans (such as the South East Plan Regional Spatial Strategy) have been revoked, but some specific policies have been saved. The only policy saved from the South East Plan is Policy NRM6, which relates to the Thames Basin Heaths Special Protection Area (TBH SPA).

Local Level

The planning policies most relevant to this site are provided by the East Hampshire District Council Local Plan, Part 1, Joint Core Strategy and the South Downs National Park Authority Draft Local Plan. These are listed below;

East Hampshire District Council (2014) Local Plan, Part 1, Joint Core Strategy:

Policy CP21 BIODIVERSITY

'extend specific protection to, and encourage enhancement of, other sites and features which are of local value for wildlife, for example important trees, rivers, river corridors and hedgerows, but which are not included in designated sites;

ensure wildlife enhancements are incorporated into the design to achieve a net gain in biodiversity by designing in wildlife and by ensuring that any adverse impacts are avoided where possible or, if unavoidable, they are appropriately mitigated for, with compensatory measures only used as a last resort;

protect and, where appropriate, strengthen populations of protected species.'

South Downs National Park Authority (2017) Local Plan, Pre-submission: Strategic

Policy SD9: BIODIVERSITY AND GEODIVERSITY

'Retain, protect and enhance features of biodiversity and geological interest (including supporting habitat and commuting routes through the site and taking due account of any use by migratory species) and ensure appropriate and long-term management of those features. Opportunities for net gains in biodiversity should be identified and incorporated;

Contribute to the restoration and enhancement of existing habitats, the creation of wildlife habitats and the creation of linkages between sites to create and enhance local and regional ecological networks;

Development proposals must have particular regard to their effects on species and habitats which have been designated in law as requiring protection or priority. Development proposals that affect those interests will be assessed strictly in accordance with legal requirements and will – as a minimum - be required to avoid adverse impacts or, if unavoidable, adequately mitigate those adverse impacts.

The following hierarchy of designation will apply in the consideration of development proposals: a) International Sites, as shown on the Policies Map (Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar Sites, or candidate and formally proposed versions of these designations): i. Development proposals with the potential to impact on one or more international sites(s) will be subject to a Habitats Regulations Assessment to determine the potential for likely significant effects. Where likely significant effects may occur, development proposals will be subject to Appropriate Assessment ii. Development proposals that will result in any adverse effect on the integrity of any international site will be refused unless it can be demonstrated that: there are no alternatives to the proposal; there are imperative reasons of overriding public interest why the proposal

should nonetheless proceed; and adequate compensatory provision is secured'

BIODIVERSITY PLANS AND STRATEGIES

The NERC Act 2006 places a duty on local authorities to have due regard to biodiversity when exercising their normal functions, and the NPPF requires planning policies to "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" (paragraph 174). These targets are set out in a range of biodiversity plans and strategies from the international through to the district level.

An overview of the key biodiversity plans and strategies in the UK, and their implications for development, are set out below.

National level

The *UK Biodiversity Action Plan 2007* (UK BAP) has been superseded by the *UK Post-2010 Biodiversity Framewo*rk and individual national biodiversity strategies. The UK Framework sets out the overarching vision, strategic goals and priority activities for the UK's work towards international biodiversity targets (known as the 'Aichi Targets'), as agreed by 192 parties at the UN Convention on Biological Diversity in 2010.

In England, *Biodiversity 2020: A strategy for England's wildlife and ecosystem services* is the national biodiversity strategy, which has the stated mission "(…) to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people." To focus activity and assess performance in achieving this mission, Biodiversity 2020 sets out objectives relating to terrestrial and marine habitats and ecosystems, species and people.

Local level

While BAPs at the national level have now been superseded by *the UK Post-2010 Biodiversity Framework* and *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*, many county and district level BAPs still exist.

The BAP most relevant to this site is the Hampshire Biodiversity Action Plan which specifies action plans specifically relating to the preservation of hedgerows which are listed as a priority habitat.

The purpose of this Action Plan is to secure the conservation and positive management of hedgerows in Hampshire and to apply the aims of the UK Hedgerows Habitat Action Plan at the local level.

Delivering Net Gain

Opportunities should also be sought to achieve a net gain (i.e. enhancement) of biodiversity. Support for biodiversity enhancement is provided in the Public Authority 'Biodiversity Duty' under the NERC Act 2006 and in the key principles of the NPPF, and increasingly in local level planning policy.

Enhancement projects may not just benefit biodiversity. There are many functional benefits to be won from strategically planned green infrastructure projects such as semi-natural urban green spaces,

sustainable urban drainage schemes (SUDS) and green roofs. Planning conditions and obligations are increasingly being used to mandate biodiversity enhancement on or off a development site, either through design or financial support

Appendix 2
Methodology and Results

This appendix will provide detailed information explaining the methods and results of surveys undertaken for relevant species.

ASSESSMENT METHODOLOGY

Overview

The approach to Ecological Impact Assessment (EcIA) taken in this report takes account of guidance in the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland (CIEEM, 2018).

In summary, EPR takes the following step-wise approach to EcIA:

- Prediction of the activities associated with a proposed scheme that are likely to generate biophysical changes which may lead to significant effects (either positive or negative) upon ecological features of importance;
- Identification of the likely Zone of Influence (ZoI) of those activities;
- Scoping to select the ecological features (habitats, species, ecosystems and their functions/processes) that are likely to fall within the predicted ZoIs and be affected by the activities;
- Evaluation of ecological features likely to be affected – both negatively and positively;
- Identification of likely impacts (positive and negative) on important ecological features, together with an assessment of the geographic level at which they are likely to be significant;
- Refinement of the proposed scheme to incorporate enhancements, and mitigation for negative effects on important ecological features;
- Assessment of the significance of residual effects and identification of any policy drivers for additional mitigation or compensation in the event of residual significant negative effects; and
- Advice on conformance with policy.

Ecological Evaluation Method

The evaluation method used in this EcIA uses the following geographic scale of importance for ecological features:

- International/European;
- National;
- Regional;
- County (or Metropolitan or Local Authority-wide area);
- Local; and
- Within the Zone of Influence.

With this in mind, features taken forward for detailed impact assessment are those which:

- Are evaluated as being of at least 'Local' ecological, or have the potential to be so; and
- Are likely to be affected, positively or negatively, by the proposals.

Features deemed to be of less than 'Local' importance are considered throughout the EcIA process in the context of the emerging 'Biodiversity Net Gain' principle outlined in national and local policy. The implications of those which are protected under legislation are also discussed separately at the end of the EcIA report.

Ecological Importance is judged with reference to the following factors:

- Statutory requirements and policy objectives (e.g. site designations or the country lists of habitats and species of principle importance for the conservation of biodiversity); and
- Biodiversity value (e.g. diversity, rarity, scarcity, function within ecosystem, population trends).

Impact Assessment Method

The ecological features selected to be included in the assessment are those which both meet the importance threshold and are likely to be affected by the proposed scheme.

The first stage of the assessment is to determine the potential impacts upon each important ecological feature, with reference to the likely biophysical changes arising from the proposals. Impacts can be characterised according to their extent, magnitude, duration, timing, frequency, reversibility, and whether they are positive or negative.

The likelihood of cumulative impacts with other planned or consented projects is also taken into account at this stage

An assessment is then made of whether the effect(s) of an impact upon an important ecological feature is likely to be considered 'significant' in EcIA terms.

Significant Effects

The EcIA Guidelines state that:

"Significance is a concept related to the weight that should be attached to effects when decisions are made. For the purpose of EcIA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general……in broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution)." [our emphasis]

Put simply, an effect is considered significant if it is likely to change the structure and function of defined sites and ecosystems or the conservation status of habitats and species.

Professional judgement about significance is informed by conservation objectives for the affected feature, where available (for example conservation objectives set by Natural England for European

designated sites, or in habitat and species action plans). The ‘conservation status’ (habitats and species) or the degree to which a feature is exhibiting ‘integrity’ in terms of structure, function and condition (defined sites or ecosystems) is also considered. The predicted effect of natural and man-made trends in the absence of development is also taken into account in determining the conservation status or integrity of a feature and in considering whether otherwise insignificant effects may contribute to a significant cumulative effect.

Opportunities for Mitigation and Compensation to Achieve No Net Loss and for Biodiversity Net Gain

EPR will advise the applicant’s team about how a scheme may be refined to avoid net loss and deliver net gain, if possible. Once the biodiversity measures are agreed, EPR will assess the residual effects and advise on the degree of compliance with national and local policy and legislation. This process may evolve with the design of the development. In some instances, it may not be possible to avoid all the significant adverse effects, or to deliver significant biodiversity net gain. In that case, EPR will advise of any opportunities to contribute to biodiversity strategies which would deliver the appropriate mitigation, compensation and/or enhancement.

The final agreed measures will be set out clearly, so that the LPA can readily understand what planning conditions or legal agreements are required to achieve the estimated level of policy and legal compliance.

ECOLOGICAL APPRAISAL

This Ecological Appraisal has been completed following guidance in The Chartered Institute of Ecology and Environmental Management (CIEEM) *Guidelines for Ecological Impact Assessment in the UK and Ireland* (September 2018).

Desk Study Methodology

A desk study was carried out in order to gather and refer to existing biodiversity and contextual information with respect to the zone of influence and the wider area. This involved interrogation of internet resources, including the Multi-agency Geographic Information for the Countryside (MAGIC) and National Biodiversity Network (NBN), aerial photos, current Ordnance Survey maps and historical maps. Reference was also made to local planning policies, strategies and initiatives relating to biodiversity described in **Appendix 1**.

A desktop study was carried out in August 2017 and May 2021; whereby data was requested from Hampshire Biodiversity Information Centre (HBIC) and data searches were carried out using MAGIC and other internet sources, such as a range of modern and historic aerial photographs and maps.

Fieldwork Methodology

Field surveys were carried out on the 2nd August 2017 and 29th April 2021 by Ben Kite and Jo Doolin of EPR. The site and immediately surrounding land was walked, recording habitats and features of potential value to wildlife and any evidence of, or potential for, protected or notable species or habitats, in accordance with the methods described below.

Land Use, Habitat Types, Vegetation Communities and Flora

Within the study area the land use, habitat types and landscape features (such as hedgerows and veteran trees) were described and mapped. For each main habitat type the dominant vegetation communities were recorded, along with any notable or indicator plant species, (including invasive species such as Japanese Knotweed where present). A preliminary evaluation of the structure, quality and likely management of each habitat or feature was also carried out.

The survey method used to record this information was based on Phase 1 Habitat Survey methodology (JNCC 1993). Botanical nomenclature in this report follows Stace (2010).

Fauna
The potential for habitats and features to support protected or notable species, or species of principal importance for the purpose of conserving biodiversity, were recorded, as were any signs encountered. The following is a summary of the approach taken for this Ecological Appraisal.

Badgers
Consideration was given to the presence of habitat potentially suitable for supporting Badgers, including woodland and grassland. Potential evidence of the presence of Badgers was looked out for and noted, including earthworks that might be Badger setts, and signs such as dung pits, mammal pathways through ground vegetation and under fences, and hairs on fences.

Bats
Bats use buildings and trees for roosting and breeding and, where present, a preliminary assessment of the potential for these features to support bats was undertaken during the survey. Potential may include gaps beneath roof or hanging tiles, in soffits, or beneath the end of ridge tiles, but also under the edge of felt on flat roofs. In trees potential roosting features include woodpecker holes, splits in branches and peeling bark.

Preliminary evidence was obtained through noting any staining around potential roost entrances, and looking for bat droppings, for example on window sills. A preliminary evaluation was also undertaken of potential bat foraging habitat in the area, including woodland, pasture, hedges and watercourses.

Dormouse
The type and quality of habitat with the potential to be suitable for supporting Dormice, such as woodland and hedgerows, was considered during the survey. In particular the presence of oak, hazel and berry-bearing shrubs was noted, and the connectivity of habitat recorded.

Water Voles
The presence and quality of watercourses with the potential to support Water Voles was recorded during the survey. Potential evidence of Water Voles, including burrows in the tops and vertical face of riverbanks, and feeding evidence was recorded where appropriate.

Birds
Any birds seen whilst carrying out the survey were recorded, and the type and quality of habitats available for birds was considered, including vegetation suitable for nesting, and habitat with the potential to support valued species, including breeding and wintering birds.

Amphibians
Consideration was given to the presence of habitat potentially suitable for supporting amphibians, including water bodies (ponds, ditches), woodland, scrub and rough grassland, and features such as

log piles that might provide hibernation areas. Where appropriate, effort to gather direct evidence of amphibians was undertaken by making a preliminary search for eggs by examining vegetation within reach of the margins of water bodies, and for resting animals on land by looking under potential refuges, such as stones, wood and rubbish near to water bodies.

Reptiles
The presence and quality of habitat considered potentially suitable for supporting reptiles was recorded. This included areas providing basking and foraging areas, hibernation and breeding sites, such as rough grassland and scrub, banks, burrows, rubble piles, compost heaps, hedgebanks and water bodies.

Invertebrates
Readily identifiable invertebrates seen during the survey were recorded, and habitats and features likely to support noteworthy groups and species were noted, for example herb-rich grasslands, areas of bare ground and deadwood habitats, including woodland and veteran trees.

GREAT-CRESTED NEWT SURVEY

Methodology

Habitat Suitability Index (HSI) Assessment

The off-site ponds (Ponds 1, 2 and 3 their locations shown on **Map 8**) were assessed for their suitability for GCN using the Habitat Suitability Index, which is a scoring system that produces a value against 10 suitability indices. The ten criteria include:

- Location (map area A/B/C);
- Pond area (m2);
- Pond drying (never/rarely/sometimes/frequently);
- Water quality (good/moderate/poor/bad);
- Shade (% of margin shaded 1m from bank);
- Waterfowl (absent/minor/major);
- Fish (absent/possible/minor/major);
- Pond count (no. within 1km);
- Terrestrial habitat (good/moderate/poor/isolated); and
- Macrophyte cover (%, excluding duckweed).

The scores calculated from this index gave an indication as to whether the ponds should be subject to further survey. See **Table 1** below for the results of the HSI.

Pond Survey

A variety of methods were used to determine presence/absence of GCN in the 3 ponds identified within 500m of the site boundary. These are further described below.

In order to account for the possibility that a population count would be necessary a number of dusk detection surveys were scheduled of which only one was carried out. An e-DNA test was also performed on the ponds to confirm absence of GCN and provide certainty to the LPA that population counts would not be necessary.

The dusk survey and e-DNA sampling was carried out on the 19th April 2018 by Rebecca Oswin (2017-28616-CLS-CLS) and Alice Maiden of EPR Ltd. Further details of the survey are provided in table 2 and 3 below.

e-DNA

In order to obtain confirmation of GCN absence and reduce the need for further pond surveys an e-DNA sampling test was conducted on each pond.

This involved a licenced ecologist to collect 20 samples from each pond using methods recommended by ADAS ecology. These were then sent off for DNA analysis by a qualified testing centre.

Metadata and Results

Table 1 – HSI Results

	Description	**Pond 1**	**Pond 2**	**Pond 3**
SI_1	Location	1.00	1.00	1.00
SI_2	Pond area	0.19	0.06	0.05
SI_3	Pond drying	0.90	0.90	0.90
SI_4	Water Quality	0.67	1.00	1.00
SI_5	Shade	1.00	1.00	1.00
SI_6	Waterfowl	0.67	1.00	1.00
SI_7	Fish	0.67	1.00	1.00
SI_8	Ponds	0.84	0.84	0.84
SI_9	Terrestrial habitat	0.67	0.67	0.67
SI_{10}	Macrophyte cover	0.61	0.41	0.34
HSI Score		**0.67**	**0.65**	**0.62**
Pond Suitability		**Average**	**Average**	**Average**

Table 2 – Pond Survey Metadata

Pond reference	Date	Weather Conditions		Method	Temperature	T	V
		Cloud (%)	Rain				
1	**19/4/18**	**0%**	**none**	**Tc, N, B**	**16.7**	**3**	**3**
2	**19/4/18**	**0%**	**none**	**Tc, N, B**	**14.6**	**2**	**2**
3	**19/4/18**	**0%**	**none**	**Tc, N, B**	**17.8**	**2**	**2**

B = Bottle-trapping
Tc = Torch
N = Net
E = Egg search
T = Turbidity
V = Vegetation Cover

Table 3a – 2018 GCN Survey Results

Pond reference	GCN		Common Unknown	Smooth Newt	Palmate Newt	Common Frog	Common Toad
	e-DNA	Pond Survey					
1	Negative	0	8	2	1	0	0
2	Negative	0	26	12	3	0	1
3	Negative	0	13	17	2	0	1

Table 3b – 2021 GCN Survey Results

Pond Reference	e-DNA
1	Negative
2	Negative
3	Negative

REPTILE SURVEY

Methodology

Desktop Study

A search for records of reptile species within 2km of the Site boundary was commissioned from Hampshire Biodiversity Information Centre (HBIC).

Field Survey

The reptile survey method followed standard practice for reptile surveying (Froglife, 1999; Gent & Gibson, 2003). In order to establish the presence or likely absence of reptiles, artificial refugia were placed in suitable locations within or near the Site, which were identified as having potential to support reptiles. The use of artificial refugia is a standard method used to help locate reptiles on a site. Artificial refugia are squares of materials such as roofing felt or corrugated tin that warm up faster and retain heat for longer than either the ground or the surrounding habitat. Since reptiles are exothermic (cold-blooded) and are therefore unable to regulate their own body temperature, the properties of these refuges render them attractive to reptiles, allowing them to bask and thus regulate their body temperatures whilst providing cover and protection from predators. Carefully searching under such refugia is effective in the location of snakes and particularly cryptic species of reptile such as the Slow Worm.

A total of 6 refugia were placed in suitable locations across the Site on 26th March 2018, their locations represented on **Map 6**. The refugia were then left for 2 weeks to 'settle in'. Seven checks were then completed during suitable weather conditions (i.e. between 9 and 18ºC with little or no wind and no rain). Weather conditions recorded for each visit is displayed in **Table 5** below.

On each occasion the Site was carefully walked; all artificial refugia were checked; and the terrain was inspected for openly basking reptiles. Any 'natural' refugia, such as logs, large stones, compost heaps and other suitable materials were also inspected for the presence of sheltering reptiles.

Metadata and Results

Table 5 – Reptile Survey Metadata

Date	Start-Finish Times	Temperature (ºC)	Cloud cover %	Wind (BF)	Rain
16/4/18	10:10 – 10:30	11.2	70%	1	None
26/4/18	10:10 – 10:20	12.2	75%	1	None
17/5/18	9.20 – 9:35	13	0%	1	None
22/5/18	9:20 – 9:32	16.9	20%	2-3	None
26/6/18	7:30 – 7:38	16.8	0%	0	None
9/8/18	9:15 – 9:30	15.1	100%	0	None
7/9/18	9:07 – 10:16	16	70%	1	None

Table 6 – Reptile Survey Results

Date	Slow Worm			
	Adult Male	Adult Female	Sub-adult	Juvenile
16/4/18	0	1	0	0
26/4/18	0	0	0	0
17/5/18	0	0	0	0
22/5/18	1	0	0	0
26/6/18	0	0	0	0
9/8/18	0	0	0	0
7/9/18	0	0	0	0

As is shown on the table only 2 individual Slow Worms were recorded during the surveys and these were found within the garden of the bungalow (see **Map 7**).

Constraints

All surveys were carried out within the parameters recommended by Froglife, however, sub-optimal weather conditions were experienced during surveys carried out in April as temperatures were quite low. To overcome these restrictions, the survey visits were carried out later in the morning and in low winds to allow temperatures to rise and for the refugia to absorb warmth which increased their suitability for use by reptiles.

BADGER SURVEY

A detailed Badger survey was carried out by Dan O'Sullivan of EPR on the 20th March 2018. The assessment was carried out using a walkover survey technique, which involves searching for Badger setts and other field signs (pathways, push-unders, dung-pits/latrines, hair, footprints, snuffle-holes) in

the most likely areas within the Zone of Influence. An update badger survey was carried out by Jo Doolin of EPR on the 29th April 2021 following the same methodology.

Results

Although it is noted that a latrine is located approximately 400m south-east of the site on a field boundary indicating that there are Badgers within the surrounding area, no evidence of use was discovered within the site boundary.

A small number of mammal holes thought to be used by foxes and rabbits were discovered along the perimeter of the bungalow garden on the survey.

There were also two mammal paths, one of which leads directly into the site on the northern boundary and a second path running adjacent to the site outside the south-west boundary. These are indicated on **Map 3**.

HAZEL DORMOUSE NEST TUBE SURVEY

A total of 50 nest tubes were deployed along all suitable hedgerows around the site. As the site is relatively small the tubes were positioned at intervals of no more than 5 paces apart in order to locate all tubes.

The tubes were tied into the hedgerow ensuring that the entrances were positioned downwards to reduce the risk of exposure to rain and also to mimic the typical nesting environments of dormice. Each tube was numbered and georeferenced (see **Map 6**).

A total of 5 monthly survey visits were then carried out by a suitably qualified surveyor. In order to increase the probability of finding dormice in the tubes the majority of the surveys were carried out in peak months for dormice as is identified by the points scoring system below.

Index of probability of finding Dormice present in nest tubes in any one month.

Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Index of Probability	1	4	2	2	5	7	2	2

Details of the surveys are shown in **Table 7**.

Metadata and Results

Table 7 - Dormouse Nest Tube Survey Metadata

Date	Start-Finish Times	Temperature (ºC)	Cloud cover %	Wind (BF)	Rain
16/4/18	10:10 – 10:30	11.3	70%	1	None
17/5/18	09:35 – 10:20	13	0%	1	None
26/6/18	07:38 – 08:31	20	0%	1	None
12/7/18	11:00 – 11:52	24	40%	1	None
7/9/18	09:07 – 10:15	16	70%	1	None

No Dormice or evidence of nesting Dormice was found on the surveys.

BAT SURVEYS

The suite of bat surveys carried out was designed with reference to the Bat Conservation Trust's *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd Ed, 2016).

The suite of surveys consisted of:

- An initial **daytime habitat assessment** for bats and an **assessment of trees** within the immediate Zone of Influence for bat roost potential;
- A daytime **internal** and **external inspection** of all buildings and structures within the site boundary for bat roosts;
- Three walked dusk bat activity transects to cover **Spring**, **Summer** and **Autumn,** with at least one of these to be carried out at dawn, around the site and potentially relevant areas within the wider Zone of Influence between April and August 2018, combined with the deployment of static bat detector for at least 5 nights each survey; and
- The following suite of emergence/re-entry surveys for buildings with bat roost suitability;

    - **High suitability/confirmed roosts**– 3 emergence/re-entry surveys
    - **Moderate suitability**- 2 emergence/re-entry surveys
    - **Low suitability** – 1 emergence/re-entry survey

The key observations and results of these surveys are discussed in the main body of this EcIA Report. The detailed methodologies, metadata and a brief summary of field notes from each of the above surveys is outlined below.

Daytime Habitat Assessment and Assessment of Trees for Bat Roost Potential

Following a site walk over which was undertaken on 30th January 2018 by Rebecca Oswin (a licensed bat ecologist, Class Licence: 2017-28780-CLS-CLS) of EPR it was considered that the site supported habitats of **moderate** suitability for foraging and commuting bats in relation to the criteria set out in Table 4.1 of the Bat Survey Guidelines (BCT, 2016). This is due to the proximity of the site to Wealden Heaths SPA which is hosts a mosaic of habitats highly suitable for foraging bats. The site is connected to this via a hedgerow and woodland to the east of the site which could potentially be navigated by commuting bats. There is also a mature wooded boundary to the south-west of the site which also provides connectivity and foraging habitat for bats.

Trees likely to be affected by the proposals were examined with binoculars from the ground, with any supporting features such as rot holes, flaking bark and split limbs noted and assessed for their bat roost potential according to guidance outlined in the 2016 BCT guidelines.

T20 was found to be of 'moderate' suitability as indicated on **Map 2** but as this is to be retained within the current scheme no further survey work was considered necessary.

Daytime Internal and External Inspection of buildings/structures within the site boundary

The daytime internal and external inspection of buildings/structures was completed on 30th January 2018 by Rebecca Oswin (a licensed bat ecologist, Class Licence: 2017-28780-CLS-CLS) and Ann Bailey of EPR.

An update internal and external inspection was completed on the 5th May 2021 by Claire Clarke (a licence bat ecologist, Class Licence: 2015-12208-CLS-CLS

The building was assessed externally for features which could be suitable for bats to use as roosts. Examples of such features might include; slipped or missing tiles, gaps in lead flashing or soffit boxes. These features were examined with binoculars and a Clu-light.

The buildings were then accessed internally, and any loft spaces were explored for further features or evidence in the form of droppings, urine staining, feeding remains or actual sightings of bats. Any crevices were investigated with a Clu-light and endoscope.

Samples of droppings found were taken and sent to Swift Ecology / The Waterford Institute of Technology for DNA analysis. Notes were also made on the location, number and likely age of the droppings.

Overall the following buildings were confirmed to be bat roosts or identified as suitable for roosting bats;

- **Building A** – confirmed roost
- **Building B** – confirmed roost
- **Building C** – confirmed roost
- **Building D** – low suitability
- **Building E** – low suitability

Further details regarding the results of the building inspection can be found in **Appendix 4.**

Walked Dusk and Dawn Transect Surveys and Static Detector Surveys

Dusk and Dawn Transects

A pair of experienced bat surveyors walked dusk activity transects around the perimeter of the site and any habitats of interest within the central areas in May, July and August 2018 and in June 2021. The July 2018 transect was carried out at dawn.

Surveyors were all equipped either with a Batbox Duet or a Petterson D240X with an attached Edirol solid state recorder. Surveyors noted the time of each bat seen or heard, in addition to the following where it could be established: species, direction of flight, behaviour and call characteristics. Bat calls that could not be identified in the field were saved and subject to analysis with computer software back at the office to attempt to identify species.

Survey metadata is provided below in **Table 8**:

Table 8: Dusk and Dawn Transect Survey Metadata

Survey Number	Dusk / Dawn Transect?	Date	Start/End Time	Sunset / Sunrise Time	Start / End Temperature (°C)	Cloud Cover (%)	Wind Speed (Beaufort)	Rain
1	Dusk	1/5/18	20:20 – 21:55	20:25	13.1 – 8.6	40%	1	None
2	Dawn	12/7/18	03:13 – 05:03	05:03	12.4 – 9.8	0%	1	None
3	Dusk	9/8/18	20:36 – 22:36	20:36	17 - 13	20%	1	None

4	Dusk	30/06/21	21:21 – 23:21	21:21	16 – 13.6	50%	0	None

Automated detector surveys

2017

An Anabat Express was deployed on each transect for 5 consecutive nights on the northern boundary hedge (see **Map 5** for location) to detect any rarer species which may not be recorded on the walked transects.

Constraints

Unfortunately no data was recorded for May. Reasons for this are currently unknown but could be attributed to faulty equipment or lack of bat activity. However, despite this it is thought that sufficient data has been gathered via other means to make a robust judgement regarding the impacts on bats within the ZoI.

The table below shows the numbers of passes recorded by the static detector per month per species. A 'pass' is the recording of a bat flying past the detector whilst echolocating.

As shown in the table below the species assemblage in 2017 was composed of mostly common bat species. There were some rare species recorded including Nathusius Pipistrelle and Barbastelle bats. The activity recorded for these species is low compared to the higher quantity of passes recorded for Common and Soprano Pipistrelle bats as the table shows.

It is therefore considered that small numbers of Nathusius Pipistrelle and Barbastelle bats were likely to be using the hedgerows and adjacent residential gardens along the northern boundary to commute through the site on a transient basis.

It is possible that they also use the nearby waterways and woodlands to the south-east of the site for foraging purposes but these will not be subject to any impacts from the development proposals.

2021

A single bat detector was deployed along the eastern boundary for five nights in July 2021 to update the data collected in 2017.

Table 9 below shows the number of bat passes recorded in July 2021.

Largely the species composition was similar to that recorded in 2017. No serotine were recorded on the static detector (though they were recorded on the transect survey, so are still present on site). Barbastelle were recorded again on site, and are likely using the site in a similar, transitional way as thought in 2017. No Nathusius pipistrelle calls were recorded during the surveys.

Table 9 – Numbers of recordings per species in July and August 2018 and July 2021.

	Barbastelle	Serotine	Myotis species	Noctule	Nathusius Pipistrelle	Common Pipistrelle	Soprano Pipistrelle	Long-eared species
July		26	61	40	6	76	70	1
August	10		37	8		76	41	20

July 2021	7		6	18		74	6	33

Emergence/re-entry surveys

A number of dusk emergence and dawn re-entry surveys were carried out on buildings confirmed to be bat roosts or to be suitable for roosting bats on the site.

Experienced surveyors were positioned around each building so that between the survey team, all aspects that could potentially by used for access or egress by bats were adequately covered by clear lines of sight from surveyors. Surveyors were all equipped with either Batbox Duets or Petterson D240X bat detectors with an Edirol solid state recorder. Any bats seen or heard were recorded, noting where possible; time, species heard/seen, direction of flight, call characteristics, behaviour and whether the bat emerged or re-entered a roost location.

Survey metadata for the dusk emergence survey is provided below in **Table 9;**

Table 9: Emergence and Re-entry Survey Metadata

Building Ref.	Date	Dusk/Dawn?	Start/End Time	Sunset / Sunrise Time	Start / End Temperature (°C)	Cloud Cover (%)	Wind Speed (Beaufort)	Rain
A	1/5/18	Dusk	20:10 – 21:55	20:25	13.1-8.6	40%	1	None
	12/7/18	Dawn	03:18 – 05:15	05:03	10 – 8.7	0%	1	None
	21/8/18	Dusk	19:58 – 21:55	20:13	18.3 – 16.1	0%	0	None
	28/5/21	Dawn	03:16 – 05:15	05:01	6.8 – 7.5	50%	0-1	None
	30/6/21	Dusk	21:06 – 23:00	21:21	16.1 – 14.3	50%	0	None
B	28/5/21	Dawn	03:16 – 05:15	05:01	6.8 – 7.5	50%	0-1	None
	30/6/21	Dusk	21:06 – 23:00	21:21	16.1 – 14.3	50%	0	None
C	25/5/18	Dawn	03:15 – 05:16	05:01	16 – 13.5	100%	1	None
	11/7/18	Dusk	21:01 – 23:01	21:16	19.2 – 14.4	20%	1	None
	21/8/18	Dusk	19:58 – 21:58	20:13	18.3 – 16.1	0%	1	None
	28/5/21	Dawn	03:16 – 05:15	05:01	6.8 – 7.5	50%	0-1	None

	30/6/21	Dusk	21:06 – 23:00	21:21	16.1 – 14.3	50%	0	None
D	25/5/18	Dawn	03:17 - 05:15	05:02	16 – 13.5	90%	1	None
	21/8/18	Dusk	19:56 – 21:55	20:13	18.3 – 16.1	0%	1	None
	28/5/21	Dawn	03:16 – 05:15	05:01	6.8 – 7.5	50%	0-1	None
E	21/8/18	Dusk	19:58 – 21:58	20:13	18.9 – 16.5	20%	2	None
	28/5/21	Dawn	03:16 – 05:15	05:01	6.8 – 7.5	50%	0-1	None
	30/6/21	Dusk	21:06 – 23:00	21:21	16.1 – 14.3	50%	0	None

Results

2017

Building A - A total of **two** common pipistrelles were found to be using the building and were seen emerging/re-entering the apex of the northern gable end of the bungalow where there is a gap above a hanging tile below the eaves. An emergence was also recorded on the north-west aspect of the roof but the exact location was not confirmed.

Building C – A total of **six** Long-eared bats were recorded emerging from the building at various locations. A main access point was identified on the north-east corner of the building where there is a hole leading into the roof space. There are also gaps under the barge boards along the roof edge on the south-west side of the building which was identified as a possible emergence point. A total of two Common Pipistrelles were also recorded emerging from the south-east gable end of the building and also a slipped tile on the southern aspect of the roof.

No emergences or re-entries were recorded on buildings D and E. Long-eared bats were also seen foraging inside the greenhouses and polytunnels around the site during the surveys. Other key foraging areas include the garden area of the bungalow and also the wooded tree line to the south of the site which were found to be of value to Soprano and Common Pipistrelles, Long-eared bats and also the occasional Serotine and Noctule.

There were no significant constraints to the surveys and conditions were within the specified parameters outlined in the BCT survey guidelines (2016).

2021

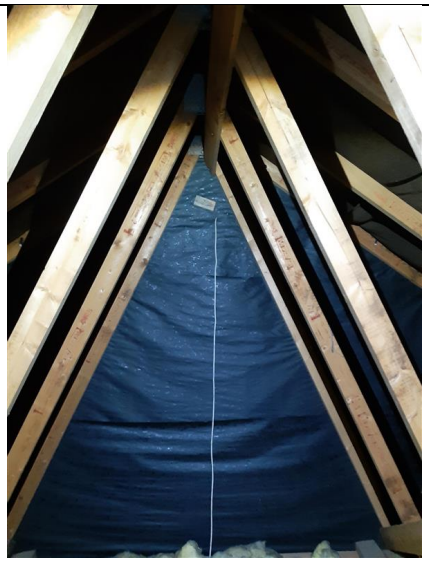
Building A – A total of **one** brown long-eared bat potentially emerged from building A along the northern edge of the building. The exact location was not confirmed.

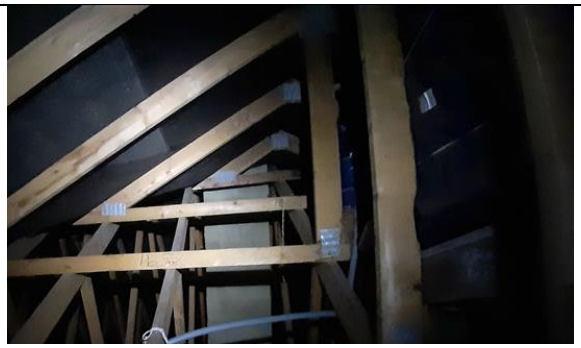
No emergences were recorded from Building B

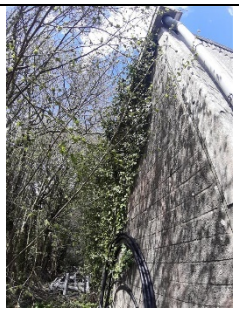
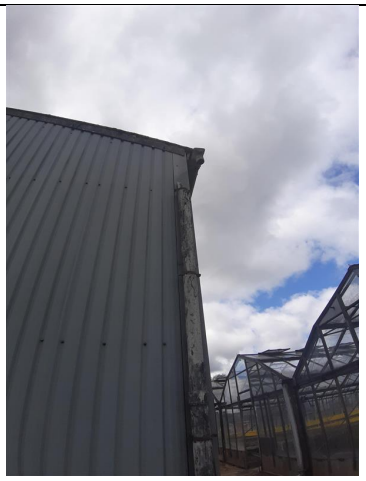
Building C – A total of three emergences were recorded from building C along the lead valley between the two roof pitches on the southern aspect of the building. The species of bat could not be determined, though as the bats were either not echolocating or were echolocating too quietly to detect

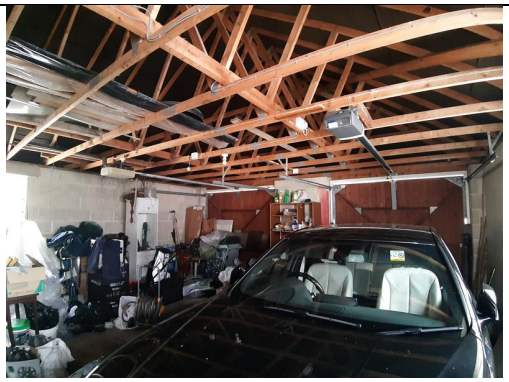
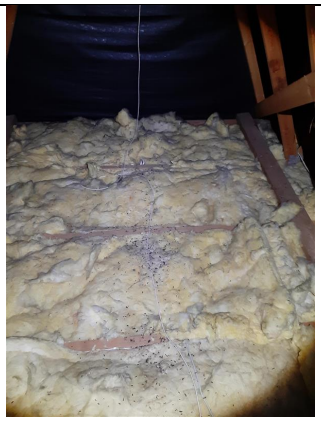
and these emergences were then followed by brown long-eared foraging around this area, it is likely that these bats were brown long-eared.

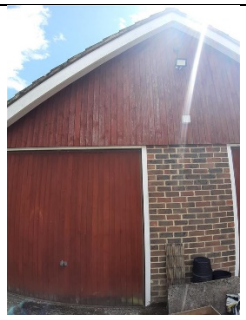
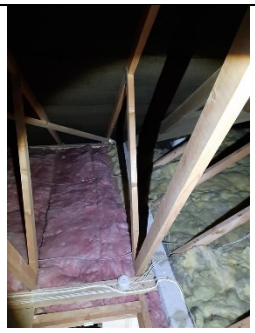
No emergences or re-entries were recorded on buildings D and E. Long-eared bats were seen foraging inside the greenhouses and polytunnels around the site during the survey. The other key area of foraging was within the bungalow garden

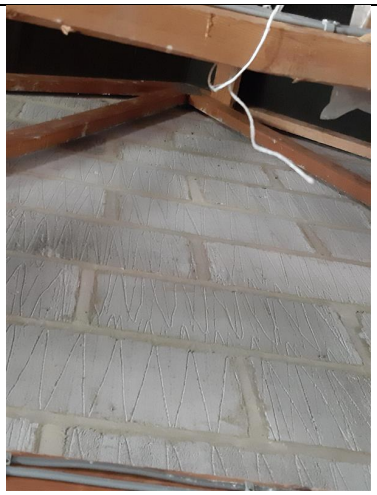
Reference Number	Feature	Description	Photo
1	Gap in Soffit, Edge Tile and lead flashing	Missing mortar beneath edge tile and also some lifted lead flashing providing space for crevice dwelling and Long-eared bat species	
2	Roof void	Large roof void present providing suitable roosting area for long eared and pipistrelle bat species	
3	Bat droppings	Bat droppings in loft space	

4	Roof void	Large roof void present providing suitable roosting area for long eared and pipistrelle bat species	
5	Cable hole	Small hole where cable feeds into apex of gable end providing access to loft space	
6	Roof void	Large roof void present providing suitable roosting area for long eared and pipistrelle bat species	
7	Chimney	Gap in brickwork on chimney breast possibly leading into internal chimney space	

8	Internal building structure	Internal view of single skinned building D	
9	Ivy	Ivy covering outside of building D	
10	Metal Edging	Lifted on the corner providing potential access for individual crevice dwelling bats	
11	Building D	Front view of building D	
12	Building A	West view of building A	

13	Building B	Internal of building B	
14	Metal Edging	Lifted on the corner providing potential access for individual crevice dwelling bats	
15	Droppings	Bat droppings found on insulation in loft	
16	Droppings	Further evidence of bat droppings in loft space	

17	Building B	External view	
18	Internal roof void	Droppings on wall of building	
19	Internal roof void	Bat droppings	
20	Building B	Internal space	
21	Droppings	Further droppings found on items in loft space	

22	Droppings	Droppings on wall of building	
23	Droppings	Evidence of bat droppings on internal cavity floor	
24	Droppings	Further evidence of droppings in loft	
25	Building C	Building C internal void	

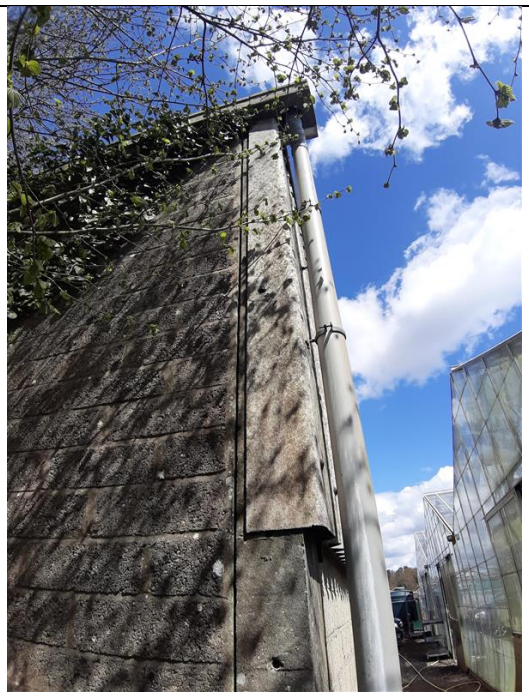
26	Gaps in roof	Gaps in roof of building A showing potential ingress points for bats	
27	Lead flashing	Lead flashing slightly lifted on chimney providing space for 1-2 crevice dwelling species	
28	Corner of building C	Potential ingress points for bats	

29	Droppings	Further evidence of droppings	
30	Birds nest	Old birds nest seen under wooden staircase – possible robin or wren	
31	External Building E	Building B external view	

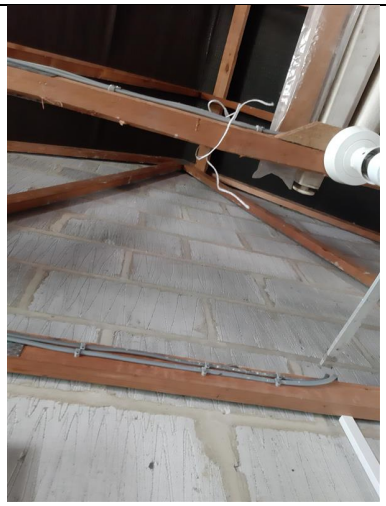
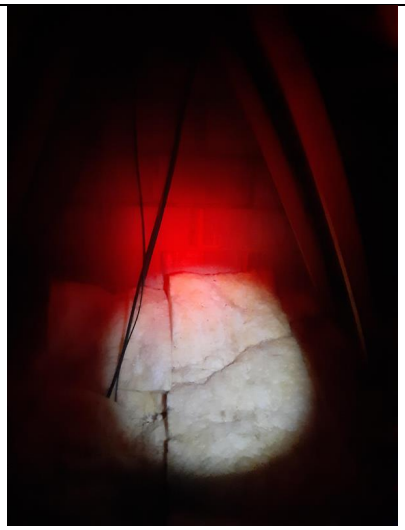
32	Bat droppings	Bat droppings in roof void	
33	Roof void	View of large roof void	
34	Droppings	Droppings on void wall	

35	Wood cladding	Gap between brickwork and wood cladding potentially suitable for crevice dwelling bats	
36	Droppings	Bat droppings on wall of building	
37	Building C	South view of building C	

38	Building A	North view of building A	
39	Internal roof void	Roof void	

40	Lead flashing	Lead flashing slightly lifted on chimney providing space for 1-2 crevice dwelling species	
41	Metal edging	Potential access from bottom for crevice dwelling bats	
42	Gaps in roof lining	Roof lining showing gaps that bats could use	

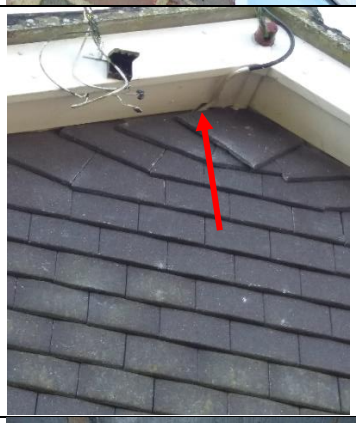
43	Internal Roof void	Large roof void	
44	Building D	Internal view of building D	
45	Loose tiles	Potential crevices for crevice dwelling bats	
46	Building D	Internal view of building D	

47	Bat droppings on wall		
48	Internal roof void	Large roof void	
49	Roof void	Internal roof void	

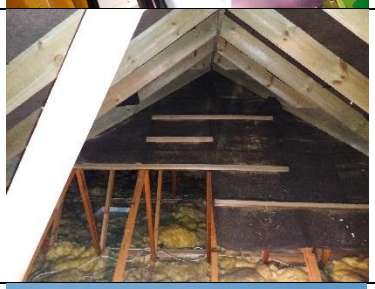
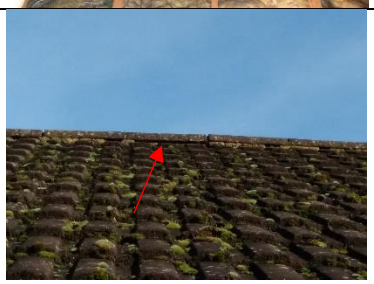
Appendix 4

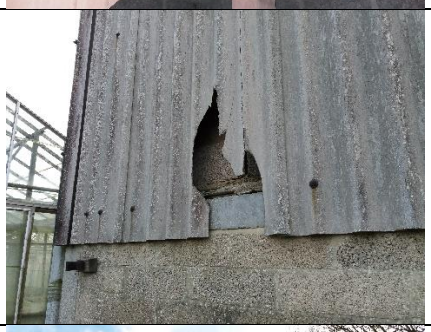
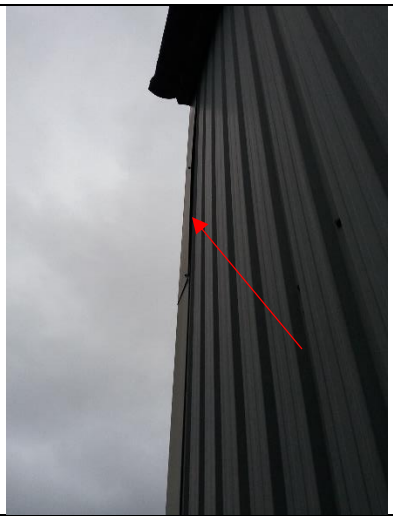
Bat Building Inspection Notes

Target Note reference	Feature	Description	Photo
Building A – residential bungalow			
1	Missing tile	Hole where hanging tile is missing	
2	Chimney	Gap in brickwork on chimney breast possibly leading into internal chimney space	
3	Lead flashing	Lead flashing slightly lifted on chimney providing space for 1-2 crevice dwelling species	
4	Hanging tile	Gap between soffit and hanging tile on edge of conservatory roof leading into space behind tiles or into loft space	

5	Missing hanging tile	Hanging tile missing with access to internal loft space or behind tiles	
6	Cable hole	Small hole where cable feeds into apex of gable end providing access to loft space	
7	Droppings	100+ Common Pipistrelle droppings found on top of insulation in loft space behind feature number 6 Thought to be approximately 1-2 years old	
8	Droppings and staining	Some droppings seen on end wall of loft below hole in apex and also some staining visible which suggests access point for bats	

Target Note reference	Feature	Description	Photo
Building C – Nursery office block			
9	Edge tile and lead flashing	Missing mortar beneath edge tile and also some lifted lead flashing providing space for crevice dwelling bat species and also Long-eared bats	
10	Edge tile	Gap between mortar and edge tile providing space for 1-2 crevice dwelling species	
11	Ridge tile	Gap under ridge tile on south-most ridge of roof providing space/access for crevice dwelling and long-eared bats	
12	Droppings	Location of approximately 100-150 Brown Long-eared droppings within loft space.	

13	Droppings and staining	More bat droppings and staining observed on the end wall of the loft below a hole in apex suggesting potential access point Bat droppings were also found on items stored in the loft	 
14	Droppings	A second patch of approximately 300 Brown Long-eared droppings were found under central ridge north of target note 11	
15	Ridge tiles	3-4 gaps under ridge tiles along central ridge of roof north of 10 providing access for long-eared and crevice dwelling species.	

Target Note reference	Feature	Description	Photo
Building D – Asbestos workshop			
16	Birds nest	Old birds nest seen under wooden staircase – possible robin or wren	
17	Exterior asbestos wall	Large hole in asbestos cladding on exterior of building leading to cavity between wall and staircase	
18	Exterior cladding	Exterior cladding panel slightly lifted providing linear gap along bottom edge which could provide access for crevice dwelling species.	
Building E – Storage unit			
19	Metal edging	Lifted on the corner providing potential access for individual crevice dwelling bats.	

20	Metal edging	Same as above	
21	Metal edging	Same as above	N/A
22	Inner breeze block wall	Cavity between breeze block and outer metal structure possibly providing roost space for 1-2 bats	

Swift Ecology

FOR LABORATORY USE ONLY

Company	EPR
Date	300621

POSITIVE CONTROL SAMPLE		Report date to SEL	
		Author	

SAMPLES

SAMPLE NUMBER	Group	Suspected identity of sample	DNA EXTRACT code	SPECIES	COMMENTS	qPCR primers
SEL4830-1	C. Bats.	0	**EG-2021-0476**	Pipistrellus pipistrellus (Common pipistrelle bat)		Ppipcytb
SEL4830-2	C. Bats.	0	**EG-2021-0477**	Plecotus auritus (Brown long-eared bat)		Paurcytb
SEL4830-3	C. Bats.	0	**EG-2021-0478**	Plecotus auritus (Brown long-eared bat)		Paurcytb

Ecotype Genetics

COMMENTS

	Sequencing		
Ct	primers	match%	bases
17			
19			
16			