

**CYDER MILL BARN
COLD POOL LANE
BADGEWORTH**

Ecological Appraisal

for

Mrs M. Shorting

July 2022

DRAFT

THELandmark
PRACTICE

1 Theynes Court
Long Ashton Business Park
Yanley Lane
Bristol BS41 9LB
United Kingdom

Tel: +44 (0)117 923 0455

enquiries@thelandmarkpractice.com
www.thelandmarkpractice.com

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Landmark Practice Details

The Landmark Practice (TLP) is an award winning multi-disciplinary consultancy offering bespoke and integrated services in ecology, environmental planning, landscape architecture and architectural graphics. We are a CIEEM Registered Practice and are independent and respected, working on a large range of development projects for our clients throughout the UK. Full details of the practice can be found at <http://thelandmarkpractice.com/>.

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**D denotes a Draft version*

The information which we have prepared and provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Tel: 0117 923 0455

EXECUTIVE SUMMARY

The Landmark Practice was commissioned by Mrs M. Shorting in May 2022 to prepare an ecological appraisal to support a planning application for the conversion of Cyder Mill Barn, Cold Pool Lane, Badgeworth, Gloucestershire. This report describes ecological survey work undertaken to inform the application, considers the impacts of the proposed development on the ecology of the site and environs and describes suitable avoidance, mitigation and enhancement measures to address predicted impacts. The application site consists of a single, two storey barn (which is a Grade 2 listed building) with attached smaller outbuildings and surrounding other neutral grassland. The development proposal is for the conversion of the Grade 2 listed timber barn to a residential dwelling.

A desk study was undertaken to find details of designated sites and legally protected and notable species records within the zone of influence. An Extended Phase 1 Habitat survey was conducted of the application site in May 2019 and a UK Habs Survey was undertaken in May 2022 to map the habitats present and highlight potential for protected species to occur.

The majority of habitats which comprise the application site are considered to be of low intrinsic ecological value due to the limited quality, distinctiveness and extent of the habitats present. External and internal inspections of the barn and associated buildings identified numerous bat droppings, which after DNA analysis were identified as Brandt's (*Myotis brandti*), serotine (*Eptesicus serotinus*), brown long-eared (*Plecotus auritus*) and lesser horseshoe (*Rhinolophus hipposiderus*). The barn and associated buildings were therefore confirmed as bat roosts for these species and subsequently three dusk emergence/dawn re-entry surveys were undertaken in 2019 with additional updates surveys in 2022 (**ongoing**). Automated detector surveys were also undertaken in 2019 and 2022. To date the surveys identified that the site was a roost for a number of bat species including lesser horseshoe, common pipistrelle, soprano pipistrelle, brown long-eared, serotine and Brandt's (possibly other *Myotis* sp as well).

The proposed scheme will likely damage or destroy the abovementioned roosts, through proposed refurbishment of the barn. In order to proceed with the proposed development legally, a full European Protected Species Mitigation Licence from Natural England will be required. A detailed Mitigation Strategy and Roost Compensation strategy must be prepared to inform the licence application, and this is detailed briefly within this report.

The detailed mitigation strategy outlined within this report is considered sufficient to prevent an impact on the bat population within the site.

The site was found to support breeding birds, with nesting material found within the main barn. The trees on-site also provide suitable nesting habitat. Furthermore, the site is considered to offer potential to support badgers, reptiles and hedgehog, the latter of which was recorded on-site during the dusk emergence surveys in July 2019 and June 2022. Mitigation measures for badgers, bats and breeding birds are discussed. Impacts to reptiles and hedgehog are not expected and therefore do not require specific mitigation measures, however any changes to the development proposal resulting the removal of suitable habitat for these species will require suitable mitigation.

In line with planning policy, it is recommended that the site is enhanced for bats and birds through the installation of bird and bat boxes, and hedgehog through improved connectivity and a hedgehog dome.

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1.0 INTRODUCTION

1.1 In May 2022, The Landmark Practice (TLP) was commissioned by Mrs M. Shorting to assess the potential ecological impacts associated with the proposed redevelopment of Cyder Mill Barn, Badgeworth, hereafter referred to as the 'application site.'

1.2 TLP had previously undertaken Ecological Survey and Assessment of the site in 2019/2020 – (TLP, 2020). This report builds upon the findings and assessment undertaken in 2019/20 to inform the latest scheme design.

Site Location and Description

1.3 The application site, which measures approximately 0.1 ha, is located on Cold Pool Lane, Badgeworth, between Cheltenham and Gloucester (approximate central grid reference SO 90457 19488, **Figure 1** refers). The local planning authority is Tewkesbury Borough Council (TBC). The application site is located within the village of Badgeworth, in a predominantly rural landscape.

1.4 The site comprises a single, two storey barn with attached smaller outbuildings and surrounding managed grassland. The barn is a Grade 2 listed building. A number of mature and semi-mature trees are also present on-site.

Development Proposals

1.5 The proposed scheme involves the "*Proposed change of use of barn to residential to include alterations and extension*". The proposed site layout is shown in **Appendix A**.

Scope of Assessment

1.6 This Ecological Appraisal sets out the findings of the desk based and field-based ecological assessment. The report considers the potential for ecological impacts to occur and outlines opportunities for avoidance, mitigation and enhancement measures based upon the development proposals in the context of relevant legislation and planning policy.

1.7 The aims of this report are to:

- Define the ecological baseline, identifying important ecological features that are of relevance to the proposals;
- Detail avoidance, mitigation and compensation measures where necessary; and
- Identify potential opportunities to enhance and add to the biodiversity resource within the application site and surrounding landscape in line with local and national planning policy.

2.0 LEGAL AND PLANNING CONTEXT

Legal Context

2.1 A range of habitats and species that may actually or potentially be present at the site are afforded legal protection under domestic and European legislation (**Appendix B**) refers).

Planning Policy Context

2.2 National and Local Planning Policy has been considered within the assessment. The relevant Development Plan policies are reproduced in (**Appendix B**).

3.0 METHODS

3.1 The method for carrying out this assessment follows standard guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM) (CIEEM, 2019). The assessment has been undertaken by appropriately qualified ecologists using recognised best practice methodologies wherever possible and where these exist. Reasons for any deviation from best practice methodologies are provided below, but usually relate to timing of instruction, access restrictions and/or application of professional judgement, as appropriate.

Desk Study

3.2 The desk study involved the collation and review of contextual information such as designated sites and past records of protected and priority species occurring within the potential zone of influence¹ of the application site. Due to the previous survey work and desk study undertaken by TLP in 2019/2020, it was considered unnecessary to conduct an additional records request from the local records centre.

3.3 The desk study involved collating information from the following sources:

- Gloucestershire Centre for Environmental Records (GCER); and
- Multi-Agency Geographic Information for the Countryside (MAGIC);

3.4 The desk study was undertaken during February 2020 and involved obtaining the following information:

- International statutory designations (10 km radius);
- National statutory designations (5 km);
- Non-statutory designated sites (1 km);
- Section 41 Habitats of Principal Importance (2 km);
- Protected/notable species records (1 km);
- Bat species records (2 km); and
- Granted European Protected Species Mitigation Licences (EPSML) (4 km).

3.5 In light of the scope of the proposed development, the abovementioned search areas are considered sufficient to cover the potential zone of influence of the project in relation to designated sites, habitats and species. Geological designated sites have not been included as these are not relevant to the ecological assessment. Biological records that are no more than 10 years old have been included.

Preliminary Ecological Appraisal

Extended Phase 1 Habitat Survey

3.6 An Extended Phase 1 Habitat survey was conducted of the application site on 24th May 2019 by a suitably experienced ecologist from TLP. Conditions during the survey were sunny and windy.

3.7 The Extended Phase 1 habitat survey followed standard methodology published by the Joint Nature Conservation Committee (JNCC, 2010). Each identifiable and definable land parcel is assigned a habitat type (as defined by the JNCC). Dominant plant species present were recorded in accordance with plant species nomenclature in New Flora of the British

¹ The 'zone of influence' for a project is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities. (CIEEM, 2018)

Isles 3rd Edition (Stace, 2010). This level of survey does not aim to compile a complete floral and faunal inventory for the site.

UK Habitat Classification (2022)

3.8 With the advent of Biodiversity Net Gain (BNG), the site was subject to assessment via the UK Habitat Classification “UK Habs” on 26th May 2022. It comprises a unified and comprehensive approach to classifying habitats, designed to provide a simple and robust approach to survey and monitoring for the 21st century. The classification, which covers terrestrial and freshwater habitats, is flexible enough for use in a wide range of survey types from walkover surveys of small urban sites to regional and national scale rural habitat mapping.

3.9 UK Habs is the base system on which Biodiversity Net Gain (BNG) calculations are based and is seen as the successor to the Extended Phase 1 Habitat Survey. Dominant plant species present were recorded in accordance with plant species nomenclature in Stace (2010). This level of survey does not aim to compile a complete floral and faunal inventory for the application site.

Protected Species Assessment

3.10 As part of the appraisal the application site was assessed for its potential to contain protected or notable species. The assessment was based on the habitats present on site and their suitability for protected species. Further information on the legal protection of these species is presented in **Appendix B**. Protected species assessed for, but not limited to, were:

- Badger (*Meles meles*);
- Bats;
- Dormouse (*Muscardinus avellanarius*);
- Nesting birds;
- Otter (*Lutra lutra*);
- Water vole (*Arvicola amphibius*);
- Amphibians (inc. Great crested newt (*Triturus cristatus*));
- Reptiles;
- Invertebrates; and
- White clawed crayfish (*Austropotamobius pallipes*).

3.11 In addition, a search was made for evidence of non-native, invasive species.

Building Inspection (2019) & Update (2022)

3.12 An update preliminary bat roost assessment was conducted on 26th May 2022 by an experienced ecologist. The inspection entailed systematically surveying all buildings on site, both externally and internally, looking for evidence of roosting bats and other protected species.

3.13 The external inspection was undertaken during daylight hours from ground level using binoculars and a high-powered torch. A systematic search of the exterior of the structure was undertaken.

3.14 The following evidence was sought:

- The presence of potential access and egress points for bats into the building;
- The presence of potential crevice roosting location on the external of the building;

- Evidence of the use of such potential access points or crevice roosts by bats such as scattered droppings, fur-oil staining, urine staining and squeaking noises; and
- Any other signs of use by bats including the presence of bats themselves.

3.15 The search included particularly focusing on looking for evidence of bats:

- Windowsills, walls;
- Windowpanes;
- Peeling paint;
- Lifted render;
- Hanging tiles;
- Weatherboarding/wooden sarking;
- Eaves;
- Soffit boxes;
- Fascias;
- Under tiles and slates;
- Lead flashing; and
- Gaps in brickwork and stonework.

3.16 This list is not exhaustive, and any areas deemed suitable for roosting bats were inspected.

Internal Survey

3.17 The internal inspection was undertaken during daylight hours and was aided by the use of a high-powered torch. The building was searched for evidence of bats in the form of bats themselves, droppings and feeding remains. Internal signs of roost access and egress points were also identified, for example light shining into internal building spaces from the exterior of the building.

3.18 Evidence of the use of the internal building by bats were search for in the form of:

- Bats;
- Bat droppings;
- Urine splashes;
- Feeding remains;
- Squeaking noises; and
- Fur-oil staining.

3.19 Bats regularly utilise specific areas within roofs (see below), which were searched as a priority for any bat fields signs;

- Mortise and tenon joints;
- The top of gable end or dividing walls
- The top of chimney breasts
- Ridge and hip beams and other roof beams
- Between tiles and roof lining;
- Behind purlins;
- The junction of roof timbers, especially where the ridge and hip beams meet;
- All beams (free hanging bats); and
- Under flat felt roofs.

3.20 Other areas within buildings that bats can roost include (this is not an exhaustive list);

- In lintels above windows and doors;
- Behind wooden panelling;
- Furniture (inside cupboards, under staircases);
- Behind window shutters, board up windows or curtains;
- Inside chimneys accessible from fireplaces;
- Behind lifted paint, peeling wallpaper, lifted plaster etc;
- Basements; and
- Plant rooms.

3.21 Roosting bats and signs of their presence are not always visible, so any potential bat roosting locations were also noted during the survey.

3.22 Habitat suitability for foraging bats within the surrounding area was also assessed. As this increases the chances of bats being present.

Categorisation of Bat Roosting Potential of Buildings

3.23 Following the external and internal inspections, the buildings on site were categorised as having negligible, low, medium, high potential or a confirmed bat roost. The categories are based on the observations and information set out in **Table 1** which is based on current best practice guidelines (Collins, J. 2016). Following the emergence and re-entry surveys these were updated accordingly (**Table 1** refers).

Table 1: Categorisation of Bat Roosting Potential of Buildings

Level of Bat Roosting Potential	Rationale
Confirmed Roost	Presence of bats or evidence of use by bats.
High	Building with features that are highly suitable for roosting bats and with good connectivity to quality foraging habitat, such as woodland or lakes. Building has no evidence of current use by bats.
Moderate	Building with features present that are suitable for roosting bats and with connectivity to foraging habitat. Building has no evidence of current use by bats.
Low	Building with a low number of roosting opportunities and with limited connectivity to foraging habitat. Building has no evidence of current use by bats.
Negligible	Building with no or very limited roosting opportunities for bats, no evidence of use of bats and where the structure is isolated from foraging habitat.

DNA Analysis of Bat Droppings

3.24 Samples of droppings were collected during bat scoping surveys and sent to Swift Ecology for DNA analysis on 24th May 2019.

Bat Emergence Surveys (2019) and Updates (2022)

3.25 Following the Update Building Inspections, update bat emergence/re-entry surveys were conducted by suitably experienced ecologists during June and July 2022 (Surveys Ongoing).

- 3.26 The buildings were surveyed according to their roost potential (assessed following the building inspection - see **Table 1** above). The barn and its attached outbuildings were either classed as having high potential to support roosting bats or were confirmed as bat roosts. As a detailed suite of surveys was undertaken in 2019, it was deemed proportionate to verify/update the 2019 findings by conducting at least 2 emergence surveys.
- 3.27 Emergence/re-entry surveys using bat detectors are techniques used for locating roosts and gauging general bat activity in the area, and in this instance to determine whether the building within the survey area support bat roosts, as evidence of bats is not always found by inspections alone. In addition, emergence/re-entry surveys can also be used to determine the number and species of bats present, should a roost be identified. The technique is based on the following principles:
- The closer a bat is observed to sunrise or sunset, then the closer the roost (species dependant) is likely to be in relation to the surveyor's location; and
 - Bats fly away from their roost around sunset and return to their roost around sunrise (timings species dependant). During the dusk emergence survey, the building in question will be observed for bats emerging from the building.
- 3.28 The dusk surveys began fifteen minutes before sunset and continued for up to two hours. Dawn surveys commenced 1.5 hours before sunrise and finished fifteen minutes after sunrise. Experienced bat surveyors were strategically positioned to provide adequate coverage of the buildings and potential access/egress points. Thermal imaging cameras were also utilised to assist in identifying numbers and locations of emerging bats.
- 3.29 Timings and prevailing weather conditions of the emergence/re-entry surveys are provided in **Table 2**.

Table 2: Weather conditions during emergence/re-entry surveys.

Survey Type / Date	Start/End Time		Sunset/Sunrise	Temperature		Rain		Wind (Beaufort)	
	Start	End		Start	End	Start	End	Start	End
Dusk 11/07/2019	21:10	22:55	21:25	18	18	0	0	0	1
Dusk 05/08/2019	20:37	22:22	20:52	18	16	0	0	2	2
Dawn 30/08/2019	04:47	06:32	06:17	14	14	0	0	3	3
Dusk 14/06/2022	21:14	22:59	21:29	18	16	0	0	1	0
TBC – July 2022	-	-	-	-	-	-	-	-	-

- 3.30 Surveyors were equipped with ultrasonic bat detectors, observed the buildings for emerging bats, and used the bat detectors to transpose, listen to and record bat echolocation calls. Species (or in some cases genus) of bat were subsequently identified from the recorded calls using appropriate analysis software (Kaleidoscope or AnalookW).

Bat Activity – Automated Detector Surveys (2019) & Update (2022)

- 3.31 To supplement the emergence surveys, automated detectors were deployed inside the building in two locations over a five-night period in August 2019² and in a single location over a six-night period in June 2022.

Analysis

- 3.32 Bat echolocation calls were analysed using Analook and Kaleidoscope software, with bat species identified by comparison of sonograms with a reference of echolocation call parameters and library of known echolocation calls. Calls were assigned to species level where possible. Where this was not deemed possible, identification to genus level was made.
- 3.33 In addition to this, one in ten noise files were checked to confirm that the Kaleidoscope programme was running optimally for the site for which it was analysing data i.e., that background noise was not interfering with the labelling parameters. Where this was not the case, noise files were manually processed.

Bat Roost Assessment of Trees

- 3.34 Ground level assessment of trees comprises a detailed inspection of the exterior of a tree to look for features that bats could use for roosting (potential roost features). The inspection should systematically survey all parts of the tree (from all angles and from both close to the trunk and further away). A tree roost assessment can be undertaken at any time of the year, although the optimal period is between December and March, when leaves are absent. The inspection seeks to identify potential roosting features, which may include:

- Woodpecker holes;
- Rot holes;
- Hazard beams;
- Other cracks and splits in stems or branches;
- Partially detached platey bark;
- Knot holes;
- Man-made holes;
- Cankers in which cavities have developed;
- Other holes and cavities including butt-rots;
- Double leaders forming compression forks with included bark; and
- Gaps between overlapping stems or branches.

- 3.35 The category and the proposed works to the trees informed the need for and scope of further survey. The categories are:

- High suitability – a tree with one or more potential roost sites that are capable of supporting larger bat roosts on a more regular basis and potentially for a longer period of time;
- Moderate suitability – a tree with one or more potential roost sites but unlikely to support a roost of high conservation status (with respect to roost type);

² It should be noted however that the deployment returned only three nights of data. Though it should be noted that this was not the result of a detector fault or battery issues.

- Low suitability – a tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential;
- Negligible suitability – trees with negligible or no potential to support roosting bats.

Notes and Limitations

Desk Study

- 3.36 The lack of records for a species within the search area, does not necessarily indicate the absence of the species, but could merely be the lack of recording within that area.

Habitats Survey

- 3.37 Habitat surveys (Extended Phase 1/UK Habs) can be undertaken at any time of the year; however, the optimum time of year for these surveys to be undertaken is between April and September (inclusive). This survey was undertaken during the optimal period (in May). The survey area was visited over the period of one day. As such seasonal variations could not be observed and it is likely that only a selection of all species that occur within the site will have been recorded. However, it is considered that the combination of historic records from the desk study and the site visit provides an accurate representation of the various habitat types present at the site and their potential to support protected species. It is therefore considered that this was not a limitation to the study.

Bat Surveys

- 3.38 There were no constraints to survey during the 2019 Preliminary Roost Characterisation surveys with all of the buildings fully accessible to surveyors. During the 2022 update, the Main Barn Building A1 was easily accessible due to the volume of items being stored within. However, this is not considered a constraint to surveys.
- 3.39 The emergence and re-entry surveys were all undertaken by experienced and or licenced bat workers in suitable weather conditions spaced out over the peak bat activity season. Wind speed during the dawn survey was greater than optimal, however as bats were noted returning to the roost, this is not considered to be a significant limitation.
- 3.40 Bat surveys undertaken using bat detectors are inherently biased, as bats with louder calls (such as the *Nyctalus* species) will be recorded at a greater distance (and therefore more frequently) than species which use quiet calls such as *Plecotus* sp.
- 3.41 Long eared bat (*Plecotus* sp.) is a species that generally only emerges in full darkness, and which has a very quiet echolocation call, generally not detectable in the open if more than 2-3 m from the bat detector. As a result, long eared bats are difficult to detect during activity surveys and it is likely this species is under-recorded during such surveys.
- 3.42 Horseshoe bats (*Rhinolophus* sp.) are a genus that have directional echolocation and therefore are not always recorded on the bat detectors. As a result, horseshoe bats are difficult to detect during activity surveys and it is likely this species is under-recorded during such surveys. However, their roost exiting behaviour raise the chance of detection through the timing of emergence and light sampling behaviour.
- 3.43 Species identification by sonogram is limited (to a certain extent) by similarities in call structure. In addition, all bats can modulate their calls according to the habitats they are navigating, their behaviour and the information they require at the time. This imposes

limitations on reliable analysis particularly between species in the genera *Plecotus*, *Myotis* and *Nyctalus*.

Longevity of Baseline Data

- 3.44 The evidence set out in this report describes the characteristics of the application site at the time at which the survey was undertaken. Many species of wildlife are highly mobile by nature and will routinely take advantage of new opportunities which arise within their home ranges (CIEEM, 2019). Over time this will alter the baseline conditions present at the application site. Should there be delays in the delivery of this project, it is possible that the baseline ecology will change, for example by the establishment of new badger setts or a change in management of the site. In the event of a significant delay (12-18 months) between the baseline survey and commencement of works at the application site, advice on the implications of potential changes at the application site should be sought from a suitably experienced ecologist.

Nomenclature

- 3.45 Plant species nomenclature follows New Flora of the British Isles 3rd Edition (Stace, 2010) and bird species nomenclature follows the British Ornithologists' Union (BOU) English vernacular names in The British List: A Checklist of Birds of Britain (9th edition, 2017). Mammal nomenclature follows Mammals of the British Isles: Handbook 4th Edition (Harris and Yalden, 2008).

4.0 RESULTS

- 4.1 This section details the baseline ecological conditions within the application site's potential zone of influence and assesses the value of important ecological features, which are relevant to the assessment in the context of the proposed development. For each important ecological feature, a level of value is assigned based on guidance on ecological assessment provided outlined in the Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2019). Further details are provided within relevant **Appendices** and **Figures** to the rear of this report.

Designated Sites

Statutory Designated Sites

- 4.2 Statutory designations often represent the most significant ecological receptors, being of recognised importance at an international and/or national level. International designations include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites. Whilst national designations include Site of Special Scientific Interest (SSSI), National Nature Reserves (NNRs) and Local Nature Reserves (LNR).
- 4.3 The application site is not covered by any such designation. There are, however, sites covered by such designations within the application site's potential zone of influence, described in **Table 3** below and shown in **Figure 2**.

Table 3: Statutory Designated Sites within the site's potential Zone of Influence.

Name of Site and Designation	Approximate Distance/Direction from Site	Feature(s) of interest.
Badgeworth SSSI	1.1 km north-east	The site comprises of two adjacent fields within which a pond surrounded by marshy grassland exists. The site is one of the UK's only two sites where adder's-tongue spearwort (<i>Ranunculus ophioglossifolius</i>) is found. Other wetland species of note include water forget-me-not (<i>Myosotis</i> sp.), marsh foxtail (<i>Alopecurus geniculatus</i>) and floating sweet grass (<i>Glyceria fluitans</i>).
Cotswolds AONB	1.8 km south-east	The Cotswolds contain nationally rare limestone grassland and ancient beechwoods. Mixed and arable farming dominate the landscape.
Griffiths Avenue LNR	3.3 km north-east	The site comprises of two wildflower meadows which support over fifteen species of butterfly. A variety of flora is also present, and badgers and bats have been recorded at the reserve.
Crickley Hill and Barrow Wake SSSI	3.9 km south-east	Species-rich grassland, scrub and semi-natural woodland are present at the site. Species recorded in within the grasslands on-site include small scabious (<i>Scabiosa columbaria</i>), clustered bellflower (<i>Campanula glomerata</i>), chalk milkwort (<i>Polygala calcarea</i>), musk orchid, early-purple orchid (<i>Orchis mascula</i>) and bee orchid (<i>Ophrys apifera</i>). The rare snail (<i>Abide secale</i>), and cistus forester moth (<i>Adscita geryon</i>) have been recorded on-site, as have chalkhill blue (<i>Lysandra coridon</i>), green hairstreak (<i>Callophrys rubi</i>), marsh fritillary (<i>Eurodryas aurinia</i>) and Duke of Burgundy fritillary (<i>Hamearis lucina</i>)
Leckhampton Hill and Charlton Kings Common SSSI	4.2 km south-east	The site comprises of scrub, unimproved calcareous grassland, woodland, scree slopes and cliffs. The grassland contains a variety of species, including tor-grass (<i>Brachypodium pinnatum</i>), upright brome (<i>Bromus erectus</i>), common rock-rose (<i>Helianthemum nummularium</i>), fly orchid (<i>Ophrys insectifera</i>), purple milk vetch and the rare musk orchid (<i>Herminium monorshis</i>) and meadow clary (<i>Salvia pratensis</i>).
Hucclecote Meadows LNR	4.4 south-west	The site comprises of ancient traditionally managed hay meadows containing a diverse array of wildflowers.
Hucclecote Meadows SSSI	4.4 south-west	The site comprises of a series of herb-rich lowland meadows that have traditionally been managed for hay and stock grazing. Around 75 meadow species have been recorded at the site. Species that are typical of this habitat type and have been recorded on-site include devil's-bit scabious (<i>Succisa pratensis</i>), saw-wort (<i>Serratula tinctoria</i>), lady's bedstraw (<i>Galium verum</i>), yellow rattle (<i>Rhinanthus minor</i>) and betony (<i>Stachys officinalis</i>). The less common dyer's greenweed (<i>Genista tinctoria</i>), green-winged orchid (<i>Orchis morio</i>) and the nationally rare corky-fruited water dropwort (<i>Oenanthe pimpinelloides</i>) have also been recorded here.
Bamwood Arboretum LNR	4.6 km south-west	The arboretum contains a number of mature trees and unimproved grassland.
Coopers Hill LNR	4.7 km south	This site contains ancient beech woodland with pockets of orchid-rich limestone grassland. Roman snail (<i>Helix pomatia</i>) is also present on-site.

Name of Site and Designation	Approximate Distance/Direction from Site	Feature(s) of interest.
Cotswold Commons and Beechwoods SSSI	4.7 km south	The site comprises of ancient beech woodland and unimproved grassland. Key species include green hellebore (<i>Helleborus viridis</i>), frog orchid (<i>Coeloglossum viride</i>), musk orchid, common wintergreen (<i>Pyrola minor</i>), bird's-nest orchid (<i>Neottia nidus-avis</i>) and broad-leaved helleborine (<i>Epipactis helleborine</i>). A diverse array of invertebrate species have been recorded on-site. There are also disused mines within the site that are used as winter roosts by several bat species.
Cotswold Beechwoods SAC	4.7 km south	This site has been primarily designated for its <i>Asperulo-Fagetum</i> beech forests, which comprise to the most westerly extensive blocks of this habitat in the UK. Rare plants recorded in the beechwoods include red helleborine (<i>Cephalanthera rubra</i>), stinking hellebore (<i>Helleborus foetidus</i>), narrow-lipped helleborine (<i>Epipactis leptochila</i>) and wood barley (<i>Hordelymus europaeus</i>). There is also a rich assemblage of mollusc species. In addition, the site contains semi-natural dry grasslands and scrubland facies located on calcareous substrates, many of which are important sites for orchids.
AONB: Area of Outstanding Natural Beauty LNR: Local Nature Reserve SAC: Special Area of Conservation SSSI: Site of Special Scientific Interest		

- 4.4 The site lies within the SSSI Impact Risk Zone for Badgeworth SSSI and Cotswold Commons and Beechwoods SSSI.

Non-Statutory Designated Sites

- 4.5 Non-statutory designations are 'local sites' which are commonly of at least County level importance, and which receive protection under local planning policy only. In Gloucester these sites are referred to as Local Wildlife Sites (LWS). Additional designated sites which should be considered at this level include Unconfirmed Sites (US) where these are not covered by other designations.
- 4.6 The site is not covered by any such designation and no non-statutory designated sites are present within 1 km of the site. The records search revealed that a Conservation Road Verge is present approximately 750m to the east on Cold Pool Lane.

Habitats of Principal Importance and Ancient Woodland

- 4.7 The desk study identified no Habitats of Principal Importance or Ancient Woodland present within the site. Several areas of Habitats of Principal Importance are present within the 2 km search radius. In addition, three areas described as 'No main habitat but additional habitat exists' are present within the search area. Two of these contain deciduous woodland and one contains traditional orchard, however these habitats cover less than 50% of each site and therefore are not included in the 'deciduous woodland' and 'traditional orchard' habitat layers on MAGIC. **Table 4** provides a summary of Habitats of Principal Importance within the 2 km search area.

Table 4: Habitats of Principal Importance

Habitat	Summary of Features	Distance from site of nearest feature
Deciduous woodland	Semi-natural deciduous woodland post 1600 AD.	0.2km west
Traditional orchard	Open grown fruit and nut trees set in herbaceous vegetation.	0.25km northeast
Wood pasture and parkland	Areas traditionally used for grazing with survival of multiple generations of trees, characteristically with some veteran trees or shrubs.	1.8km southeast

Habitats

4.8 The principal habitats within and around the site, together with their dominant/characteristic plant species, were identified in 2019/20 by an Extended Phase 1 Habitat Survey. As discussed above, since then the UK Habitat Classification has replaced Phase 1 as the primary baseline survey methodology. As such, the Extended Phase 1 was updated to UK Habs in May 2022. The distribution of different habitat types within the site is mapped in **Figure 3**. In terms of UK Habs categories, the site comprises the following:

4.9 Habitats recorded within the footprint of the site were:

- Modified Grassland (g4)
- Built Linear Feature (u1e)
- Buildings (u1b5)

Modified Grassland (g4) – (11 scattered trees, 17 ruderal/ephemeral, 64 mown)

4.10 A large proportion of the site comprises of modified grassland. Sward composition was relatively limited and included perennial rye-grass (*Lolium perenne*), red fescue (*Festuca rubra*), annual meadow-grass (*Poa annua*), false oat-grass (*Arrhenatherum elatius*), cock's foot (*Dactylis glomerata*) and Yorkshire fog (*Holcus lanatus*)

4.11 Herb composition was variable with some differences due to levels of shading/specific microclimates with daisy (*Bellis perennis*), dandelion (*Taraxacum* agg.) and creeping buttercup (*Ranunculus repens*), cleavers (*Galium aparine*), wood avens (*Geum urbanum*), curled dock (*Rumex crispus*), herb Robert (*Geranium robertianum*), common nettle (*Urtica dioica*), pendulous sedge (*Carex pendula*), stinking iris (*Iris foetidissima*), forget-me-knot (*Myosotis* sp.), common sow-thistle (*Sonchus oleraceus*) and hart's-tongue fern (*Asplenium scolopendrium*).

4.12 The grassland was quite variable in character over both summer 2019 and summer 2022, becoming quite long and rough at times due to infrequent cutting.

4.13 A number of trees are present on-site. Numerous pine trees (*Pinus* sp.) are present in a line on the northern and part of western boundaries of the site. Three pine trees are also present adjacent to the building. Other trees include a mature Leylandii (*Cupressus x leylandii*), pollarded willows (*Salix* sp.), hybrid poplar (*Populus* sp.), a mature horse chestnut (*Aesculus hippocastanum*) covered in ivy (*Hedera helix*), one mature ash (*Fraxinus excelsior*) and one small ash.



Built Linear Features (u1e)

- 4.14 A wooden close board fence in varying condition surrounds the site, part of which is covered in ivy.

Buildings (u1b5) – (77 neglected, 88 barn)

- 4.15 A timber and tile barn and five associated outbuildings are located approximately in the centre of the site. All the outbuildings are contiguous with the barn being lean to attachments. Detailed descriptions of these buildings are found in **Table 6**.





Evaluation

- 4.16 Overall, the majority of habitats within the site are considered to be of low intrinsic ecological value due to the limited quality, distinctiveness and extent of the habitats present. The habitats are common and widespread but do offer opportunities for protected species across the site, as discussed below. The habitats are assessed to be of value at a **Site** level.

Badger

- 4.17 No records of badger were returned by the data search within 1 km of the application site for the past 10 years.
- 4.18 No evidence of badger was noted during any of the surveys undertaken, however suitable foraging habitat is present on-site, though limited in extent.

Evaluation

- 4.19 No badger evidence was found within the application site. Badgers may periodically use the site for foraging purposes; therefore, the site is considered to be of **Site** value for this species. Further consideration with regard to this species is required, as detailed in **Section 5.0**.

Bats

- 4.20 The data search returned records of the following bat species within 2 km of the site in the past 10 years. These were:
- Common pipistrelle (*Pipistrellus pipistrellus*);
 - Soprano pipistrelle (*Pipistrellus pygmaeus*);
 - Nathusius' pipistrelle (*Pipistrellus nathusii*);
 - Serotine (*Eptesicus serotinus*);
 - Leisler's (*Nyctalus leisleri*);
 - Unidentified *Myotis* (*Myotis* sp.);
 - Unidentified long-eared bat (*Plecotus* sp.);
 - Lesser horseshoe (*Rhinolophus hipposideros*);
 - Greater horseshoe (*Rhinolophus ferrumequinum*); and
 - Western barbastelle (*Barbastella barbastellus*).
- 4.21 These records are field records (i.e., records of bats in flight). No records for bats roosts were returned in the data search.





- 4.22 In addition, there are 3 records of European Protected Species Mitigation (EPSM) Licensing for bats within 4 km of the site (**Table 5** refers).

Table 5: Granted EPSM Records Present Within 4 km Search Radius

Date of Granted Application	Species	Licensable Activity	Approximate Distance from Site
2009	C-PIP	Destruction of a resting place.	3.2 km north-east
2014	C-PIP, L-HORSE, NATT	Destruction of a breeding site and destruction of a resting place	4.3 km east
2013	C-PIP, L-HORSE, BLE	Destruction of a resting place	4.4 km east

KEY: C-PIP = Common pipistrelle, NATT = Natterer's, BLE = brown long-eared, L-HORSE = lesser horseshoe

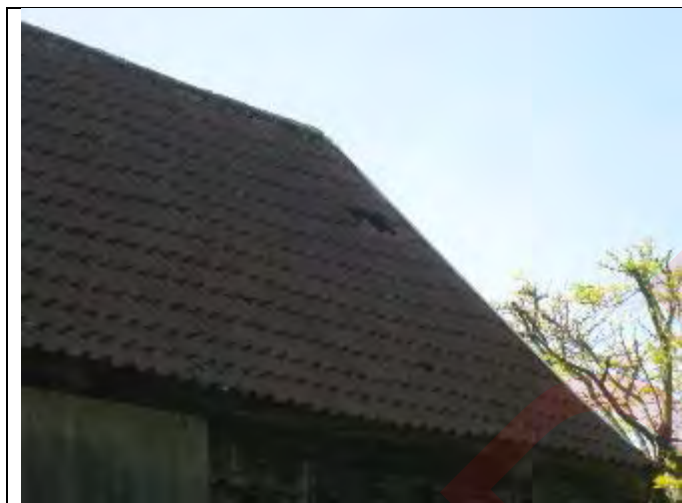
*Building Inspections***Table 6:** Details and results of building inspections

Ref.	Photo		Description	Evidence and Potential Access Points	Bat Roost Potential
	2019/2020	2022			
A1			<p><u>Main barn building</u> Two-storey building with a timber frame and timber cladding that is used as residential storage. The roof is pitched with clay tiles. The building is somewhat dilapidated and has been extensively patched.</p> <p><u>2022 Update</u> Building in much the same condition, though some further deterioration in external cladding, roof etc</p> <p>The barn was still in active use for storage, with the interior more cluttered than previously.</p>	<ul style="list-style-type: none"> • Droppings scattered on surfaces and on the main floor • Numerous potential access points • Holes in the cladding • Lots of missing mortar at the ridge • Gaps at the eaves • Large hole in the roof where tiles have slipped • Remains of old nests 	Due to the interrelated nature of the buildings. The barn and its sub-buildings have been classified jointly as a -
B1			<p>The building comprises a timber frame with patchwork cladding (board and shiplap) and corrugated tin roof. Internally the floor of the building is bare ground, and the timbers are exposed. No wall cavity is present. Extensive detritus was present inside.</p> <p><u>2022 Update</u> Building in much the same condition as 2019/20.</p>	<ul style="list-style-type: none"> • Numerous potential access points • Gaps in the cladding • Gaps where the roof overlaps the walls 	Confirmed roost

<p>B2</p>			<p>Similar to B1 although access is through the main barn (A1). The building is externally clad with wooden boards and has a corrugated tin roof. No wall cavity is present.</p> <p><u>2022 Update</u> Building in much the same condition as 2019/20.</p>	<ul style="list-style-type: none"> • Numerous potential access points • Gaps in the cladding • Gaps where the roof overlaps the walls 	
<p>B3</p>			<p>Same construction as previous. The roof of this section is dilapidated. The floor is constructed of brick</p> <p><u>2022 Update</u> Building has deteriorated since 2019/20 with more damage to external cladding, roof etc. Close to collapse in places.</p>	<ul style="list-style-type: none"> • Numerous potential access points • Gaps in the cladding • Gaps where the roof overlaps the walls • Damaged roof tiles 	
<p>B4</p>			<p>Similar to B3, the building is an older tiled barn extension. Dilapidated with mixed cladding (wood, metal, plastic).</p> <p><u>2022 Update</u> Building in much the same condition as 2019/20.</p>	<ul style="list-style-type: none"> • Numerous potential access points • Gaps in the cladding • Gaps where the roof overlaps the walls • Damaged roof tiles • Old nest in manger 	

B5			<p>The building comprises a tile roof with wooden frame and cladding. It is used for storage and contains a lot of detritus</p> <p><u>2022 Update</u> Building in much the same condition as 2019/20, though eastern end is more overhung by adjacent willow to a greater extent.</p>	<ul style="list-style-type: none">• Numerous potential access points• Gaps in the cladding• Gaps where the roof overlaps the walls• Damaged roof tiles• Old nest in manger	
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Supplementary Photographs

	<p>Missing tiles on north-western side of the barn</p>
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Interior of barn roof



Holes in gable end on south-western side of the building



Large holes in cladding on building 3



Gap above door to building 4



Gaps beneath the ridge tiles



Large gap in corner of building 5



Gap in cladding on building 5



Large gaps in cladding on Main Barn.



Bat droppings noted throughout.



Butterfly wing - feeding remains.



Bat remains (appears to be pipistrelle species, but somewhat decomposed) found within Building A1.

- 4.23 The site contained a number of mature and semi-mature trees, most of which offered negligible roosting potential for bats. Trees with bat roost potential include:
- A heavily pollarded willow to the east of the barn. The tree had numerous small rot holes, following inspection no evidence of bats were noted, with the majority of features not being suitable cavities (Low Potential);
 - A mature horse chestnut covered in ivy (Low Potential);
 - A pollarded willow on the north-eastern boundary of the site. The tree had some age-related damage (Low Potential);
 - A poplar with a damaged, split in the crown (Low Potential).
- 4.24 None of the features noted were assessed to provide optimal opportunities for roosting bats. Furthermore, development proposals include the retention of existing trees, and will be protected during development activities.

Emergence/Re-entry Surveys of Buildings

- 4.25 Features which may offer opportunities to roosting bats were noted as being present in the buildings on site. These comprised features such as: lifted clay tiles, gaps in wood cladding and exposed timbers/joists. These features afford suitable opportunities for both crevice dwelling species such as *Pipistrellus* and *Myotis sp.* and roof-dwelling species such as serotine and horseshoe species.
- 4.26 The results of the emergence/re-entry surveys are summarised in **Table 7**. The surveyors' locations and results are presented in **Figure 5a, b, c and d**. **Table 9** location of access points into the building by bats.

Table 7: Emergence and Re-entry Surveys 2019


Survey No.	Date	Results
1	11/07/19	<ul style="list-style-type: none"> • c. 24 emergences comprising common pipistrelle and <i>Myotis sp.</i>³ from gaps in the cladding on north-eastern gable end of the barn. • A single unidentified bat (not echolocating) emerged from a gap in the cladding on the edge of the south-western gable end of the barn.
2	05/08/19	<ul style="list-style-type: none"> • One common pipistrelle emerged from a gap in the cladding on north-eastern gable end of the barn. • One common pipistrelle emerged from a gap between tiles on western end of the roof on north-western side of the barn. • One soprano pipistrelle emerged from a gap between tiles on western end of the roof on north-western side of the barn. • One lesser horseshoe emerged from a gap around door frame beneath the corrugated metal roof on buildings 1 and 2. • One <i>Myotis</i> emerged from a gap in the cladding on north-eastern gable end of the barn.
3	30/08/19	<ul style="list-style-type: none"> • One <i>Myotis</i> entered a gap in the cladding on the edge of the south-western gable end of the barn. • One soprano pipistrelle entered a gap in the cladding on the edge of the south-western gable end of the barn. • Two potential re-entries of unidentified species (seen but not heard), one into a gap on roof ridge and one into gap in upper eaves of the barn (both on the north-western side of the building).




³ Due to background commuting/foraging noise the numbers of each species could not be confirmed.


Table 8: Emergence and Re-entry Surveys 2022

Survey No.	Date	Results
1	14/06/2022	<ul style="list-style-type: none"> • One common pipistrelle from a gap at a ridge tile on the southeastern aspect of the main barn roof. • Three common pipistrelles from the cladding on the north-eastern gable end of the barn. • One <i>Myotis</i> sp. from the cladding on the north-eastern gable end of the barn. • One unknown (non-echolocating) from gap on gable end of B2. • One (confirmed) and two (likely) serotine from large gap in roof on southwestern aspect of the main barn roof. • One lesser horseshoe bat from large gap in roof on southwestern aspect of the main barn roof, likely re-entry after c. 20 minutes. • Thermal imaging indicated that several bats were still present within the roof of the main barn (from the interior).
Ongoing Summer 2022		

Table 9: Bat Roost Access Points

Description	Photograph of Emergence Location
Northeastern gable – emergences from gaps in cladding. Clad on interior forming cavity.	

Description	Photograph of Emergence Location
Northern aspects of roof – emergences from missing roof tiles and through gap on single storey section.	
Southern aspect of roof – emergences from gaps under ridge tiles.	
Southwestern gable end – emergences from gaps in cladding	

Description	Photograph of Emergence Location
Gap around door frame of building with corrugated roof	
Gap around door frame. Clad on interior forming cavity.	

Assessment of Foraging Quality

- 4.27 The site is considered as having moderate suitability for use by foraging and commuting bats, with suitable foraging habitat present in the form of scattered trees and modified grassland. The site is also well connected to hedgerows in the surrounding rural landscape, and in turn Ham Brook which is located 200 m to the north-east of the site.
- 4.28 While foraging was noted during the emergence surveys, this was typically noted to be in conjunction with commuting through the site during each of the dusk emergence/dawn re-entry surveys. Species recorded include common pipistrelle, soprano pipistrelle, noctule, *Myotis* sp., serotine and lesser horseshoe.

Bat Droppings

- 4.29 Analysis of the droppings by Swift Ecology collected during the building inspection in 2019 identified four species: Brandt's, brown long-eared, lesser horseshoe and serotine (**Appendix D** refers).

Bat Activity – Automated Detector Surveys

- 4.30 Static detectors placed inside the building in 2019 identified lesser horseshoe, *Myotis* sp. and soprano pipistrelle.
- 4.31 Static detectors placed inside the building in 2022 identified lesser horseshoe, common pipistrelle, soprano pipistrelle and *Myotis* sp.

Evaluation

- 4.32 The barn and associated buildings are a summer day roost for Brandt's, brown long-eared, lesser horseshoe, serotine, soprano pipistrelle and common pipistrelle. Unidentified *Myotis* sp. were recorded emerging from the barn during the dusk emergence survey on 11/07/19 but these are considered to be Brandt's as per DNA analysis. In addition, a large number of common pipistrelles were recorded on the survey 11/07/19 which suggests that this could be a satellite maternity roost for this species, the large numbers associated with a maternity roost was not recorded on the following surveys (though smaller number of bats emerged from the same feature), but this species is known to switch roost during the maternity period.
- 4.33 Based on these findings, the bat population present within the application site is considered to be of at least **Local** value.

Dormouse

- 4.34 The data search did not return any records of common dormouse within 1 km of the application site within the last 10 years. Two records of a dormouse EPSL was found on Magic see **Table 10**. Furthermore, habitats present, are of sub-optimal quality for dormouse, as such they are not considered further in this report.

Table 10: Granted EPSM Records Present Within 4 km Search Radius

Date of Granted Application	Species	Licensable Activity	Approximate Distance from Site
2017	Common dormouse	Destruction of a breeding site and destruction of a resting place.	3 km east
2020	Common dormouse	Damage and destruction of breeding site and resting place.	3.5km east

Other mammals

- 4.35 Six records of hedgehog (*Erinaceous europaeus*), which is listed as a Species of Principal Importance in Section 41 of the NERC Act (2006), were returned by the data search, the closest being approximately 80 m to the south-west of the site. Furthermore, a hedgehog was recorded on-site during the dusk emergence surveys on 11/07/19 and 14/06/2022. Potential suitable nesting habitat for hedgehog is present in the form of a pile of brash/cut wood.

Evaluation

- 4.36 Hedgehogs are considered to be of a value at a **Site** level and enhancements for this species are therefore recommended in **Section 5.0**. Under the current proposals, the development is confined to the footprint of the barn and outbuildings.

Breeding birds

- 4.37 The data search returned records of 10 species listed on Schedule 1 of the Wildlife and Countryside Act (1981, as amended) and Section 41 of the NERC Act (2006). These include records of lesser redpoll (*Acanthis cabaret*), house sparrow (*Passer domesticus*), dunnock (*Prunella modularis*), bullfinch (*Pyrrhula pyrrhula*), starling (*Sturnus vulgaris*), redwing (*Turdus iliacus*), song thrush (*Turdus philomelos*) fieldfare (*Turdus pilaris*) and red kite (*Milvus milvus*).
- 4.38 The remains of old nests were identified in the main barn during the building inspection. Furthermore, suitable nesting habitat for birds was recorded in the form of a number of trees, many of which are mature.
- 4.39 No evidence of barn owls were recorded during any of the surveys.

Evaluation

- 4.40 The breeding bird population supported by the site is likely to comprise common and widespread species with no indication that a diverse or notable assemblage is present. Breeding birds are therefore considered to be of value at a **Site** level. As evidence of nesting birds was discovered during the site visit, breeding birds will require consideration in terms of their legal protection as set out in **Section 5.0**.

Reptiles

- 4.41 The data search did not return any records of common reptiles within 1 km of the application site within the last 10 years.
- 4.42 At the time of the original survey, the grassland was a short-mown sward, providing sub-optimal habitat for reptiles. While it was variable over summer 2019 and 2022, more suitable habitat, was present in the wider landscape.

Evaluation

- 4.43 The site has **Site** level potential for reptiles. Under the current proposals, the development will be confined to the footprint of the current barn and associated buildings. As such, further consideration for reptiles is not required.
- 4.44 Should the proposals change and any of the grassland or pile of brash/cut wood need to be removed, it is recommended that a sensitive phased vegetation clearance is carried out in accordance with a Reptile Method Statement i.e., sensitive vegetation clearance.

Amphibians

- 4.45 The data search did not return records any amphibians within 1 km of the application site within the last 10 years. One record of EPSM for GCN within the 4 km search radius on Magic were found see **Table 11** below.

Table 11: Granted EPSM Records Present Within 5 km Search Radius

Date of Granted Application	Species	Licensable Activity	Approximate Distance from Site
2009	GCN	Destruction of a resting place	2.5km southwest

4.46 At the time of survey, the grassland was a relatively short sward, providing sub-optimal terrestrial habitat for great crested newts and other amphibians. More suitable terrestrial habitat was present on the north-eastern side of the site in the form of a pile of brash/cut wood.

4.47 All ponds located within 500 m of the application site boundary are separated from the site by potential barriers to dispersal i.e., roads or streams. Furthermore, those features identified were surrounded by more optimal habitat than the application site. Therefore, amphibians are not considered to be a constraint to development of this site and is not considered further within this assessment. The site is considered to have **Negligible** value to this species group.

Invertebrates

4.48 The data search returned no records of Section 41 Priority Species of invertebrate within 1 km of the application site.

4.49 No rare or protected invertebrate species were recorded during the Phase 1 survey. No further consideration for rare invertebrates is required.

Plants

4.50 One record of a plant species listed in Schedule 8 of the Wildlife and Countryside Act (1981, as amended) - adder's-tongue spearwort (*Ranunculus ophioglossifolius*) - was returned in the data search. This species is typically found in wet or marshy habitats, which do not exist within the application site, with populations of this species confined to two sites in the UK.

4.51 No rare or protected plant species were recorded during the site survey. No further consideration for rare invertebrates is required.

Schedule 9 Species

4.52 The data search no records of invasive species listed on Schedule 9 of the Wildlife and Countryside Act (1981, as amended) within the last 10 years.

4.53 No Schedule 9 species were recorded during the site visit and no further consideration is required.

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 This Ecological Appraisal assesses the value of, and predicts potential impacts on:

- Designated sites;
- Habitats and species of 'Principal Importance';
- Habitats and species listed on regional or local Biodiversity Action Plans; and
- Habitats and species afforded legal protection.

5.2 Where impacts cannot be avoided by inherent mitigation alone, additional mitigation or enhancement measures are recommended which, if implemented, would as a minimum

enable the proposed development to meet legislative and/or planning policy requirements.

5.3 **Appendix C** provides full details of the Ecological Evaluation process used in this assessment.

5.4 The assessment is made on the potential impacts of the conversion of the timber barn. The proposed site layout is shown in **Appendix A**.

Designated sites

5.5 As identified in **Section 4** there are a number of statutory designated sites within the potential zone of influence of the site, the closest being Badgeworth SSSI 1.1 km to the north-east of the site. There are no non-statutory designated sites within 1 km of the application site.

5.6 The application site is within the SSSI Impact Risk Zone for Badgeworth SSSI and Cotswold Commons and Beechwoods SSSI. Any planning applications resulting in a total net gain in residential units may require the LPA to consult with Natural England with regard to the proposed development and potential impacts on the SSSIs. Functional links with, and therefore adverse effects on, the SSSIs in question are considered unlikely to due to the nature and size of the proposed development, along with the lack of perceived pathways. It should also be noted that Badgeworth SSSI is not open to the public, with permitted access on a single day a year when an open day is held by Gloucestershire Wildlife Trust. A single additional residential dwelling is unlikely to result in an increase in the recreational pressures at either sites.

Habitats

5.7 The majority of habitats which comprise the application site (modified grassland and buildings) are considered to be of low intrinsic ecological value due to the limited quality, distinctiveness and extent of the habitats present. No Habitats of Principal Importance are present on-site. The closest Habitats of Principal Importance are deciduous woodland and traditional orchard 0.2 km west and 0.2 km north-east respectively. Due to the nature and size of the proposed development it is not anticipated that these Habitats of Principal Importance will be affected.

5.8 Assessment of a habitat's suitability to contain protected species and baseline investigations have identified protected species implications for the application site relating to; badgers, bats, breeding birds, and hedgehog. These are discussed in turn below.

Protected and/or Notable Species

5.9 Certain species receive legal protection in the United Kingdom and are commonly known as 'protected species'. In reality, the level of protection for different species varies considerably, from protection solely against 'killing and injury' to full protection of the species and their places of refuge. Where pertinent, details of legal protection afforded to species/species-groups are provided below or in **Appendix B**.

Badgers

-
- 5.10 Under the Protection of Badgers Act 1992, it is illegal to kill, injure or take a badger or to interfere with their setts. Work that may disturb badgers or their setts constitutes an offence without issue of a licence from Natural England.
- 5.11 No evidence of badgers was recorded; however, it is considered badgers are likely to be present within the local area and therefore could be foraging within the site. To protect badgers during construction activities it is recommended that any excavations should be backfilled or covered, overnight to prevent badgers foraging within the site getting trapped. If trenches are to be left exposed overnight, a wooden plank at least 30 cm wide should be put in place to allow badgers a means to escape.

Bats

- 5.12 All species of British bat are listed as a European Protected Species (EPS) on Schedule 2 of the Conservation Regulations (Annex IV (a) to the Habitats Directive). This affords bats and their roosts strict protection under the Conservation of Habitats and Species Regulations 2010 (as amended). Additional protection for bats is also afforded under the Wildlife and Countryside Act 1981 (as amended) and a subset of the British bat assemblage are listed as priority species under the Natural Environment and Rural Communities (NERC) Act 2006.
- 5.13 The proposed redevelopment of Cyder Mill Barn will result in the destruction of all bat roosts present within the building, as its poor state of repair will require extensive (almost complete) replacement of the roof, replacement of external cladding and demolition of the various ancillary buildings attached to the main barn, as well as disturbance which are offences under wildlife legislation. Therefore, an EPSL will be required from Natural England to undertake the proposed works lawfully.
- 5.14 As discussed above, in order to update the three emergence/re-entry surveys conducted in 2019, two update emergence/re-entry surveys are underway undertaken in June and July 2022 (July to be completed). Cyder Mill Barn is a **Confirmed Roost** and supports several bat roosts. A summary of the roosts present within Cyder Mill Barn is presented in **Table 12** below.
- 5.15 The results of survey works do not indicate the building is used as a main maternity roost and no evidence of the satellite maternity roost identified in 2019 has been identified to date in 2022, however due to the intermittent nature of this satellite maternity roost it is considered that it is still present. The buildings on site due to their open nature did not provide optimal hibernation roost, however bats such as brown long eared are known to over wintering in their summer roosts.

Table 12: Roost Characterisation and Conservation Significance

Roost Type	Location of roost and roost access	Estimated number of bats	Conservation Value *	Impact
Day roost Lesser horseshoe	<ul style="list-style-type: none"> Horseshoe noted emerging from Roof of Building A1 (Main Barn), and from Building B2. Droppings found in A1 and B5. 	>5	Medium	Destruction
Satellite Maternity Colony Common Pipistrelle	<ul style="list-style-type: none"> In cavity formed by external and internal cladding on northeastern gable end of Building A1 (Main Barn). Droppings found in A1 and B5. 	>20	Medium	Destruction
Day roost Common pipistrelle	<ul style="list-style-type: none"> Gap at a ridge tile on the southeastern aspect of the main barn roof. Droppings found in A1 and B5. 	>3	Low	Destruction
Day roost Soprano pipistrelle	<ul style="list-style-type: none"> Emerged from a gap between tiles on western end of the roof. Entered a gap in the cladding on the edge of the south-western gable end of the barn. Droppings found in A1 and B5. 	>2	Low	Destruction
Day roost/night roost Brown long eared	<ul style="list-style-type: none"> No emergences confirmed. Droppings found within Building A1 (Main Barn) and B5. 	?	Low	Destruction
Day roost/night roost Serotine	<ul style="list-style-type: none"> Emerged from Building A1 (Main Barn). Droppings found in A1 and B5. 	<3	Low	Destruction
Day roost/night roost Brandts	<ul style="list-style-type: none"> In cavity formed by external and internal cladding on northeastern gable end of Building A1 (Main Barn) (noted emerging with Common Pipistrelles. Entered a gap in the cladding on the edge of the south-western gable end of the barn. Droppings found in A1 and B5. 	<5	Low	Destruction

*Mitchell-Jones 2014

Core Sustenance Zones

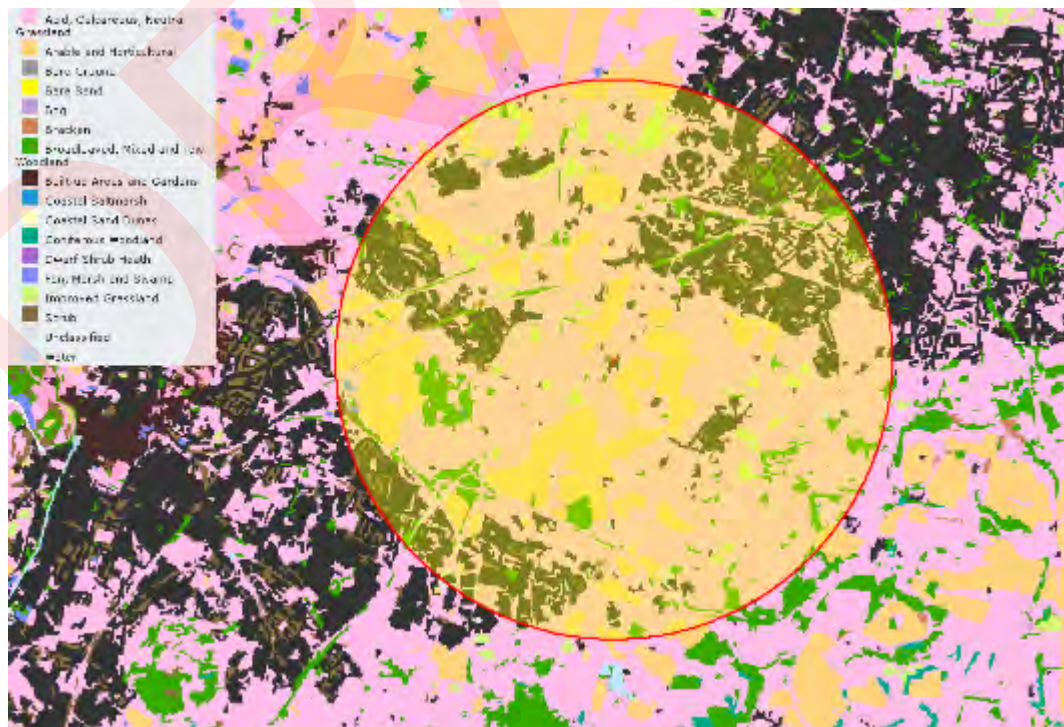
5.16 Core Sustenance Zones (CSZs) refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost. The Bat Conservation Trust has

conservatively calculated CSZs for UK bat species, with those relevant to the roosts present outlined in **Table 13** below:

Table 13: Core Sustainance Zones

Species	CSZ radius (km)
Lesser Horseshoe	2
Brown long eared	3
Brandt's	1
Common pipistrelle	2
Soprano pipistrelle	3
Serotine	4

- 5.17 The impacts of the scheme proposals will result in minimal impacts to foraging habitats within the CSZs of the species found to be roosting, as the site itself is only c. 0.1ha in extent and is located within a primarily rural landscape of the Cheltenham and Gloucester Greenbelt.
- 5.18 The image below shows a radius of 4km, the largest CSZ of the species present. This has been overlaid onto the Living England Habitat Map which displays broad habitat types present. The site is located within a large swathe of arable and grassland habitats with good connectivity to the Severn Vale to the north west and the Cotswold Scarp and Stroud Valleys to the southeast. As such, it is considered unlikely that the proposals will impact habitat availability and quality within the locality.



Licensing requirements

- 5.19 The proposed scheme will damage/destroy summer day roosts for lesser horseshoe, common pipistrelle, soprano pipistrelle, brown long-eared, serotine and Brandt's (possibly

other *Myotis* sp as well). In addition, an satellite maternity roost for common pipistrelle will be destroyed. In order to proceed with the proposed development legally, a licence from Natural England will be required.

European Protected Species Mitigation Licence (EPSL)

- 5.20 A EPSL will need to be applied for with Natural England. A detailed document and mitigation scheme in the form of a Method Statement will be produced and submitted to Natural England who then can take up to 30 working days to make a decision on the EPSL application. Planning permission will need to be granted and all conditions relating to wildlife signed off.
- 5.21 Please note that such licences will only be granted where it can be shown that there will be no detriment to the species of bat concerned, and suitable mitigation measures will be required.
- 5.22 In order to ensure that the '*Favourable Conservation Test*' can be met, a mitigation statement will need to be submitted as part of the licence application. This includes measures to ensure that bats are not harmed during works and to ensure that there is long term provision of alternative roosting opportunities on site. Input from a licensed bat worker will be required during licensable activities at the site (such as roof removal).


Bat Mitigation Strategy


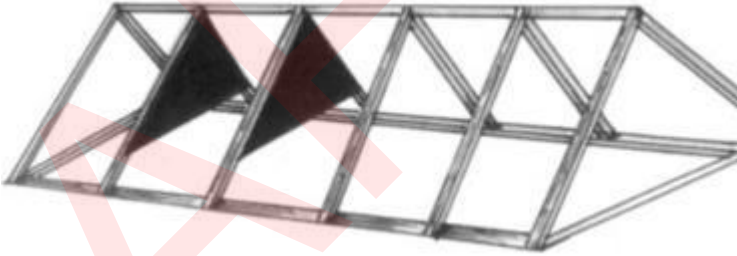

- 5.23 The information provided below is an overview of the avoidance, mitigation and compensation measures that will be required in relation to the development. This is subject to agreement with Natural England and more detailed information would be included in any subsequent licence method statement.


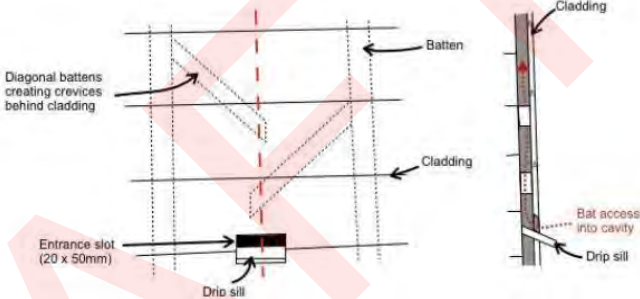


Table 14: Outline Mitigation and Method Statement

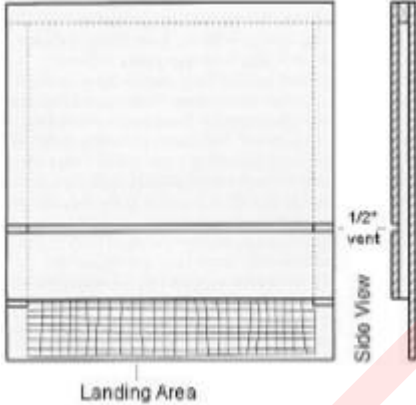


Measure and reason	Details
<p>1. Obtaining a licence</p> <p>To avoid committing an offence in relation to bats</p>	<p>A licence will need to be obtained from Natural England prior to commencement of proposed works on the barn.</p> <p>It usually takes several weeks for your ecologist to prepare the application and Natural England takes 30 working days to reach a decision (at times NE can extend this timescale).</p> <p>Please note that a licence cannot be obtained until planning permission is secured and all conditions in relationship to wildlife which can be signed off before the application.</p>
<p>2. Criterial for Granting EPSL</p>	<p>Natural England will only issue a European Protected Species Licence if your project is deemed as satisfying the following 3 'tests'. When assessing your licence application, Natural England may need to see objective evidence to support any statements that are made in the licence application.</p> <p>Test 1</p> <p>Regulation 53 (2) (e) states that '<i>licences may be granted 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'</i>'.</p>

Measure and reason	Details
	<p>Examples of satisfactory purposes (not an exhaustive list):</p> <ul style="list-style-type: none"> • Structure is unstable and there is a report from a structural engineer or a tree surgeon to justify the claim. • There is a high degree of need for affordable housing in an area already allocated for development in the Local Plan. <p>Test 2</p> <p>Regulation 53 (9) (a) states that a licence may not be granted unless the licensing authority is satisfied <i>'that there is no satisfactory alternative'</i>.</p> <p>The applicant needs to provide evidence to show that they have explored other alternatives and found them to be inadequate.</p> <p>The 'do nothing' option must also be considered as a possible alternative, and if this is not a satisfactory option then evidence will be required to support this decision.</p> <p>Test 3</p> <p>Regulation 53 (9) (b) states that a licence cannot be issued unless the licensing authority is satisfied that the action proposed <i>'will not be detrimental to the maintenance of the species concerned at a favourable conservation status in its natural range'</i>.</p> <p>Natural England advises that there should be no net loss in the local population status of the species concerned and they base this decision on the information provided by your ecologist in the wildlife survey reports. Therefore, it is important that your ecologist conducts sufficient survey work to find out which species are present, gain an estimate of likely numbers and to determine how the species are using the site (e.g., for breeding or hibernation).</p> <p>It is possible that the conservation value of the site may be deemed to be too important to permit the development, for example if it is a breeding site for a rare species. However, in many cases this test can be satisfied by providing suitable mitigation that aims to maintain a population of equivalent status on or near the original site. The Landmark Practice can advise on appropriate mitigation measures.</p>
<p>3. Appropriate timing of works</p> <p>To avoid disturbance and harm to pregnant female bats and dependents</p>	<p>Surveys indicate that the barn and associated buildings contain an satellite maternity roost for common pipistrelle. They also contain summer day roosts for lesser horseshoe, common pipistrelle, soprano pipistrelle, brown long-eared, serotine and Brandt's (possibly other <i>Myotis</i> sp. as well).</p> <p>Works to these buildings will need to be timed to avoid the period when pregnant females and dependant young are likely to be present, and when the buildings are being used as a summer day roost.</p> <p>Any works to the barn and associated buildings (or exclusion of the bats under licence) will need to be undertaken during the period 1st October to 1st April. Completing works by the end of March would be preferred, as bats may be already gathering in the building by April.</p> <p>If bats are present at the time that works are due to commence, the ecologist may decide to undertake a controlled exclusion.</p>

Measure and reason	Details
<p>4. Protecting bats from unsafe materials and chemicals.</p> <p>Avoiding harm to bats by use of inappropriate materials/products.</p>	<p>Breathable Roofing Membranes (BRMs) are known to be harmful to bats as they can become entangled in the fibres. It is therefore recommended that no BRMs are installed.</p> <p>If any timber treatment is required, only treatment products that are safe for bats should be used. Please refer to: https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them</p>
<p>5. Conversion works</p> <p>Safeguard and enhance in the long term the bat roosts present.</p>	<p>Buildings B1, 2, 3, 4 and 5 are to be demolished and Building A1 is to be completely refurbished.</p> <p>In the absence of mitigation, this will result in the loss of all roosts within the Barn buildings, roost access point for lesser horseshoe on buildings 1 and 2 and the loss of a large gap in the roof suitable for allowing void-dwelling species such as lesser horseshoe, serotine and brown long-eared access to the building . Suitable alternative roosting opportunities for these void-dwelling species will be provided (see Section 6 in this table).</p> <p>The works will also result in the loss of access points for crevice-dwelling species – common pipistrelle, soprano pipistrelle and <i>Myotis</i> – in the form of gaps in the cladding and gaps at the roof ridge. However, roosting opportunities for crevice-dwelling species will be provided (see Section 7 in this table).</p>
<p>6. Car port and bat loft</p> <p>Void roosting opportunity for lesser horseshoe, serotine and brown long-eared</p>	<p>The development proposal includes the construction of a car port in the northern corner of the site. <u>The Car Port will need to be constructed prior to the commencement of works withing Cyder Mill Barn itself.</u></p> <p>The car port will contain a bat loft (6.3 m wide x 6.3 m long x 3 m high at ridge). A letter box horizontal slot will be created (see image below for example).</p>  <p>The measurements will be 300 mm by 200 mm. The slot will be no bigger than this to prevent greater horseshoes from accessing the roost as these species are known to compete. The design has been chosen as lesser horseshoes require access where flight is uninterrupted.</p>

Measure and reason	Details
	 <p>Baffle boards will be inserted within two sections of the roof void. Plywood panels will be attached to rafters to provide a roosting surface (see image below for example).</p>  <p>A hot box will be installed within the roof space of the proposed Bat Building/car port. Traingular panels as per the baffle boards will be installed with an additional floor and bat access hole (see image below for example).</p>  <p>The roof would need to be tiled and lined with 1FF felt or wooden sarking boards. Further features to be installed within the bat void are listed below.</p>
<p>7. Mitigate for crevice dwelling bats (common pipistrelle, soprano pipistrelle, <i>Myotis</i> and brown long-eared)</p>	<p>Three gaps in the cladding and small cavities (the width of the vertical structural timber, extending approximately 20cm vertically on both sides of the entrance) behind the cladding will be constructed on various aspects of the building. These cavities will</p>

Measure and reason	Details
<p>Provide long term crevice roosting features</p>	<p>isolated from the rest of the buildings structure and will be lined with bituminous felt.</p>   <p>Alternatively, an integrated bat box (Schwegler Integrated Box or equivalent) could be utilised.</p>  <p>A total of two bat access ridge tiles will be installed on the bat car port void, (image below for example).</p>  <p>Internally within the car port void two squeeze boxes will be installed within the proposed bat car port void to provide crevice dwelling roosts for pipistrelle bats.</p> <p>Squeeze box design is two plywood panels 450 mm by 600 mm with a gap between them of 40 mm. The internal plywood panel has grooves cut into it to help bats crawl into squeeze box (see image below for example).</p>

Measure and reason	Details
	
<p>8. External wall and tree mounted bat boxes</p> <p>Provide external crevice roosting locations</p>	<p>Two woodcrete wall mounted bats boxes will be erected on the gable end of the car port (in most appropriate location following construction), box type Schwegler 1FF or similar (see image below for example).</p>  <p>Two woodcrete tree mounted bat boxes will be erected on suitable retained trees (in most appropriate location following construction), box type Schwegler 2F or similar (see image below for example).</p> 
<p>9. Implementation of licensable activities</p> <p>To protect bats for killing injury or harm</p>	<p>Once the EPSM Licence is in place and prior to works commencing on site, a licensed bat worker will attend site to provide a toolbox talk to all contractors.</p> <p>Works will commence following the timing constraints outlined in Section 3 of this table. A pre-works inspection of the barn and associated buildings will be undertaken to check for the presence of bats. If bats are observed, works will either be delayed, or the bats temporarily excluded from the building.</p>

Measure and reason	Details
	The roof strip and cladding removal will be overseen by a licensed bat worker. Other activities may also be required – these will be detailed within the EPSL application
<p>10. Lighting</p> <p>To protect the local bat populations</p>	<p>A number of species were recorded commuting through and foraging within the site. Coupled with the presence of multiple roosting species, there should be no external lighting associated with the proposed Car Port, and light spill on other mitigation and enhancement measures avoided. Any other external lighting should be kept to an absolute minimum and on PIRs to minimise potential impacts on bat species. The advice of a Lighting Consultant should be sought.</p>
<p>11. Monitoring</p> <p>To assess the success of mitigation measures</p>	<p>Due to the number and types of roost present the following the following monitoring strategy is required.</p> <p>All bat mitigation will be monitored for a period of 5 years, starting on the second year of after completion of the works.</p> <p>The bat void above the car port will be monitored in years 2 and 5 with the bat boxes monitored concurrently.</p> <p>An emergence survey of the integrated cladding features and crevice roost features which cannot be inspected will be undertaken in years 2 and 5 (between May and August)</p> <p>Serotine monitoring requirement</p> <p>Bat boxes installed will have a single inspection, at an appropriate time of year, is to be carried out within the 5-year licence period. This should not take place in the first year.</p> <p>Lesser horseshoe monitoring requirements</p> <p>A single inspection to be undertaken at an appropriate time of year starting at least 2 active seasons post-development. Monitoring to include a check of the condition and suitability of the roost (e.g., airflow, humidity, light and temperature).</p> <p>Common pipistrelle maternity roost requirements</p> <p>2 years management and maintenance are required with the last check taking place the season the licence expires. Ensure the retained roost or compensation provided is fit for purpose (including airflow, temperature, light, humidity). Remedial action must be undertaken should monitoring and / or management / maintenance indicate that this is necessary to secure its use for breeding.</p> <p>Repairs and replacement of monitoring features will be undertaken where necessary and be advised by a licensed bat worker.</p>

Hedgehogs

- 5.24 Hedgehog is a priority species listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The application site offers good foraging and refuge opportunities for this species.
- 5.25 If clearance works are undertaken over the winter period, then care should be taken to ensure any hedgehogs present within the application site are not harmed, as this species hibernates over winter and is vulnerable to disturbance. If a hedgehog is found during the clearance works then the Project Ecologist must be contacted to assess the animal, to

ensure it is fit for release, or is necessary transferred by the ecologist to a suitable animal rescue centre for later re-release into the local area.

Breeding Birds

- 5.26 All wild birds, their nests and eggs are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended), with certain species afforded additional protections.
- 5.27 The buildings on site offer potential opportunities to nesting birds and so, given the protection afforded to all breeding birds, their nests, eggs and young, it is recommended any building demolition works should ideally be timed outside of the breeding bird season (March to August inclusive). If this is not practicable, building demolitions should be preceded by a check for nesting birds by a suitably qualified ecologist to confirm that no active nests are present. If evidence of nesting is recorded, works within that particular area should not proceed until the chicks have fledged, with a buffer zone around the active nest of 5 m minimum.
- 5.28 The same procedure is recommended for the removal of any vegetation that could be suitable nesting bird habitat. If evidence of nesting is recorded, works within that particular area should not proceed until the chicks have fledged, with a buffer zone around the active nest of 5 m minimum.

Reptiles

- 5.29 All species of common reptile receive at least limited protections from harm under the Wildlife and Countryside Act 1981 (as amended).
- 5.30 If reptiles are present within the application site, it is likely they are mainly using boundary habitats (hedgerows, ditches, rough grassland margins etc).
- 5.31 Due to the limited scale and nature of the site and development activities, it is considered that incorporation of sensitive working methods/timings etc. will be sufficient to ensure reptiles are not harmed during the construction phase.
- 5.32 Where removal of vegetation is required, the following reptile mitigation strategy has been devised to ensure legislative compliance through adequate protection and safeguarding in line with relevant best practice guidance.
- 5.33 To ensure that reptiles are not injured or killed during development works, the following staged approach should be implemented during site clearance:
- Vegetation should be removed during the reptile active season (March to October inclusive) under supervision of a suitably qualified ecologist, following a check for nesting birds. Vegetation should be removed in two stages, firstly down to approximately 150 mm and left overnight to allow reptiles to disperse from the working area to surrounding habitats;
 - Following this, vegetation should be cut to ground level to dissuade reptiles from re-inhabiting the area.
 - Any roots and topsoil should be removed carefully with a toothed bucket under the supervision of an ecologist who would carry out hand searches prior to removal;
 - All vegetation clearance should be undertaken in a directional manner towards areas of retained habitat on and adjacent to site.

- 5.34 The construction zone should be maintained as unsuitable for reptiles throughout the construction phase and particularly throughout the active reptile season (March to October inclusive). Such responsibilities will lie with the contractor.
- 5.35 Any building materials should be stored on pallets to discourage reptiles from using them as shelter.

Wildlife Enhancement Proposals

- 5.36 The application site already offers opportunities for protected species. The following recommendations would provide further ecological enhancements for the site in line with local and national planning policy.
- It is recommended that a sensitive lighting strategy to minimise the effect of lighting on foraging and commuting bats is implemented. This should involve limiting the use of lights and preventing upward light spill and light spill onto retained/enhanced boundary features.
 - Nesting opportunities for a range of bird species are recommended through the provision of variously designed artificial bird boxes which can be installed and incorporated into the new buildings and retained trees.
 - To enhance the site's potential to support hedgehog, an artificial nest box (Schwegler hedgehog dome) should be provided. This would provide an area of shelter for hedgehog and should be sited securely adjacent to retained boundary forming vegetation. In addition, the garden should have permeability for hedgehogs with hedgehog highways installed to allow hedgehogs to travel between the gardens.

6.0 CONCLUSION

- 6.1 Building inspections, bat emergence/re-entry surveys and an Extended Phase 1 Habitat survey were undertaken in 2019/20. These surveys identified that the site was a roost for a number of bat species including lesser horseshoe, common pipistrelle, soprano pipistrelle, brown long-eared, serotine and Brandt's (possibly other *Myotis* sp as well).
- 6.2 Update surveys including a UK Habs Survey, Update Building Inspection and Emergence/Re-Entry Surveys (**Still Ongoing**) have been undertaken to verify/update the survey information and to inform the new scheme proposals. The proposed redevelopment of the building will result in the loss of the bat roosts present. The proposals will incorporate bat mitigation features for a number of types of roosts.
- 6.3 Appropriate measures to avoid and/or mitigate impacts on protected species and designated sites have been recommended and subject to the implementation of these measures, the development can proceed in accordance with planning policy and relevant wildlife legislation.

REFERENCES

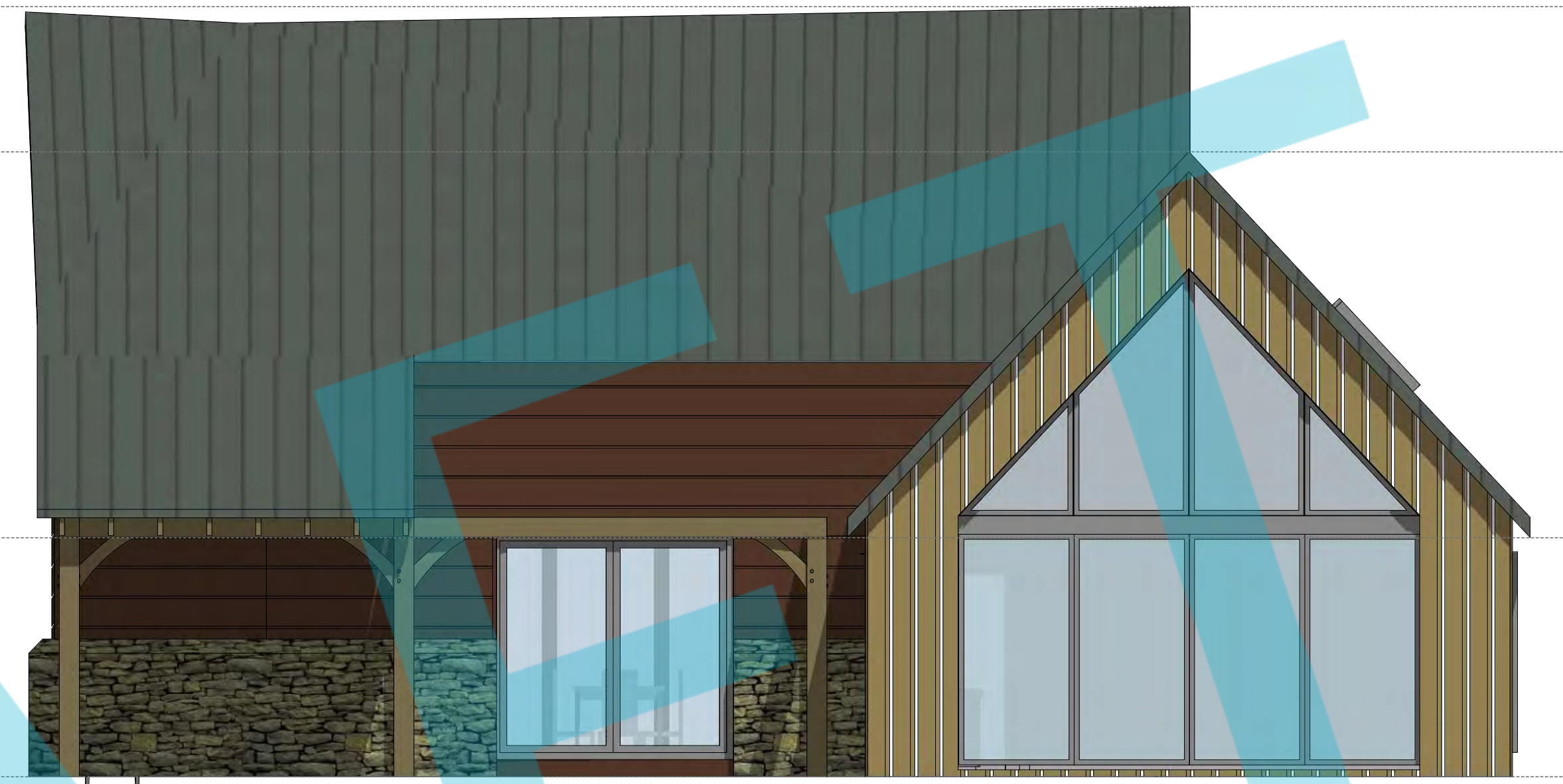
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APPENDIX A: PROPOSED SITE LAYOUT

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NORTH EAST ELEVATION



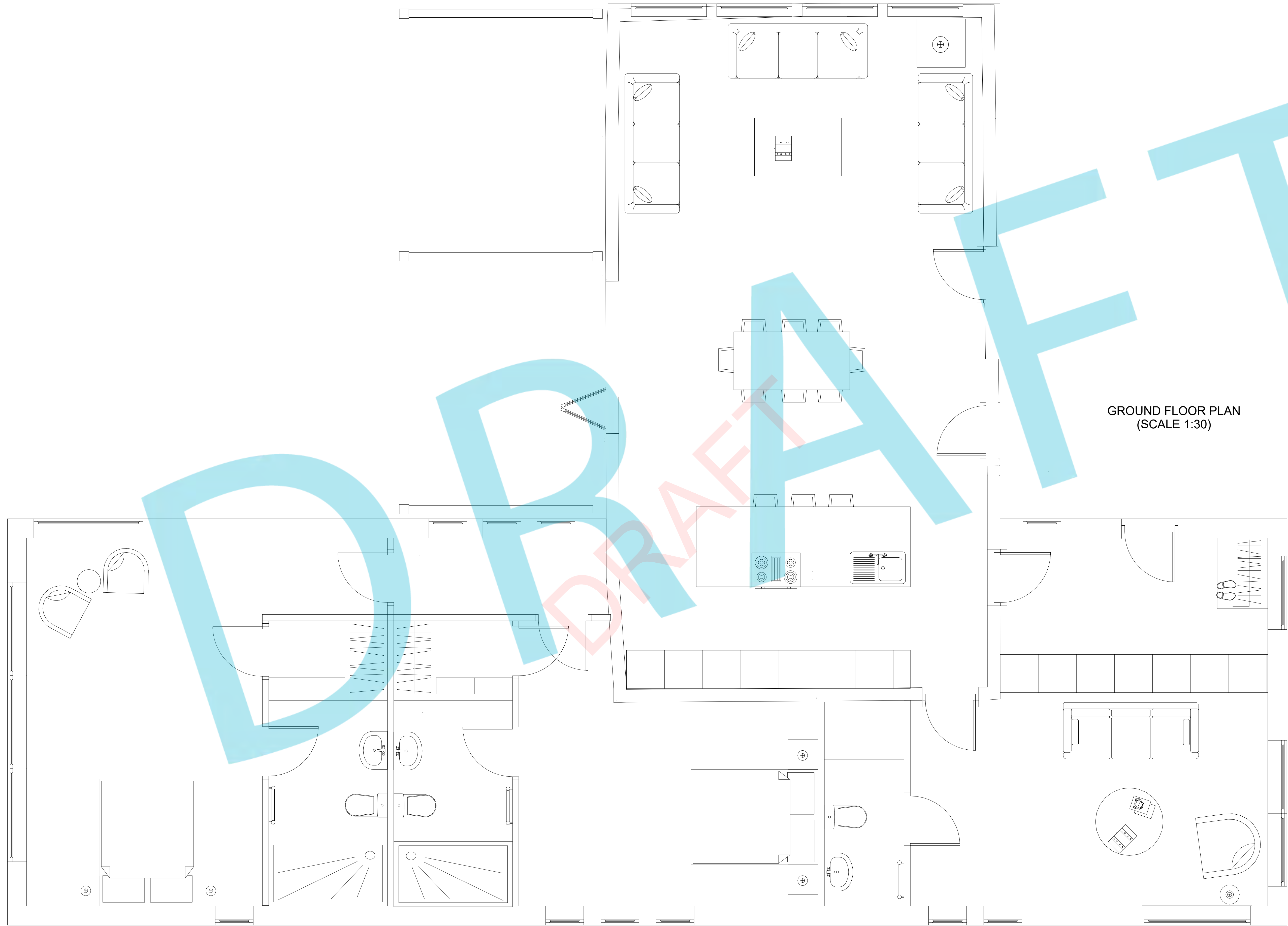
NORTH WEST ELEVATION



SOUTH WEST ELEVATION



SOUTH EAST ELEVATION



GROUND FLOOR PLAN
(SCALE 1:30)

REVISIONS
A. Preliminary layout



Blue Square Drafting
 Email: bsqdrafting@hotmail.com
 Tel: 07852451843

NOTES
 No Liability for boundary inaccuracies is accepted. Dimensions, levels and angles to be checked by contractor on site. Responsibility is not accepted for errors made by others made by others in scaling from this drawing. Where applicable you are reminded of your responsibilities under the Party Wall Act 1996
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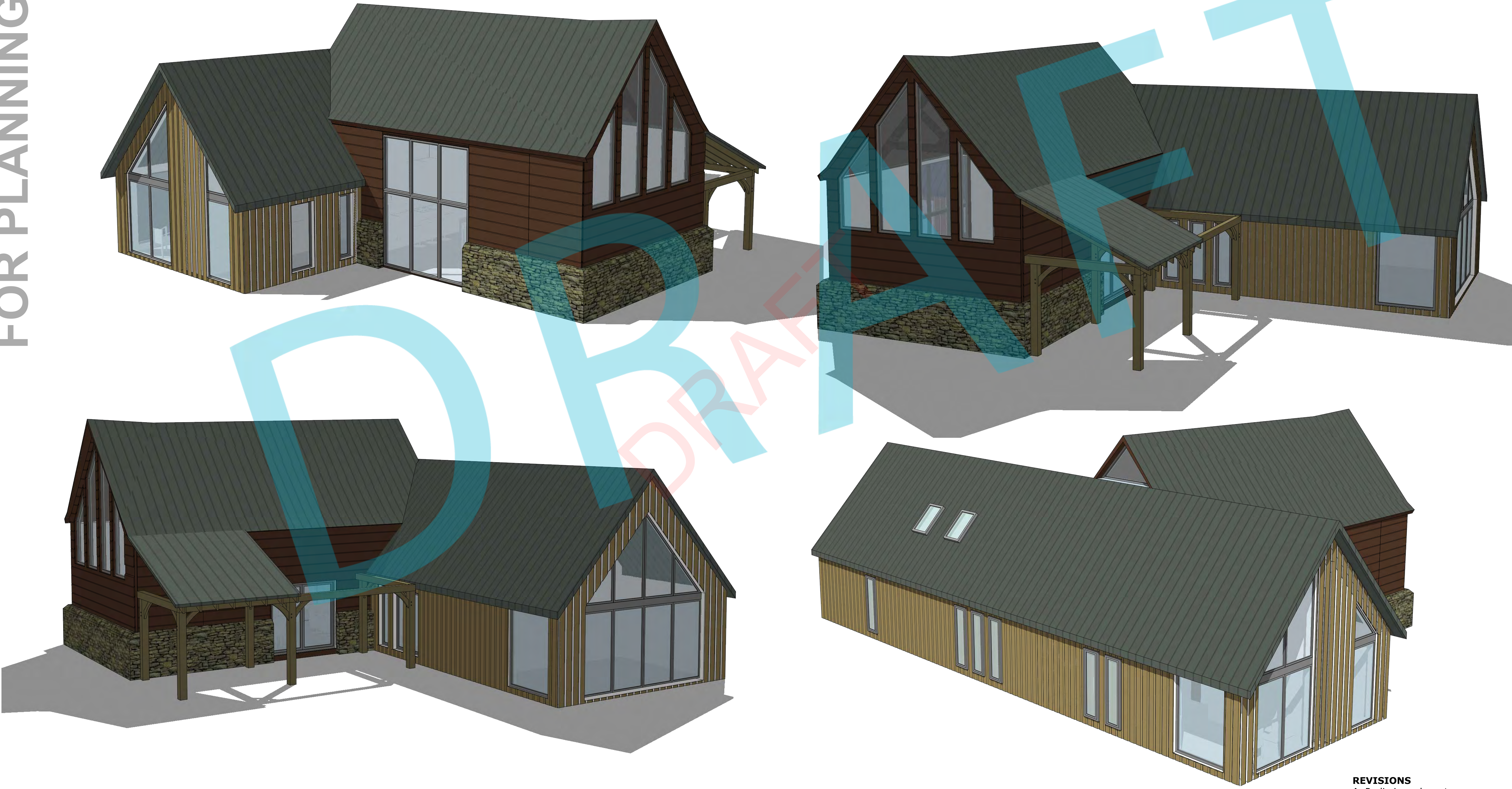
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PROJECT
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 Cold Pool Lane
 Badgeworth, Glos
 GL51 4UP

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REVISIONS
A. Preliminary layout



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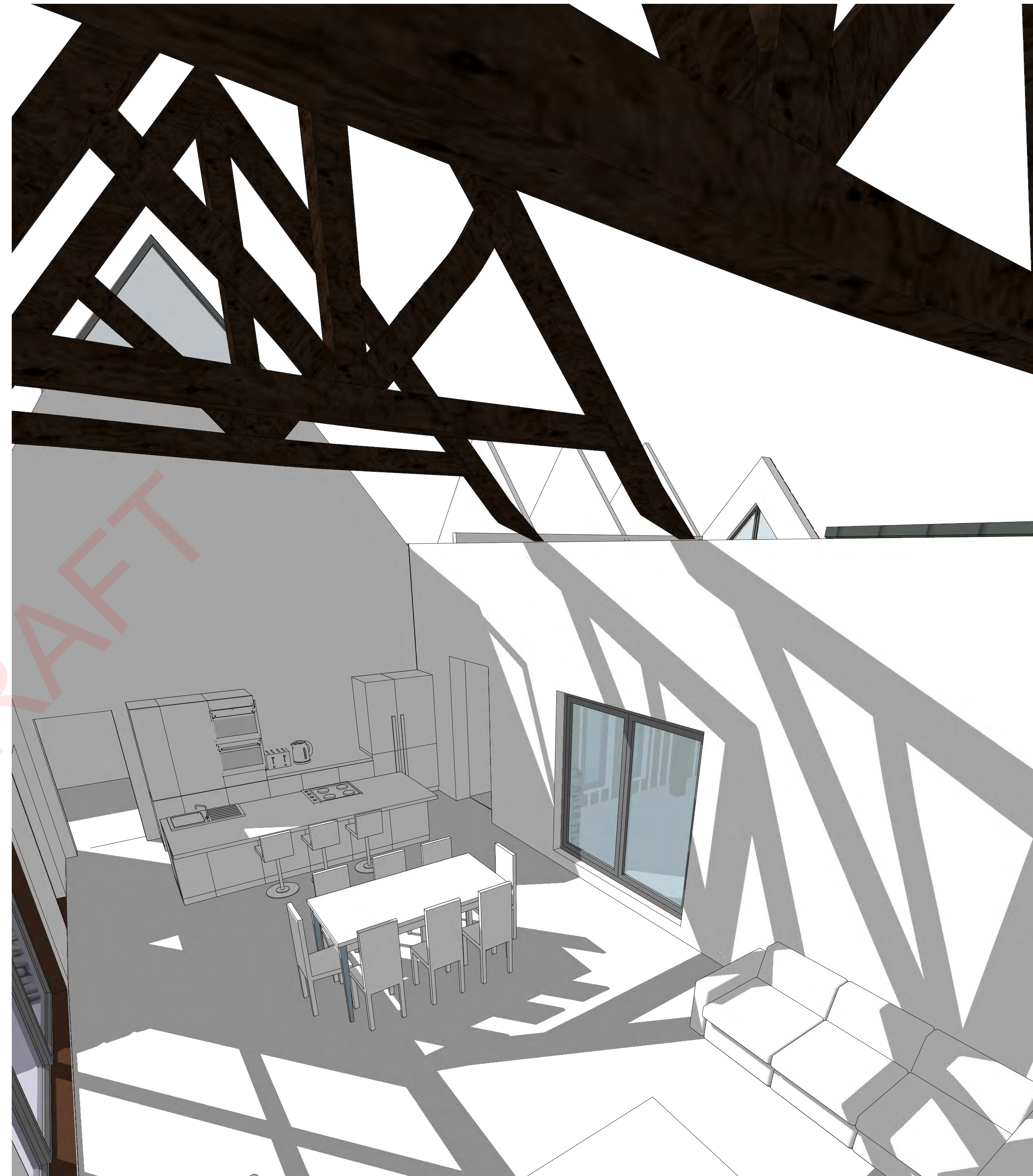
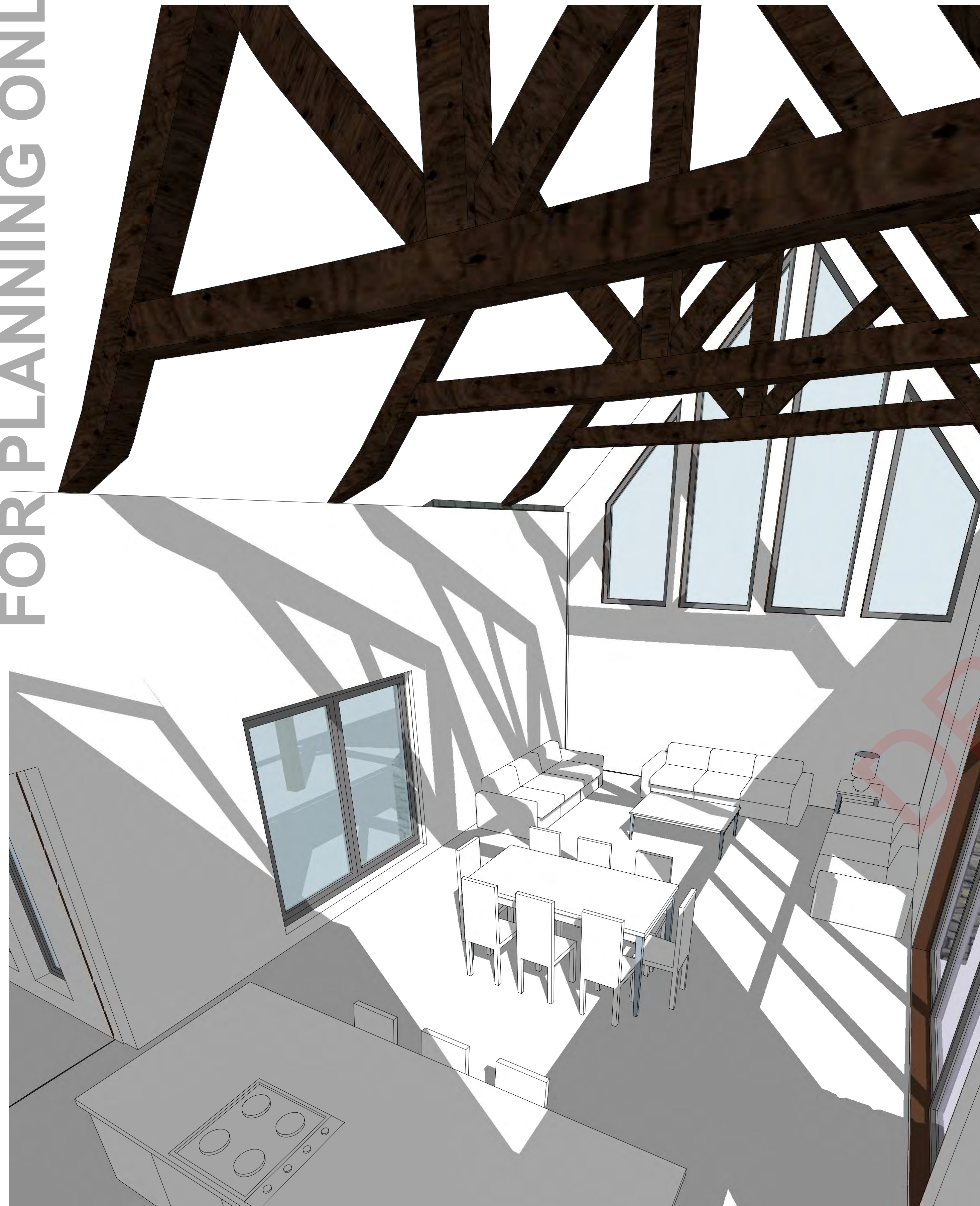
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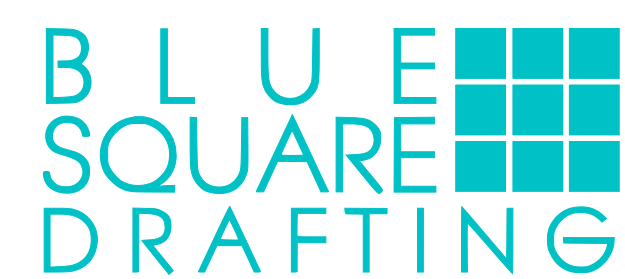
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 Cold Pool Lane
 Badgeworth, Glos
 GL51 4UP

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REVISIONS
A. Preliminary layout



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 Tel: 07852451843

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APPENDIX B: LEGAL AND PLANNING CONTEXT

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APPENDIX B: LEGAL & PLANNING CONTEXT

Protected Sites (European)	
Special Areas of Conservation (SACs)	SACs are designated under The Conservation of Habitats and Species Regulations 2017 (as amended) which implements The European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 92/43/EEC (the 'Habitats Directive', EEC, 1992). Lists of candidate SACs (cSACs) have been submitted to the European Commission for approval. Both possible SACs (pSACs) and cSACs are treated by the planning system as if fully designated.
SPA	SPAs are classified in accordance with the European Community Directive on the Conservation of Wild Birds (79/409/EEC) (the 'Birds Directive', EEC, 1979). Under this Directive, the UK Government must also take special measures to conserve the habitat of species listed in Annex I of the Directive and all migratory species. The provisions of the Birds Directive are implemented in England through the Wildlife and Countryside Act 1981 (as amended) and the Habitats Regulations (2017) as amended.
Ramsar Sites	The Ramsar Convention (UNESCO, 1987) requires signatory states to protect wetlands that are of international importance, particularly as waterfowl habitats.
Protected Sites (National)	
Local Nature Reserves	Local Nature Reserves are designated under Section 21 of The National Parks and Access to the Countryside Act 1949 (HMSO, 1949) by principal local authorities. The declaring local authority must have a legal interest in the land concerned. Local Nature reserves are designated for people and wildlife. They are places with wildlife or geological features of special interest locally and that give people special opportunities to study and learn about them or simply enjoy them and have contact with nature.
National Nature Reserves	National Nature Reserves are designated under Section 21 of the National Parks and Access to the Countryside Act 1949 (HMSO, 1949) by the statutory authority. They are usually owned and managed by the statutory authority. National Nature Reserves are designated for the habitats that they support.
Sites of Special Scientific Interest (SSSIs)	<p>The Wildlife and Countryside Act 1981 (as amended 1991 and varied 1998) (HMSO, 1981, 1991, 1998) requires Natural England, the Government body with authority for nature conservation in England, to designate areas which make a significant contribution to a national network of sites of nature conservation value as SSSIs.</p> <p>The Countryside and Rights of Way Act 2000 (HMSO, 2000) came into force in full on 30 January 2001. The Act is in five parts. Part III relates to Nature Conservation and amends existing legislation (i.e., the Wildlife and Countryside Act 1981) through improved protection and management of SSSIs, improved legal protection for threatened species and the provision of a statutory basis for biodiversity conservation.</p>
Non-Statutory Sites	
Local Wildlife Sites; County Wildlife Sites; Sites of Nature Conservation Interest	The majority of Local Authorities have a system of 'second tier' sites which do not wholly fulfil SSSI designation criteria, but which are, nonetheless, of local or regional value. The policies, encouraged by Government advice, recognise that protection should be extended beyond the statutory sites to include the best examples of wildlife habitats, populations of rare species and geological features remaining in the area and are particularly valuable in supplementing and supporting the national framework for SSSIs.
Protected Species (European)	

Bats	All British bats and their roosts are fully protected under international wildlife law against adverse effects including disturbance. Under the terms of the Bonn Convention, which encompasses the Agreement of the Conservation of Bats in Europe, there is a fundamental obligation to protect from damage or disturbance, sites which are important for the conservation status of bats. Such sites include those bats use for shelter or protection and important foraging areas.
Birds	In Britain, all wild birds are granted legal protection under the EC Birds Directive and the Wildlife & Countryside Act 1981 (as amended). This legislation protects the birds, their eggs and nests whilst being built or in use. Under the Bern Convention 1979, Contracting Parties are required to take appropriate and necessary legislative and administrative measures to ensure the special protection of the wild fauna species specified in Appendix II. In the UK this is implemented through various national wildlife protection policies.
Dormouse	The dormouse is protected under Schedule 2 of the Habitats Regulations 2017 (as amended) and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Taken together, the Regulations and Act make it illegal to intentionally or deliberately kill, injure or capture dormice; deliberately disturb dormice and damage or destroy dormouse breeding sites or resting places.
Great Crested Newt	The great crested newt is fully protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). The legislation protects the newts and their places of shelter or protection, which may extend 500m from the breeding pond.
Invertebrates	Under the Conservation of Habitats and Species Regulations 2017 (as amended), invertebrate species listed on Schedule 2 it is an offence to deliberately capture or kill, disturb, take or destroy eggs of such a species or to damage or destroy the breeding site or resting place of such an animal.
Plants	Certain plant species are listed under Annex IVb of the Habitats Directive under which it is an offence to deliberately pick, collect, cut, uproot or destroy such a plant. Under the Bern Convention 1979, Contracting Parties are required to take appropriate and necessary legislative and administrative measures to ensure the special protection of the wild flora species specified in Appendix 1. In the UK this is implemented through various national wildlife protection policies.
Protected Species (National)	
Badger	Badgers are protected under the Protection of Badgers Act 1992. This Act makes it illegal to wilfully kill, injure or take any badger, or attempt to do so and it is an offence to intentionally or recklessly damage, destroy or obstruct access to any part of a badger sett or disturb a badger when it is occupying a sett.
Wild Mammals	Under the Wild Mammals (Protection) Act 1996 it is 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.
Reptiles	The slow-worm (<i>Anguis fragilis</i>), grass snake (<i>Natrix natrix</i>), adder (<i>Vipera berus</i>) and common lizard (<i>Lacerta vivipara</i>) are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) in respect of section 9(1) and 9(5) only. Under section 9(1) it is an offence to knowingly kill or injure a reptile. Section 9(5) refers to sale and trade.
Birds	In Britain, all wild birds are granted legal protection under the Wildlife & Countryside Act 1981 (as amended) and the EC Birds Directive. This legislation protects the birds, their eggs and nests whilst being built or in use. Legal protection makes it an offence to intentionally kill, injure, take or have in possession any wild bird or egg. It is also an offence to intentionally damage or destroy the nest of any wild bird whilst it is being built or in use. Birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) are subject to

	special penalties and are also protected from disturbance while nesting including the disturbance of dependent young.
Water vole	The water vole (<i>Arvicola amphibius</i>) receives protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under the Act it is an offence to intentionally kill, injure or take water voles and intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection or obstruct access to any structure or place used by water voles for shelter or protection or to disturb water voles while they are using such a place.
Invertebrates	Statutory protection in Great Britain is provided by the Wildlife and Countryside Act 1981. The invertebrates which have special protection are listed on Schedule 5 under which it is an offence to intentionally kill, injure or take these invertebrates and intentionally or recklessly damage or destroy, or obstruct access to, any structure or place used for shelter or protection or disturb any such animal while occupying such a structure or place.
Plants	<p>Statutory protection in Great Britain is provided by the Wildlife and Countryside Act 1981. The plants and fungi which have special protection are listed on Schedule 8 under which it is an offence to intentionally pick, uproot or destroy any plant on Schedule 8.</p> <p>Five plant species are listed on the Weeds Act 1959 as injurious: common ragwort (<i>Senecio jacobaea</i>), broad-leaved dock (<i>Rumex obtusifolius</i>), curled dock (<i>Rumex crispus</i>), creeping thistle (<i>Cirsium arvense</i>) and spear thistle (<i>Cirsium vulgare</i>). The Act requires landowners to eliminate scheduled weeds to prevent their seeds contaminating neighbouring land. The Ragwort Control Act 2003 amends the Weed Act with respect to common ragwort.</p> <p>Thirty-eight species plus all species of <i>Elodea</i> (of which there are currently three species known to have been introduced) are listed on Schedule 9 of the Wildlife and Countryside Act 1981 under which it is an offence to plant or otherwise cause to grow in the wild the scheduled species. Two are marine, thirteen aquatic and the remainder terrestrial.</p>
Biodiversity Conservation	
Natural Environment and Rural Communities Act	<p>Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006 requires the Secretary of State to publish a list (in consultation with Natural England) of habitats and species which are of principal importance for the conservation of biodiversity in England. The Government has a duty to take reasonably practicable steps to further the conservation of the species and habitats that are included in lists published under Section 41.</p> <p>Biodiversity 2020: A strategy for England's wildlife and ecosystem services sets out the means by which the Government will comply with its duty under Section 41 of the NERC Act to take or promote the taking by others of steps to further the conservation of listed habitats and species, including through the continued implementation of Action Plans.</p>

National Policy

National Planning Policy Framework (NPPF)

The NPPF (MHCLG, 2021) emphasises that planning decisions should contribute to and enhance the natural and local environment by protecting and enhancing sites of biodiversity value (in a manner commensurate with their statutory status or identified quality in the development plan) and “*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*” (paragraph 170 refers).

The NPPF advises that when determining planning applications, local planning authorities should aim to protect and enhance biodiversity by applying the following principles (paragraph 175 refers):

“a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁵⁸ and a suitable compensation strategy exists; and

d) 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.”

National Planning Policy Guidance (NPPG)

NPPG (DCLG, 2014) will be updated in due course, where necessary, to reflect the NPPF. Current NPPG advises that information on biodiversity impacts and opportunities should inform all stages of development, from site selection and design, to include any pre-application consultation as well as the application itself. The guidance notes 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. Pre-application discussion can help scope whether this is the case and, if so, the survey work required” (Paragraph 016).

The guidance also notes 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. Assessments should be proportionate to the nature and scale of development proposed and the likely impact on biodiversity” (Paragraph 016).

Local Planning Policy

Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011-2031

The Joint Core Strategy contains two policies that are relevant to this report:

Strategic Objective 4 – Conserving and Enhancing the Environment

Ensure that planning policy and decisions:

- Protect and enhance the JCS area's unique historic environment, archaeological heritage and geological assets;
- Conserve, manage and enhance the area's unique natural environment and great biodiversity, including its waterways, Sites of Special Scientific Interest (SSSI), the Cotswolds AONB, and areas of landscape and biodiversity importance, and maximise the opportunities to use land to manage flood water;
- Require that all new developments, wherever possible, supports green infrastructure and improves existing green infrastructure within urban and rural areas to provide movement corridors for people and wildlife;
- Within the Development Plan, review the current Green Belt boundary with a view to releasing land to help meet the long-term development needs of the area that cannot be accommodated elsewhere, whilst providing a long-term permanent boundary for the future.

Policy SD9: Biodiversity and Geodiversity

1. The biodiversity and geological resource of the JCS area will be protected and enhanced in order to establish and reinforce ecological networks that are resilient to current and future pressures. Improved community access will be encouraged as far as is compatible with the conservation of special features and interests.
2. This will be achieved by:
 - i. Ensuring that European Protected Species and National Protected Species are safeguarded in accordance with the law;
 - ii. Conserving and enhancing biodiversity and geodiversity on internationally, nationally and locally designated sites, and other assets of demonstrable value where these make a contribution to the wider network, thus ensuring that new development both within and surrounding such sites has no unacceptable adverse impacts;
 - iii. Encouraging new development to contribute positively to biodiversity and geodiversity whilst linking with wider networks of green infrastructure. For example, by incorporating habitat features into the design to assist in the creation and enhancement of wildlife corridors and ecological steppingstones between sites; and
 - iv. Encouraging the creation, restoration and beneficial management of priority landscapes, priority habitats and populations of priority species. For example, by securing improvements to Strategic Nature Areas (as set out on the Gloucestershire Nature Map) and Nature Improvement Areas.
3. Any development that has the potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.
4. Within nationally designated sites, development will not be permitted unless it is necessary for appropriate on-site management measures, and proposals can demonstrate that there will be no adverse impacts on the notified special interest features of the site.
5. Development within locally-designated sites will not be permitted where it would have an adverse impact on the registered interest features or criteria for which the site was listed, and harm cannot be avoided or satisfactorily mitigated.

6. Harm to the biodiversity or geodiversity of an undesignated site or asset should be avoided where possible. Where there is a risk of harm as a consequence of development, this should be mitigated by integrating enhancements into the scheme that are appropriate to the location and satisfactory to the Local Planning Authority. If harm cannot be mitigated on-site then, exceptionally, compensatory enhancements off-site may be acceptable.

This policy contributes towards achieving Objective 4.

Policy INF3: Green Infrastructure

1. The green infrastructure network of local and strategic importance will be conserved and enhanced, in order to deliver a series of multifunctional, linked green corridors across the JCS area by:

- i. Improving the quantity and / or quality of assets;
- ii. Improving linkages between assets in a manner appropriate to the scale of development; and
- iii. Designing improvements in a way that supports the cohesive management of green infrastructure;

2. Development proposals should consider and contribute positively towards green infrastructure, including the wider landscape context and strategic corridors between major assets and populations. Where new residential development will create, or add to, a need for publicly accessible green space or outdoor space for sports and recreation, this will be fully met in accordance with Policy INF4. Development at Strategic Allocations will be required to deliver connectivity through the site, linking urban areas with the wider rural hinterland

3. Existing green infrastructure will be protected in a manner that reflects its contribution to ecosystem services (including biodiversity, landscape / townscape quality, the historic environment, public access, recreation and play) and the connectivity of the green infrastructure network. Development proposals that will have an impact on woodlands, hedges and trees will need to include a justification for why this impact cannot be avoided and should incorporate measures acceptable to the Local Planning Authority to mitigate the loss. Mitigation should be provided on-site or, where this is not possible, in the immediate environs of the site

4. Where assets are created, retained or replaced within a scheme, they should be properly integrated into the design and contribute to local character and distinctiveness. Proposals should also make provisions for future maintenance of green infrastructure.

This policy contributes towards achieving Objectives 4, 6, 7 and 9.

Tewkesbury Borough Plan 2011 to 2031

The Tewkesbury Borough Plan 2011-2031 was adopted on 8 June 2022 at a Special Meeting of Full Council.

Policy NAT1 Biodiversity, Geodiversity and Important Natural Features

Development proposals that will conserve, and where possible restore and/or enhance, biodiversity will be permitted.

Proposals will, where applicable, be required to deliver a biodiversity net gain across local and landscape scales, including designing wildlife into development proposals, the connection of sites and large-scale habitat restoration, enhancement and habitat re-creation.

Locally defined ecological networks will be the primary focus for landscape scale net gain delivery. Proposals that are likely to have a significant effect on an internationally designated habitats site (either alone or in combination with other plans or projects) will not be permitted unless a Habitats Regulations Assessment has concluded that the proposal will not adversely affect the integrity of the habitats site.

Development likely to result in the loss, deterioration or harm to features, habitats or species of importance to biodiversity, environmental quality or geological conservation, either directly or indirectly, will not be permitted unless:

- a) the need for, and benefits of the development clearly outweigh its likely impact on the local environment, or the nature conservation value or scientific interest of the site;
- b) it can be demonstrated that the development could not reasonably be located on an alternative site with less harmful impacts; and
- c) measures can be provided (and secured through planning conditions or legal agreements), that would avoid, mitigate against or, as a last resort, compensate for the adverse effects likely to result from development.

The level of protection and mitigation should be proportionate to the status of the feature, habitat or species and its importance individually and as part of a wider network.

Policy NAT3 – Green Infrastructure: Building with Nature

Development must contribute, where appropriate to do so and at a scale commensurate to the proposal, towards the provision, protection and enhancement of the wider green infrastructure network.

All proposals for green infrastructure will be expected to be designed in accordance with the 'Building with Nature' standards.

Tewkesbury Borough Plan to 2011

The following policies have been saved:

Policy NCN3

Key wildlife sites and regionally important geological/geomorphological sites are identified on the proposals map. Planning permission will not be granted for development which has an adverse effect on these regional or local nature conservation or geological/geomorphological interested unless the importance of the development outweighs the value of the substantive interests

Policy NCN5

The Borough Council will seek to protect and enhance biodiversity when considering development proposals. In particular, the following natural habitats and features will be protected, where possible, from loss or significant detriment alteration: ancient semi-natural woodlands, semi-natural grasslands, linear tree/shelter belts and trees. Where development unavoidably

necessitates the removal of such features, replacement features of equivalent value should be provided.

Policy NCN6

The creation and restoration of ponds either as part of development proposals or in land management/environmental enhancement schemes will be encouraged where these contribute to the quality of the landscape and enhance its nature conservation value.

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APPENDIX C: ECOLOGICAL EVALUATION

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APPENDIX C: ECOLOGICAL EVALUATION TECHNIQUES

Introduction

A number of systems and criteria are available to assess the nature and extent of ecological interest found at any site. Guidelines for Ecological Impact Assessment have been prepared by the Chartered Institute of Ecology and Environmental Management (2018), which have been employed below. The CIEEM guidelines detail a recommended approach to the valuation of ecological receptors on the following scale:

- International and European
- National
- Regional
- Metropolitan, County, vice-county or other local authority-wide area
- River Basin District
- Estuarine system/Coastal cell
- Local

The importance of an ecological feature should be considered within a defined geographical context. The guidance recommends the above scale as a frame of reference, though notes it can be adapted to suit local circumstances.

As such, where ecological receptors are assessed to be of less than Local value, an additional valuation of '**Site value**' has been included.

Habitats and features

Internationally important habitats are considered to be those listed on Annex I of the Habitats Directive. All internationally important examples, however, should have been designated within Special Areas for Conservation (SACs). Other examples should be considered to be of value at the level for which they are designated (see below). There are published guidelines for the selection of SACs (see Brown et al, 1997) and SPAs and Ramsar Sites (Stroud et al, 1990).

There are similar published criteria for the selection of nationally important Sites of Special Scientific Interest (SSSIs) (NCC, 1989) which give criteria for both habitats and species.

The majority of Local Authorities have a system of 'second tier' sites which do not wholly fulfil SSSI designation criteria, but which are, nonetheless, of local to regional value. Policies, encouraged by Government advice, recognise that protection should be extended beyond the statutory sites to include the best examples of wildlife habitats, populations of rare species and geological features remaining in the District and are particularly valuable in supplementing and supporting the national framework for SSSIs. DEFRA (2006) has published Guidance on their Identification, Selection and Management of such sites. The Hedgerow Regulations (1997) provide a useful framework for the assessment of the ecological importance of hedgerows.

It is possible that there may be habitats that do not fall within designated sites but are considered to meet the published selection criteria. Similarly, it is possible that habitats within designated sites may not fulfil the criteria for designation in their own right. This may be due to the site having deteriorated or that they have been included for other reasons such as secondary or supporting value. If a habitat is considered to be in an unfavourable condition, consideration must be given to its potential value if restored. Consideration should also be given to secondary or supporting value where a habitat or feature may have no particular interest in itself but may perform an

important ecological function such as a buffer against negative impacts or an important link between habitats. The presence of a diverse range of habitats can increase the value of a site.

Species

A number of resources are available to assess the rarity and vulnerability of individual species. Red Data Lists utilise standard criteria defined by the International Union for the Conservation of Nature (IUCN, 2001, now the World Conservation Union, WCU) to classify the scarcity and conservation status of species of flora and fauna. The Red Data List system can operate at an International, National or Regional level (e.g., County Red Data Lists). The IUCN maintains a list of threatened species on a global scale.

The IUCN threat categories are defined as follows: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD) and Not Evaluated (E). Species falling within the categories CR, EN and VU are considered to be threatened. These categories are defined by five criteria as follows:

- Criterion A considers the percentage decline of a taxon, regardless of current range or abundance.
- Criterion B is designed to identify threats associated with extremely restricted distribution when combined with other risk factors.
- Criterion C considers the combination of extremely small population size with similar risk factors to Criterion B.
- Criterion D identifies very small or restricted populations.
- Criterion E requires quantitative analysis to estimate the extinction probability of a taxon based on known life history, habitat requirements, threats and any specified management options.

Earlier Red Data Lists and Books (such as the British Red Data Book for Insects (Shirt 1987) and subsequent reviews: Falk, 1991 and Hyman and Parsons, 1992) classified species on the former IUCN criteria as: Extinct, Endangered (RDB1), Vulnerable (RDB2), Rare (RDB3) and insufficiently known (RDBK).

Criteria for the selection of Nationally Notable insects (now termed Nationally Scarce) species generally follow Eversham (1983). These Nationally Notable/Scarce species are further divided into Notable A (present in 16-30 squares) and Notable B (31-100 squares).

Rare birds in Britain are defined as any species for which records would have to be verified by the British Birds Rarities Committee. County rarities are taken to include all national rarities and also any species listed in County bird reports requiring a full description, which should be submitted to the relevant County Recorder. The presence of rare birds at any time of year, including locally rare species, adds significantly to the ecological value of a site. In general, however, only rare birds with a regular pattern of occurrence at a site should be included in this category.

National and County distribution atlases and species reports such as county bird reports can provide valuable additional information for evaluation. They can also provide information on species status at the level of geographic coverage of the atlas. Species at the edge of their distribution (especially in the context of global change) and notably large populations of species that are uncommon or threatened in the wider context enhances a species value. A species that is rare and declining should be assigned a higher level of importance than one that is stable. Other rarity related evaluation criteria include the need to protect populations for which the UK holds a large / significant proportion of the international / European population. The presence of a diverse assemblage of species can enhance the value of a site.

Further guidance on the evaluation of certain protected species has been published by English Nature e.g. Great Crested Newt Mitigation Guidelines (EN, 2001) and Bat Mitigation Guidelines (Mitchell-Jones, 2004) and non-statutory organisations e.g., Froglife (1999, endorsed by English Nature).

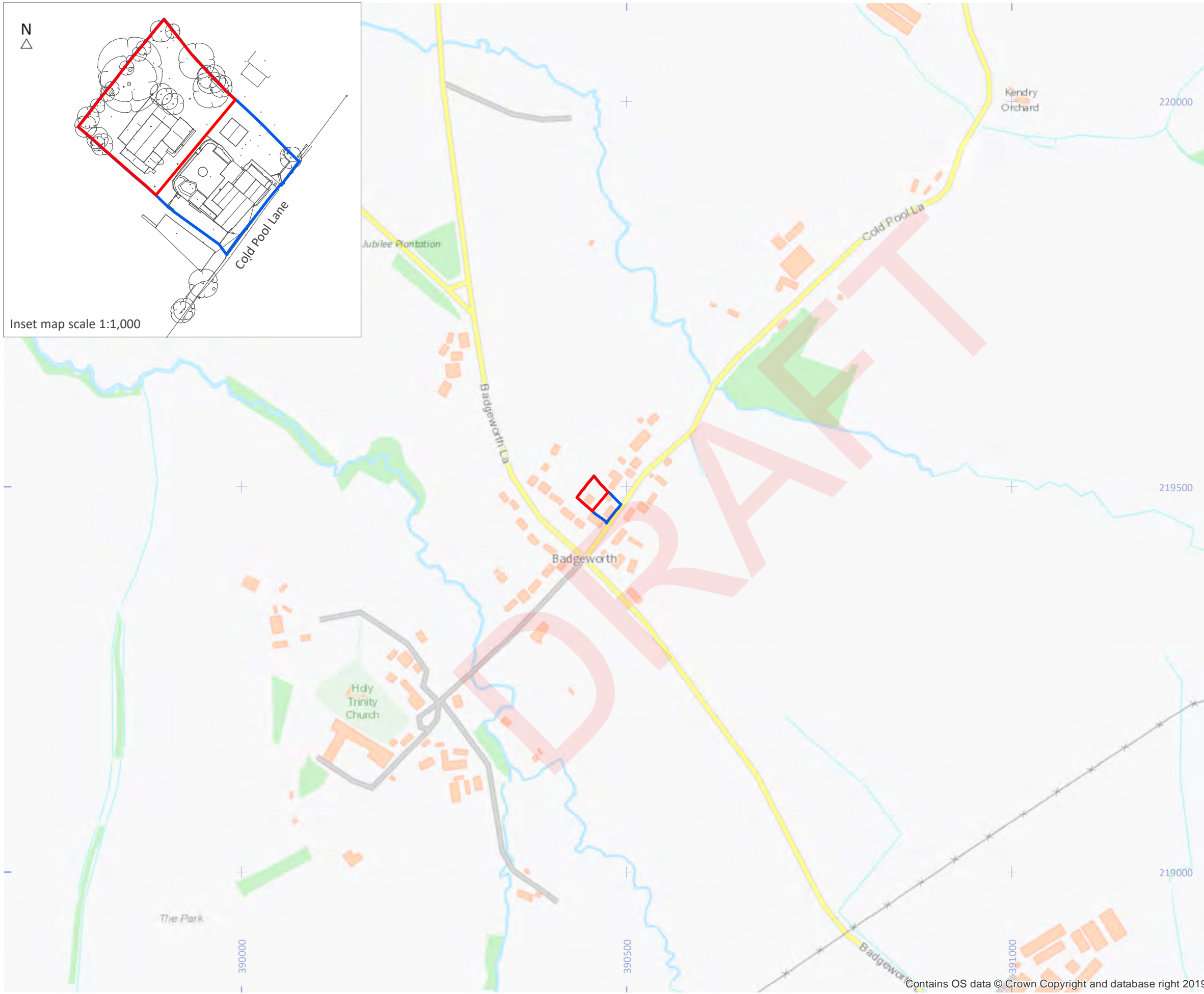
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APPENDIX D: BAT DROPPINGS EDNA RESULTS (SWIFT ECOLOGY)



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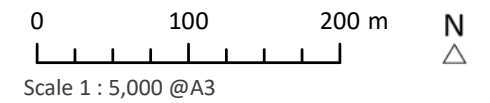
FIGURES

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Legend:

-  Site boundary
-  Land ownership boundary



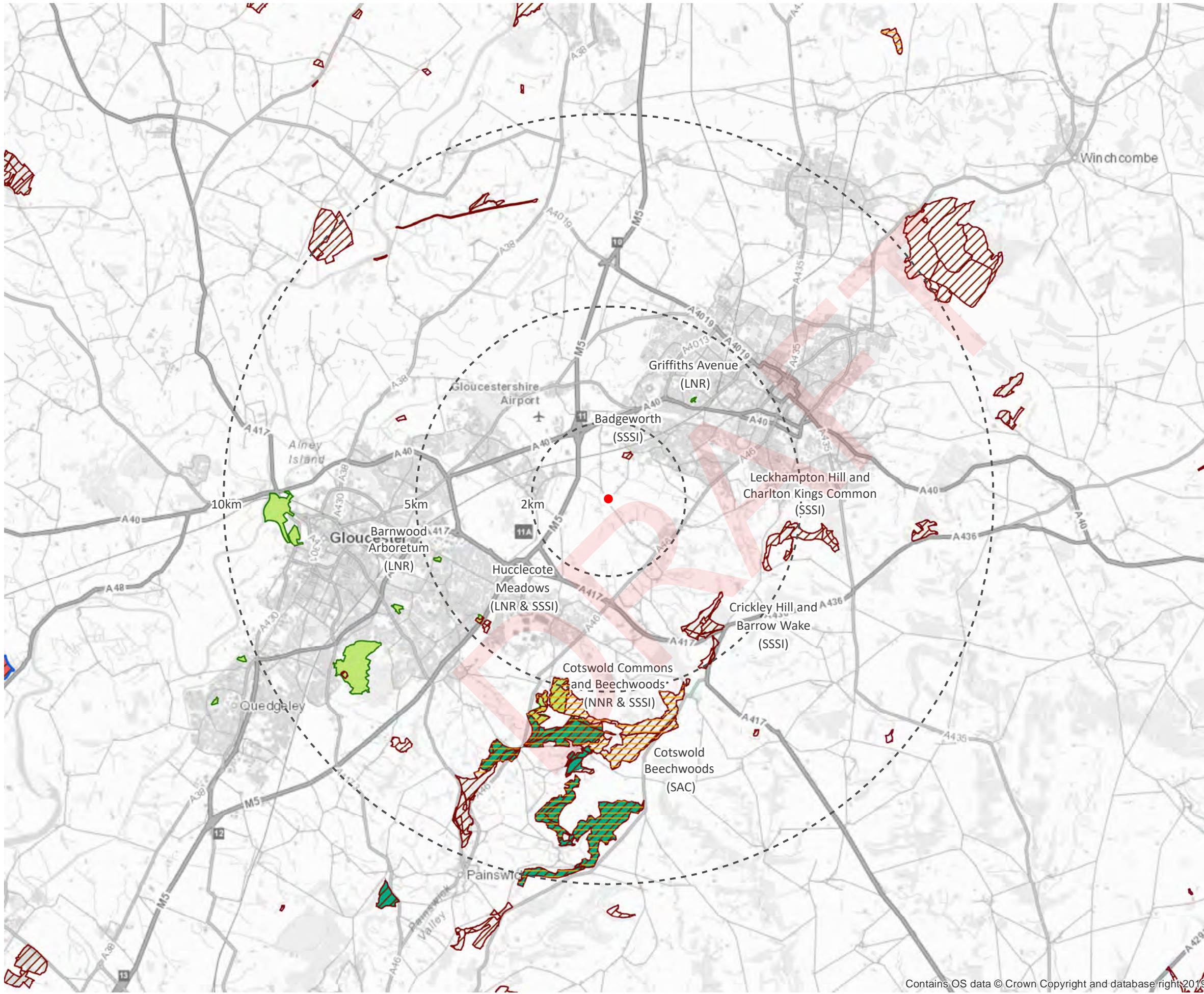
CYDER MILL BARN

FIGURE 1
Site location

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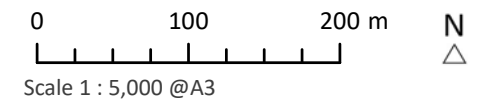
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www.thelandmarkpractice.com

Drawn: GS Checked: NH Date: 12 Jul 22



Legend:

- Site location
- 2km, 5km and 10km radial extents
- Local Nature Reserve (LNR)
- National Nature Reserve (NNR)
- Ramsar site
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)



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FIGURE 2
Statutory designations
within 10km of site







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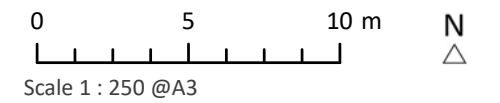


Legend:

-  Site boundary
-  Land ownership boundary
-  Broadleaved tree
-  Conifer
-  g4 - modified grassland
-  u1b5 - buildings

Secondary Codes:

- 11 - Scattered trees
- 17 - Ruderal/ephemeral
- 64 - Mown
- 77 - Neglected
- 88 - Barn



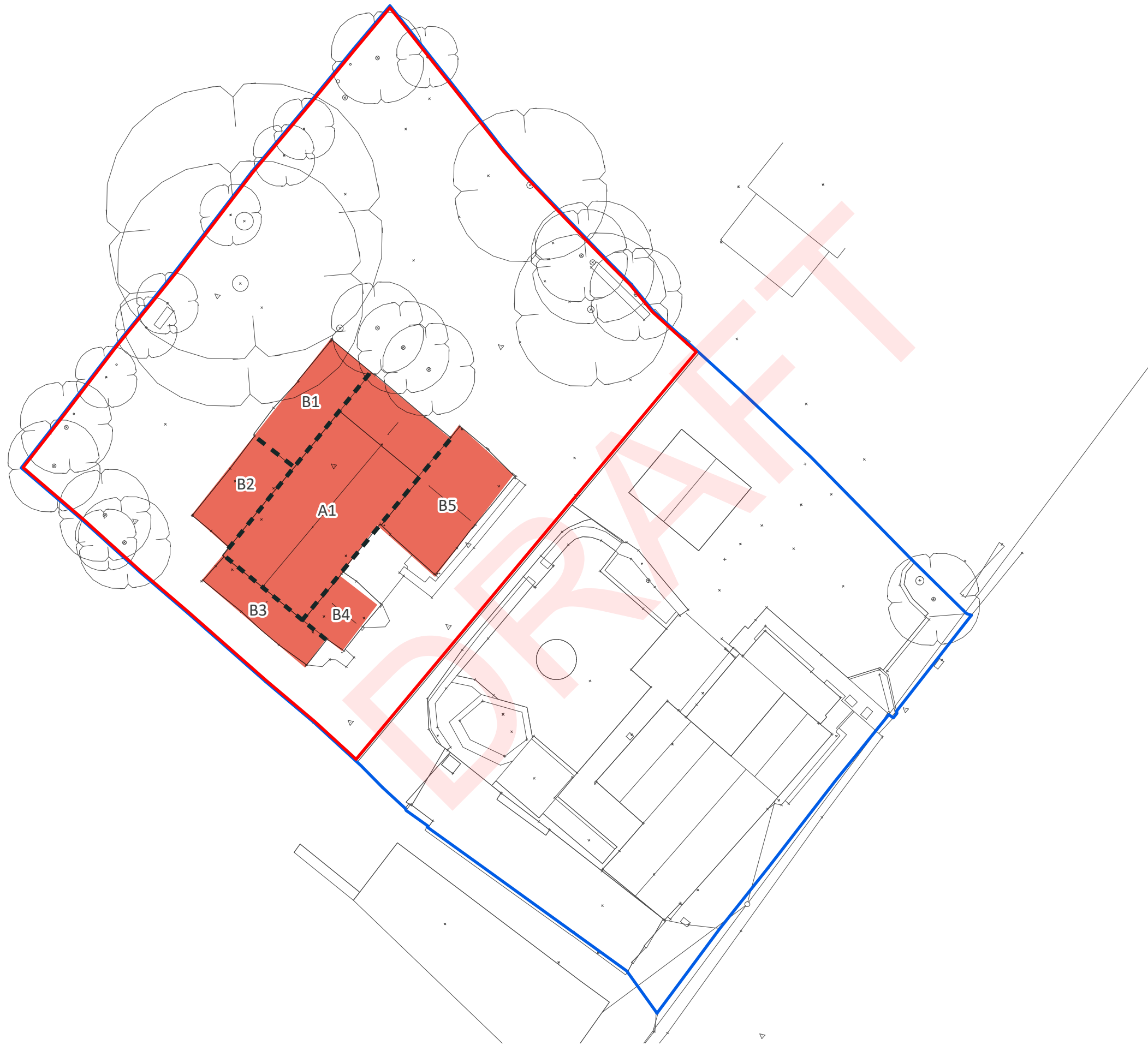
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FIGURE 3
Phase 1 habitat survey





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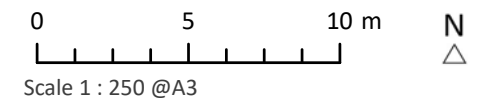
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Legend:

-  Site boundary
-  Land ownership boundary
-  Confirmed roost
-  Building reference

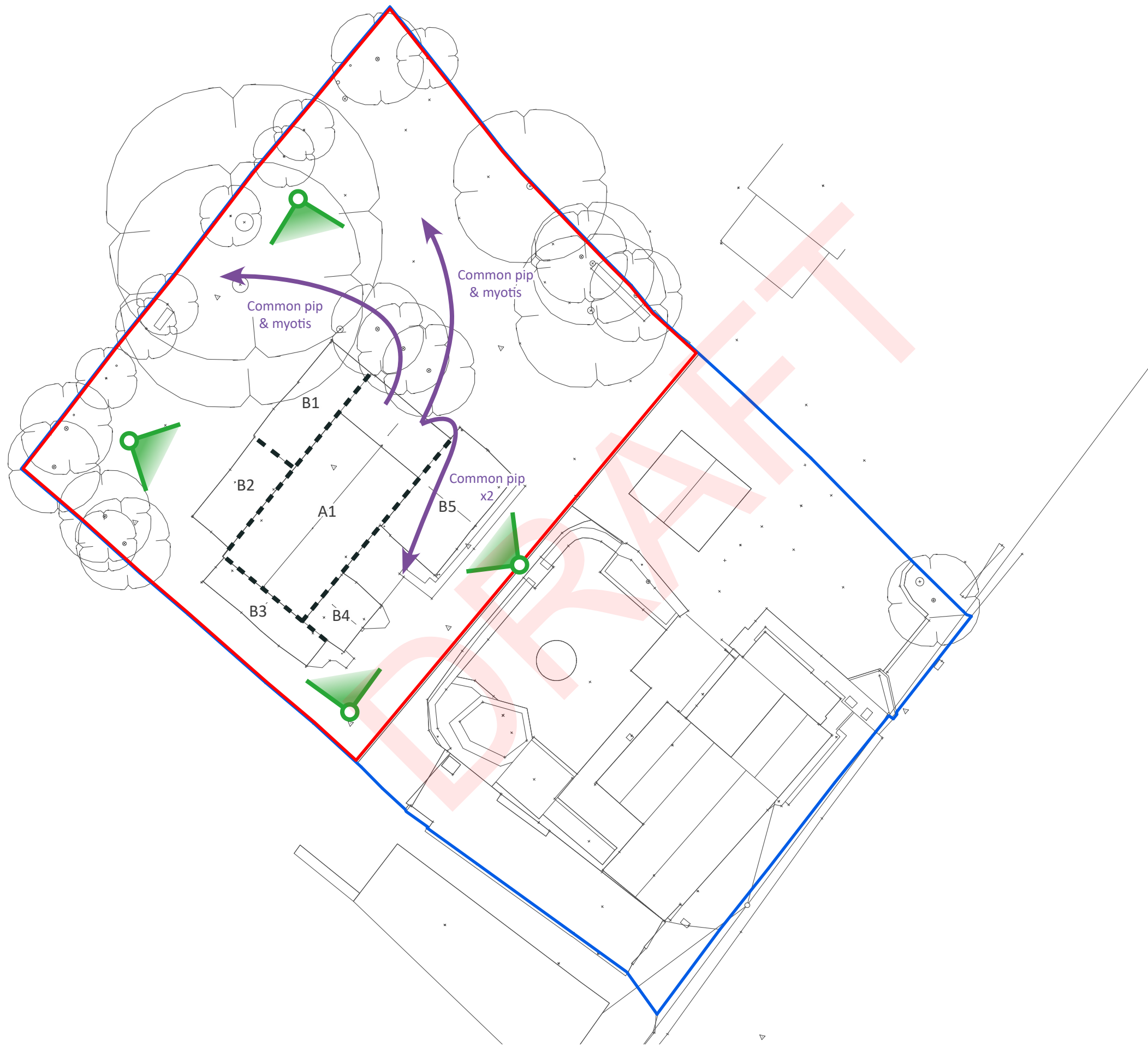


CYDER MILL BARN






FIGURE 4
Building inspection results

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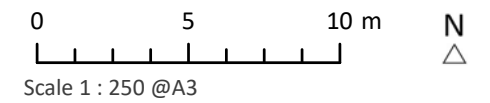
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Legend:

-  Site boundary
-  Land ownership boundary
-  Flight route
-  Surveyor location
-  Building reference

N.B. Dusk emergence survey 11/07/19



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FIGURE 5a
Bat emergence/re-entry survey results






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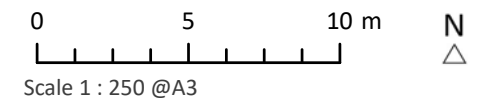
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Legend:

-  Site boundary
-  Land ownership boundary
-  Flight route
-  Surveyor location
-  Building reference

N.B. Dusk emergence survey 05/08/19



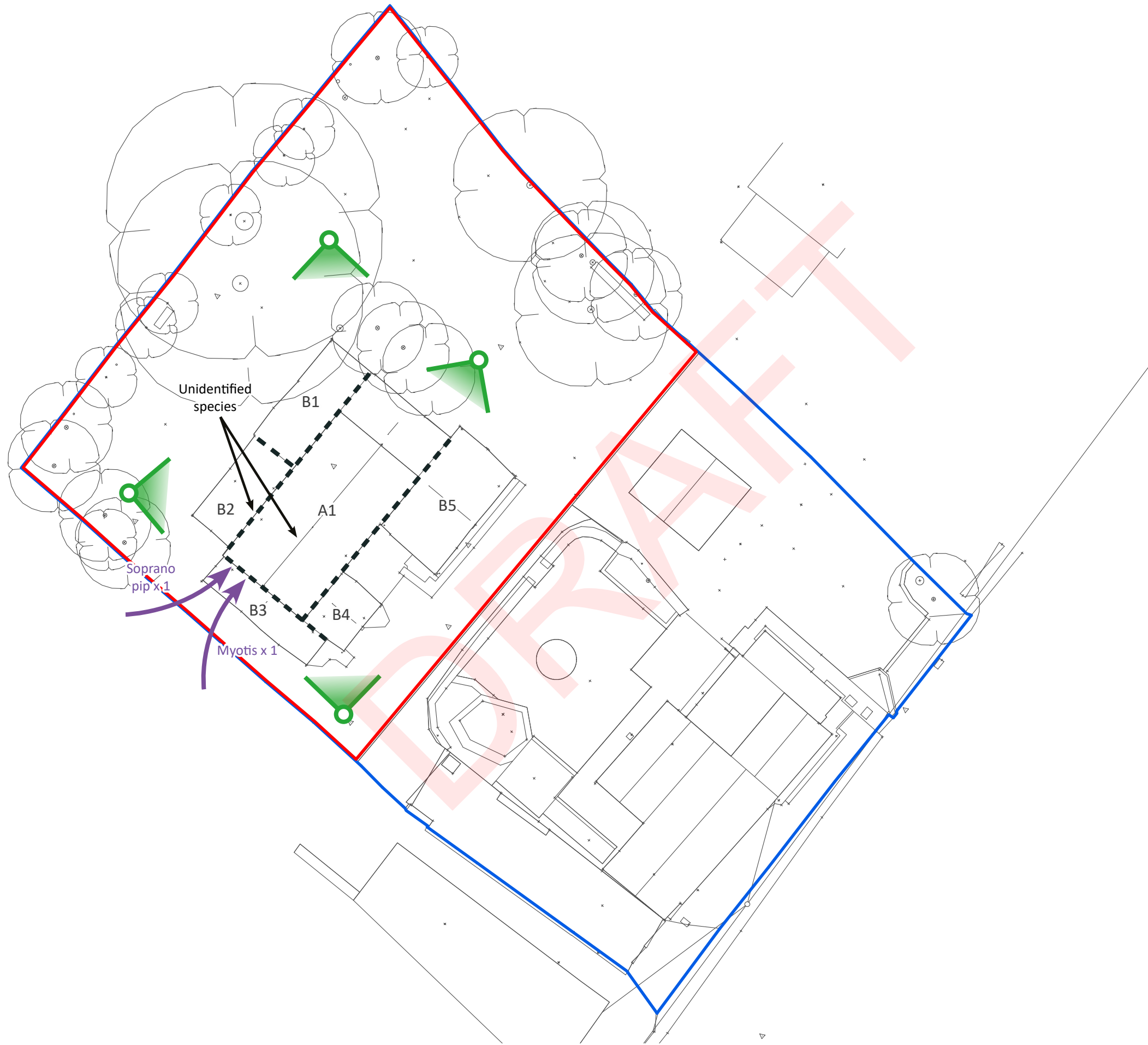
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FIGURE 5b
Bat emergence/re-entry survey results

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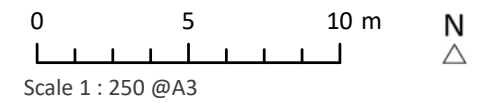
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Legend:

- Site boundary
- Land ownership boundary
- Flight route
- Surveyor location
- A1 Building reference

N.B. Dawn emergence survey 30/08/19



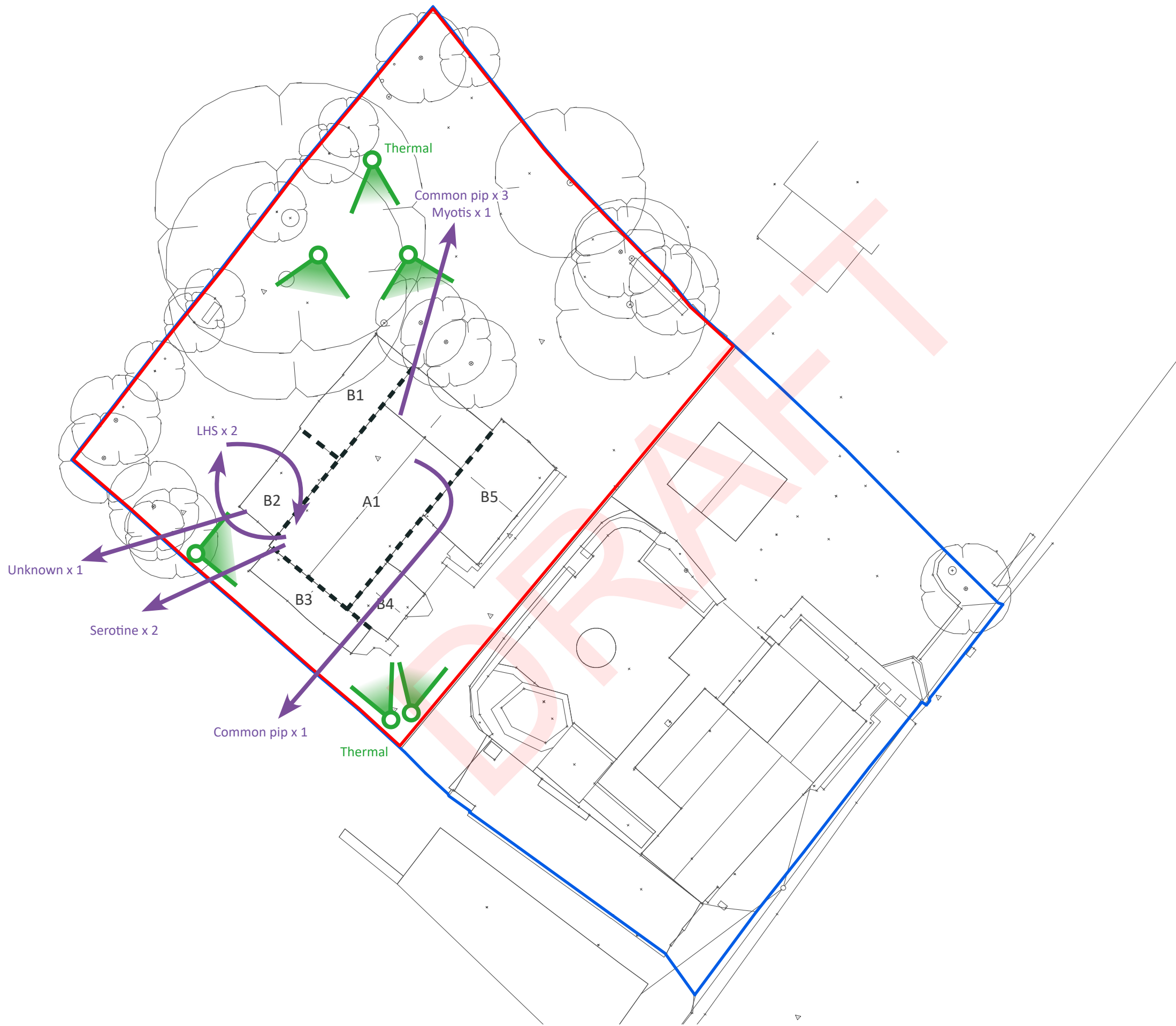
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FIGURE 5c
Bat emergence/re-entry survey results






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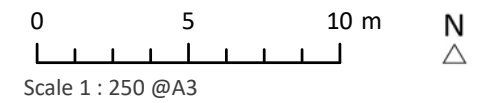
Drawn: GS Checked: NH Date: 12 Jul 22



Legend:

-  Site boundary
-  Land ownership boundary
-  Flight route
-  Surveyor location
-  Building reference

N.B. Dusk emergence survey 14/06/2022



CYDER MILL BARN

FIGURE 5d
Bat emergence/re-entry survey results

THE Landmark
PRACTICE

Hope Chapel House Hope Chapel Hill Hotwells Bristol BS8 4ND
T: +44 (0)117 923 0455 E: enquiries@thelandmarkpractice.com
www.thelandmarkpractice.com

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