



Landscape, Arboriculture and Ecology

Surveys – Plans – Assessments - Mitigation – Solutions – Methodology

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Preliminary Ecological Appraisal

Land adjacent to Stoney Wood

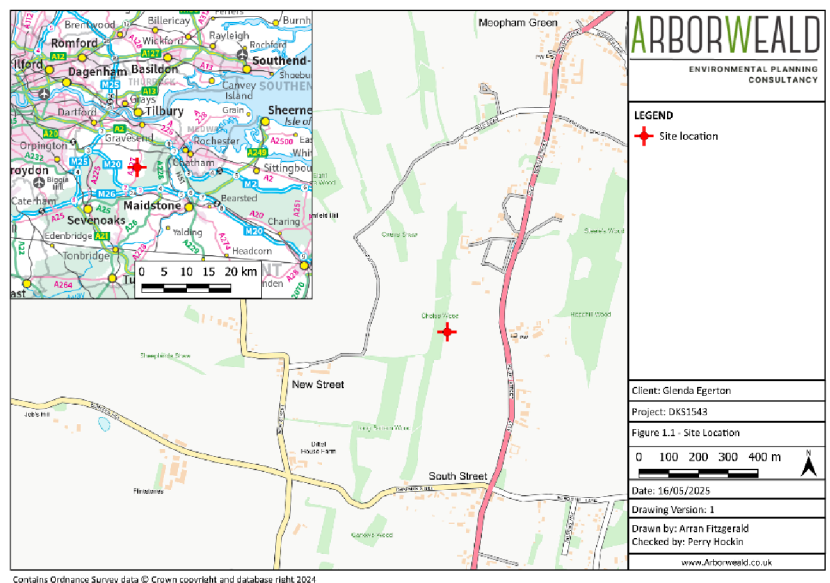
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Declaration: The information which I have prepared and provided for this report is true and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct; I confirm that the opinions expressed are my true and professional bona fide opinions. Printed: Arran Fitzgerald BSc (Hons.), MSc – Assistant Ecologist Signed: 			

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No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations completely defined the degree or extent of species abundances or habitat management efficacy described in the report.

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This report and all survey work have been prepared to British Standard 42020 and rely on information and methodology from the Joint Nature Conservation Committee and the Chartered Institute of Ecological and Environmental Management.

Additionally, this report relies on information from other third parties, some of which may include, but not be limited to; DEFRA's MAGIC database, local record centres, local wildlife spotter groups such

CONTENTS

EXECUTIVE SUMMARY	5
1 INTRODUCTION	6
2 METHODS.....	9
3 RESULTS.....	13
Desk Study.....	13
Field Study.....	14
Phase 1 Habitat Survey.....	14
Protected Species	15
Bats.....	15
Badgers.....	17
Breeding birds.....	17
Dormice.....	18
Great crested newts.....	18
Hedgehog	19
Reptiles	20
Other species.....	20
4 EVALUATION	21
Species – Constraints vs. suitability	21
Bats.....	22
Badgers.....	23
Breeding birds.....	24
Dormice.....	25
Great crested newts.....	26
Hedgehogs	27
Reptiles	28
Other Items.....	29
5 CONCLUSION.....	30
6 RECOMMENDATIONS.....	32
Species specific mitigation measures	32
Bats.....	32
Badgers.....	35
Breeding birds.....	35
Herptiles.....	35

Additional recommendations	38
Biodiversity enhancement and compensation.....	39
Mandatory enhancements	39
Non-mandatory enhancements.....	41
REFERENCES	43
FIGURES.....	45
APPENDIX A Wildlife Legislation.....	50
APPENDIX B Site photographs	52
.....	52
.....	52

EXECUTIVE SUMMARY

- 0.1 Arborweald Environmental Planning Consultancy (AEPC) was commissioned by Tangram Planning to undertake a Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) of land adjacent to Stoney Wood, South Street, Meopham, Kent (grid ref: TQ 63522 64135).:
 - A Preliminary Ecological Appraisal (PEA) for habitats and protected species
 - A Preliminary Roost Assessment (PRA) for bats and birds
- 0.2 Through a proportionally comprehensive desk study and site visit the habitats within the redline boundary of the proposed development were assessed for their potential to support protected species. This report evaluates the constraints that the presence of any protected species or species of conservation concern may place on the proposed re-development of the site.
- 0.3 The habitats on site include improved grassland, scrub, tall ruderal vegetation, scattered trees, hedgerows, and two timber buildings.
- 0.4 The habitats present on site have the potential to provide suitable habitat for protected species. This suitability was accordingly assessed and discounted as appropriate.
- 0.5 Development plans on site comprise
 - The conversion of an existing barn building into a dwelling.
- 0.6 Biodiversity enhancements should be incorporated into the development and section 6 of this report provides detail on potential enhancements.
- 0.7 A Biodiversity Metric Assessment (BMA) was not necessary in this instance, as the development falls under the following exemption:
 - Development is below the threshold as it 'impacts' less than 25m² of on-site habitat and less than 5m of linear hedgerow
- 0.8 The following additional surveys will be required:
 - No further surveys required at this stage

1 INTRODUCTION

- 1.1 Arborweald Environmental Planning Consultancy (AEPC) was commissioned by Tangram Planning to undertake a Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) of land adjacent to Stoney Wood, South Street, Meopham, Kent (grid ref: TQ 63522 64135):
- A Preliminary Ecological Appraisal (PEA) for habitats and protected species
 - A Preliminary Roost Assessment (PRA) for bats and birds
- 1.2 The objectives of the PEA were to assess the potential of the site to support protected species and/or species of conservation importance by identifying potential habitat for protected species and/or species of conservation concern and by evaluating the constraints that the presence of any protected species or species of conservation concern may place on the proposed re-development of the site.
- 1.3 The PRA of buildings on site involved carrying out a detailed assessment to assess their likelihood and potential to support bat species. The assessment comprised of a thorough internal and external inspection of the buildings for the presence of bats and/or any evidence of bats or the likelihood that a particular structure could support bat species.

Surveyors and author competency

- 1.4 Surveys were undertaken on the 25th of April 2025 by Principal Ecologist Perry Hockin BSc (Hons.), FDSoc, ACIEEM.

Perry Hockin – Principal Ecologist

Perry Hockin is a qualified and experienced ecologist and the primary ecological contact at Arborweald. With both a BSc in Ecology from the University of Brighton and a FDSoc in Countryside Management from Plumpton Agricultural College, Perry has worked in the countryside sector since 2013 in the fields of tree surgery, landscaping, countryside management and ecological consultancy where his qualifications have provided him with a balance of both practical and desk-based experience of complex multi-faceted projects.

His experience is focussed primarily on botany, habitat management, biodiversity net gain, and data management, and his holistic approach to projects has earned him high praise from local planning authorities and conservation bodies alike across the south-east.

Arran Fitzgerald – Assistant Ecologist

Arran Fitzgerald is a qualified and experienced ecologist who became associated with Arborweald in 2023 as a part time surveyor and ecological clerk of works. Having achieved a first-class honours degree in Zoology, followed by a master's in applied wildlife Conservation, Arran has since worked in Ecological Landscaping, implementing environmental mitigation measures for medium to large-scale infrastructure and conservation projects across the UK.

Arran's career spans a diverse range of ecological projects, from the installation of hibernacula and newt fencing to woodland/hedgerow regeneration efforts. He has also worked on innovative environmental solutions, such as using hydroseeding techniques to remediate toxic mining tailings. With a balanced approach to conservation and restoration, Arran's dedication extends beyond his professional work, with extensive volunteer experience that has enriched his understanding of ecology from a hands-on perspective.

Legislation and Policy

- 1.5 Certain habitats and species including nesting birds, bats, dormice, and great crested newts, are afforded protection under the Conservation of Habitats and Species Regulations 2017 and the Wildlife & Countryside Act 1981 (as amended). Further information on the legislation is included in Appendix A.
- 1.6 In general, the above legislation makes it an offence to:
 - Deliberately/intentionally or recklessly kill, injure, or take a protected species;
 - Intentionally or recklessly damage, destroy or obstruct access to any place that a protected species uses for shelter or protection whether the species is present or not;
 - Intentionally or recklessly disturb a protected species while it is occupying a structure or place that it uses for shelter or protection;
 - Deliberately take or destroy the eggs of species protected by this legislation (such as nesting birds).
- 1.7 Section 41 of the Natural Environment and Rural Communities Act (2006) lists the species and habitats of principal importance for the conservation of biodiversity in England and acts as a guide to local authorities in implementing their duties under Section 40, to have regard to the conservation of biodiversity in England.
- 1.8 The Protection of Badgers Act (1992) prohibits reckless and/or intentional cruelty, injury or killing of badgers and the interference with badger setts.
- 1.9 Under The National Planning Policy Framework (NPPF, 2018) protected sites and species are a material consideration in determining planning applications in terms of minimising impacts on biodiversity.
- 1.10 National Planning Policy guidance uses a mitigation hierarchy, whereby potential impacts are first avoided through changes to design plans; then unavoidable impacts are mitigated against to reduce the negative effect of the impact; finally, residual impacts that remain after avoidance and mitigation measures are applied are compensated for (BS 42020, 2013, Section 5.2). Further to this, it is a requirement under National Planning Policy for developers to actively enhance the biodiversity value of development projects.

- 1.11 Schedule 14 of the Environment Act 2021 mandates the need for a minimum 10% net gain in biodiversity value for development sites.

Site Description

- 1.12 The site is located in Meopham, Kent (Ordnance Survey Grid Reference for the centre of the site: TQ 63522 64135). The development site is approximately 1.72 hectares in area and comprises improved grassland, tall ruderal vegetation, scrub, scattered trees, a southern boundary hedgerow, and two timber buildings.
- 1.13 The site is currently used as a horse paddock and for informal storage, with scattered piles of equipment, metal containers, and vehicles.
- 1.14 The location of the site is shown in Figure 1.1 and the extent of the site boundary is shown in Figure 1.2.
- 1.15 The habitats in the wider landscape comprise predominantly rural habitats such as grassland, arable and woodland with scattered urban residential areas.

Development Proposals

- 1.16 Development plans on site comprise
- The conversion of an existing barn building into a dwelling.

Survey Constraints

General constraints

- 1.17 Due to seasonal behaviour of animals and the seasonal growth patterns of plants, ecological surveys may be limited by the time of year in which they are undertaken.
- 1.18 The information gathered for this ecological survey has facilitated an evaluation of the habitats on site and the likely use of the site by legally protected and notable species. This survey has also given appropriate baseline data for the determination of the requirement for further surveys and/or mitigation and enhancement works.

Site specific constraints

- 1.19 There are no site-specific constraints

2 METHODS

Desk Study

- 2.1 The Multi Agency Geographic Information for the Countryside (MAGIC) website provided by the Department for Environment, Food and Rural Affairs (DEFRA) was consulted for information with regard to protected habitats and species within 2 km of the proposed development (red line) boundary.
- 2.2 Aerial photos of the site (Google, 2020) were examined to determine habitats surrounding the site and hence species likely to be present in order to make appropriate recommendations in the wider landscape context.
- 2.3 Following guidance contained within sections 5.5 and 6.2.1 of BS 42020:2013, records from the local biodiversity record centre may be deemed necessary, in which case the results are screened for relevance. This involves an analysis (in conjunction with DEFRA's MAGIC map software) of connectivity between recorded instances and the site boundary. Records are also screened for age; records are prioritised from the last 10 years, with records from the past 20 and 40 years deemed as less accurate, but still included where possible.

Field Survey

Preliminary Ecological Appraisal

- 2.4 The survey was conducted in accordance with The Handbook for Phase 1 Habitat Survey (JNCC, 2016), and included searches for signs of protected species, as described in the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017).
- 2.5 A Preliminary Ecological Appraisal survey of the site was carried out in order to evaluate any habitat on the site with the potential to support protected species and/or other species of conservation concern that could be relevant in respect of planning policies.
- 2.6 In addition, the habitats within the survey area were assessed for their potential to support legally protected or otherwise notable flora and fauna. Where suitable habitat was identified on site, a search was conducted for signs indicating the presence of protected species such as droppings, burrows, tracks and evidence of feeding. Where species are not specifically evaluated, this indicates that no habitat of potential value for these species was identified during the survey.
- 2.7 Consideration was also given to habitats outside the site boundary, in order to evaluate the ecological context of the site within the wider landscape. Adjacent habitats were also considered with respect to their own ecological value and their potential to enhance the ecological value of habitats within the site.
- 2.8 Searches were made for invasive non-native plant species focussing on those species currently listed in the revised Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Species were listed split into non-natives and invasive non-natives with different advice for each.

- 2.9 The plant species nomenclature follows that of Stace (2019). Plant species observed within each habitat type were recorded using the DAFOR system which stands for Dominant, Abundant, Frequent, Occasional or Rare.
- 2.10 All references to relevant literature required to maintain industry best practice and compliance with legislation is listed in the References section of this report.

Preliminary Roost Assessment (PRA)

- 2.11 The methods used in the Preliminary Roost Assessment were based on those recommended in English Nature's Bat Mitigation Guidelines (Mitchell-Jones 2004), the Joint Nature Conservation Committee's Bat Worker's Manual (Mitchell-Jones and McLeish 2004) and the Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2024).
- 2.12 The suitability of the buildings to support roosting bats was assessed by examining structural features. Structural features that may influence the suitability of a building to support roosting bats include the presence of a roof void, the presence of access points into the building (including gaps beneath barge boards, soffits and fasciae, gaps under lead flashing, gaps within masonry and under loose tiles, gaps between mortise and tenon joints), the complexity and size of any roof void, daytime light ingress, and night time temperatures within a roof void.
- 2.13 The suitability of the buildings for roosting bats was also assessed by examining the surrounding habitat. Important habitat features surrounding the structure which may influence roost potential include whether the structure is in a semi-rural or parkland location, its proximity to significant linear habitat features such as a watercourse, mature hedgerow, wooded lane or an area of woodland.
- 2.14 Taking account of these architectural and habitat features, the buildings were then assigned a level of roost suitability based the criteria given in the Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2024) and professional judgement. The primary objective of this exercise was to identify the need for further detailed bat surveys later in the year, or alternatively to obtain sufficient information that would dismiss the need for further assessment.
- 2.15 An external search around the perimeter of the buildings was conducted and any possible access points i.e. gaps and crevices were noted and investigated further where possible.
- 2.16 All surfaces were surveyed for signs of bat presence; as bat presence was ruled out a systematic internal inspection of the building for visual indicators of bat presence was conducted using a high powered torch to illuminate areas to check for evidence of bats such as feeding remains or droppings.
- 2.17 Features of potential value to bats were surveyed not only for the presence of bats but also for signs that could indicate use by bats, such as:
- Bat droppings;
 - Staining of access points used by bats to enter the structure; and

- Feeding remains such as moth and butterfly (Lepidoptera) wings.

Recommendation categorisation

2.18 So as to ensure biodiversity net gain for all development projects, the enhancement recommendations outlined in Section 6 of this report are categorised as Red, Amber or Green:

Red recommendations should be designated as conditions attached to a planning consent, and the development must not proceed without these enhancements / compensation measures being put in place, as they form a crucial role in achieving biodiversity net gain targets.

These recommendations are designed to be as effective and swift as possible, whilst taking into account cost and ease of implementation / future management in context with the scale of the development site.

Amber recommendations should be included within the development, however it is not necessary for them to be designated as conditions, as the author believes that their implementation is not key to achieving biodiversity net gain targets. The client / developer should seriously consider including these measures to improve the biodiversity value of the site and to reduce their carbon footprint.

These recommendations are designed to be a good balance between efficacy and cost efficiency.

Green recommendations are additional enhancements which would improve the biodiversity value of the site; however, they are not key to achieving biodiversity net gain targets. These recommendations are aimed at clients wishing to 'go the extra mile' with their site so as to improve visual impact, public engagement, and property value

These recommendations are often more costly, either financially or in terms of time input in context with the size of the site, however they can also deliver longer term benefits for a greater original outlay.

2.19 Recommendations are prioritised into the above categories taking into account multiple factors, including, but not limited to:

- Measurable impact on biodiversity net gain using the methodology of Biodiversity Metric
- Habitat classification factors utilised by the Natural England Biodiversity Metric; for instance, how valuable would the enhancements be from a habitat creation / modification perspective?
- Likelihood of the client to undertake or follow through with recommendations, and to maintain recommendations post-development [as appropriate]
- Ease and cost of implementation, such that high impact and swiftly effective recommendations are prioritised over slower or less easily maintained enhancements on smaller development sites

- Surveyor and author experience of effectiveness of enhancement features in areas similar to the site, such as on other sites nearby, or enhancements already implemented as a part of local designated-site management plans (such as AONB strategies)

3 RESULTS

Desk Study

- 3.1 Records of designated sites and European sites within 2 km of the site boundary were obtained from Multi Agency Geographic Information for the Countryside (MAGIC) website provided by the Department for Environment, Food and Rural Affairs (Defra).

Designated sites

- 3.2 There are no international/European designated sites within 2km of the proposed site.
- 3.3 There are no statutory designated sites located within 2km of the proposed development site.
- 3.4 The site is set within the High Weald AONB.
- 3.5 The site is not designated for its specific nature conservation interest, and the scale of development is such that it is unlikely to significantly affect local designated sites.

Designated habitats

- 3.6 The habitats in the wider landscape comprise a rural mosaic of improved grassland, arable land, hedgerows and woodland, with occasional areas of residential development to the east.
- 3.7 Further to this, the wider landscape contains several Habitats of Principal Importance (HPIs) listed under Section 41 of the Natural Environment and Rural Communities Act 2006, consisting primarily of deciduous woodland. These habitat blocks provide strong ecological connectivity across the area.

Waterbodies

- 3.8 There are 0 waterbodies within 500m of the site. The 500m buffer is shown in Figure 3.1.

Biological Records

- 3.9 Following guidance contained within sections 5.5 and 6.2.1 of BS 42020:2013, it was deemed not necessary to obtain biological records from the local Biological Records Centre for the following reasons:
- Protected species impacts are predicted to be minimal.
 - Development is of a small scale.
 - The scheme will be *de-minimis* in terms of habitat 'impacts' as per the biodiversity metric methodology.

- Development can be contained within areas of lowest quality habitat, as existing habitats comprise predominantly built habitats with 'zero habitat value.
 - The site will be subjected to a low-impact scheme comprising simple conversion and extension of an existing building.
- 3.10 Local records may be required at a later stage in development to further inform protected species presence in the wider landscape.

Field Study

Phase 1 Habitat Survey

- 3.11 The habitats present on site are shown in Figure 3.2 and are described in detail below.
- 3.12 The site at Stoney Wood comprises a horse paddock field currently used for informal storage of machinery, vehicles, and equipment. Habitats on site include improved grassland, tall ruderal vegetation, scrub, scattered trees, a hedgerow along the southern boundary, and two small timber buildings. Several sealed shipping containers and piles of debris are also scattered across the site.
- 3.13 Habitats on site comprise buildings, scrub, tall ruderal vegetation, improved grassland, scattered trees, and hedgerow.

Buildings

- 3.14 Buildings There are two buildings on site. Building 1 is a large detached, open-sided timber barn with a single-pitched corrugated sheet metal roof. It is open to the east and includes two enclosed end sections, one of which is insulated and fully sealed.
- 3.15 Building 2 is a small adjacent timber-framed storage shed, fully open and lacking a roof void.

Scrub

- 3.16 Scrub is present as a dense block near the roadside along the eastern site boundary. Species include *Prunus spinosa* blackthorn, *Crataegus monogyna* hawthorn, and *Rubus fruticosus* agg. bramble. The scrub provides moderate structure and ecological value, though it is limited in extent.

Tall ruderal

Tall ruderal vegetation is present in disturbed patches, especially near debris piles. Species include *Urtica dioica* common nettle, *Lamium album* white dead-nettle, *Rumex obtusifolius* broad-leaved dock, *Myosotis* sp. forget-me-not, *Sambucus nigra* elder saplings, *Alliaria petiolata* garlic mustard, *Glechoma hederacea* ground ivy, *Arctium minus* lesser burdock

Improved grassland

The main habitat across the site is improved grassland grazed by horses. The sward is uniform and short up to 6 cm) with 90% vegetation cover, becoming patchier in heavily trafficked areas. Species recorded include *Lolium perenne* perennial ryegrass, *Agrostis stolonifera* creeping bent, *Taraxacum officinale* dandelion, *Trifolium repens* white clover, *Plantago lanceolata* ribwort plantain, *Plantago major* broadleaf plantain, *Bellis perennis* daisy, *Ranunculus repens* creeping buttercup, *Urtica dioica* common nettle, *Lamium purpureum* red dead-nettle, *Lamium album* white dead-nettle, *Veronica* sp. speedwell, *Geranium* sp. geranium, *Rumex obtusifolius* broad-leaved dock, *Arctium minus* lesser burdock, *Tripleurospermum inodorum* scentless mayweed, and *Glechoma hederacea* ground ivy.

Scattered trees

- 3.17 Scattered trees are limited to the site's southwest corner and periphery. Species include *Sambucus nigra* elder and *Fraxinus excelsior* ash. The trees are few and immature, providing limited canopy structure and no features suitable for roosting bats.

Hedgerows

- 3.18 A defunct and overgrown hedgerow is present along the site's southern boundary. Although gappy in sections, it is moderately species-rich. Species recorded include *Crataegus monogyna* hawthorn, *Rubus fruticosus* agg bramble, *Prunus cerasifera* cherry plum, *Fraxinus excelsior* ash, *Acer campestre* field maple, *Clematis vitalba* old man's beard, *Rosa canina* dog rose, and *Sambucus nigra* elder.

Protected Species

- 3.19 The habitats present on site provide suitable potential to support a range of protected species including badgers, bats, breeding birds, dormice, great crested newts and reptiles. These species are considered in greater detail below, along with protected species for which the habitats on site are suboptimal or unsuitable.

Bats

Roosting

Trees

- 3.20 A full Ground Level Tree Assessment (GLTA) for bats was not within the scope of this survey, however a brief assessment of the trees and shrubs on site revealed that none of them have the potential to provide habitat suitable for bats due to their young age and species type; as such, they are unlikely to hold bat-suitable features associated with age and size such as lifted bark, lesions, holes, and dead wood.

Buildings

- 3.21 The results of the PRA survey are detailed in Figure 3.2 and Table 3.11 below.

Table 3.11: Preliminary Roost Assessment Survey results

Building Number/ Reference	Building Description	Suitable Bat Roost Features	Direct evidence of Roosting Bats?	Suitability to Support Roosting Bats
1	Building 1 is a large open-sided barn with a single-pitched corrugated metal roof supported by exposed timber rafters and beams. It is open on its eastern side and includes two enclosed end rooms, one of which is insulated and fully sealed.	None – exposed structure, no roof void or crevices. Enclosed areas are fully sealed.	None	Negligible suitability
2	Building 2 is a small timber shed entirely open on one side.	None – no voids, fully open.	None	Negligible suitability

Commuting and foraging

- 3.22 The improved grassland across the site is heavily grazed and species-poor, offering limited invertebrate diversity and thus poor-quality foraging habitat for bats. However, the southern hedgerow and eastern scrub block provide linear features that may facilitate low-level commuting and edge foraging.

Opportunities in the wider landscape

- 3.23 The wider landscape includes Choles Wood, Hopehill Wood, and other broadleaved woodland blocks and hedgerow networks, all of which support strong habitat connectivity and are likely to sustain bat foraging and commuting activity.

Evidence

- 3.24 No evidence of bats was recorded during the surveys

Badgers

Commuting and access

- 3.25 The site is not enclosed by solid fencing or walls, and access for badgers from the wider landscape is possible via field margins and boundary vegetation, particularly the southern hedgerow and scrub edge. However, informal storage and grazing pressures reduce the site's overall appeal for commuting.

Foraging

- 3.26** The heavily grazed improved grassland provides poor foraging opportunities for badgers due to low floral diversity and minimal ground cover. Limited invertebrate and herbaceous food sources are present. The scrub and ruderal patches may support occasional foraging but are restricted in extent.

Sett building

- 3.27 The site contains no suitable locations for sett construction. The soil is heavily compacted in much of the site and the level of disturbance (equipment, vehicle traffic, grazing) further reduces the likelihood of sett establishment.

Opportunities in the wider landscape

- 3.28 Badger populations, whilst widespread, are likely scattered.

Evidence

- 3.29 No evidence of badgers was recorded during the survey.

Breeding birds

Evidence

- 3.30 An abundance of songbirds was recorded during the survey, with species being both heard and seen. Species recorded included blackbird *Turdus merula*, blue tit *Cyanistes*

caeruleus, great tit *Parus major*, wren *Troglodytes troglodytes*, jackdaw *Corvus monedula*, house sparrow *Passer domestica*, and starling *Sturnus vulgaris*.

Nesting / roosting

- 3.31 No intact or defunct nests were discovered during the survey.
- 3.32 All of the habitats on site provide nesting opportunities for breeding birds, with further opportunities found within the wider landscape.

Foraging

- 3.33 Fruiting bodies, invertebrates, and ground cover vegetation within the hedgerow, scrub and grassland provide moderate foraging opportunities for both resident and migratory species.

Dormice

Evidence

- 3.34 No signs of dormice were recorded during the survey.

Key features for survival

- 3.35 The site provides limited habitat suitable to support dormice with few features key for their survival. These features include:
- Hazel coppice with dense canopy for arboreal activity, and of a mature enough stock to produce nuts;
 - Good connectivity with areas of higher quality habitat

The site provides limited native fruit bearing species, and the centre of the site lacks an appropriate level of cover for dormice. The defunct hedgerow and isolated scrub patch offer low-quality habitat that does not support continuous canopy movement.

Connectivity

- 3.36 Habitat connectivity across the site is poor. Hedgerows are gappy and there is no arboreal link between features. The wider landscape includes woodland blocks, but these are not directly connected to the site via canopy or dense vegetation corridors.

Opportunities in the wider landscape

- 3.37 Dormouse presence in the wider rural landscape is possible, particularly within large woodland blocks. However, the site itself is isolated and lacks core habitat characteristics.

Great crested newts

Evidence

- 3.38 No signs of great crested newts were recorded during the survey.

Breeding habitat

- 3.39 There are no waterbodies on site.

Terrestrial habitat

3.40 The heavily grazed improved grassland provides a short, homogenous sward unsuitable for commuting or foraging by amphibians. Areas of scrub and ruderal vegetation are limited in size and structure, and overall terrestrial habitat quality is poor.

3.41 Foraging and commuting habitat is therefore limited to the most densely vegetated habitats.

Hibernation habitat

3.42 There is limited hibernation habitat on site in the nooks and crannies within tree and hedge roots, scrub and debris/rubble piles.

Connectivity, wider landscape, and access

3.43 The site is isolated from any known amphibian breeding sites. There is a lack of functional connectivity to suitable aquatic or terrestrial habitats, and regular vehicle and horse traffic likely reduce habitat suitability further.

Hedgehog

Evidence

3.44 No signs of hedgehog were recorded during the survey.

Key features for survival

3.45 The site provides limited habitat suitable to support hedgehogs with few features key for their survival. These features include:

- Areas of tall grass or vegetation, or leaf litter offering a supply of invertebrates such as slugs and snails
- Gaps in fences, walls or hedgerows that allow movement between areas of higher quality habitat.
- Suitable hibernation sites, such as log piles, unlit bonfires, compost heaps, or other natural debris accumulations
- Dense undergrowth and scrub providing cover from predators and shelter for nesting
- Freshwater sources such as ponds, ditches, or damp areas that support invertebrates and provide drinking water

Connectivity

3.46 Connectivity across the site is fragmented, with few continuous vegetated corridors. There is no formal barrier to hedgehog access, but habitat permeability is reduced by compacted surfaces, containers, and areas of bare ground.

Opportunities in the wider landscape

3.47 The wider rural setting may support hedgehog populations, but the site itself is likely to serve as a marginal foraging area, if used at all. Use of the site would likely be occasional and opportunistic.

Reptiles

Evidence

- 3.48 No signs of reptiles were recorded during the survey

Basking, commuting and foraging habitat

- 3.49 The site offers some limited opportunities for reptiles, particularly within the tall ruderal vegetation and scrub edge, where habitat structure and warmth retention are more suitable. These areas could support common species.
- 3.50 The improved grassland, however, is heavily grazed and of uniform structure, offering poor quality foraging and basking habitat across most of the site.

Hibernation habitat

- 3.51 There are some hibernation opportunities are limited but present in root systems of scrub and within accumulated debris piles, although these features are small and potentially disturbed

Connectivity, wider landscape, and access

- 3.52 The site is well connected to the wider countryside via hedgerows and adjacent fields. While no reptiles were recorded during this visit, low-level presence is considered likely, particularly around the site boundaries.

Other species

- 3.53 There are no other species of note present on site.

4 EVALUATION

Habitats

- 4.1 The habitats present on site are of average ecological quality and comprise locally abundant species typical of the wider landscape.

Protected species legislation

- 4.2 Protected species legislation, its importance, and the penalties that would be incurred if an offence were committed are summarised in Appendix A of this report. This section provides information on which species could be affected by any proposed development of the site.

Species – Constraints vs. suitability

This section discusses two separate issues;

- **Habitat suitability** and **species constraints** whereby a protected species has the potential to pose a constraint on a development. In this case, mitigation may be required to negate the risk of an offence being committed, along with phase 2 species specific surveys to further analyse such a threat.
- **Future potential** to support protected species, i.e. whether prudent habitat management can be targeted towards a species to improve the biodiversity value of the development site and contribute towards Biodiversity Net Gain (BNG) targets.

Activities that present species-specific risks are outlined for each species in the tables below, along with the following information:

- Whether that species is likely to pose a constraint to the development – “**Works Constrained?**” – **Yes** / **No** / **Discounted**

Yes – Special mitigation will be required, such as additional surveys, special control measures, or changes to the design to mitigate otherwise unacceptable impacts, as outlined in Section 6.

No – The species does not pose a constraint subject to the application of ‘Standard mitigation’ measures as outlined in Section 6. No special mitigation required.

Discounted – Whilst there is no guarantee, the surveyor has used the evidence gathered to confirm likely absence of this species, and no specific mitigation will be required. No further action will be required for this species, and it will not be individually covered in Section 6. These species are still protected, and any changes to their status may result in mitigation being required.

Bats

- 4.3 All species of bat present in the UK receive full protection under The Conservation of Habitats and Species Regulations 2017, and the Wildlife and Countryside Act 1981 (as amended).

Roosting

Buildings

- 4.4 The site is considered overall to be unsuitable to support roosting bats, as the buildings on site are open to the elements and with lack of voids.

Trees

- 4.5 A brief survey of the trees on site revealed that none of them were over-mature or veteranized individuals with typically age-related features that provide roosting opportunities for bats. Additionally, none of the trees on site will be removed to facilitate development.

Commuting and foraging

- 4.6 All of the habitats on site provide foraging opportunities for bats.

Future potential

- 4.7 As the site has potential to support bats, they are considered further in Section 6 of this report as enhancements for bats will be required to ensure biodiversity net gain due to the fact habitat will be lost.

Works constrained?	No
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Activity	Further works required
Building demolition	Standard mitigation
Tree removal / pruning	Standard mitigation
Lighting design	Sensitive lighting scheme

Badgers

- 4.8 Badgers receive full protection under the Protection of Badgers Act 1992.

Current usage

- 4.9 No badger activity was recorded on site during the survey; badgers could utilise the site for foraging as a part of a larger territory.

Connectivity, foraging and sett building

- 4.10 The site lies within a rural landscape with moderate connectivity to surrounding woodland blocks, hedgerows and pasture. However, the habitats on site are heavily disturbed and of poor foraging value, and the compacted soil and debris piles make the site unsuitable for sett construction.

Future potential

- 4.11 The site may continue to be transiently used by badgers in the future, particularly along boundaries. However, use is expected to remain low due to the site's current and proposed amenity use. Therefore, badgers are not considered further in this report.

Works constrained?	No
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Activity	Further works required
Demolition	Standard mitigation
Construction	Standard mitigation
Post-development	Standard mitigation

Breeding birds

- 4.12 Breeding birds are protected by the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is an offence to intentionally kill, injure or take birds or their eggs, or to intentionally destroy or disturb a nest, when it is in use or being built.
- 4.13 Failure to observe mitigation measures leading to birds being disturbed whilst nesting would constitute a criminal offence.

Current usage

- 4.14 Most of the habitats on site provide foraging and nesting opportunities for breeding birds.

Future potential

- 4.15 Birds were recorded on site, therefore any loss of habitat for birds will need to be compensated for, and habitats remaining post-development must be enhanced to ensure biodiversity net gain is achieved.

Works constrained?	No
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Activity	Further works required
Demolition	Standard mitigation
Vegetation clearance	Standard mitigation
Post-development	Standard mitigation

Dormice

- 4.16 Hazel dormice are protected by the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is a criminal offence to intentionally or accidentally harm, capture, or destroy dormice, or to disturb a breeding area.

Current usage

- 4.17 No signs of dormice were recorded during the survey.

Foraging, connectivity and hibernation

- 4.18 Dormice generally require large areas of connected ancient woodland with healthy, stratified vegetative layers providing a heterogeneous habitat (Bright et al., 2006). They also utilise hedgerows to a lesser extent, particularly for foraging and commuting and less so for nesting. This heterogeneous habitat is not provided by the site.
- 4.19 There is a single fragmented and defunct hedgerow on site, however the proposed development will not affect this. There are very limited foraging opportunities due to a lack of food species key to dormouse success.
- 4.20 Given the lack of high-quality habitat within the development area, dormouse presence within the site can be effectively ruled out.
- 4.21 Dormouse presence in the wider landscape is considered to be possible due to the areas of woodland present.

Future potential

- 4.22 Dormice are unlikely to utilise the site in future due to its continued amenity use. Therefore, they are not considered further in this report.

Works constrained?	Discounted
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Activity	Further works required
Vegetation clearance	None
Post-development	None

Great crested newts

- 4.23 Great crested newts are protected by the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is a criminal offence to intentionally or accidentally harm, injure or destroy great crested newts or their eggs.

Current usage

- 4.24 No signs of great crested newts were recorded during the survey.
- 4.25 The likelihood of a meta-population being present within the wider landscape is considered to be low as there are 0 waterbodies within 500m of the site boundary.

Foraging, connectivity, breeding and hibernation

- 4.26 The green habitats on site are of a too short a height to support commuting and foraging great crested newts, as newts generally require a taller sward height to evade predation.
- 4.27 The site is undesirable for newts due to the lack of breeding habitat and poor foraging opportunities within the terrestrial habitats.
- 4.28 There are no hibernation opportunities on site.

Future potential

- 4.29 Due to the complete absence of breeding and terrestrial habitat, GCN presence can be confidently ruled out. The species is therefore discounted from further consideration in this report. It is likely to continue using the site in future as the area of green habitat is remaining roughly the same such that foraging and commuting opportunities will not be drastically affected. No additional breeding habitat is proposed as a part of the development, therefore, breeding suitability will not increase.

Works constrained?	Discounted
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Activity	Further works required
Vegetation clearance	Further surveys
General ground works	Standard mitigation

Hedgehogs

- 4.30 Hedgehogs are a species of principal importance under the NERC Act 2006.
- 4.31 Hedgehogs are also protected from capture or killing by certain methods by the Wildlife and Countryside Act 1981 (as amended).

Current usage

- 4.32 No signs of Hedgehogs were recorded during the survey.

Foraging, connectivity and hibernation

- 4.33 Hedgehogs generally require a mosaic of interconnected habitats, including woodland edges, hedgerows, grasslands, and gardens, which provide shelter, foraging opportunities, and nesting sites (Morris, 2006). They rely on dense undergrowth, leaf litter, and log piles for nesting and hibernation, as well as varied vegetation supporting a rich supply of invertebrates. While hedgerows can serve as important corridors for movement and foraging, they are less commonly used for nesting.
- 4.34 This diverse habitat structure is not provided by the site.
- 4.35 Whilst there are areas of dense vegetation on site, these are too small to support a hedgehog on their own, however they could form a part of a wider territory.
- 4.36 There are very few hibernation opportunities.
- 4.37 Given the lack of high-quality habitat within the development area, hedgehog presence within the site can be effectively ruled out.
- 4.38 Hedgehog presence in the wider landscape is considered to be possible due to the areas of woodland present.

Future potential

- 4.39 Hedgehogs are unlikely to utilise the site in future due to its continued amenity use. Therefore, they are not considered further in this report.

Works constrained?	No
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Activity	Further works required
Vegetation clearance	Standard mitigation
Construction	Standard mammal mitigation RE. construction materials and holes etc.
Post-development	Standard bonfire and hibernation habitat clearance precautions

Reptiles

- 4.40 All species of reptile are protected by the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is a criminal offence to intentionally or accidentally harm, injure or destroy reptile species or their eggs.

Current usage

- 4.41 No signs of reptiles were recorded during the survey.

Foraging, connectivity, basking and hibernation

- 4.42 The habitats on site are considered to broadly be suitable to support reptiles, as although the habitats on site are all of a relatively short sward height, they do have value for reptiles when combined with the surrounding habitats both on and off site.
- 4.43 Central grassland is too short but may still offer value when combined with adjacent habitat.
- 4.44 Connectivity with areas of higher quality reptile habitat is good, and it is likely that reptile presence in the wider landscape is relatively widespread. Reptile presence is therefore highly likely.

Future potential

- 4.45 Reptiles are likely Reptiles are likely to continue using the site in future, particularly along scrub and hedgerow boundaries, as these features will be retained and are not directly impacted by development. The extent of green habitat is remaining broadly the same post-development, meaning that foraging and commuting opportunities will not be drastically affected.
- 4.46 However, no additional hibernation habitat is being introduced as part of the proposals, and the main grassland area will continue to offer limited structural diversity. Therefore, reptile suitability is unlikely to increase but will be maintained at a low level, concentrated around retained peripheral habitat.

Works constrained?	No
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Activity	Further works required
Vegetation clearance	Standard mitigation
General ground works	Standard mitigation

Other Items

4.47 There are no other items of note.

5 CONCLUSION

Site summary

- 5.1 The proposed development site is currently considered to have low ecological value within a local context as it comprises locally common habitats supporting locally abundant species typical of the wider landscape.
- 5.2 The biodiversity value of the total site area is largely attributed to the following factors:
- The average diversity of species and sward heights within the habitats on site when compared to the wider landscape, with the development site being typical of rural brownfield sites in the south-east.
 - The poor vegetative structure and connectivity within the development boundary; and
 - The ease with which biodiversity enhancement measures can be implemented within the overall site boundary without compromising amenity value.

Development proposals

- 5.3 Development plans on site comprise the construction of a single detached holiday let unit within the footprint of the existing buildings and hardstanding.

Species likely present

- 5.4 In the absence of mitigation, the current development proposals have the potential to affect protected species. To reduce the risk of an offence being committed, recommendations are outlined in Section 6 of this report. These should be followed to ensure that any potential impacts to protected species are adequately addressed during the planning stage, development and post-development stage.
- 5.5 The following species require no specific mitigation, and can be discounted from future consideration:
- Dormice
- 5.6 The following species require 'standard' mitigation, such that subject to application of a combination of non-site-specific measures, a precautionary approach, and toolbox talks no impacts are predicted on these species:
- Bats
 - Badgers
 - Breeding birds
 - Great crested newts
 - Hedgehogs

- Reptiles

5.7 The following species required additional mitigation measures, being a combination of additional surveys and / or additional site-specific mitigation measures due to the fact that the development presents unique risks to them:

- Not applicable

6 RECOMMENDATIONS

- 6.1 The quality of the habitats that could be affected and their potential to support protected and notable species is such that without mitigation, the development has the potential to harm, injure, kill or disturb protected or notable species.
- 6.2 These recommendations are therefore mitigative and are designed to work on a worst-case scenario basis, and to offer biodiversity enhancements to benefit the local area by attracting species in.
- 6.3 Section 6 discusses two separate elements:
- Species specific mitigation measures for those species that would otherwise be at risk of injury, death, or legislative breach without mitigation measures
 - Biodiversity enhancement measures to achieve Biodiversity Net Gain.

Species specific mitigation measures

Bats

All of the habitats on site have the potential to support foraging and commuting bats.

Bats are considered to be likely absent from the buildings on site, and as such works can proceed without hindrance under a precautionary approach to comprise the following:

Timings

Works to the buildings are to commence during the active season of April to September inclusive so that should bats be found during the works, they can be successfully relocated under licence to a bat box as moving bats during hibernation season presents serious risks to their survival.

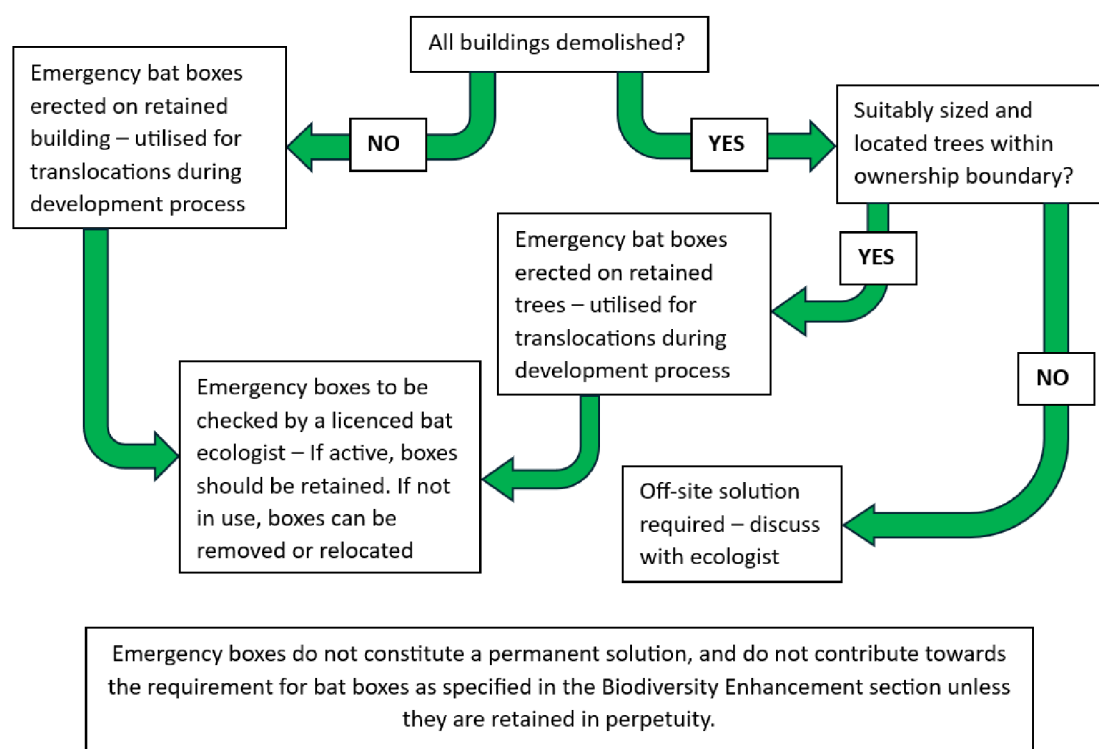
Toolbox talk

Prior to works commencing a toolbox talk will be required for operatives explaining:

- The importance of bat conservation.
- How to identify signs of bat presence, as well as distinguishing bats from other mammal species.
- The risks that works could present to bats should they be present.
- The methods that will be utilised on site to reduce the risks to bats should they be present.
- Emergency information should bats be found, including licenced bat contacts and wildlife rescue centres.

Erection of compensation features

Bat boxes should be erected prior to works commencing so that an artificial roost space is available for immediate translocation should bats be discovered during the demolition works. Consult the following flow chart to choose the location for an emergency translocation roost.



Workers should be careful not to damage nearby trees during erection, with only tertiary branches removed to provide a clear flight path to the box. Boxes should be erected on the south side of features to allow warming in the daytime and remain unlit throughout the day and night.

Immediately prior to works commencing

Immediately before works commence, a walkover check should be undertaken by operatives having been informed by the toolbox talk to identify potential bat presence. This should comprise an internal and external search of the building for signs of bat presence, including beneath roofing and in other crevices. Where bat absence cannot be confirmed by observation alone, endoscopes or other cameras should be utilised.

Where uncertainty remains, a trained [and where necessary, licenced] ecologist should be contacted for a secondary assessment. Works cannot begin until bat presence has been effectively ruled out.

Construction activities

The existing building(s) will be dismantled as appropriate. This should be undertaken using hand tools with any or roofing siding soft-stripped by hand and checked for signs of bat presence.

At all times during the works

Should roosting bats be confirmed or suspected at any time all works must cease and Arborweald contacted for a second assessment. The area must be cordoned off and works halted until the appropriate survey effort has been undertaken and licencing acquired.

Bats are not to be handled by anyone not covered under a Natural England Licence *unless their actions prevent further harm to an individual at immediate risk of further harm should those actions not be undertaken.*

Failure to cease works and undertake the adequate survey and licencing effort, or disturbing, harming bats, or obstructing a roost constitutes a strict liability criminal offence. The maximum penalty is 6 months in prison and an unlimited fine.

Lighting

While different species of bat react differently to night-time lighting, research has found that bats overall are sensitive to artificial lighting. Excessive and/or poorly directed lighting may delay bats in emerging from their roosts; shortening the time available for foraging, as well as causing bats to move away from suitable foraging grounds, movement corridors or roosting sites, to alternative dark areas (Jones, 2000).

To minimise indirect impacts from lighting associated with the proposed development, it is recommended that artificial lighting is only directed where necessary for health and safety reasons. Lighting should not illuminate any trees, hedgerows or mitigation and compensation features, such as hanging tiles and integrated bat boxes, or suspected or confirmed bat roosting sites. Lighting should only be used for the period of time for which it is required (Jones, 2000). This can be achieved by following accepted best practice (Fure, 2006; Institute of Lighting Engineers 2009; Bat Conservation Trust 2024):

- The level of artificial lighting including flood lighting should be kept to an absolute minimum;
- Where this does not conflict with health and safety and/or security requirements, the site should be kept dark during peak bat activity periods (0 to 1.5 hours after sunset and 1.5 hours before sunrise);
- Lighting required for security or safety reasons should use a lamp of no greater than 2000 lumens (150 Watts) and should comprise sensor-activated lamps;
- Lights utilising LED technology are the preferred option as these lights do not emit on the UV spectrum, are easily controllable in terms of direction/spill and can be turned on and off instantly;
- Avoid the use of sodium or metal halide lamps, these gas lamps require a lengthy period in which to turn off and the diffuse nature of the light emitted makes light spillage a significant problem.
- Lights required for night time deliveries or security patrols could be set to activate with pressure activated sensors set into the ground;
- Lighting should be directed to where it is needed to minimise light spillage. This can be achieved by limiting the height of the lighting columns and by using as steep a

downward angle as possible and/or a shield/hood/cowl/ that directs the light below the horizontal plane and restricts the lit area;

- Artificial lighting should not directly illuminate any confirmed or suitable bat roosting features or habitats of value to commuting/foraging bats. Similarly, any newly planted linear features or compensatory bat roosting features should not be directly lit.

Badgers

All of the habitats on site are suitable to support badgers, and access to the site for badgers is moderate.

If badger activity is suspected on site (evidence may include feeding remains, sett digging, paw prints, droppings, hair, or active sightings) all works must cease and a licenced badger ecologist notified. Works cannot then restart until the appropriate survey effort and [as necessary] licencing has occurred. Failure to do so would constitute a criminal offence.

Trenches and holes should be covered each evening to prevent badgers and other animals from falling in. Provision should be made to allow animals to escape should they enter excavations, which could comprise a ramp leading to ground level.

Breeding birds

The scattered trees, hedgerows and buildings on site have the potential to support breeding birds. This also applies to trees that hang over into the site such as those at the boundaries.

All tree and hedge cutting works as well as any potential clearing and roof stripping works should be confined to outside of the bird breeding season (February – October inclusive) or should be undertaken under ecological supervision where works are undertaken within nesting season.

If an active nest is found all works must cease and a suitably experienced, qualified (and where necessary, licenced) ecologist contacted. Works can only resume once the species of bird has been identified, and an adequate buffer zone erected around the nest suitable to the species affected. This buffer must remain in place until fledging of the chicks *and* confirmation of the nest becoming defunct by the site ecologist.

No further surveys for breeding birds are deemed necessary at this stage.

Herptiles

Necessity for phase 2 surveying

The scale of the development and quality of habitat affected is such that additional surveys for reptiles will not be required at this stage.

Mitigation measures

Due to the methods that will be employed to create footings and other hard features, it will be necessary for the works to be mitigated through seasonal avoidance measures and a precautionary approach.

The precautionary approach laid out below should be followed to ensure that in the event that vagrant reptiles are discovered appropriate mitigation measures are put in place to avoid the risk of an offence being committed, and so that construction workers are aware of the constraints that herptile species could present to the development.

Toolbox talk

Prior to works commencing, a toolbox talk will be presented to all operatives to inform them as to the legislation protecting herptile species, the importance of their conservation, how to identify them so as to prevent injury, and the site-specific risks to them.

If the works are undertaken by experienced ecologically trained personnel, a toolbox talk will not be necessary.

Fencing

Herptile fencing will not be necessary as works to green habitats on site will be minimal, and fencing could risk illegally trapping newts - which is an offence under the Wildlife and Countryside Act 1981. Instead, should herptiles be discovered during works, works must cease until the individual vacates the area of its own accord. Alternatively, for unlicensed species capture and translocation to an appropriate area is acceptable.

Capture and translocation of herptiles**Species identification**

Identification of the target species for translocation is extremely important so as to manage risks to both the captor and the target individual.

Can be captured and translocated	Must not be captured	Reason
Common frog	Great crested newt	Protected species
Common toad	Sand lizard	Protected species
Smooth newt	Smooth snake	Protected species
Palmate newt	Adder	Venomous
Common lizard		
Grass snake		
Slow worm		

If in doubt regarding the species, stop works and contact an appropriately trained, experienced and where necessary licenced ecologist.

Translocation

Should herptiles from the above 'Can be captured' table be discovered at any time during the development, they should be captured and translocated off site. If there is any doubt as to the species present, works must cease and an appropriately trained and licenced ecologist contacted, as capturing a great crested newt would constitute an offence, unless rescuing the newt was an emergency measure that would otherwise negate the risk of a more serious offence being committed.

So as to reduce the risk of an offence being committed, Natural England's guidance should be followed as outlined in the Reptile Mitigation Guidelines handbook, such that herptiles are captured and excluded from the work area and relocated to the adjacent receptor site within the ownership boundary that will be subject to restoration and enhancement.

In the unlikely event that great crested newts or other licensable reptile species are discovered during any stage of the works, all works must cease, and the advice of an appropriately licenced ecologist sought.

Timing of works

Prior to works commencing

A hibernaculum should be constructed within the grassland unaffected by the development / offsite to provide a translocation receptor site should herptiles be discovered.

Hibernation season

Vegetation removal should occur during the hibernation season, to include removal of any scrub plants and cutting of all vegetation to ground level. Grass cutting works should be undertaken in a staged manner consisting of cut and collect to 150mm, left for two hours, then cut and collect to ground level. This will also reduce the risk to breeding birds.

Maintenance of the site

Once any areas of vegetation to be affected by the development have been cut to ground level, it should be maintained as such until work operations can begin so as to keep the site as unsuitable for habitation by herptiles as possible.

Turf stripping

As no hibernation features will be affected by the proposed development, turf stripping works can be undertaken at any time during the hibernation season when reptiles are least likely to be active.

In the unlikely event that herptiles are found at any time during the development, work should cease immediately, and a suitably licensed ecologist should be sought. Thereafter work can

only recommence upon working in accordance with legislatively compliant recommendations. Failure to do so constitutes a criminal offence.

Additional recommendations

Construction Exclusion Zone (CEZ): a construction exclusion zone should be established to cover the areas of habitat that will not be affected by the proposed development. These areas should be fenced off with Heras fencing to limit damage to these areas during development; this accords with section 10.9 of BS:42020 (2013). Refer to section 10.9.3 of BS:42020 (2013) for additional information on required timings for fencing.

The CEZ will remain in place for the entire time that heavy machinery (including but not limited to excavators, graders, dumpers, lorries, and other vehicles over 2,000kg kerb weight) is on site.

The CEZ will also help to protect the remaining habitats that will not be affected by the proposed development.

Bonfires

Bonfires should not be lit during hibernation season of October to March to reduce the likelihood of affecting hibernating reptiles, amphibians and small mammals such as hedgehog *Erinaceus europaeus*.

Waste and materials

Construction waste, building materials and machinery should be stored in a dedicated storage area with fencing during the demolition and construction process. Construction waste should be stored in skips, with all new building materials kept on pallets until immediate use to avoid the possibility of protected species utilising piles as habitat.

Biodiversity enhancement and compensation

Necessity for planning conditions – note to the LPA

Sometimes it can be deemed necessary for biodiversity enhancements and compensation measures to be recommended to be designated as conditions attached to a planning consent.

The following symbols will be utilised below, with categorisation methodology explained in Section 2:

Red recommendations should be designated as conditions attached to a planning consent, and the development must not proceed without these enhancements / compensation measures being put in place, as they form a crucial role in achieving biodiversity net gain targets.

Amber recommendations should be included within the development, however it is not necessary for them to be designated as conditions, as the author believes that their implementation is not key to achieving biodiversity net gain targets. The client / developer should seriously consider including these measures to improve the biodiversity value of the site and to reduce their carbon footprint.

Green recommendations are additional enhancements which would improve the biodiversity value of the site; however, they are not key to achieving biodiversity net gain targets. These recommendations are aimed at clients wishing to 'go the extra mile' with their site so as to improve visual impact, public engagement, and property value.

Mandatory enhancements

Bird boxes, bat boxes, and bee bricks should be a part of the development, including dedicated swift boxes for hirundines, multi species bird boxes, and bat boxes.

Bird boxes

Bird boxes should be placed at a minimum height of 4.5 metres i.e. first floor / eaves height away from doors and windows and areas of high disturbance (footpaths, lighting etc.).

Bird boxes should be placed on the eastern or western aspects of buildings so that they remain partially shaded during parts of the day to reduce the risk of overheating. They should comprise built-in features as they are better for security, longevity, reduced maintenance, reduced predation, thermal stability and aesthetic integration with the building design.

It is recommended that bird boxes are constructed of woodcrete / woodstone similar to such boxes as the Schwegler 1SP nest box. The swift box should be similar to the Vivara Pro WoodStone built-in swift nest box.

One brick is the equivalent of one nesting cavity, thereby where a multiple cavity brick is provided, this would result in the same provision but with a lower number of bricks.

As a minimum, a single (1) bird box should be provided along with a minimum two (2) swift cavities / swift boxes / bricks on the eastern aspect of each new building.

Multi-species bird boxes and swift boxes should be placed away from each other where possible.

Bat boxes

To provide roosting opportunities for bats, at least one (1) bat box or bat brick should be installed.

Where suitable brickwork is present at this height, a built-in model such as the Schwegler 1FR is recommended on the southern aspect of the building at a height of approximately 4 metres, where conditions are typically warmer, more sheltered, and less disturbed.

If no appropriate brickwork is available, an external box may be used instead. Suitable alternatives include the Schwegler 2F bat box for tree mounting or a timber bat box affixed to the south-facing timber-clad gable of the garage—provided the location is sheltered, remains unlit, and offers a clear flight path.

Arborweald receive no commission for recommendation of brands of wildlife boxes, and other brands are available.

Bee bricks

Bee bricks should be included on the new dwelling to comprise one (1) Ibstock EcoHabitat brick at a minimum of 1m above ground level adjacent to landscape planting that is of benefit to wildlife, comprising native species as detailed in the 'Wildflower planting' section below.

New trees; the development should include new trees to ensure an appropriate level of cover for bats and to provide a micro-climate between trees to support insect species. Fruit trees also work well within linear boundaries such as hedgerows.

These should be scattered throughout the site boundary, and comprise robust native woody species such as hornbeam, field maple, or lime *Tilia cordata*, or fruiting species such as pear *Pyrus spp.*, apple *Malus spp.*, or mountain ash *Sorbus aucuparia*. These could include historically important varieties rare in the county. These species provide foraging opportunities for badgers, birds and small mammals.

Sward management around planted trees should be careful to avoid damage to trees and should be as varied as the rest of the amenity grassland within the wider site boundary.

Effort should mainly be concentrated on planting native species where possible, and attached with this report is our 'alternative planting list'.

As a minimum, four (4) new standard trees should be planted across the site boundary. These trees should be bought as heavy standards a minimum of 2.5m tall on purchase, grown to the size of 'small' trees (3m canopy radius).

Hedgerow restoration: Existing hedgerow within and along the south boundary of the site should be retained and subject to gap planting using a native species-rich mix. A minimum of seven native species should be selected from the following: hazel *Corylus avellana*, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, spindle *Euonymus europaea*, wayfaring tree *Viburnum lantana*, crab apple *Malus sylvestris*, hornbeam *Carpinus betulus*, dog rose *Rosa canina*, field maple *Acer campestre*, and wych elm *Ulmus glabra*. Honeysuckle *Lonicera periclymenum* should also be included to improve structural diversity.

Any non-native or invasive species within hedgerows should be removed and replaced with appropriate native species from the list above.

Where hedgerows are found to be of low density, bolster planting should be undertaken at a rate of 10 plants per metre, using two staggered rows of five plants each (rows 30 cm apart; plants 20 cm apart). Existing mature individuals may be counted toward this density. For example, where a hedgerow contains 3 plants per metre, 7 additional plants per metre should be added to meet the required standard.

To enhance connectivity and woody cover, scattered standard trees such as hornbeam *Carpinus betulus*, field maple *Acer campestre*, or lime *Tilia cordata* var. 'Green Spire' can be planted at intervals along hedgerows where space allows. These species are durable, easily managed, and suitable for integration into hedgerow networks.

A total of 25 linear metres of hedgerow restoration is considered appropriate and proportionate to the scale of the proposed development. Tree planting can be incorporated into the hedgerow line, every 10-20m using standard native or fruiting species such as rowan *Sorbus aucuparia*, apple (heritage varieties) *Malus domestica*, crab apple *Malus sylvestris*, hornbeam *Carpinus betulus*, and hazel *Corylus avellana* appropriate for scale integration and supporting pollinators, birds, and bats. Areas of improvement should prioritize connectivity to nearby woodland.

Non-mandatory enhancements

Mowing regime; areas of grassland on site should be mown on a scheme that benefits both biodiversity and the usage of the site. Areas away from roadways should be left long and cut once in October to allow the soil nutrients to be removed. These measures can also be supplemented for 'planting of a wildflower meadow' below.

Hedge cutting; Existing and new hedgerows on site should be cut biannually (every 2 years) except around gateways (annually). Hedgerows gradually lose their shape and density at the cost of amenity and functionality as they mature; therefore, hedge laying in the traditional Kent or Sussex style should occur every 10 years on rotation to maintain hedge structure.

Planting of a wildflower meadow; an increase in invertebrate habitat should be a key part of the plan, to include wildflower planting for bees and other pollinators within the site boundary to the east and south of the development to help increase the number of foraging opportunities available for bats.

Wildflower meadow mixes are available online, and should preferably focus on native bee-friendly mixtures to include the following species:

Common agrimony	Cornflower	Wild marjoram
Borage	Ox-eye daisy	Meadow cranesbill
Wild clary	Wild foxglove	Musk mallow
Red clover	Common knapweed	Common poppy
White clover	Greater knapweed	Ragged robin
Corn cockle	Purple loosestrife	Sainfoin
Field scabious	Bird's-foot trefoil	Yarrow

Wildflower mixes should focus on supporting invertebrates (such as bees, ants, wasps, butterflies and flies) and birds, and should ideally not contain non-native species as these can out-compete native plants for pollination.

Climbing plants should be trained up the walls of the new buildings or fences using trellis. Species could include; passion flower, honeysuckle, hops, ivy, star jasmine, wisteria, climbing roses, or clematis. These species all provide feeding opportunities for invertebrates and small mammals, and nesting opportunities for birds once they reach maturity.

Butterfly planting should focus on species rare in Sussex and Kent such as the silver-spotted skipper *Hesperia comma*, dingy skipper *Erynnis tages*, grizzled skipper *Pyrgus malvae*, Adonis blue *Polyommatus bellargus*, chalk hill blue *Polyommatus coridon*, small heath *Coenonympha pamphilus*, and fiery clear wing *Pyropteron chrysidiformus*. Plant species to encourage these butterflies should include the following in a large planter or area of ornamental planting (species that support more than one of these butterfly species are in bold):

Common sorrel	Tormentil	Birds foot trefoil
Curled dock	Salad burnet	Horseshoe vetch
Sheep's fescue	Agrimony	Wild strawberry

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FIGURES

Figure 1.1 Location of site

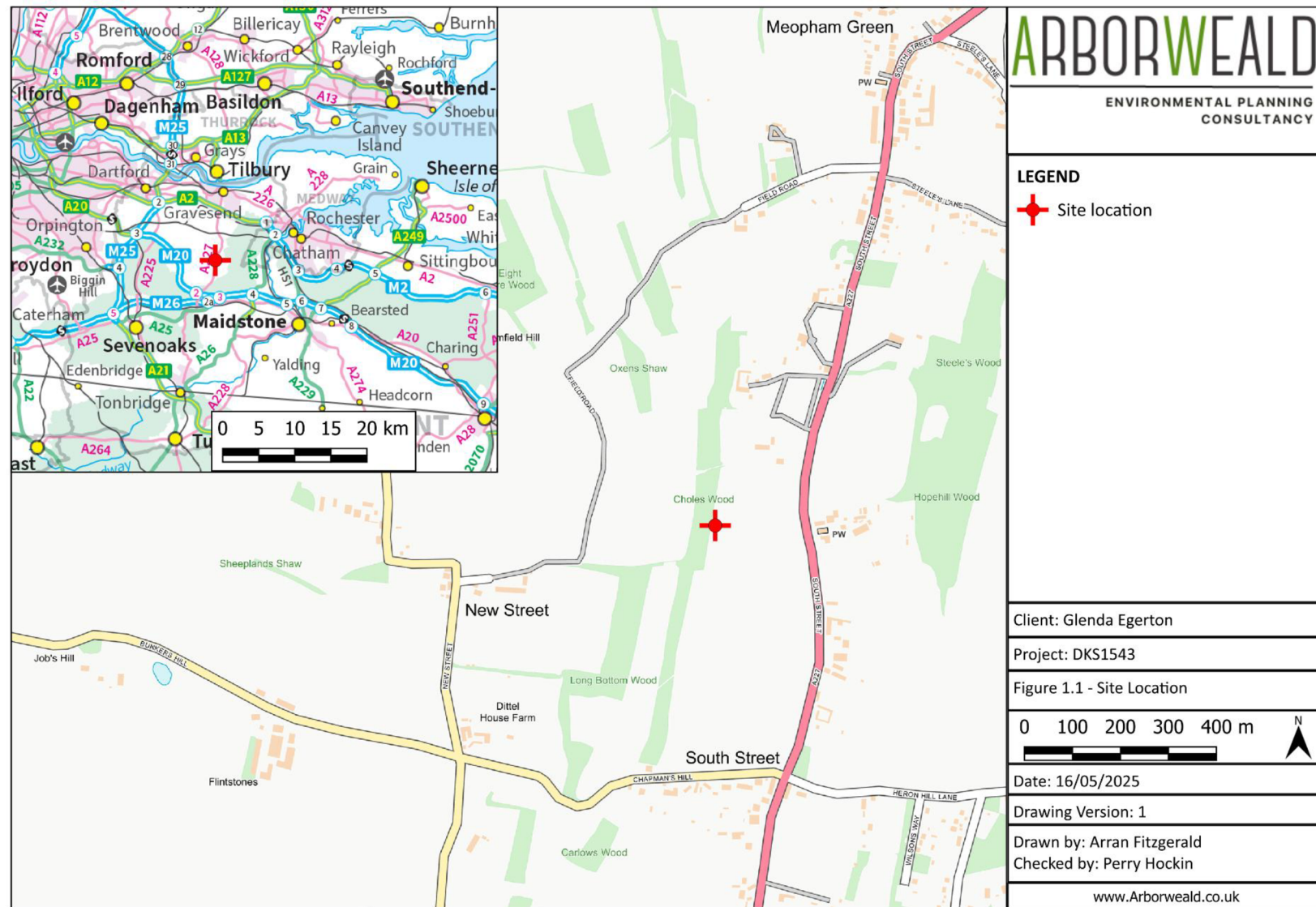
Figure 1.2 Extent of site boundary

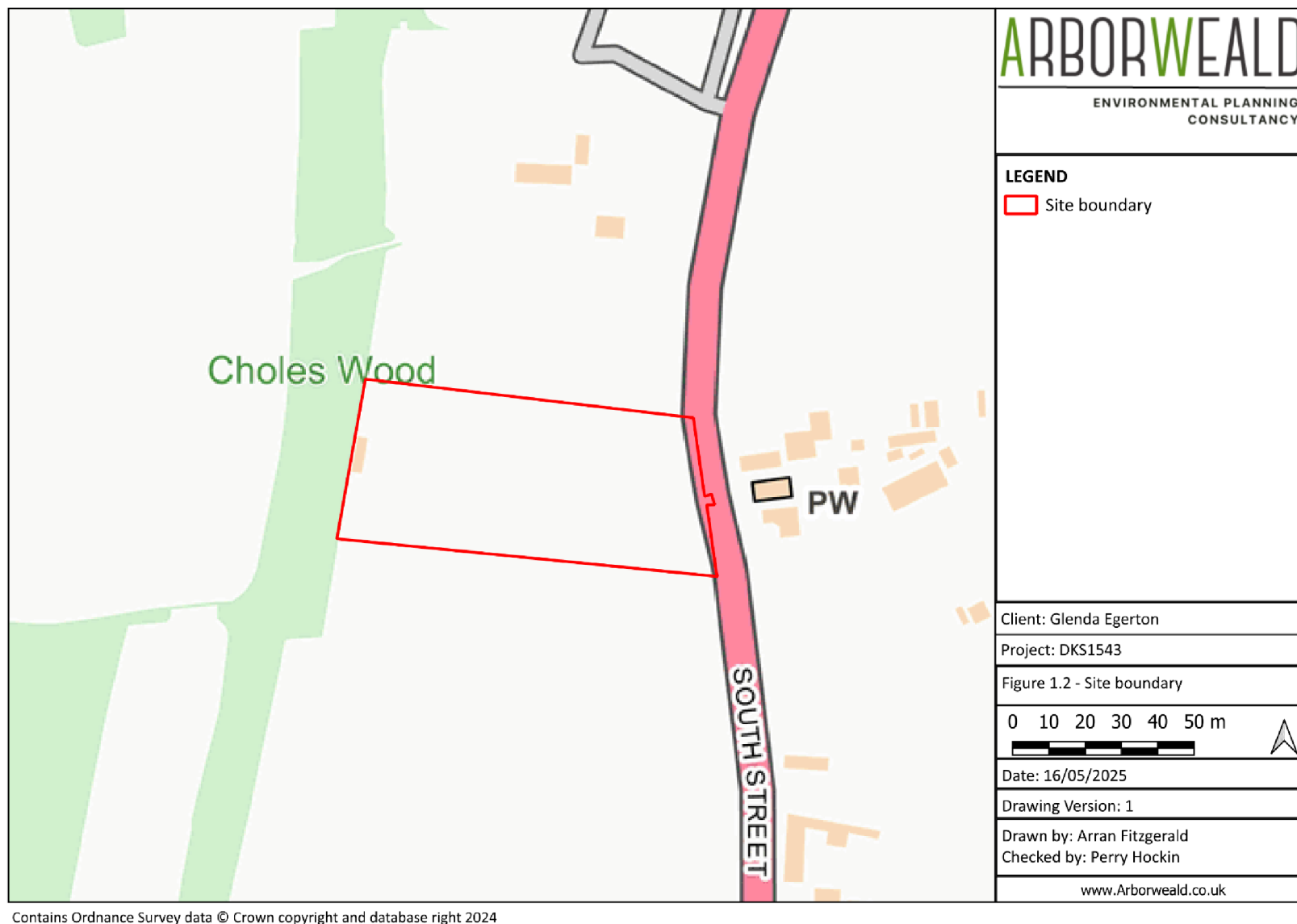
Figure 3.1 Waterbodies within 500 m of site boundary

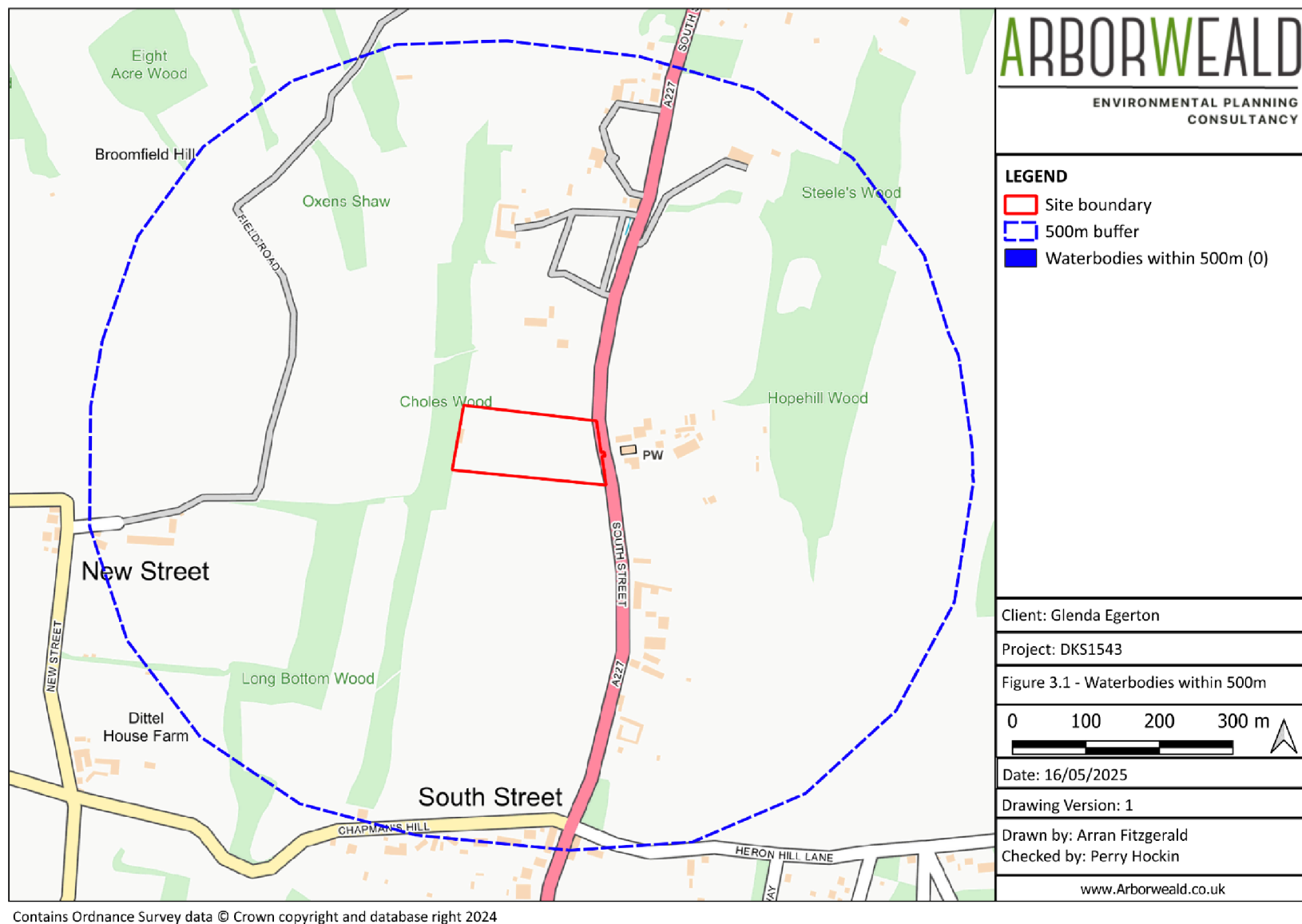
Figure 3.2 Preliminary Roost Assessment and Preliminary Ecological Appraisal results

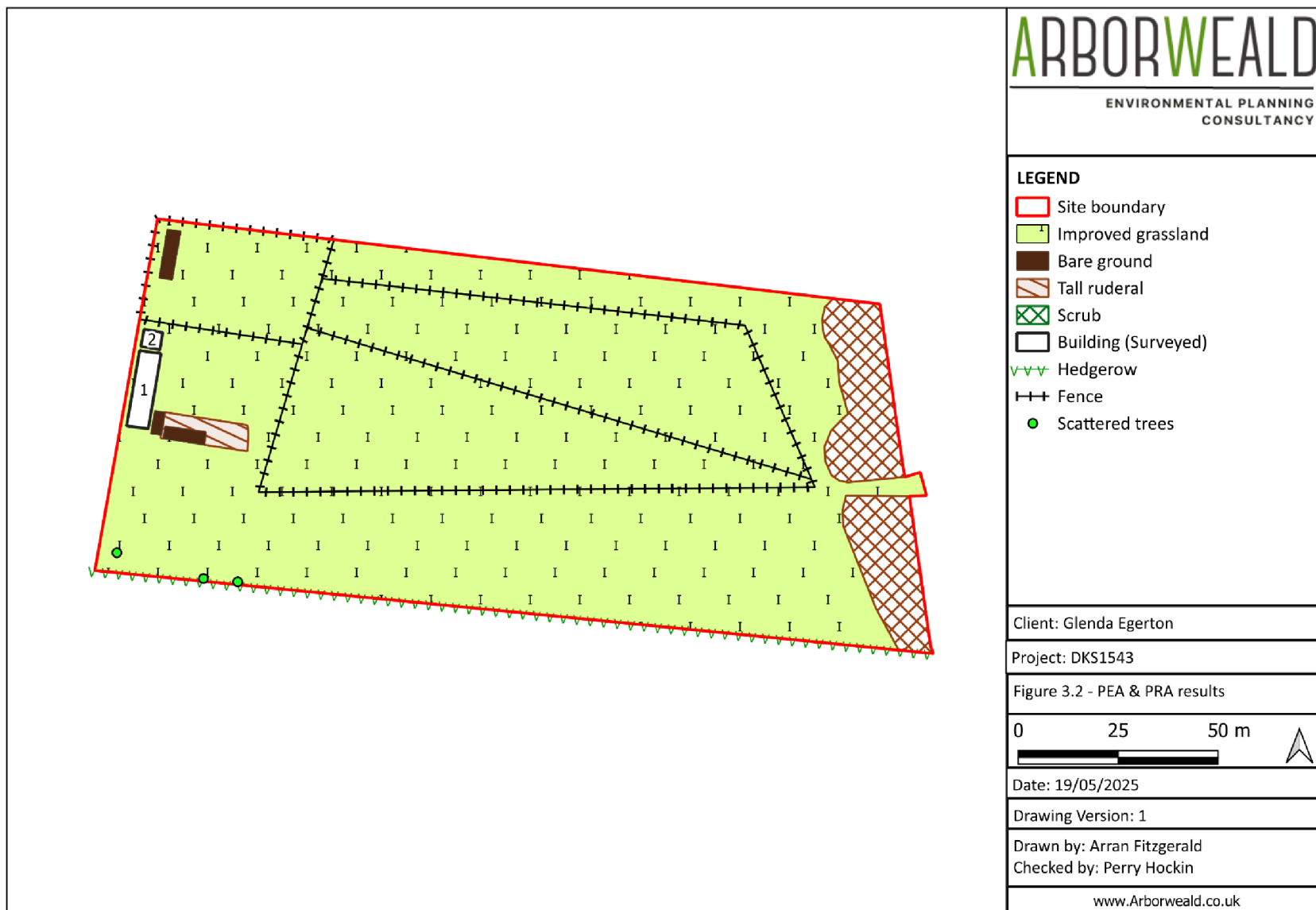
*For the purposes of the proposals drawing, habitats from any landscape plans have been assigned their category of best fit as per Stace et al.

In the absence of full and finalised development plans, the author will have to make assumptions. As such, habitats displayed are suggestions and comprise habitats that the author feels would best fit the proposed landscape without compromising the usage of the site.









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APPENDIX A Wildlife Legislation

The Wildlife and Countryside Act 1981 (as amended)

Schedule 1

Applies to all wild birds where it is an offence:

- to take, damage or destroy a nest whilst it is being built or in use
- to kill, injure or take any wild bird (subject to certain exceptions and / or licencing)
- to take or destroy the egg of any wild bird.

It is also an offence to disturb any wild bird listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended):

- while it is nest building
- at a nest containing eggs or young
- to disturb the dependant young of any such bird.

Schedule 5

Other protected animals are listed in Schedule 5; a full list of protected species can be found on the Legislation.gov.uk website. Schedule 5 contains several advancing levels of protection outlined below:

Protected under section 9(5) of Schedule 5, it is an offence:

- to sell or advertise for sale, or participate in the sale of these species; many species of invertebrate are listed under this section including butterflies, moths and beetles as well as common frog, palmate and smooth newts

Protected under section 9(1) of Schedule 5, it is an offence:

- to intentionally kill or injure or take these species – this applies to adder, grass snake, common lizard and slow worm

For animals fully protected under Schedule 5 - which includes, the hazel dormouse, otter, water vole, pine marten, shrews, hedgehog, great crested newt, natterjack toad, sand lizard, smooth snake, red squirrel and all bats – all of the above apply, however it is also an offence:

- to intentionally or recklessly damage or destroy or obstruct access to any structure or place which a species uses for shelter or protection, at any time even if the animal is not present.
- to intentionally or recklessly disturb whilst it is occupying a place which it uses for shelter or protection.

Schedule 8

Specific species of plants listed in Schedule 8 are protected. It is an offence: to intentionally pick, uproot or destroy a wild plant listed in Schedule 8.

Schedule 9

Invasive non-native species are listed under Schedule 9. It is an offence:

- to plant or otherwise cause to grow in the wild.

- If soils are contaminated by invasive non-native plant species it becomes classified as '*controlled waste*' under the Environmental Protection Act 1990 (England, Wales & Scotland), and must be disposed of accordingly.

The Conservation of Habitat and Species Regulations 2017

Schedule 2 applies to all European Protected Species (EPS) which includes all bat species, great crested newts, otter and dormice. The protection afforded is overlapping but separate from the Wildlife and Countryside Act 1981 (as amended)

The Protection of Badgers Act 1992

Under this Act it is an offence:

- To intentionally or recklessly interfere by damaging, destroying, obstructing access to, or disturbing a badger whilst in a sett either directly or through causing a dog to enter a badger sett
- To wilfully kill, injure or take a badger, or to attempt to do so; in a case of attempt, if there is reasonable evidence to suggest an offence may have been committed, evidence would be required to prove innocence
- To possess or be under control of a dead badger, or part of, or anything derived from a dead badger which may have been killed in contravention of the above
- To sell, possess or attempt / offer to sell a live badger

Where interference with a badger sett cannot be avoided during development, a licence from Natural England must be applied for.

APPENDIX B Site photographs

	
Figure B1	Figure B2
1.1 	
Figure B3	Figure B4