



Landscape, Arboriculture and Ecology

Surveys – Plans – Assessments - Mitigation – Solutions – Methodology

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Preliminary Ecological Appraisal (PEA)

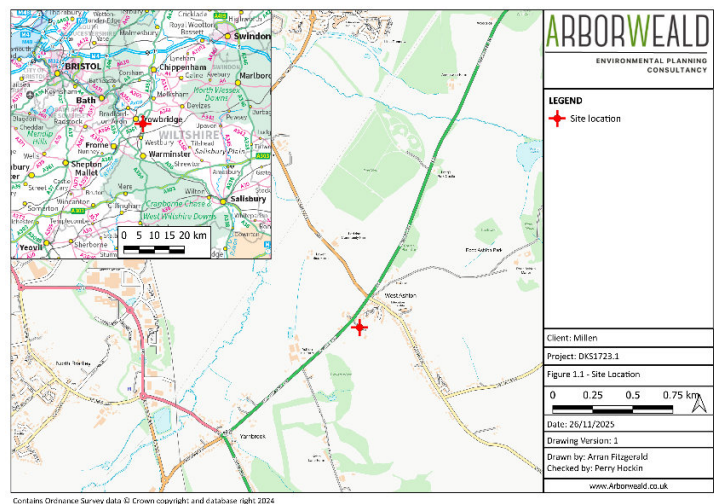
Land off

Yarnbrook Road

West Ashton

Wiltshire

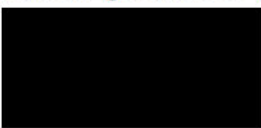
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Declaration: The information which I have prepared and provided for this report is true and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct; I confirm that the opinions expressed are my true and professional 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.

The material presented in this report is confidential. This report has been prepared for the exclusive use of the client and shall not be distributed or made available to any other company or person without the knowledge and written consent of the author. Notwithstanding confidentiality, this document may be utilised and publicly displayed with reference to the development proposal planning application.

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 as badger groups, and the NBN atlas.

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EXECUTIVE SUMMARY

0.1 Arborweald Environmental Planning Consultancy (AEPC) were commissioned by Millen for Land off, Yarnbrook Road, West Ashton, Wiltshire, BA14 6AP, ST 87647 55625 to undertake:

- Preliminary Ecological Appraisal (PEA)

0.2 The habitats present within the site boundary comprise modified grassland, bramble scrub, buildings, and hedgerow.

0.3 Development plans on site comprise:

- At the time of writing, no detailed layout plans or architectural drawings have been provided. It is understood that the site is being promoted for residential development comprising multiple dwellings.

0.4 The primary findings of this report were:

- The site lies within the Bath and Bradford-on-Avon Bats Special Area of Conservation (SAC) and is covered under the 'Yellow' and 'Grey hatched' zones of the Trowbridge and Westbury Bat Mitigation Strategy (TWBMS). As such, further surveys for bats will likely be required.
- Further surveys for great crested newts, or entry into the Wiltshire District Level Licence (DLL) scheme will be required.
- All other protected species are considered to be at low risk from the development subject to the application of effective mitigation measures to include a precautionary approach, sensitive vegetation removal, and toolbox talks as well as ecological supervision.
- This document is provisional and the need for any additional surveys or mitigation will be dependent on the final design proposals, particularly where boundary features are affected.

0.5 The primary recommendations of this report are:

- Further discussions with Wiltshire Council will be required to ascertain the need for additional surveys for bats given the location of the site within the Bath and Bradford-on-Avon Bats Special Area of Conservation (SAC).
- It is recommended that Natural England are approached with regard to great crested newts, as either further surveys or entry of the site into the District Level Licence scheme will be necessary.
- No other Phase 2 protected species surveys are recommended at this stage, as habitats on site are of low suitability and precautionary mitigation measures are considered sufficient based on current information – should development plans change, or further information come to light (including record searches) further surveys may be required.
- Biodiversity enhancements should be incorporated into the development and section 6 of this report provides detail on potential enhancements.

- 0.6 The development is currently classed as a self build application of fewer than 10 units on an area of less than 0.5ha, and as such is exempt from mandatory measured 10% net gain under the Environment Act 2021.
- 0.7 However, the position of the site within the 'Yellow' zone of the TWBMS is such that standardly no-net-loss must be demonstrated through completion of the Biodiversity Metric Assessment (BMA) tool.
- 0.8 Prior to full application, a full BMA must therefore be completed.

1 INTRODUCTION

- 1.1 Arborweald Environmental Planning Consultancy (AEPC) were commissioned by Millen for Land off, Yarnbrook Road, West Ashton, Wiltshire, BA14 6AP, ST 87647 55625 to undertake:
- Preliminary Ecological Appraisal (PEA)
- 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 This document has been written with reference to the following documents:
- thumbnail_PastedGraphic-1.png

Surveyors and author competency

- 1.4 Surveys were undertaken on the 17/10/25 by Principal Ecologist Perry Hockin BSc (Hons.), FDSoc, ACIEEM.
- 1.5 Report writing was undertaken by Assistant Ecologist Arran Fitzgerald BSc (Hons.), MSc

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 before joining full time in early 2025.

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

Protected species

- 1.6 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.
- 1.7 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).

Natural Environment and Rural Communities Act

- 1.8 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.

Protection of Badgers Act

- 1.9 The Protection of Badgers Act (1992) prohibits reckless and/or intentional cruelty, injury or killing of badgers and the interference with badger setts.

National Planning Policy Framework

- 1.10 Under The National Planning Policy Framework (NPPF, 2024) protected sites and species are a material consideration in determining planning applications in terms of minimising impacts on biodiversity.
- 1.11 National Planning Policy guidance uses a mitigation hierarchy, whereby:
- Potential impacts are first avoided through changes to design plans
 - 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).
- 1.12 Further to this, it is a requirement under National Planning Policy for developers to actively enhance the biodiversity value of development projects.

The Environment Act 2021

- 1.13 In England, biodiversity net gain is now required under statutory frameworks introduced by Schedule 7A of the Town and Country Planning Act 1990 (inserted by the Environment Act 2021). Under this framework, every grant of planning permission will be deemed to have been granted subject to a general biodiversity gain condition. This requires developments to deliver at least a 10% increase in biodiversity value relative to the pre-development biodiversity value of all onsite habitats.
- 1.14 This is a pre-commencement condition requiring the provision of a Biodiversity Gain Plan to be submitted and approved before works can be commenced, but after planning permission has been granted.
- 1.15 In principle, the grant of planning permission is not within the scope of BNG, however it is important to consider as part of the consenting body's decision-making process how a scheme will be able to demonstrate BNG after permission is granted.

Biodiversity Net Gain Hierarchy

- 1.16 The statutory framework allows for the 10% biodiversity gain to be delivered through onsite biodiversity gains, registered offsite biodiversity gains or statutory biodiversity credits. However, as set out in Articles 37A and 37D of the Town and Country Planning (Development Management Procedure) (England) Order 2015, development must consider the biodiversity net gain hierarchy when designing scheme proposals. This sets out hierarchy of actions as follows:
- First, for all medium, high and very high distinctiveness habitats, the avoidance of any adverse effects.
 - Where these can't be avoided, mitigating any adverse effects on medium, high and very high distinctiveness habitats.
 - Then, for all onsite habitats (including low distinctiveness), adverse effects should be compensated by in accordance with the following hierarchy:

1. Prioritising the enhancement of existing habitats; then
 2. Creation of onsite habitats;
 3. Allocation of registered offsite unit gains; then
 4. Purchase of biodiversity credits
- 1.17 Proposals must demonstrate how the biodiversity hierarchy has been applied to or provide the reasons for any deviation. This biodiversity net gain hierarchy is distinct from the mitigation hierarchy set out in paragraph 186(a) of the National Planning Policy Framework.

Exemptions from the Biodiversity Metric Assessment

- 1.18 Certain developments are exempt from the Biodiversity Metric Assessment (BMA). They include:
- **Existing planning applications** - If a planning application for a development was made before day one of mandatory BNG on 12 February 2024, the development is exempt from BNG.
 - **Variations of planning permission** - Transitional arrangements also apply for variations to existing planning permissions.
 - **Developments below the threshold** - A development that does not impact a priority habitat and impacts less than:
 - 5 square metres (5m by 5m) of on-site habitat
 - 5 metres of on-site linear habitats such as hedgerowsA development 'impacts' a habitat if it decreases the biodiversity value
 - **Householder applications** - These are applications made by householders as defined within article 2(1) of the Town and Country Planning (Development Management Procedure) (England) Order 2015.
 - **Self-build and custom build applications** - You must meet all of the following conditions to qualify for an exemption as a self-build or custom build. The development must:
 - consist of no more than 9 dwellings
 - be on a site that has an area no larger than 0.5 hectares
 - consist exclusively of dwellings that are self-build or custom housebuilding as defined in section 1(A1) of the Self-build and Custom Housebuilding Act 2015
 - **Other exemptions** – High speed rail transport network, urgent crown developments, and works under Development Consent Orders (DCOs) such as nationally important infrastructure projects, including permitted development rights.

Site Description

- 1.19 The site is located in West Ashton, Wiltshire (Ordnance Survey Grid Reference for the centre of the site: ST 87647 55625). The development site is approximately 0.47 ha in area and comprises modified grassland, bramble scrub, buildings, and native hedgerow.

- 1.20 The location of the site is shown in Figure 1.1 and the extent of the site boundary is shown in Figure 1.2.
- 1.21 The wider landscape is predominantly rural in character and is dominated by agricultural land comprising modified grassland and arable fields, with interspersed blocks of broadleaved woodland and smaller linear tree belts. Built development is largely limited to the settlements of Yarnbrook, West Ashton, North Bradley and the western edge of Trowbridge, with residential and commercial land uses becoming more concentrated towards the north-west of the site.

Development Proposals

- 1.22 Development plans on site comprise:
- At the time of writing, no detailed layout plans or architectural drawings have been provided. It is understood that the site is being promoted for residential development comprising up to nine (9) dwellings.

Survey Constraints

General constraints

- 1.23 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.
- 1.24 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.
- 1.25 The UKHab habitat map has been reproduced from detailed field notes and informed by aerial imagery, OS mapping and site maps provided by the client. The accuracy of this figure is therefore ultimately guided by the accuracy of these sources and can only be relied upon to a certain degree of resolution.

Site specific constraints

- 1.26 There are no site-specific constraints to surveying.

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 The Wiltshire Planning Portal was used, including the Wiltshire Planning Explorer to investigate the boundaries of the regions covered under the TWBMS.
- 2.3 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.
- 2.4 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.

Report lifespan

- 2.5 The lifespan of this appraisal and the ecological survey information contained herein has been determined based on CIEEM's Advice Note: On the Lifespan of Ecological Reports and Surveys (CIEEM, 2019), an assessment of the likelihood of presence of important ecological features on Site and consideration of how the ecological status of these features on Site may change over time.
- 2.6 If the commencement of site works is delayed beyond 18 months from the date of issue of this report, an update site walkover should be undertaken by a suitably experienced ecologist.
- 2.7 Following the update walkover, the ecologist will need to determine whether there have been any material changes to the ecological baseline, the potential impacts of the proposed development and/or the ecology-related legal risks associated with the proposed development.
- 2.8 If there have been any material changes in baseline ecological conditions, the potential ecological impacts of the proposed development and/or associated legal risks, or any material changes to relevant ecology-related legislation, standing advice, best practice and/or guidance, an updated report should be produced by a suitably experienced ecologist.

Preliminary Ecological Appraisal (PEA)

- 2.9 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).
- 2.10 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.
- 2.11 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.
- 2.12 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.
- 2.13 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.
- 2.14 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.
- 2.15 All references to relevant literature required to maintain industry best practice and compliance with legislation is listed in the References section of this report.

Ground Level Tree Assessment (GLTA)

- 2.16 The methods used in the Ground Level Tree 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), the Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), and CIEEM's methodology for breeding bird surveys. The works were undertaken to the standards set out in BS:42020.
- 2.17 The assessment was purely visual from the ground and did not utilise any climbing or aerial equipment.
- 2.18 Holes, gaps, wounds, tear-outs and loose bark were noted on trees, along with patches of dense ivy and other veteran features suitable to support roosting bats. Age and location was also noted, along with tree health and species as some species are more likely to develop attributes suitable to support roosting bats.
- 2.19 Signs of likely bat presence as listed above were noted and investigated further where possible to do so in full compliance with legislation. Trees were given a category in the

same way as buildings from 'negligible' to 'high' suitability to support roosting bats. Trees given categories of 'Moderate' or 'High' suitability were recommended for further presence / absence dusk bat emergence surveys.

- 2.20 Assessment for suitability to support birds involved a visual assessment of bird activity in and around the tree over a period of 30 minutes in the morning when birds are most active. Signs of nesting activity, including active / defunct nests, bird courting, and nest material gathering were noted and commented upon.

Recommendation categorisation

- 2.21 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.

- 2.22 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

International sites

- 3.2 There are no international/European designated sites within 2km of the proposed site.

National designated sites

- 3.3 There is one (1) statutory designated site located within 2km of the proposed development site, Pickett and Clanger Wood SSSI approximately 900m to the south.

SAC and SPA

- 3.4 The site lies within the Bath and Bradford-on-Avon Bats Special Area of Conservation (SAC) and sits within the 'Yellow' and 'Grey hatched' zone of protection.
- 3.5 The SAC designation is in place with regards to nationally significant populations of *Myotis Bechsteinii* and *Rhinolophus* bats within the local area.
- 3.6 Within the designation, areas have been categorised as follows:

Red zones

- The Red Zone comprises the 600m area around the edge of woodlands or trees known to support maternity roosts for Bechstein's bat.
- New development unlikely to be granted permission

Yellow zones

- The yellow medium risk zone represents the areas where habitat has been shown to be of importance, or is highly likely to be of importance, for Bechstein's, greater horseshoe and / or lesser horseshoe bat.
- Development proposals within this zone must provide appropriate survey of bats
- Development proposals within this zone must mitigate for all impacts on target bat species on site through retaining and enhancing wide swathes of unlit bat habitat with associated buffer zones. Housing is expected to be provided at lower density to achieve this.
- Development proposals within this zone should expect to make a payment for strategic habitat mitigation

Grey hatched zones

- The dark grey hatched medium recreational risk zone represents the areas where new residential development is expected to result in increased recreational pressure on key woodland bat sites.
- Development proposals of less than 50 dwellings within this zone should expect to make a payment for recreational mitigation.

3.7 The site lies within the 6.4km buffer of influence of the Salisbury Plain SPA.

National Parks and AONB / NCA

3.8 The site is not located within a nationally designated landscape such as an Area of Outstanding Natural Beauty or National Park. The nearest designated landscape is the North Wessex Downs Area of Outstanding Natural Beauty, which lies approximately 1.2 km from the site.

Non-statutory

3.9 There is one (1) non-statutory designated site within 2 km of the site, Green Lane Wood approximately 1.6 north of site.

Site designation

3.10 The site is not designated for its specific nature conservation interest beyond its inclusion in the Bath and Bradford-on-Avon Bats Special Area of Conservation (SAC).

Designated habitats

- 3.11 The habitats in the wider landscape surrounding the site comprise predominantly agricultural land in the form of modified grassland and arable fields, together with blocks of broadleaved woodland, linear woodland features and hedgerows. Residential development is present in the surrounding villages of Yarnbrook, West Ashton and North Bradley, with more extensive urban development to the north-west towards Trowbridge. The site therefore lies within a semi-rural landscape characterised by a mixture of farmland, woodland and settlement.
- 3.12 The only Habitat of Principal Importance present within the surrounding landscape is deciduous woodland, including areas listed on the Ancient Woodland Inventory. These habitats occur as fragmented woodland blocks and strips within the wider agricultural matrix and are not continuous across the area.

Waterbodies

- 3.13 There are 8 waterbodies within 500m of the site. The 500m buffer is shown in Figure 3.1.
- 3.14 Waterbody 1 no longer exists and is now completely overgrown and obscured by scrub. There is no evidence that it has been present for at least the last five years based on historic aerial imagery.
- 3.15 Waterbodies 2 and 6 are medium-sized ponds located approximately 360–440 m south-west of the site within an agricultural and semi-urban landscape. Both are located adjacent to woodland strips; however, connectivity to the site is weak and sub-optimal,

consisting of discontinuous scrub and hedgerow lines interspersed with intensively managed grassland.

- 3.16 Waterbodies 3 and 4 are large, artificially constructed basins located within an active agricultural compound. These waterbodies are hard-edged, unvegetated and surrounded by hardstanding, machinery storage and farm buildings, with a large tyre store located immediately to the west. They are severely disconnected from the site by the A350, intervening development and extensive hardstanding and are not considered functionally connected.
- 3.17 Waterbody 5 is a man-made pond located approximately 430 m south-east of the site within an agricultural setting and surrounded by woodland. The waterbody lacks marginal and aquatic vegetation and appears to be operational in use. It has no meaningful ecological connectivity to the site due to intervening roads, open farmland and the absence of continuous habitat linkage.
- 3.18 Waterbody 7 is a small private pond located approximately 480 m east of the site at the edge of the search buffer. Although set within established vegetation, it is functionally disconnected from the site by Bratton Road, surrounding residential development and large arable fields with no continuous hedgerow links.
- 3.19 Waterbody 8 is a small pond located approximately 480 m south of the site at the edge of the search buffer within an agricultural landscape. Connectivity is limited by distance; however, an adjacent scrub and hedgerow line provides only a weak, sub-optimal habitat link toward the site.

Biological Records

- 3.20 Whilst the low value of the grassland which makes up the majority of the site is such that typically local records would not be required, as impacts at a local level are expected to be *de-minimis*, the site's inclusion within the Bath and Bradford-on-Avon Bats Special Area of Conservation (SAC) is such that local records are necessary.
- 3.21 Local records have therefore been requested from the local biodiversity record centre – **at the time of writing, these are still awaited.**

Field Study

Phase 1 Habitat Survey

- 3.22 The habitats present on site are shown in Figure 3.2 and are described in detail below.
- 3.23 The site at Yarnbrook Road comprises two small pasture fields separated by a gravel track leading off Yarnbrook Road. The land has historically been used for grazing and is currently unmanaged. A small, dilapidated field shelter is located in the south-western corner of the eastern field, with an abandoned lorry trailer present in the western field.
- 3.24 Habitats present on site comprise modified grassland, bramble scrub, buildings and native hedgerow.

Building

- 3.25 A small field shelter is present in the south-west corner of the eastern field. The structure is constructed of timber with a corrugated metal roof and is in a state of significant disrepair, with sections of the roof collapsed. An abandoned lorry trailer is present in the western field. Neither structure is considered to provide any potential to support roosting bats or nesting birds.

Modified grassland

- 3.26 The majority of the site comprises modified grassland which historically appears to have been grazed as horse pasture. The grassland is now unmanaged and outgrown, with a generally uniform sward height of approximately 15 cm across the site.
- 3.27 The sward is structurally uniform and species-poor, being strongly dominated by grasses. Broadleaved species recorded within the sward include bristly oxtongue, creeping buttercup, cut-leaved cranesbill, sorrel, nettle, creeping cinquefoil, spear thistle, white clover and daisy.
- 3.28 Localised areas of taller ruderal vegetation are present at the southern end of the fields in areas of higher nutrient deposition, where teasel, nettle and sorrel are abundant. These areas reflect enrichment and disturbance rather than ecological succession toward a semi-natural grassland community.
- 3.29 Overall, the grassland is of low botanical diversity and retains characteristics typical of modified pasture rather than reverting to species-rich grassland.

Scrub

- 3.30 Small areas of scrub are present along the edges of the fields and on either side of the central trackway. These areas are dominated almost entirely by bramble *Rubus fruticosus*.

- 3.31 Within these areas, grass cover is sparse and generally taller than within the main fields, averaging approximately 70 cm in height with occasional sorrel present. The scrub forms a narrow structural component at the field margins rather than extensive scrub habitat.

Hedgerow

- 3.32 A hedgerow is present along the northern boundary of the western field and is dominated by hawthorn with dense bramble growth along its fieldward edge.
- 3.33 The hedgerow is broadly unmanaged aside from intermittent cutting by the adjacent highway authority, and averages approximately 2.5 m in height and 2 m in width.

Other items

- 3.34 No trees are located within the site boundary. However, several trees located on neighbouring land overhang the fields.

Protected Species

3.35 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.

3.36 At the time of writing, we are still awaiting record results.

Bats

Roosting

Trees

- 3.37 Standardly, a Ground Level Tree Assessment (GLTA) for bats is undertaken on all trees on site of an age or condition that they are likely to hold features suitable to support roosting bats.
- 3.38 These features are most typical on larger trees or those that have been wounded or veteranized, and their prevalence is also affected by the species of tree as some are more likely to survive the aging or veteranizing process than others.
- 3.39 Features searched for include lifted bark, lesions and cracks, holes, dead wood, cavities, and missing limbs.
- 3.40 There are no trees larger than scrub plants on site; furthermore, subject to application of sufficient mitigation measures with regards to lighting no trees within the immediate wider landscape will be affected by the proposed development.

Buildings

- 3.41 The structure is constructed of timber with a corrugated metal roof and is in a state of significant disrepair, with sections of the roof collapsed. An abandoned lorry trailer is present in the western field. Neither structure is considered to provide any potential to support roosting bats or nesting birds.

Commuting and foraging

- 3.42 The site itself is not considered to provide high-quality bat habitat, however the boundary scrub and hedgerow network may contribute to wider commuting and foraging opportunities within the SAC landscape and therefore require detailed assessment through TWBMS-compliant survey effort.

Site designation

- 3.43 The site lies within the 'Yellow' and 'Grey hatched' zones of the Bath and Bradford-on-Avon Bats Special Area of Conservation (SAC) covered under the Trowbridge and Westbury Bat Mitigation Strategy (TWBMS).

Opportunities in the wider landscape

- 3.44 The wider landscape is predominantly rural, and as such bat roosting opportunities are likely to be present within the wider landscape in older buildings, caves and trees.
- 3.45 The site is within approximately 20m of a 'Red' zone to the north for bats as per the TWBMS, and within around 300m of a 'Red' zone to the south-east. Presence of rare Bechstein and horse-shoe bat species is considered highly likely as a result.
- 3.46 Another development has been granted permission to the north-west of the site comprising an area of land between the site and Trowbridge for which considerable assessment of local bat populations was undertaken which revealed presence of these species, and their utilisation of the habitats in this area for commuting and foraging.

Evidence

- 3.47 No evidence of bats was recorded during the surveys.

Records

3.48 At the time of writing, we are still awaiting record results.

- 3.49 The Officer's Report received notes however that *'there are multiple records of Bechstein's bat roosts 130m southwest, 200m southwest (maternity roost), and 400m northeast, and a Greater Horseshoe roost 260m northeast – all within relative close proximity to the site.'*

Breeding birds

Evidence

- 3.50 Birds was recorded during the survey, with species being both heard and seen. Species recorded included blackbird *Turdus merula*, house sparrow *Passer domestica*, and wood pigeon *Columba palumbus*.

Nesting / roosting

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

Foraging

- 3.53 Berries, nuts and seeds on scrub and hedgerow within the site boundary provide some foraging opportunities for larger birds.

Badgers

Commuting and access

- 3.54 The site is accessible to badgers, as there are no permanent barriers preventing movement onto the land from the surrounding countryside.

Foraging

- 3.55 The site provides limited foraging opportunities for badgers. The modified grassland offers little food resource, and scrub and hedgerow habitat is restricted to boundaries and small patches. Foraging value is therefore considered to be low.

Sett building

- 3.56 The site is largely flat, open and exposed, offering poor conditions for sett construction. There are no banks, wooded areas or structurally diverse habitats within the site that would support sett excavation.

Opportunities in the wider landscape

- 3.57 Badgers are widespread in rural landscapes; however, the immediate surrounding area comprises a matrix of fenced agricultural pasture interspersed with farm tracks and areas of semi-urban development, which limits the likelihood of regular badger use of the site.

Evidence

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

Dormice

Evidence

- 3.59 No signs of dormice were recorded during the survey.
- 3.60 Records obtained from the NBN Atlas show the nearest confirmed dormouse records are located approximately 1.2 km to the north of the site, with records dating to 2022. No records were identified within the immediate vicinity of the site.

Key features for survival

- 3.61 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 offers poor suitability for dormice. The interior of the site is dominated by open modified grassland and lacks arboreal structure, continuous scrub, native fruiting shrubs or hazel-dominated habitat typically associated with dormouse populations.

Boundary vegetation is limited to a single hedgerow and narrow bands of scrub, which are generally species-poor and structurally weak. These features lack the dense, diverse

shrubby layer and food plant assemblage required to support dormouse nesting, foraging and hibernation.

Connectivity

- 3.62 Connectivity within the site is poor due to the open nature of the fields and the lack of continuous woody cover. Habitat within the site is therefore considered unsuitable for sustained dormouse movement or occupation.
- 3.63 The boundary hedgerow and scrub provide only weak and sub-optimal connectivity to off-site habitats via a single narrow strip of outgrown hedgerow. This hedgerow extends in the direction of Picket and Clanger Wood SSSI, which supports higher-quality woodland habitat where dormice may be present.

Opportunities in the wider landscape

- 3.64 The wider landscape contains areas of broadleaved woodland, including Picket and Clanger Wood SSSI, which could potentially provide suitable dormouse habitat.
- 3.65 Despite this, the intervening landscape is dominated by open farmland and semi-urban features, which significantly reduce effective ecological connectivity. Given the poor habitat quality on site and weak linking features, the likelihood of dormice being present is considered low, though presence cannot be fully discounted due to records in the wider area.

Great crested newts

Evidence

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

Breeding habitat

- 3.67 There are no waterbodies on site.
- 3.68 A total of eight waterbodies are located within 500 m of the site. Waterbodies 2, 5, 6 and 8 are technically linked to the site by a single, continuous but narrow and outgrown hedgerow corridor. However, this connection is long-distance, linear in form and weak in quality, offering only limited cover and no associated terrestrial habitat mosaic. The remaining waterbodies are isolated by roads, buildings and intensively managed agricultural land.
- 3.69 Records obtained from MAGIC indicate historic population records approximately 1.4 km west and 1.6 km east of the site, derived from pond surveys and Natural England licence returns between 2016 and 2019 (MAGIC, 2025) No records were identified within the immediate vicinity of the site.

Terrestrial habitat

- 3.70 Terrestrial habitat within the site is dominated by open modified grassland, with limited cover provided by narrow scrub margins and a single hedgerow. Sward height is approximately 15 cm, offering limited refuge and increasing exposure to predation. Overall, terrestrial habitat quality for amphibians is considered poor.

Hibernation habitat

- 3.71 No suitable hibernation features. Minor refuge potential is limited to hedgerow bases and scrub margins along the site boundary.

Connectivity, wider landscape, and access

- 3.72 Connectivity between the site and the wider landscape is limited. Surrounding land use is dominated by pasture fields, agricultural fencing, road infrastructure and semi-urban development, which collectively restrict amphibian movement and reduce habitat permeability.
- 3.73 While Waterbodies 2, 5, 6 and 8 are technically linked to the site by a single hedgerow corridor, this feature is narrow, continuous over a long distance and poorly buffered, and therefore provides only weak, sub-optimal connectivity.
- 3.74 Although incidental movement through the site cannot be entirely ruled out, the absence of breeding habitat, the low quality of terrestrial habitat and weak connectivity mean that the site is unlikely to be used by great crested newts other than on a highly occasional basis.

Hedgehog

Evidence

- 3.75 No signs of hedgehog were recorded during the survey.

Key features for survival

- 3.76 Some features that hedgehogs require for survival 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
- 3.77 Some limited foraging resource is present within scrub margins and along the hedgerow, where invertebrate prey is more likely to occur. However, these features are confined to site boundaries and do not extend into the centre of the site.

- 3.78 No suitable hibernation features such as log piles, compost heaps or accumulations of debris were recorded. The site therefore offers only very limited and sub-optimal refuge opportunities.
- 3.79 No waterbodies or damp habitats that would enhance invertebrate availability are present on site.

Connectivity

- 3.80 Access to the site is partially restricted by surrounding land use. A busy road along the northern boundary represents a significant barrier to movement in that direction, while surrounding pasture fields and agricultural fencing limit permeability elsewhere.
- 3.81 Within the site, movement is unrestricted across open grassland; however, the lack of structural cover means hedgehogs would be exposed to predation and disturbance. Usable habitat is therefore largely confined to scrub margins and the hedgerow, with little opportunity for safe movement into the centre of the site.

Opportunities in the wider landscape

- 3.82 The surrounding landscape is dominated by pasture and agricultural land, which offer limited value for hedgehogs due to a lack of shelter and food diversity.
- 3.83 Hedgerows within the surrounding area are generally intact where present; however, they are sparse and widely spaced, resulting in a landscape with few continuous shelter corridors between fields.
- 3.84 Although hedgehogs are widespread in rural environments, the low density of hedgerows, open field structure and presence of a busy road to the north reduce habitat quality and limit safe movement. As a result, the likelihood of regular hedgehog use of the site is considered low, with only occasional transient use possible.

Reptiles

Evidence

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

Basking, commuting and foraging habitat

- 3.86 The site offers basking, commuting and foraging opportunities for reptiles, however utilization of these opportunities is limited, similarly to great crested newts, by the varying sward heights and levels of vegetation coverage; reptiles are more flexible to these variations however, and as such the site is suitable.
- 3.87 Areas of hardstanding provide basking habitat, with the grassland and occasional areas of scrub providing opportunities to dash for cover to avoid predation. Foraging habitat is found throughout the site, but particularly around the perimeter where vegetation is at its densest and least disturbed.

Hibernation habitat

- 3.88 There is some hibernation habitat on site in the nooks and crannies within tree and hedge roots, as well as sub-optimal opportunities within piles of debris and rubble.

Connectivity, wider landscape, and access

3.89 Connectivity with areas of higher quality habitat in the wider landscape is good with large expanses of grassland and areas of woodland immediately adjacent to the site.

Other species

3.90 There are no other species of note present on site.

4 EVALUATION

Habitats

- 4.1 The habitats present on site are of low 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.

Species – Constraints vs. suitability

This section discusses two separate issues;

- **Habitat suitability** and **species constraints**
- **Future potential** to support protected species

Activities that present species-specific risks are outlined for each species in the tables below. The following risk assessment criteria are considered:

Likelihood of presence

Whether, given the site suitability, the species is likely to be present on site. This is decided by assessing the following elements:

- Direct evidence of that species, such as anecdotal or direct sightings
- Surrounding habitat – Where is the site positioned? Is it a suitable area such that a source population would utilise the site?
- Regardless of its suitability, can the species access the site, and if so, how easily?
- Does the site provide enough foraging opportunities to independently support the species, or would it only form part of a wider foraging territory?
- If on site, is the species likely to be predated upon, or is there significant cover?
- Are the right breeding or hibernation opportunities available on site or in the Zone of Influence (ZOI)?

The following categories are used:

- **High** – the species has a good local population, can access the site / feature, and would thrive on site. Potential direct evidence.
- **Moderate** – the species is present in the wider landscape and would utilise the site, possibly as a part of a wider territory. Access may be restricted, or habitats may be sub-optimal in some way. No direct evidence.

- **Low** – the species is unlikely to be on site due to a lack of suitable habitat, poor access, or likely absence from the wider landscape – either demonstrable, or likely absent due to surrounding habitat unsuitability. Incidental or ‘vagrant’ occurrence cannot be ruled out, however.
- **Discounted** – the species is known to be absent from the wider landscape, or access would be impossible due to multiple barriers such as inappropriate habitat. Incidental occurrence can be ruled out.

Necessity of actions

In this context, this refers to whether these actions / activities are required as a part of the development. If so, they have already been deemed necessary to facilitate development under the NPPF mitigation hierarchy, and avoidance measures have already been tested.

Where the action has been deemed not necessary (“No”) this implies that this action is not considered necessary within the next 6 months, and seasonal growth patterns or other factors are unlikely to change this fact. After this period, reassessment may be necessary to ensure all impacts are properly assessed.

Likelihood of species being affected

If present, would this species be affected by the proposed activity. This takes account of the likely population of the species, the scale of the activity, and the effect of any mitigation measures. The following categories are used:

- Very likely – where an impact is almost guaranteed, and additional assessment may be required, and / or bespoke mitigation must be designed into the scheme.
- Likely – where an impact is predicted due to the size of the species population or the scale of the activity; additional assessment may be required, with strong mitigation guaranteed to be required.
- Possible – where an impact could occur if the species is present, and standard mitigation will be required to reduce the risk to that species.
- Unlikely – species population is low enough, or scope of the activity is minimal, such that an impact can be mitigated through simple measures.
- Discounted – where an impact can almost be guaranteed not to occur, as that species is not present or scope of activity is *de-minimis*. No specific mitigation is required.
- N/a – where an impact is not possible, as that feature does not exist on site, or that activity is not necessary for the development.

Recommendations

Recommendations are expanded upon in Section 6; in section 4, the scale of mitigation is discussed and broken down into the following categories:

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

Surveys required

Are extra surveys needed, such as species-specific surveys to inform the extent or type of mitigation *e.g. dusk bat emergence surveys*.

Future potential

Whether prudent habitat management can be targeted towards a species to improve the ability of that species to survive or encourage it into the site.

If a site fails enough of the suitability criteria, and this is unlikely to change - or is likely to get worse or be insurmountable (such as access) - then the site may not hold future potential to support that species.

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).

Suitability of habitats

Roosting

Buildings

- 4.4 A single field shelter is present within the site. It is timber-framed with a corrugated metal roof and is in a state of significant disrepair, with sections collapsed and large areas fully exposed to the elements. The structure offers no enclosed voids, no suitable crevices and no protection from weather or predators and is therefore assessed as having negligible potential to support roosting bats.

Trees

- 4.5 No trees are located within the site boundary. Several trees overhang the site from adjacent land; however, none were observed to contain features suitable for roosting bats. No tree works are yet proposed as part of the development.

Commuting and foraging

- 4.6 The use of the site as a grazing paddock is such that bats could potentially utilise the site to forage, and there are commuting opportunities at the edge of the site with the scrub and hedgerows, as well as lines of trees in the immediate wider landscape.
- 4.7 As such, the site has been classed as having 'moderate' likelihood of bats being present foraging and / or commuting as the species is present in the wider landscape and would utilise the site, possibly as a part of a wider territory.
- 4.8 Further surveys for bats will therefore be required to determine which species are present, in what numbers, and how they may utilise the site. This will assist in determining the type and level of mitigation, compensation and enhancement required.

Likelihood of bat presence	Roosting	DISCOUNTED
	Foraging / commuting	MODERATE

Impact risk assessment

Bats are typically most vulnerable to the following activities:

- Building disturbance, including but not limited to demolition, works to roof materials including tiles and sarking, works to hanging tiles or weatherboarding, and changes to or increases in artificial lighting.
- Tree removal, particularly those with roosting features.
- Habitat loss, particularly foraging habitat and commuting features.

Activity	Necessary on site?	Bats likely to be affected?	Recommendations
Works to buildings (where applicable)	Yes	Discounted	N/a
Tree removal / pruning	Possible	Unlikely	Standard mitigation
Habitat loss	Yes	Possible	Compensatory planting scheme
Lighting design	Yes	Likely	Sensitive lighting plan

Surveys required?

- 4.9 As a result of the suitability of the buildings on site and the unsuitable roosting habitat no further surveys will be required for roosting bats.
- 4.10 However, the suitability of the site for foraging and commuting bats, as well as the likelihood of their presence is such that further surveys for bats are required.
- 4.11 Additionally, the sites designation as within the 'Yellow' impact risk zone of the TWBMS is such that further surveys for bats are mandatory. The TWBMS states that:
- *As a minimum, manual transect surveys in any of the Bat Sensitivity Zones will require manual transect surveys to be carried out on ten separate evenings. At least one survey will be undertaken in each month from April to October, with a total of 10 total evenings. Transects will cover all habitats likely to be affected by the proposed development, including a proportion away from commuting features in field.*
 - *As a minimum, extensive static detector surveys will be required for any development in the yellow or red Bat Sensitivity zones. The period of deployment at each location will be at least 50 days from April to October and will include at least one working week in each month.*
 - *Trapping surveys may be required for Bechsteins bats as they are particularly difficult to detect from acoustic surveys alone.*
 - *Due to the expense of undertaking acoustic and trapping surveys for the species covered under the TWBMS, usage of data collected under the strategy can be utilised.*
 - *Given the limitations of relying on individual site surveys, this strategic approach is likely to be more cost-effective to developing a baseline of Bechstein's presence and behaviour across the Trowbridge area... it may not be necessary for specific surveys for Bechstein's bat to be undertaken in support of individual planning applications for development.*
 - *However, it is recommended that early consultation is undertaken with Wiltshire Council ecologists to confirm whether advanced survey techniques for Bechstein's bat are required to support a planning application*

Future potential and compensation

- 4.12 The site has potential to support bats in future, as compensation and enhancement features will increase the ability of local populations to survive. Section 6 provides further details on enhancements.

Breeding birds

- 4.13 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.
- 4.14 Failure to observe mitigation measures leading to birds being disturbed whilst nesting would constitute a criminal offence.

Current usage

- 4.15 All of the habitats on site provide foraging and nesting opportunities for breeding birds.

Likelihood of bird presence	Nesting	LOW
	Foraging / commuting	HIGH

Impact risk assessment

Birds are typically most vulnerable to the following activities:

- Building disturbance, including but not limited to demolition, works to roof materials including tiles and sarking, and works to hanging tiles or weatherboarding.
- Tree and vegetation removal, particularly dense habitats such as scrub and introduced shrubs. Grasslands can also be used by ground-nesting birds.
- Habitat loss, particularly foraging habitat and nesting features.

Activity	Necessary on site?	Birds likely to be affected?	Recommendations
Works to buildings (where applicable)	Yes	Possible	Standard mitigation
Tree removal / pruning	Yes	Likely	Standard mitigation
Habitat loss	Yes	Likely	Compensatory planting scheme

Surveys required?

- 4.16 No. All risks to birds can be successfully mitigated through a combination of a precautionary approach, seasonal avoidance measures, and pre-works checks.

Future potential and compensation

- 4.17 The site has potential to support birds in future, as compensation and enhancement features will increase the ability of local populations to survive. Section 6 provides further details on enhancements.

Badgers

4.18 Badgers receive full protection under the Protection of Badgers Act 1992.

Current usage

4.19 No badger activity was recorded on site during the survey; badgers could utilise the site for foraging as a part of a larger existing territory, and there are sett building opportunities available such that badgers could take up residence should they encounter the site whilst commuting.

Connectivity, foraging and sett building

4.20 Connectivity with areas of higher quality habitat is good for badgers as the site is set within a rural landscape, however the level of disturbance is such that badger activity would be confined to nighttime.

Likelihood of badger presence	Sett building	LOW
	Foraging / commuting	MODERATE

Impact risk assessment

Badgers are typically most vulnerable to the following activities:

- Sett disturbance due to tree removal, and excavations as a part of general construction work
- Habitat loss, particularly foraging habitat and interruption or removal of commuting features.

Activity	Necessary on site?	Badgers likely to be affected?	Recommendations
Excavation	Yes	Unlikely	Standard mitigation
Vegetation removal / pruning	Yes	Unlikely	Standard mitigation
Habitat loss	Yes	Possible	Compensatory planting scheme

Surveys required?

4.21 No. All risks to badgers can be successfully mitigated through a combination of a precautionary approach, provision of escape routes, and pre-works checks.

Future potential and compensation

- 4.22 The site has limited potential to support badgers in the future, as although enhancement measures may improve habitat conditions locally, the introduction of residential use will result in increased human presence, garden boundaries and general disturbance, which will reduce overall suitability for this species. Section 6 provides further details on proposed enhancement measures.

Dormice

- 4.23 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

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

Foraging, connectivity and hibernation

- 4.25 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.
- 4.26 There are hedgerows on site, however they are all defunct having been left unmanaged for a number of years. Their form is such that fruit production is limited, and they do not provide a reliable nesting or commuting resource. Hedging on site will be predominantly retained and enhanced, only two small sections removed in the sparsest locations where there has been a complete loss of function.
- 4.27 The majority of the site is unsuitable for dormice on account of it comprising short sward grassland, built habitats, and low-density scrub. As such, the only habitats with even a remote chance of supporting dormice are the woodland and denser scrub in the south of the site, of which there are comparatively small areas.
- 4.28 Given the lack of high-quality habitat within the development area, dormouse presence within the site can be effectively ruled out.
- 4.29 Dormouse presence in the wider landscape is considered to be possible in the areas of ancient woodland present.

Likelihood of dormouse presence	LOW
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Impact risk assessment

Dormice are typically most vulnerable to the following activities:

- Removal of dense vegetation, particularly woodland or other habitats well connected with large areas of woodland such as scrub and hedgerows
- Habitat loss, particularly foraging habitat and interruption or removal of commuting features.

Activity	Necessary on site?	Dormice likely to be affected?	Recommendations
Vegetation removal / pruning	Yes	Unlikely	No specific mitigation required above a precautionary approach for this species
Habitat loss	Yes	Unlikely	Compensatory planting scheme

Surveys required?

- 4.30 No. All potential risks to dormice can be adequately mitigated through the application of a precautionary working method, implementation of pre-works checks, retention of escape routes and the continued maintenance and enhancement of boundary hedgerows.

Future potential and compensation

- 4.31 The site has limited potential to support dormice in the future, as whilst enhancement of boundary features may improve habitat quality locally and provide improved connectivity within the landscape, this is likely to be counterbalanced by increased disturbance, artificial lighting and the presence of domestic pets associated with residential use. No bespoke dormouse-specific mitigation or enhancement is recommended; however, dormice in the wider area may benefit indirectly from boundary habitat retention and enhancement. Section 6 provides further details on proposed enhancements.

Great crested newts

4.32 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

- 4.33 No signs of great crested newts were recorded during the survey.
- 4.34 Records obtained from MAGIC indicate historic population records approximately 1.4 km west and 1.6 km east of the site, derived from pond surveys and Natural England licence returns between 2016 and 2019 (*MAGIC, 2025*). No records were identified within the immediate vicinity of the site.
- 4.35 The likelihood of a meta-population being present within the wider landscape is considered to be high given records and there are 8 waterbodies within 500m of the site boundary.
- 4.36 Of these waterbodies 2, 5, 6 and 8 are technically linked to the site by a single, narrow hedgerow corridor; however, this represents weak, sub-optimal connectivity over a long distance. The remaining waterbodies are separated from the site by roads, hardstanding, development and open agricultural fields.
- 4.37 None of the surrounding waterbodies are considered to provide strong functional connectivity to the site, and several are effectively isolated by significant barriers including road infrastructure and large areas of unsuitable habitat.

Foraging, connectivity, breeding and hibernation

- 4.38 No breeding habitat is present on site. All ponds are off-site and subject to varying degrees of isolation from the site boundary.
- 4.39 Terrestrial habitat on site is dominated by open modified grassland, with limited cover provided by scrub margins and a single hedgerow. Sward height is approximately 15 cm, resulting in limited refuge and increased predation pressure. The site therefore offers poor-quality terrestrial habitat for amphibians.
- 4.40 No suitable hibernation features (e.g. log piles, rubble, deep crevices) were recorded. Minor refuge potential is limited to hedgerow bases and scrub margins along the site boundary.

Likelihood of great crested newt presence	LOW
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Impact risk assessment

Great crested newts are typically most vulnerable to the following activities:

- Habitat loss, especially removal of dense vegetation, particularly tussocky grass and scrub.
- Clearance of hibernation features such as log / brash piles, as well as man made features such as construction debris
- Removal of trees and hedgerows with roots suitable for hibernation

- Turf stripping
- Works to waterbodies

Activity	Necessary on site?	Great crested newts likely to be affected?	Recommendations
Habitat loss	Yes	Possible	Precautionary Working Brief (PWB), seasonal avoidance measures and vegetation clearance methodology
Hibernation feature removal	No	Likely	Removal of hibernation features in active season
Tree / hedge removal	Unlikely	Possible	PWB, seasonal avoidance
Turf stripping	Yes	Likely	PWB, seasonal avoidance
Works to waterbodies	No	Discounted	No waterbodies on site

Surveys required?

- 4.41 Whilst the absence of any on-site breeding habitat, the low suitability of terrestrial habitat, and the weak functional connectivity between the site and off-site waterbodies is such that the likelihood of presence is considered low, an impact cannot be ruled out.
- 4.42 Full impact assessment is not possible without either further survey effort or District Licence screening.
- 4.43 As such, the client has two options:
1. Pursue surveying of local waterbodies to ascertain presence / likely absence of great crested newts
 2. Investigate the Wiltshire District Level Licence (DLL) scheme, which is administered by Natural England

Future potential and compensation

- 4.44 The site has no significant potential to support amphibians in future, and as such no specific enhancements are recommended. This is on account of the lack of suitable habitat within or connectivity with the wider landscape / the density and type of development proposed such that there are no opportunities for enhancement for amphibians.

Hedgehogs

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

Current usage

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

Foraging, connectivity and hibernation

- 4.48 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.
- 4.49 The site provides limited suitable habitat for hedgehogs. The interior is dominated by open modified grassland, which offers little shelter and limited foraging value.
- 4.50 Foraging and shelter opportunities are restricted to scrub margins and the hedgerow along the site boundary, where invertebrate prey is more likely to occur. However, these features are narrow and peripheral, with little structural diversity.
- 4.51 No suitable hibernation features such as log piles, compost heaps or natural accumulations of debris were recorded. The site therefore provides only very limited and sub-optimal opportunities for resting or hibernation.
- 4.52 Hedgehog presence within the wider landscape is considered possible; however, surrounding land use is dominated by pasture and semi-urban areas, with limited dense habitat and a busy road along the northern boundary, which restrict safe movement and reduce overall habitat value.

Likelihood of hedgehog presence	Low
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Impact risk assessment

Hedgehogs are typically most vulnerable to the following activities:

- Habitat loss, especially removal of dense vegetation, particularly tussocky grass and scrub.
- Clearance of hibernation features such as log / brash piles and bonfires

Activity	Necessary on site?	Hedgehogs likely to be affected?	Recommendations
Habitat loss	Yes	Possible	Precautionary watching brief, seasonal avoidance measures and vegetation clearance methodology
Hibernation feature removal	No	Likely	Removal of hibernation features in active season by hand. Bonfires to be hand searched.

Surveys required?

- 4.53 No further surveys for hedgehogs are necessary as they can be adequately protected using standard mitigation measures.

Future potential and compensation

- 4.54 The site has limited potential to support hedgehogs in the future; however, while habitat creation and enhancement measures may improve local conditions, this is likely to be offset by increased disturbance associated with residential use. Domestic gardens may provide some additional foraging and shelter opportunities, but this will depend on garden design, boundary permeability and management. Section 6 provides further details on proposed enhancements.

Reptiles

4.55 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

4.56 No signs of reptiles were recorded during the survey.

Foraging, connectivity, basking and hibernation

4.57 The site provides poor quality habitat for reptiles. The interior is dominated by short sward modified grassland that has historically been grazed to a short sward and remains structurally simple.

4.58 The absence of banks, rubble, logs or structurally diverse vegetation limits basking opportunities. Scrub margins and the hedgerow provide some limited cover; however, these features are narrow, peripheral and not connected to a wider network of suitable habitat.

4.59 No suitable hibernation features such as log piles, rubble or natural cavities were recorded. Minor refuge potential is limited to the base of the hedgerow and scrub margins along the site boundary.

4.60 Connectivity with suitable habitat in the wider landscape is weak. Surrounding land use is dominated by pasture and agricultural land with sparse boundary features, offering few protected movement routes. Reptile use of the site, if present at all, is considered likely to be incidental and transient, restricted to boundary vegetation.

Likelihood of reptile presence	LOW
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Impact risk assessment

Reptiles are typically most vulnerable to the following activities:

- Habitat loss, especially removal of dense vegetation, particularly tussocky grass and scrub.
- Clearance of hibernation features such as log / brash piles, as well as man made features such as construction debris
- Removal of trees and hedgerows with roots suitable for hibernation
- Turf stripping

Activity	Necessary on site?	Reptiles likely to be affected?	Recommendations
Habitat loss	Yes	Possible	Precautionary Working Brief (PWB), seasonal avoidance measures and vegetation clearance methodology
Hibernation feature removal	Yes	Likely	Removal of hibernation features in active season
Tree / hedge removal	Yes	Possible	PWB, seasonal avoidance
Turf stripping	Yes	Likely	PWB, seasonal avoidance

Surveys required?

- 4.61 In accordance with CIEEM guidance and JNCC Phase 1 methodology, this meets the threshold for a precautionary approach without the need for further Phase 2 herptile survey effort.

Future potential and compensation

- 4.62 The site has limited potential to support reptiles in the future, as while enhancement of boundary habitats may improve local conditions and connectivity, this is likely to be offset by habitat fragmentation, increased disturbance and the presence of domestic pets associated with residential use. Section 6 provides further details on proposed enhancements.

Designated Sites

- 4.63 The proposed development is of a relatively small scale comprising utilisation of an area of greenfield land that is otherwise practically surrounded by other areas of low density development.
- 4.64 The site does however lie within the impact risk zones of two designated sites.

Salisbury Plain SPA

- 4.65 The site lies within the 6.4km buffer of influence of the Salisbury Plain SPA.
- 4.66 The Officer's Report states that:
- 'A strategic Appropriate Assessment (AA) has been prepared pertaining to development within the 6.4km zone of influence that could result in a likely significant effect on the SPA as a result of an increase in recreational / visitor pressure.'*
- 'The AA reached the conclusion that there would be no likely adverse effects on the integrity of the SPA or its qualifying features provided that the Council's mitigation strategy continues to be implemented.'*
- 4.67 Subject to payment into the LPA's scheme aimed at funding management of the SPA and the recreational pressures that development may cause, no significant impacts are expected for a development of this size.

Bath and Bradford-on-Avon Bats SAC

- 4.68 The site lies within the Bath and Bradford-on-Avon Bats Special Area of Conservation (SAC) and sits within the 'Yellow' and 'Grey hatched' zone of protection.
- 4.69 For sites within the 'Yellow' zone, the TWBMS states the following:
- Development on greenfield sites outside the settlement boundaries will be able to demonstrate no adverse effect on site integrity of the SAC provided that:*
- There is no net loss of habitat within the allocation site boundary as demonstrated by use of The Statutory Biodiversity Metric or any subsequent revisions thereof (notwithstanding that use of the metric may not be critical in all instances, as detailed in paragraph 146; and notwithstanding the need to adhere to BNG requirements).*
 - Retained core bat habitat remains connected to the wider habitat network and is adequately buffered in accordance with this strategy.*
 - Core bat habitat remains relatively undisturbed by the effects of urbanisation in accordance with this strategy.*
 - A financial contribution is made towards funding the LPA scheme detailed in Section 9.1 for mitigating residual in- combination effects from loss / degradation of bat habitat. This will need to be secured for residential development (a per dwelling contribution) and all other types of development (a per hectare contribution).*

4.70 Additionally, within the 'Grey hatched' zone, the following requirement applies:

- *New residential development of less than 50 dwellings makes a financial contribution towards funding the LPA scheme detailed in Section 9.2 for mitigating residual in-combination effects from recreational pressure.*

4.71 In short, so as to be compliant with the TWBMS, and to therefore be supported by the LPA, the following must occur:

- Surveys for bats must be undertaken to comprise transects, static monitoring, and potentially trapping;

OR

- Results from the long-term monitoring program must be analysed by a bat ecologist holding Level 3 / 4 licence;
- A full Biodiversity Metric Assessment (BMA) should be completed so as to demonstrate no-net-loss of bat habitat – in practical terms, this will likely mean that all hedgerows on site will be retained, and the majority of grassland and scrub will be retained / enhanced to compensate for losses.
- A 15m buffer of no development is in place between the developed area and retained commuting habitat – scrub and hedgerows. This means no houses, gardens, curtilage, or new roadways within this area.
- An additional 15m 'dark zone' buffer of no lighting is in place between the 'no development' buffer and the lit parts of the site. This means houses, gardens, curtilage, or new roadways within this area.
- Financial contributions are made to cover both the LPA schemes detailed in 9.1 and 9.2 of the TWBMS.

4.72 As regards obtaining bat survey results, the author notes that a significant housing development has been granted permission opposite the proposed development site under reference 15/04736/OUT. A considerable amount of surveying was undertaken for this development, including capture, radiotracking and static / transect surveys. It may be possible for some of this data to be utilised to support the proposed application.

5 CONCLUSION

Site summary

- 5.1 The proposed development site is considered to have low ecological value in a local context, but potentially of moderate significance at a County Level. Habitats present are limited to modified grassland with boundary scrub and hedgerow and are typical of lowland agricultural landscapes in the area.
- 5.2 The biodiversity value of the total site area is largely attributed to the following factors:
- The proximity of significant populations of rare bats
 - The low botanical diversity and uniform structure of the grassland habitats;
 - The limited extent of scrub and hedgerow habitat; and
 - The ease with which biodiversity enhancement measures can be implemented within the overall site boundary without compromising amenity value.

Development proposals

- 5.3 At the time of writing, no detailed layout plans have been provided. The site is being promoted for residential development comprising up to nine (9) dwellings, with specific details regarding layout, access and land take yet to be confirmed. Ecological conclusions are therefore based on the existing site boundary and current site conditions.

Habitat impacts

- 5.4 Potential impacts are expected to relate primarily to the loss of areas of modified grassland and disturbance to boundary scrub. Given the low ecological value of habitats present, impacts are predicted to be minor, subject to retention of boundary features and implementation of precautionary measures during vegetation clearance.

Species likely present

- 5.5 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.
- 5.6 The following species require no specific mitigation, and can be discounted from future consideration:
- 5.7 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:
- Badgers

- Breeding birds
- Dormice
- Hedgehogs
- Reptiles

5.8 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:

- Bats
- Great crested newts

5.9 This conclusion is based on the absence of detailed layout plans at the time of assessment. Should future proposals involve significant disturbance or removal of boundary features (such as hedgerows or scrub), further surveys or updated assessment may be required.

6 RECOMMENDATIONS

6.1 Section 6 discusses the following separate elements:

- Biodiversity enhancement measures to achieve Biodiversity Net Gain.
- Species specific mitigation measures for those species that would otherwise be at risk of injury, death, or legislative breach without mitigation measures

Mitigation

6.2 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.

6.3 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.

Species specific mitigation measures

Bats

For bats, the following items will be required:

1. There are no buildings or trees on site with suitability to support roosting bats. As such, no further mitigation is required for roosting bats.
2. Further surveys for foraging and commuting bats will be required, which would further inform the viability of the development and the mitigation, compensation and enhancement required.
3. As required by paragraph 161 of the TWBMS an Ecological Parameters Plan (EPP) is necessary to support this type of application to clearly identify those areas of the site which are unconstrained, those areas where sensitive design or restrictions may be required (i.e., core habitat features), and any areas of the site which are to be retained, remain undeveloped, or be enhanced through developer mitigation.
4. Regardless of potential bat presence, a precautionary approach to bats will be required to comprise the following outline measures:

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

Works to existing buildings that could affect bats include, but are not limited to:

- Demolition
- Roof works, including removing tiles, sarking, or any works to the loft space or timbers
- Siding, such as weatherboarding or hanging tiles

All of these works should be undertaken using hand tools under a 'soft strip' process with all arisings 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.

Breeding birds

The 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 or 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.

Badgers

All of the habitats on site could potentially support badgers, and access to the site for badgers is good.

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.

Herptiles

Necessity for phase 2 surveying

The site is considered to offer only very poor habitat for amphibians, however the presence of great crested newts cannot be ruled out without further survey effort. The client can choose to either undertake additional survey effort, or to enter into the District Licence for Wiltshire.

Further reptile surveys are not considered necessary due to the site's low suitability due to its maintained short sward, low refugia density, ongoing disturbance, and the presence of significantly higher quality habitats in the wider landscape. In accordance with CIEEM guidance and JNCC Phase 1 methodology, this meets the threshold for a precautionary approach without the need for further Phase 2 reptile survey effort

Their presence would likely be 'vagrant' as a part of normal foraging, with the site being unable to support a population of any herptile species on its own.

Both great crested newts and reptiles can be successfully protected by a precautionary approach comprising mitigation measures informed by a site-specific toolbox talk such as sensitive vegetation clearance, and informal translocation.

The term 'informal translocation' refers solely to **manual encouragement of non-licensable species** from the work area and does not imply handling of licensable species unless authorised under licence.

Herptile season

Hibernation season for herptiles comprises the coldest and darkest months in which they enter a state of torpor due to the lack of sunlight hours and opportunities to warm themselves and become active. Whilst there is no specific definition of the months that herptiles hibernate due to climatic variability and species differences, it is generally accepted that herptiles are hibernating in November, December, January and February, with some limited activity in October and March, increasing as daytime temperatures increase.

Active season comprises the warmest months of the year, and are generally accepted to be April, May, June, July, August, and September, with some activity expected in warmer periods of March and October. Additional consideration should be given to amphibian **breeding season** which occurs in the period March to June inclusive subject to weather conditions.

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.

General notes

Mitigation measures for amphibians such as great crested newts and common toads are similar to those for reptiles such as common lizards and slow worms. Where they differ is in their speed of movement, and their level of protection, as well as some differences in habitat.

Broadly all species are found within similar dense habitats such as tussocky grass, scrub, and occasionally woodland, making use of dense woody features for cover. Amphibians are more often found near water, although newts are broadly terrestrial having only a brief aquatic period in March to June.

When organising mitigation, there are a few salient points to remember:

- Capturing or excluding a great crested newt without a licence is an offence, *unless rescuing the newt was an emergency measure that would otherwise negate the risk of a more serious offence being committed*. This includes restricting newts to a fenced area.
- All herptiles hibernate in the same sorts of habitats, being natural log and brash piles, holes in the ground, and man-made features such as construction waste and bonfires.
- All herptiles hibernate at roughly the same time (the winter months) and are active in the warmer months.
- Reptiles broadly move faster than amphibians and are more capable of fleeing activities such as vegetation clearance. As such, amphibians are most vulnerable to destructive activities.

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.

At a glance:

- Assessment of the working area by a qualified and experienced ecologist
- Toolbox talk to inform operatives
- Fence installation as necessary
- Formal translocation effort if required
- Seasonal constraints applied as necessary
- Timed vegetation clearance with informal translocation of stragglers / encouragement towards safe habitat outside of working area
- Maintenance of site
- Works commence under precautionary approach once site has been made safe for herptiles

Toolbox talk

Prior to works commencing, a toolbox talk will be presented to all operatives to inform them of the following:

- The legislation protecting herptile species
- The importance of their conservation
- How to identify them so as to prevent injury
- The site-specific risks to them
- What to do in the event a herptile is discovered or suspected
- Who to contact in the event a herptile is discovered
- How to identify areas with herptiles, including signage provisions
- Logging of herptile incidents

Fencing

No exclusion fencing will be installed unless a European Protected Species licence has been granted by Natural England. This is to avoid the risk of unlawfully trapping or excluding GCN. For reptiles, short sections of drift fencing may be used temporarily to guide animals away during vegetation clearance, but not for exclusion

Translocation

Under the current scheme, herptiles will be encouraged to disperse from the site naturally through phased vegetation removal. Active translocation will only be carried out for species not subject to licensing constraints from the 'Can be captured' table above.

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. Natural England will need to be consulted.

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.

Timing of works

At a glance

- All works under ecological supervision
- Construct a compensatory feature for displaced herptiles
- Cut vegetation to ground level during the active season
- Maintain at this level until winter / until supervision is available
- Strip turf and topsoil during winter / under ecological supervision

Prior to works commencing

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

Vegetation removal

Vegetation removal should occur during the active season of March to October, to include removal of any scrub plants and phased cutting of all vegetation to ground level.

The entire working area should be checked by the ecologist prior to works commencing, including a hand search where necessary of any dense refugia.

Vegetation cutting works should be undertaken in a staged manner consisting of cut and collect to 150mm, left for 24 hours, then final cut and collect to ground level. This will also reduce the risk to breeding birds.

Hibernacula removal

Any hibernation features such as rubble or spoil piles, bonfires, or dense refugia such as log or brash piles should be slowly dismantled by hand during the active season of March to October only.

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.

The site should be cut every two weeks to discourage re-colonisation. All materials or spoil should be kept off the ground to prevent usage as hibernacula or cover.

Turf stripping

Prior to turf stripping (no more than 5 days before work start), a site walkover should be undertaken to ensure no new refugia have formed.

Turf stripping must only be undertaken once all herptiles have either been excluded from the works area (in the case of fully fenced sites), or once herptiles have been encouraged away from the site through phased vegetation clearance and the site has been maintained at ground level until turf stripping can begin.

Turf stripping during the hibernation season of November to February is only possible if the site has been maintained at ground level, and no hibernation features will be affected – this is at the sole discretion of the ecologist. If this cannot be guaranteed, turf stripping works must occur under ecological supervision during the active season.

In the unlikely event that herptiles are found at any time during the development, work should cease immediately, and an ecologist – suitably licenced where necessary - should be sought. Thereafter work can only recommence upon working in accordance with legislatively compliant recommendations. Failure to do so constitutes a criminal offence.

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.

In all cases, effort should mainly be concentrated on planting native species where possible. We have created an 'Alternative Planting List' covering trees, hedgerows, and wildflower species suggestions, available on request.

Mandatory enhancements

Enhancement Plan

An Ecological Mitigation Plan must be provided as required by paragraph 162 of the adopted TWBMS. This plan would show exactly what habitat will be retained and enhanced, as well as any new habitats that will be created to provide compensatory habitat pursuant to achieving no-net-loss as required by the TWBMS in the 'Yellow' zone.

Hedgehog highways should be a part of the development, with any and all new fencing and walls having a minimum 13cm x 13cm hole integrated into their design to allow access and egress from the site. Hedgehogs are a species of principal importance under Section 41 of the NERC Act 2006, and their conservation is of paramount importance due to severe declines in their populations and range.

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, which is suitable for both built-in and hung installations.

The swift box should be similar to the Vivara Pro WoodStone built-in swift nest box, or the Schwegler 17A triple cavity box, which is suitable for both built-in and hung installations.

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 three (3) 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

As bats prefer more sheltered and less disturbed areas to roost, it is recommended that bat boxes are placed at a height of 4 metres on the southern side of the building. This will ensure that bats remain undisturbed by usage of the buildings.

It is recommended that bat boxes are of the Schwegler 1FR built-in type, as built in features have a higher efficacy than hanging features. Alternatively, where this is not possible due to a lack of suitable opportunities for built-in features, hanging boxes can be utilised such as the Schwegler 1FF or 2F flat hanging box on either buildings or mature retained trees.

Care should be taken when erecting bat boxes to ensure they remain sheltered, but accessible with clear flight paths and without damaging surrounding trees during erection. Tertiary branches that block the flight path to the box should be trimmed, with the whole area remaining unlit.

As a minimum, a single (1) bat box / bat brick should be provided on the southern aspect of each new building. Where built in boxes are not possible, two (2) hanging boxes should be provided instead.

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 building(s) 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.

For buildings without a suitable brick face for installation, a Woodstone Insect Block or similar should be installed externally in a suitable location.

Future Enhancements Subject to Final Layout

Additional enhancements including native tree and hedgerow planting, wildflower seeding, SuDS integration and further species-specific measures shall be considered once the scale and layout of development are confirmed. These measures shall be informed by final architectural and landscape plans to ensure effective integration within the scheme and delivery of measurable biodiversity net gain.

It is broadly understood however that:

- The majority of scrub on site would be retained and enhanced outside of curtilage, secured by HMMP and S106 agreement as necessary.
- The entire hedgerow at the front of the site will be retained and, where possible, enhanced.
- All retained grassland will be enhanced to a higher condition score and higher distinctiveness grassland type, such as other neutral grassland.
- New areas of mixed scrub will be created to compensate for those areas that are lost.
- All areas of curtilage and private ownership will be separated from the enhancement areas by fencing, with those areas managed separately.

Non-mandatory enhancements

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.

Hedge planting; the development should include new hedge planting along linear boundaries using a native species-rich hedgerow mix to include a minimum of 7 species from the following list: hazel, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, spindle *Euonymus europaea*, wayfaring tree *Viburnum lantana*, crab apple *Malus sylvestris*, hornbeam *Carpinus betulus*, dog rose, field maple *Acer campestre* and wych elm *Ulmus glabra*. Furthermore, any existing hedgerows in the wider site boundary should be gap planted and bolstered with species from the list above.

These species are hardy allowing them to be managed in multiple ways and provide excellent privacy once full grown. If further privacy is required in specific areas, then yew *Taxus baccata* and beech *Fagus sylvatica* should be considered. Non-native species should be avoided.

Scattered mature standards comprising hornbeam *Carpinus betulus*, field maple, or lime *Tilia cordata* var. 'Green Spire' should be planted across the site to increase woody coverage and connectivity. These species are hardy, low maintenance and also do not risk dominating the landscape in later life as they can be coppiced or pollarded effectively.

Additionally, honeysuckle *Lonicera periclymenum* should be included in hedgerow mixes.

Areas of hedgerow with non-native invasive species should have these species removed and replaced with native species.

New hedgerows should be planted at a density of 10 plants per metre in two rows of 5 plants each, with rows 30cm apart and plants 20cm apart. Bolster planting should be undertaken at the same density taking into account existing mature individuals as contributing to this density;

e.g. existing hedgerow has density of 3 plants per metre, bolster planting would comprise 7 additional plants.

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 the County such as the Adonis blue *Polyommatus bellargus*. 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

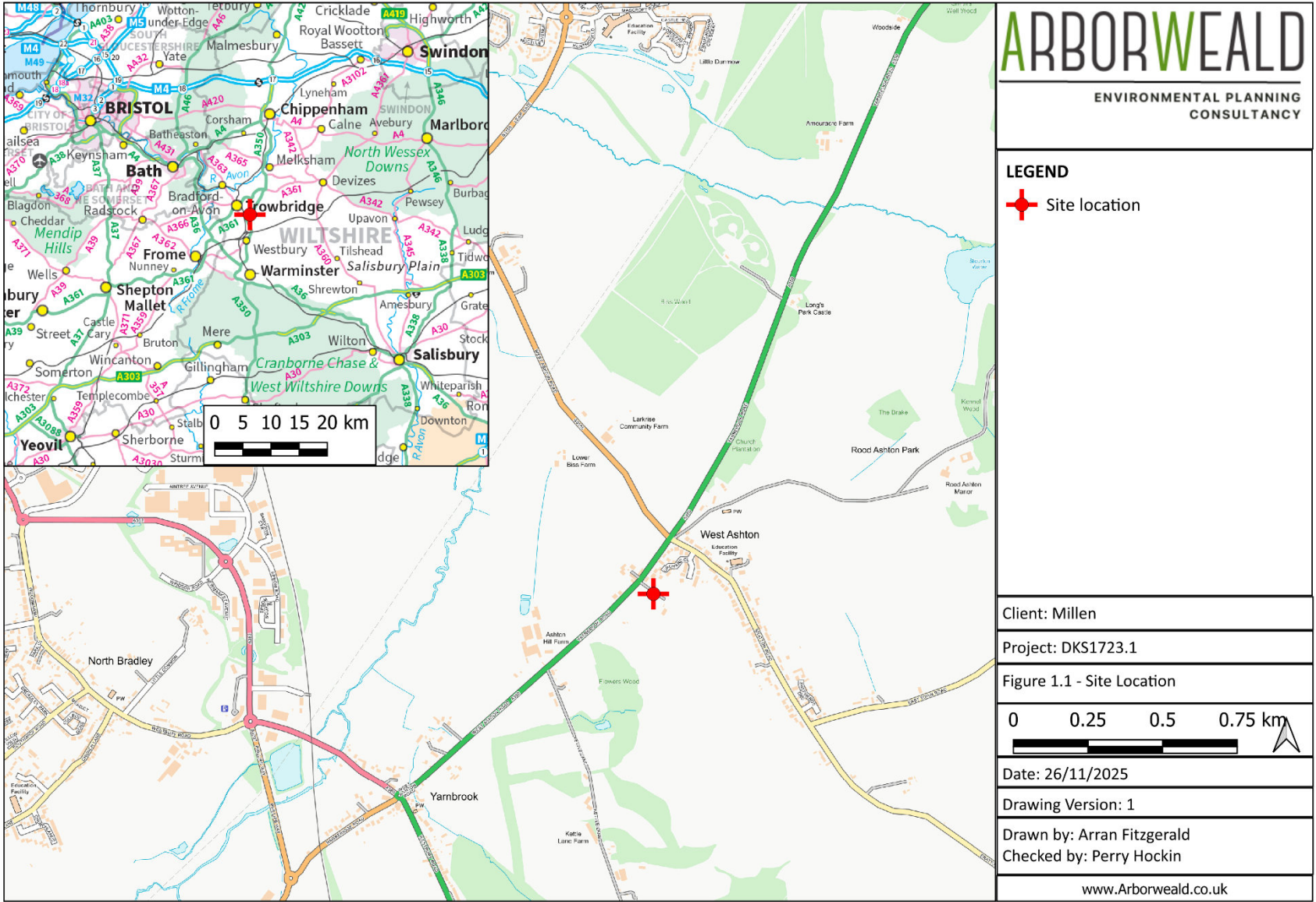
Figure 1.2 Extent of site boundary

Figure 3.1 Waterbodies within 500 m of site boundary

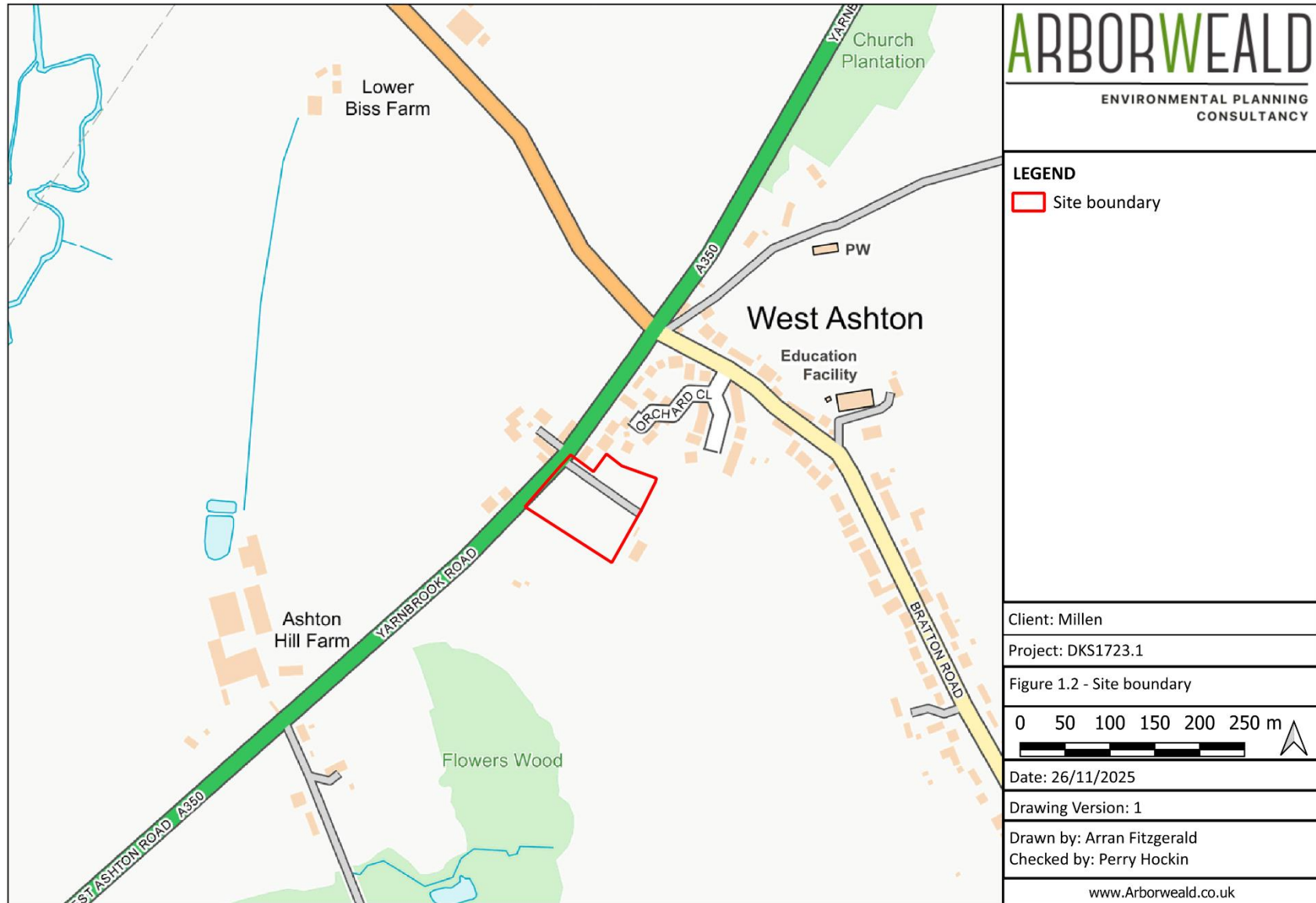
Figure 3.2 Preliminary Ecological Appraisal results

Figure 3.3 Site boundary (red as per 1.2) within impact zones of TWBMS

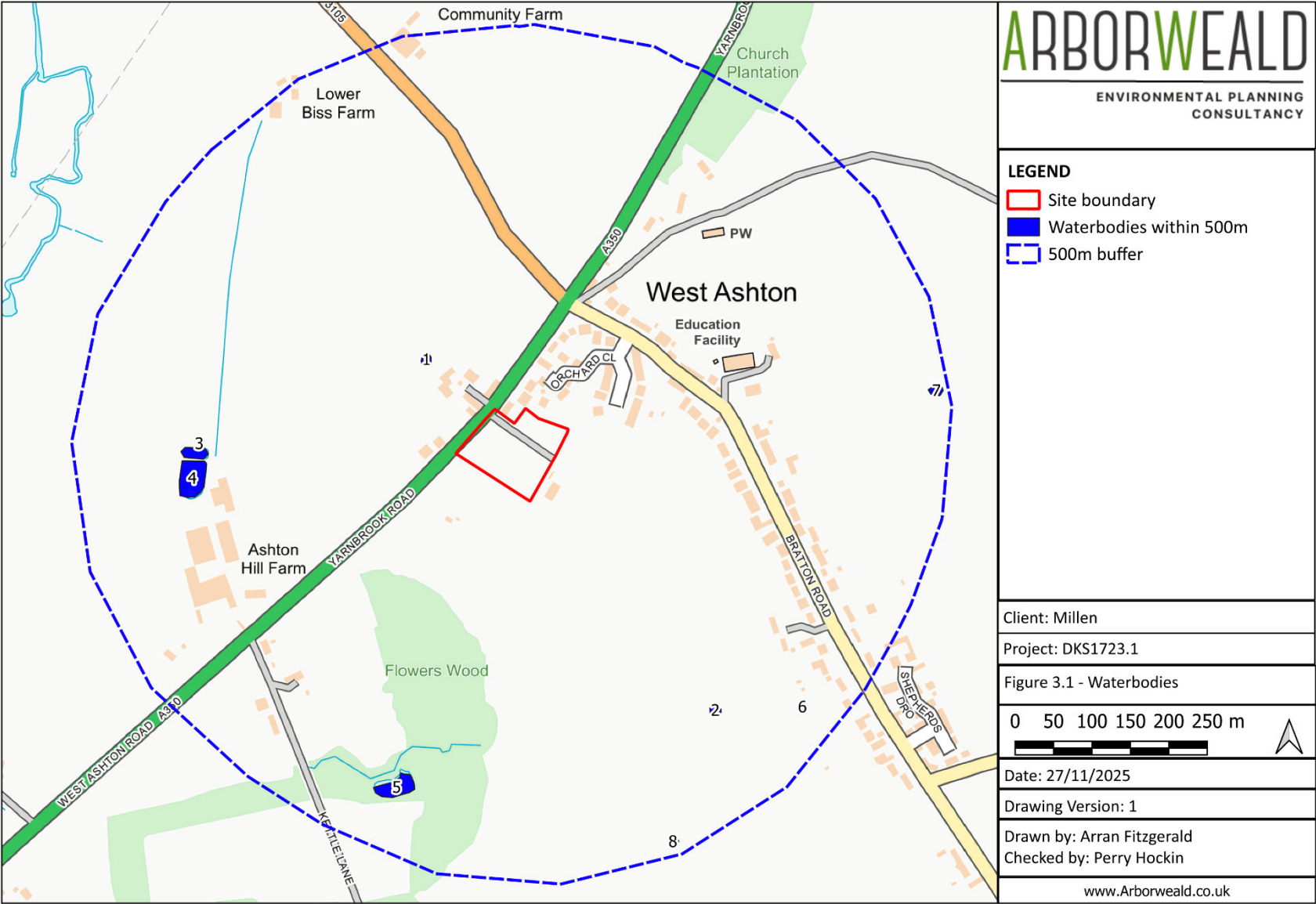
In the absence of full and finalised development plans, the author will have to make assumptions. As such, habitats displayed are suggestions and comprise habitats that the author feels would best fit the proposed landscape without compromising the usage of the site. These habitats will have been used to undertake the Biodiversity Metric Assessment (BMA), and as such adjustment to the calculation may be required should plans change. – this may come at cost to the client.



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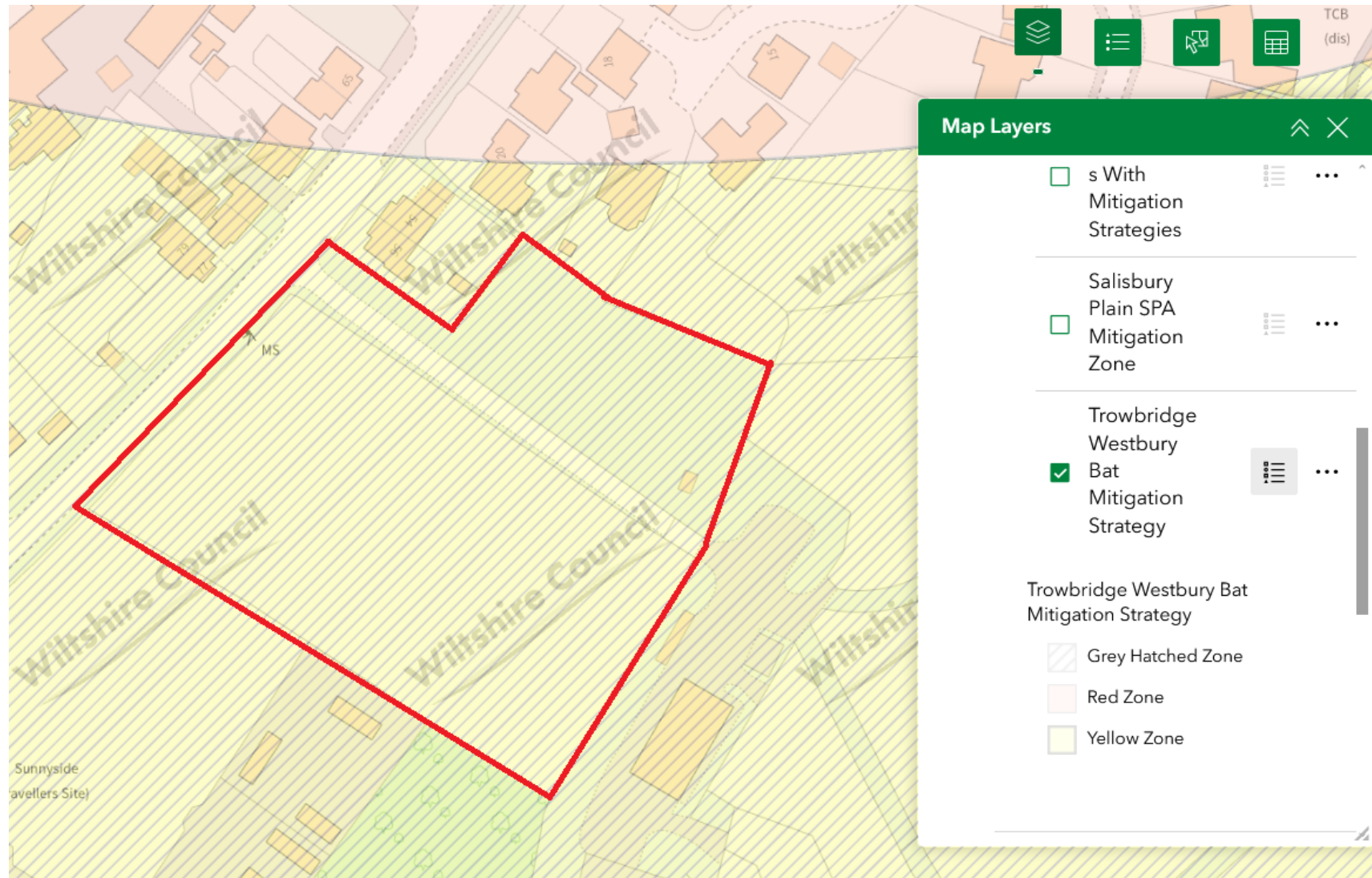
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APPENDIX A Wildlife Legislation

Strict Liability vs Mens Rea

Wildlife offences are classified in one of two ways;

Some are *strict liability*, meaning that a person can be found guilty regardless of intent or knowledge. In strict liability cases, the defendant cannot argue lack of knowledge as a defence (e.g., not knowing a bird was protected). However, statutory defences may apply (e.g., under Section 4 for acts done for humane reasons).

Other offences require intention, recklessness, or knowledge, and are governed under *Mens-rea* law whereby the offence must be proven to have been committed intentionally, through recklessness (such as not seeking prior knowledge), or when already in possession of that knowledge e.g. *having had a toolbox talk prior to undertaking works*.

The following table outlines which wildlife offences are Strict Liability, and which are Mens-rea.

Species	Primary protection legislation	Liability
Bats	<i>Wildlife and Countryside Act 1981 (WCA 1981) – Schedule 5</i> <i>Conservation of Habitats and Species Regulations 2017 (Habitats Regulations)</i>	Strict liability - WCA 1981 – Section 9(1): Prohibits killing, injuring, or taking bats. - Habitats Regulations – Regulation 43(1): Prohibits deliberate capture, killing, or disturbance of bats.
		Mens-rea - WCA 1981 – Section 9(4): Prohibits damage to or destruction of a bat's place of shelter but requires intent or recklessness. - Habitats Regulations – Regulation 43(2): Prohibits damage to or destruction of breeding sites or resting places, requiring intent or recklessness.
Birds	<i>Wildlife and Countryside Act 1981 – Section 1</i>	Strict liability - Section 1(1): Prohibits killing, injuring, or taking any wild bird. - Section 1(2): Prohibits taking, damaging, or destroying an active nest. - Section 1(3): Prohibits taking or destroying eggs.
		Mens-rea Section 1(5): Prohibits disturbing birds at nest sites (for Schedule 1 birds), requiring intent or recklessness.
Badgers	Protection of Badgers Act 1992	Mens-rea - Section 1: Prohibits wilfully killing, injuring, or taking a badger (requires intent). - Section 3: Prohibits interfering with a badger sett (requires intent or recklessness).
Dormice	<i>Wildlife and Countryside Act 1981 (WCA 1981) – Schedule 5</i> <i>Conservation of Habitats and Species Regulations 2017 (Habitats Regulations)</i>	Strict liability - WCA 1981 – Section 9(1): Prohibits killing, injuring, or taking a dormouse. - Habitats Regulations – Regulation 43(1): Prohibits deliberate capture, killing, or disturbance.
		Mens-rea - WCA 1981 – Section 9(4): Prohibits damaging or destroying a place of shelter (intent or recklessness required). - Habitats Regulations – Regulation 43(2): Prohibits destruction of breeding/resting sites (intent or recklessness required).
Great-crested newts	<i>Wildlife and Countryside Act 1981 (WCA 1981) – Schedule 5</i> <i>Conservation of Habitats and Species Regulations 2017 (Habitats Regulations)</i>	Strict liability - WCA 1981 – Section 9(1): Prohibits killing, injuring, or taking a dormouse. - Habitats Regulations – Regulation 43(1): Prohibits deliberate capture, killing, or disturbance.
		Mens-rea - WCA 1981 – Section 9(4): Prohibits damaging or destroying a place of shelter (intent or recklessness required). - Habitats Regulations – Regulation 43(2): Prohibits destruction of breeding/resting sites (intent or recklessness required).
Reptiles	<i>Wildlife and Countryside Act 1981 – Schedule 5</i>	Strict liability WCA 1981 – Section 9(1): Prohibits killing, injuring, or taking a protected reptile (e.g., sand lizard, smooth snake).
		Mens-rea WCA 1981 – Section 9(4): Prohibits damaging or destroying a place of shelter (intent or recklessness required).
Invasive species	<i>Wildlife and Countryside Act 1981 (WCA 1981) – Section 14, Schedule 9</i>	Strict liability WCA 1981 – Section 14: Prohibits the release or escape of invasive non-native species (e.g., Japanese knotweed, grey squirrel)
		Mens-rea WCA 1981 – Section 14: Prohibits causing the spread of invasive non-native species (e.g., Japanese knotweed, grey squirrel)
Other species	<i>Wildlife and Countryside Act 1981 (WCA 1981) – Schedule 5</i> <i>Conservation of Habitats and Species Regulations 2017 (Habitats Regulations)</i>	Also covered under Section 9 of the WCA 1981 are otter, water vole, red squirrel, pine marten, sturgeon, lamprey, and certain invertebrates. For all these species, they are protected as follows: Strict liability - WCA 1981 – Section 9(1): Prohibits killing, injuring, or taking a protected reptile (e.g., sand lizard, smooth snake). Mens-rea - WCA 1981 – Section 9(4): Prohibits damaging or destroying a place of shelter (intent or recklessness required).

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.

APPENDIX B Site photographs

			
Figure B1	View south of eastern field.	Figure B2	North view of eastern field showing scrub boarder and dilapidated field shelter.
			
1.1		1.2	
Figure B3	View south of western field	Figure B4	Abandoned trailer in southwest corner of site.

APPENDIX C Species habitat suitability criteria

For the purposes of this report, Arborweald have developed habitat suitability criteria for protected species where specific categorisation methodology is not provided by the generally accepted literature (such as for bats or great crested newts).

Reptiles

Suitable reptile habitats include the following habitat types:

Heathland;	Sand dune;
Moorland;	Hard and soft cliffs;
Grasslands;	Vegetated shingle;
Scrub;	Open mosaic habitats; and
Woodland;	Coastal lagoon.
Wetlands;	

These habitats can be found within a broad range of land use types, including:

Farmland;	Churchyards;
Brownfield sites;	Mineral sites;
Gardens and allotments;	Road and rail embankments; and
Parks and grounds;	River and sea walls.

Other habitat and land use types may be utilised by reptiles, if their basic ecological requirements (foraging, shelter, protection, basking, breeding and/or hibernation) are met by the habitat. It is therefore imperative that all sites / habitats are assessed based on their ecological functionality for reptiles, rather than making hard and fast judgements based on broad habitat and/or land use type.

The below suitability criteria have been devised to provide a structured way of assessing ecological functionality for reptiles, which can be applied by suitably experienced ecologists.

Reptiles require large areas, or closely spaced patches, of suitable habitat to support viable population in the long term. Therefore, habitat connectivity is important on a landscape level but also within a site.

The below has been adapted from the *Reptile Habitat Management Handbook* and details the habitat requirements of reptiles (Edgar, Foster and Baker, 2010).

The factors cited in the first table (C1.1) have been used to develop the suitability criteria that are set out in the second table (C1.2).

Requirement	Description
Insolation (exposure to sun)	Reptiles bask openly in direct sunlight or seek warm sites under cover (in vegetation or under object) or partially exposed amidst dense vegetation (mosaic basking). Varied topography (south-facing slopes are particularly favoured by reptiles) and a mosaic of open, sunny areas and dense cover provide the best range of basking opportunities.
Shelter from the elements (heat, dry weather and wind), predators	Reptiles need vegetation cover and open areas in close proximity to each other. The best habitats are structurally diverse habitats, or mosaics of vegetation of differing heights, ages or types. Thorny or prickly plants such as gorse and bramble can provide particularly good refuge from predators and may be used as sheltered basking sites.
Hibernation opportunities (shelter during the winter)	Hibernation sites must be climatically stable, frost-free, humid (but not wet) and safe from flooding and predators. Typical hibernation sites include mammal burrows, rotted tree stumps and root holes, fissures in soil / substrate, large grass tussocks, anthills, old walls and building foundations, piles of rubble and other debris and under large logs and fallen trees. Sand lizard, grass snake, smooth snake and adder usually make seasonal movements to hibernation sites. Slow worm and common lizard may also make shorter distance migrations to hibernation features, but the location of hibernation features normally corresponds with the areas used during the active season.
Food	Legged lizard (common lizard and sand lizard): Main prey items are insects and other invertebrates such as spiders. Legless lizard (slow worm): Main prey items are soft-bodied invertebrates such as slugs and worms. Smooth snake: Main prey items are reptiles and small mammals. Grass snake: Main prey items are amphibians and fish. Adder: Main prey items are small mammals and occasionally lizards.
Breeding habitat	Breeding sites are more likely to be found where structurally diverse habitats encourage high population densities. Reptiles require secluded areas close to, or under, secure cover for courting and mating. Grass snakes need access to decomposing material to lay their eggs. Typical egg-laying sites include manure heaps, compost heaps, piles of grass clippings, sawdust, cut reed and, in coastal areas, seaweed heaps. Sand lizards require areas of exposed sand (or similar loose substrate) with good sun exposure in which to lay their eggs.

The below habitat suitability criteria have been adapted based on the ecology and specific ecological requirements of reptiles (as described in C1).

Habitat suitability category	Ecological Functionality for Reptiles (one or more species)	Typical Characteristics of habitats within this Category*
High	Provides significant opportunities for foraging; shelter / protection; basking; breeding; and hibernation.	Heterogenous habitat (e.g. grassland, scrub, woodland edges). Structurally diverse habitats, mosaics of vegetation of differing heights, ages or types (e.g. tussocky grassland, dense scrub/islands). Extensive landscape connectivity to suitable off-site reptile habitat.
Moderate	Provides significant opportunities for two or three of the above key ecological functions.	Homogenous / slightly heterogenous habitat (one to two dominant habitats e.g. grassland and scrub). Habitat structure is diverse, but habitat type is uniform (e.g. tussocky grassland only). Sub-optimal landscape connectivity to suitable off-site reptile habitat.
Low	Provides significant opportunities for one of the above key ecological functions or some limited (minimal) opportunities for two or more of these functions.	Uniform habitat composition (e.g. grassland). Limited vegetative structure (e.g. closely mown or grazed grassland). Possess limited landscape connectivity to suitable offsite habitat.
Negligible	Negligible Does not provide any opportunities for reptiles.	Unvegetated areas, such as bare ground and buildings.
*Note that the characteristics given in Column 3 of this Table are typical characteristics of high, medium, low and negligible suitability habitats, and are provided for illustrative purposes to aid the assignment of a habitat suitability category. They are not absolute criteria or universal rules that will always dictate the suitability category that the habitat within a given survey site must fall within.		

Hazel dormouse

The content of the below Table has been taken from the Hazel Dormouse Conservation Handbook and details trees and shrubs of value to dormice (Bright et al., 2006). The presence and percentage cover of tree and shrub species listed in this Table informs the suitability criteria that are set out within the following 'Hazel Dormouse Habitat Suitability Criteria' Table.

Species	Description
Hazel	Where present, this is the principal source of food (nuts) for fattening up prior to hibernation. Hazel also supports many insects, including caterpillars, which are potential dormouse food. Hazel forms a continuous understorey of sprawling poles, easy for arboreal activity and is a very valuable (but not essential) species for the dormouse.
Oak	An important source of insect food (including caterpillars). Dormice also eat oak flowers, but acorns are of little value
Honeysuckle	The plant's finely shredded bark is the preferred nesting material used by dormice. Honeysuckle flowers also provide food at a time when few other things are available, with berries later. The climbing strands also offer convenient routes into the trees and provide dense shelter in which to nest.
Bramble	Its flowers and fruits are very important dormouse foods and tend to be available for a long period (especially where the site has slopes which vary the amounts of sunlight on the shrubs) and the thorns provide good protection for nests. Bramble often flowers late, when many other species are over, and dormice also eat the berries and seeds in autumn. Dormice seem to thrive where blackberries are abundant, even in the absence of hazel. Bramble is best if scattered among hazels and trees.
Sycamore	A valuable source of insect food and pollen. A useful tree: dormice can survive in habitats with many sycamores. However, sycamores cast a dense shade which reduces the understorey. Thus sycamores should be kept few and scattered, perhaps coppiced to prevent seeding and to reduce the extent of shading.
Ash	Ripening seeds ('keys') are eaten whilst they are still on the tree, but ash supports few food insects. The canopy does not cast a dense shade, but generally ash woodlands are not good habitat.
Wayfaring tree	Fruits in late summer when little else may be available. Dormice eat the seeds and probably also the flowers. Yew The fruits are a favoured food and dormice will make special excursions to reach them, but the seeds are not eaten.
Hornbeam	Seeds are small and hard, but dormice eat them. The advantage is that they are too small to be attractive to squirrels, so they may form an alternative food where squirrels have taken most of the hazel nuts. Fruiting is erratic.
Broom	Flowers are eaten in early summer.
Sallow	Unripe seeds are eaten from the flowers in early summer. Sallow also supports many insects

Species	Description
Birch	The catkins are over too early in the year to be much use to dormice, but they can eat the seeds. These are too small to attract squirrels and may provide support where squirrels compete for hazel nuts.
Sweet chestnut	Chestnuts are an excellent food source and dormice may also eat the flowers.
Blackthorn	Fruits (kernels) are eaten but the flowers come too early in the year. Dense blackthorn thickets tend to be avoided where alternative shrubs are available.
Hawthorn	Flowers are an important food in the spring. The fruits are eaten occasionally.
Conifers	Little is known about the use made of these trees by dormice, but they often support many aphids and caterpillars – potential dormouse food. The trees may also provide shelter from the wind and rain in exposed sites.
Other species such as cherry, crab apple, holly, ivy.	Little is known about the value of these trees to dormice, but it is likely that they will eat the pollen (stamens) and perhaps fruits. Ivy is a useful source of food insects and its evergreen tangles among tree branches are often used for summer nesting sites.

The below habitat suitability criteria have been adapted based on the ecology and specific ecological requirements of the hazel dormice.

Suitability Category	Ecological Functionality for hazel dormice	Typical Characteristics of habitats within this Category
High	Provides significant opportunities for: - - foraging; - shelter / protection; - breeding; and - hibernation.	5 or more native tree and/or shrub species of value to dormice present (as per list provided in Table 8). Dense canopy, understorey and/or shrub layer (as present) with good aerial connectivity.
Medium	Provides opportunities for two or three of the above ecological functions.	Between 2 and 4 native tree and/or shrub species of value to dormice present. Sub-optimal aerial connectivity (non-continuous / 'gappy' canopy, understorey and/or shrub layer (as present)).
Low	Provides opportunities for one of the above ecological functions.	0 or 1 native tree or shrub species of value to dormice present. Canopy, understorey and/or shrub layer (as present) are 'sparse,' with poor / infrequent aerial connectivity.
Negligible	Does not provide any opportunities for hazel dormouse.	Un-vegetated areas, includes bare ground and buildings



Landscape, Arboriculture and Ecology

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