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Preliminary Ecological Appraisal

March 2025

Project Reference: PR-25-0029

Land off Pendle Street East
Sabden
Clitheroe
BB7 9EQ

National Grid Reference: SD 77860 37159

Document Title	Preliminary Ecological Appraisal
Project Reference	PR-25-0029
Prepared for	Highall Developments
Prepared by	Tyrer Ecological Consultants Ltd

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Survey Date	29/01/2025
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Review Date	11/03/2025
Approved by	[redacted]
Date of Issue	12/03/2025

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This report aims to provide general advice on ecological constraints associated with any development of the site and includes recommendations for further survey; it is not intended that this report should be submitted with a planning application for development of the site, unless supported by the results of further surveys and a detailed assessment of the effects of the proposed development.

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Tyrer Ecological Consultants Ltd will however consider forwarding data that is collected as part of its reports to the relevant wildlife records centre.

Executive Summary

As part of an ongoing planning application with Ribble Valley Borough Council (Ref: **3/2023/0323**) concerning Land off Pendle Street East in Sabden, Tyrer Ecological Consultants carried out a Preliminary Ecological Appraisal (PEA) in January 2025.

The PEA was commissioned by Highall Developments; proposals include the development of the land with the erection of 19 dwellings, associated landscaping and a new access road.

Extensive findings, conclusions and recommendations are presented throughout the report; however, the reader should be aware of the following key recommendations.

Designated Sites:

As there are a number of Biological Heritage Sites (BHS) within the local environment which may be impacted by increased recreational disturbance, it is recommended that all new residents/tenants will be supplied with an information pack/leaflet containing measures to reduce their impact on these BHS's and other designated sites in the area.

*See **Section 7.4** for further information.*

Bats:

Based upon the findings of the DBW and associated GLTA, covered through **Sections 5.0 – 6.0** of the report and supported by **Appendix I**, the garage structure (B1) is determined to pertain to a bat roost suitability of '**Moderate**', in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023).

Table 7.2. Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability or PRF-I	Moderate roost suitability	High roost suitability or PRF-M
One survey visit. One dusk emergence survey[a] (structures). No further surveys required (trees).	Two separate dusk emergence survey visits[b].	Three separate dusk emergence survey visits[b].

*It is recommended that **two dusk emergence surveys** are conducted at B1, in order to establish if, and if so, how the building is being used by bats, identify the species present, abundance, roost locations and flight lines around the site following emergence. **Three surveyors** would be required to adequately monitor all elevations of the building that were identified as containing bat roost potential during the daytime inspection and assessment.*

Breeding birds:

In relation to the WCA Schedule 1 species, the site provides suitable habitat for both fieldfare and redwing, which are both overwintering visitors to the UK listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended).

As such any clearance of suitable habitats taking place during the winter months of September – March should be checked by a suitably qualified Ecologist immediately prior to clearance for the presence of such species. If identified at the site, the birds should be left undisturbed until they have naturally moved on, and suitable habitat features should be removed under supervision by a suitably qualified ecologist.

In relation to more common birds, the habitats within the red line boundary provide abundant nesting platforms within the hedgerow, individual trees and potentially for ground nesting birds in the grassland within the nesting bird season of March – August, inclusive.

Any vegetation clearance should therefore be carried out outside of the breeding bird season. For works within the breeding bird season, any areas that can support nesting birds should be checked by a professional Ecologist for nesting birds within 48 hours or less prior to works commencing.

Other terrestrial mammals:

Badger, brown hare and European hedgehog have the potential to be impacted by the proposed development. Therefore, a programme of Reasonable Avoidance Measures (RAMs) should be undertaken and carried out at the site during development, particularly where excavations / trenches will be made.

*See **Section 7.22** for details on the RAMs required.*

Herpetofauna:

The presence of common amphibians onsite is considered possible, given the wetter areas of grassland and good terrestrial habitat for commuting.

It is recommended that such species are included within the RAMs recommended for terrestrial mammals previous.

The site provides potentially suitable habitat for reptiles, particularly for common lizards, given the entire site will be redeveloped, reptiles could be impacted subject to their presence onsite and further information is required.

*Further reptile surveys are recommended to be carried out in accordance with current best practice guidelines (Froglife, 2015; GOV.UK, 2015). See **Section 7.27** for further details.*

Biodiversity enhancement:

As a means of improving biodiversity value / enhancing the site any new landscaping should aim to incorporate majority use of native species as opposed to non-native exotic species which offer significantly fewer benefits to our native fauna. Suitable species for native landscaping have been provided in **Appendix III**.

Table of Contents

1.0 Introduction & Scope

1.1 As part of an ongoing planning application with Ribble Valley Borough Council (Ref: **3/2023/0323**[1]) concerning Land off Pendle Street East in Sabden, Tyrer Ecological Consultants carried out a Preliminary Ecological Appraisal (PEA) in January 2025.

1.2 The PEA was commissioned by Highall Development; proposals include the development of the land with the erection of 19 dwellings, associated landscaping and a new access road. See **Figure 1.1** for the proposed site plan.

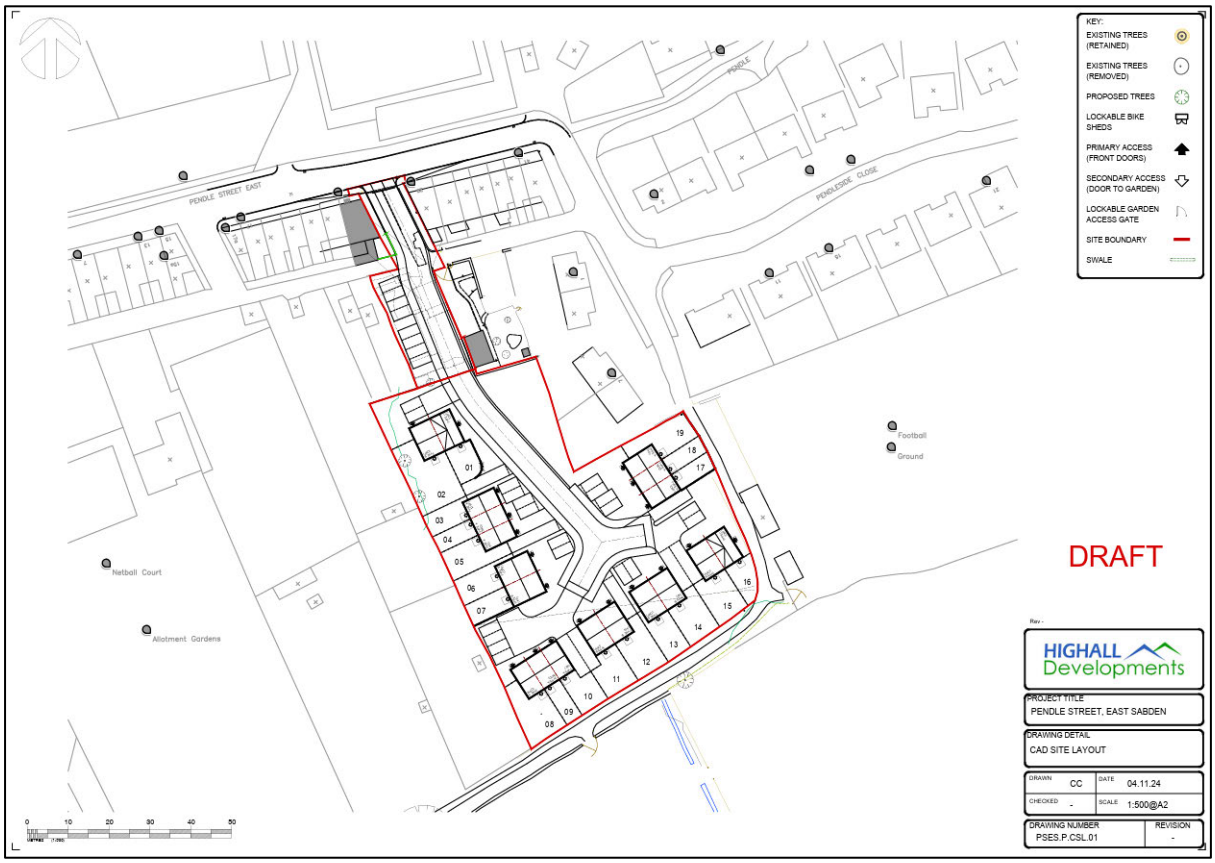

Figure 1.1 – *Proposed site location plan (© Highall Developments)*

1.3 As part of the Local Planning Authorities (LPA) planning policies and obligations to the Planning Framework, ecological surveys are generally required prior to planning permission being granted, particularly where protected / priority habitats or species are, or may be, present, and where these species have the potential to be impacted by the proposals for which the applicant seeks consent.

1.4 The PEA was carried out in accordance with the 'Guidelines for Preliminary Ecological Appraisal, 2nd Edition' (CIEEM, 2017) and all associated 'CIEEM Competencies for Species Survey (CSS)', whilst this report has been presented in accordance with the British Standard 42020:2013 Biodiversity – Code of Practice for Planning and Development.

Aims & Objectives

1.5 The appraisal aims to ascertain the baseline nature of the site and, where possible, obtain information on any priority wildlife habitats, or species, that may be present and if so determine

[1] See: https://webportal.ribblevalley.gov.uk/site/scripts/planx_details.php?appNumber=3%2F2023%2F0323

if they will be affected by the proposals. The survey, therefore, includes the following objectives:

- Gather and present baseline ecological information on site/off site (as necessary) within a suitable report,
- Identify, measure and map habitats using UK Habitat Classification – Habitat Definitions Version 2.0 (2023) habitats,
- Identify any likely ecological constraints associated with the proposals for the site (i.e. the presence of protected / priority habitats or species that exist within the confines of the application boundary, or zone of influence (ZOI),
- Identify measures likely to be required in line with the mitigation hierarchy (i.e. impact avoidance > minimisation > mitigation > compensation),
- Identify any additional survey requirements,
- Ascertain the baseline value of the habitats on site, to allow for the completion of a 'Biodiversity Statement',
- Identify general enhancement opportunities for biodiversity in line with national and local planning policy,
- Set out any requirements for post-development monitoring, management, or other commitments, and how they can be secured, where required.

1.6 As a functioning component of this specific ecological appraisal:

- Habitats on site were identified, measured and mapped using the UK Habitat Classification – Habitat Definitions Version 2.0 (2023),
- Buildings and trees, where present, were subject to preliminary roost assessment (PRA) for Bats and scored against the bat roost suitability parameters defined in the Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023)
- Habitats were assigned in accordance with Biodiversity Net Gain Principles and Rules (DEFRA, February 2024) covered in the most recent User Guide[2].

1.7 This report therefore provides important baseline information as derived from the diurnal appraisal process outlined above and recommends any necessary additional surveys, or work, where applicable, to provide a conclusive ecological impact assessment.

1.8 The Applicant should be aware then that if during the appraisal:

- The application site/area was found to be suitable for any European Protected Species (EPS), otherwise protected, or priority habitats / communities / species, or,
- Signs of use by particular protected species were found, or suspected, or,
- Seasonal constraints significantly limit the gathering of ecological information to arrive at an accurate conclusion on which the planning application can proceed;

Then more detailed surveys may be recommended where necessary, to allow the ecologist to arrive at a conclusive impact assessment.

[2] See: https://assets.publishing.service.gov.uk/media/65c60e0514b83c000ca715f3/The_Statutory_Biodiversity_Metric_-_User_Guide_.pdf

1.9 If protected species were subsequently found either during appraisal or during detailed further surveys and / or may be affected by the development proposals, then a European Protected Species Mitigation Licence (EPSML) may be required to proceed with the development.

1.10 Where more detailed surveys are recommended by the Ecologist, following ecological appraisal, then Local Planning Authorities (LPA's), on the advice of their ecological advisors, may not grant permission until such time that all relevant material information is gathered in accordance with their obligations to the legislature.

1.11 Protected / priority species omitted from this report have been discounted due to negating factors including obvious absence / isolation of suitable habitats, and / or distributional aspects negating the necessity to survey for them, and/or the proposed works were not considered to impact the species or encroach on areas where the species may be present.

2.0 Legislation & Policy

2.1 The legislature considered for the purposes of this report includes the following:

- BS 42020:2013 Biodiversity – Code of Practice for Planning and Development (2013),
- Conservation of Habitats and Species Regulations (2019) (EU Exit),
- Countryside Rights of Way (CRoW) Act (2000),
- Natural Environment and Rural Communities (NERC) Act (2006),
- National Planning Policy Framework (2023) (as last revised),
- Protection of Badgers Act (1992),
- The Environment Act (2021), including all six statutory instruments in relation to BNG,
- The Hedgerow Regulations (1997),
- The Invasive Alien Species (Enforcement and Permitting) Order 2019,
- Town and Country Planning Act (1990),
- Wild Mammals Protection Act (1996),
- Wildlife and Countryside Act (1981) (as amended).

2.2 These acts entail relevance to both protected and invasive species. The degree of protection offered to taxa provided within existing UK and EU legislature often varies depending on species / group, for example, some species may purely be protected during one of its life stages (e.g. common species of breeding bird whilst nesting / with eggs / young); some species may receive full protection within the EU, whereas others may be protected solely on a national basis (e.g. grass snake).

2.3 **Table 2.1** contains appropriate legislature to each species / group specifically respective to the site and provides the relevance of said legislation.

Table 2.1 – Relevant legislation

Species Group/Species	Relevant Legislature	Level of Protection
Badger	Protection of Badgers Act (1992), Wildlife and Countryside Act (1981) (as amended)	Illegal to: Wilfully kill, injure or take a badger (or attempt to do so), cruelly ill-eradicate a badger, dig for a badger, Intentionally or recklessly damage or destroy a badger sett or obstruct access to it, cause a dog to enter a badger sett, disturb a badger when it is occupying a sett.
Bats	CRoW Act (2000) Conservation of Habitats and Species Regulations (2019) (EU Exit) Wildlife and Countryside Act (1981) (as amended)	All British bats and their roosts are afforded full protection from damage/destruction and bats may not be injured/killed/taken at any life stage. Once identified, roosts are protected whether the bat is in occupation or not.

Species Group/Species	Relevant Legislature	Level of Protection
Birds (Breeding)	CRoW Act (2000) Wildlife and Countryside Act (1981) (as amended)	All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected. Birds listed on Schedule 1 Wildlife & Countryside Act (1981) (as amended) are afforded a greater level of protection.
Great Crested Newt (GCN)	CRoW Act (2000) Conservation of Habitats and Species Regulations (2019) (EU Exit) Wildlife and Countryside Act (1981) (as amended)	Great Crested Newts (GCN's) are fully protected from disturbance, killing, injuring or possession at any life stage. Confirmed breeding ponds and resting places are afforded the same protection.
Invasive Plant Species	Wildlife and Countryside Act (1981) (as amended) The Invasive Alien Species (Enforcement and Permitting) Order 2019	Species listed within Schedule 9/Schedule 2 as invasive, including Japanese knotweed (*Reynoutria japonica*) and Himalayan balsam (*Impatiens glandulifera*), for example, carry notoriety regarding development. The Acts make it an offence for any person to grow or cause to grow in the wild any plants listed as invasive.
Reptiles	Conservation of Habitats and Species Regulations (2019) (EU Exit) - SL/SS Wildlife and Countryside Act (1981) (as amended) - SL/SS CRoW Act (2000)	All native reptile species have some degree of protection in the UK, through section 8(1) and (5) (specified in Schedule 5) of the Wildlife and Countryside Act 1981 (as amended). Sand lizard (SL) and smooth snake (SS) are species of principal importance however with greater protection(s).

Relevant Policy

2.4 Guidance for Local Authorities: Extract from Office of the Deputy Prime Minister – Circular 06/2005:

"It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision".

2.5 Paragraph 193 of the National Policy Planning Framework (as revised in December 2024) states:

When determining planning applications, local planning authorities should apply the following principles:

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

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

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

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

2.6 The Ribble Valley Borough Council Core Strategy (2008-2028) echoes the NPPF in key statement EN4, titled Biodiversity and Geodiversity, where it states:

"The council will seek wherever possible to conserve and enhance the area's biodiversity and geodiversity and to avoid the fragmentation and isolation of natural habitats ad help develop green corridors. Where, appropriate, cross-Local Authority boundary working will continue to take place to achieve this.

Negative impacts on biodiversity through development proposals should be avoided. Development proposals that adversely affect a site of recognised environmental or ecological importance will only be permitted where a developer can demonstrate that the negative effects of a proposed development can be mitigated, or as a last resort, compensated for. It will be the developer's responsibility to identify and agree an acceptable scheme, accompanied by appropriate survey information, before an application is determined. There should, as a principle, be no net loss of biodiversity."

Priority Habitats & Species

2.7 In the United Kingdom, legal protection and otherwise legislative recognition is afforded to particular habitats and species based on a variety of ecological factors. These are typically referred to as priority habitats and species and can be identified under a variety of legislation and local policy, notably the UK Biodiversity Action Plan (UKBAP), Section 41 (s.41) of the NERC Act as well as under Local Biodiversity Action Plans (LBAPS).

3.0 Methodology

3.1 As part of the ecological appraisal report, a desk-top and field-based study is conducted. Methods for both components of the appraisal are given below.

Desktop Study

3.2 Prior to a site visit, a desktop study was conducted using online resources to obtain information pertaining to any sites afforded statutory (e.g. SSSI) and non-statutory (e.g. LWS) designations for nature conservation within 2.0 kilometres of the site boundary. To do so, the Multi Agency Geographic Information for the Countryside (MAGiC – provided by DEFRA) was accessed to gather such information; this particular interactive mapping service was also used to locate any locally granted European Protected Species Mitigation Licenses (EPSML) and species records to further inform conclusions concerning such species in the context of the study site and its proposed development.

3.3 Historic satellite imagery was reviewed using sources such as Google Earth (© 2023/24) to help establish past use of the land and determine the nature of adjoining and extending habitats; such information aids in the understanding of how the site might interact with its surroundings ecologically and its value in that context, and how the development may impact at a wider scale.

3.4 In addition, the Ribble Valley Borough Council 'Search Planning Applications' online function was utilised to help inform the desktop study by analysis of existing publicly accessible ecological survey results that have been carried out locally within the previous five years.

3.5 A commercial data request to the Local Environment Records Centre serving the area, in this case Lancashire Environmental Records Network (LERN), has not been sourced at this time, with the combination of online EPSML data, extensive company records and the daytime survey data available to the ecologist considered to contain enough information in relation to the protected species likely to be present on site. **If, however, a data search is considered to be necessary by the Local Authority or advisory body to better inform the appraisal, a proportionate data search should be commissioned with results interpreted into the conclusions and recommendations of a re-issued / updated report.**

1) The Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK (CIEEM, 2020) states data searches in:

"*Situations where the data search would be extremely unlikely to provide information needed to inform the assessment, due to the scale and location of the proposed development. The appropriateness of excluding a data search will need to be judged on a case-by-case basis as, in most situations, it will be essential to carry out such a search even if the development is very small or is likely to have a low impact."*

Field survey

3.6 A daytime preliminary ecological appraisal was conducted on the 29th January 2025 in bright, cold and frosty conditions (4ºC), average wind 0/12 (Beaufort scale), average 0% cloud cover, by the following surveyor (see **Table 3.1** overleaf).

Table 3.1 – Site surveyor credentials

Name	Description of most relevant credentials
[redacted]	• An experienced Consultant Ecologist with 5 years professional training and experience; graduating with a BSc in Biology and MSc in Conservation Management (a course accredited by CIEEM) • Holds a FISC Level 4 (2022) • Certified in River Condition Assessment methodology (MoRPh Rivers) • Accredited agent on the Class 2 Natural England bat licence of Mrs K Wilding (CLS-14227) • Accredited agent on the Natural England Great Crested Newt: CL08 Class 1 Licence (2022-10653-CL08-GCN) of Mr. J. Pescod. • Meets 'Capable' requirement within the CIEEM Competency Framework • Trained in UK Habs / Statutory Metric condition assessments
[redacted]	• A Junior Ecologist with a range of training and experience; holds a BSc in Wildlife Conservation and MSc in Wildlife Conservation and Drone Applications. • Accredited agent on the Class 2 Natural England bat licence of Mrs. K. Wilding (CLS-14227) • Meets the requirements of CIEEM's Competency Framework Section S (surveying) to Capable level

Floristic assessment

Habitats

3.7 The survey followed the UK Habitat Classification Version 2.0 (UKHabs, 2023) methodology, which was introduced as the successor to the Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology standards (JNCC, 2010) in conjunction with the nationwide roll out of Biodiversity Net Gain. Survey techniques were also carried out with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Technical Guidance Series "Guidelines for Preliminary Ecological Appraisal, 2nd Edition" (CIEEM, 2017).

Vegetation

3.8 During the survey walkover, botanical assemblages were assessed, and the land was inspected for the presence of red-listed (Stroh et al., 2014; Hodgetts, 2011), s.41 and LBAP species alongside specially protected species as listed under Schedule 8 of the Wildlife and Countryside Act (WCA) (1981) (as amended) and / or Schedule 5 The Conservation of Habitats and Species Regulations (2017) (as amended). Species nomenclature follows Stace, C. (2019) – definitive English names.

3.9 In addition to attributing ecological value to red-listed / BAP species, in accordance with existing CIEEM guidance, a geographic frame of reference is also adopted. Plant species and habitats may be recognised for their ecological value on a geographical scale which is adopted on a site-to-site basis (*International – National – Regional – County/Vice-County – Local*). For botanical species list compiled in full, see **Appendix II**.

3.10 In combination with assessing the area in relation to flora and habitats of conservation importance, the land was also assessed in relation to the presence of invasive non-native species (INNS) as listed under Schedule 9 (Part II) of the Wildlife and Countryside Act (1981) (as amended) and Schedule 2 of The Invasive Alien Species (Enforcement and Permitting) Order 2019 (IASO).

Faunal assessment

3.11 During the site walkover, direct presence and / or evidence of priority fauna encountered was documented, whilst in tandem the area was assessed for the potential to support the priority species discussed in **Section 6.0**. The walkover also aimed to identify any ephemeral pools or unmapped waterbodies.

Bats

3.12 Criteria for preliminary bat roost assessment are based upon the determinants given in the Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023) (see **Figures 3.1 – 3.3**).

3.13 The site was assessed for bats; a daytime bat walkover (DBW) was undertaken to observe, assess and record any habitats or features suitable for usage by bats, either as commuting, foraging or roosting provision. Wider connectivity to other habitats was also considered during the DBW.

3.14 Buildings and other permanent / semi-permanent structures (where present) would be subject to a preliminary roost assessment (PRA), to identify potential areas which may be of value to bats and to determine evidence of use. This typically involves a systematic search of the external aspects of any structure(s), comprising an investigation of features known to be used by bats (for example roofing material, soffits, fascia, lead flashing hanging tiles) using a high-powered torch and close-focus binoculars, where necessary. Where possible, an internal assessment of the structure was also carried out, with the aid of a high-powered torch and endoscope, where necessary, to identify any evidence of bat use of a structure. Field signs of bats typically comprise bat droppings, urine splashing, fur-oil staining, incidental animal presence, dead specimens and / or the presence of prey items, such as moth wings.

3.15 Trees (where present) would be subject to a ground level tree assessment (GLTA) using equipment such as close-focus binoculars and a high powered-torch. Potential roost features (PRFs) can include woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed lifted bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached climbing species with stem diameters in excess of 50mm or pre-existing bat / bird boxes. These PRFs can then be determined as PRF-I or PRF-M, dependent on their suitability for individual / low numbers of bats or their capability to host multiple bats.

3.16 Factors considered during the preliminary roost assessment include:

- Practical experience of the surveyor,
- Knowledge of bat species relevant to the site location and geographical range,
- Nature of the immediate / surrounding habitat in relation to foraging opportunities,
- Presence / absence of roost potential,
- Value and types of roost potential, if present (i.e. – maternity, hibernation, transitional).

Table 4.1. Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.

Potential suitability	Description	
	Roosting habitats in structures	**Potential flight-paths and foraging habitats**
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible[a]	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[b] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats[c]).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions[b] and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions[b] and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

a Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).

b For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

c Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2016 and Jansen *et al.*, 2022). Common pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.

Figure 3.1 – *BCT guidelines extract*

Table 4.2. Guidelines for assessing the suitability of trees on proposed development sites for bats, to be applied using professional judgement.	
Suitability	**Description**
NONE	Either no PRFs in the tree or highly unlikely to be any
FAR	Further assessment required to establish if PRFs are present in the tree
PRF	A tree with at least one PRF present

Figure 3.2 – *BCT extract on tree roost suitability criteria*

Table 6.2. Guidelines for categorising the potential suitability of PRFs on a proposed development site for bats, to be applied using professional judgement.	
Suitability	**Description**
PRF-I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

Figure 3.3 – *BCT extract on tree roost categorisation criteria*

Birds

3.17 The site was inspected for evidence of nesting and suitability for relevant species. Bird species observed and heard were recorded on site, and a search was made for nest material, or areas suitable for nesting – this can take the form of searching structures, woody vegetation, semi-aquatic vegetation such as reeds and / or ground flora. Elevations of any buildings or structures on site were inspected for evidence of birds that show a high dependency upon built structures, many of which are in a state of decline. These might include the following species for example (list non-extensive):

- House martin (*Delichon urbica*): Birds of Conservation Concern (BoCC) red status,
- House sparrow (*Passer domesticus*): BoCC red status,
- Starling (*Sturnus vulgaris*): BoCC red status,
- Swift (*Apus apus*): BoCC red status.

3.18 Additional to the site's capacity to support generally common species for breeding, the area was also subject to an assessment for wider capacity to support species with extra protection under Schedule 1 of the Wildlife & Countryside Act (1981) (as amended) and other priority species.

Other terrestrial mammals

3.19 The walkover included an assessment for the presence / suitability of badger (*Meles meles*), which includes signs of activity such as prints, hairs, digging, setts, 'runs' leading to and from a sett and the existence of latrines or 'snuffle' holes where badgers have foraged in the ground.

3.20 The site was also assessed for the presence of / suitability for European hedgehog (*Erinaceus europaeus*) and other priority mammals.

3.21 The site was also assessed for the presence of / suitability for brown hares (*Lepus europaeus*).

3.22 The site was assessed for field signs for the presence of otters (*Lutra lutra*) and water voles (*Arvicola amphibius*) due to the presence of the watercourse 140m north of the site. This included field signs such as latrines, feeding remains, otter spraints and couches/resting places.

Herpetofauna

3.22 During desktop assessment, a 250 metres radial search was undertaken from a site central grid reference in relation to the presence of ponds, ditches or other water bodies that may support great crested newt (GCN) (*Triturus cristatus*). The information gathered would then be used to aid in establishing if more detailed surveys are required.

NB: *English Nature's (now Natural England) Great Crested Newt Mitigation Guidelines (2001) states ponds within 500m of a proposed development site should be considered for their potential to support GCN, however, in some instances this distance may be reduced to 250m due to the presence of physical barriers and obstructions or based on the likely magnitude of impacts arising from the proposed development.*

3.23 Following current best practice considering the partial roll out of District Level Licencing (DLL) across England and based on likely effects, a proportionate assessment of the water bodies range within 250m from site has been applied. Where a development is anticipated to affect GCN the search can be extended up to 500m or more.

3.24 The site and surrounding habitats were also assessed relative to their potential to offer suitability for wider, generalist amphibians, in addition to GCN, for example common toad (*Bufo bufo*) and common frog (*Rana temporaria*).

3.25 The site and its surroundings were assessed for suitability for use by reptiles, with particular attention paid to features that could be used as basking areas (*e.g.* south-facing slopes), hibernation sites (*e.g.* banks, walls, leaf litter, piles of hardcore) and opportunities for foraging (*e.g.* rough grassland and scrub). Beebee & Griffiths (2000) state specific habitat preferences of common UK reptiles:

- Common lizard (*Zootoca vivipara*) use a variety of habitats from grassland, woodland glades to heaths, walls and pastures, as well as brownfield sites,

- Slow worm (*Anguis fragilis*) use a variety of habitats, similar to the common lizard, however are more associated with gardens and brownfield sites.

3.26 In assessment of a site for reptiles several important habitat characteristics are considered, outlined in **Table 3.2** below, as derived from the Reptile Habitat Management Handbook (Edgar, 2010).

Table 3.2 – Important habitat characteristics for reptiles

1. Location (in respect of species range)	**7. Connectivity to good quality habitat**
2. Vegetation structure	**8. Prey abundance**
3. Insolation	**9. Refuge opportunity**
4. Aspect	**10. Hibernation habitat potential**
5. Topography	**11. Disturbance regime**
6. Surface geology	**12. Egg-laying site potential**

Invertebrates

3.27 The site was assessed for the presence of features that should be considered of high value to invertebrates. Several important features were considered, based on the assemblage descriptions provided within the Research Report "Surveying terrestrial and freshwater invertebrates for conservation evaluation" (NERR005, 2007), including but not limited to:

- Wood decay,
- Early successional mosaic habitat,
- Shaded ground layer,
- Still and flowing water.

Quality Assurance (QA)

3.28 The results, conclusions and recommendations of this report are based on a number of factors i.e.

- Skills and experience of the surveyor,
- Knowledge of flora and fauna relevant to the site location and geographical range,
- Nature of the immediate and surrounding habitat in relation to shelter, foraging and commuting opportunities.

3.29 The results, conclusions and recommendations of this report have been assessed by [redacted] Director of Tyrer Ecological Consultants Ltd, and her assessment concurs with the findings and recommendations of the surveyors [redacted].

4.0 Limitations

4.1 This report does not contain a comprehensive list entailing the totality of botanical taxa on site. Species listed within **Appendix III** are recorded from a combination of the seasonal timing that the survey took place and botanical identification skills of the surveyor. Many plant species are only evident at certain times of the year; consequently, it is possible that some plant species may have gone undetected.

4.2 The optimal time of the year to carry out a preliminary ecological appraisal / UK Habitats survey is April to October; the survey was therefore carried out within a sub-optimal period. It is considered, however, that enough information was gathered during the diurnal appraisal on which to base ecological conclusions and recommendations, based on the habitat types encountered presenting no significant issues in such regard.

4.3 The survey took place outside of both the active bat season and the breeding bird season; whilst sub-optimal, survey timing is not considered a constraint in this instance as evidence of both of these species is evident all year round and suitability can be assessed by a competent surveyor at any time of the year.

4.4 No internal access to any of the buildings was possible on the day of the survey, which are to be demolished as part of the proposals; as such, it was not possible to ascertain the internal character of the structures. While this is accepted as a limitation, based on the evidence encountered it is considered that enough information was gathered from the diurnal assessment to ascertain the structures' suitability to support bats.

4.5 In considering possible survey constraints, no significant limitations were experienced that might adversely influence the results, conclusions, and recommendations of this report.

5.0 Desk Study Results

5.1 Land off Pendle Street East (referred to in-part as "the site") is located within the village of Sabden, approximately 5.7km south-east of Clitheroe town centre and broadly comprises an area of grassland, two disused buildings and an access road. The site has an estimated total area of 0.60 hectares (ha) (see **Figure 5.1** below for location of the site within the surrounding landscape).

Figure 5.1 – *Location of the site (red boundary) within the surrounding landscape (© Google Earth Pro 2022/23)*

5.2 The immediate environment is rural and predominantly made-up of a mixture of woodland, agricultural land, livestock pasture and upland habitat with some scattered settlements throughout. The landscape is intersected by a patchwork of country roads, hedgerows / field boundaries and waterbodies such as the River Calder located 4.0km west of the site and Sabden Brook situated 0.1km north of the site as well as Churn Clough Reservoir situated 1.2km to the north. Outside of Sabden village the closest settlements are Higham, located 2.7km east, and Simonstone, located 2.7km south of the site.

Relevant Planning History

5.3 A search of the Ribble Valley Council planning portal revealed that aside from the current application there were no other planning applications listed for the site. There are a number of other applications along Pendle Street, mostly pertaining to housing extensions and alterations. No ecological documentation has been provided as part of any of these applications.

Designated sites

5.4 There is one statutory designated site for nature conservation within 2.0km of the site (See **Table 5.1** for details and **Figure 5.2** for a visual aid).

Table 5.1 – Statutory designation type and reason for designation within 2.0km buffer

Site name	Designation type	Interest features
Forest Of Bowland (Site situated within AONB)	Area of Outstanding Natural Beauty (AONB)	The Forest of Bowland National Landscape is of national and international importance because of its unspoiled and richly diverse landscapes, wildlife and heritage, with outstanding heather moorland, blanket bog and rare birds. The fells are exceptionally important as a habitat for upland birds such as golden plover, hen harrier, merlin and ring ouzel and also includes habitats such as peatland, heather moorland, meadows, and Atlantic oak woodlands. Bowland is essentially upland country forming part of the Pennines, sharing many of the characteristics of other upland areas like the Peak District and Yorkshire Dales National Park. The fells' fringe of foothills is dissected by steep-sided valleys which open out into the rich green lowlands of the Ribble, Hodder, Wyre and Lune Valleys.

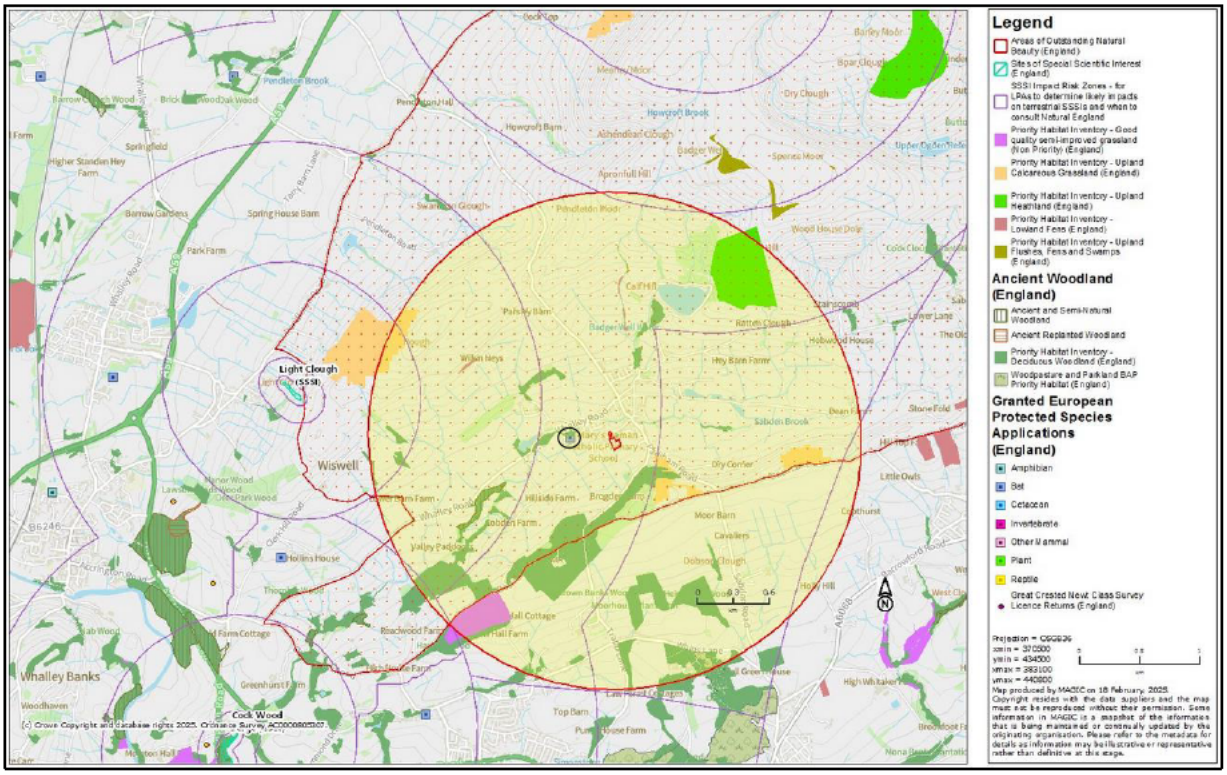

Figure 5.2 – EPSML, priority habitat and designated site data for the area within 2.0 kilometres of the application site; black circling shows granted bat EPSMLs (*Source: MAGiC Maps 2024*)

5.5 The site lies within the impact risk zone (IRZ) of Light Clough SSSI. Based upon the IRZ information available on MAGiC Maps, it is considered highly unlikely that the application will trigger the need for further consultation with Natural England (NE) in respect of designated sites.

5.6 Where no impact to SSSI's is predicted, NE issue the following advice within their standing guidance on SSSI impact zones (NE, 2019):

"*It is important to note that the SSSI IRZs only indicate Natural England's assessment of likely risk to the notified features of SSSIs. Where they indicate such a risk is unlikely, this does not mean that there are no potential impacts on biodiversity or the wider natural environment.*"

5.7 There are a number of Biological Heritage Sites (BHS) within proximity to the site including Black Hill, The Rough, Pendle Hill, Lower Barn Wood, Read Heights Pasture and Huntroyde Demesne. Due to the nature of the development, it could feasibly increase residential disturbance to these sites.

Habitats

5.8 An online search of MAGiC Maps identified the following priority habitats within a 2.0km search radius (see **Table 5.2**).

Table 5.2 – Priority habitats located within 2.0km buffer

Habitat Type	Designation	Distance to site
Ancient Woodland	Ancient & Semi-natural Woodland	1.0km west
Deciduous Woodland	Priority Habitat Index	320m north-west
Good Quality Semi-Improved Grassland	Non-priority Habitat	1.6km south-west
Lowland Fen	Priority Habitat Index	1.3km north-west
Upland Calcareous Grassland	Priority Habitat Index	340m south-east
Upland Flushes, Fens & Swamps	Priority Habitat Index	1.5km north
Upland Heathland	Priority Habitat Index	1.5km north-east
Wood Pasture and Parkland BAP	Priority Habitat Index	1.9km south

Vegetation

5.9 The site is positioned within a **high** zone of the 'summarised botanical value map 2022' on MAGiC Maps, valued as high within the categories for woodland habitats. However, no indicators for Rare, Scarce and Threatened (RST) botanical species or notable species assemblages were found on site.

Bats

5.10 An online search of MAGiC maps revealed that one European Protected Species Mitigation Licence (EPSML) has been granted within a 2.0-kilometre radius of the application (see **Table 5.3** below for further information).

Table 5.3 – EPSML data records from MAGiC Maps

Licence Number	Distance from Site	Context (where relevant)
2018-37642-EPS-MIT	0.3km west	Common pipistrelle, soprano pipistrelle; destruction of a resting place.

5.11 While the site lies on the outskirts of Sabden Village which is likely subject to artificial lighting due to street lighting and house lights, the site itself, particularly the grassland, is likely to be mostly dark and un-illuminated as it leads into the rural surrounding environment. The scattered trees, hedgerows, woodland and the nearby Sabden Brook do provide a network of

commuting corridors and foraging habitats within the wider landscape and may allow bats to traverse to other areas of foraging habitats and roost sites. The species considered most likely to exist within proximity are the common pipistrelle (*Pipistrellus pipistrellus*), typically linked with roosting in occupied dwellings, as well as the Daubenton's (*Myotis daubentonii*), which is more commonly associated with waterbodies and semi-natural habitat.

Birds

5.12 The site falls within the 'grassland assemblage farmland birds' layers on MAGiC Maps which indicates the presence of rare or declining grassland bird species. The species present within this area include curlew (*Numenius arquata*), and lapwing (*Vanellus vanellus*). The AONB is also designated as an Important Bird Area under BirdLife International which are sites that are important for species that congregate in large numbers or species of global or European conservation concern.

5.13 Given the patchwork of different habitats within the environment such as woodland, upland grassland, upland heathland and habitat features such as ponds, brooks and agricultural land, a wide variety of bird species are considered likely to exist within the landscape around the site; from birds of prey like kestrel (*Falco tinnunculus*) and tawny owl (*Strix aluco*), to grassland species such as meadow pipit (*Anthus pratensis*) and skylark (*Alauda arvensis*), along with common woodland and wetland species.

Terrestrial mammals

5.14 There are numerous patches of connected deciduous woodland with areas of ancient woodland further west of the site that could provide suitable habitat for badger (*Meles meles*), with the surrounding land providing connectivity via hedgerows and tree lines through the area. It is therefore highly possible that this species is present within the area.

5.15 The agricultural land, woodland, hedgerows and tree lines provides abundant suitable habitat for European hedgehog (*Erinaceaus europaeus*) providing ample foraging, commuting and hibernation opportunities. This species is also likely to be present in the area.

5.16 The agricultural land and abundant grassland around the site provides suitable habitat for brown hare (*Lepus europaeus*) and it is likely that this species is present within the surrounding environment.

5.17 The nearby Sabden Brook along with its tributaries may provide suitable commuting habitat for otter in the local environment, however, due to its shallow depth it is unlikely to provide many foraging opportunities or opportunities for holts. The urban development between the brook and the site reduces the connectivity between these areas, as such it is considered unlikely for otters to be utilising the site even for commuting purposes. No impacts are therefore considered likely to this species as a result of the proposed development.

5.18 Due to its gentle sloping banks and urbanised surroundings, the nearby section of the Sabden brook is considered broadly unsuitable for water vole; furthermore, due to the distance from and limited connectivity to the site, impacts to this species can be reasonably ruled out.

Amphibians

5.19 A search of MAGiC maps EPSML layer showed no records of granted EPSMLs in relation to great crested newts (GCN) within a 2.0km radius of the site, as well as no results for GCN Survey License Returns or GCN Pond Surveys within 2.0km of the site.

5.20 Using Google Earth Pro 2022/23, MAGiC Maps 2022/23 as well as Ordnance Survey (OS) map data, a single pond was identified within 250m of the site (see **Figure 5.3**) which has

been noted in previous ecological documentation as being unsuitable due to domesticated wildfowl present. Due to the lack of records and connected pond networks, the area is considered unlikely to be suitable to host a breeding population of GCN.

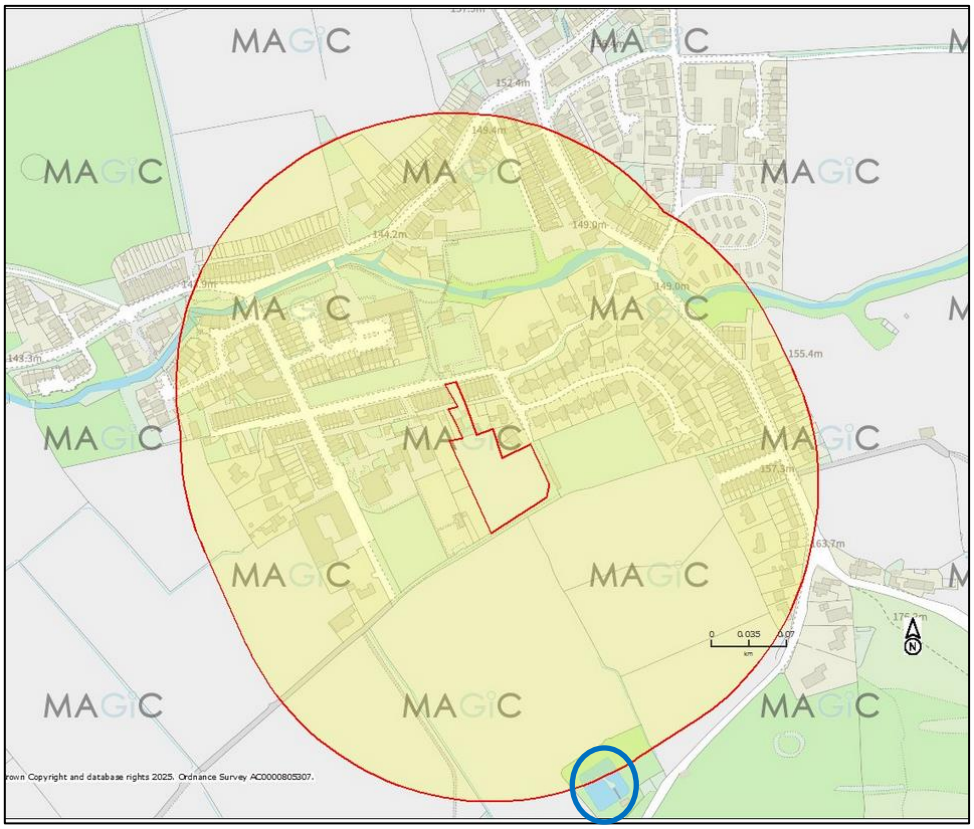

Figure 5.3 – Pond located within 250 metres of the site, highlighted in blue

5.21 With the presence of the Sabden Brook and its tributaries in the surrounding environment, as well as the abundant semi-natural terrestrial habitat such as tussocky grassland and hedgerows, there are likely abundant opportunities for foraging and shelter for common species of amphibians such as common frog and common toad. These species are likely to be present in the area.

Reptiles

5.22 MAGiC Maps shows the presence of upland heathland, upland calcareous grassland and ancient woodland within proximity to the site, which are all habitats that are favoured by reptile species such as slowworm, adder and common lizard and as such these species are likely to be present in the area. The nearby Pendle Hill BHS in particular has suitable habitat and a variety of ecotones for reptile species; however, livestock grazing pastures and urban area of Sabden within the environment may limit the connectivity of the area as a whole.

Invertebrates

5.23 As stated above, the ancient woodland and the Sabden Brook within the wider environment as well as the deciduous woodland and upland calcareous grassland in close proximity to the site all provide suitable habitats and features to support specially protected invertebrate species as well as notable assemblages.

6.0 Field Survey Results

6.1 Habitat survey

6.1.1 See **Table 6.1.1** (below) for baseline information and habitat descriptions of the red line boundary; refer to **Appendix I** for any supporting imagery; scientific names are given in **Appendix II**. Refer to **Appendix IV** – UK Habitats Map for the location of described habitats & Target Notes (TN).

Table 6.1.1 – UK Habitat types within the survey area

Area habitat	Sec. Codes	Description
g3c8 Holcus – Juncus neutral grassland	**128** Tussocky sward	Much of the red line boundary is made up of a neutral grassland which corresponds strongly with the NVC community MG10 sub-community B, with notably wetter areas dominated by soft-rush (*Juncus effusus*). The grassland is dominated by Yorkshire-fog (*Holcus lanatus*) with other graminoids such as creeping bent (*Ranunculus repens*), false oat-grass (*Arrhenatherum elatius*), cock's-foot (*Dactylis glomerata*), tufted hair-grass (*Deschampsia cespitosa*), sweet vernal-grass (*Anthoxanthum odoratum*) and rough meadow-grass (*Poa trivialis*). Other species found include creeping buttercup (*Ranunculus repens*), common sorrel (*Rumex acetosa*), *iris sp.*, hairy sedge (*Carex hirta*), and dandelion (*Taraxacum* agg.).
g4 Modified grassland	-	A small area of modified grassland located at the north of the site around the buildings. The species found include creeping bent, Yorkshire-fog, creeping buttercup, broad-leaved dock (*Rumex obtusifolius*), bramble (*Rubus fruticosus* agg.), willowherb (*Epilobium sp.*), and soft-rush.
h3d Bramble scrub	-	There are three patches of dense bramble scrub situated around the site.
u1b5 Buildings	-	Two buildings, a garage and a Nissen hut, are located within the red line boundary to the north of the site. See Section 6.3 for further descriptions of the buildings in relation to bats.
u1b6 Other developed land	-	An area of hardstanding for the access road onto the site.
Individual Trees	-	There are ten total individual trees located onsite along the western fence line leading into the bramble scrub with eight achieving 'moderate' condition. The species found include beech (*Fagus sylvatica*), willow (*Salix sp.*), silver birch (*Betula pendula*) and crab-apple (*Malus sylvestris*). These have been labelled from T1 –T6, T8 & T10.
Individual Trees	-	There are a total of two trees onsite that achieve 'good' condition, a willow and a crab-apple tree, located along the western site boundary. These trees are T7 & T9.

Target Notes	
1	Wetter areas dominated by soft-rush
2	Power Line / transformer
3	Small area of bracken (*Pteridium aquilinum*)
4	Old stone wall
5	Area of tall willowherb

6.2 Vegetation

Notable species

6.2.1 No species of conservation importance were located anywhere within the works area or wider site boundary during the appraisal.

Invasive non-native species (INNS)

6.2.2 No INNS, listed as such under Schedule 9 (Part II) of the Wildlife & Countryside Act (1981) or Schedule 2 of The Invasive Alien Species (Enforcement and Permitting) Order 2019 (IASO) were identified on site during the diurnal appraisal.

6.3 Bats

6.3.1 There are two buildings located within the red line boundary, one is a detached garage (**B1**), and the other is a Nissen hut (**B2**). See **Figure 6.3.1** for the location of the structures in relation to the site boundary, **Table 6.3.1** describes each building in relation to its suitability to offer roosting potential for bats (both externally and internally, where access allowed) and further information regarding evidence or lack of evidence of bats, where applicable.

Figure 6.3.1 – *Location of buildings in relation to site boundary (Adapted from Google Earth Pro 2024/2025)*

Table 6.3.1 – Building descriptions at the application site

B1 - Garage
Building 1 is a currently unused detached garage structure that will be removed as part of the development. It is a single storey brick-built structure with a mono-pitched, slate tiled roof with timber fascia and UPVC windows and doors. The building has the approximate maximum dimensions of 8m x 5m x 2m (length x width x height). In respect of its condition, the surveyor is not qualified to assess structural state; however, the aesthetic condition of the building was adjudged to be average, with some age-related wear to the roof and the exterior paint. Internally, no access was possible and no view through the window was available as it had been painted to obscure the view. As such it was not possible to ascertain whether the structure has a loft void or the thermal character of the loft void if present, however, due to the function of building as a garage, it is unlikely to contain a loft void. It is therefore considered likely that the space is unsuitable for the breeding purposes of loft-dwelling bat species such as the brown long-eared bat (*Plecotus auritus*); this species requires dark, consistently warm, open loft spaces with room for free flight to raise their young. This does not necessarily preclude use of the building by such species for purposes other than breeding, however, no meticulous search for evidence could be undertaken internally. It is also unknown whether any roof lining is present beneath the roof tiles; where present, a bitumastic underfelt can typically improve the value of a building for bats whereby they roost between the roofing cover and the underlining. **NB:** *The breeding roosts of Pipistrelle bats are proportionally higher in occupied residential dwellings where the warm, dry conditions favour the requirements of a maternity colony but other structures are also used, especially for hibernation or by male bats which do not need the same conditions as a maternity colony.* Externally, several PRFs are present, particularly in the form of lifted verge tiles on the eastern elevation, slipped tiles on the northern elevation and gaps behind the timber fascia board on the northern elevation. Given the presence of suitable PRFs and good value habitat in proximity to the site, B1 is duly categorised as pertaining to '**Moderate**' bat roost suitability, in accordance with Bat Conservation Trust (BCT) – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023).
B2 – Nissen Hut
Building 2 is a currently unused, detached Nissen hut style building. It is single storey building with a curved roof constructed with a corrugated concrete/asbestos mix. It has the approximate maximum dimensions of 10m x 6m x 2m and features timber doors and windows. The aesthetic condition is adjudged to be in average condition, with some age-related wear to the paint and timber frames. Internally, no access or view into the building was possible, however due to the nature of the building it is unlikely to have a loft void, but the internal conditions cannot be ascertained. Based on the features and nature of the building, it is considered likely that the structure does not have any underlining beneath the roof cover, and that it lacks thermal retention capacity. Based on the above, the structure is considered broadly unsuitable for both loft and crevice-dwelling species, with a likely absence of suitable roosting features. No suitable PRFs for bats were observed anywhere externally on the building. Based on the absence of PRFs, the structure B2 is duly categorised as pertaining to a bat roost suitability of '**None**', in accordance with BCT guidelines, 4th ed. (2023).

6.3.2 During the (GLTA), only one tree, a small crab-apple (T10), was noted to have a PRF in the form of a large rot hole/ crack in the trunk. However, this feature is surrounded by dense bramble scrub restricting flight to and from this feature. As such this feature and the tree can be discounted as a PRF and none of the other trees were noted to have any other obvious PRFs by the surveyors. Therefore, all of the trees onsite are categorised as pertaining to a bat roost suitability of '**None**'.

6.3.3 From a habitat suitability assessment in relation to bat activity, the habitats onsite are likely to hold moderate value for bats, with the grassland, especially the wetter areas, providing some foraging value for invertebrate prey, and with the individual trees also providing moderate foraging value and acting as part of a commuting corridor to areas of woodland in the wider area. The presence of bats within the site boundary for foraging and commuting purposes is considered likely, though the site is not considered to be locally notable given the abundance and variety of semi-natural habitats present in the wider environment.

6.4 Breeding birds

6.4.1 In relation to WCA Schedule 1 (Sch 1) specially protected bird species such as barn owl, no evidence, current or historic, of this species was identified anywhere within the red line boundary and neither of the buildings onsite provide any roosting potential, although the habitats present onsite are considered suitable for hunting purposes for this species. However, in regard to other Sch 1 species, the site may provide suitable habitat for fieldfare (*Turdus pilaris*) or redwing (*Turdus iliacus*), both of which are over-wintering birds that prefer scrub, grasslands and hedgerows and can be found foraging primarily on fruit, berries and occasionally insects.

6.4.2 In relation to more common breeding birds, no evidence of current or historical nesting was identified within the red line boundary, however, the site contains a number of suitable nesting platforms such as the bramble, the individual trees, the large crack in T10, as well as the grassland being potentially suitable for ground nesting birds.

6.4.3 The following bird species were observed during the survey (**Table 6.4.1**).

Table 6.4.1 – Bird species encountered within the surroundings of the site

Common Name	Scientific Name	Status (BoCC)
Dunnock	*Prunella modularis*	Amber
Greenfinch	*Carduelis chloris*	Red
House sparrow	*Passer domesticus*	Red
Robin	*Erithacus rubecula*	Green
Rook	*Corvus frugilegus*	Amber
Starling	*Sturnus vulgaris*	Red
Wren	*Troglodytes troglodytes*	Amber

S.41 - a bird listed on section 41 of the Natural Environment Rural Communities Act 2006 (NERC Act)
LBAP - A local biodiversity action plan listed species
Q - Qualifying species of nearby SSSI site(s)
BoCC – Birds of conservation concern, Amber or Red, Red being the highest conservation priority, with Green being of no concern

6.5 Other terrestrial mammals

6.5.1 Mammal runs were located at the southern end of the site along the fence line, however, there were no other identifiers to determine which species they belonged to.

6.5.2 No other field signs were located to suggest the presence of badgers, including any setts, latrines, hairs, footprints or feeding signs such as snuffle holes and scratched trees/logs. With the woodland located to the south of the site, badgers are likely to be present in the area and the grassland onsite provides some value particularly for commuting through the landscape. There is potential for this species to utilising the site.

6.5.3 In respect of hedgehogs, whilst no direct evidence was located to suggest presence of this species, the habitat features present within and in close proximity to the application site provide suitable commuting and foraging opportunities for this species, in the form of tree lines and hedgerows for connectivity and the nearby woodland habitats for foraging and refuge, therefore the presence of this species onsite is considered highly likely.

6.5.4 No evidence of brown hare was noted during the diurnal visit; however, the arable and grassland areas surrounding the site are considered broadly suitable for this species and their occasional presence on site is likely.

6.6 Herpetofauna

Great crested newt (GCN)

6.6.1 Important elements to consider when assessing likely impacts against GCN includes:

- The scale, nature and magnitude of proposals,
- Site proximity to a potential breeding pond and to any additional ponds,
- Habitat linkage / barriers between potential breeding ponds and the site,
- Nature and extent of available terrestrial habitat around the pond,
- Area of site habitat loss,
- Nature of habitat to be lost and potential value to GCN,
- Most up to date Government guidance considering EPS.

6.6.2 As derived from the desktop assessment:

- No granted EPSMLs for GCN within 2.0 kilometres,
- No 'Present' Class Survey Licence Returns within the search range,
- No 'Present' ponds survey within the considered search range (Great Crested Newt Pond Surveys 2017 - 2019),
- One waterbody previously identified as unsuitable for GCN within 250 metres of the site.

6.6.3 No ponds exist within the proposed red line boundary.

6.6.4 The terrestrial habitat onsite is of good quality for GCN, as the sward height is fairly tall and tussocky with very little management which provides vegetation cover for commuting. The neighbouring hedgerow and tree line onsite also provides commuting connectivity to other areas of suitable habitat, however there is no pond network within the wider environment for GCN to commute between.

6.6.5 Although the terrestrial habitats onsite are considered broadly suitable for GCN, due to the lack of a functional pond network and the lack of records of GCN within the wider environment, it is unlikely that the species is present in the area and impacts are considered to be negligible.

Wider herpetofauna

6.6.6 The presence of more generalist, robust common amphibians including common frog and common toad is considered fairly likely onsite; the wetter, tussocky grassland provides good terrestrial cover, with the hedgerows and tree lines providing connectivity and common amphibians are more likely to utilise the nearby Sabden Brook and its tributaries that run through much of the local landscape.

6.6.7 Though the application site has a north-facing aspect, an old stone wall within the site boundary has a south-facing aspect and is host to numerous gaps between the stonework which could provide suitable shelter for hibernation and refuge, as well as basking opportunities. The habitats on the site form mosaics at their intersections, with scrub grading into tussocky grassland with occasional wetter areas, suitable for hunting and likely host to prey species including amphibians, small mammals and invertebrates.

6.6.8 The application site has connectivity to extensive areas of marshy rush pasture to the south, extending to blocks of woodland, and areas of calcareous upland grassland to the south-east, which collectively provide additional habitat that would be suitable to host populations of reptiles. No reptiles were identified during the survey, though this is often the case without targeted surveys even where such species are present due to their cryptic nature. Given the presence of suitable habitat on site and in the immediate surroundings, the presence of reptiles within the application site boundary is continued possible.

6.7 Invertebrates

6.7.1 The mixture of habitats onsite including the wetter grassland, bramble scrub, individual trees and scrubby stone wall all provides abundant opportunities for a range of different invertebrates. The site likely hosts a well developed and diverse population of invertebrates; however, these habitats are all locally abundant and it is unlikely that the site hosts specially protected species or a locally notable species assemblage.

7.0 Conclusions & Recommendations

Designated Sites

7.1 The site is positioned within the Impact Risk Zone (IRZ) of Light Clough SSSI at a distance of approximately 2.6km to the west.

7.2 Based upon the IRZ information available on MAGiC Maps, the site does not meet any of the threshold criteria which would require further consultation with Natural England (NE). Given the spatial separation between the site and the designated site, recreational impacts upon the SSSI are unlikely.

7.3 As there are a number of Biological Heritage Sites (BHS) within the local environment which may be impacted by increased recreational disturbance. It is therefore recommended that all new residents/tenants will be supplied with an information pack/leaflets containing measures to reduce their impact on these BHS's and other designated sites in the area. The leaflet could include, but not be limited to:

- Identification of Suitable Accessible Natural Greens Spaces (SANGs) to disperse recreational pressures from nearby sites;
- Measures to minimise disturbance of wildlife, including avoidance of nesting birds, avoidance of fires and dog-fouling, collection of litter; and
- Measures to minimise impacts of domestic cats such as the use of bells and/or other collar mounted anti-predation devices, limiting of access to outdoor areas, and erection of exclusion fencing around private gardens to prevent egress, for example.

Habitats

7.4 No habitats of conservation importance were identified on the application site.

Vegetation

7.5 No impacts are anticipated in relation to any priority vegetative species or communities currently.

7.6 No INNS were identified within the application site boundary or within its immediacy.

7.7 Any landscaping or planting carried out during the works should consider local soil types and habitats, and as such should prioritise species which will better tolerate the soil type present on site and provision for faunal species present in the immediacy; a list of possible suitable species is listed in **Appendix IV**.

Bats

7.8 Based upon the findings of the DBW and associated GLTA, covered through sections 5.0 – 6.0 of the report and supported by Appendix I, the garage structure B1 is determined to pertain to a bat roost suitability of '**Moderate**', in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023). See **Figure 7.1** overleaf for a BCT guidelines extract.

Table 7.2. Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability or PRF-I	Moderate roost suitability	High roost suitability or PRF-M
One survey visit. One dusk emergence survey[a] (structures). No further surveys required (trees).	Two separate dusk emergence survey visits[b].	Three separate dusk emergence survey visits[b].

Figure 7.1 – *BCT extract on 'Low' suitability criteria*

7.9 It is recommended that **two dusk emergence surveys** are conducted at B1, in order to establish if, and if so, how the building is being used by bats, identify the species present, abundance, roost locations and flight lines around the site following emergence. **Three surveyors** would be required to adequately monitor all elevations of the building that were identified as containing bat roost potential during the daytime inspection and assessment.

7.10 No further surveys are required at B2, which was categorised as '**None**' in accordance with BCT guidelines (see **Figure 7.2** below).

Potential suitability	Description Roosting habitats in structures
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).

Figure 7.2 – *BCT extract on potential suitability criteria of 'None'*

7.11 The applicant should be aware that, if during further surveys, evidence is gathered that confirms bat(s) or their roost(s) are found onsite and will be impacted upon, then a Protected Species license may be required to legally commence with the proposals.

7.12 Natural England provides information and guidance about licensing and the following extract is included in that guidance:

"If you intend to apply for a licence for development, you are advised to seek the guidance of a consultant ecologist. Natural England's view is that a licence is needed if the consultant ecologist, based on survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is reasonably likely to result in an offence under the Conservation of Habitats & Species Regulations 2019 (as amended).

If the consultant Ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is reasonably unlikely to result in an offence being committed then no licence is required. However, in these circumstances Natural England would urge that reasonable precautions be taken to minimise the effect on European protected species should they be found during the course of the activity. If European protected species are found, cease the work until you have assessed whether you can proceed without committing an offence. A licence should be applied for if an offence/s is unavoidable, and the work should not commence until a licence is obtained.

The application should be completed by the developer and a consultant ecologist. The ecologist will need to be able to demonstrate to the satisfaction of Natural England that they have the relevant skills and knowledge of the species concerned."

7.13 Where more detailed bat surveys are recommended by the Ecologist, following an initial daytime investigation, the Local Planning Authorities, on the advice of their ecological advisors, may not determine the application until such time that all relevant information is gathered, i.e., by conducting dusk / dawn surveys. The advice that is provided by the ecological advisors is also in accordance with the obligations placed upon Local Authorities by way of its duties under the Conservation of Habitats & Species Regulations 2019 (as amended).

7.14 During the GLTA, each of the trees onsite was assessed to pertain to a bat roost suitability of '**None**' in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023) (see **Figure 7.3**). No further surveys are necessary in relation to the trees.

Table 4.2. Guidelines for assessing the suitability of trees on proposed development sites for bats, to be applied using professional judgement.

Suitability	Description
NONE	Either no PRFs in the tree or highly unlikely to be any
FAR	Further assessment required to establish if PRFs are present in the tree
PRF	A tree with at least one PRF present

Figure 7.3 – *BCT extract on tree roost suitability criteria*

7.15 Installation of overly harsh artificial lighting as part of any development that exceeds current levels may have a negative impact upon foraging / commuting bats in the landscape, subject to their presence, particularly if increased light spillage occurs in areas of that are currently free from illumination. A bat-sensitive lighting plan is therefore recommended in order to avoid potential impacts to bats that may use the area. Several options to consider have been listed below, though the reader is referred to the Bat Conservation Trust's 'Bats and Artificial Lighting at Night' guidelines (August 2023) for further information:

Appropriate luminaire specifications: Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires.

All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used. LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability. Lighting should be directed to where it is needed, and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only. Planting can also be used as a barrier or manmade features that are required within the build can be positioned so as to form a barrier.

Predicting where the light cone and light spill will occur: There are lighting design computer programs that are widely in use which produce an image of the site in question, showing how the area will be affected by light spill when all the factors of the lighting components listed above are taken into consideration. This should be a useful tool to inform the mitigation process.

Light levels: The light should be as low as guidelines permit. If lighting is not needed in any particular area, do not light. Numerous software programmes are currently available which can be used inform lighting plans, demonstrating how lighting decisions will illuminate a site.

Please refer to the 'Landscape and urban design for bats and biodiversity' (*Gunnell et. al.*, 2012, Bat Conservation Trust) Guidance Note 8 'Bats and Artificial Lighting' 2018, Bat Conservation Trust for further information.

Breeding birds

7.16 In relation to Sch. 1 (WCA) specially protected bird species, the site does provide suitable habitat for Sch 1. protected species such as fieldfare and redwing which both occupy habitats such as open grasslands and hedgerows. Both of these species are overwintering visitors and thus any clearance of these habitats taking place during the winter months of September – March should be checked by a suitably qualified Ecologist for the presence of such species immediately prior to commencement of works. If present onsite, the birds should be left undisturbed until they have naturally moved on, and any suitable habitat features should be removed under supervision by a suitably qualified ecologist.

7.17 In relation to more common birds, the habitats within the red line boundary provide abundant nesting platforms within the bramble scrub, individual trees and potentially for ground nesting birds in the grassland within the nesting bird season of March – August, inclusive.

NB: *All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected from destruction, damage and disturbance under the Wildlife & Countryside Act 1981 (as amended). It is a punishable offence to interfere in any way with an active nest.*

7.18 Any vegetation clearance should therefore be carried out outside of the breeding bird season. For works within the breeding bird season, any areas that can support nesting birds should be checked by a professional Ecologist for nesting birds within 48 hours or less prior to works commencing.

Point 3.24 of the British Standards Publication 42020:2013 defines a professional ecologist as: *"a person who has, through relevant education, training or experience, gained recognised qualifications and expertise in the field of ecology and environmental management."*

7.19 Where / if active nests are / have been located by the Ecologist, then any works which may affect them would have to be delayed until the young have fledged and the nest has been abandoned naturally, this can be aided, for example, via implementation of appropriate buffer zone(s) around the nest site (typically 5-10 metres) in which no disturbance is permitted until the nest is no longer in use. This would have to be coordinated through the expert judgement of the professional ecologist and species pending.

Other terrestrial mammals

7.20 No evidence of badger was identified onsite; however, the site offers some value for commuting for badgers, and they are likely to be present in the wider environment. It is considered possible that badgers could utilise the site on an occasional basis.

7.21 No evidence of hedgehog was located within the site, however the habitats onsite and within the wider environment are considered of high value and the likelihood of hedgehog on site is high.

7.22 No evidence of brown hare was located within or in the immediate vicinity of the site by the surveyor, although given the nearby arable grassland, the presence of this species onsite cannot be ruled out.

7.23 Therefore, a set of Reasonable Avoidance Measures (RAMs) should be drafted by a competent ecologist to safeguard this species during the proposed works. RAMs to minimise

construction disturbance and prevent harm or injury to commuting or foraging badgers, hedgehogs and hares must include:

- Limiting working hours to the daylight (dawn – sunset, or dawn – 6pm in winter) to avoid disturbing any badger or hedgehog in vicinity of the development
- Carrying out morning checks for the presence of hedgehogs and other small animals,
- Provisioning low angle sloping boards of approximately 300 mm wide to be placed within any excavations at the end of each working day, to facilitate a means of escape for mammals such as hedgehogs,
- Backfilling excavations at the end of the working day, if possible,
- Stock piling of spoil material MUST be left un-compacted and not allowed to grass over, as if grassed over and compacted, terrestrial mammals may be encouraged to excavate new areas for refuge.
- Not leaving any bulky equipment / general construction aggregates around the development area, instead leave them on bare ground away from the risk zone.
- Materials that may cause entrapment such as plastic/metal fencing should not be left around the site following the cessation of daytime work.
- Trenches MUST be covered at the end of each working day or include a means of escape for any animal falling in.
- Any temporarily exposed open pipe system MUST be capped in such a way as to prevent mammals gaining access, as may happen when contractors are off site.
- Any chemicals or harmful materials will be stored so that they cannot be accessed.
- Fires must not be used as a means of the disposing of waste materials.
- In the event an underground void / potential sett entrance is exposed during the works, work must cease immediately; and an Ecologist must be contacted to determine if the opening forms part of a previously undiscovered tunnel network of a badger sett. If this cannot be ruled out, works will cease, and Natural England consulted for further advice.

7.24 No evidence of otter or water voles were identified onsite during the diurnal assessment, with the site located at a significant distance from Sabden Brook and with limited connectivity. As such no further recommendations apply for either of these species.

Herpetofauna

Great crested newt (GCN)

7.25 Regarding GCN, the results of both the desktop and field study suggest that the risk of this species being present within the application site, or the immediate vicinity is negligible. As such no further recommendations apply for this species.

Wider herpetofauna

7.26 The presence of common amphibians onsite is considered possible, given the wetter areas of grassland and good terrestrial habitat for commuting. To prevent impacting upon local populations of common frog and common toad it is recommended that such species are included within the RAMs recommended for terrestrial mammals previous.

7.27 Should any frogs or toads be encountered within the works area, they should be handled with wet gloves to prevent impact / injury and moved to an area of like for like habitat outside of the works area away from potential harm. The applicant and all contractors would be aware that

if at any stage newts are encountered during works, or at any other stage of the programme of works, such works would be required to immediately cease and the Ecologist / ECoW would be made aware as to provide further guidance, if an Ecologist is not already present.

7.28 The site provides potentially suitable habitat for reptiles, particularly for common lizards and grass snakes, which prefer areas with varied vegetation heights and features suitable for basking or hibernation. No evidence of reptiles was located by the surveyors, however, January, when the survey was undertaken, is not within a suitable survey period for finding this species. Given the entire site will be redeveloped, reptiles could be impacted subject to their presence onsite and further information is required before an appropriate and accurate impact assessment can be carried out at the site in relation to this group.

7.29 With the above in mind, further reptile surveys are recommended to be carried out in accordance with current best practice guidelines (Froglife, 2015; GOV.UK, 2015) shown within **Figure 7.4** below. Survey effort that deviates from the given guidance may be adjusted using only the knowledge and experience of a competent ecologist following the first three – four visits. Further recommendations in relation to mitigation or enhancement required should be made following the surveys.

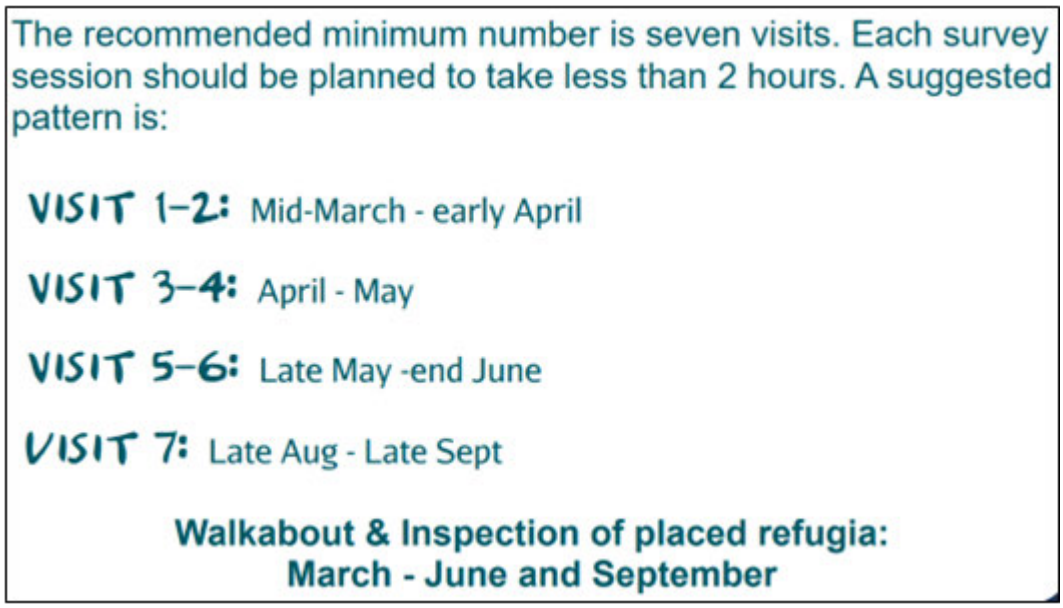

Figure 7.4 – *Extract from "Froglife – Surveying for reptiles"*

Invertebrates

7.30 Given the site is unlikely to be notable on a local or greater basis, general, indicative enhancement measures have been provided in **Appendix III** which could be included in the proposed development in order to enhance the value of the site with regards to invertebrates.

Enhancement

7.31 General recommended ideas to enhance the site in accordance with the principles of '*Biodiversity Net Gain: Good practice principles for development*' (CIEEM *et. al.*, 2019), are presented in **Appendix III**.

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Appendix I: Site Photographs

Plate 1 – *General character of B1 garage as seen from the south*

Plate 2 – *PRFs in the form of lifted slate tiles on eastern verge*

Plate 3 – *PRF in the form of a gap behind the timber fascia board on northern elevation*

Plate 4 – *General character of B2 Nissen Hut*

Plate 5 –*General character of the g4 modified grassland*

Plate 6 – *General character of the g3c8 Holcus-Juncus neutral grassland*

Plate 7 – *One area (TN1) of wetter grassland dominated by soft rush*

Plate 8 – *Power line / transformer located onsite*

Plate 9 *-Small area of grassland dominated by willowherb (TN5)*

Plate 10 – *Small area of bracken (TN3) encroaching on neutral grassland*

Plate 11 – *Another area at the south of the site dominated by soft rush*

Plate 12 – *Two beech trees (T1 & T2) located in the south-west corner of the site*

Plate 13 – *Two willow trees (T3 & T4) along western site boundary*

Plate 14 – *General character of bramble scrub onsite*

Plate 15 – *Two trees, a willow and silver birch (T7 & T8) seen along western boundary*

Plate 16 – *Medium crab-apple tree (T9) on western boundary*

Plate 17 – *Small crab-apple tree (T10) with large crack in trunk, not suitable as PRF due to surrounding bramble scrub*

Plate 18 – *Overgrown old stone wall (TN4)*

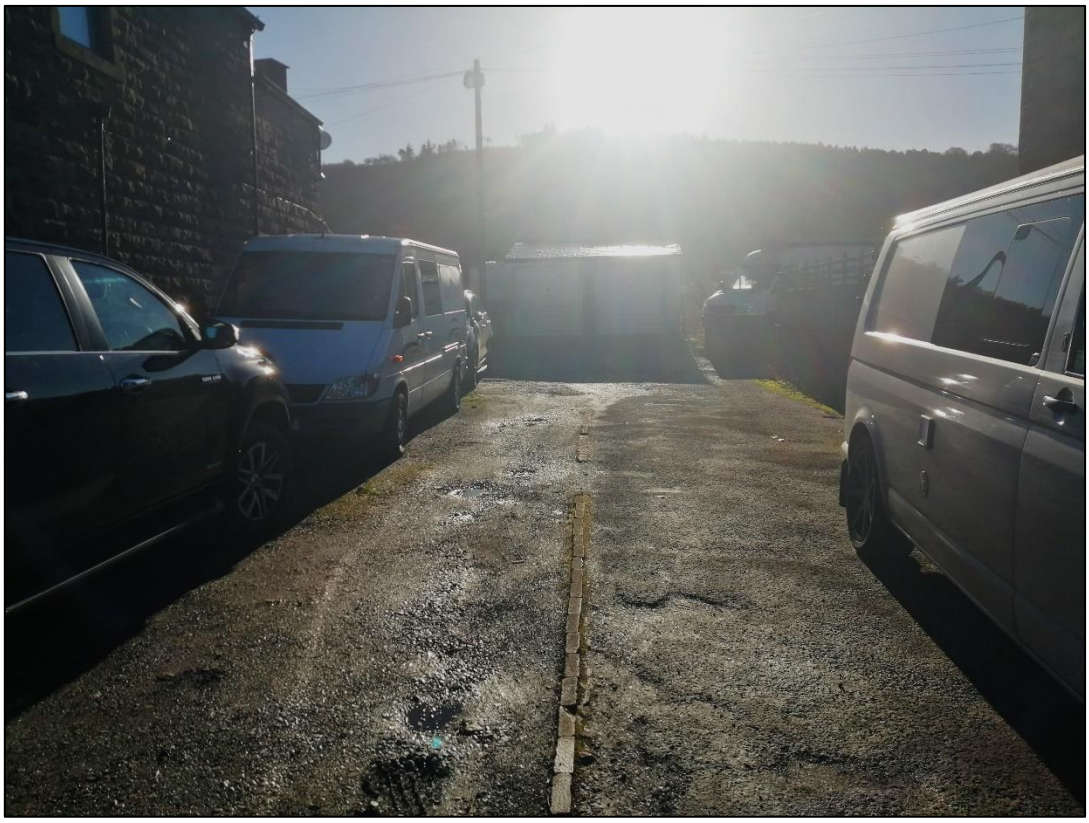


Plate 19 – *Access road onto site*

Appendix II: Botanical Species List

Species nomenclature follows Stace, C (2019) – definitive English names; scientific names for given flora are presented below.

Any invasive non-native species are denoted by the acronym (**INNS**).

Each species recorded was given an abundance value according to the standard DAFOR scale, where:

- D = Dominant
- A = Abundant
- F = Frequent*
- O = Occasional*
- R = Rare*

(*These values can be prefixed by the letter L (locally) to provide more subtle biogeographical data.)

Common Name	Scientific Name	Abundance
Beech	*Fagus sylvatica*	O
Bracken	*Pteridium aquilinum*	LA
Bramble	*Rubus fruticosus* agg.	F
Broad-leaved dock	*Rumex obtusifolius*	LA
Cock's-foot	*Dactylis glomerata*	F
Common sorrel	*Rumex acetosa*	O
Crab-apple	*Malus sylvestris*	O
Creeping bent	*Agrostis stolonifera*	D
Creeping buttercup	*Ranunculus repens*	F
Dandelion	*Taraxacum* agg.	O
False oat-grass	*Arrhenatherum elatius*	R
Hairy sedge	*Carex hirta*	LA
Iris	*Iris sp.*	O
Rough meadow-grass	*Poa trivialis*	R
Silver birch	*Betula pendula*	R
Soft-rush	*Juncus effusus*	A
Sweet vernal-grass	*Anthoxanthum odoratum*	R
Tufted hair-grass	*Deschampsia cespitosa*	LF
Willow	*Salix sp.*	F
Yorkshire-fog	*Holcus lanatus*	D

Appendix III: Biodiversity Enhancement: General Recommendations

Barn Owl

A barn owl box can be fitted within a building or externally on a tree.

Specification
* Height: 74cm x 59cm x 50 cm (length x width x depth)
* Entrance hole: 13cm high x 12cm width
* Weight: 8kg approx.
* Material: FSC certified exterior grade plywood

Available via: www.therange.co.uk/garden/wild-bird-care/bird-houses/barn-owl-nest-box/

Breeding Birds – House Sparrow

The sparrow terrace has been designed to help redress the balance of falling house sparrow numbers. The current UK population is now half of what it previously was in 1980 and this is widely attributed to habitat destruction and lack of suitable nesting spaces. House sparrows are social birds and like to nest in company, therefore, this terrace provides ideal nesting opportunities for three families. The terrace can be fixed on to the surface of a suitable wall or incorporated into the wall. It is suitable for all types of buildings.

Breeding Birds – Swallow

Although Swallows are currently placed on the Green list for Birds of Conservation Concern (BoCC), meaning that they are under the least protection, numbers of this species can fluctuate heavily based on environmental and ecological factors, with high regional variation observed.

Swallows will readily adopt these nest cups which are based on the size and shape of natural swallow nests. The nest cup is ideal for placing in a garage, shed, stable, barn or even beneath an archway and should be placed beneath the roof with free access. It provides somewhere secure for swallows to nest and means that they will expend less energy in producing their own nest. It also means that they do not need to find suitable nest building mud which can be in short supply in a dry spring. This WoodStone® Swallow Bowl is made from durable WoodStone®, a mixture of concrete and wood fibres, that is guaranteed to last for years and is mounted on an exterior grade plywood board.

Specifications

* Height: 120mm
* Width: 200mm
* Depth: 110mm
* Weight: 600g

Breeding Birds – Other

This traditional design has proved to be highly effective in attracting robins, as well as other small species such as black redstart, spotted flycatcher and wren. It is designed to be installed on the walls of houses, barns, garden sheds or other buildings and should be hung so that the entrance is to one side (at an angle of 90° to the wall). The front panel can be easily removed for cleaning.

This type of box should not be made conspicuous on a tree or bush because small predators can enter through the unprotected opening. By hanging on a wall, predators won't be able to reach the box. Alternatively hide the box in Ivy, Honeysuckle or other climbing plants.

Hedgehog Home

Specification:

Exterior quality 12mm resin bonded ply. The box remains untreated on the inside. Best situated in a quiet corner of the garden, and covered with leaves and other garden debris. Removable lid for cleaning purposes and reinforced corners, manufactured with surface sunk nails to resist rusting.

Nest box size: Height 22cm x Width 38cms x Length 47cm.

Environmentally positive: Direct action to help hedgehog survival rates, encouraging biodiversity; FSC timber; Zero carbon footprint in use.

Invertebrates – Bee bricks

The Bee Brick can be used in place of a standard brick or block in construction to create habitat for solitary bees. Alternatively, it can be used as a standalone bee house in your garden or wild patch. It will provide much needed nesting space for solitary bee species such as red mason bees and leafcutter bees, both of which are non-aggressive.

Each Bee Brick contains cavities in which solitary bees can lay their eggs before sealing the entrance with mud and chewed-up vegetation. The offspring will emerge the following spring and the cycle will begin again. Each cavity goes part way into the brick, which is solid at the back. Bee Bricks should be placed in a warm sunny spot on a south-facing wall at a minimum height of 1m, with no vegetation obstructing the holes. It is highly recommended that bee-friendly plants should be located nearby so that the bees using the bricks have food, otherwise it is unlikely that the brick will be used. Available in a choice of four colours: white grey, dark grey, yellow and red.

Specification

* Material: Concrete
* Origin: Cornwall, UK
* Dimensions: W 215mm x D 105mm x H 65mm
* Weight: 2.9kg
* Colours: White grey, yellow, dark grey and red

Herpetofauna

Hibernacula are underground chambers that amphibians and reptiles use throughout the winter to protect themselves from the cold. Creating a hibernaculum will provide a safe space for amphibians and reptiles to hibernate over winter, as well as a spot for solitary bees to soak up the sun and for birds to relax. These habitats can be integrated into a wide variety newly created or enhanced habitats and attract herps to new areas.

You will need:

- A spade
- Logs and branches
- Rocks and bricks
- 2-3 drainpipe cut-offs or cement pipes (if using plastic drainpipes, roughen the insides with sandpaper, so that they are not too slippery for animals to climb
- Turf or meadow flower seeds (optional)

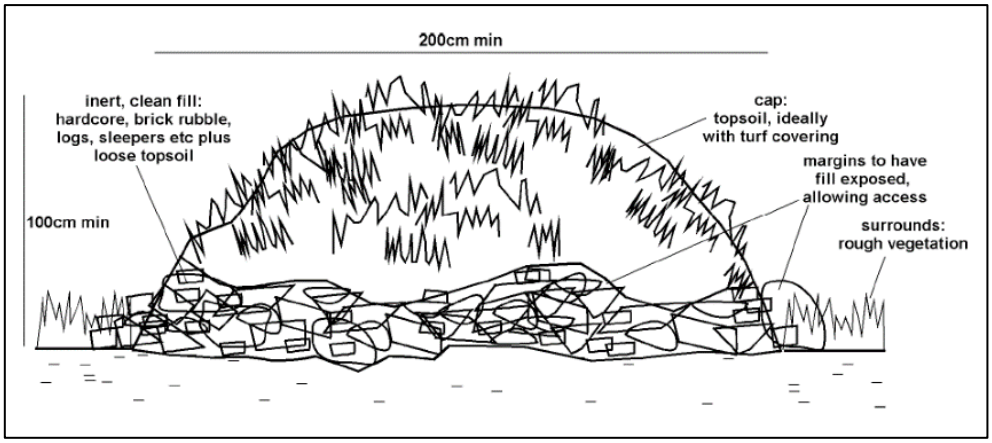
How to make your hibernaculum yourself:

- In a sunny spot, dig a hole about 50cm deep and 1.5 metres across.
- Fill with logs, branches, bricks and rocks, leaving plenty of gaps in between.
- Insert entrance tubes (drainpipes) at ground level into the hole.
- Cover the pile with soil (to about 50cm high).
- Plant meadow seeds or long grasses over the mound to create a feast for summer pollinators.

To construct a hibernaculum to Natural England standard:

- In desired areas, remove the turf from the footprint of the hibernaculum and set aside.
- On well-drained soil excavate to a depth of approximately 500 mm and set aside spoil (this is unnecessary on poorly drained soils).
- Fill the footprint or pit with core material. Materials likely to retain moisture are preferable, such as cut timber, brash and grubbed up tree roots. Other material such as inert hardcore, bricks, rocks, and building rubble may also be used. Materials that will decompose should not be placed beneath heavy components such as bricks or rocks, to reduce the risk of collapse.
- Pack the larger spaces within the core materials with wood chippings, loose topsoil or spoil.
- Cover the hibernaculum with the turves removed from the footprint.
- Take care not to create structures that might attract rodents, such as piles of rubble with many entrance holes. There has been no rigorous investigation of the optimum size of hibernacula, but larger hibernacula are probably more useful than small constructions because they contain a variety of different microhabitats and are more likely to maintain stable conditions.
- A suggested minimum size is 4.0 m long by 2.0 m wide by 1.0 m deep. 2.0 x 2.0 x 1.0 metres (length x width x height) as a minimum.

Illustrative aid for hibernaculum:

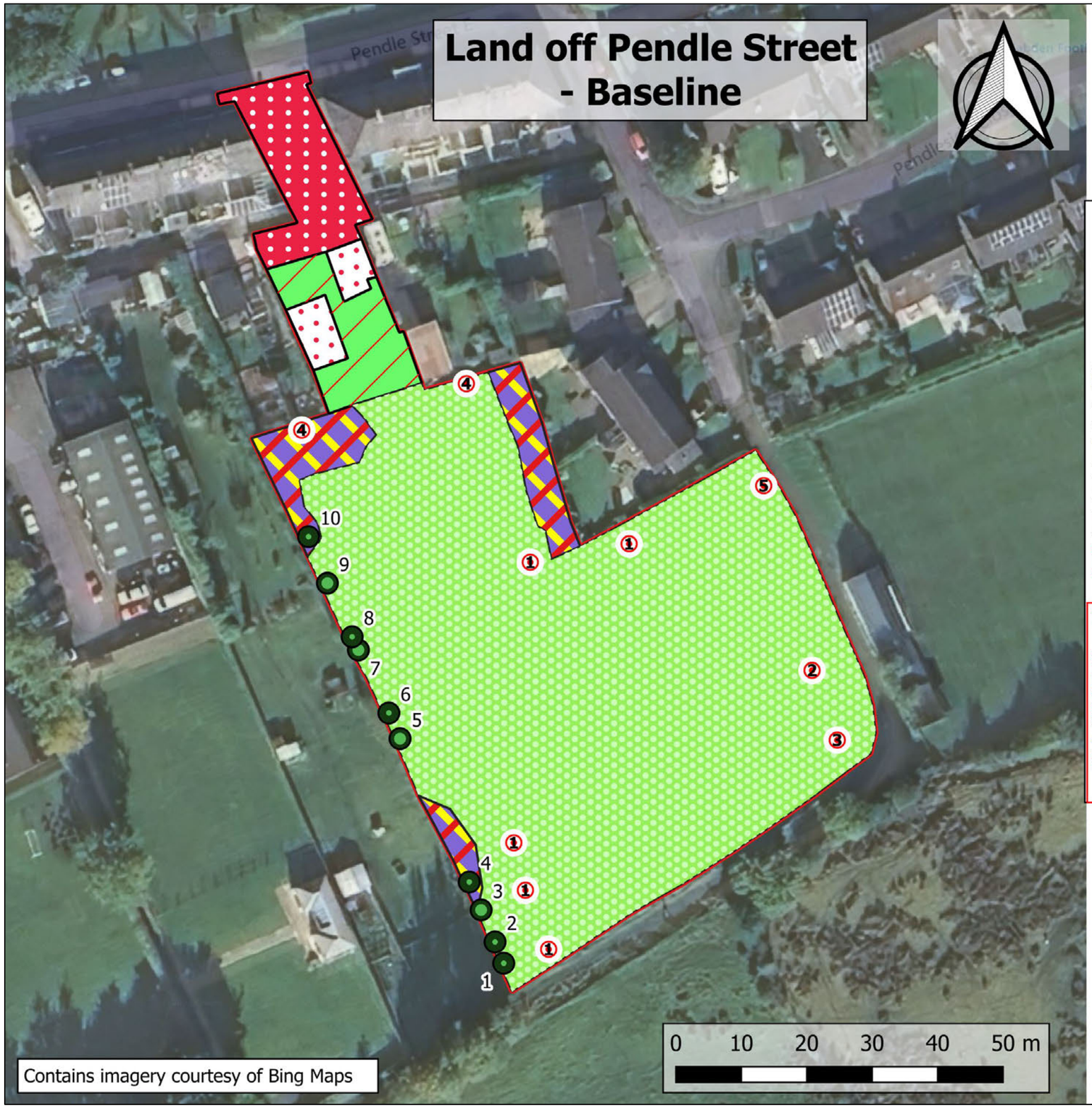


Native Planting and/or Landscaping

The below species have been assessed against the local soil and habitat types and are deemed suitable for the site. All plant material should comply with the minimum requirements in BS 3936-1: 1992 Specification for trees and shrubs and BS 3936-4: 2007 Specification for forest trees and BS 8545: 2014 Trees from Nursery to Independence in the Landscape. Any plant material, which in the opinion of the appointed Landscape Architect, does not meet the requirements of the Specification, or is unsuitable, or defective in any other way, will be rejected. The minimum specified sizes in the plant schedule will be strictly enforced. The contractor should replace all plants rejected at own cost. New hedgerows should be primarily comprised of Blackthorn (*Prunus spinosa*), Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*), and Holly (*Ilex aquifolium*), whilst climbers/creepers such as Hops (*Humulus lupulus*) and Honeysuckle (*Lonicera periclymenum*) can be planted at the base of boundary features such as fences and walls, and new tree planting should include species such as Pedunculate Oak (*Quercus robur*), Wild Cherry (*Prunus avium*), and Alder Buckthorn (*Frangula alnus*).

	Common Name	Scientific Name	Planting Preference
Ferns	Male Fern	*Dryopteris filix-mas*	Semi-shade or shaded
	Soft Shield-fern	*Polystichum setiferum*	Semi-shade or shaded
	Maidenhair Fern	*Adiantum capillus-veneris*	Suitable for rockeries / walled gardens
	Royal Fern	*Osmunda regalis*	Full sun in moist-damp areas
Herbaceous plants	Bloody Crane's-bill	*Geranium sanguineum*	Dry soils - suitable for rockeries
	Columbine	*Aquilegia vulgaris*	Semi-shade or open areas
	English Bluebell	*Hyacinthoides non-scripta*	Moist soils in semi-shade or open areas
	Giant Bellflower	*Campanula latifolia*	Semi-shade or open areas
	Greater Knapweed	*Centaurea scabiosa*	Dry-moist soils. Suitable for borders
	Greater Woodrush	*Luzula sylvatica*	Moist soils in semi-shade or open areas
	Meadow Crane's-bill	*Geranium pratense*	Humid-moist soils. Suitable for borders
	Musk Mallow	*Malva moschata*	Dry-moist soils. Suitable for borders and rockeries
	Sea Campion	*Silene uniflora*	Dry soils - suitable for rockeries
	Stinking Hellebore	*Helleborus foetidus*	Semi-shade or open areas
Climbers	Honeysuckle	*Lonicera periclymenum*	Dry-moist soils
	Hops	*Humulus lupulus*	Dry-moist soils
	Ivy	*Hedera helix*	Dry-moist soils
	Sweet-briar	*Rosa rubiginosa*	Dry-moist soils
Woody Shrubs	Dogwood	*Cornus sanguinea*	-
	Guelder Rose	*Vibernum opulus*	-
	Hawthorn	*Crataegus monogyna*	-
	Hazel	*Corylus avellana*	-
	Holly	*Ilex aquifolium*	-
Trees	Alder Buckthorn	*Frangula alnus*	-
	Osier	*Salix viminalis*	-
	Pedunculate Oak	*Quercus robur*	-
	Purple Willow	*Salix purpurea*	-
	Rowan	*Sorbus aucuparia*	-
	Silver Birch	*Betula pendula*	-
	Wild Cherry	*Prunus avium*	-
	Wych Elm	*Ulmus glabra*	-

Appendix IV: UK Habitats Map



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Specialists in Protected Species

UK Habitats Key

- Target Notes
- Scattered tree - deciduous, small
- Scattered tree - deciduous, medium
- g3c8 - Holcus-Juncus neutral grassland
- g4 - Modified grassland
- h3d - Bramble scrub
- u1b5 - Buildings
- u1b6 - Other developed land
- Boundary

Target Notes:

1 - Wet areas dominated by soft rush
2 - Power line / transformer
3 - Small area of bracken
4 - Old stone wall
5 - Area of tall willowherb

Secondary Codes:

128 - Tussocky sward

Survey Date: 29/01/2025
Drawn: Miss. J. Collins
Date Drawn: 10/03/2025
Checked & Approved: Mrs. K. Wilding
Size: A3
Scale: 1:800

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