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Preliminary Ecological Appraisal

December 2023

30 Long Lane
Aughton Park
Aughton
Town Green
L39 5AT

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Executive Summary

As part of a proposed planning application at 30 Long Lane, Aughton Park, Tyrer Ecological Consultants carried out a Preliminary Ecological Appraisal (PEA) in November 2023.

The PEA was commissioned by Lauren Shaw; proposals are understood to entail the demolition of an existing residential property and the subsequent erection of a replacement dwelling on the site.

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

Key Recommendations:

Habitats

Tree stumps are present on site.

Correspondence with the client has indicated that an arboricultural survey has been carried out prior to this survey visit. See Section 7.0 for further details and recommendations.

Vegetation

Three INNS were identified on site by the surveyor, namely wall cotoneaster, montbretia and rhododendron – see **Appendix IV** for locations.

The exact scope of works is currently unknown, with no proposed plans having been made available to the author, and as such in a precautionary sense it is recommended that the identified INNS are eradicated from the site by a licenced invasive species contractor, including a period of post-development monitoring to ensure successful eradication and prevent regeneration.

Breeding birds

Regarding wider breeding bird species, the hedgerow, trees and taller vegetation on site could provide a suitable nesting platform for birds during the breeding bird season. The structure could also provide a suitable nesting platform for birds adapted to urbanisation.

Given that all birds are protected when at the nest, it is recommended that any vegetation clearance or demolition works on site are carried out outside of the breeding bird season (March – August inclusive). Prior to any works within the breeding bird season (March – August inclusive), a pre-commencement check of all suitable habitats on site should be undertaken within 48 hours of works commencing by a competent individual. See Section 7.0 for further details.

Other terrestrial mammals

Badger and hedgehog have the potential to be impacted upon by the works.

See Section 7.0 for further information on Reasonable Avoidance Measures (RAMs) recommended to be implemented during development works.

Herpetofauna

Generalist amphibians could potentially exist in proximity to the site.

See Section 7.0 for details on RAMs required.

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**. Examples of suitable measures in respect of faunal species are also provided in **Appendix III**.

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1.0 Introduction & Scope

1.1 As part of a proposed planning application at 30 Long Lane, Aughton Park, Tyrer Ecological Consultants carried out a Preliminary Ecological Appraisal (PEA) in November 2023.

1.2 The PEA was commissioned by Lauren Shaw; proposals are understood to entail the demolition of an existing residential property and the subsequent erection of a replacement dwelling on the site. See **Figure 1.1** for an existing topographical survey of the site.

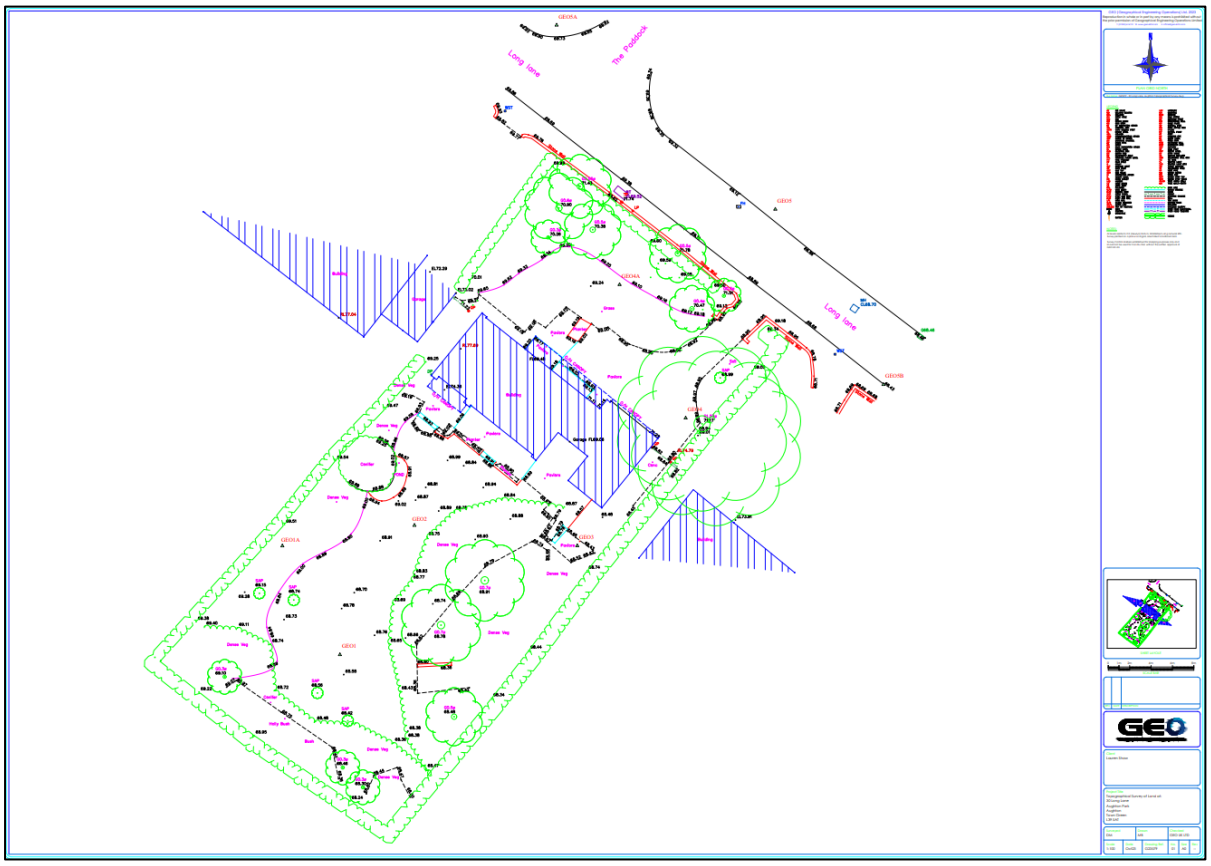


Figure 1.1 – *Existing topographical survey (© Geographical Engineering Operations)*

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 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 additional survey requirements,
- Aim to achieve no 'net loss' of habitat biodiversity units, in accordance with BS 8683:2021 'Process for designing and implementing biodiversity net gain',
- Identify enhancement opportunities for biodiversity in line with national and local planning policy following 'Biodiversity Net Gain: Good practice principles for development' (CIEEM et al., 2019),
- 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),
- Any 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),
- Any accessible ponds located within a 250m radial buffer of the site were subject to the industry standard Habitat Suitability Index (HSI) assessment in relation to great crested newt (*Triturus cristatus*), in accordance with ARG UK Advice Note 5 (2010).

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.

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:

- Biodiversity Net Gain: Good practice principles for development (2019),
- BS 42020:2013 Biodiversity – Code of Practice for Planning and Development (2013),
- BS 8683:2021 Process for designing and implementing biodiversity net gain (2021),
- Conservation of Habitats and Species Regulations (2017) (as amended),
- Countryside Rights of Way (CRoW) Act (2000),
- Natural Environment and Rural Communities (NERC) Act (2006),
- Protection of Badgers Act (1992),
- The Hedgerow Regulations (1997),
- The Invasive Alien Species (Enforcement and Permitting) Order 2019
- Town and Country Planning Act (1990),
- UK Habitat Classification – Habitat Definitions Version 2.0 (2023),
- 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 (2017) (as amended) 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.

Birds	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 (2017) (as amended) 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 (2017) (as amended) – SL/SS Wildlife and Countryside Act (1981) (as amended) 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 180 of the National Policy Planning Framework (as revised in September 2023) 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 This national focus on protecting habitats and protected species is echoed in Policy EN2 of the West Lancashire Local Plan 2012-2027, 'Preserving and Enhancing West Lancashire's Natural Environment', which states:

b) Development within or affecting nature conservation sites and ecological networks

In addition to the provisions of National and European law, and in accordance with national planning policy, proposals for development within or affecting the above nature conservation sites must adhere to the following principles:

i. proposals which seek to enhance or conserve biodiversity will be supported in principle, subject to the consideration of other Local Plan policies;

ii. consideration should be given to the impact of development proposals on the Major Wildlife Corridors defined on the Policies Map and on any additional ecological networks identified by any Supplementary Planning Document in the future and, where possible, opportunities to support the network by incorporating biodiversity in and around the development should be encouraged;

iii. where development is considered necessary, adequate mitigation measures and compensatory habitat creation will be required through planning conditions and / or obligations, with the aim of providing an overall improvement in the site's biodiversity value. Where compensatory habitat is provided it should be of at least equal area and diversity, if not larger and more diverse, than what is being replaced; and

iv. the development of recreation will be targeted in areas which are not sensitive to visitor pressures - the protection of biodiversity will be given higher priority than the development of recreation in sensitive areas of internationally-important nature conservation sites (as identified in paragraph (1)(a)(i) above), and on all nature conservation sites and ecological networks in situations where there is conflict between the two objectives.

Figure 2.1 – *Extract from the West Lancashire Local Plan 2012-2027*

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 (© 2022/23) 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 West Lancashire Borough Council 'Search and view 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:

"*It is generally expected that a desk study, including a data search, will be a key part of the ecological surveys or reports produced to inform a planning application. Freely available web-based sources of data and contextual information should always be used; in some cases, it may be acceptable to not undertake a data search with the LERC or other relevant NSS or local interest groups, for example:*

ii) 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. It can be very difficult to demonstrate that a data search would not have provided relevant information without obtaining and reviewing those data.

iii) In some cases for Preliminary Roost Assessments of buildings in low impact / small-scale scenarios, such as an extension to a residential property, loft conversions (full or partial), installation of Velux/dormer windows, single modern agricultural or similar building

conversion or demolition; however, it should not be assumed that data searches are never required for such scenarios and this must be judged on a case by case basis and justified accordingly.

2) The Guidelines for Preliminary Ecological Appraisal, *2nd Edition* (CIEEM, 2017) also states:

"Very occasionally it might be possible to carry out a robust PEA without obtaining LERC/NBDC/CEDaR data; this will usually only apply to low impact or small-scale projects (e.g. by virtue of size, extent, duration of works, magnitude and locality), and should be determined on a case-by-case basis."

Field Survey

3.6 A daytime preliminary ecological appraisal was conducted on the 27th November 2023 in rainy conditions (7ºC), average wind 1/12 (Beaufort scale), average 100% cloud cover, by the following surveyor (see **Table 3.1**).

Table 3.1 – Site surveyor credentials

Name	Description of most relevant credentials
Mr. B. Richards Qualifying CIEEM	• Junior Ecologist with 2 years training and experience, • MBiolSci in Biological Sciences (Zoology), • Accredited agent on the Natural England Great Crested Newt: CL08 Class 1 licence (2018-34062-CLS-CLS) of Mr. M. Pritchard ACIEEM, • Accredited agent on the Natural England Class 2 bat license of Mrs K Wilding CEnv MIEMA ACIEEM (CLS-14227), • Holder of a FISC Level 3 (2023) (Botanical competency).

Floristic assessment

3.7 The survey followed the UK Habitat Classification Version 2.0 (UKHabs, 2023) methodology, an updated version of the UK Habitat Classification Version 1.1, 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).

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 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 **Figure 3.1**).

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 were 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. An internal assessment of the structure(s) 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.

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*

Breeding 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 / suitability of European hedgehog (*Erinaceus europaeus*) and other priority mammals.

Herpetofauna

3.21 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.*

3.22 Following current best practice considering the national 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.

3.23 The GCN Habitat Suitability Index (HSI) is a quantitative measure of habitat quality evaluating the suitability of habitat for GCN. The HSI outputs a result of between 0 and 1, derived from an assessment of ten habitat variables known to influence the presence of newts, with a result of 1 being optimal habitat (high probability of occurrence), while an HSI of 0 is very poor habitat (minimal probability of occurrence). The HSI is calculated on a single pond basis but takes into account surrounding terrestrial habitat and local pond density. The tool is particularly useful in survey and mitigation; one benefit is that it can be undertaken in a single field visit

(with supporting desk work) and at any time of the year (though some variables are more easily measured in spring and summer).

Its main uses are:

- *In surveys, to assess habitat quality in a repeatable, objective manner. In particular, the HSI allows individual factors that influence newt presence to be easily identified. These factors could help explain a very high or very low count. A high HSI can justify employing additional survey effort or methods if no newts are found initially.*
- *In impact assessments, to allow a measure of how damaging a development could be. HSI might also be used as a screening tool to select no impact or minimal impact options.*
- *In risk assessments, helping to decide whether an offence might be committed, and therefore whether a licence should be applied for. If a pond has a very low HSI score (say <0.5) then there would typically be a minimal chance of GCN presence. Hence, with due care and in limited circumstances the HSI might be used in the absence of newt surveys to help conclude that an offence is highly unlikely and therefore work could proceed in that area without a licence. This application of the HSI should only be used where the predicted impacts - were newts to be present - would be low (e.g. development at least 100m from pond, permanent habitat loss <0.5ha or temporary habitat loss <5ha). The developer should be aware that there would still be a risk of committing an offence, but it would typically be so low as to be negligible. Obviously, note that if HSI >0.5, this is not confirmation of newt presence; a newt presence/absence survey would be required to confirm this.*
- *In habitat enhancement, HSI could be used to identify the low-scoring factors in an existing pond that need addressing to improve its quality for newts.*
- *In post-development monitoring, to allow an assessment of habitat condition.*

3.24 GCN HSI Limitations:

The GCN HSI is not a substitute for undertaking newt surveys; it indicates but cannot confirm presence or absence of GCN. A licence application that infers GCN presence solely from HSI data (i.e. no newt survey data presented) will be rejected. Very low HSI scores may be used along with scheme details to infer a minimal chance of committing an offence in low impact situations. This is on a risk assessment basis and developers should be aware of the potential hazards of this approach. Care should be taken when interpreting low HSI scores; for example, a low scoring pond close to an occupied newt pond may still support newts.

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

3.26 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 woodland glades to heaths, walls and pastures, as well as brownfield sites.

3.27 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

3.28 The application 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.

Summary

3.29 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.

3.30 The results, conclusions and recommendations of this report have been assessed by Mrs. K. Wilding, Director of Tyrer Ecological Consultants Ltd, and her assessment concurs with the findings and recommendations of the surveyor Mr. B. Richards.

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

5.0 Desk Study Results

5.1 The site is located to the south-west of Long Lane in Aughton Park, approximately 17km north-east of Liverpool city centre. The site broadly comprises an unoccupied residential dwelling with associated hard and soft landscaping to both the front and rear. The site is surrounded by a hedgerow, with a pond to the rear, as well as a patch of woodland as indicated by satellite imagery, totalling an area of circa 0.17 hectares (see **Figure 5.1** below for location of the site within the surrounding landscape).

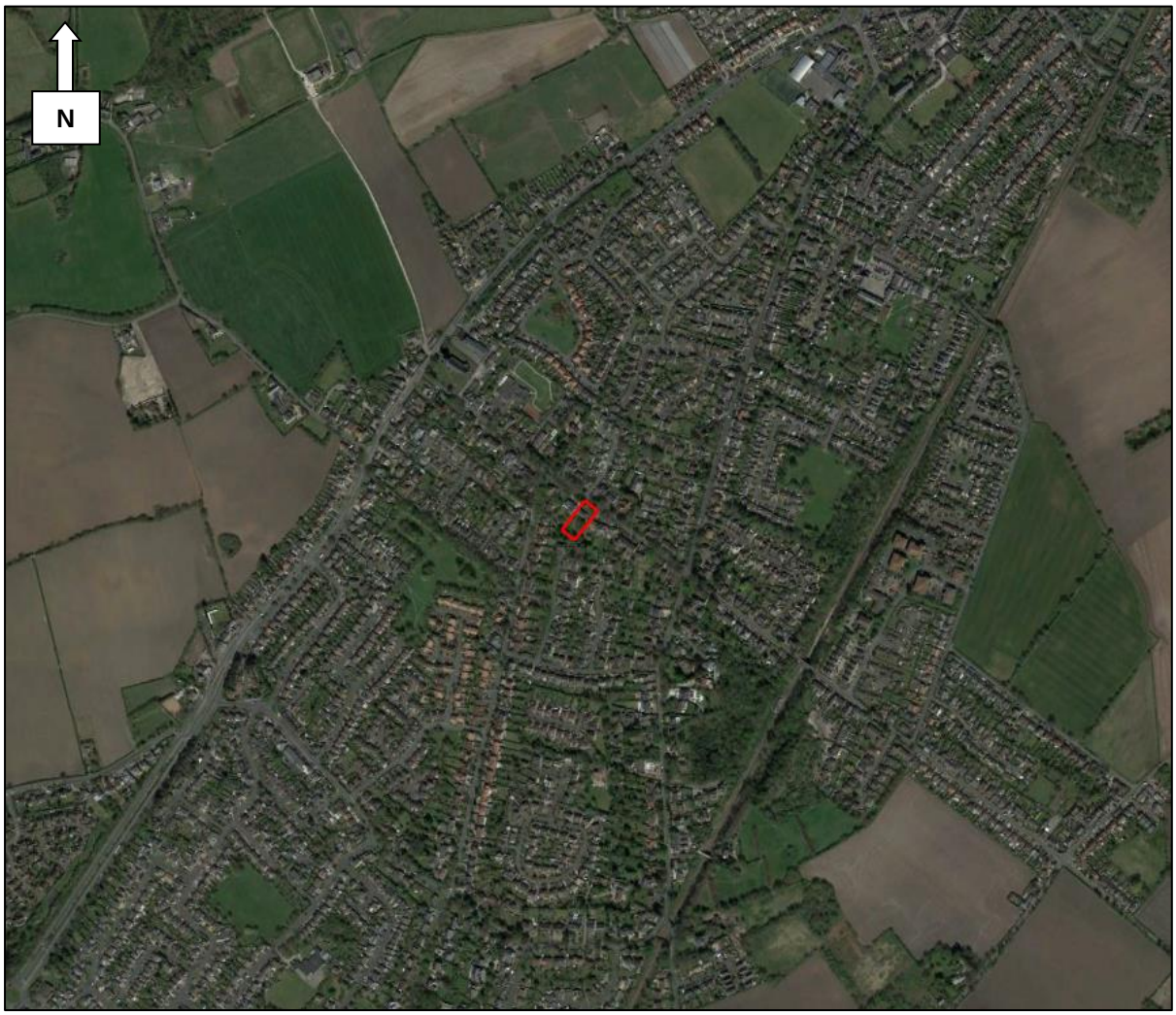


Figure 5.1 – *Location of the site (red boundary) within the surrounding landscape (© Google Earth Pro 2023)*

5.2 In a historical context, the structure appears to have been built post-1965, with historical OS Maps indicating that no infrastructure was present within the red line boundary before this time.

5.3 The immediate environment is sub-urban in nature, with banks of housing to each compass direction, typically large detached and semi-detached residential properties with associated landscaped gardens interspersed with shrubbery, hedgerows and scattered trees. Linear features, aside from the former, include tree lines along Long Lane and Swanpool Lane, which link the site to areas of semi-natural habitat in the immediacy, notably a large belt of deciduous woodland set along a railway line to the east of the site.

5.4 The extending environment continues in relative similarity, with further areas of residential development to the north and south of the site, leading to Ormskirk to the north along the A59

with associated town infrastructure. Beyond these urbanised areas to the east and west of the site can be found expanses of agricultural land, with both arable cropland and pastoral grazing land visible on satellite imagery, with these fields being interspersed by hedgerows and drainage ditches, with scattered mature trees and ponds.

5.5 Collectively, there are several medium-low value pathways along which protected species could feasibly commute, with the hedgerows and tree lines in the vicinity likely most favourable for airborne species such as bats and birds.

Designated sites

5.6 There are no statutory designated sites for nature conservation within 2.0km of the site (see **Figure 5.2** overleaf for a visual aid).

5.7 The site lies within the Impact Risk Zone (IRZ) for several Sites of Special Scientific Interest (SSSIs) within the wider landscape, with the nearest being Martin Mere at a distance of >7.0km. The scheme falls under the 'residential' category, and given the nature of the works, the proposals will not require further consultation with Natural England (NE) having not met the 10-unit increase.

5.8 There are a number of non-statutory sites within the wider landscape, most notably Prescot Road Quarry, Graw Hill / Gorse Hill and Moss Delf, all of which are designated as Local Nature Conservation Sites.

5.9 The proposed works are unlikely to have any impact on any of the above non-statutory designated sites or their designation features by way of spatial separation, being located at a minimum of 0.8km, beyond banks of residential development.

Habitats

5.10 An online search of MAGiC Maps identified the following priority habitats within a 2.0km search radius (see **Table 5.1**).

Table 5.1 – Priority habitats located within 2.0km buffer

Habitat Type	Designation
Deciduous woodland	Priority Habitat Inventory
Lowland meadows	Priority Habitat Inventory
Traditional orchard	Priority Habitat Inventory

Bats

5.11 An online search of MAGiC maps revealed that seven European Protected Species Mitigation Licence (EPSML) have been granted within a 2.0km radius of the application (see **Table 5.2** below for further information and **Figure 5.2** for a visual aid).

Table 5.2 – EPSML data records from MAGiC Maps

Licence Number	Distance from site	Context (where relevant)
EPSM2009-644	1.9km south-east	Brown long-eared (BLE) & common pipistrelle (CP); destruction of breeding roost
2016-22864-EPS-MIT	1.8km south-east	BLE, CP, Natterer's, soprano pipistrelle (SP) & whiskered; damage of breeding roost & destruction of non-breeding roost
2016-22933-EPS-MIT(1)	1.2km south-west	CP; destruction of non-breeding roost
2016-23295-EPS-MIT	1.8km south-east	BLE, CP & natterer's; damage to breeding roost & day roost
2018-36460-EPS-MIT	0.8km south-west	CP; destruction of non-breeding roost
2019-39237-EPS-MIT	0.8km north-east	CP; damage to breeding roost
2019-44055-EPS-MIT	1.1km south-west	CP & SP; destruction of non-breeding roost

5.12 Tyrer Ecological Consultants Ltd have previous and ongoing projects involving bats within the 2.0 kilometre area surrounding the site – as such, the following biological data (see **Table 5.3**) is readily available to the Ecologist from the company database – all data has been previously submitted to the LERC serving the area, which, in this case, is LERN.

Table 5.3 – LERC submitted biological data records collected by Tyrer Ecological Consultants Ltd

Year	Distance from site	Context (where relevant)
2015	1.8km east	Activity record by x2 CP
2016	0.6km south	Emergence of x1 CP; **day roost**
2016	0.8km south	Emergence of x3 CP; **day roost**
2017	0.9km north-east	Emergence of x12 CP; **day roost**
2017	1.6km north-east	Activity record by x2 CP
2018	0.5km south-east	Emergence of x1 CP; **day roost**
2018	0.8km south	Emergence of x1 CP; **day roost**
2018	0.9km north-east	Activity record by x5 CP
2018	1.4km west	Emergence of x1 CP; **day roost**
2020	1.4km south	Activity record by x1 CP
2021	0.5km south-east	Activity record by x3 CP
2021	1.3km south-west	Emergence of x1 BLE; **day roost**
2022	1.8km north-east	Emergence of x3 CP; **day roost**

Birds

5.13 The site lies within multiple layers of bird interest on MAGiC Maps (2023), being within the Arable Assemblage Farmland Birds '3' layer, with corn bunting (*Emberiza calandra*), lapwing (*Vanellus vanellus*) and tree sparrow (*Passer montanus*) all having been recorded within the search range as indicated by their respective layers overlapping the site.

GCN

5.14 No EPSMLs in relation to GCN or 'Great Crested Newt Pond Surveys 2017 – 2019' are present within the 2.0km survey range. The nearest evidence of GCN is a cluster of 'Great Crested

Newt Class Survey Licence Returns' at a distance of 1.0km north-west of the site, beyond banks of residential development as well as the A59.

5.15 Using Google Earth Pro 2022/23, MAGiC Maps 2022/23 as well as Ordnance Survey (OS) map data and ground truthing during the diurnal appraisal, a single pond was identified on the site, with no other water bodies within a 250m radial buffer of the site. See Section 6.0 for further information on the pond.

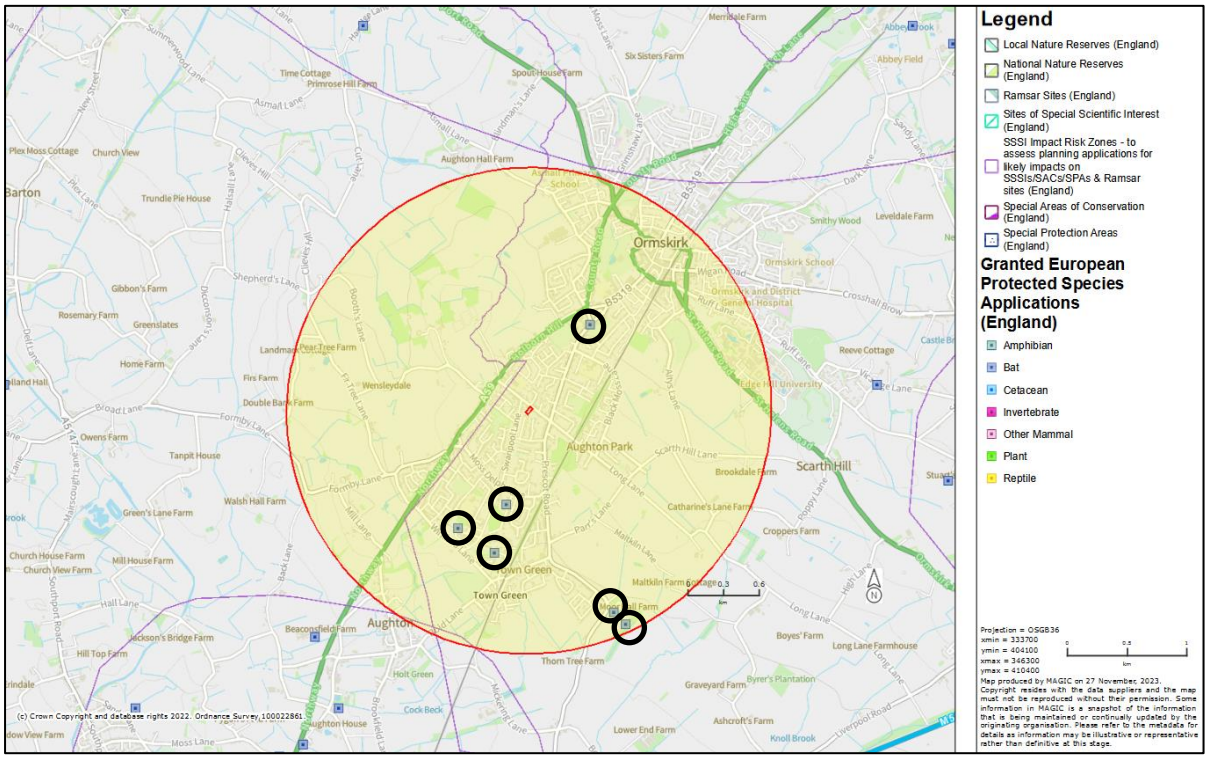


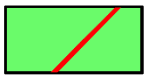
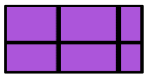
Figure 5.2 – *Protected species and designated site data for the area within 2.0 kilometres of the application site, with granted EPSMLs circled in black (© MAGiC Maps 2023)*

6.0 Field Survey Results

6.1 Habitat survey

6.1.1 See **Table 6.1.1** (below) for baseline information and habitat descriptions; refer to **Appendix I** for any supporting imagery; additional 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
 **g4** Modified grassland	**16** Tall forbs **32** Scattered trees **81** Ruderal / ephemeral **106** Mown **524** Invasive non-native species **827** Garden	Two regions of functionally identical grassland are present to the front and rear gardens, totalling an area of approximately 0.06 hectares. The habitats are dominated by short sward red fescue (*Festuca rubra agg.*) and Yorkshire-fog (*Holcus lanatus*), with forbs typical of heavily managed amenity grassland, for example common ragwort (*Jacobaea vulgaris*), dandelion (*Taraxacum agg.*), common chickweed (*Stellaria media*), cat's-ear (*Hypochaeris radicata*), herb-Robert (*Geranium robertianum*) and creeping buttercup (*Ranunculus repens*). Within both parcels are scattered trees, with those to the north being mature and semi-mature individuals, with species including Scots pine (*Pinus sylvestris*), a cherry (*Prunus sp.*) and sycamore (*Acer pseudoplatanus*), with some tree stumps to the rear. Invasive species are present across both of the habitat parcels, with wall cotoneaster **INNS** (*Cotoneaster horizontalis*) to the front garden and montbretia **INNS** (*Crocosmia* × *crocosmiiflora*) to the rear garden.
 **r1** Pond	**41** Pond (non-priority) **49** Freshwater – artificial	A single pond is present within the red line boundary of the site totalling an approximate area of 0.001ha. See **Section 6.6** for further information in respect of nature of the water body, as well as details regarding waterfowl, fish and bankside vegetation.
 **u1140** Urban raised planter	**-**	Several small stone raised planters are present within the hardstanding parcels, totalling an estimated area of 0.0005ha. The planters appear to be largely empty of botanical species, though fast-growing ephemeral species such as common ragwort and dandelion are present in low abundances.
 **u847** Urban introduced shrub	**81** Ruderal / ephemeral **510** Bare ground	Several patches of introduced shrub are present across the site, though they feature a similarly majority non-native species composition, totalling an approximate 0.01ha in area. Woody species present include butterfly-bush (Buddleja davidii), broom (*Cytisus scoparius*), cherry laurel (*Prunus laurocerasus*), firethorn (*Pyracantha coccinea*) and holly (*Ilex aquifolium*), whilst ground flora is made up of Oregon-grape (*Mahonia aquifolium*),

	524 Invasive non-native species	common & Atlantic ivy (*Hedera helix*), sowbread (*Cyclamen hederifolium*) and tutsan (*Hypericum androsaemum*). Patches of bare ground are prominent, particularly to the north-eastern parcel, whilst a number of invasive species are present within or on the borders of the habitat, namely wall cotoneaster **INNS**, montbretia **INNS** and rhododendron INNS (*Rhododendron ponticum*).
 **u1b5** Buildings	**-**	A single structure is present on site, totalling approximately 0.02ha. See **Section 6.3** for further information regarding the atmospheric conditions of the structure, as well as both the structural composition externally and internally.
 **u1b6** Other developed land	**-**	Two regions of sealed surface hardstanding are present on site; the first constitutes the tarmacked driveway, access path and parking area forming the north-eastern area of the site, whilst the second comprises paving / patio around the remainder of the structure on site, with both parcels totalling an area of circa 0.03ha. Botanical interest is limited, though some areas between the paving have been colonised by hardy species such as common chickweed, dandelion and petty spurge (*Euphorbia peplus*).
 **w1h** Other woodland; mixed	**81** Ruderal / ephemeral	Two areas of mixed woodland are considered present at the site, totalling an estimated area of 0.05ha. Ground flora includes species highly indicative of woodland cover, such as Lords-and-Ladies (*Arum maculatum*), common & Atlantic ivy, male-fern (*Dryopteris filix-mas*), hart's-tongue (*Asplenium scolopendrium*) and colt's-foot (*Tussilago farfara*), with a single stand of deadwood covered in dense growth of Persian ivy (*Hedera colchica*). A number of tree stumps were identified by the surveyor within the parcel.
Linear habitat	**Sec. Codes**	**Description**
 **h2b** Other hedgerows	**523** Non-native	An established garden privet (*Ligustrum ovalifolium*) hedgerow forms the entirety of the red line boundary, with the exception of the entry way, totalling a length of circa 0.18km.
Target notes		
1: Location of wall cotoneaster **INNS**		
2: Location of montbretia **INNS**		
3: Location of rhododendron **INNS**		

6.2 Vegetation

Notable species

6.2.1 No species of conservation importance were located anywhere within the site during the appraisal.

Invasive non-native species (INNS)

6.2.2 Three INNS listed under Schedule 9 (Part II) of the Wildlife & Countryside Act (1981) were identified on site by the surveyor, namely wall cotoneaster, montbretia and rhododendron. See **Appendix IV** Target Notes for location of above species.

6.3 Bats

6.3.1 A single structure is present on site; a brick-built, two storey unoccupied residential dwelling covered by a pitched corrugated tiled roof, with approximate maximum dimensions of 21m x 10m x 6m (length x width x height). The building features components such as timber windows, timber cladding in part, timber doors, timber soffit boxes, a covered porch area and an adjoined garage to the east which is encompassed by a flat, felt roof. 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 the roof, soffits and fascia being in generally good condition, but some deterioration noted to the flat rooved porch section meaning that water ingress was prominent.

6.3.2 Internally, a loft space is present, with the space being fully boarded and plastered, and conditions being cool, non-draughty, light cobwebbing and dark with minimal light ingress.

6.3.3 Based on the above, it is considered that the structure is broadly unsuitable for the breeding purposes of loft-dwelling species such as the brown long-eared bat, with these species requiring open spaces with room to fly, suitable roosting locations and stable thermal characteristics in which to raise their young. Whilst the immediate habitat is generally low value for this species, areas of broadleaved woodland do exist in the wider landscape which could provide suitable foraging areas.

6.3.4 It is unknown whether an underfelt is present beneath the roofing material owing to the presence of plasterboard across the entirety of the loft space; where present, underfelt or other such roof lining typically improves a buildings value to bats, notably for crevice-dwelling bats of the *Pipistrellus* genus, whereby the bats roost between the lining and the roof cover material provided external opportunities exist. No evidence of this species group was encountered by the surveyor, this is, however, often the case, even in confirmed roosts, owing to the crevice-dwelling nature of these species.

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.*

6.3.5 Externally, no PRFs were identified by the surveyor, with the corrugated roof tiles tightly overlapped with no access points, and the soffit boxes firmly affixed to the main part of the building. The brickwork presents no cracks or other suitable features, with the roof verge also being tight.

6.3.6 Given the lack of viable PRFs, general lack of suitable habitat and the nature of the loft space, the building is duly categorised as pertaining to '**Negligible**' bat roost suitability, in accordance

with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023).

6.3.7 As mentioned previously, there are a number of trees within the red line boundary, with sapling, immature and mature specimens present. All of the remaining trees were subject to a GLTA, which was considered sufficient to observe the individuals in their entirety.

6.3.8 None of the trees were ascertained to be host to any PRFs, either of the PRF-I or PRF-M variety, and the remaining individuals are duly categorised as pertaining to a bat roost suitability of '**None**' in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023).

6.3.9 It is, however, acknowledged that tree stumps are present on site, and it is therefore unknown whether these trees may have been previously host to PRFs, inclusive of PRF-I as well as PRF-M.

6.3.10 All trees, and any taller vegetation, should be considered of value to commuting and foraging bats, whereby they act as landmarks for navigation and foci around which invertebrate prey species gather.

6.4 Breeding birds

6.4.1 In relation to WCA Schedule 1 specially protected bird species such as barn owl (*Tyto alba*), no areas suitable for nesting were identified by the surveyor, with an absence of built or natural features suitable for usage by this species. The grassland is of amenity usage and as such is unlikely to support prey items favoured by this, as well as other Sch.1 raptors, and the likelihood of even occasional usage is minimal.

6.4.2 Whilst the site lies within an area considered potentially suitable for ground nesting species such as lapwing, the grassland is not considered to provide a viable nesting platform for this species, or other ground nesting species.

6.4.3 More common bird species would find favourable nesting platforms within multiple site features, including the hedgerow, trees and other taller vegetation, particularly during the breeding bird season of March – August inclusive. No direct, recent evidence of nesting was identified by the surveyor.

6.5 Other terrestrial mammals

Badger & hedgehog

6.5.1 No field signs of badger, such as latrines, pathways, hairs, footprints, or feeding signs, for example snuffle holes and scratched trees / logs, were located within the application site boundary. The immediate surroundings provide minimal suitable habitat, though woodland parcels do exist within the wider landscape with commuting pathways potentially suitable for this species. The occasional presence of badger cannot, therefore, be ruled out.

6.5.2 Similarly, whilst no direct evidence of hedgehog was identified, suitable habitat features, in the form of hedgerows and (former) woodland cover, as well as a lack of significant barriers, mean that this species could feasibly utilise the site at will, though likely only on an occasional basis.

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, the only evidence of GCN in the immediate search radius is a cluster of GCN Class Survey Licence Returns approximately 1.0km north of the site beyond residential development and the busy A59 road. No GCN EPSMLs or Great Crested Newt Pond Surveys 2017 – 2019 are present within the buffer.

6.6.3 As discussed in the desktop study, there is a single pond within the red line boundary of the site, with no additional water bodies within a 250m buffer. This on-site pond was able to be accessed using the HSI tool. See **Table 6.6.1** for a pond description; **Table 6.6.2** provides detailed HSI results whilst **Table 6.6.3** & **Figure 6.6.1** provide interpretation of the results in line with ARC UK guidance.

Table 6.6.1 – Pond description within 250m radial buffer, with included HSI score

Pond 1 (P1)	
P1 is a small garden pond within the red line boundary of the site, with an estimated area of 10m^2. The pond likely never dries, is 0% shaded 1m from the shore, has no waterfowl impacts, could potentially support fish and is surrounded by moderate quality terrestrial habitat in the form of introduced shrub and woodland. No assessment was made on either water quality or macrophyte cover, given the time of year. Based on the above, the HSI value of the pond has been calculated as pertaining to **0.55 – Below Average**. See **Table 6.6.2** below for further information on the individual category scorings.	

Table 6.6.2 – HSI quantitative assessment of the pond

Pond ref	Pond 1
SI1 – Location	1
SI2 – Pond area	0.02
SI3 – Pond drying	0.9
SI4 – Water quality	-
SI4 – Shade	1
SI6 – Fowl	1
SI7 – Fish	0.67
SI8 – Ponds	1
SI9 – Terr'l habitat	0.67
SI10 – Macrophytes	-
HSI	0.55

Table 6.6.3 – HSI scoring chart (a suitability scoring method for GCN developed by Mr. L. Brady)

Great Crested Newt (GCN) HSI Scoring				
HSI Score			**Pond Suitability**	
<0.50	0.50 - 0.59	0.60 - 0.69	0.70 - 0.79	>0.80
Poor	Below Average	Average	Good	Excellent

NB: *The HSI for great crested newts is a measure of habitat suitability. It is not a substitute for newt surveys. In general, ponds with high HSI scores are more likely to support great crested newts than those with low scores. However, the system is not sufficiently precise to allow the conclusion that any particular pond with a high score will support newts, or that any pond with a low score will not do so. There is a positive correlation between HSI scores and the numbers of great crested newts observed in ponds. So, in general, high HSI scores are likely to be associated with greater numbers of great crested newts. However, the relationship is not sufficiently strong to allow predictions to be made about the numbers of newts in any particular pond.*

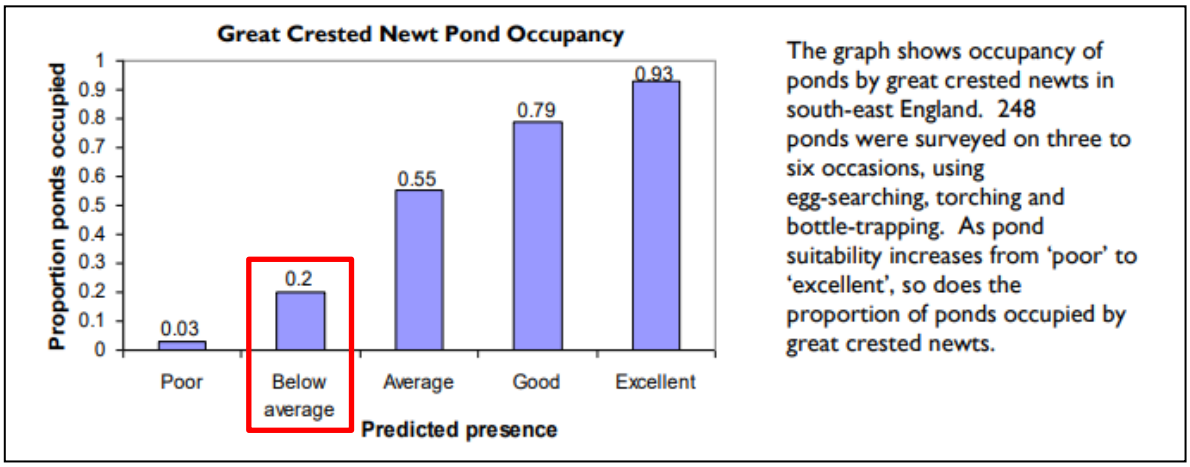


Figure 6.6.1 – *GCN pond occupancy (© ARC UK)*

6.6.4 In a terrestrial contextual assessment, portions of the site are broadly unsuitable for this species, with the graminoids present not typically forming tussocks which are favoured by GCN as refuge area. The woodland habitats do provide suitable habitat even now, with layers of leaf litter and tree root systems providing suitable habitat for GCN when in their terrestrial phase. The paving slabs could also provide suitable hibernacula for this species.

Wider amphibians

6.6.5 Given the presence of standing water bodies within the site, the presence of more robust, generalist amphibians such as common frog and common toad is considered possible, with these species being more widespread and more able to overcome barriers to dispersal when compared to priority amphibians such as GCN.

Reptiles

6.6.6 The site itself is considered unsuitable for reptiles, with no typical habitat features such as ecotones, basking areas or south-facing slopes. Based on the lack of suitable habitat, it is considered highly unlikely that the site supports any member of this taxonomic group.

6.7 Invertebrates

6.7.1 The habitats present within the site are considered broadly unsuitable for any protected invertebrate species, with no evidence to suggest that the site is host to a diverse or rare invertebrate assemblage located by the surveyor.

6.7.2 The woodland stumps and areas of deadwood could provide Coleopterans with suitable burrowing habitat, and the small pond could support species such as dragonfly and mayfly, though these are likely to be common species given the site is not locally distinct in this sense.

7.0 Conclusions & Recommendations

Designated sites

7.1 The site lies within the Impact Risk Zone (IRZ) for several Sites of Special Scientific Interest (SSSIs) within the wider landscape, with the nearest being Martin Mere at a distance of >7.0km. The scheme falls under the 'residential' category, and given the nature of the works, the proposals will not require further consultation with Natural England (NE) having not met the 10-unit increase.

7.2 The proposed works are unlikely to have any impact on any of the non-statutory designated sites in the wider landscape or their designation features by way of spatial separation, being located at a minimum of 0.8km, beyond banks of residential development.

Habitats

7.3 Based on the desktop and field assessment, no priority habitats were identified within the site boundary.

7.4 Tree stumps are present on site; however, from correspondence with the client, it is understood that all felling was carried out following an arboricultural survey which will be included as a part of this planning application, and outside of the breeding bird season. Whilst information provided by the arboricultural company has indicated that these trees were not subject to a Tree Preservation Order (TPO), native replanting (see **Appendix III**) should be carried out at the site to suitably replace lost trees, in accordance with West Lancashire Borough Councils Local Plan, and in particular Policy EN2 Paragraph 3. This could be secured via a suitably worded planning condition.

7.5 Any landscaping should look to incorporate native species as discussed in **Appendix III**.

Vegetation

7.6 No priority vegetative species were identified on the site by the surveyor during the diurnal appraisal to warrant any specific intervention measures.

7.7 Three INNS were identified on site by the surveyor, namely wall cotoneaster, montbretia and rhododendron – see **Appendix IV** for locations.

7.8 Whilst it is not illegal to host any species designated as such within a site, it is an offence, under current legislature, to knowingly permit the spread of INNS beyond the confines of your site, either via allowing it to grow unchecked or through the irresponsible removal / vegetation clearance and dumping of waste / plant matter.

7.9 The exact scope of works is currently unknown, with no proposed plans having been made available to the author, and as such in a precautionary sense it is recommended that the identified INNS are eradicated from the site by a licenced INNS contractor, including post-development monitoring to ensure successful eradication / prevent regeneration.

7.10 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.

Bats

7.11 Based upon the findings of the desktop study, the DBW and associated PRA, covered through sections 5.0 – 6.0 of the report and supported by **Appendix I**, the structure on site is duly

categorised as pertaining to '**Negligible**' bat roost suitability, in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th ed. (2023). See **Figure 7.1** below for an extract on roost criteria.

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.

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

7.12 Based upon the findings of the GLTA, all of the remaining trees on site are determined 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 7.2** below for a BCT 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 7.2 – *BCT extract on tree roost suitability criteria*

7.13 Bats are transient species group and both structure and trees can develop PRFs over time or following periods of damaging weather. In the highly unlikely event that bat(s), or evidence of bat(s), are found during any works within the red line boundary, then, as a legal requirement, the work at the site should immediately cease and an Ecologist should be contacted for further advice. If bat(s) or their roost(s) will be affected, then an EPSML may be required to legally commence with the works. See **Figure 7.3** below for indicative evidence of bats.

Figure 7.3 – *Indicative evidence of bats: droppings on the left / a common pipistrelle bat on the right*

7.14 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, particularly including the hedgerow, as well as tree lines beyond the site boundary. A bat-sensitive lighting plan is therefore recommended in order to avoid potential impacts to bats. 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: Light sources, lamps, LEDs and their fittings come in a myriad of different specifications which a lighting professional can help to select. However, the following should be considered when choosing luminaires and their potential impact on Key Habitats and features:

- All luminaires should lack UV elements when manufactured. Metal halide, compact 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.
- A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component.
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- Internal luminaires can be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill.
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges.
- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards.
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01.
- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt.
- Where appropriate, external security lighting should be set on motion-sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate.
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand.
- Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS.
- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues.
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

Breeding birds

7.15 No impacts are applicable in relation to any Sch.1 (WCA) specially protected bird species such barn owl, and no further surveys or recommendations are necessary in relation to specially protected birds, with no evidence of nesting identified on site.

7.16 Regarding wider breeding bird species, the hedgerow, trees and taller vegetation on site could provide a suitable nesting platform for birds during the breeding bird season. The structure could also provide a suitable nesting platform for birds adapted to urbanisation.

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.*

7.17 Given that all birds are protected when at the nest, it is recommended that any vegetation clearance or demolition works on site are carried out outside of the breeding bird season (March – August inclusive). For any works within the breeding bird season, a pre-commencement check of any impacted habitats able to support nesting birds (inclusive of the hedgerow, trees and taller vegetation) will need to be carried out by a suitably qualified ecologist / ornithologist in order to determine whether or not active nests are present. This will need to be carried out 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.*"

7.18 Where / if active nests are 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 (species dependent) 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

Badger & hedgehog

7.19 No evidence of badger was located within or in the immediate vicinity of the site by the surveyor. Despite this, given the nature of the surrounding habitats and the lack of barriers to commuting for this species, the presence of badger on the site is considered possible. Reasonable Avoidance Measures (RAMs) should, therefore, be actioned following controlled methods to safeguard this species during the proposed works.

7.20 Hedgehog could also utilise the site on an occasional basis owing to the habitat features as described. Therefore, the RAMs mentioned above should be extended to encompass this species during development, particularly where excavations / trenches will be made.

7.21 RAMs to minimise construction impacts and prevent harm or injury to badgers and hedgehog should include, as a minimum:

- All working hours should be limited to daylight (dawn – sunset, or dawn – 6pm in winter) to avoid disturbing any badger or hedgehog in vicinity of the development area.
- A pre-commencement check of the site, any stored building materials and the immediate vicinity of development footprint will be carried out prior to any works each morning in order to check for the presence of badger or hedgehog.
- Materials that may cause entrapment such as plastic / metal fencing, as well as those which could be potentially harmful to terrestrial mammals such as chemicals, should not be left around the site following the cessation of daytime work.

- No bulky equipment / general construction aggregates should be left around the development area, instead leave them on bare ground away from the risk zone.
- 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.
- Fires must not be used as a means of the disposing of waste materials.
- Any trenches or excavations must either be covered at the end of each working day, or a low angle (no more than 45°) sloping board of approximately 300mm width should be provisioned within any uncovered excavations to provide a means of escape for any terrestrial mammals.
- Any temporarily exposed open pipe system MUST be capped in such a way as to prevent badgers gaining access, as may happen when contractors are off site.
- 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.

Herpetofauna

Great crested newt (GCN)

7.22 Given the absence of GCN records within the immediate search radius, and the below average scoring of the pond present on site, it is considered that the risk of GCN utilising the site in any format is minimal. No further surveys or recommendations are made in relation to this species.

Wider amphibians

7.23 Given the presence of a single water body on site, the presence of more robust amphibians within the red line boundary on an occasional basis is considered possible. Any clearance and habitat management should therefore have due regard to local wildlife as discussed, and the RAMs mentioned previous for terrestrial mammals should be extended to accommodate common amphibians.

7.24 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.

7.25 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.

7.26 Where it is discovered great crested newts would be impacted by the proposals, a development licence (options include District level licence, traditional development mitigation licence, low impact class licence or other) informed by survey data, and a suitable mitigation strategy may be required to legally proceed with the works. In some cases, a licence may not be necessary where risks can be avoided, minimised or mitigated for through reasonable avoidance measures (RAMs), 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.

Reptiles

7.27 The site is considered unsuitable for reptiles, and the risk of impacts to this taxon is minimal. No further recommendations are necessary.

Invertebrates

7.28 The site is not considered to be locally distinct for this species group and no specific intervention measures apply. Enhancement options have been presented in **Appendix III**.

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Appendix I: Site Photographs

Plate 1 – *Hedgerow to the west of site*

Plate 2 – *Nature of the rear garden; note the pond*

Plate 3 – *Woodland to rear of site*

Plate 4 – *View of house from end of garden*

Plate 5 – *Montbretia located on site*

Plate 6 – *Eastern hedgerow*

Plate 7 – *Area of previous 'dense vegetation'*

Plate 8 – *Southern aspect of the structure on site*

Plate 9 – *Further angle of southern aspect, with eastern aspect also visible*

Plate 10 – *Northern elevation*

Plate 11 – *Eastern elevation of the building*

Plate 12 – *Nature of the internal loft space*

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**
Ash	*Fraxinus excelsior*	R
Bramble	*Rubus fruticosus agg.*	O
Broom	*Cytisus scoparius*	R
Butterfly-bush	*Buddleja davidii*	R
Cat's-ear	*Hypochaeris radicata*	LA
Cherry Laurel	*Prunus laurocerasus*	R
Cherry species	*Prunus sp.*	R
Cock's-foot	*Dactylis glomerata*	R
Common & Atlantic Ivy	*Hedera helix*	O
Common Chickweed	*Stellaria media*	R
Common Nettle	*Urtica dioica*	R
Common Ragwort	*Jacobaea vulgaris*	R
Creeping Buttercup	*Ranunculus repens*	R
Cypress species	*Cupressus sp.*	R
Dandelion species	*Taraxacum agg.*	R
Druce's Crane's-bill	*Geranium × oxonianum*	R
Firethorn	*Pyracantha coccinea*	R
Garden Privet	*Ligustrum ovalifolium*	LD
Hart's-tongue	*Asplenium scolopendrium*	R
Heather	*Calluna vulgaris*	O
Herb-Robert	*Geranium robertianum*	R
Holly	*Ilex aquifolium*	R
Lords-and-Ladies	*Arum maculatum*	R
Male-fern	*Dryopteris filix-mas*	R
Montbretia **INNS**	*Crocosmia × crocosmiiflora*	LA
Oak species	*Quercus sp.*	R
Oregon-grape	*Mahonia aquifolium*	R
Persian Ivy	*Hedera colchica*	R
Petty Spurge	*Euphorbia peplus*	R

Red Fescue	*Festuca rubra agg.*	O
Rhododendron **INNS**	*Rhododendron ponticum*	R
Rose species	*Rosa sp.*	R
Scots Pine	*Pinus sylvestris*	R
Silver Birch	*Betula pendula*	R
Sowbread	*Cyclamen hederifolium*	R
Springy Turf-moss	*Rhytidiadelphus squarrosus*	F
Sycamore	*Acer pseudoplatanus*	R
Toadflax species	*Linaria sp.*	R
Tutsan	*Hypericum androsaemum*	R
Wall Cotoneaster **INNS**	*Cotoneaster horizontalis*	R
Willowherb species	*Epilobium sp.*	R
Yellow Iris	*Iris pseudacorus*	R
Yorkshire-fog	*Holcus lanatus*	A

Appendix III: Biodiversity Enhancement: General Recommendations

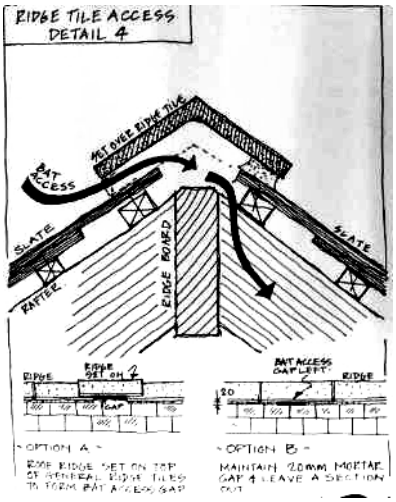
Bats

Integrated bat box

The Habibat Bat Box is a solid box made of insulating concrete with internal roosting space. The box blends seamlessly into brick-built properties and may be incorporated into the fabric of buildings, being best placed on gable elevations.

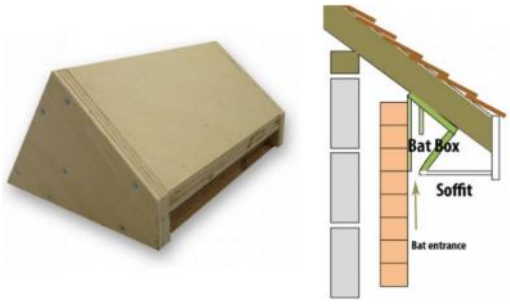
Ridge access

Where appropriated, ridge tile access should be made with the incorporation of traditional Bitumen 1F underfelt immediately beneath ridge tiles. Breathable BRM membrane can cause significant problems where bats are in contact with it, whereby their fine claws become entangled within the fibres of the membrane, entrapping and killing bats.



Soffit access

Where soffits are instated at gable elevations, roost provision may be instated in the form of a soffit bat box with internal roosting space.



Externally fitted boxes

A large number of externally fitted box models for bats exist for buildings and trees. Suitable models for both buildings and trees may include the Eco Kent Bat 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 – 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.

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)

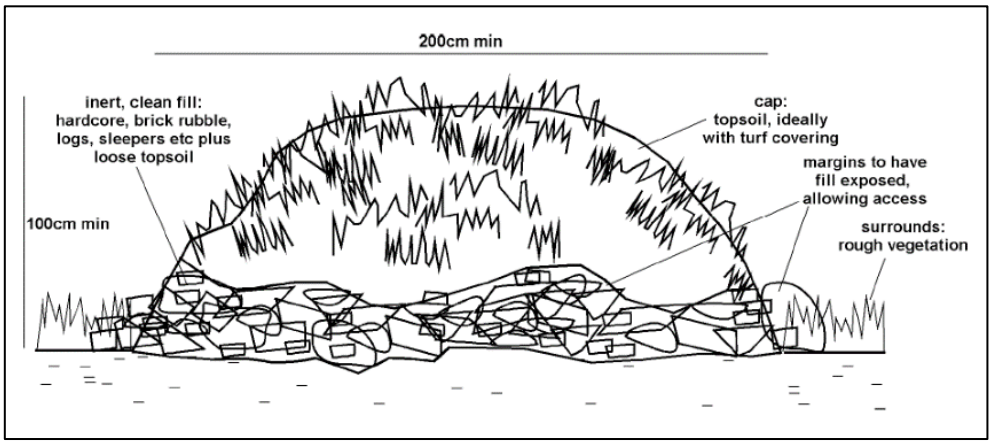
How to make your hibernaculum yourself:

- 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:



Invertebrates – Insect Hotels

Insect hotels provide a habitat for a variety of insects. Designs can be small or large enough to create a focal point in a wildlife garden and sturdy enough to last for years. Ensure hotels are made from untreated wood, which is important as insects need natural materials to thrive, and split into sections that each contain a different nesting material. There should be pine cones for ladybirds, wood slits for butterflies and moths, bamboo canes for solitary bees, and loose pieces of wood for beetles. Placement: Size against walls or fences and fix to prevent toppling. The feet keep the main body off the damp ground. You could push bricks against them to keep the bug hotel upright, which would also encourage woodlice and even frogs that enjoy cool stone conditions.

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

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, hawthorn, hazel, and holly, whilst climbers/creepers such as hops and honeysuckle 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, wild cherry, and alder buckthorn.

	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

- h2b - Other hedgerow (523)
- g4 - Modified grassland (16, 32, 81, 106, 524, 827)
- r1 - Pond (41, 49)
- u 1140 - Urban raised planter
- u 847 - Urban introduced shrub (81, 510, 524)
- u1b5 - Buildings
- u1b6 - Other developed land
- w1h - Other woodland mixed (81)
- Red Line Boundary

Survey Date: 27/11/2023
Drawn: Mr. B. Richards
Date Drawn: 27/11/2023
Checked & Approved: Mrs. K. Wilding
Size: A3
Scale: 1:400

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