

Preliminary Ecological Appraisal

July 2023

Denbigh
Pex Hill
Cronton
Widnes
WA8 5QN

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Denbigh, Pex Hill, Cronton, Widnes, WA8 5QN
Preliminary Ecological Appraisal

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

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Executive Summary

As part of a proposed planning application at the property Denbigh, Pex Hill, Cronton (termed as 'the Site' and 'application site' in this report), Tyrer Ecological Consultants Ltd were commissioned to carry out a Preliminary Ecological Appraisal (PEA) in early June 2023.

The PEA was commissioned by RJG ARCHITECTURE LTD on behalf of Dr Araz Athar; proposals are for demolition of the existing house and outbuildings followed by the erection of a replacement house together with other associated works including alterations to the boundary fence.

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

Habitats: Adjacent habitats including trees and hedgerows should be protected by perimeter fencing around construction zones(s) prior to the commencement of works and should be in place throughout the works to prevent the encroachment of construction related works beyond the Site boundary.

Bats: Based upon the findings of the survey covered through sections 6.0-7.0 of the report, whilst following best practice guidance, **B1-B4** were determined to offer '**Negligible**' bat roost suitability in accordance with the *Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines*, 3rd ed. (2016) (see **Figure 8.1**). All on Site trees and site adjacent trees were co-determined to offer **Negligible** bat roost suitability.

Notwithstanding the above – several measures are recommended for Bats – please see section 8.8 – 8.14.

Birds: In relation to common birds, trees provide viable nesting opportunities for smaller birds though the buildings were considered unsuitable for nesting birds; as breeding birds are protected when breeding / when at the nest, timings implications are applicable to avoid disturbing or harming breeding birds and breaching legislation.

It is recommended that no removal of, or works to, any trees that may be used by breeding birds, shall take place during the main bird breeding season (1st March to 31st August inclusive), unless a competent Ecologist has undertaken a careful, detailed check for active birds' nests immediately before any works and provided confirmation that no birds will be harmed and/or that there are appropriate measures in place to protect nesting bird interest on site. Appropriate measures - 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 (typically 5-10 metres) in which no disturbance is permitted until the nest is no longer in use. This would have to be coordinated through the expert judgement of the professional ecologist and is typically species dependant.

Hedgehog: Based on the results of the appraisal; hedgehogs may be present in the locality and can access the garden below holes in perimeter fencing. Development related works have the potential to injure or kill hedgehogs in the absence of reasonable precautionary measures.

A precautionary approach is recommended to be adopted considering hedgehogs – see section 8.0.

Herpetofauna: No further surveys for great crested newts (GCN) are recommended as part of this appraisal, however it is considered that given there are six ponds within 250 metres and an array of habitats providing favourable connectivity, reasonable avoidance measures (RAM's) are recommended to be implemented as part of any construction work to act as a sufficient safeguard for amphibians and other wildlife that may be present locally. It is therefore recommended that a detailed and bespoke working Method Statement should be formulated outlining key measures and working protocols to be in effect during the proposed work schedule.

Any RAM's for the Site should be drafted by a suitably qualified Ecologist/Ecological clerk of works (ECoW) with strong experience of formulating such technical documents. Upon gaining understanding of the details contained within the RAM's, the applicant and associated contractor team would be expected to comply with the measures recommended within it. Any RAM's would be subject to the approval of the local planning authority - following approval, adherence to the terms of the RAM's would be a requirement of the named authority and the applicant would be the liable party for any non-compliance, with the Ecologist/ECoW acting for and on behalf of the applicant. The applicant and all contractors would be aware that if at any stage great crested newts (GCN) 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.

The applicant should be aware that 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 (RAM's), 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.

Enhancement: Enhancement ideas that consider the specific scale and nature of the proposals in accordance with the principles of 'Biodiversity Net Gain: Good practice principles for development' (CIEEM et. al., 2019), are presented in **Appendix III**.

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1.0 Introduction & Scope

- 1.1 As part of a proposed planning application at the property Denbigh, Pex Hill, Cronton (termed as 'the Site' and 'application site' in this report), Tyrer Ecological Consultants Ltd were commissioned to carry out a Preliminary Ecological Appraisal (PEA) in early June 2023.
- 1.2 The PEA was commissioned by RJG ARCHITECTURE LTD on behalf of Dr Araz Athar; proposals are for demolition of the existing house and outbuildings followed by the erection of a replacement house together with other associated works including alterations to the boundary fence. See **Figures 1.1 – 1.2 for Existing plans & elevations and Proposed plans and elevations.**
- 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, that could be affected by the proposals for which the application 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 baseline nature of the application 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 (as necessary) within a suitable report,
 - Identify, measure and map habitats using *UK Habitat Classification – Habitat Definitions Version 1.1* (2020),
 - 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',
 - 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 were identified, measured and mapped using *the UK Habitat Classification – Habitat Definitions Version 1.1* (2020),
 - Buildings and trees 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, 3rd ed. (2016) and British Standard 8596:2015 *Surveying for bats in trees and woodland*,
- 1.7 This report provides 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 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 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.



Figure 1.1 – Existing plans & elevations

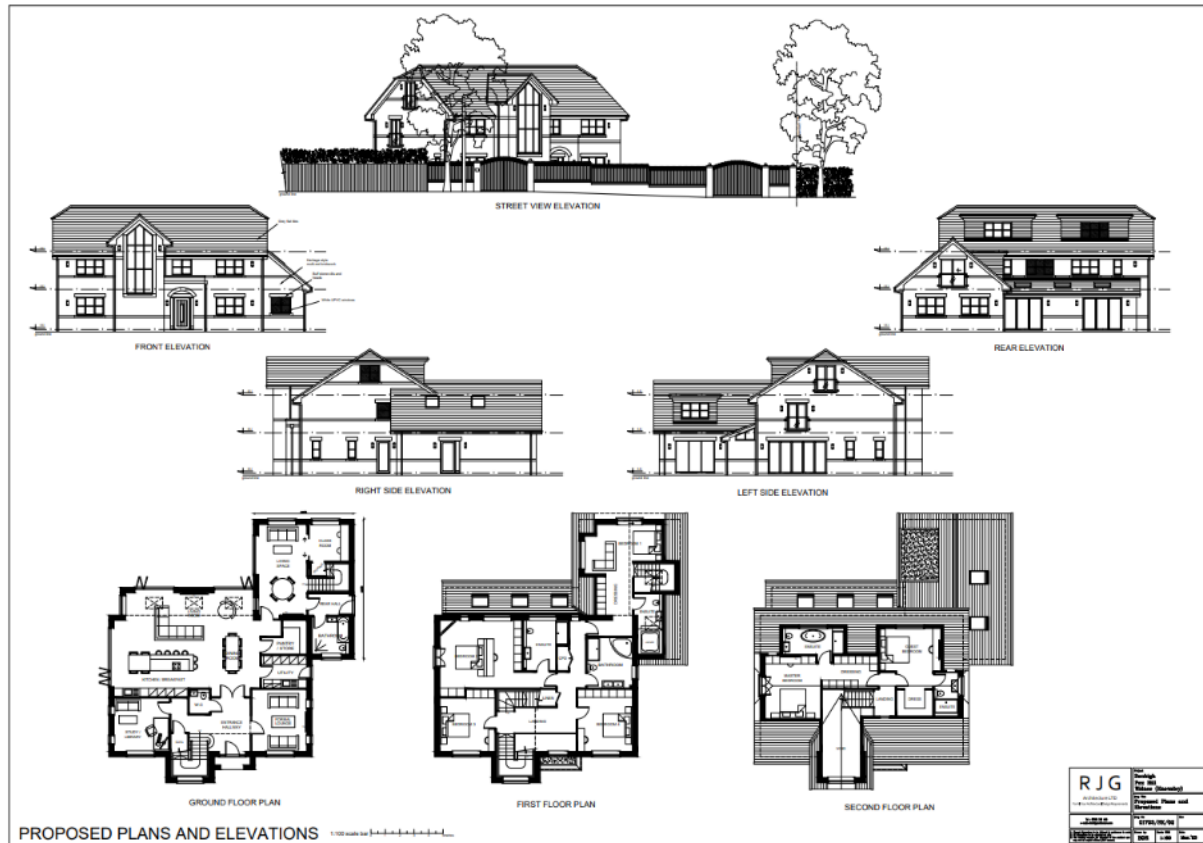


Figure 1.2 – Proposed plans and elevations

2.0 Legislation & Policy

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

- Biodiversity Net Gain. Good practice principles for development,
- BS 42020:2013 Biodiversity – Code of Practice for Planning and Development,
- Conservation of Habitats and Species Regulations (amendment) (2019) (EU Exit),
- Countryside Rights of Way (CROW) Act (2000),
- Natural Environment and Rural Communities (NERC) Act (2006),
- The Hedgerow Regulations (1997),
- Town and Country Planning Act (1990),
- Wild Mammals Protection Act (1996),
- Wildlife and Countryside Act (WCA) (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 (e.g. bats), 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	Relevant Legislation	Level of Protection
Badger	Protection of Badgers Act (1992), Wildlife and Countryside Act (1981) (as amended)	Illegal to wilfully kill, injure or take a badger (or attempt to do so). Cruelly ill-eradicate a badger. Dig for a badger. Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it. Cause a dog to enter a badger sett. Disturb a badger when it is occupying a sett.
Bats	CROW Act (2000) Conservation of Habitats and Species Regulations (2019) (EU Exit) Wildlife and Countryside Act (1981) (as amended)	All British bats and their roosts are afforded full protection from damage/destruction and bats may not be injured/killed/taken at any life stage. Once identified, roosts are protected whether the bat is in occupation or not.
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 (2019) (EU Exit) Wildlife and Countryside Act (1981) (as amended)	Great Crested Newts (GCN's) are fully protected from disturbance, killing, injuring or possession at any life stage. Confirmed breeding ponds and resting places are afforded the same protection.
Invasive Plant Species	Wildlife and Countryside Act (1981) (as amended)	Species listed within Schedule 9 as invasive, including Japanese Knotweed (<i>Reynoutria japonica</i>) and Himalayan Balsam (<i>Impatiens glandulifera</i>), for example, carry notoriety regarding development. The Act makes it an offence for any person to grow or cause to grow in the wild any plants listed as invasive.
Reptiles	Conservation of Habitats and Species Regulations (2019) (EU Exit) - SL/SS Wildlife and Countryside Act (1981) (as amended) - SL/SS CRoW Act (2000)	All native reptile species have some degree of protection in the UK, through section 8(1) and (5) (specified in Schedule 5) of the Wildlife and Countryside Act 1981 (as amended). Sand lizard (SL) and smooth snake (SS) are species of principal importance however with greater protection(s).

Relevant Policy

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

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

- 2.5 Paragraph 180 of the National Policy Planning Framework (as revised in July 2021) states:

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

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

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

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

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

2.6 The Knowsley Local Plan Core Strategy (2016) stipulates:

“...the design of development will be expected to support and integrate biodiversity enhancements, flood risk mitigation, energy/resource efficiency and waste recycling requirements, to accord with Policy CS8: Green Infrastructure, Policy CS24: Managing Flood Risk and Policy CS26: Waste Management.

and in section 5.91:

“In some circumstances, adequate mitigation and/or compensation for biodiversity loss may be acceptable but incapable of being provided within the application site. In such cases where appropriate, priority will be given to equivalent off site opportunities for such mitigation or, as a last resort, compensation. Such opportunities shall be prioritised in the following order:

- Firstly sites in the immediate locality of and/or within any Core Biodiversity Area near to the application site,*
- Secondly, sites in a Nature Improvement Area identified within the borough,*
- Lastly, sites in a Nature Improvement Area identified outside the borough.*

2.7 Where more detailed surveys are recommended by the Ecologist following a preliminary assessment, then the Local Planning Authority, upon the advice of their ecological advisors, should not determine an application until such time that all relevant information is gathered, i.e. - until all required survey work has been completed.

2.8 The above is in accordance with the obligations placed upon Local Authorities by way of its duties under the Conservation of Habitats & Species Regulations 2019 (EU Exit).

3.0 Priority Habitats & Species

National Context

- 3.1 In the United Kingdom, legal protection and otherwise legislative recognition is afforded to particular habitats and species. Certain habitats and species are considered to hold nature conservation importance and are thus protected, due to factors such as their ecological functionality, connectivity, rarity, their vulnerability, environmental importance, or declining population / status. They are referred to as priority habitats and priority species.
- 3.2 The UK Biodiversity Action Plan (UKBAP) provided a statutory basis for lists of habitats and species of national conservation importance – now transposed under Section 41 (s.41) of the Natural Environment Rural Communities Act 2006 (NERC Act).
- 3.3 The following Section 41: Habitats of Principal Importance in England and: Species of Principal Importance in England are considered potentially relevant to the appraisal (non-extensive):

Habitats:

- Hedgerows.

Species:

- Bats: brown long-eared (*Plecotus auritus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and common noctule (*Nyctalus noctula*),.
- s.41 bird species that include: skylark (*Alauda arvensis*), bullfinch (*Pyrrhula pyrrhula*), corn bunting (*Emberiza calandra*), lesser redpoll (*carduelis cabaret*), grey partridge (*Perdix perdix*), song thrush (*Turdus philomelos*), lapwing (*vanellus vanellus*), dunnoek (*Prunella modularis*), yellowhammer (*Emberiza citrinella*) for e.g.,
- Land mammals that include: hedgehog (*Erinaceus europaeus*), for e.g.,
- Herpetofauna that include: great crested newt (GCN) (*Triturus cristatus*), common toad (*Bufo bufo*), common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*) for e.g.,
- Botanical species that includes purple ramping-fumitory (*Fumaria purpurea*), bluebell (*Hyacinthoides non-scripta*), cornflower (*Centaurea cyanus*), for e.g.

Regional Context

- 3.4 Local Biodiversity Action Plans (LBAP's) are a way of encouraging people to work together to deliver a program of continuing action for biodiversity at a local level. LBAPs also embrace the idea of 'local distinctiveness'; habitats and species which are not considered UK conservation priorities can be catered for by LBAPs if they are of particular local significance.
- 3.5 LBAP's set out practical steps that aim to help protect, enhance and improve biodiversity where possible, as well as promote biodiversity at a local level.
- 3.6 The North Merseyside Biodiversity Action Plan (NMBAP) lists key local habitats/species considered to be rare or declining in the area; some may be of national concern while others are significant at local level. The following local plans are considered of potential relevance to the survey.
- Bats,
 - Dragonflies (*Odonata*),
 - Urban birds - house sparrow (*Passer domesticus*), house martin (*Delichon urbica*), swift (*Apus apus*), and starling (*Sturnus vulgaris*).

3.7 Whilst not directly relevant the nearby Greater Manchester Biodiversity Action Plan (GMBAP) further contains key local habitats/species considered to be rare or declining in the area. The following local plans are considered of potential relevance to the survey.

- black redstart (*Phoenicurus ochruros*);
- native black poplar (*Populus nigra subsp. betulifolia*);
- willow tit (*Poecile montanus*).

4.0 Methodology

Desktop study

4.1 A desk study was undertaken to identify existing information on the presence of designated sites, protected and notable species and habitats within proximity as follows:

- Statutory designated sites for nature conservation within 5km; and,
- Non-statutory designated sites for nature conservation within 2km.

4.2 The following key sources were consulted:

- Natural England and Joint Nature Conservation Committee (JNCC) websites;
- The Multi Agency Geographic Information for the Countryside (MAGIC) website.

4.3 Reference was also made to Google Earth Pro and Ordnance Survey (OS) maps of the local area and online aerial images (www.google.co.uk/maps) in order to aid in determining any features of nature conservation interest in the wider area.

4.4 A commercial data request to the Local Environment Records Centre (LERC) serving the area Merseyside Biobank has not been sourced at this time:

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 (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.”

- 4.5 Based on the small scale, low impact nature of the proposals, a data search would be unlikely to provide essential information needed to inform an impact assessment and has not been commissioned at this time for that reason.
- 4.6 As exemptions outlined in the guidance can be applied in good practice for the proposals for which the applicant seeks consent, it is considered unnecessary to conduct a commercial data request at this time as enough information has been obtained from a standard desktop assessment and from field work, however, if a data search is considered to be necessary by the Local Authority, or environmental 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.

Field survey

- 4.7 A daytime preliminary ecological appraisal was conducted on the 2nd June 2023 in dry conditions with clear sunshine (16°C) with 100% visibility, average wind 2/12 (Beaufort scale), 0% cloud cover, by the following qualified surveyor (**Table 4.1**).

Table 4.1 - Surveyor credentials

Name	Description of most relevant credentials
Mr. M. Pritchard ACIEEM (Senior Ecologist)	• Six years professional Ecological consultant experience & extensive training in cross habitat/species ecology; • Relevant Degree: FdSc (Countryside, Conservation & Recreational Management); • Licenced in Bats: (2020-5039-CLS-CLS) (Class 1) and accredited agent on the (Class 2) Natural England bat licence of Mrs. K. Wilding (CLS-14227); • Licenced for Great Crested Newt: CL08 (Great Crested Newt Survey Level 1) - 2018-34062-CLS-CLS (England); • Licensed for Sand Lizard & Natterjack Toad (2022-62891-SCI-SCI); • FISC Level - 3 (2019) (Botanical); • Trained in UK Habs / BNG condition assessment.

Floristic assessment

- 4.8 The survey followed the *UK Habitat Classification Version 1.1* (Butcher, et.al., 2020) method with reference to the Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology standards (JNCC, 2010) and reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Technical Guidance Series “*Guidelines for Preliminary Ecological Appraisal, 2nd Edition*” (CIEEM, 2017).

- 4.9 During a 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 (amendment) (EU exit) Regulations (2019). Species nomenclature follows Stace, C. (2019) – definitive English names.
- 4.10 Additional 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 (see **Figure 4.1**).

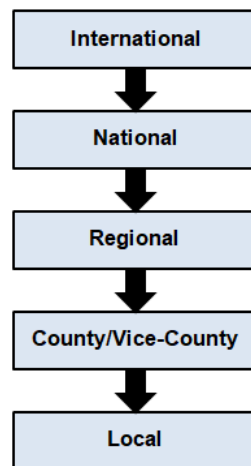


Figure 4.1 – Geographic Frame of Reference entailing degrees of conservation importance

- 4.11 The Site 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). For botanical species list compiled, see **Appendix II**.

Faunal assessment

- 4.12 During a site walkover the identification and/or evidence of priority fauna encountered was documented whilst in tandem the area was assessed for the potential to support priority species.

Bats

- 4.13 Buildings on site were inspected for potential places that may be of value to bats and to determine evidence of use. This typically involves a search for potential roost features (PRF) both internally (investigation of loft spaces/upper floors/inside elevations) as well as externally, comprising an investigation of features (roof material, building components) using a high-powered torch. Field signs of bats typically comprise bat droppings, incidental animal presence, dead specimens and/or prey items. The surrounding habitat was also considered in terms of general suitability.
- 4.14 Trees were inspected for places that may be of value to bats and to determine if evidence of use was present; this typically involves a search for potential roost features along with an investigation of those features using a high-powered torch or close focus binoculars. Potential roost features 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 Ivy with stem diameters in excess of 50mm or bat/bird boxes.

- 4.15 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, 3rd ed. (2016): (see **Figure 4.2**).

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.

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^a 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 or hibernation ^b). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential. ^c	Habitat that could be used by small numbers of commuting bats 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 or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are 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 commuting 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 or tree 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 ^a and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats 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 For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

^b 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., 2015). 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 large buildings in highly urbanised environments.

^c This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Figure 4.2 – Bat Conservation Trust (BCT) guidelines extract

- 4.16 Factors typically considered during the preliminary roost assessment include:

- Knowledge of bat species relevant to the site location and geographical range,
- Nature of the immediate / surrounding habitat in relation to foraging opportunities,
- Presence and conditions of loft spaces, upper floors, roof linings,
- Presence / absence of roost potential,
- Value and types of roost potential, if present (i.e. - maternity, hibernation, transition).

Birds

- 4.17 The Site was inspected for evidence of nesting and suitability for relevant avian species including for breeding, passage and overwintering use. Bird species observed and heard were recorded, 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 the ground.

- 4.18 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 (WCA) (1981) (as amended) for example barn owl (*Tyto alba*) and other Sch.1 (WCA) listed species.

Other terrestrial mammals

- 4.19 The walkover included a search for field signs 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.
- 4.20 The Site was also assessed for the suitability of European hedgehog.

Herpetofauna

- 4.21 The terrestrial value of the Site was assessed in relation to amphibian shelter, hibernation, foraging and commuting habitat suitability. The walkover also aimed to identify any ephemeral pools or unmapped waterbodies.
- 4.22 During desktop assessment a 250 metres radial search was undertaken from a site central grid reference in relation to the presence of ponds, ditches or other water bodies that may support great crested newts (GCN) for breeding. 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.*

- 4.23 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.
- 4.24 The Site and its surroundings were assessed for suitability for use by reptiles known to the county; during the survey particular attention was 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 lizards use a variety of habitats from woodland glades to heaths, walls and pastures, as well as brownfield sites,
 - slow-worms use similar habitats to common lizards, and are often found in rank grassland, gardens and derelict land,
- 4.25 In assessment of a site for reptiles several important habitat characteristics are considered, outlined in **Table 4.2 below**, as derived from the *Reptile Habitat Management Handbook* (Edgar, 2010).

Table 4.2 – 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

- 4.26 The Site was assessed for the presence of features that should be considered of high value to invertebrates. Several important features were considered, based on the assemblage descriptions provided within the Research Report "*Surveying terrestrial and freshwater invertebrates for conservation evaluation*" (NERR005, 2007), including but not limited to:
- Abundance of wildflower habitat,
 - Wood decay,
 - Early successional mosaic habitat,
 - Shaded ground layer,
 - Still and flowing water.
- 4.27 Results, conclusions and recommendations in this report are based on several factors i.e.
- Skills and experience of the ecologist,
 - 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.
- 4.28 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 and author Mr. Pritchard.

5.0 Limitations

- 5.1 This report does not contain a comprehensive list entailing the totality of botanical taxa on Site. Though the list in **Appendix II** represents the Site and helps distinguish habitats, a PEA is not a concentrated effort to gather full botanical information. Many plant species are only evident at certain times of the year, consequently, it is possible some plant species may have gone undetected, and a precautionary approach has been considered in the conclusions and recommendations.
- 5.2 No access issues arose, and the surveyor was able to carry out a robust assessment of all areas proposed to be directly affected by development.
- 5.3 In considering limitations, no significant constraints were experienced that might adversely influence the results, conclusions, and recommendations of this report which have been provided in accordance with best practice guidance.

6.0 Desk Study Results

- 6.1 The Site is located on Pex Hill, near to the Cronton Lane (A5080) junction, opposite Cronton Sixth Form College in Widnes, approximately 10.5 kilometres west of Warrington town centre.

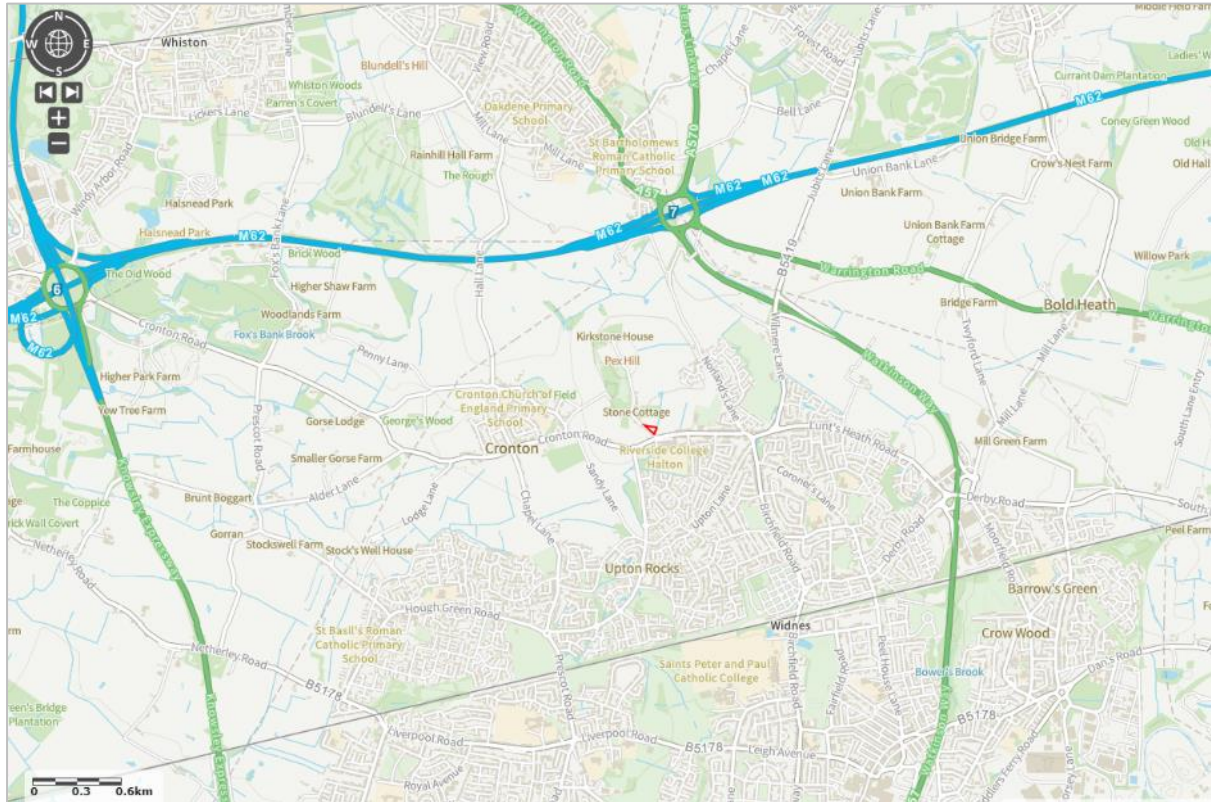


Figure 6.1 – Location of the Site within the context of the wider setting (OS Maps 2023: OSGB36 - 1:25,000)

- 6.2 Along Pex Hill from which the Site is accessed it is part-screened by a 2m high front boundary wall and gates and the road is flanked by scattered mature broadleaf trees.
- 6.3 The 0.2 ha application site is triangular in shape. It comprises a 1930's traditional red-brick detached house; detached side garage; summer house; air-raid shelter and outbuilding – these built structures are later labelled **B1-B4** and **Target Note 1** in this report respectively. The garden is a lawn space managed for amenity use with a minor area of cultivation; a young line of conifers are planted on Site to the south boundary.
- 6.4 To the eastern boundary there is an agricultural field, to the northern boundary there is an neighbouring open pasture/garden, to the south-west there is a large neighbouring property garden with surrounding treelines and amenity grassland preceding Cronton Garden Centre.
- 6.5 Pex Hill Country Park is situated 200m north-west from the Site; locally notable habitats include good quality semi-improved grasslands (acid & neutral) and lowland mixed deciduous woodlands.
- 6.6 There are six ponds within 250m (see **Figure 6.2** for visual aid).

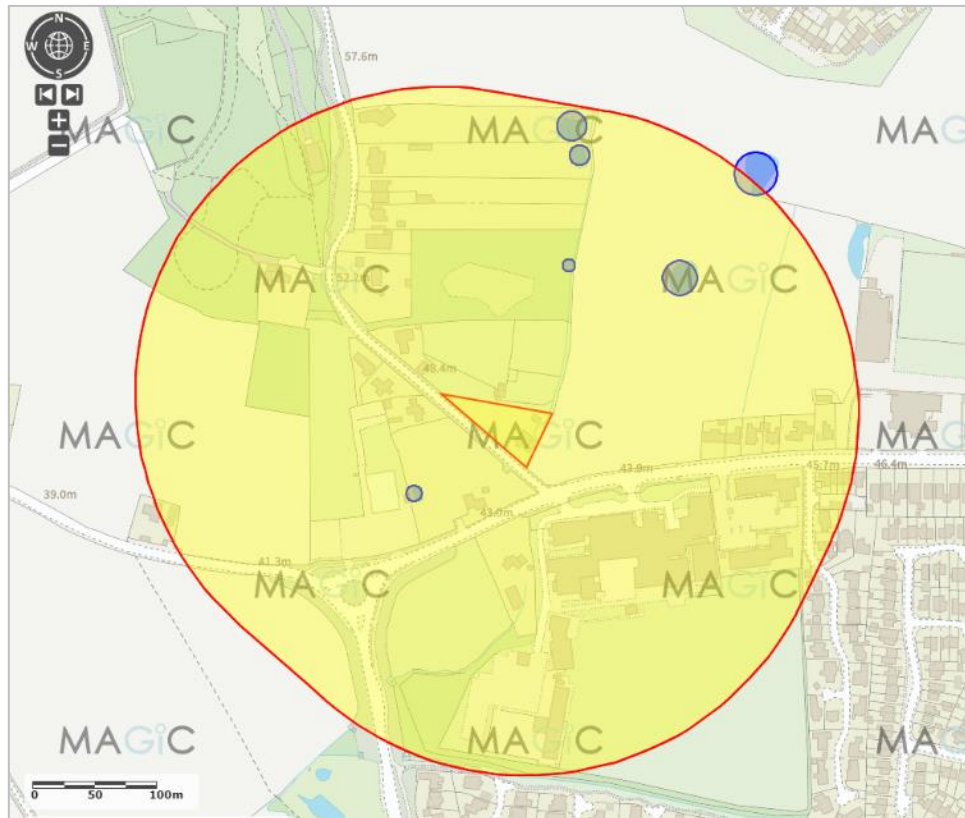


Figure 6.2 – Six ponds are located within 250m of the Site (MAGiC Maps 2023)

- 6.7 Locally surrounding environs present a favourable variety of terrestrial habitat types with what is broadly favourable habitat inter-connectivity by way of vegetated gardens, tree lined roads, grassland and woodlands, permitting opportunities for breeding, shelter, dispersal and commuting for biodiversity. It should be noted residential infrastructure such as drop kerbs, walls, busy roads and fast-flowing running water presents significant dispersal barriers to many UK terrestrial species. The protected species most typically associated with the habitat types described are bats, namely the common pipistrelle bat, a species typically associated with roosting in both rural and urban environments close to woodland.

NB: *Where quality habitat is present close to buildings then the percentage use of those buildings, by bats, increases given that roost opportunities are available and vice versa.*

Statutory designated sites

- 6.8 There are no statutory designated sites within 2.0 kilometres, see **Table 6.1**.
- 6.9 A review of MAGIC maps identified that the Site is located within the SSSI Impact Risk Zone (IRZ) of the Mersey Estuary Site of Special Scientific Interest (SSSI) and Special Protection Area (SPA). The IRZ system sets the criteria for development whereby a Local Authority (Knowsley Council) would be required to consult with Natural England regarding potential risks to designated sites posed by the proposed development.
- 6.10 It is considered that the proposed development meets none of the criteria whereby the Local Authority would be required to consult with Natural England regarding potential risks to the Mersey Estuary posed by the proposed development on Site.

NB: *“It is important to note that the SSSI IRZs only indicate Natural England’s assessment of likely risk to the notified features of nationally designated sites. Where they indicate such a*

risk is unlikely, this does not mean that there are no potential impacts on biodiversity or the wider natural environment.”

Non-statutory designated sites

- 6.11 Pex Hill Country Park (including Pex Hill Quarry), Cronton, is 200m north-west from the Site and is a local wildlife site (LWS), cited for areas of lowland heath with associated areas of acidic grassland and oak dominated woodland overlying sandstone. The Quarry area adds diversity.
- 6.12 Based on spatial separation, low scale and development type, the proposals carry no direct construction related risks (mechanical damage, environmental or pollution related risks) that could impact the habitats and species associated with Pex Hill local wildlife site.
- 6.13 Further study of MAGIC maps highlights the following important contextual protected species information:
- There are no granted Protected Species Mitigation licences within 2.0 kilometres.
 - There are no records of great crested newt in the Great Crested Newt Class Survey Licence Returns (England) dataset within 2.0 kilometres.

7.0 Field Survey Results

7.1 Habitat survey

7.1.1 See **Table 7.1** (below) for baseline habitat information and descriptions; refer to **Appendix I** for any supporting imagery; scientific names for species named in **Table 7.1** are given in **Appendix II**.

7.1.2 Refer to **Appendix IV - UK Habitats Map** for the location of habitats & Target Notes (TN).

Table 7.1 – UK Habitat codes and descriptions with Target Notes

Habitat code / name	Description
g4 11 – Scattered trees	Three early mature pear trees are present in the west of the garden lawn.
g4 16 – modified grassland; tall forbs	An unmanaged area of stinging nettles 80%, red campion 10% and bramble 10% is present in the north-east corner of the Site behind the summer house and air raid shelter. This area also included spear thistle and smooth sow thistle.
g4 64 – modified grassland; mown	The garden is a large mown grassland managed for visual amenity with a flat topography and consistent sward <40mm; the species present are indicative of neutral-acidic conditions subject to nutrient improvement with red fescue agg. dominant alongside perennial rye; Yorkshire-fog and common bent are frequent in the sward and rarer grasses included annual meadow-grass. Species poor as a collective, occasional-rare forbs included meadow buttercup, yarrow, creeping buttercup, daisy, common chickweed, greater plantain, cats-ear dandelion, selfheal, white clover and common ragwort.
u1b – developed land. sealed surface	Hardstanding is present in the south-east of Site around the dwelling, side garage and outbuilding.
u1b5 - buildings	B1-B4 are described in section 7.3.
u1b6 – other developed land	See Target Note 1 .
u1e – built linear feature	A short ~1m high wall is erected around the built elements of the Site in the south-east region.
w1g6 – line of trees	A young yet established line of Leyland cypress trees is instated within the confines of the garden fencing along most of the southern boundary. Two self-seeded young Sycamore are included.
Target Note	1 – Underground shelter – just west of B4 (summer house) is an underground air raid shelter of approximate dimensions 6.5 x 3.8 x 3.0 metres (length x width x height). Most of the shelter, the roof of which is at ground level, is covered over by a large plastic tarpaulin sheet and successive scattered ruderals, though the single entrance way is open access. The underground shelter comprises a standard size door entrance leading down into a short and narrow 'L' shaped staircase leading into one inner chamber. The underground chamber is dark, cool, spacious and dry though the ground holds a thick layer of wet black gunge. A shaft from the surface where

	historically items could have been lowered was capped with a iron cover. The walls and ceilings are bare; the only notable feature was a large crack in the ceiling creating a plated effect similar to a cave. The crack appears to be the result of steady weathering and natural degradation and provides a wide crevice of approximately 10cm gradually declining to 1cm and may provide hibernation value to bats as a result. No evidence of bats was located at the feature though it should be stated the soupy nature of the ground would not disclose evidence of bats such as droppings. The underground shelter hosts no value for summer use by bats.
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7.2 Vegetation

Notable species

- 7.2.1 No priority species or species of conservation importance based on rarity or status were identified on site during the Site walkover; all species encountered were considered common locally and beyond.

Invasive non-native species

- 7.2.2 No species listed as 'invasive' under Schedule 9 (Part II) of the Wildlife & Countryside Act (1981) (as amended) were identified upon assessment of the Site.

7.3 Bats

- 7.3.1 **Table 7.2** below describes each building in respect to their suitability to offer valuable roost features for bats and will include evidence of any incidental encounters. Visual aids are provided in **Appendix I**. See UK Habitats Map - **Appendix IV** - for annotated locations of described buildings.
- 7.3.2 For further context with **Table 7.2**, the local habitat features treelines, mature scattered trees and hedgerows that link well to woodlands, therefore can be considered as favourable for the foraging and commuting preferences of both loft-dwelling species, such as brown long-eared bats, and crevice-dwelling species, such as the Pipistrelle (*Pipistrellus*) bats.

Table 7.2 - Preliminary roost assessment & Building descriptions at the application site

B1 – Detached house
The existing house is located in the south-east of the property; it is a modernised two-storey detached building, constructed of smooth red engineered brick and has a hipped, tiled roof with clay ridges. There is a date plate of 'AD1935' testifying to its original age. It is occupied. Notable aesthetic features include four chimneys, UPVC soffits and eaves. Its condition was adjudged to be in a favourable state as no significant damage, vandalism or dilapidation was noted. Internally a loft space is present; the loft is effectively reflective of the roof shape and purlin/rafter by design of approximate dimensions 10.6 x 10.2 x 1.4 metres (length x width x height). Characteristically the loft is dry, dark, warm, non-draughty, spacious and lightly cobwebbed showing it has a low/absent disturbance regime from the occupants. There are low partition brick walls. No evidence of loft-dwelling bats was encountered despite the loft offering favourable conditions for maternity use and the loft appeared effectively sealed from the outside environment. No crevice-like opportunities are present inside the loft; the underside of the roof featured a plastic roofing membrane in good condition. Where present, crevice-dwelling bats can often roost between roof linings and the external surface cover such as tiles and slates where gaps permit ingress. In this case no natural lighting was seen filtering through to the loft suggesting no such ingress opportunities

exist. No evidence of crevice-dwelling bats was encountered; it should be stated absence of bat droppings or other field signs during preliminary roost assessment cannot always be relied upon to adjudge likely absence given the crevice-dwelling nature of most UK bats.

Externally the ridge tiles, roof tiles, eaves, soffits and areas around all windows and doors appeared tight-fitting and absent of any ingress features. No gaps were noted in the brick and mortar and the building had no evidence of bats upon it despite the survey occurring within the active season of bats when evidence would be most apparent.

Preliminary roost assessment (PRA) of **B1** determines it to host '**Negligible**' bat roost suitability in accordance with the Bat Conservation Trust (BCT) - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016).

B2 – Detached side garage

Located next to **B1** the garage is of material similarity to the house and features a typical metal garage lifting door; a notable difference is the garage features UPVC fascia's. Its condition was adjudged to be modernised and in a favourable state as no significant damage, vandalism or dilapidation was noted.

Internally the garage has a small storage room representing 10% of the inner space accessed via the garage door, an area that is dark, cramped and cluttered. The remaining 90% of the inner space accessed via side door has been converted into a games room featuring pool table and loose items. There is likely to be a void above what is a false ceiling; the physical dimensions of the loft would permit a height of no greater than 0.3 metres given the external assessment and the inner conditions of the void would be dark, warm and extensively restricted for bats. The loft void can be reasonably ascertained as unsuitable for loft-dwelling bats. Internally, the garage main is dry, 100% illuminated naturally via windows and accessed and cleaned regularly. No evidence of bats was found.

Externally, the garage was found to be similarly sealed as that of **B1** with no potential roost features a bat could utilise for ingress or crevice use, including at the fascia's.

Preliminary roost assessment (PRA) of **B2** determines it to host '**Negligible**' bat roost suitability.

B3 – Outbuilding

A small, modernised toilet outbuilding with single toilet room is present just north-east of the house in the east of the Site. It is of material similarity to the house and garage albeit with a pitched roof.

Internally absent of any bat roost value; externally was found to be tightly sealed with no potential roost features.

Preliminary roost assessment (PRA) of **B3** determines it to host '**Negligible**' bat roost suitability.

B4 – Summer house

A timber (90%) and brick (10%) single-storey structure with a multi-pitched, faux tile (possibly plastic) roof is present in the north-east region of the property, located in the rear garden next to a patch of unmanaged tall forbs and next to an air raid underground shelter (see **Target Note 1**). Features a small open area traditional patio to its frontage with two doors leading inside to two compartments, one of which has a large mosaic-like frosted glass window to the southern aspect. It is unoccupied and its condition was adjudged to be in a broadly favourable state though minor areas of dilapidation were found around the corners on the eastern aspect and around the window (described below).

Internally, there is no loft space, the roof underside is timber trussed and the structure is open to the ridge of collective approximate dimensions of 7.55 x 5.8 x 3.6 (length x width x height). There is no roof underlining; natural sunlight can be seen throughout at the wall plate level / base of the roof cover. Conditions inside are dry, illuminated, draughty and variably spacious as some of the walls are mounted with brackets that host gardening equipment or office supplies limiting the available space and the trussed nature of the roof would make it more difficult than a purlin and rafter design for bats to fly freely. The inner walls feature chipboard and insulation. There is a definitive absence of any crevices a bat could utilise for roosting; the structure can be considered as low value for loft-dwelling species and any use by loft-dwelling bats would be limited to occasional use or for use as a feeding station. No evidence of bats was found inside, despite access opportunities at the base of the roof covers.

Externally, no typical potential roost feature were observed at **B4**, however some external timbers of the summer house are lifted off of the inner battens to the eastern aspect and around the window, revealing wide cavities being used by slugs, snails and flies. The damage is consistent with weathering and natural decline and likely worsening given exposure to the elements. The thermal qualities are negligible, and the gaps are all close to ground and eye level, thus the cavities are of minor value to bats at most (see **Appendix I – Plate 8**).

Preliminary roost assessment (PRA) of **B4** determines it to host '**Negligible**' bat roost suitability but given the existence of cavities between timber and internal insulation/chipboard there is limited value to crevice-dwelling bats on the eastern corners and front window, sufficient to warrant supervision by an Ecologist during any de-construction work.

- 7.3.3 No trees within the Site confines or immediate adjacency to the southern boundary were considered to offer any level of bat roost suitability based on a perceived absence of bat roost potential, such as holes, cracks, splits, lifted bark or deep fissures.

7.4 Birds

- 7.4.1 In relation to WCA Sch.1 listed species no evidence of barn owl was located inside any structure or upon any trees at the Site and the likelihood of Site use by barn owls is very unlikely.
- 7.4.2 In relation to s.41 priority species and more common breeding birds, no evidence of nesting was observed in any building. No evidence of nesting was found in any garden trees, adjacent trees, or within the tall forbs area with brambles in the north-east of the Site. Irrespective, it stands to reason that garden trees, and any trees overhanging the Site, in particular the southern fence boundary, could be used by birds for nesting between now and the start of works particularly between the months of March-August.

7.5 Other terrestrial mammals

- 7.6.1 No field signs were located to suggest the presence of badgers on Site including any setts, latrines, pathways, hairs, footprints or feeding signs such as snuffle holes and scratched trees/logs. The flat topography and active management of the lawns generally suggests negligible probability for sett creation value to badgers that may or may not be present in the locality.
- 7.6.2 No field signs or sightings of hedgehogs were encountered during the appraisal though this species is nocturnal and hides by day and may be present in the locale based on the habitat types and connectivity to wider more valuable habitat. Holes below the fence along the north boundary could be used for this species for access into/from the Site.

7.6 **Herpetofauna**

Great crested newt (GCN)

- 7.6.1 No ponds exist on Site that might provide breeding habitat to protected amphibians such as great crested newt. No ponds are present on Site and the terrestrial value of the Site is poor for this species given the lack of aquatic habitat which, when used for breeding, typically creates a 'sponge effect' attracting newts. The general openness of the Site given its current management provides little by way of shelter value as the grassland is mown to amenity level, and the low distinctiveness / poor quality habitat present is of little value for foraging or commuting behaviour.
- 7.6.2 **Figure 6.2** (previous) highlights the locations of six ponds within 250 metres of the Site. The nearest pond is at 76 metres south-west. The next nearest is at 117 metres to the north. General connectivity between ponds is favourable. Research has shown that GCN are likely to spend the majority of their lifetimes within 50-100m of their breeding ponds. They typically favour woodland environments for shelter and hibernation.
- 7.6.3 The available information freely available on MAGiC Maps suggests a local absence of great crested newts; however, absence of records cannot be solely relied upon as definitive proof of absence.
- 7.6.4 Given the low terrestrial value of the Site for great crested newts and availability of ponds with sufficient local habitat around them within 50-100 metres, the probability of newts using the Site for any purpose is remote and the probability of newts being impacted by any terrestrial habitat loss or disturbance during works is highly unlikely.

Common amphibians

- 7.6.5 Based on the existence of six ponds within 250 metres and a local network of gardens, it is considered reasonably likely that more generalist amphibians, including common toad and common frog, could happenstance use the Site.

Reptiles

- 7.6.6 The Site is unlikely to support reptiles lacking habitat structure, heterogeneousness, mosaics, topography, insolation qualities and areas to hunt and breed that are typically required to sustain a population, though reptiles could be present in the wider landscape particularly towards Pex Hill LWS to the north-west where more favourable habitat exists.

7.7 **Invertebrates**

- 7.7.1 There is insufficient habitat quality on site for locally notable invertebrates, notably for dragonflies and butterflies' assemblages, versus the wider environs. Notable invertebrate assemblages do not stand to be negatively impacted by the proposals.

8.0 Conclusions & Recommendations

Designated sites

- 8.1 The planning application does not meet any of the categories whereby it becomes immediately evident Natural England need to be consulted regarding potential impacts to nationally designated sites and Tyrer Ecological find it unlikely any development proposals pose risks to any SSSI sites, or their respective qualifying features, to warrant a Habitat Regulations Assessment (HRA).
- 8.2 No construction or operational impacts are anticipated to arise from the proposed development in relation to statutory or non-statutory designated sites by virtue of its distance and spatial separation from such sites.

Habitats & Vegetation

- 8.3 No priority habitats exist on Site and the development proposals will not result in direct loss of any priority habitats. No indirect impacts are anticipated also.
- 8.4 Adjacent habitats including trees and hedgerows should be protected by perimeter fencing around construction zones(s) prior to the commencement of works and should be in place throughout the works to prevent the encroachment of construction related works beyond the Site boundary.
- 8.5 Standard avoidance measures to protect wildlife, such as covering excavations overnight and protecting trees at the Site boundaries in line with BS 5837:2012 *Trees in relation to design, demolition and construction*, should be incorporated within any construction method statements.
- 8.6 In addition to the above, standard environmental protection and pollution prevention measures should be adopted throughout the construction phase to protect off-site environs.
- 8.7 Any landscaping strategy should aim to use native woody species suitable for the area and local soil type as opposed to non-native exotic species of minimal biodiversity value - see **Appendix III** for planting ideas.

Bats

- 8.8 Based upon the findings of the survey covered through sections 6.0-7.0 of the report, whilst following best practice guidance, **B1-B4** were determined to offer '**Negligible**' bat roost suitability in accordance with the *Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines*, 3rd ed. (2016) (see **Figure 8.1**). All on Site trees and site adjacent trees were co-determined to offer **Negligible** bat roost suitability.

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.		
Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.

Figure 8.1 - Bat Conservation Trust (BCT) extract on negligible roost suitability

- 8.9 No further surveys are recommended at this time, however given the steady dilapidation of the **B4 Summer House**, it is recommended this building undergoes a precautionary soft strip using hand tools at localised features of interest to the eastern aspect and around the front window – all areas where damage is present. The soft strip of **B4 Summer House** should be carried out by appointed contractors and supervised by an Ecologist to check for evidence of bats behind damaged timbers and provide appropriate recommendations accordingly. If any evidence of bats is found, works would legally be required to cease in such as case and a mitigation licence requirement would be activated. Where a bat licence is required further surveys would be needed to inform an impact assessment and mitigation strategy.
- 8.10 **Target Note 1** in **Appendix IV** shows the location of an Underground shelter. Based upon the findings of the survey covered through sections 6.0-7.0 of the report it is considered the shelter provides 'Low' hibernation roost suitability in accordance with the *Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed.* (2016). This structure is understood to be retained therefore no further surveys are necessary; if plans change to include removal or infilling of the underground shelter further survey effort is highly recommended to rule out the presence of hibernating bats.
- 8.11 Bats are a transient group and buildings can deteriorate over time to provide greater roost suitability and value than what currently exists based on a multitude of factors, therefore these recommendations apply for 18 months; if works are not carried out within 18 months of the issue of this report an updated preliminary roost assessment is recommended at the Site. If in the event of an updated assessment that bat(s) are found, or evidence of bat(s) (see **Figure 8.2**), or during works or at any other time, then an Ecologist should be contacted to provide suitable guidance.



Figure 8.2 – Evidence of bats – droppings on the left / Common Pipistrelle bat on the right – indicative

- 8.12 Trees should be considered valuable habitats to bats in a local context in that they likely provide valuable foraging/commuting habitat as part of a wider network; any loss of trees to facilitate development works should be adequately compensated.
- 8.13 Installation of harsh artificial lighting as part of any development that exceeds current levels could have a negative impact upon foraging and commuting bats in the landscape, particularly if increased light spillage occurs in areas that are currently free from illumination. A bat-

sensitive lighting plan is recommended as part of the scheme in order to avoid potential impacts to bats that may use the Site. Options to consider have been listed below, though the reader is referred to the Bat Conservation Lighting Guidelines for further information.

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

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

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

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

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

- 8.14 The inclusion of various bat boxes would enhance opportunities for a variety of roosting bats / bat species – see **Appendix III**.

Birds

- 8.15 No impacts are applicable in relation to any Sch.1 (WCA) specially protected bird species such as barn owls, and no further surveys or recommendations are necessary in relation to specially protected birds at this time.
- 8.16 In relation to more common birds, trees provide viable nesting opportunities for smaller birds though the buildings were considered unsuitable for nesting birds; as breeding birds are protected when breeding / when at the nest, timings implications are applicable to avoid disturbing or harming breeding birds and breaching legislation.
- 8.17 It is recommended that no removal of, or works to, any trees that may be used by breeding birds, shall take place during the main bird breeding season (1st March to 31st August inclusive), unless a competent Ecologist has undertaken a careful, detailed check for active birds' nests immediately before any works and provided confirmation that no birds will be harmed and/or that there are appropriate measures in place to protect nesting bird interest on site. Appropriate measures - 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 (typically 5-10 metres) in which no disturbance is permitted until the nest is no longer in use. This would have to be coordinated through the expert judgement of the professional ecologist and is typically species dependant.

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.”*

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.*

- 8.18 The inclusion of various bird nest boxes would enhance opportunities for a variety of breeding birds – see **Appendix III**.

Other terrestrial mammals

- 8.19 The proposals present no risks to badgers and no specific further measures are recommended for this species at this time.
- 8.20 Based on the results of the appraisal; hedgehogs may be present in the locality and can access the garden below holes in perimeter fencing. Development related works have the potential to injure or kill hedgehogs in the absence of reasonable precautionary measures.
- 8.21 A precautionary approach is recommended to be adopted considering hedgehogs:
- a pre-commencement check should be carried out prior to any clearance or construction by an ecologist. In the event that any hedgehogs are encountered if they cannot be left in-situ they should be carefully captured and relocated to an area of like-for-like habitat off site / adjacent to site with sufficient shelter. Resting or hibernating animals should be given a reasonable period of time to awake and move on of their own accord particularly if discovered in the colder months.

Herpetofauna

Great crested newt

- 8.22 In respect of great crested newts (GCN), impacts to this species are considered negligible through habitat loss or risk of disturbance, injury or death, and as an offence is highly unlikely to occur no further surveys are recommended at this time.

Other amphibians

- 8.23 No further surveys for great crested newts (GCN) are recommended as part of this appraisal, however it is considered that given there are six ponds within 250 metres and an array of habitats providing favourable connectivity, reasonable avoidance measures (RAM's) are recommended to be implemented as part of any construction work to act as a sufficient safeguard for amphibians and other wildlife that may be present locally. It is therefore recommended that a detailed and bespoke working Method Statement should be formulated outlining key measures and working protocols to be in effect during the proposed work schedule.
- 8.24 Any RAM's for the Site should be drafted by a suitably qualified Ecologist/Ecological clerk of works (ECoW) with strong experience of formulating such technical documents. Upon gaining understanding of the details contained within the RAM's, the applicant and associated contractor team would be expected to comply with the measures recommended within it. Any RAM's would be subject to the approval of the local planning authority - following approval,

adherence to the terms of the RAM's would be a requirement of the named authority and the applicant would be the liable party for any non-compliance, with the Ecologist/ECow acting for and on behalf of the applicant. The applicant and all contractors would be aware that if at any stage great crested newts (GCN) 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.

- 8.25 The applicant should be aware that 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 (RAM's), 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

- 8.26 In respect of reptiles, the combined desktop and field-based results suggest there is negligible scale of risk associated with the proposals concerning this group and no further surveys or specific recommendations are considered necessary at this time.

Invertebrates

- 8.27 No impacts are likely to occur in respect to notable invertebrate assemblages. General enhancement measures for invertebrates are recommended to be included in the proposed development plans to provide provisions with regards to invertebrates.

Enhancement

- 8.28 Enhancement ideas that consider the specific scale and nature of the proposals in accordance with the principles of '*Biodiversity Net Gain: Good practice principles for development*' (CIEEM *et. al.*, 2019), are presented in **Appendix III**.

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Appendix I: Site Photographs



Plate 1 – B1 detached house front and rear



Plate 2 – B1 loft space



Plate 3 – B2 side garage front and rear



Plate 4 – B2 interiors



Plate 5 – B3 outbuilding front and rear



Plate 6 – B4 summer house front and side



Plate 7 – B4 summer house front and rear



Plate 8 – B4 – low but potential value crevices in-behind timbers at corners and windows

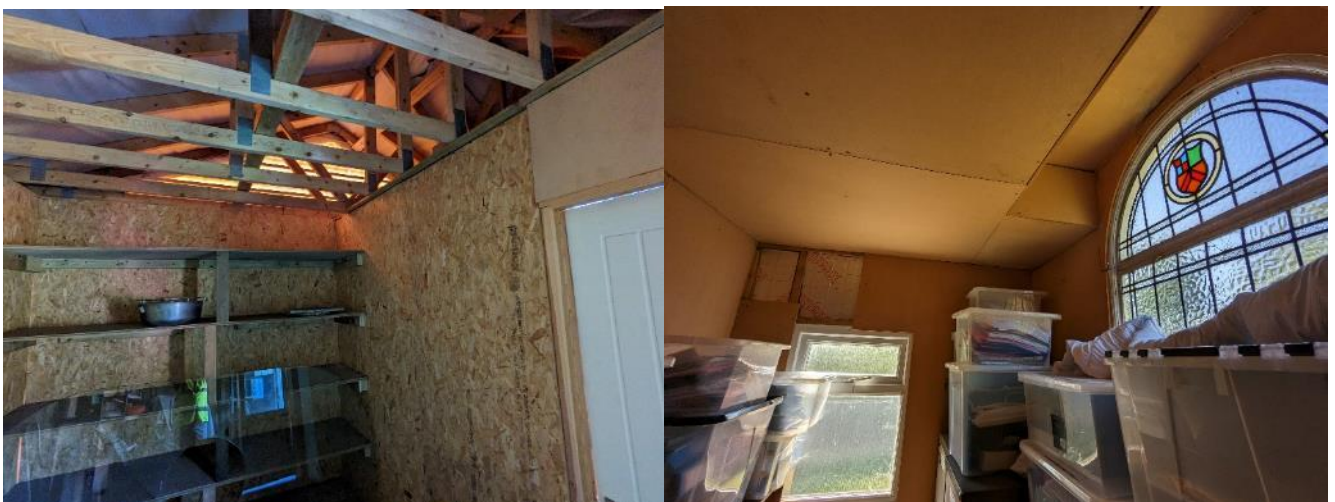


Plate 9 – B4 interiors



Plate 10 – Target Note 1 air raid shelter with open entrance



Plate 11 – Target Note 1 air raid shelter – interior and low but potential value crevice in ceiling



Plate 12 – g4 modified grassland – mown lawn forms most of the garden environment



Plate 13 – g4 tall forb area behind air raid shelter and summer house



Plate 14 – Leyland cypress treeline planted along southern boundary



Plate 15 – Three pear trees in the middle of the garden lawn

Appendix II: Botanical Species List

Botanical species recorded during the PEA. Species nomenclature follows Stace, C (2019).

Scientific Name	Common Name
<i>Acer pseudoplatanus</i>	Sycamore
<i>Achillea millefolium</i>	Yarrow
<i>Agrostis capillaris</i>	Common Bent
<i>Bellis perennis</i>	Daisy
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Cupressus × leylandii</i>	Leyland Cypress
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Festuca rubra</i> agg.	Red Fescue
<i>Holcus lanatus</i>	Yorkshire-fog
<i>Hypochaeris radicata</i>	Cat's-ear
<i>Jacobaea vulgaris</i>	Common Ragwort
<i>Lapsana communis</i>	Nipplewort
<i>Lolium perenne</i>	Perennial Rye-grass
<i>Plantago major</i>	Greater Plantain
<i>Poa annua</i>	Annual Meadow-grass
<i>Prunella vulgaris</i>	Selfheal
<i>Pyrus communis</i>	Pear
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rhytidiadelphus squarrosus</i>	Springy Turf-moss
<i>Rubus fruticosus</i> agg.	Bramble
<i>Senecio vulgaris</i>	Groundsel
<i>Silene dioica</i>	Red Campion
<i>Sonchus oleraceus</i>	Smooth Sow-thistle
<i>Stellaria media</i>	Common Chickweed
<i>Taraxacum officinale</i> agg.	Dandelion
<i>Trifolium repens</i>	White Clover
<i>Urtica dioica</i>	Stinging Nettle

Appendix III: Biodiversity Enhancement: General Recommendations

Native Planting and/or Landscaping – recommended species

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.

	Common Name	Scientific Name	Planting Preference
Ferns	Male Fern	<i>Dryopteris filix-mas</i>	Semi-shade or shaded
	Soft Shield-fern	<i>Polystichum setiferum</i>	Semi-shade or shaded
	Maidenhair Fern	<i>Adiantum capillus-veneris</i>	Suitable for rockeries / walled gardens
	Royal Fern	<i>Osmunda regalis</i>	Full sun in moist-damp areas
Herbaceous plants	Bloody Crane's-bill	<i>Geranium sanguineum</i>	Dry soils - suitable for rockeries
	Columbine	<i>Aquilegia vulgaris</i>	Semi-shade or open areas
	English Bluebell	<i>Hyacinthoides non-scripta</i>	Moist soils in semi-shade or open areas
	Giant Bellflower	<i>Campanula latifolia</i>	Semi-shade or open areas
	Greater Knapweed	<i>Centaurea scabiosa</i>	Dry-moist soils. Suitable for borders
	Greater Woodrush	<i>Luzula sylvatica</i>	Moist soils in semi-shade or open areas
	Meadow Crane's-bill	<i>Geranium pratense</i>	Humid-moist soils. Suitable for borders
	Musk Mallow	<i>Malva moschata</i>	Dry-moist soils. Suitable for borders and rockeries
	Sea Campion	<i>Silene uniflora</i>	Dry soils - suitable for rockeries
Climbers	Stinking Hellebore	<i>Helleborus foetidus</i>	Semi-shade or open areas
	Honeysuckle	<i>Lonicera periclymenum</i>	Dry-moist soils
	Hops	<i>Humulus lupulus</i>	Dry-moist soils
	Ivy	<i>Hedera helix</i>	Dry-moist soils
Woody Shrubs	Sweet-briar	<i>Rosa rubiginosa</i>	Dry-moist soils
	Blackthorn	<i>Prunus spinosa</i>	-
	Dogwood	<i>Cornus sanguinea</i>	-
	Guelder Rose	<i>Viburnum opulus</i>	-
	Hawthorn	<i>Crataegus monogyna</i>	-
	Hazel	<i>Corylus avellana</i>	-
Trees	Holly	<i>Ilex aquifolium</i>	-
	Alder Buckthorn	<i>Frangula alnus</i>	-
	Osier	<i>Salix viminalis</i>	-
	Pedunculate Oak	<i>Quercus robur</i>	-
	Rowan	<i>Sorbus aucuparia</i>	-
	Silver Birch	<i>Betula pendula</i>	-
Aquatic/marginal plants	Wild Cherry	<i>Prunus avium</i>	-
	Common Water-crowfoot	<i>Ranunculus aquatilis</i>	Ponds
	Marsh Marigold	<i>Caltha palustris</i>	Marginal vegetation
	Ragged Robin	<i>Silene flos-cucculi</i>	Marginal vegetation
	Water Mint	<i>Mentha aquatica</i>	Marginal vegetation
	Water-violet	<i>Hottonia palustris</i>	Ponds
	White Water-lily	<i>Nymphaea alba</i>	Ponds

Enhancement for Bats



- Bark box / Kent twin type crevice

Two parallel crevices for roosting bats with internal connection to move between the two. Light internal finish for helping to spot bats, droppings and rub marks.

Bark Boxes are constructed using tough felt made of recycled polyamide combined with a cement and recycled cellulose fibre mix. They provide more natural form and outer layer mellow and can support lichens and mosses over time.



- Cardinal bat box

The Cardinal Bat Box incorporates three separate chambers with laddered entrance holes to each direction.

Enhancement for Nesting Birds



-2h Schwegler robin box

This traditional design has proved to be highly effective in attracting Robins as well as other small wood/garden 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.

For more information - www.nhbs.com/2h-schwegler-robin-box



- 1B Schwegler Nest Box

These Woodcrete nest boxes are famous for their durability - lasting for at least 20-25 years.

Woodcrete is a breathable blend of wood, concrete and clay which will not rot, leak, crack or warp, whilst preventing condensation and maintaining more constant temperatures inside than wooden boxes. Schwegler bird boxes are backed by conservation organisations, government agencies and forestry experts and experiments have shown that the highest density of bird populations (i.e. breeding pairs per hectare) is achieved with Schwegler nest boxes. They are carefully designed to provide a stable environment and to mimic natural nest and roost sites with internal brood chamber dimensions that are similar to natural woodpecker cavities.

Schwegler have a patented method of installation on trees that prevents the tree trunk from growing over the hanger from which the box is suspended. A separate replacement front panel is also available.

Enhancement for Hedgehogs

The number of hedgehogs in the UK has plummeted over recent years; while there were estimated to be around 1.5 million in 1995 it is believed hedgehogs now number two thirds less at 500,000. Hedgehog homes could be provided as part of enhancement in close proximity to commercial works; a design suggestion can be found below.

Hedgehogs need homes just like humans, so making one for them is a great way to encourage them. Some tips include:

- Find a location - It should be sited in a quiet position out of prevailing wind in an area with some nearby cover. The front entrance should be out of the wind.
- Cover the outside - Cover the outside in a pile of woody garden cuttings and leaves. You can also cover it with soil, as long as the entrance hole and ventilation pipe is clear.
- Aftercare - It's worth clearing out the hedgehog home, every year or two. You can do this in April, after their hibernation but before hedgehogs start producing hoglets. However, the ideal time is in October before they go into hibernation, and after most of the litter have been weaned.
- Monitoring your hedgehog home - Remember that you won't see any activity between October and March/April when they're hibernating.
- If you'd like to find out if your box is being used, put something in front of the entrance that won't blow away but can be easily moved by a hedgehog, like a crumpled-up piece of newspaper. If a hedgehog is at home, you'll find it will have been moved by the next morning.



For Hedgehog Homes - [Hedgehog House, with weatherproof lid : Riverside Woodcraft](#)

Enhancement for Invertebrates

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.



Examples of larger insect hotels



Examples of smaller insect hotels

- National Trust Bee Log



- Insect maisonette



Insect boxes should be sited approximately 1.5m above ground level on a south facing aspect somewhere that will receive sun for at least part of the day.

Insect boxes can be installed at any time of year following the cessation of construction works.

See:

<https://www.nhbs.com/>

<https://www.birdfood.co.uk/>

