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Tyrer Ecological Consultants Ltd, Roselands, Suite 1, 3, Cross Green, Formby, L37 4BH

Preliminary Ecological Appraisal

December 2022

Cinder's Farm
Cinder's Lane,
Ruabon,
Wrexham,
LL14 6HL

National Grid Ref: SJ32484376



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Preliminary Ecological Appraisal

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Surveyors	Mr. B. Richards Qualifying CIEEM
Authors	Mr. B. Richards Qualifying CIEEM
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Reviewed by	Mr. J. Pescod Qualifying CIEEM
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Approved by	Mrs. K. Wilding CEnv MIEMA ACIEEM
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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 Cinder's Farm, Ruabon, Tyrer Ecological Consultants Ltd carried out a Preliminary Ecological Appraisal (PEA) in November 2022.

The PEA was commissioned by Blueprint Architectural Services Ltd; the scope of the proposals at the site involve the conversion of an existing barn / storage shed as well as the erection of a new structure to the south of the site.

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

Recommended following PEA:

- **Bats:** Based upon the findings of the survey, covered through sections 6.0 – 7.0 of the report and supported by **Appendix I**, all of the surveyed structures at Cinder's Farm are determined to offer '**Negligible**' bat roost potential, in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016). As such, no further survey work is required at the site in relation to bats and buildings.

In relation to bats and trees, it is recommended that the line of trees which makes up the western boundary is retained in full, given that it likely provides an important commuting pathway for any bats in the area, subject to their presence in the wider landscape. Some of the trees were also unable to be investigated due to the ivy growing upon the trees.

If works are planned to the mature boundary trees, then ivy removal should be undertaken, and a further investigative survey carried out on the trees to establish if they offer bat roost potential.

- **Breeding Birds:** In relation to common birds, the buildings, trees, vegetation and the hedgerow offer small birds a plethora of nesting opportunities, particularly during the breeding bird season, with numerous nests located within vegetation around the site, as well as several areas of faecal splashing on buildings indicative of nesting within.

Given that all birds are protected when at the nest, it is therefore recommended that any demolition, tree felling / pruning and vegetation clearance works on site are carried out outside of the breeding bird season (March – August inclusive). For works undertaken within the breeding bird season, any areas that can support nesting birds, such as the areas of vegetation or building B3, should be checked by a professional Ecologist for nesting birds within 48 hours or less prior to works commencing. 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 species pending. In addition, enhancement is recommended to be built into both the converted structure and the new building.

- **Hedgehog:** The habitat present is considered suitable for commuting, foraging and hibernating by this species.

A series of Reasonable Avoidance Measures (RAMS) are recommended to be undertaken at the site during development, particularly where excavations / trenches will be made. In addition, enhancement measures are recommended to be built into the new development as well as any associated developments in the area.

- **Wider herpetofauna:** Given the habitats surrounding and within the application site, the presence of common, robust amphibian species such as the Common Frog (*Rana temporaria*) as well as reptiles species within the application site cannot be ruled out.

An appropriate working Method Statement is therefore recommended to be created by a suitably qualified Ecologist/Ecological Clerk of Works (ECoW), detailing a list of Reasonable Avoidance Measures (RAMs) to prevent risk of impact to such species.

- **Invertebrates:** The site provides a good quality, potentially locally important environment for invertebrates.

Therefore, a programme of enhancement measures should be created by a suitably qualified ecologist.

- **Enhancement for Biodiversity:** The site offers potential for a number of protected species groups, therefore a programme of biodiversity enhancement is recommended to be implemented into the proposed development. General measures can be found below, in accordance with the principles of '*Biodiversity Net Gain: Good practice principles for development*' (CIEEM et. al., 2019). See Appendix III for general ideas.

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1.0 Introduction & Scope

- 1.1 As part of a proposed planning application at Cinder's Farm, Ruabon, Tyrer Ecological Consultants Ltd carried out a Preliminary Ecological Appraisal (PEA) in November 2022.
- 1.2 The PEA was commissioned by Blueprint Architectural Services Ltd; the scope of the proposals at the site involves the conversion of an existing barn / storage shed as well as the erection of a new structure to the south of the site.
- 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 site associated '*CIEEM Competencies for Species Survey (CSS)*', whilst this report has been presented in accordance with the British Standard 42020:2013.

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 1.1 (2020) 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,
 - 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 1.1 (2020),
 - 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, 3rd ed. (2016).

- 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:

- The Environment (Wales) Act (2016),
- Conservation of Habitats and Species Regulations (amendment) (2019) (EU Exit),
- Wildlife and Countryside Act (1981) (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),
- Town and Country Planning Act (1990),
- Wild Mammals Protection Act (1996).

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 Legislation	Level of Protection
Badger	Protection of Badgers Act (1992), Wildlife and Countryside Act (1981) (as amended)	<u>Illegal to:</u> 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) Environment (Wales) Act (2016)	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 (Breeding)	CRoW Act (2000) Wildlife and Countryside Act (1981) (as amended) Environment (Wales) Act (2016)	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) Environment (Wales) Act (2016)	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).
Water vole	CRoW Act (2000) Wildlife and Countryside Act (1981) (as amended)	Water voles are fully protected against intentional killing, capture or injury and intentional or reckless disturbance, obstruction, damage or destruction of their burrows.

Relevant Policy

- 2.4 Planning Policy Wales (PPW) 11th Edition (2021) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. PPW, the TANs, MTANs and policy clarification letters comprise national planning policy.
- 2.5 PPW and the National Development Framework (published as Future Wales – the National Plan 2040) set out how the planning system at a national, regional and local level can assist in delivering these requirements through Strategic Development Plans (SDPs) and Local Development Plans (LDPs).
- 2.6 PPW (2021) states:

“The presence of a species protected under European or UK legislation, or under Section 7 of the Environment (Wales) Act 2016 is a material consideration when a planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat and to ensure that the range and population of the species is sustained. Planning authorities should advise anyone submitting a planning

application that they must conform with any statutory species protection provisions affecting the site, and potentially the surrounding area, concerned. An ecological survey to confirm whether a protected species is present and an assessment of the likely impact of the development on a protected species may be required in order to inform the development management process. It is considered best practice that screening to determine the presence of protected species should be carried out by a competent ecologist on the basis of data provided by the relevant Local Environmental Record Centre."

- 2.7 Planning authorities must therefore follow a step-wise approach to maintain and enhance biodiversity and build resilient ecological networks by ensuring that any adverse environmental effects are firstly avoided, or minimized, or mitigated, and as a last resort compensated for; enhancement must be secured wherever possible.
- 2.8 The first priority for planning authorities is, therefore, to avoid damage to biodiversity and ecosystem functioning. Where there may be harmful environmental effects, planning authorities will need to be satisfied that any reasonable alternative sites that would result in less harm, no harm or pro-gain have been fully considered.
- 2.9 The Environment (Wales) Act 2016 ("the Act") - requires local planning authorities to have regard to area statements in the development of Local Development Plans. The Act introduced an enhanced biodiversity and resilience of ecosystems duty (Section 6 Duty). This duty applies to public authorities in the exercise of their functions in relation to Wales and will help maximise contributions to achieving the well-being goals. The Nature Recovery Action Plan supports this legislative requirement to reverse the decline in biodiversity, address the underlying causes of biodiversity loss by putting nature at the heart of decision-making and increasing the resilience of ecosystems by taking specific action focused around objectives for habitats and species.

Part 1 of the Act promotes sustainable management of natural resources, and in Part 1 section 6 states:

"A public authority must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions."

- 2.10 This is further supported by PPW (2021) which requires developments to achieve a Net Benefit for Biodiversity (NBB):

*"Planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a **net benefit for biodiversity**. In doing so planning authorities must also take account of and promote the resilience of ecosystems, in particular the follow aspects:*

- diversity between and within ecosystems;*
- the connections between and within ecosystems;*
- the scale of ecosystems;*
- the condition of ecosystems including their structure and functioning; and*
- the adaptability of ecosystems."*

- 2.11 There are several plans, strategies and national, sub-regional and local policy statements which provide a framework for development in the Plan area. The Planning and Compulsory Purchase Act (2004) makes it a requirement for local planning authorities in Wales to prepare a Local Development Plan (LDP) for their areas.

Wrexham Borough Council prepared a plan, namely the 'Wrexham Unitary Development Plan (1996 – 2011)', which was formally adopted in February 2005 and supersedes any previous development plans for the area. A new plan, the 'Wrexham Local Development Plan 2 (2013 - 2028)', which will replace the current adopted plan, is currently under review. Until this new plan is adopted, the Wrexham Unitary Development Plan remains in effect. Policy EC6 of this plan states:

“Measures to improve the biodiversity value of sites and enhance their natural conservation interest and landscape quality including the establishment of local nature reserves, will be supported.”

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 Section 7 of the Environment Act (Wales) places a duty on Welsh Ministers to publish, review and revise lists of types of habitats and species in Wales which they consider are of key significance to sustain and improve biodiversity. The Welsh Ministers must also take all reasonable steps to maintain and enhance the habitats published in these lists, and encourage others to take such steps. Section 7 of 'The Act' alongside 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 priority habitats and species are considered relevant to the survey area:

Habitats:

- Arable field margins, Hedgerows.

Species:

- **Bats:** brown long-eared (*Plecotus auritus*), soprano pipistrelle (*Pipistrellus pygmaeus*), common pipistrelle (*Pipistrellus pipistrellus*) and noctule (*Nyctalus noctula*),
- **Birds:** bullfinch (*Pyrrhula pyrrhula*), house sparrow (*Passer domesticus*), song thrush (*Turdus philomelos*), starling (*Sturnus vulgaris*) and tree sparrow (*Passer montanus*),
- **Land mammals:** hedgehog (*Erinaceus europaeus*),
- **Herpetofauna:** great crested newt (GCN) (*Triturus cristatus*), slow-worm (*Anguis fragilis*), common toad (*Bufo bufo*), common lizard (*Zootoca vivipara*).

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 biodiversity;
 - Enhance and improve biodiversity where possible, and,
 - Promote biodiversity at a local level.

4.0 Methodology

- 4.1 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

- 4.2 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 within 2.0 kilometres of the site boundary. To do so, the Multi Agency Geographic Information for the Countryside (MAGiC – provided by DEFRA), 'Lle' (A Geo-Portal for Wales) and DataMapWales were all accessed to gather such information. These mapping services were also utilised to locate any priority habitats or publicly viewable protected species records, to help further form conclusions in the context of the study site and the proposed development.
- 4.3 Historic satellite imagery was reviewed using sources such as Google Earth (© 2021/22) 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.
- 4.4 In addition, the Council Planning Portal 'Search for planning applications' 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.
- 4.5 A commercial data request to the Local Environment Records Centre serving the area, in this case COFNOD, has not been sourced at this time, with the combination of online data 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

- 4.6 A daytime preliminary ecological appraisal was conducted on the 29th November 2022 in dry conditions (6°C), average wind 0/12 (Beaufort scale), average 5% cloud cover, by the following surveyor (see **Table 4.1**).

Table 4.1 – Site Surveyor credentials

Name	Description of most relevant credentials
Mr. B. Richards Qualifying CIEEM (Junior Ecologist)	• Junior Ecologist with a range of training and experience, • 1 year as a professional ecologist, • MBiolSci in Biological Sciences (Zoology), • Qualifying CIEEM, • Accredited agent on the Natural England Great Crested Newt: CL08 Class 1 licence (2018-34062-CLS-CLS) of Mr. M. Pritchard, • Accredited agent on the Natural England Class 2 bat license of Mrs K Wilding (CLS-14227).

Floristic assessment

- 4.7 The survey methodology followed the UK Habitat Classification Version 1.1 (Butcher, et.al., 2020) being introduced as part of the roll out of Biodiversity Net-gain 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).
- 4.8 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 (amendment) (EU exit) Regulations (2019). Species nomenclature follows Stace, C. (2019) – definitive English names.
- 4.9 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**).

For botanical species list compiled in full, see **Appendix II**.

- 4.10 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).

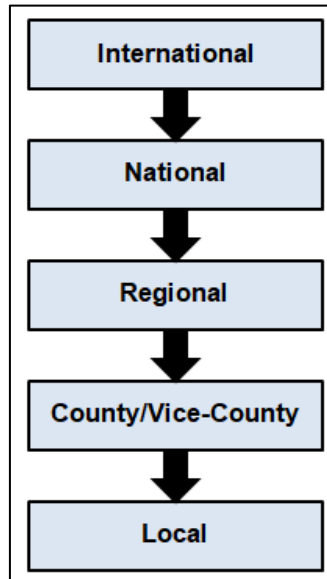


Figure 4.1 – Geographic Frame of Reference entailing degrees of conservation importance

Faunal assessment

- 4.11 During 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 the priority species in section 3.0. The walkover also aimed to identify any ephemeral pools or unmapped waterbodies.

Bats

- 4.12 The site was assessed for bats; buildings, where present, would be 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) externally, comprising an investigation of features (roof material, building components) using a high-powered torch. An internal assessment of the buildings took place with the aid of a high-powered torch for evidence of bat use. Field signs of bats typically comprise bat droppings, incidental animal presence, dead specimens and / or the presence of prey items. The surrounding habitat was also considered in terms of general suitability.
- 4.13 Trees (where present) would be 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.
- 4.14 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

4.15 Factors 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 where present,
- Presence / absence of roost potential,
- Value and types of roost potential, if present (i.e. - maternity, hibernation, transition).

Breeding Birds

4.16 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 the ground. 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:

- 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.

4.17 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

- 4.18 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. The site was also assessed for the presence / suitability of hedgehogs (*Erinaceus europaeus*) and other priority mammals.
- 4.19 Survey methodology detailed in '*The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)* Eds. Fiona Mathews and Paul Chanin (Dean, et al., 2016), was applied for around the site; these areas were subject to a suitability assessment for use by Water voles. This included a preliminary search for:
- *Sightings* – confirmed sighting of a Water Vole during the survey.
 - *Latrines* – collections of droppings.
 - *Burrows* – holes along the water's edge and in the bank above.
 - *Footprints* – forefoot and hind foot.
 - *Pathways in vegetation* – low runs or tunnels pushed through vegetation.
 - *Feeding remains* – piles of chewed lengths of vegetation with 45-degree cuts to the ends.
 - *Cropped grass around tunnel entrances* – grazed vegetation to form a 'lawn' around burrow.

Great Crested Newt (GCN)

- 4.20 During desktop assessment a 250 metre 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) (*Triturus cristatus*). The information gathered would then be used to aid in establishing if more detailed surveys are required.

NB: *UK wide 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.*

- 4.21 Based on the desk study, using Google Earth Pro 2021/22, MAGiC Maps 2022 as well as Ordnance Survey (OS) map data, no standing water bodies were identified within the red line boundary. A single water body was identified within a 250 metre radial buffer of the site, and was subject to an investigation by the surveyor. This water body, situated directly adjacent to the north of the site, was found, however, to be a running brook, likely fed from run off from the surrounding agricultural fields and extant water courses in the area.

Reptiles

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

- Slow-worms (*Anguis fragilis*) use similar habitats to Common Lizards, and are often found in rank grassland, gardens and derelict land under refugia,
- Grass Snakes (*Natrix natrix*) have broadly similar requirements to Common Lizards but with a greater reliance on ponds and wetlands, where they prey on amphibians.

4.23 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

4.24 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.

4.25 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.

4.26 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. Richards.

5.0 Limitations

- 5.1 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.
- 5.2 The optimal time of the year to carry out a preliminary ecological appraisal / UK Habitats survey is April to October; therefore, the survey was undertaken outside of the optimal period for carrying out this type of survey. It is considered, however, that sufficient information was obtained during the diurnal appraisal on which to base conclusive ecological recommendations.
- 5.3 The survey took place outside of the typical bat and bird 'active / breeding' seasons; the probability of encountering direct evidence or field signs of either of these species is therefore decreased. Signs of use for both of these species are readily visible all year round however, and, in the case of bats, roost potential and suitability of potential roost features can be adjudged as decisively as within the active season of bats, saving time and unnecessary delay to applicants, thus frequently the assessment can be as conclusive as if it was carried out in the active season. Timing is, therefore, not considered a constraint in this instance.
- 5.4 The internal aspect of building B4 was unable to be accessed by the surveyor on the date of survey, however, given the nature of the structure, its construction style as well as the lack of external PRFs, this is not considered a constraint. The robust nature of the external assessment allowed for this constraint to be nullified.
- 5.5 The stretch of flowing water which lay directly to the north of the site, but outside of the red line boundary, was not able to be fully accessed by the surveyor, with dense bramble and a fence present. The stretch of water was, however, available to be investigated from a distance by the surveyor, and characteristics such as the flow, depth and bank topology able to be discerned. This is, therefore, not considered a constraint.
- 5.6 In considering all possible survey constraints, no significant limitations were experienced that might adversely influence the results, conclusions, and recommendations of this report.

6.0 Desk Study Results

- 6.1 Cinder's Farm (hereafter referred to as "the application site" and "the site") can be broadly described as a number of buildings set within a part active and part neglected farm, with a total area within the red line boundary of approximately 0.36 hectares. The site is situated to the west of Cinder's Lane, near Ruabon, at an estimated 6.50 kilometres south of Wrexham city centre (see **Figure 6.1**).



Figure 6.1 – Location of the application site (red boundary) within the landscape (Source: Google Earth Pro 2021/22)

- 6.2 The immediate habitat is entirely rural in nature, with large expanses of agricultural fields, both arable and pastoral, to each compass direction. To the south of the site is situated three dwellings, each with large, landscaped gardens bordered by linear hedgerows and tree lines. The working element of Cinder's Farm (and neighbouring farms) can be found to the north of the red line boundary, with a cattle shelter as well as several large industrial chicken sheds with associated infrastructure. The only other anthropogenic development in the area is wholly agricultural, with further examples of both farmhouses and other agricultural buildings. Whilst there are vast areas of open land in the immediacy, semi-natural habitats are limited, with the only habitats of note being the aforementioned linear features, both on and off site, as well the hedgerows which form the borders between fields.
- 6.3 The extending environment is consistent with that of the immediate, in that it is constituted of small farm complexes and little else. The closest 'urbanised' area is Ruabon, located approximately 2.11 kilometres to the west, and this is linked to site via the A539, with

Wrexham positioned along the A483. Semi-natural habitats are somewhat more prominent in the contiguous landscape, with some larger pockets of woodland, some of which falls under the 'Restored Ancient Woodland Site' category on DataMapWales, as well as within the 'National Inventory of Woodland and Trees', which is based on data gathered by the Forestry Commission. Further expanses of arable and pastoral land can be found in the wider landscape, with the entire area being heavily agricultural. The River Dee arcs around the site at a minimum distance of 2.87 kilometres, and with it the associated woodland and other landscape features.

- 6.4 Collectively, whilst limited in nature, the areas of semi-natural habitat provide a modest assortment of opportunities to several protected species groups, with the group most typically associated with the habitat types described being bats, namely the Common Pipistrelle (*Pipistrellus pipistrellus*) bat, which are typically associated with roosting in buildings set in sub-urban environments, and Brown Long-eared bats (*Plecotus auritus*), which are commonly associated with woodland and more semi-natural environs, alongside several bird species known to be present in the wider landscape. Terrestrial mammals such as hedgehog are also likely to utilise the aforementioned linear features for commuting.

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.*

- 6.5 There are no statutory designated sites for nature conservation within 2.0 kilometres of the application site.
- 6.6 In relation to ponds, none were scored using the industry wide HSI tool for GCN, with no suitable water bodies present within the site or in the 250 metre buffer.

Notable species records

- 6.7 A search of extensive company records held by Tyrer Ecological Consultants Ltd from 2014 – present, all of which have been submitted to the LERC serving the area, which in this case is COFNOD, revealed no records of bat roosts within the 2.0 kilometre area surrounding the application site. The closest company record is located approximately 4.38 kilometres north-west of the site and pertains to a common pipistrelle day roost, host to a single bat.
- 6.8 No records of GCN were located during the desk study search, and there are no ponds either in the red line boundary or within a 250 metre radial buffer. Nonetheless, the habitat on site was assessed in relation to this species, as information from DataMapWales inferred that parts of the site lay within the 'Potential Habitat for Great Crested Newts' layer.

Cinder's Farm, Cinder's Lane, Ruabon, Wrexham, LL14 6HL **Preliminary Ecological Appraisal**

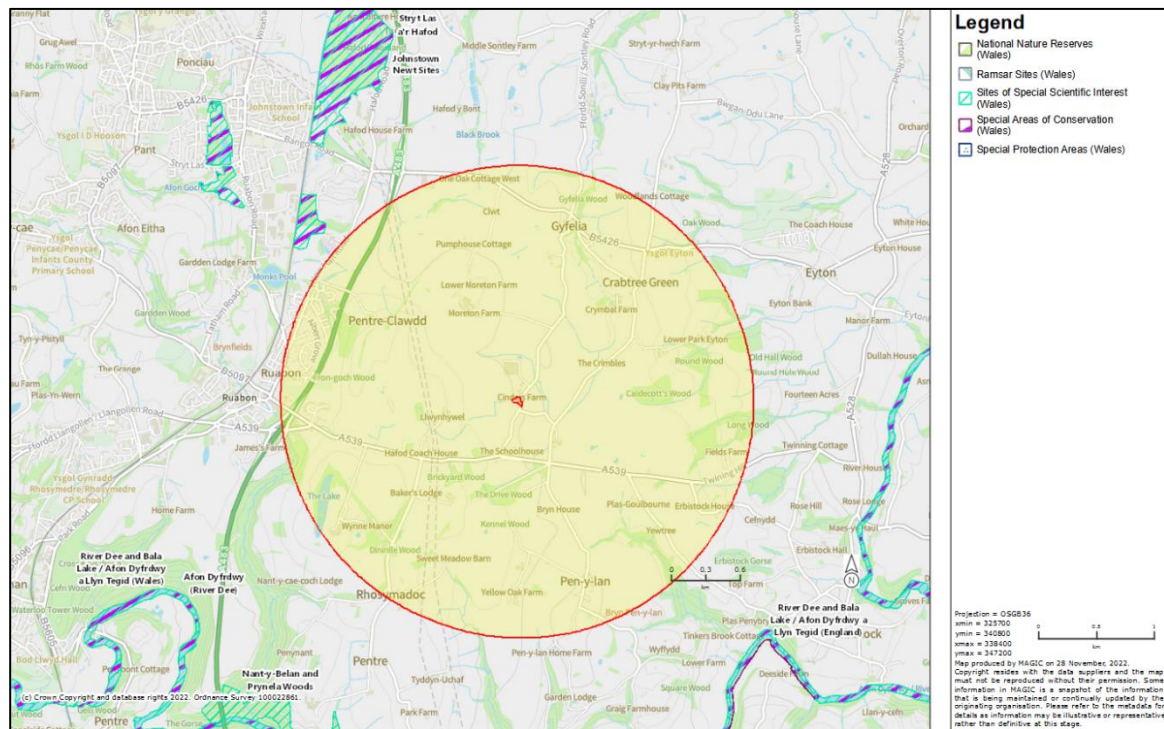


Figure 6.2 – Designated site data for the area within 2.0 kilometres of the application site (Source: MAGiC Maps 2022)

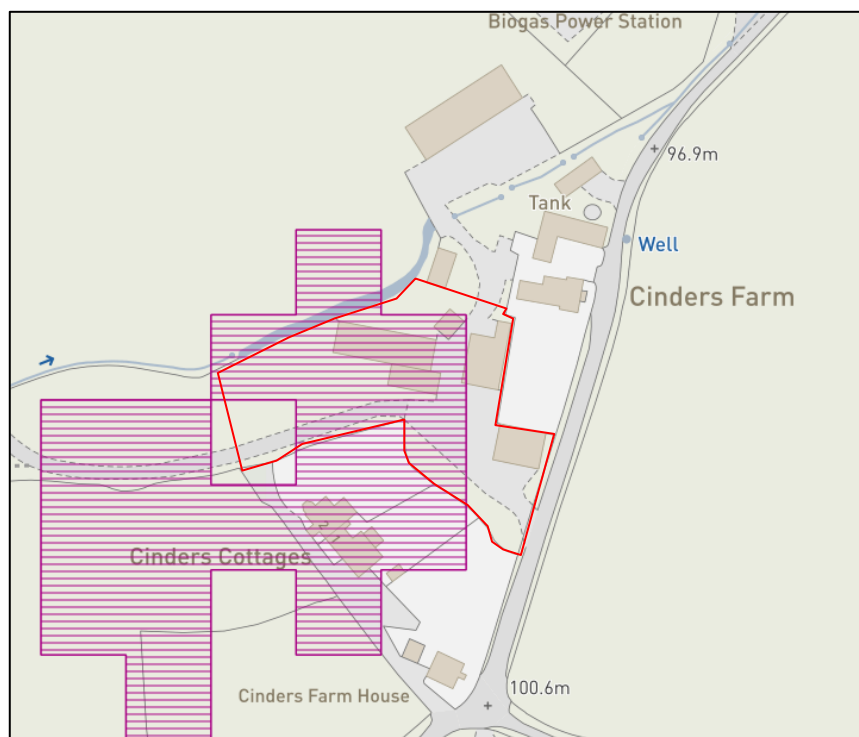


Figure 6.3 – Location of 'Potential Habitat for Great Crested Newts' in reference to the red line boundary (Source: DataMapWales 2021/22)

7.0 Field Survey Results

7.1 Habitat Survey

7.1.1 See **Table 7.1.1** (below) for baseline information and habitat descriptions; refer to **Appendix I** for any supporting imagery; scientific names are given in **Appendix II**. Refer to **Appendix IV** – UK Habitats Map for the location of described habitats & Target Notes (TN).

Table 7.1.1 – UK Habitat types within the survey area

Area Habitats	Sec. Codes	Description
g3c – Other neutral grassland	10 Scattered scrub	Four sections of this habitat are present within the red line boundary, as indicated in Appendix IV , with a total area of 0.09 hectares, although the species composition is similar in each.
	14 Scattered rushes	There are no species indicative of any specific soil type, with a range of graminoids indicating a neutral grassland, such as perennial rye-grass, cock's-foot and false-oat grass as well as pendulous sedge, with Yorkshire-fog also present, alongside rare occurrences of soft rush in depressions which may be seasonally wetter than the surrounding grassland.
	16 Tall herb	Forb cover is relatively high at approximately 30%, with incidences of species including cleavers, common vetch, cow parsley, greater plantain, ox-eye daisy and rosebay willowherb.
	17 Ruderal / ephemeral	
g4 – Modified grassland	11 Scattered trees	A small region of this habitat was identified to the eastern side of the site, with an area totalling 0.001 hectares. No species are dominant within the habitat, which showcases clear evidence of artificial enhancement and a lack of management, with graminoids including false oat-grass and cock's-foot present, alongside forbs such as common nettle, herb-Robert, mugwort and a willowherb species.
	16 Tall herb	In addition, a larger area of agriculturally enhanced grassland is located to the north-west of the site, with an estimated area of 0.05 hectares. This area has been enhanced via the dumping of soil, aggregate, manure and hay bales, and shows indicative species of this enhancement, with the most abundant graminoid being perennial rye-grass, alongside cock's-foot and false-oat grass, and a variety of forb species, such as a dead-nettle species, meadow buttercup, pineapple-weed, scentless mayweed and weld. Other species which have clearly been propagated by the dumping of farm waste include barley, rape and sunflower. Petty spurge is also present in this region, although it has been infected by spurge rust, a fungal parasitoid of Euphorbia species.
	17 Ruderal / ephemeral	
h3h – Mixed scrub	12 Scattered bracken	A 0.03 hectare patch of mixed scrub is located to the northern boundary, with bramble being the most abundant species.
	16 Tall herb	There are glades dominated by perennial rye-grass and false oat-grass in the habitat and it has clearly formed as a successional community over the grassland to the east, with bracken present at a low cover (approximately 2%) alongside various tall herb and ruderal

	17 Ruderal / ephemeral 77 Neglected	/ ephemeral species including common nettle, common hogweed, mugwort, spear thistle and willowherb species.
u1b5 – Buildings	-	There are five buildings positioned within the red line boundary of the site; see Table 7.3.1 for further information on the construction style and size of these buildings.
u1b6 – Other developed land	-	Sealed surface hardstanding is present across much of the site, which is typical given that the area is a working farm. This habitat is underlaid with aggregate and is covered in mud / muck, with an approximate area of 0.10 hectares.
u1c – Artificial unvegetated unsealed surface	73 Bare ground	Much of the site is constituted of this habitat, with an estimated area of 0.06 hectares, with thick layers of mud overlaid on unsealed surface. The lack of vegetative cover is likely due to constant use by agricultural vehicles, and if left unmanaged it is probable that the neighbouring grassland habitats would colonise the land and establish early successional communities, along with bryophyte cover.
Linear Habitats	Sec. Codes	Description
h2b – Other hedgerows	81 Flailed hedgerows	There are two distinct hedgerow types on the borders of the site, with a Leyland cypress dominated feature on the eastern boundary between the red line boundary and the neighbouring garden to the north-east. In contrast, the hedge which runs to the south-east of the site is formed of approximately 50% hawthorn, but with sycamore interspersed within, and as such the hedgerow does not meet the priority habitat criteria. Much of this hedge has been managed by mechanical flail, with clear indications such as cut branches and stems with non-clean cuts.
u1e – Built linear feature	69 Fence	A fence forms part of the western and northern boundary of the site, being of timber post and wire construction.
w1g6 – Line of trees	-	A linear tree line forms the southern boundary between the site and the neighbouring houses, as well as a section of the northern boundary. Mature specimens make up the southern boundary, with species including ash, pedunculate oak and sycamore, with lower canopy cover made up of woody species such as holly, and shrubs including snowberry also present.
Target Notes		
1	Location of log piles	

2	Location of rubble / stone piles
3	Location of dumped soil / aggregate

7.2 Vegetation

Notable species

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

Invasive Non-Native Species (INNS)

- 7.2.2 No INNS, listed as such under Schedule 9 (Part II) of the Wildlife & Countryside Act (1981), were located within the red line boundary of the site during the diurnal appraisal.

7.3 Bats

- 7.3.1 **Figure 7.3.1** shows the respective locations of the buildings within the application site boundary; **Table 7.3.1** below describes each building in respect to their potential to offer roost features for bats (both internally and externally) and includes further information regarding evidence or lack of evidence of bats where applicable.



Figure 7.3.1 – Locations of the buildings within the red line boundary (Adapted from Google Earth Pro 2021/22)

Table 7.3.1 – Building descriptions at the application site with included bat assessments

Building B1

B1 is a detached, brick-built, single storey, storage structure with a pitched, corrugated asbestos roof, having approximate maximum dimensions of 21 metres x 11 metres x 5 metres (Length x Width x Height). Collectively, the building features components such as asbestos barge boards to the gable ends, timber doors, windows and fascia, concrete lintels and sills, a single storey extension to the north, as well as ventilation constructs on the ridge and at the gable ends. 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 no large areas of degradation, but evidence of a lack of management including a layer of moss across the roof alongside some areas of damage to the brickwork.

Internally, no loft space is present, and the storage area goes up to the roof. The space is cool, slightly draughty and partly illuminated via the ventilation mechanisms on the gable ends. The roof is held up by several metal trusses, with the purlins, upon which the roof is sat, also being metallic.

Building B1 is therefore considered unsuitable for the breeding purposes of loft-dwelling species such as Brown Long-eared bats, with the space deemed to be incompatible with the behaviours of these bats, which require a dark space with consistent thermal attributes for their maternity colonies. No evidence of BLE bats was encountered, such as droppings or prey items, and the surrounding habitat is considered to be sub-optimal for this species.

No underlining is present beneath the roofing material; this is typical of agricultural storage structures with a corrugated asbestos roof, whereby heat retention is not a priority.

NB: *The breeding roosts of Pipistrelle bats are proportionally higher in occupied residential dwellings where the warm, dry conditions favour the requirements of a maternity colony but other structures are also used, especially for hibernation or by male bats which do not need the same conditions as a maternity colony.*

Externally, no PRFs were located on the structure. The ventilation mechanisms on the building could provide entry to the space within, however given its unsuitability these are not considered to be viable PRFs. The fascia is tight fitting and provides no crevice opportunity.

Taking into account the lack of potential roosting features as well as the general unsuitability of the internal space, Building B1 is duly categorised as offering '**Negligible**' bat roost suitability, in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016).

Building B2

B2 is a detached, metallic, single storey, agricultural storage shed with a pitched, corrugated metal roof, with estimated maximum dimensions of 14m x 11m x 6m. The building has integrated skylights, metallic capping to the gable ends, and is entirely open to the western elevation, which provides access for the two farm vehicles which are stored within. The building was adjudged to be in excellent condition, which is to be expected given that it was constructed within the last 2 years (under planning application reference: P/2020/0786).



No loft space is present within the structure, with the roof steels visible from ground level, and given the open nature of the western elevation, the space is cold, very draughty and highly illuminated, with no lining present beneath the roofing materials.

The space is therefore considered unsuitable for both loft-dwelling and crevice dwelling species, with the internal characteristics and construction style deemed to be incompatible with the behaviours of these bats.

No PRFs were located on the building, with the only clear entry point being the open elevation.

Building B2 is duly categorised as offering '**Negligible**' bat roost suitability, in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016).

Building B3

B3 is a detached, timber built, single storey, storage barn with a pitched corrugated asbestos roof, and approximated maximum dimensions of 14m x 7m x 5m. The structure was adjudged to be in poor condition, with clear degradation noted across the timber elements, including the walls, the struts and to the timber ridge, which was bowed in the centre.



The southern aspect was entirely open, and, as such, internally the space was cold, very draughty and illuminated, with the barn currently being used to store hay.

The space is therefore considered to be unsuitable for both loft-dwelling and crevice dwelling species, whilst no PRFs were located on the structure with the exception of the open elevation and several gaps in the timber walls which would allow access to the internal part of the building, but to no

Building B3 is duly categorised as offering '**Negligible**' bat roost suitability, in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016).

Building B4

B4 is a detached, single storey, metal built, Dutch barn, with a semi-circular, corrugated metal roof, having estimated maximum dimensions of 30m x 11m x 4m. The structure was noted to be in excellent condition, with no areas of deterioration observed.

No access was possible into the building at the time of survey, however given the construction style it is considered highly unlikely that the building is host to a traditional loft space or a void.

Nonetheless, it is unknown if the space within the building is suitable for both loft-dwelling and crevice-dwelling species, though the supporting beams and purlins are likely to be metallic in nature.

Externally, no PRFs were located on the structure, with all of the metal elements being tight fitting.

B4 is, therefore, duly categorised as offering '**Negligible**' bat roost suitability, in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016).



Building B5

B5 is a detached, single storey, ramshackle part timber and part metallic shed, with approximate maximum dimensions of 8m x 6m x 3m. The structure is in poor condition, with an entirely moss-covered roof and clear evidence of management to the building to prevent water ingress where the water has deteriorated the timber elements.

Given the deterioration, the interior is cool, draughty and illuminated, with no loft space present, and no underlining beneath the asbestos roof.

The space is therefore considered unsuitable for both loft- and crevice-dwelling bat species.

Externally, the only PRFs located on the structure are the rotted timber elements, which provide access to the interior of the building.

B5 is duly categorised as offering '**Negligible**' bat roost suitability, in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016).



- 7.3.2 In relation to bats and trees, there are a number of trees within the red line boundary of the site, with mature specimens making up the line of trees along the western boundaries whilst immature willow individuals are located within the grassland. The immature willows provided no potential roosting features, however some of the mature specimens on the western

boundary were enveloped in ivy, and as such could not be fully investigated. Given the nature of the proposed works, which are confined to the existing B1 and to the area of grassland / unsealed surface, it is considered unlikely that any of these trees will be impacted.

7.4 **Breeding Birds**

7.4.1 In relation to WCA Schedule 1 specially protected bird species, such as barn owl, no evidence was found to suggest any form of site use or historic nesting, and although building B3 provides a barn with ready access, the cold nature of the space and the lack of nesting platforms negates the chance that breeding barn owls would utilise the building. The land surrounding the site is largely heavily grazed and provides negligible value for hunting raptors such as barn owl.

7.4.2 In relation to wider breeding birds, a number of nests were located throughout the site, both within the trees and the hedgerows / other vegetation within the red line boundary. Given the open nature of the buildings, there is also clear nesting potential within, whereby access into the structure would provide suitable nesting platforms for birds adapted to urbanisation, house sparrows and / or swallows for example. As breeding birds are protected when at the nest, timing implications are therefore applicable in order to avoid disturbing or injuring breeding birds.

7.4.3 The following bird species were observed during the survey (see **Table 7.4.1**):

Table 7.4.1 – Bird species encountered during the survey

Species	Scientific Name	Status	Context (where relevant)
Blackbird	<i>Turdus merula</i>	Green	Seen in hedgerow
Carrion Crow	<i>Corvus corone</i>	Green	Commuted over site
Dunnock	<i>Prunella modularis</i>	Amber	Seen in line of trees
Jay	<i>Garrulus glandarius</i>	Green	Commuted over site
Robin	<i>Erithacus rubecula</i>	Green	Seen in line of trees
Woodpigeon	<i>Columba palumbus</i>	Amber	Commuted over site
S.41 – a bird listed on section 41 of the Natural Environment Rural Communities Act 2006 (NERC Act) LBAP – a local biodiversity action plan listed species Q – qualifying species of nearby SSSI site(s) SPEC – a species of conservation concern, Amber or Red, Red being the highest conservation priority			

7.5 **Other Terrestrial Mammals**

Badger & hedgehog

7.5.1 No field signs were located to suggest the presence of badgers, including any setts, latrines, pathways, hairs, footprints or feeding signs such as snuffle holes and scratched trees/logs. There are suitable linear features on site for this species, however their presence is considered unlikely given the lack of woodland habitat in the wider landscape.

- 7.5.2 In respect of hedgehogs, the site provides good quality foraging habitat in the form of open grassland as well as sheltering and commuting opportunities such as dense vegetation and the boundary features (hedgerows, tree lines). Given the commuting pathways in and around the site, the presence of this species within the site boundary is considered highly likely.

Water Vole

- 7.5.3 The watercourse to the north of the site was assessed relative to its potential to offer suitability for Water Vole. The industry-wide standard Habitat Suitability Index for this species was utilised by the surveyor, with the results seen below in **Table 7.5.1**:

Table 7.5.1 – HSI Scoring for Water Vole at Cinder's Farm

Water Vole Habitat Suitability Assessment (1 if feature is present)	
0 = Unsuitable Habitat / 10 = Optimal Habitat	
Well developed (>60%) bankside and aquatic vegetation providing food & cover	0
A good variety of food plants, including favoured plants, and winter food sources	0
Suitable refuge areas above extremes in water levels	0
Soft, earth banks suitable for burrowing (30 to 60 degree slope)	0
Water permanently present (levels stable and does not dry up)	0
Open water provision for swimming	1
Ledge or berm present at or close to water level	0
Lack of damage or erosion to the banks	0
Slow flowing current or static water	1
Invasive Species absent (e.g. Himalayan Balsam/Japanese Knotweed)	1
Habitat Assessment Score Total	3

- 7.5.4 Given the HSI score of 3, there is a low chance of the watercourse being utilised by Water Vole. The site also lies outside of the DataMapWales layer 'WOM21 Potential Habitat for Water Voles', indicating further that this species is unlikely to be present within or in close proximity of the site. No connecting watercourses were noted to suggest that this species may be able to utilise the site for commuting or foraging purposes.

7.6 Herpetofauna

GCN

- 7.6.1 In respect of GCN, no standing water bodies exist on the site or within the 250 metre radial buffer. As such, no ponds were scored using the industry standard Habitat Suitability Index (HSI) assessment.
- 7.6.2 Important elements to consider when assessing likely impacts against GCN includes:
1. The scale, nature and magnitude of proposals,
 2. Site proximity to a potential breeding pond and to any additional ponds,
 3. Habitat linkage / barriers between potential breeding ponds and the site,
 4. Nature and extent of available terrestrial habitat around the pond,
 5. Area of site habitat loss,

6. Nature of habitat to be lost and potential value to GCN,
7. Most up to date Government guidance considering EPS.

7.6.3 As derived from the desktop assessment, evidence of GCN in the locale included:

- No granted EPSMLs for GCN within a 2.0 kilometre buffer,
- No 'Present' Class Survey Licence Returns within range,
- No 'Present' ponds survey within the considered range,
- No ponds within 250 metres of the application site.

7.6.4 The application site itself does provide suitable habitat for GCN, with a mosaic type habitat with varied sward height which could provide refugia and commuting pathways for these amphibians. Linear features such as hedgerows could also provide commuting habitat, whilst the various piles of rubble, logs and other loose, uncompacted aggregate would be suitable hibernacula for members of this species.

7.6.5 Given the location of the site, the local planning guidance note '**GREAT CRESTED NEWT MITIGATION REQUIREMENTS – Johnstown Newt Site SAC and the Wider Countryside**' was utilised to help inform any conclusions or recommendations relating to this species. The application site at Cinder's Farm is outside of the 500 metre buffer surrounding the Special Area of Conservation (SAC), and as such Table 2, in relation to minor developments, provides no further recommendations.

7.6.6 Given the nature of the proposed works, which are limited to the conversion of an extant building and the erection of a building to the south of the site over an area that is largely constituted of u1c – Artificial unvegetated unsealed surface, which provides a largely inhospitable environment for newts, it is considered that the risks to GCN from the proposals is minimal.

Wider herpetofauna

7.6.6 Given the surrounding habitats, which includes the aforementioned brook, as well as linear hedgerows and tree lines, the application site could be feasibly used by generalist, more robust common amphibians including common frog (*Rana temporaria*) and common toad (*Bufo bufo*), subject to their presence in the landscape.

7.6.7 With regards to reptiles, the application site provides a good quality environment in line with the typical / favoured habitat specifications for this taxon, such as a varied vegetation structure with clear ecotones, a varied topography via the dumping of soil and farm waste and clear areas for refugia and hibernation within log piles and dense vegetation. In addition, the lack of management, particularly to the north of the site, amplifies all of the above factors as it leads to a continual increase in habitat suitability for reptiles.

7.7 Invertebrates

7.7.1 An assessment of habitats and features on site found the presence of ecotones as well as deadwood in the form of log piles, and with the site being surrounded by homogenous agricultural land, the application site is likely to be of a slight local significance for invertebrate assemblages.

8.0 Conclusions & Recommendations

Habitats & Vegetation

- 8.1 No habitats or species of conservation importance were identified within the application site boundary. 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**.
- 8.2 No Schedule 9 (WCA) INNS were recorded on site during the diurnal appraisal.

Bats

- 8.3 Based upon the findings of the survey, covered through sections 6.0 – 7.0 of the report and supported by **Appendix I**, all of the surveyed structures at Cinder's Farm are determined to offer '**Negligible**' bat roost potential, in accordance with Bat Conservation Trust – Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016). As such, no further survey work is required at the site in relation to bats and buildings.

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 – BCT extract on Negligible roost potential requirements

- 8.4 Bats are transient species' and buildings can deteriorate over time. In the highly unlikely event that bat(s), or evidence of bat(s), are found during the proposed works, 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 8.2** for indicative evidence of bats.



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

- 8.5 In relation to bats and trees, it is recommended that the line of trees which makes up the western boundary is retained in full, given that it likely provides an important commuting pathway for any bats in the area, subject to their presence in the wider landscape. Some of the trees were also unable to be investigated due to the ivy growing upon the trees. If works are planned to the mature boundary trees, then ivy removal should be undertaken and a further investigative survey carried out on the trees to establish if they offer bat roost potential.
- 8.6 Installation of overly harsh artificial lighting as part of any development that exceeds current levels may have a negative impact upon foraging/commuting bats in the landscape, subject to their presence, particularly if increased light spillage occurs in areas of that are currently free from illumination. A bat-sensitive lighting plan is therefore recommended in order to avoid potential impacts to bats that may use the surrounding treelines. Several 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.

Breeding Birds

- 8.7 In relation to WCA Schedule 1 specially protected bird species, no evidence to suggest any form of breeding behaviour or any usage of the site whatsoever was encountered. Any impacts which may arise from the development proposals to these specially protected birds can, therefore, be safely ruled out.
- 8.8 In relation to common birds, the buildings, trees, vegetation and the hedgerow offer small birds a plethora of nesting opportunities, particularly during the breeding bird season, with numerous nests located within vegetation around the site, as well as several areas of faecal splashing on buildings indicative of nesting within.

- 8.9 Given that all birds are protected when at the nest, it is therefore recommended that any demolition, tree felling / pruning and vegetation clearance works on site are carried out outside of the breeding bird season (March – August inclusive). For works undertaken within the breeding bird season, any areas that can support nesting birds, such as the areas of vegetation or building B3, should be checked by a professional Ecologist for nesting birds within 48 hours or less prior to works commencing.
- 8.10 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 species pending. In addition, enhancement is recommended to be built into both the converted structure and the new building.

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.*

Other Terrestrial Mammals

- 8.11 Whilst no direct evidence of badger or hedgehog was identified within the survey boundary, the habitat present is considered suitable for commuting, foraging and hibernating by hedgehog. As such, a series of RAMS are recommended to be undertaken at the site during development, particularly where excavations / trenches will be made. These should include:
- limiting working hours to the daylight,
 - carrying out morning checks for the presence of hedgehogs and other small animals,
 - provisioning low angle sloping boards of approximately 300 mm wide to be placed within any excavations at the end of each working day, to facilitate a means of escape for mammals such as hedgehogs,
 - backfilling excavations at the end of the working day, if possible,
 - not leaving any bulky equipment / general construction aggregates around the development area, instead leave them on bare ground away from the risk zone.
- 8.12 In addition, enhancement measures are recommended to be incorporated into the new development to safeguard to value of the site for this species.
- 8.13 The brook system located directly adjacent to the north of the site was adjudged relative to its potential to offer suitable habitat for Water Vole. Given the position of the site relative to the DataMapWales layer 'WOM21 Potential Habitat for Water Voles', alongside the HSI score and the scale of the proposed works, it is considered highly unlikely that any impacts will arise from the proposals in relation to Water Vole, and no further recommendations are made for this species.

Herpetofauna

GCN

- 8.14 Whilst the site itself offers a highly suitable environment for GCN, there is a distinct lack of waterbodies within a 250 metre radius and a lack of connectivity to any ponds in the wider landscape. This, in partnership with the localised nature of the proposed works, means that it is considered that impacts to this species are considered absent to minimal, and no further surveys or measures for GCN will be recommended as a part of this report.

Wider herpetofauna

- 8.15 The presence of more robust amphibian species is considered likely, with suitable habitats both within and in close proximity to the application site. In the absence of mitigation measures, the works have potential to cause impacts for this species.
- 8.16 A detailed working Method Statement should therefore be applied, outlining key reasonable avoidance measures (RAMs) and working protocols to be in effect during all proposed works to effectively safeguard amphibians, and to be written by a competent ecologist / Ecological Clerk of Works (ECow).

Upon gaining understanding of the details contained within the RAMs and signing the audit form the applicant would be expected to comply with the measures recommended by the ecologist / ECow. It is recommended this should be stipulated as a pre-commencement planning condition. This would be subject to the approval of the local planning authority – following approval, strict adherence to the terms of the RAMs would be a requirement of the named authority and the applicant would be the liable party, 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 GCN are encountered during works, or at any other stage of the work programme, works would be required to immediately cease and the Ecologist/ECow made aware as to provide further guidance in this situation, if an ecologist/ECow is not already present on site.

In the event that GCN or their habitat would be directly impacted upon, including disturbance, an EPSML to legally proceed with the development may be required following detailed further presence/absence surveys.

- 8.17 Given the presence of multiple habitat preferences required by reptiles, the RAMS suggested above should be widened to encompass reptiles alongside generalist amphibians.

Invertebrates

- 8.18 The site provides a good quality, potentially locally important environment for invertebrates, and, therefore, a programme of enhancement measures should be created by a suitably qualified ecologist. General ideas have been provided in **Appendix III** below.

Biodiversity Enhancement

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

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Appendix I: Site Photographs



Plate 1 – Building B1 (right hand side) and building B3 (left hand side)



Plate 2 – The internal character of B1



Plate 3 – Building B2



Plate 4 – The internal character of B3, as well as the bowed roof



Plate 5 – Building B4, the Dutch Barn



Plate 6 – Building B5



Plate 7 – Entrance to the site



Plate 8 – Log pile along the western boundary



Plate 9 – *Hedgerow to the eastern boundary*



Plate 10 – *Land within the north-west part of the site*



Plate 11 – *The water course to the north of the site*



Plate 12 – *Other neutral grassland grading into mixed scrub to the north-east of the site*



Plate 13 – *The track along the north-west of the site*



Plate 14 – *Dumped farm waste with emergent vegetation growing through*

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.)

Abundance	Scientific Name	Common Name
R	<i>Fraxinus excelsior</i>	Ash
R	<i>Hordeum vulgare</i>	Barley
R	<i>Pteridium aquilinum</i>	Bracken
LA	<i>Rubus 'fruticosus'</i>	Bramble
R	<i>Rumex obtusifolius</i>	Broad-leaved Dock
R	<i>Stellaria sp.</i>	Chickweed species
O	<i>Galium aparine</i>	Cleavers
O	<i>Dactylis glomerata</i>	Cock's-foot
R	<i>Tussilago farfara</i>	Colt's-foot
O	<i>Agrostis capillaris</i>	Common Bent
R	<i>Heracleum sphondylium</i>	Common Hogweed
O	<i>Urtica dioica</i>	Common Nettle
R	<i>Senecio jacobaea</i>	Common Ragwort
R	<i>Vicia sativa</i>	Common Vetch
R	<i>Anthriscus sylvestris</i>	Cow Parsley
R	<i>Taraxacum officinale agg.</i>	Dandelion
LO	<i>Lamium sp.</i>	Dead-nettle species
R	<i>Rosa canina</i>	Dog-rose
R	<i>Geranium × oxonianum</i>	Druce's Crane's-bill
O	<i>Arrhenatherum elatius</i>	False Oat-grass
R	<i>Stereum hirsutum</i>	False Turkey-tail
R	<i>Aethusa cynapium</i>	Fool's Parsley
R	<i>Digitalis purpurea</i>	Foxgloves
R	<i>Plantago major</i>	Greater Plantain
R	<i>Asplenium scolopendrium</i>	Hart's-tongue Fern
LD	<i>Crataegus monogyna</i>	Hawthorn
O	<i>Geranium robertianum</i>	Herb-robert
R	<i>Ilex aquifolium</i>	Holly
LO	<i>Hedera helix</i>	Ivy
LD	<i>Cupressus × leylandii</i>	Leyland Cypress

O	<i>Ranunculus acris</i>	Meadow Buttercup
R	<i>Geranium pratense</i>	Meadow Crane's-bill
R	<i>Artemisia vulgaris</i>	Mugwort
R	<i>Leucanthemum vulgare</i>	Ox-eye Daisy
R	<i>Quercus robur</i>	Pedunculate Oak
LO	<i>Carex pendula</i>	Pendulous Sedge
O	<i>Lolium perenne</i>	Perennial Ryegrass
R	<i>Euphorbia peplus</i>	Petty Spurge
O	<i>Matricaria discoidea</i>	Pineapple-weed
R	<i>Papaveraceae sp.</i>	Poppy species
R	<i>Sonchus asper</i>	Prickly Sow-thistle
O	<i>Brassica napus</i>	Rape
R	<i>Rosa sp.</i>	Rose species
R	<i>Chamerion angustifolium</i>	Rosebay Willowherb
R	<i>Tripleurospermum inodorum</i>	Scentless Mayweed
LO	<i>Symphoricarpos albus</i>	Snowberry
R	<i>Juncus effusus</i>	Soft Rush
R	<i>Cirsium vulgare</i>	Spear Thistle
LA	<i>Rhytidiadelphus squarrosus</i>	Springy Turf-moss
R	<i>Melampsora euphorbiae</i>	Spurge Rust
R	<i>Helianthus sp.</i>	Sunflower species
A	<i>Acer pseudoplatanus</i>	Sycamore
R	<i>Reseda luteola</i>	Weld
R	<i>Salix sp.</i>	Willow species
O	<i>Epilobium sp.</i>	Willowherb species
O	<i>Holcus lanatus</i>	Yorkshire-fog

Appendix III: Biodiversity Enhancement: General Recommendations

Bats

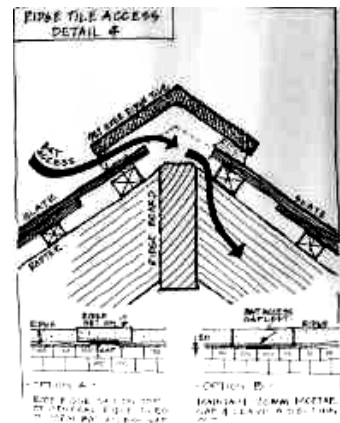
Integrated bat box

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, with more examples present online.



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 – Swallows

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

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



Specifications

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

Breeding Birds – Swift

Swifts (*Apus apus*) are a medium sized, agile and incredibly fast flying bird, which overwinter in Africa and migrate over 3000 miles twice a year. Swifts mate for life and are loyal to nest sites, often using small gaps to enter rooves and other components such as soffits and eaves. Due to renovation works to older buildings, nesting opportunities for these birds have decreased dramatically, and this species has been added to the Red list in the 2021 UK Conservation Status Report, with a 57% decrease in swift numbers observed between the years of 1995 – 2017.

The FSC certified WoodStone Swift Nest Box is constructed entirely out of WoodStone meaning it is long lasting and won't rot away like a traditional wooden nest box. There is an opening at the back of the box for easy cleaning with the nest entrance on the underside of the box. This type of entrance is preferred by swifts but discourages house sparrows and starlings from occupying the box. This box should be installed at least five metres above the ground, ensuring that there is unobstructed access for birds entering and leaving. If possible, boxes should be sited under the shelter of eaves or overhanging roofs.



Breeding Birds – Other

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

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



Hedgehog Home

Specification:

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

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



47cm

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

Invertebrates – Bee bricks

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

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

Available in a choice of four colours: white grey, dark grey, yellow and red.



Specification

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

Invertebrates – Insect Hotels

Cinder's Farm, Cinder's Lane, Ruabon, Wrexham, LL14 6HL
Preliminary Ecological Appraisal

This large wooden insect hotel includes a number of habitats for a variety of insects. It's large enough to create a focal point in a wildlife garden and sturdy enough to last for years. This bug hotel is made from untreated wood, which is important as insects need natural materials to thrive, and it's split into seven sections that each contain a different nesting material. There are 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 a wall and fix to prevent it 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. Alternatively, bug hotels can be created easily using raw materials on site, or items brought to site.

Main material: wood.

Size: Height (cm): 100.00, Length (cm): 62.00, Depth (in cm): 16.00

Other features:

Weight (kg): 14.00kg

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. New hedgerows should be primarily comprised of Blackthorn (*Prunus spinosa*), Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*), and Holly (*Ilex aquifolium*), whilst climbers/creepers such as Hops (*Humulus lupulus*) and Honeysuckle (*Lonicera periclymenum*) can be planted at the base of boundary features such as fences and walls, and new tree planting should include species such as Pedunculate Oak (*Quercus robur*), Wild Cherry (*Prunus avium*), and Alder Buckthorn (*Frangula alnus*).

	Common Name	Scientific Name	Planting Preference
Ferns	Male Fern	<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
	Stinking Hellebore	<i>Helleborus foetidus</i>	Semi-shade or open areas
Climbers	Honeysuckle	<i>Lonicera periclymenum</i>	Dry-moist soils
	Hops	<i>Humulus lupulus</i>	Dry-moist soils
	Ivy	<i>Hedera helix</i>	Dry-moist soils
	Sweet-briar	<i>Rosa rubiginosa</i>	Dry-moist soils
Woody Shrubs	Dogwood	<i>Cornus sanguinea</i>	-
	Guelder Rose	<i>Viburnum opulus</i>	-
	Hawthorn	<i>Crataegus monogyna</i>	-
	Hazel	<i>Corylus avellana</i>	-
	Holly	<i>Ilex aquifolium</i>	-
Trees	Alder Buckthorn	<i>Frangula alnus</i>	-
	Osier	<i>Salix viminalis</i>	-

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	Pedunculate Oak	<i>Quercus robur</i>	-
	Purple Willow	<i>Salix purpurea</i>	-
	Rowan	<i>Sorbus aucuparia</i>	-
	Silver Birch	<i>Betula pendula</i>	-
	Wild Cherry	<i>Prunus avium</i>	-
	Wych Elm	<i>Ulmus glabra</i>	-

