



Development of Land for Residential Use

Report Title: Preliminary Ecological Appraisal including RAMs

Address: Land off Bedwell Road, Cross Lanes, Wrexham, LL13 0TR

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Tyrer Ecological Consultants Ltd
Formby Business Centre
42 Duke Street
Formby
L37 4AT

Tel: 01704 875781
Email: enquiries@tyrer-ecologicalconsultants.co.uk
www.tyrer-ecologicalconsultants.co.uk

Land off Bedwell Road, Cross Lanes, Wrexham, LL13 0TR
Preliminary Ecological Appraisal including RAMs

Document Title	Preliminary Ecological Appraisal including RAMs
Prepared for	PDQ Signs
Prepared by	Tyrer Ecological Consultants Ltd

Author	Mr. Joshua Styles
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Reviewed by	Mrs. K. Wilding
Approved by	Mrs. K. Wilding
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Summary

As part of a planning application involving land off Bedwell Road, Wrexham (Figure 1), a Preliminary Ecological Appraisal was undertaken by Tyrer Ecological Consultants Ltd during April 2019. It is understood that proposals involve the construction of five new residential dwellings across land contained within the application boundary. It is also understood that some areas of trees/hedgerow will be removed as part of the outstanding proposals.

In accordance with paragraph 6, point 6.4.21 of Planning Policy Wales (PPW), local planning policy and *Biodiversity Net Gain: Good practice principles for development* (CIEEM *et al*, 2019), a series of measures have been recommended within section 9.0 to ensure that the proposed development at the land off Bedwell Road does not result in biodiversity net loss, and that a net gain is achieved.

Vegetation: No species of conservation importance were located upon inspection of the land off Bedwell Road, nor were any species notified as 'invasive' located throughout or in close proximity to the survey boundary. For a site-specific botanical species list, see Appendix II.

Recommendations in respect of future landscaping are given in section 9.2.

Bats: Two outbuildings exist within the confines of the survey area which are determined to possess 'negligible' bat roost suitability and no areas of bat roost potential exist to the exterior of adjacent properties. Trees that exist to the north-east of the area are all immature broadleaved species and absent of Potential Roost Features (PRFs) such as extensive cracks, crevices or fissures. All trees are similarly categorised as possessing 'negligible' bat roost suitability, in line with existing Bat Conservation trust (BCT) guidelines.

It is recommended that enhancement for bats by way of roost provisions (see Appendix III) is integrated into the proposed development.

Other Terrestrial mammals: No suitable habitats/evidence of badger (*Meles meles*) exists across the full extent of the survey area. A limited range of features that favour hedgehog (*Erinaceus europaeus*) exists on site in the form of a small area of hedgerow to the north-east and areas of scattered scrub to the south-east additional to occasional areas of brash.

A precautionary approach is recommended during clearance operations (see section 9.5); enhancement for hedgehog is recommended within Appendix III.

Herptiles: Planning permission in relation to the outstanding proposals (see Figure 1) was granted on 5th November 2018. Condition 11 of this notice gives the following:

"11. Prior to the commencement of the development, a scheme of reasonable avoidance measures in respect of great crested newts and a biosecurity risk assessment shall be submitted to and approved in writing by the local planning authority. The development shall be carried out in accordance with the details as approved."

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Marches Ecology was therefore commissioned by Tyrer Ecological Consultants during May 2019 to produce the required reasonable avoidance measures statement with accompanying biosecurity risk assessment. These are given in Appendix IV.

Birds: Areas of debris/hedgerow/scrub/trees exist across areas of the site. Although no historical evidence of nesting birds was located, these features act as viable platforms for a range of common nesting birds and the presence of breeding birds within the period March-August is considered to be highly likely.

It is thus recommended that all clearance operations are timed outside of this period unless it can be established by a suitably qualified ecologist that nesting birds are absent. Furthermore, it is recommended that enhancement for nesting birds as per Appendix III is incorporated into the proposed development.

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1.0 Introduction & Reason for Survey

1.1 As part of a planning application involving land off Bedwell Road, Wrexham (Figure 1), a Preliminary Ecological Appraisal was undertaken by Tyrer Ecological Consultants Ltd during April 2019, in accordance with the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017). It is understood that proposals involve the construction of five new residential dwellings across land contained within the application boundary. It is also understood that some areas of trees/hedgerow will be removed as part of the outstanding proposals. Ecological surveys, particularly where a specially protected species is or may be present, are generally required as part of the Local Authority's Planning Policies; therefore, PDQ Signs commissioned the survey and report.

1.2 Planning permission for the aforementioned development was granted on 05th November 2018 (ref no. P/2018/0138). Two Conditions relative to ecology are given within the decision notice as follows:

"10. No tree or hedge removal shall be carried out during the bird breeding season.

11. Prior to the commencement of the development, a scheme of reasonable avoidance measures in respect of great crested newts and a biosecurity risk assessment shall be submitted to and approved in writing by the local planning authority. The development shall be carried out in accordance with the details as approved."



Figure 1: Proposed site plan

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- 1.2 The basic objective of the survey was to ascertain the nature of the land and buildings, and where possible obtain information on any sensitive wildlife habitats or species that may be present and if so determine if they will be affected by future development. To achieve these primary objectives, the survey aimed to identify/assess any of the following:
- The presence of species with non-statutory protection.
 - The presence/potential presence of species protected under the Wildlife and Countryside Act (1981) (as amended) or the Conservation of Habitats and Species Regulations 2017 (as amended).
 - Identify any species or habitats that require special consideration during future development.
 - Identify the presence of statutory or non-statutory designated sites in close proximity.
 - If the above are present assess any impacts that may occur as a result of development.

Additional to an assessment of risk to valuable ecological components of the application site, this report also addresses condition 11 with regard to great crested newts (see Appendix IV).

- 1.3 If the site / parts of the site was found to be suitable for the aforementioned habitats / species or signs of use were found then more detailed surveys may be recommended. If any European Protected Species was subsequently found during those detailed surveys and may be affected by the development proposals, then a European Protected Species Licence may be required to proceed with the development.
- 1.4 In accordance with paragraph 6, point 6.4.21 of Planning Policy Wales (PPW), local planning policy and *Biodiversity Net Gain: Good practice principles for development* (CIEEM *et al*, 2019), enhancement opportunities have been recommended within the report to ensure that a “biodiversity net gain” is obtained as a key component of the development scheme.

2.0 UK Biodiversity Plans

- 2.1 The UK Biodiversity Action Plan (BAP) provided a statutory basis for lists of habitats and species of national conservation importance, now transposed under section 7 of the Environment Act 2016. Based upon the site visit, one priority species was identified foraging across the site in the form of house sparrow (*Passer domesticus*); there is the potential for multiple additional priority species to be present / using the site; likelihood of presence is determined on both species ecology and distribution (see Table 1).
- 2.2 One priority habitat in the form of ‘hedgerow’ occurs within the survey boundary to the north-east of the application boundary.

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Table 1: s.7 species likely to be present within the locality

Terrestrial Mammals	
West European Hedgehog	<i>Erinaceus europaeus</i>
Birds	
Kestrel	<i>Falco tinnunculus</i>
House Sparrow	<i>Passer domesticus</i>
Tree Sparrow	<i>Passer montanus</i>
Hedge Accentor	<i>Prunella modularis</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Common Starling	<i>Sturnus vulgaris</i>
Song Thrush	<i>Turdus philomelos</i>
Herptiles	
Common Toad	<i>Bufo bufo</i>
Great Crested Newt	<i>Triturus cristatus</i>
Invertebrates	
Garden Tiger	<i>Arctia caja</i>
Cinnabar Moth	<i>Tyria jacobaeae</i>

3.0 Local Biodiversity Action Plan

3.1 LBAP's are simply a way of encouraging people to work together and deliver a program of continuing action for biodiversity at a local level. They set out practical steps that aim to:

- Help protect biodiversity
- Enhance and improve biodiversity where possible, and
- Promote biodiversity at a local level

Sites of Local Biological Interest

3.2 Whilst there is no legal protection for Sites of Local Biological Interest (SLBI) / Local Wildlife Sites (LWS) per se, their non-statutory designation recognizes their importance in a regional context in respect to biodiversity; the presence of a protected species within them would attract the usual protection(s) afforded to it/them.

3.3 The Wrexham Biodiversity Action Plan (WBAP) lists key local species/habitats considered to be rare or declining in the area. Some may be of national concern, while others may only be locally rare. Some are statutorily protected, although the great majority are not. Upon completing the desktop study for this report, no online resource made available the local (Wrexham) BAP; therefore, assessment of the site to support local BAP species/habitats is not possible for the purposes of this report.

4.0 Site-relevant Legislation

4.1 Relevant legislation considered for the purposes of this report includes the following:

- Environment Act (2016)
- The Conservation of Habitats and Species Regulations (2017) (as amended)
- The Countryside Rights of Way (CROW) Act (2000)
- The Wildlife and Countryside Act (1981) (as amended)

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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/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 (e.g. Otter), whereas others may be protected solely on a national basis (e.g. Grass Snake).

See Table 2 below entailing legislature appropriate to each species/species group/s respective to the land off Bedwell Road, Wrexham, and the relevance of said legislation.

Table 2: Site-relevant legislation

Species/Species Group	Relevant Legislation	Level of Protection
Birds	CRoW Act (2000) Wildlife and Countryside Act (1981) (as amended)	All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected. Birds listed on Schedule 1 Wildlife & Countryside Act (1981) (as amended) e.g. Kingfisher (<i>Alcedo atthis</i>) are afforded a greater level of protection
Great Crested Newt	CRoW Act (2000) Conservation of Habitats and Species Regulations (2017) Wildlife and Countryside Act (1981) (as amended)	Great Crested Newts (GCN's) are fully protected from disturbance, killing, injuring or possession at any life stage.

4.2 Additional Species Information

4.3 Barn Owl (*Tyto alba*) are widespread in parts of rural Wrexham and use tussocky grassland habitats for hunting purposes, whilst they typically may use both barns/old buildings and tree hollows for nesting or roosting purposes.

4.4 Great Crested Newts (*Triturus cristatus*) (GCN) have declined within the UK over recent years due to the destruction and pollution of their breeding sites and terrestrial habitat. They spend a high percentage of their adult life in a terrestrial habitat and use hibernacula such as log piles, tree roots and rubble for shelter and/or hibernation. Within Wrexham's GCN's are found where favourable habitat coincides with connectivity to breeding pools.

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

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

5.0 Survey Methodology

Desk study

- 5.1 Prior to the 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 2km of the site boundary. To do so, the Multi Agency Geographic Information for the Countryside (MAGIC – provided by Defra) was accessed to gather such information; this particular interactive mapping service was also used to locate any locally granted European Protected Species Mitigation Licenses (EPSML) to further inform conclusions concerning such species in the context of the study site and its proposed development.

Satellite imagery was reviewed using sources such as Google Earth (© 2019) to determine the nature of the 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.

- 5.2 Based on the survey results (i.e. the nature of the proposals), adjacent and surrounding habitat, a sufficient level of information was obtained for the purpose of this report. Therefore, a data search of local wildlife records/designated sites would not add any further information relative to the results, conclusions and recommendations. Furthermore, the *UK Guidelines for Accessing and Using Biodiversity Data* (CIEEM, 2016) state that data searches do not always need to be conducted, especially relating to ‘*Low impact or small-scale development (e.g. by size, extent, duration of works, magnitude or locality).*’

Field Survey

- 5.3 The survey was conducted on the 8th April 2018 by Mr J Styles BSc (Hons.) ACIEEM AMRSB, ecologist, highly experienced botanist with a FISC level 5 and accredited agent upon the bat license of Mrs K Wilding (CLS-14227).
- 5.4 Point 6.4.21 of Planning Policy Wales (PPW) stipulates the following:

“Planning authorities must follow a stepwise approach to maintain and enhance biodiversity and build resilient ecological networks by ensuring that any adverse environmental effects are firstly avoided, then minimized, mitigated, and as a last resort compensated for; enhancement must be secured wherever possible.

- 1. The first priority for planning authorities is 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 gain have been fully considered*
- 2. Planning authorities should ensure that features and elements of biodiversity or green infrastructure value are retained on site, and enhanced or created where ever possible, by adopting best practice site design and green infrastructure principles. The provision of up to date ecological survey information will assist in this process. Where necessary, planning authorities should seek to modify the development proposal through discussion with the applicant at the earliest possible stage. Biodiversity and green infrastructure modifications should draw on the issues and opportunities identified through the Green Infrastructure Assessment.*

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3. *In some circumstances, it will be appropriate to attach planning conditions, obligations or advisory notes to a permission, to secure biodiversity outcomes. Planning authorities should take care to ensure that any conditions necessary to implement this policy are, relevant to planning, relevant to the development to be permitted, enforceable, precise, and reasonable in all other respects.*
4. *When all other options have been exhausted, and where modifications, alternative sites, conditions or obligations are not sufficient to secure biodiversity outcomes, offsite compensation for unavoidable damage must be sought*

Policy SP15 of Wrexham Local Development Plan 2013-2028 Deposit Plan (December 2017) mirrors this and gives that: *“Development will only be supported where it protects conserves and enhances the natural environment including:... Protected Species and their habitat;...Developing and maintaining Green Infrastructure links; and Habitats and species of principal importance to Wales.”* Measures have accordingly been recommended to avoid/mitigate/compensate for biodiversity loss within section 9.0, based upon the findings of the survey.

Furthermore, *Biodiversity Net Gain: Good practice principles for development* (CIEEM *et al*, 2019) have been adopted whereby appropriate enhancement recommendations ensure that a biodiversity net gain at the land off Bedwell Road is obtained.

5.5 During the walkover, botanical assemblages were assessed and the land was inspected for the presence of red-listed (Stroah *et al*, 2014), s.41 and BAP species alongside specially protected species as listed under Schedule 8 of the Wildlife and Countryside Act (1981) (as amended) or Schedule 5 Conservation of Habitats and Species Regulations (2017) (as amended).

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 may be recognised for their ecological notoriety on a geographical scale which is adopted on a site-to-site basis (see Figure 2 below). For a full site-relevant species list, see Appendix II.

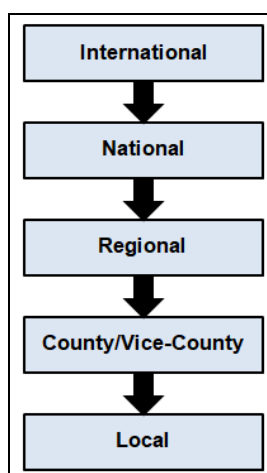


Figure 2: Geographic Frame of Reference entailing degrees of conservation importance

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5.6 Alongside assessing the land in relation to flora of conservation importance, the land was also assessed in relation to the presence of invasive species as listed under Schedule 9 of the Wildlife and Countryside Act (1981) (as amended) extending from the boundary).

5.7 Two outbuildings exist to the north-east of the area which were inspected internally and externally for Potential Roost Features (PRFs) that favour both crevice and loft-dwelling species of bat.

Trees located within the development area consist of entirely immature broad-leaved trees; (deciduous species of) trees were investigated at a time when tree foliage is largely absent. Foliage, where present, can impede the surveyor's view of existing bat roost potential. They were assessed from ground level with close focussing binoculars and high powered torch for features that are frequently utilised by bats as roosts or the presence of ingress points such as natural/woodpecker holes splits of fissures that may provide access into further cavities within the tree/s.

Criteria for roost assessment are based upon the following determinant which is based upon the Bat Conservation Trust 'Bat Surveys: Good Practice Guidelines' (2016) (Figure 3):

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 3: BCT guidelines extract

5.8 A number of factors are used for the bat survey methodology, which include:-

- Knowledge of bat species relevant to the site location and geographical range
- Nature of the immediate and surrounding habitat in relation to foraging opportunities

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- Presence/absence of roost potential
- Value of roost potential – if present

Following the survey the results, conclusions and recommendations are based upon surveyor experience and knowledge of bat ecology.

- 5.9 A 'walkover' of the site was conducted which included a search for typical signs of Badger activity which includes digging, occupied setts, 'runs' leading to and from a sett or the existence of latrines or 'snuffle' holes where Badgers have foraged in the ground. At the same time, identification of any actual fauna species and any physical evidence signifying the presence of fauna species would also be documented.
- 5.10 A map and field search was undertaken in relation to the presence of ponds or waterways that may support Great Crested Newts. The information gathered would then be used to establish if more detailed surveys are required.
- 5.11 The results, conclusions, and recommendations of the survey have been assessed by Mrs K Wilding, director of Tyrer Ecological Consultants Ltd, and her assessment concurs with that of Mr Styles.

6.0 Limitations

- 6.1 This report does not contain a comprehensive list entailing the totality of botanical taxa on site. Species listed within Appendix II were noted from incidental observation at the time of the inspection; many plant species are only evident at certain times of the year and so some plant species may have gone undetected.
- 6.2 The daytime survey was conducted at a time when bats are outside of their active season, and within a transitional period following hibernation. Although evidence of bat use may be less apparent at this time of year, bat roost potential may still be identified subject to suitable structures or trees being present.
- 6.3 Having considered the constraints in the context of the site, it is considered that on balance, there were no significant constraints would otherwise hinder the gathering of ecological information on site.

7.0 Desk study results

- 7.1 The proposed development land is situated in a relatively semi-rural area bordering areas of residential development contained within Cross Lanes village sited at approximately 5.3 kilometres south-east of Wrexham centre. The land itself consists of areas of permanent grassland with occasional areas of tree/scrub/hedgerow and two outbuildings; these habitats are set in an environment dominated by a mix of pasture/arable agricultural land as well as further favourable environs occurring within the immediate and contiguous landscape including areas of scattered trees, hedgerow and unnamed streams to the north of the application site.
- 7.2 The contiguous landscape to all aspects of the site follows to a similar nature to that of the immediate; fields tend to have a high degree of connectivity via hedgerows and lines of trees. These previously identified habitats can be considered as being of high value for many of the species for which the survey was undertaken, subject to them being present in the locality (see Figure 4).

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- 7.3 The desktop study found that the site is set at approximately 2 kilometres west of the River Dee and Bala Lake SSSI, SAC and is contained within the impact risk zone to this statutorily designated site.
- 7.4 Notwithstanding its close proximity to the aforementioned statutory designated site, the proposed works are unlikely to have an effect on it nor the qualifying species or habitats for which it has been designated for.

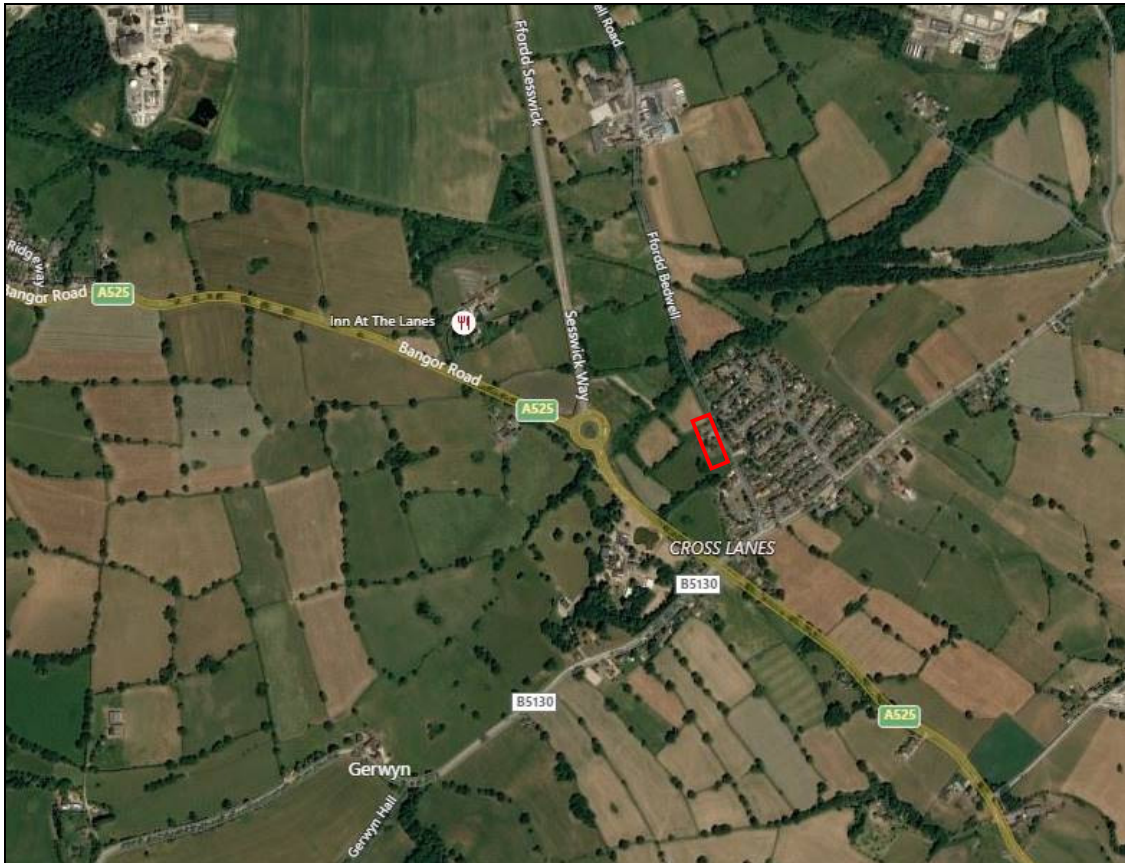


Figure 4: Approximate site location in continuous landscape

8.0 Field survey results

8.1 Vegetation

No species of conservation importance were identified within the survey boundary at the time of the initial inspection. Neither was any species notified as 'invasive' under Schedule 9 (Part II) Wildlife and Countryside Act (1981) identified across the extent of the application boundary, or immediately beyond it.

8.2 Bats

Outbuildings

The outbuildings are of a part timber / metal construct, with mono-/pitch corrugated metal roofs. Neither structures possess a loft space/upper floor and are entirely open to the elements in a state of dilapidation and disuse. They are to similar dimensions approximating to 3 metres x 4 metres x 2.5 metres in height.

An internal investigation of both structures found them to be draughty and partially-fully illuminated and thus, neither are able meet the typical breeding/roosting requirements of loft-dwelling species of bat such as the brown long-eared bat (*Plecotus auritus*); despite much of the surrounding habitat being favourable for the foraging/commuting requirements of this species group. This is a species that prefers unrestrictive, large, darkened loft spaces with consistent temperatures. Furthermore, no recent or historic evidence of this group was located upon inspection.

The external assessment found an absence of features that may be used as a viable roosting space by any bat species such as gaps beneath fascia, barge or soffit boards for example. The outbuildings are therefore concluded to possess 'negligible' bat roost suitability in line with existing BCT guidelines.

Trees

All trees contained within the application site boundary were found to be absent of Potential Roost Features (PRFs) such as extensive cracks, crevices or fissures that bats may otherwise use as a viable roost space. Trees are therefore concluded to possess 'negligible' bat roost suitability, in similarity to the outbuildings.

Notwithstanding the absence of roost suitability, tree and shrub features feature favourably for the commuting/foraging requirements of most bat species and should be retained where possible.

8.3 Other Terrestrial Mammals

During the search of the land encompassed within the site boundaries, no evidence of recent badger (*Meles meles*) presence such as setts, grubbing holes, latrines, footprints, day nests or scratching areas were identified.

In relation to hedgehog, there are limited areas where hedgehog could utilise for refuge and breeding purposes, notably including areas of scrub and hedgerow on site to the east additional to areas of debris and brash pilings across other areas of the site; their presence is considered to be possible.

8.4 Breeding Birds

During the survey, no historical birds' nests were located; however abundant nesting platforms are evident across the extent of the site. Viable nesting platforms for a range of common bird species contained within the site boundaries include:

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- Areas within outbuildings
- Debris contained across the site – notably including pilings of brash and brick rubble
- Scrub features
- Trees
- Hedgerow

It is thus concluded that the possible presence of nesting birds on site within the period March-August is highly likely.

In relation to Schedule 1 birds, it is unlikely that the site itself is used for breeding purposes by Schedule 1 species such as Barn owl (*Tyto alba*) and no evidence of use by this species was located within the survey boundary.

Species that were recorded within the application site at the time of the survey were denoted (see Table 3). One species of conservation importance was located foraging across the area in the form of house sparrow (*Passer domesticus*), although breeding suitability for this species is absent.

Table 3: Bird species encountered whilst on site

Common name	Scientific name	Conservation designations
Blackbird	<i>Turdus merula</i>	-
Blue Tit	<i>Cyanistes caeruleus</i>	-
Carrion Crow	<i>Corvus corone</i>	-
Chaffinch	<i>Fringilla coelebs</i>	-
Chiffchaff	<i>Phylloscopus collybita</i>	-
Collared Dove	<i>Streptopelia decaocto</i>	-
Great Tit	<i>Parus major</i>	-
House Sparrow	<i>Passer domesticus</i>	RS, s.7
Long Tailed Tit	<i>Aegithalos caudatus</i>	-
Magpie	<i>Pica pica</i>	-
Robin	<i>Erithacus rubecula</i>	-
Wood Pigeon	<i>Columba palumbus</i>	-
Wren	<i>Troglodytes troglodytes</i>	-

Conservation designations key

RS – Bird of Conservation Concern, Red Status

s.7 – A priority species of conservation importance in Wales

8.5

Herptiles

Great Crested Newt

Within the survey boundary, a multitude of habitats favour the terrestrial commuting / foraging requirements of great crested newts (GCN) (*Triturus cristatus*) in the form of scrub, hedgerow, debris and brash (inclusive of a large piling of bricks from a recently demolished structure). Areas of grassland that dominate the survey area is of an average height of approximately 180mm and is favourable for GCN foraging/refuge/commuting through most parts.

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Although two ponds are located within a 250 metre radius of the survey area, only one of these has favourable terrestrial connectivity to the application site. A pond to the south east is separated from the survey area via the A525 which will act as a significant barrier to newt migration to the locale (see Figure 5), whilst a pond to the north-west is well-connected to the site via tall grassland, hedgerow and tree lines. Therefore, this pond was assessed via Habitat Suitability Index (HSI) analysis for GCN. This analysis found that the identified pond is categorised as 'Excellent' with regard to the preferred breeding habitat for this species.

Surveys conducted in the recent past (2015) confirmed a small population of GCN within the identified pond to the north-west.



Figure 5:  Ponds occurring within a 250 metre radius
  Approximate boundaries of the survey area

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Table 4: HSI analysis of the pond off site to the north

Pond ref	Pond 1
SI1 - Location	1
SI2 - Pond area	0.2
SI3 - Pond drying	1
SI4 - Water quality	1
SI4 - Shade	1
SI6 - Fowl	1
SI7 - Fish	1
SI8 - Ponds	1
SI9 - Terr'l habitat	1
SI10 - Macrophytes	0.9
HSI	0.84

Table 5: HSI analysis of the pond off site

HSI Scores	Pond suitability
<0.5	= Poor
0.5 – 0.59	= Below Average
0.6 – 0.69	= Average
0.7 – 0.79	= Good
>0.8	= Excellent

Risk to GCN:

In order to assess risk to the species a number of factors need to be considered, these include:

- Site proximity to potential breeding Pond and to any additional ponds
- Habitat linkage / barriers between potential breeding Ponds and the site
- Nature and extent of available terrestrial habitat around the Pond
- Area of site habitat loss
- Nature of habitat to be lost and its potential value to GCN as refuge/ overwintering habitat.

Research has shown that where favourable habitat exists around GCN ponds the vast majority of the population is likely to be contained within 100m of the breeding pond creating a 'terrestrial sponge' effect.

The nature of the development footprint, areas of numerous potential refugia, accompanied by connectivity to a favourable potential breeding pond and their known presence in the immediate locale indicates that there is likelihood for GCN presence at the site. Recommendations with regard to GCN are noted within sections 9.8 and Appendix IV.

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Other Amphibians

Given the quality of immediate and extending habitats, it is possible that other generalist species of amphibian such as the Common Frog (*Rana temporaria*) or Common Toad (*Bufo bufo*) would be present on site.

Reptiles

It is considered that no suitable habitats exist for reptiles across the extent of the survey area.

8.6 PHASE 1 HABITAT SURVEY:

All species nomenclature for vascular plants follows Stace, C. (2019) – definitive English names

(Refer to Appendix V for the location of all described habitats)

Table 6: Phase 1 habitat types within the survey area

Habitat Code	Broad Habitat	Description
A2.2	Scattered scrub	Areas of scattered scrub exist to the south-east, dominated by areas of Bramble (<i>Rubus fruticosus</i> agg.) with Blackthorn (<i>Prunus spinosa</i>). Understorey vegetation is relatively species poor and consists of a limited mix of graminoides and forbs such as Lesser Celandine (<i>Ficaria verna</i>), Cock's-foot (<i>Dactylis glomerata</i>) and Cleavers (<i>Galium aparine</i>).
B6	Species-poor semi-improved grassland	Areas of poor semi-improved grassland dominate the site and is dominated by a limited suite of graminoides with occasional forbs. Dominant grasses include Perennial Rye-grass (<i>Lolium perenne</i>), Meadow Foxtail (<i>Alopecurus geniculatus</i>) and Yorkshire-fog (<i>Holcus lanatus</i>) whilst occasional Field Woodrush (<i>Luzula campestris</i>), Dandelion (<i>Taraxacum officinale</i> agg.) and Daisy (<i>Bellis perennis</i>) are locally frequent.
J1.3	Ephemeral/short-perennial	Areas of ephemeral/short-perennial ruderal vegetation exists to the north-west where areas have been recently disturbed. Vegetation within these areas is extremely varied and comprises a mix of common graminoides and forbs such as Black Horehound (<i>Ballota nigra</i>), White dead-nettle (<i>Lamium album</i>), Red Dead-nettle (<i>Lamium purpureum</i>), Annual Meadow-grass (<i>Poa annua</i>) and Common Nettle (<i>Urtica dioica</i>) for example.
J2.3.2	Hedge with trees (species-poor)	Hedge with trees is relatively species poor and is dominated by areas of Sycamore (<i>Acer pseudoplatanus</i>), Holly (<i>Ilex aquifolium</i>), Hawthorn (<i>Crataegus monogyna</i>) and Blackthorn (<i>Prunus spinosa</i>).
J3.6	Building/s	Buildings do not contribute to the botanical diversity of the survey area.

Target Notes

TN1 – Locations of debris including brash and brick pilings

9.0 Conclusions & Recommendations

Vegetation

- 9.1 No notable species were identified within the survey boundary and nor were any plant species notified as 'invasive'.
- 9.2 It is recommended that any new landscaping incorporates native woody plants (as opposed to alien, non-native species); species selection should appropriate for the area. A choice of species appropriate for the land off Bedwell Road may include the following:

Woody Shrubs

- Hawthorn (*Crataegus monogyna*)
- Honeysuckle (*Lonicera periclymenum*)
- Guelder Rose (*Viburnum opulus*)
- Elder (*Sambucus nigra*)
- Wild Privet (*Ligustrum vulgare*)
- Blackthorn (*Prunus spinosa*)

Trees

- English Oak (*Quercus robur*)
- Rowan (*Sorbus aucuparia*)
- Wild Service Tree (*Sorbus torminalis*)
- Silver Birch (*Betula pendula*)
- Ash (*Fraxinus excelsior*)
- Goat Willow (*Salix caprea*)
- Beech (*Fagus sylvatica*)
- Wild Cherry (*Prunus avium*)
- Bird Cherry (*Prunus padus*)

Bats

- 9.3 From the survey, it is concluded that outbuildings and trees are absent of PRFs and are consequently concluded to offer 'negligible' bat roost suitability, in line with up-to-date BCT guidelines.
- 9.4 The overall nature of the site is considered suitable for the foraging and commuting requirements of bats, particularly to the north-eastern boundary due to the structural variability created by its semi-natural features – notably tree, hedgerow and shrub.

Installation of lighting as part of any future development, that exceeds current levels, may have a negative impact upon foraging/commuting bats, particularly if increased light spillage occurs in areas of that are currently free from illumination which includes the parameters of the site boundary.

If inappropriate and ill designed lighting is implemented then there is likely to be an adverse impact upon bats; see extract below from Bat Conservation Lighting Guidelines.

Type of lamp (light source)

The impact on bats can be minimised by the use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics.

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, don't light.

Other Terrestrial Mammals

- 9.5 Limited habitats favouring hedgehog (*E. europaeus*) are to be affected by the proposed development, namely including areas of scrub, brash piles and hedgerow. It is thus recommended that a precautionary approach is adopted during site operations. If and when future development transpires then provision of low angle sloping boards of approximately 300 mm wide should be placed within any excavations at the end of each working day to facilitate a means of escape for mammals such as hedgehogs.

If hedgehogs are encountered during clearance operations, they are to be left in situ unless they are in immediate risk of harm; in which case, they are to be moved into a like-for-like habitat.

Enhancement for this species is recommended to be incorporated into the proposals as per Appendix III, by way of hedgehog highways.

- 9.6 There is an absence of evidence of use or suitable habitats typically used by Badger for breeding/refuge purposes (i.e. large areas of woodland) within the survey boundary; therefore no implications in relation to this species will follow.

Breeding Birds

- 9.7 There are no implications in relation to Schedule 1 specially protected bird species e.g. Barn owl and no evidence of use was located upon inspection of the site.

The presence of other common bird species throughout areas of scrub/tree/hedgerow/debris however, is considered to be highly likely. It is therefore recommended that any clearance operations effecting suitable nesting habitat are timed outside of the breeding bird season (March-August inclusive), unless it can be conclusively be established by an ecologist that breeding birds are absent.

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All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependent young are protected under the Wildlife & Countryside Act 1981 (as amended).

It is recommended enhancement for nesting birds is incorporated into the proposed development, as per Appendix III.

Herptiles

- 9.8 One pond occurs within a 250 metre radius of the survey area with favourable terrestrial connectivity to the application site which was assessed as 'excellent' via HSI analysis. Numerous opportunities for GCN occur across the extent of the survey area in the form of grassland, scrub and hedgerow features, additional to areas of debris/brash pilings which act as suitable refugia for the species. Recent surveys undertaken at the pond to the north-west (dated 2015) confirmed the presence of a small population of GCN. The presence of GCN at the land off Bedwell Rd, Wrexham, is thus considered to be highly probably.

Planning permission in relation to the outstanding proposals (see Figure 1) was granted on 5th November 2018. Condition 11 of this notice gives the following:

"11. Prior to the commencement of the development, a scheme of reasonable avoidance measures in respect of great crested newts and a biosecurity risk assessment shall be submitted to and approved in writing by the local planning authority. The development shall be carried out in accordance with the details as approved."

Marches Ecology was therefore commissioned by Tyrer Ecological Consultants during May 2019 to produce the required reasonable avoidance measures statement with accompanying biosecurity risk assessment. These are given in Appendix IV.

- 9.9 If any frogs and toads are encountered during site operations, it is recommended they are removed off site and placed in a nearby like-for-like habitat.
- 9.10 It is considered that no suitable habitats for reptiles exist on site or within the surrounding habitat.

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Appendix I: Site Photographs



Plate 1: Indicative nature of the site to the south-east



Plate 2: Areas of scrub to the south-east



Plate 3: Indicative nature of the trees to the north-east – negligible bat roost suitability



Plate 4: Debris indicative

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Plate 5: Debris/brush piling to the north-west of the survey site



Plate 6: Outbuildings to the north-east indicative – negligible bat roost suitability

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Plate 7: Interior of outbuildings



Plate 8: Pond assessed as 'excellent' for GCN to the north-west

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Appendix II: Site Related Botanical Species List

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.

<u>Class</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>DAFOR</u>
Bryopsida (Mosses & Liverworts)		<i>Brachythecium rutabulum</i>	R
		<i>Rhytidiadelphus squarrosus</i>	LA
Magnoliopsida (Flowering Plants)	Annual Meadow-grass	<i>Poa annua</i>	O
	Autumn Hawkbit	<i>Scorzoneroideis autumnalis</i>	R
	Black Horehound	<i>Ballota nigra</i>	R
	Blackthorn	<i>Prunus spinosa</i>	O
	Bramble agg.	<i>Rubus fruticosus agg.</i>	LF
	Broad-leaved Dock	<i>Rumex obtusifolius</i>	O
	Cleavers	<i>Galium aparine</i>	R
	Clustered Dock	<i>Rumex conglomeratus</i>	R
	Cock's-foot	<i>Dactylis glomeratus</i>	LF
	Common Chickweed	<i>Stellaria media</i>	R
	Common Mouse-ear	<i>Cerastium fontanum</i>	O
	Common Nettle	<i>Urtica dioica</i>	LF
	Common Ragwort	<i>Jacobaea vulgaris</i>	O
	Common Sorrel	<i>Rumex acetosa</i>	R
	Common Vetch	<i>Vicia sativa</i>	O
	Cow Parsley	<i>Anthriscus sylvestris</i>	O
	Creeping bent	<i>Agrostis stolonifera</i>	O
	Creeping Buttercup	<i>Ranunculus repens</i>	LF
	Creeping Thistle	<i>Cirsium arvense</i>	O
	Curled Dock	<i>Rumex crispus</i>	R
	Cut-leaved Crane's-bill	<i>Geranium dissectum</i>	R
	Daisy	<i>Bellis perennis</i>	LF
	Dandelion agg.	<i>Taraxacum officinale agg.</i>	LF
	Fool's Parsley	<i>Aethusa cynapium</i>	O
	Forget-me-not sp.	<i>Myosotis sp.</i>	R
	Garlic Mustard	<i>Alliaria petiolata</i>	LF
	Great Plantain	<i>Plantago major</i>	O
	Great Willowherb	<i>Epilobium hirsutum</i>	O

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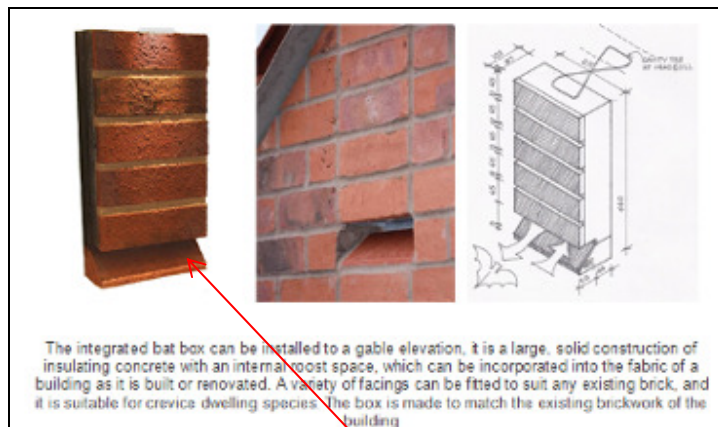
	Hairy Bittercress	<i>Cardamine hirsuta</i>	LF
	Hawthorn	<i>Crataegus monogyna</i>	O
	Hedge Mustard	<i>Sisymbrium officinale</i>	R
	Hedge Woundwort	<i>Stachys sylvatica</i>	R
	Herb Robert	<i>Geranium robertianum</i>	R
	Hogweed	<i>Heracelum sphondylleum</i>	R
	Holly	<i>Ilex aquifolium</i>	O
	Ivy-leaved Speedwell	<i>Veronica hederifolia</i>	R
	Lesser Celandine	<i>Ficaria verna</i>	R
	Lesser Trefoil	<i>Trifolium dubium</i>	R
	Meadow Buttercup	<i>Ranunculus acris</i>	LF
	Meadow Foxtail	<i>Alopecurus pratensis</i>	LF
	Mugwort	<i>Artemisia vulgaris</i>	R
	Nipplewort	<i>Lapsana communis</i>	R
	Pedunculate Oak	<i>Quercus robur</i>	O
	Pencilled/French Crane's-bill	<i>Geranium endressii/versicolor</i>	R
	Perennial Rye-grass	<i>Lolium perenne</i>	LF
	Petty Spurge	<i>Euphorbia peplus</i>	R
	Red Clover	<i>Trifolium pratense</i>	O
	Red Dead-nettle	<i>Lamium purpureum</i>	O
	Red Fescue agg.	<i>Festuca rubra agg.</i>	LF
	Ribwort Plantain	<i>Plantago lanceolata</i>	LF
	Rough Meadow-grass	<i>Poa trivialis</i>	O
	Scarlet Pimpernel	<i>Anagalis arvensis</i>	R
	Scentless Mayweed	<i>Tripleurospermum inodorum</i>	R
	Silverweed	<i>Potentilla anserina</i>	R
	Smooth Sow-thistle	<i>Sonchus oleraceus</i>	R
	Spanish Bluebell	<i>Hyacinthoides hispanicus</i>	R
	Spanish Daffodil	<i>Narcissus hispanicus</i>	O
	Spear Thistle	<i>Cirsium vulgare</i>	O
	Sycamore	<i>Acer pseudoplatanus</i>	O
	Thale Cress	<i>Arabidopsis thaliana</i>	R
	Wall Speedwell	<i>Veronica arvensis</i>	R
	White Clover	<i>Trifolium repens</i>	O
	White Dead-nettle	<i>Lamium album</i>	LF
	Yarrow	<i>Achillea millefolium</i>	R
	Yorkshire-fog	<i>Holcus lanatus</i>	LF

Appendix III: Biodiversity Enhancement/Mitigation Specification

Bats

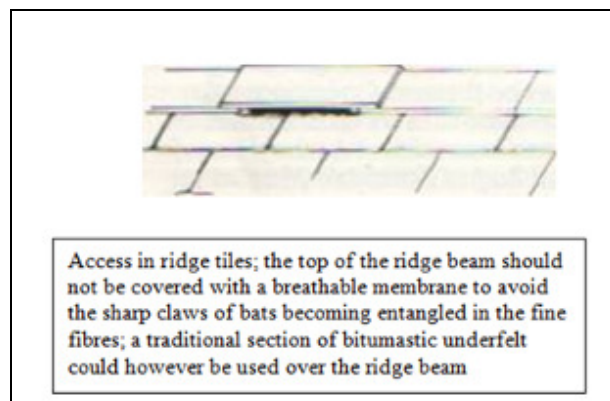
There are a number of options when enhancing a building for crevice-dwelling bats; such forms of enhancement replicate crevice situations that are used by species including *Pipistrelle* bats; three are shown below. The roost(s) would be permanent and dedicated for bats.

1.



When ordering it is important to ensure that the landing platform surface is coarse to allow bat to alight before entering the bat box

2.



3.



1FQ Bat Roost - designed specifically to be fitted on the external wall of a house, barn or other building. The shape and design make it equally attractive to bats as a roost or a nursery. It is also pleasing to the human eye, an important consideration. Easy to attach to most types of walls, it features a special porous coating to help maintain the ideal temperature inside. It requires no maintenance or cleaning.

Nesting Birds

The Sparrow Terrace has been designed to help redress the balance of falling house sparrow numbers. The current UK population is half what it was in 1980 and this is thought to be due to habitat destruction and lack of suitable nesting spaces. 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 agricultural buildings such as barns.

<http://www.nhbs.com/title/174850/1sp-schwegler-sparrow-terrace>





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.

<https://www.nhbs.com/2h-schwegler-robin-box>

Hedgehog

Further enhancement measures may be incorporated into garden fences that would be of benefit for Hedgehog (*Erinaceus europaeus*); Hedgehog highways allow connectivity between gardens and extend valuable foraging habitat for this declining mammal (see Figure 9 below).



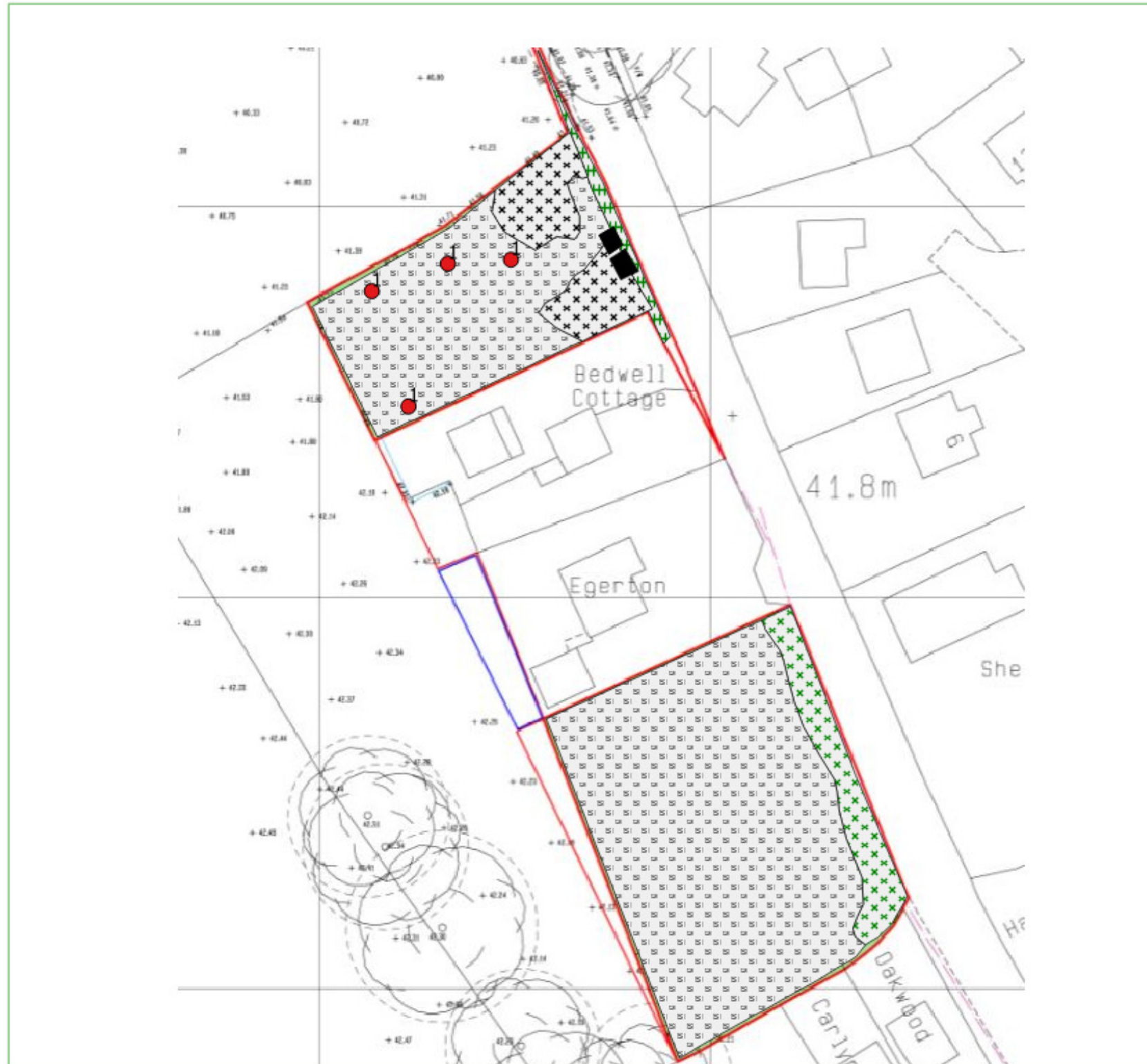
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Figure 6: Indicative Hedgehog Highway positions within boundary fences on indicative plan

**Appendix IV: Reasonable Avoidance Measures for GCN & Biosecurity Risk
Assessment**

Appendix V: Phase 1 Habitat Map



Site Name: Land off Bedwell Road

Legend

- Target note
- ✕ A2.2 - Scrub - scattered
- SI B6 - Poor semi-improved grassland
- ✕ J1.3 - Cultivated/disturbed land - ephemeral/short perennial
- ✕ J2.3.2 - Hedge with trees - species-poor
- J3.6 - Buildings

Date: 09/04/2019
 Drawn: JS
 Checked & Approved: KW



Tyrer Ecological Consultants Ltd
 Farmby Business Centre
 42 Duke Street
 Farmby
 L37 4AT
 Tel: 01704 875781
 Email: enquiries@tyrer-ecologicalconsultants.co.uk
 www.tyrer-ecologicalconsultants.co.uk