



Bringing Together Over 20 Years of
Ecological Excellence

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

Preliminary Ecological Appraisal

May 2020

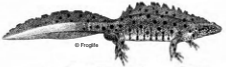
Land off Preston Road

Ribchester

Lancashire

PR3 3XL

SD 647 356



Document Title	Preliminary Ecological Appraisal
Prepared for	David Liversidge
Prepared by	Tyrer Ecological Consultants Ltd

Author/Surveyor	Mr. Joshua Styles
Survey Date	23/04/2020
Reviewed by	Mrs. Kylee Wilding
Review Date	03/05/2020
Approved by	Mrs. Kylee Wilding
Date of Issue	03/05/2020

Terms of use:

This report has been prepared by Tyrer Ecological Consultants Ltd with all reasonable skill, care and diligence within the terms of the instruction and permissions granted by the client. The results, conclusions and recommendations of this report are proportionate and in line with the British Standard 42020:2013.

Tyrer Ecological Consultants Ltd have produced this report with all due integrity and adhere to the CIEEM Professional Code of Conduct, with the aim of upholding the their objectives and the reputation of the profession.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client.

This report and contents therein are to be used only in conjunction with the Planning Application for which the report has been produced. It must not be used for any other purpose, copied, re-produced or sent to any other party other than the Local Planning Authority Department without the express permission of Tyrer Ecological Consultants Ltd. Furthermore the data contained herein must not be copied, re-produced or sent to any other party/organisation whatsoever without the express permission of Tyrer Ecological Consultants Ltd.

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

Executive Summary

As part of a planning application regarding a plot of land off Preston Road, Ribchester, a Preliminary Ecological Appraisal was undertaken by Tyrer Ecological Consultants Ltd during April 2020. It is understood that proposals involve the development of part of the sheep-grazed pasture to accommodate a series of buildings to be used for heliiculture (see Figure 1).

In accordance with paragraph 175 of the National Planning Policy Framework (NPPF), 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 for the land off Preston Road does not result in biodiversity net loss, and that a net gain is achieved.

The following key ecological features and associated recommendations have been identified. For detailed recommendations, see section 9.0:-

Vegetation & Habitats: Two habitats of national importance have been identified at the survey site in the form of 'Lowland Meadows' and 'Hedgerow', both of which remain unaffected by the development. *However, in order to facilitate the loss of neutral semi-improved grassland which will be undergone as a result of the development, an appropriate compensation and enhancement strategy is recommended within section 10.0.*

One species of conservation importance has been identified at the survey site in the form of Crosswort (*Cruciata laevipes*) which is 'Near-threatened' in England (Stroh *et al*, 2014). A large number of other axiophytes exist alongside the stream, although none are red-listed, such as Moschatel (*Adoxa moschatellina*), Wood Anemone (*Amenone nemorosa*) and Hard Sheild-fern (*Polystichum aculeatum*). *Locations occupied by Crosswort and other axiophytes appear to remain unaffected by the development (see Figure 8). To ensure this is the case, it is recommended that a buffer is demarcated by a suitably qualified ecologist prior to site works which will remain in place for the duration of the developmental period.*

Himalayan Balsam (*Impatiens glandulifera*) has been identified across portions of the site. *Recommendations relative to eradication have been given in section 9.3.*

Birds: A diversity of nesting platforms exists across the site, namely in the form of hedgerow and trees which favour a variety of common bird species' nesting habits. *It is therefore recommended that any clearance works are timed outside the breeding season unless it can be established by a suitably qualified Ecological Clerk of Works (ECoW) that nesting birds are absent.*

Biodiversity Net Gain: A series of recommendations have been given within section 9.0 and Appendix III which provide opportunities for net gain at the development site. Enhancement opportunities include recommendations relative to landscaping (see section 9.3) and provision of wildlife boxes in Appendix III; these recommended measures are in addition to the compensation and enhancement plan laid out within section 10.0.

Table of Contents

- 1.0 Introduction & Reasons for Survey**
- 2.0 UK Biodiversity Plans**
- 3.0 Local Biodiversity Plans**
- 4.0 Legislation & Policy**
- 5.0 Survey Methods**
- 6.0 Limitations**
- 7.0 Desk Study Results**
- 8.0 Field Study Results**
 - 8.1. Vegetation**
 - 8.2. Bats**
 - 8.3. Other Terrestrial Mammals**
 - 8.4. Birds**
 - 8.5. Herptiles**
 - 8.6. Phase 1 Habitat Survey**
- 9.0 Conclusions & Recommendations**
- 10.0 Compensation and Enhancement Strategy**
- 11.0 Bibliography**

- Appendix I: Site Photographs**
- Appendix II: Site-specific Botanical Species List**
- Appendix III: Biodiversity Enhancement**
- Appendix IV: Phase 1 Habitat Map**

1.0 Introduction & Reason for Survey

1.1 As part of a planning application regarding a plot of land off Preston Road, Ribchester, a Preliminary Ecological Appraisal was undertaken by Tyrer Ecological Consultants Ltd during April 2020, in accordance with the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017) and other best practice guidance, including the British Standard 42020:2013. It is understood that proposals involve the development of part of the sheep-grazed pasture to accommodate a series of buildings to be used for heliiculture (see Figure 1).

1.2 Ecological surveys, particularly where a specially protected / noteworthy species is or may be present, are generally required as part of the Local Authority's Planning Policies; David Liversidge commissioned the survey and report.

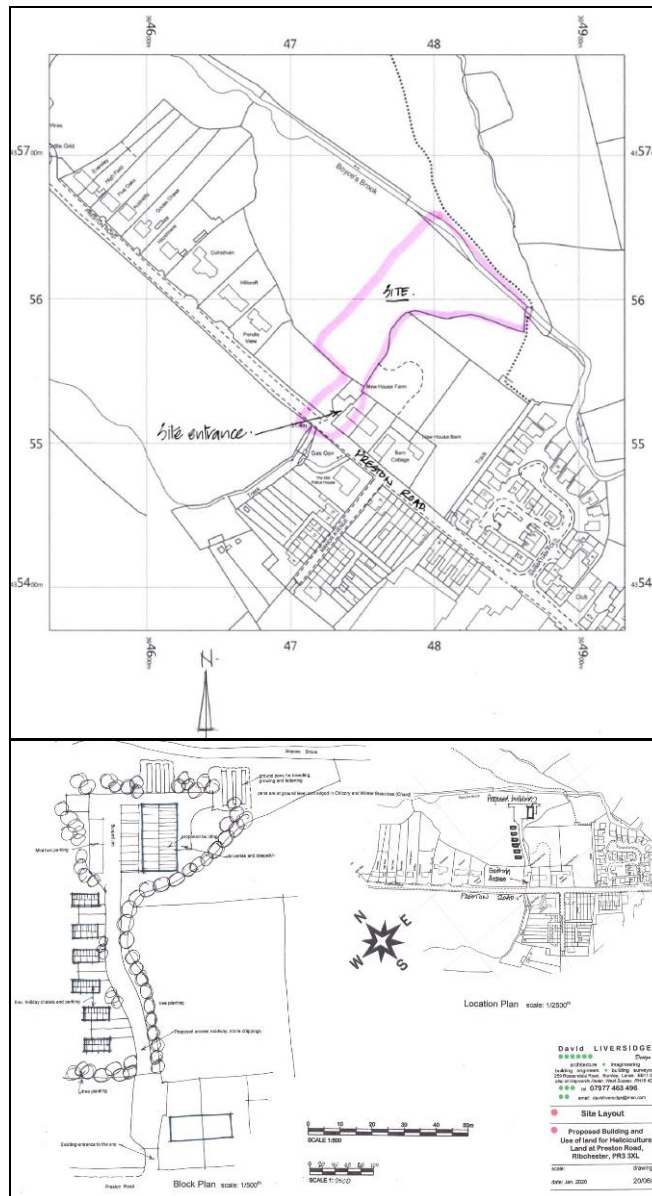


Figure 1: Location plan (top) and proposed site plan (bottom) ©David Liversidge

- 1.3 The basic objective of this survey was to ascertain the nature of the land, and where possible obtain information on any sensitive wildlife habitats or species that may be present and if so, if they will be affected by future development. To achieve this objective the survey aimed to identify/assess any of the following:
- Identify any likely ecological constraints associated with the outstanding proposals for the site (i.e. the presence of protected/notable species/habitats that exist within the confines of the application boundary).
 - Identify mitigation / compensation measures likely to be required in line with the mitigation hierarchy (i.e. avoidance > mitigation > compensation).
 - Identify additional survey requirements following on from this preliminary study.
 - Identify a series of enhancement opportunities for biodiversity in line with national and local planning policy, alongside '*Biodiversity Net Gain: Good practice principles for development*' (CIEEM *et al*, 2019).
- 1.4 If the area was found to be suitable for the aforementioned notable species / habitats, or signs of use by particular species were found, then more detailed surveys may be recommended. If any European Protected Species was subsequently found during detailed surveys and / or may be affected by the development proposals, then a European Protected Species Licence would be required to proceed with the development.
- 1.5 Protected species not included within this ecological assessment were omitted due to factors including: the absence of suitable habitats and / or distributional aspects negating the necessity to survey for them and/or the proposed works were not considered to negatively impact the species or encroach on areas where the species may be present. In this instance, this may include Killarney Fern (*Trichomanes speciosum*) for example.

2.0 UK Biodiversity Plans

2.1 The UK Biodiversity Action Plan (BAP) provided a baseline for lists of habitats and species of national conservation importance, now transposed under section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Based upon the site visit, there is the potential for a number of priority species to be present / using the site (see Table 1).

2.2 Two priority habitats of national conservation importance have been identified at the site in the form of 'Lowland Meadows' which exists in a narrow stretch to the north of the site, and 'Hedgerow' (see Appendix IV). These habitats however, are unaffected by the prospective development at the application site.

Table 1: s.41 species likely to be in the immediate locality

Invertebrates	
Garden Tiger	<i>Arctia caja</i>
Garden Dart	<i>Euxoa nigricans</i>
Ghost Moth	<i>Hepialus humuli</i>
Dot Moth	<i>Melanchra persicariae</i>
White Ermine	<i>Spilosoma lubricipeda</i>
Buff Ermine	<i>Spilosoma luteum</i>
Terrestrial Mammals	
Water Vole	<i>Arvicola amphibius</i>
West European Hedgehog	<i>Erinaceus europaeus</i>
Brown Hare	<i>Lepus europaeus</i>
Noctule	<i>Nyctalus noctula</i>
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>
Brown Long-eared Bat	<i>Plecotus auritus</i>
Herptiles	
Common Toad	<i>Bufo bufo</i>
Birds	
Common Linnet	<i>Carduelis cannabina</i>
Yellowhammer	<i>Emberiza citrenella</i>
Reed Bunting	<i>Emberiza schoeniclus</i>
House Sparrow	<i>Passer domesticus</i>
Eurasian Tree Sparrow	<i>Passer montanus</i>
Hedge Accentor	<i>Prunella modularis</i>
Common Bullfinch	<i>Pyrrhula pyrrhula</i>
Common Starling	<i>Sturnus vulgaris</i>
Song Thrush	<i>Turdus philomelos</i>

3.0 Local Biodiversity Action Plan

3.1 Local Biodiversity Action Plans (LBAP's) are simply a way of encouraging people to work together and deliver a programme 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

3.2 The Local Biodiversity Action Plan (LBAP) serving Lancashire 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. There is potential for a number of LBAP priority species across the areas to be affected by the development, as detailed below (Table 2).

3.3 One LBAP priority habitat has been identified within the application boundary in the form of 'Species Rich Neutral Grassland' which is identified within section 8.1 and will be unaffected by the development.

Table 2: LBAP species likely to be in the locality

Vegetation	
Purple Ramping Fumitory	<i>Fumaria purpurea</i>
Dotted Thyme-Moss	<i>Rhizomnium punctatum</i>
Invertebrates	
Garden Tiger Moth	<i>Arctia caja</i>
Golden Spangle Moth	<i>Autographa bractea</i>
Ghost Moth	<i>Hepialus humuli</i>
Cinnabar	<i>Tyria jacobaea</i>
Terrestrial Mammals	
Bats	<i>Chiroptera</i>
Water Vole	<i>Arvicola amphibius</i>
Herptiles	
Common Toad	<i>Bufo bufo</i>
Common Frog	<i>Rana temporaria</i>
Birds	
Common Linnet	<i>Carduelis cannabina</i>
House Martin	<i>Delichon urbicum</i>
Reed Bunting	<i>Emberiza schoeniculus</i>
Kestrel	<i>Falco tinnunculus</i>
Swallow	<i>Hirundo rustica</i>
House Sparrow	<i>Passer domesticus</i>
Dunnock	<i>Prunella modularis</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Starling	<i>Sturnus vulgaris</i>
Song Thrush	<i>Turdus philomelos</i>

4.0 Legislation & Policy

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

- Natural Environment and Rural Communities (NERC) Act (2006)
- The Conservation of Habitats and Species 2017 (as amended)
- The Countryside Rights of Way (CRoW) Act (2000)
- The Environmental protection Act (1990)
- The Wildlife and Countryside Act (1981) (as amended)

4.2 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/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 3 below entailing legislature appropriate to each species/species group/s respective to the land off Preston Road, and the relevance of said legislation.

Table 3: 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>).
Water Vole	CRoW Act (2000) Wildlife and Countryside Act (1981) (as amended)	Water voles (<i>Arvicola amphibius</i>) are protected from killing, injuring, disturbance and possession; it is also an offence to obstruct or disturb their burrows.
Invasive Plant Species	Wildlife and Countryside Act (1981) (as amended) The Environmental Protection Act (1990)	Species listed within Schedule 9 WCA 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.

Policy

4.3 Guidance for Local Authorities: Extract from Office of the Deputy Prime Minister: Circular 06/2005 states that: *“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.”*

- 4.4 Paragraph 175 of the National Policy Planning Framework stipulates that *“if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused”*.

Paragraph 174 also makes the following reference relative to biodiversity enhancement and net gain: *“To protect and enhance biodiversity and geodiversity, plans should... promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.”*

- 4.5 Policy ENV10 of Ribble Council's Local Plan goes onto say *“Where permission is granted for development affecting the nature conservation value of sites... conditions may be imposed or agreements sought:*

(a) to avoid damage to wildlife habitats or physical features of the nature conservation interest;

(b) to secure the retention or enhancement of wildlife habitats; and

(c) in appropriate cases, to require the re-creation of habitats once the development has ceased.”

5.0 Survey Methods

5.1 As part of the Preliminary Ecological Appraisal Report, both a desk-top and field-based study were conducted. Methods for both components of the appraisal are given below.

Desk study

5.2 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.

The British Geological Society (BGS) Geology of Britain Viewer was also utilised to ascertain information on superficial deposits; this information is used in conjunction with the field assessment of the site.

5.3 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.

5.4 Given the nature of the proposed development and outcomes of the appraisal, it has been deemed unnecessary to conduct a data search for protected species or designated sites in the vicinity. Species/habitat information relevant to the land at Newgate Nurseries, and its immediate environs was obtained at the time of the survey from habitat information.

Furthermore, the UK Guidelines for Assessing and Using Biodiversity Data (CIEEM, 2016) state that data searches may not be required in certain circumstances and that the necessity for a data search should be judged on a case-by-case basis.

Field Survey

5.5 The site appraisal was conducted on 23rd April 2020 by the following surveyor:

Table 4: Surveyor credentials

Name	Description
Joshua Styles BSc. ACIEEM AMRSB	Ecologist and botanical specialist with a FISC Level 6. Mr Styles is also an accredited agent on the Class 2 Natural England bat license of Mrs. K. Wildling.

5.6 The survey followed UK industry standard Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology standards (JNCC, 2010) with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Technical Guidance Series “Guidelines for Preliminary Ecological Appraisal 2nd Edition (CIEEM, 2017); habitats were mapped using QGIS software (see Appendix IV).

- 5.7 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 Conservation of Habitats and Species Regulations (2017).
- 5.8 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 site-relevant species list, see Appendix II.

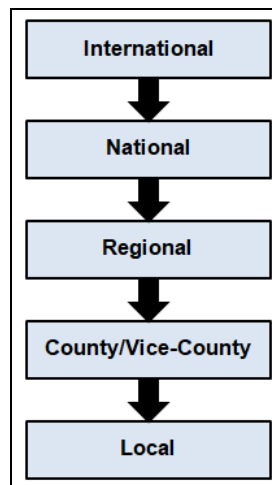


Figure 2: Geographic Frame of Reference entailing degrees of conservation importance

- 5.9 In combination with assessing the area 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 (Part II) of the Wildlife and Countryside Act (1981) (as amended).
- 5.10 Trees were assessed from ground level with the aid of close-focusing binoculars and high-powered torch [where possible / appropriate] to appraise trees for their capacity to support roosting bats. Features favoured by roosting bats include extensive holes, crevices and fissures. All trees were subsequently categorised relative to existing bat roost suitability in line with Bat Conservation Trust (BCT) guidance. No buildings exist within the confines of the survey boundary.

5.11 The criteria for roost assessment is based upon the following determinants taken from 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
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Commuting and foraging habitats 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

5.12 A number of factors are considered in conjunction during the Preliminary Roost Assessment (PRA) of trees and the building, which includes:-

- Knowledge of bat species relevant to the site location and geographical range
- Nature of the immediate / surrounding habitat in relation to foraging opportunities
- Presence / absence of roost potential
- Value of roost potential, if present

Following the survey, the conclusions and recommendations, in light of the survey results, are based upon surveyor experience and knowledge of bat ecology in association with best-practice guidance.

5.13 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.

5.14

A search of the Boyce Brook which exists immediately adjacent to the northern site boundary was undertaken through some of its extent, as highlighted within Figure 4, and included a field search for evidence of water vole (*Arvicola amphibius*). Much of the brook could not be viewed in full extending to 50 metres off site, due to its presence on privately-owned land.

An assessment of suitability has been made of this brook with use of a Habitat Suitability Index (HSI) analysis.

Water vole field signs typically include the following:

- **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.



Figure 4: Position of the surveyed portion of brook relative to the survey boundary ©Google Maps

5.15 The water vole survey methodology followed recommendations contained within the *Water Vole Conservation Handbook, 3rd Edition* (Strachan & Moorhouse 2011). Furthermore, the Mammal Society’s *Water Vole Mitigation Handbook* (2016) was also referred to, notably the flow chart, shown in Figure 5.

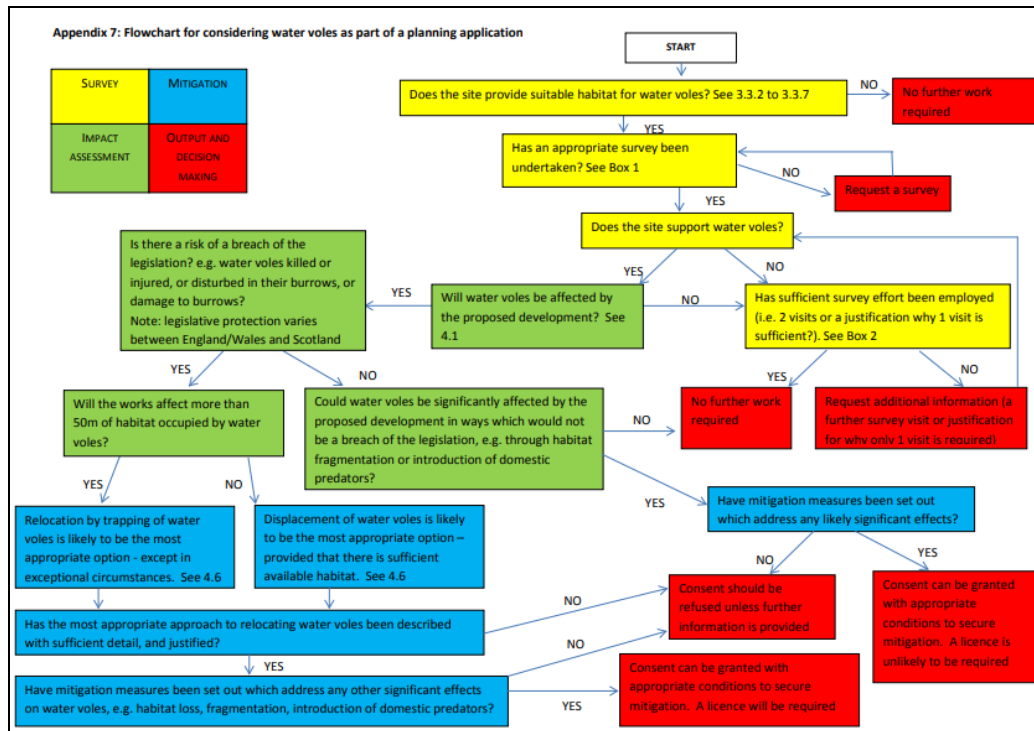


Figure 5: Water vole survey methodology extract (Dean *et al*, 2016)

5.16 This brook was also searched for evidence of otter (*Lutra lutra*) in the form of:-

- dung (spraints)
- tracks (footprints)
- feeding remains
- otter slides (into water)
- holts (underground dens)
- couches (above ground sites where otters rest during the day)

5.17 Natural England and DEFRA (2014) give that:

“Impacts to consider include:

- *habitat loss or degradation in or near water bodies*
- *habitats being cut off and becoming fragmented*
- *holts and resting places being removed*
- *disturbance to resting and feeding places*
- *disturbing their usual routes, e.g. road bridge or culvert works forcing otters to use roads or bridges that might mean it’s more likely that otters will be killed or injured on the road*
- *changes to water quality which could also affect food sources”*

If unavoidable impact to otter or their place of shelter is applicable, a European Protected Species Mitigation License (EPSML) will be required.

- 5.18 All aspects of the site were assessed for the capacity to support Schedule 1 WCA – listed birds for breeding purposes.

Historical / active bird's nests of any species were also identified as well as an assessment for general suitability for any nesting birds. All wild birds (with only minor exceptions) and their nests whilst being built or containing eggs or dependant young are protected and so appropriate recommendations for nesting birds have been provided within the contents of this report.

- 5.19 A map and field search was undertaken in relation to the presence of ponds or waterways that may support Great Crested Newts (GCN). This search was extended to identify habitats of value to reptiles that may occur within the vicinity of the application area. The information gathered would then be used to establish if more detailed surveys are required.

- 5.20 No ponds have been identified within a 250 metre radius of the survey area. English Nature's (now Natural England) Great Crested Newt Mitigation Guidelines (2001) states ponds within 500m of a proposed development site should be considered for their respective 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.

- 5.21 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. Nonetheless, the survey was conducted by Mr. Joshua Styles who has over 15 years botanical recording experience, is FISC certified Level 6 and is satisfied with the survey effort in respect of this site.
- 6.2 A full investigation of the brook was not undertaken at the time of the survey due to its continuation via privately owned land. Nonetheless, a substantial portion of the brook extending off site was able to be fully appraised relative to water vole and otter (see Figure 4) extending to 135 metres upstream; a view of the brook was also ascertained through gaps in boundary hedgerow to the north of the application site. Furthermore, the prospective development is sited to a distance of over 10 metres from the brook, and therefore this limitation is not considered to pose a significant constraint to this ecological investigation, findings or recommendations.
- 6.3 Having considered the constraints in the context of the site, it is considered that on balance, there are no significant constraints that might otherwise hinder the gathering of ecological information.

7.0 Desk study results

- 7.1 The survey area is a modest plot of land of an approximate of 0.5ha and is sited off Preston Road, in Ribchester, at a distance of 385 metres to the west of the village centre. The application site primarily consists of an apparently permanent agricultural pasture, in similarity to fields in the immediate and contiguous landscape.
- 7.2 Immediate habitats consist of a network of a number of agricultural pasture fields, interconnected by a series of hedgerows and streams with a large number of scattered trees and tree lines within the immediate landscape providing connectivity to larger areas of woodland, much of which is ancient.
- 7.3 The contiguous landscape continues to a similar nature as that of the immediate with the addition of further favourable environs, particularly including the River Ribble which is set at an approximate distance of 640 metres to the south-east. Furthermore, a large number of interconnected woodlands exist interspersed within the extending landscape. The previously identified immediate habitats can be considered as being of moderate value for many of the notable and protected species for which this survey was undertaken, subject to them being present in the locality (see Figure 6).

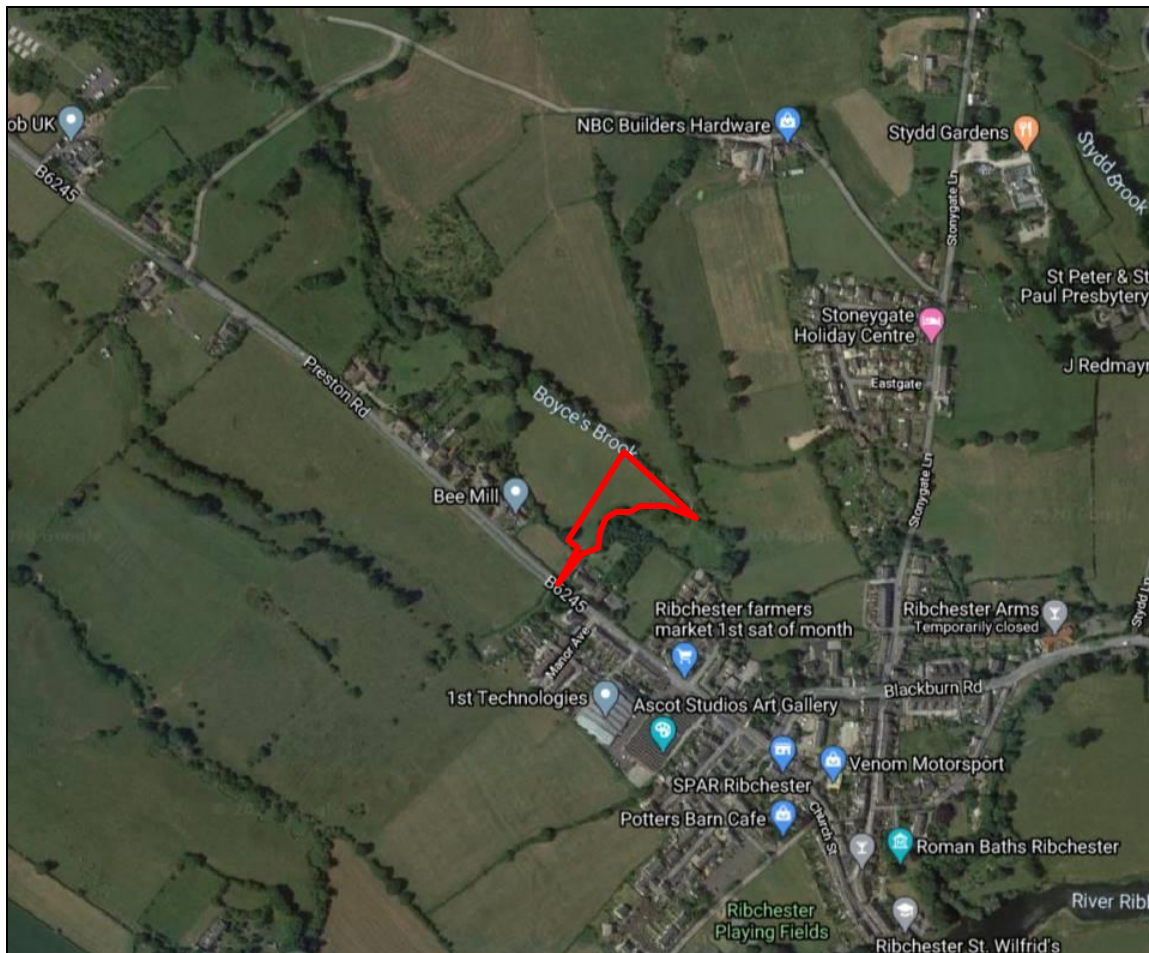


Figure 6: Location of the application site within the contiguous landscape

- 7.4 The desktop study found four results for European Protected Species Mitigation Licences (EPSMLs) within a 2.0km radius of the study site. Three of these relate to the non-breeding roosts of common pipistrelle, brown long-eared and Natterer's bats, whilst the remaining EPSML relates to the destruction of a resting place for great crested newt. The closest of these is sited at approximately 800 metres to the south, whilst most EPSML's lie on the periphery of the search radius (see Figure 7).

**Land off Preston Road, Ribchester, Lancashire, PR3 3XL
Preliminary Ecological Appraisal**



7.5 The application site is situated within the impact zone for one statutorily protected site (see Table 5 & Figure 9). This includes the following:-

Table 5: Designated sites in proximity to the survey area

Site name	Designation type	Interest features
Red Scar and Tun Brook Woods	Site of Special Scientific Interest	Rd Scar and Tun Brook Woods are areas of ancient woodland which contain particularly extensive examples of Ash-Wych Elm woodland and valley Alder woodland. The woodlands are host to a large number of important species, including Yellow Archangel (<i>Lamiastrum galeobdolon</i> subsp. <i>montanum</i>), nearing its northern limit in Britain. White letter hairstreak and hawfinch are also regularly seen in the SSSI.

7.6 Notwithstanding the area's proximity to the aforementioned statutory designated site, the proposed works are highly unlikely to have an effect on neither it nor the qualifying species, features or habitats for which they have been designated for.

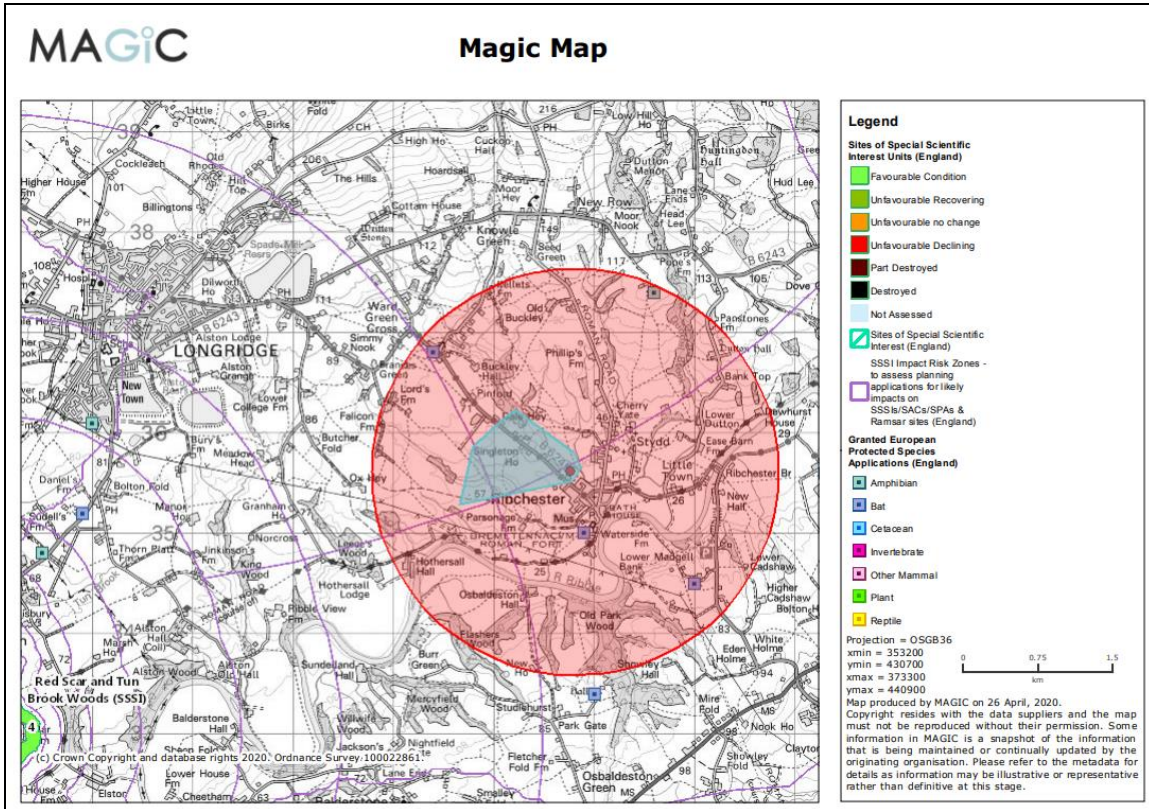


Figure 7: MAGIC Map results

8.0 Field survey results

8.1 Vegetation

- 8.1.1 A large number of axiophytes exist bordering the brook across the northern boundary, including species such as Hairy Brome (*Bromopsis ramosa*), Greater Woodrush (*Luzula sylvatica*) and Moschatel (*Adoxa moschatellina*). Although not red-listed or on the Local Biodiversity Action Plan, the sheer number of axiophytic plants along the Boyces Brook attest to the high biological value of the streamside habitat.
- 8.1.2 One species of local conservation importance was identified at the site in the form of Crosswort (*Cruciata laevipes*) which is red-list 'Near-Threatened' in England. The distribution of red-listed Crosswort is given within Figure 8 and appears to be unaffected by the prospective development.
- 8.1.3 One species listed as 'invasive' under Schedule 9 (Part II) Wildlife & Countryside Act (1981) (as amended) was identified upon inspection of the survey area. This was in the form of Himalayan Balsam (*Impatiens glandulifera*) whose seedlings were located across much of the northern boundary, adjacent to Boyces Brook (see Figure 8 for site-relevant distribution).



Figure 8: Approximate extent of Himalayan Balsam (pink fill) and Crosswort (orange fill) within the survey boundary

8.2 Bats

- 8.2.1 All trees contained within the survey area consist of semi-mature to mature broadleaved species, primarily including Sycamore (*Acer pseudoplatanus*), Pedunculate Oak (*Quercus robur*) and hybrid Willow (*Salix x fragilis*). These were all assessed to pertain to a 'negligible' categorisation in regard to existing bat roost suitability, owing to the absence of potential roost features such as cracks, crevices/fissures that might otherwise present roosting opportunities to bats.

8.3 Other Terrestrial Mammals

Badger

- 8.3.1 No evidence of badger (*Meles meles*) occurs across the extent of the site; their presence is considered to be very unlikely.

Hedgehog

- 8.3.2 Areas that constitute suitable habitat for hedgehog (*Erinaceus europaeus*) breeding / refuge are limited to the site boundaries (hedgerows), which will remain unaffected by the prospective development.

Water vole

- 8.3.3 The Boyces Brook immediately off site to the north consists of a slow-flowing water course, with generally well-developed marginal vegetation on its hard clay embankments, with the exception of where sheep have been allowed to graze through some portions. Marginal vegetation on embankments is noted to be varied, and consisted of a range of graminaceous and herbaceous plants, such as Hemlock Water-dropwort (*Oenanthe crocata*), Hairy Brome (*Bromopsis ramosa*), Greater Wood-rush (*Luzula sylvatica*) and Crosswort (*Cruciata laevipes*).
- 8.3.4 In-channel vegetation appears to be entirely absent throughout the stream.
- 8.3.5 A Habitat Suitability Index (HSI) for water vole has been conducted below which concludes that the surveyed portion of the Boyces Brook consists of suitable habitat for this species.

Table 5: HSI for water vole

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	1
A good variety of food plants, including favoured plants, and winter food sources	1
Suitable refuge areas above extremes in water levels	1
Soft, earth banks suitable for burrowing (30 to 60 degree slope)	0
Water permanently present (levels stable and does not dry up)	1
Open water provision for swimming	1
Ledge or berm present at or close to water level	1
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)	0
Habitat Assessment Score Total	7

8.3.6 A search throughout the survey area revealed no evidence of use by this species, although that does not discount their presence.

As the development is sited at a distance of over 10 metres from the stream embankment, predicted impacts to this species or habitats are deemed to be absent.

Otter

8.3.7 No evidence of otter or potential holts were located upon inspection and the Boyces Brook, although use for commuting/foraging by this species is considered to be possible.

8.4 Birds

8.4.1 A number of possible nesting platforms for a variety of nesting bird species are available through the site including areas with trees and hedgerow. The presence of any nesting bird including ground-nesting species within the breeding season (March-August) on this basis is therefore considered to be possible. No historic evidence of nesting was found upon appraisal of the area.

8.4.2 In relation to Schedule 1 birds, it is highly unlikely that the site is used for breeding purposes by Schedule 1 species such as kingfisher (*Alcedo atthis*) and no evidence of use or nesting opportunities were located within the survey boundary or nearby across portions of the Boyces brook.

8.4.3 For a list of bird species identified during the visit, see Table 6 below. One species of conservation concern was identified close to the site in the form of Curlew, which were identified by their call, as opposed to by visual means.

Table 6: Species identified during the inspection of the land at off Preston Road

Common name	Scientific name	Conservation Designations
Blackbird	<i>Turdus merula</i>	-
Blackcap	<i>Sylvia atricapilla</i>	-
Blue Tit	<i>Cyanistes caeruleus</i>	-
Curlew	<i>Numenius arquata</i>	RL
Goldfinch	<i>Carduelis carduelis</i>	-
Great Tit	<i>Parus major</i>	-
Jackdaw	<i>Corvus monedula</i>	-
Magpie	<i>Pica pica</i>	-
Mallard	<i>Anas platyrhynchos</i>	-
Wood Pigeon	<i>Columba palumbus</i>	-

Conservation designations key



RL – Bird of Conservation Concern – Red status

8.5 Herptiles

Great Crested Newt (GCN)

- 8.5.1 No ponds exist within a 250 metre radius of the survey area. Furthermore, no suitable habitats for GCN refuge exist across the application site, with the exception of boundary hedgerows and associated vegetation which are to be retained as part of the prospective development. This absence in suitable terrestrial habitats is due to the heavily sheep-grazed nature of the field as it stands.



Figure 9:  Approximate site location
 Nearest pond at 285 metres from the site

8.5.2 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 by Natural England 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. Natural England’s Rapid Risk Assessment has been conducted below (Table 7).

Table 7: NE Rapid Risk Assessment

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	0.5 - 1 ha lost or damaged	0.03
Individual great crested newts	No effect	0
	Maximum:	0.03
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

8.5.3 Given the absence of suitable terrestrial habitats that stand to be impacted by the prospective development, and absence of ponds within a 250 metre radius of the survey area, the presence of GCN is considered to be highly unlikely.

Other Amphibians

8.5.4 Given the quality of on-site habitats the presence of other, more generalist amphibian species such as the common toad (*Bufo bufo*) is considered to be likely.

Reptiles

8.5.5 No suitable habitats suited to any indigenous reptile species exists 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 IV for the location of all described habitats and target notes)

Table 8: Phase 1 habitat types within the survey area

Habitat Code	Broad Habitat	Description
A3.1	Scattered trees (broadleaved)	Broadleaved trees occur across parts of the survey area and consist of a number of trees such as the hybrid willow (<i>Salix x fragilis</i>), Sycamore (<i>Acer pseudoplatanus</i>) and Pedunculate Oak (<i>Quercus robur</i>).
B2.1	Neutral grassland - unimproved	A narrow band of unimproved neutral grassland exists across the northern boundary, partially contained under the hedge and consists of a diverse mix of graminoides and forbs including Field Wood-rush (<i>Luzula campestris</i>), Crosswort (<i>Cruciata laevipes</i>), Dog's Mercury (<i>Mercurialis perennis</i>) and Meadow Buttercup (<i>Ranunculus acris</i>). This area of grassland fulfils the criteria for national and local priority habitats listed within sections 2 and 3, and will be retained as part of the prospective development.
B2.2	Neutral grassland – semi-improved	. Much of the heavily sheep-grazed grassland consists of a relatively species poor assemblage, dominated by Sweet Vernal Grass (<i>Anthoxanthum odoratum</i>), Common Bent (<i>Agrostis capillaris</i>) and Meadow Foxtail (<i>Alopecurus pratensis</i>), with forbs such as Cuckooflower (<i>Cardamine pratensis</i>), White Clover (<i>Trifolium repens</i>) and Meadow Buttercup (<i>Ranunculus acris</i>).
B5	Marshy grassland	Small areas of marshy grassland, dominated by Soft Rush (<i>Juncus effusus</i>) and Glaucous Sedge (<i>Carex flacca</i>) exist to the south of the site, continuing off site. These areas are host to a range of herbaceous plants, namely including Cuckooflower (<i>Cardamine pratensis</i>).
J2.1.1	Intact hedge – native, species-rich	Areas of species-rich hedgerow exist across the site boundaries to the north and east, being dominated by Hawthorn (<i>Crataegus monogyna</i>). These hedgerows have an incredibly diverse understorey, incorporating plants such as Wood Anemone (<i>Anemone nemorosa</i>), Dog's Mercury (<i>Mercurialis perennis</i>) and Foxglove (<i>Digitalis purpurea</i>) and are understood to be retained as part of the prospective development.
J4	Bare ground	Areas with bare ground including the access track do not add any additional botanical value to the site.

Target note

TN1 – Position of Himalayan Balsam

TN2 – Position of Crosswort

9.0 Conclusions & Recommendations

Vegetation & Habitats

- 9.1 One species of conservation importance has been identified in the form of Crosswort (*Cruciata laevipes*), a species red-list 'Near-threatened' in England. A large number of axiophytes also exist beneath areas of hedgerow to the north. All areas occupied by Crosswort and other axiophytes however (see Figure 8) are understood to be retained by the prospective development. To ensure this is the case, it is recommended that a buffer be demarcated by a suitably qualified ecologist prior to the commencement of site operations. This buffer will remain in place for the duration of the developmental operations.
- 9.2 One habitat of national and county-wide importance has been identified at the survey site in the form of neutral unimproved grassland, fulfilling the criteria for the 'Lowland Meadows' priority habitat. It is similarly understood that this area, as indicated within Appendix IV, is to be retained. A buffer covering areas containing axiophytic plants and Crosswort should also include this area.
- 9.3 One invasive species has been identified within the survey area in the form of Himalayan Balsam (*Impatiens glandulifera*) (see Figure 8). It is therefore recommended that this species is eradicated on site prior to the commencement of operations by mechanical means (e.g. hand pulling at an appropriate time of year), as opposed to using herbicides. Any spoil removed from the area is to be treated as controlled waste and disposed of at a landfill authorised to accept such refuse.
- 9.4 In order to compensate for the area of grassland being lost as part of the development, a compensation and enhancement plan has been recommended within section 10.0 of this report which aims to greatly enhance the biodiversity value of the area.

Bats

- 9.5 From the survey results it can be concluded that all trees contained within the survey area are absent of bat roost suitability, although their value to bats as commuting features should not be undermined.
- 9.6 Installation of lighting as part of any development that exceeds current levels may have a negative impact upon foraging/commuting bats. At the land off Preston Road, lighting must not illuminate boundary features, particularly to the north and east. Increased light spillage should be avoided in areas likely to be used by bats as a foraging resource such as the parameters of the site boundary.

If inappropriate and ill designed lighting is implemented across the site, then there is likely to be an adverse impact upon bats. There are many measures that can be used, where lighting is unavoidable to reduce potential impacts. These include, however are not limited to, the light source used and luminaire design and accessories to direct light at its intended target. Numerous software programmes are currently available which can be used inform lighting plans, demonstrating how lighting decisions will illuminate a site. Refer to the Bat Conservation Lighting Guidelines for further information.

9.7 Enhancement for bats has been recommended within Appendix III.

Other Terrestrial Mammals

Hedgehog

9.8 A precautionary approach is to be adopted during clearance works; in the event that any hedgehogs are encountered, they are to be left in place unless they're at an immediate risk of harm – in which case, they are to be moved to an area of like-for-like habitat.

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.

Badger

9.9 No evidence of badger use was identified at the time of the survey and the possible presence of this species within the confines of the survey area at the time of proposed works is considered unlikely.

Water vole

9.10 Whilst suitability for water vole has been identified at the Boyces Brook, despite the identified ecological limitation (see section 6.2), the prospective development is sited at over 10 metres from the brook. Therefore, possible impacts to this species are considered to be absent.

Otter

9.11 No evidence of otter or potential holts were located across the surveyed portion of the Boyces Brook and use by this species is likely to be restricted to commuting/foraging purposes.

Breeding Birds

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

9.13 The presence of other common bird species within the application site and within the application boundary for nesting purposes, primarily within areas of hedgerow and trees is considered to be likely. It is therefore recommended that any clearance works commence outside the breeding season for birds (broadly March-August inclusive), unless it can conclusively be demonstrated by a suitably qualified and competent ecologist¹ that nesting birds are absent.

¹ 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.”

9.14 It is recommended that enhancement for birds are incorporated into the proposed development as per Appendix III.

Herptiles

9.15 The potential presence of reptiles or any protected amphibian species, namely Great Crested Newts within the application site is considered to be unlikely due to the sites' isolation from potential breeding ponds and absence of suitable terrestrial habitats..

10.0 Compensation and Enhancement Strategy

10.1 Areas immediately adjacent to the prospective development site (under the same ownership) are currently sheep-grazed, however, it is understood that they will be re locating livestock in the future. Once this has been undertaken, and in order compensate for the loss of semi-improved neutral grassland equating to an approximate area of 0.5, the following strategy is proposed.

Compensation area

10.2 The proposed compensation area is highlighted within Figure 10 and equates to an approximate area of 0.52ha.



Figure 10: Compensation area

Proposal

- 10.3 In order to compensate for the loss of this grassland, and also to enhance the biodiversity value of the wider area, soil amelioration of the area highlighted is proposed, followed by reseeded and an amenable management agreement.
- 10.4 In order to ameliorate the clay soils which have historically been somewhat improved, deep ploughing is recommended whereby the existing soil profile will be inverted. Nutrient-enriched topsoils will be buried beneath less enriched subsoils, promoting a floristically rich community to redevelop. Once deep ploughed, soils may lightly rotovated to flatten the area.



Figure 11: Deep ploughing at Prees Heath

- 10.5 Once deep ploughed, an appropriate seed mix for the area would be an MG5 mesotrophic grassland type mix, for example the EM4 mix from Emorsgate seeds (see link: <https://wildseed.co.uk/mixtures/view/5>). This would not eliminate the possibility of using the area for grazing livestock, however would make the area more floristically-rich.

Maintenance

- 10.6 Grazing is often an essential management tool to prevent grasslands succeeding to scrub and woodland, and so is encouraged to be maintained over the compensation area.
- 10.7 Following soil amelioration by way of deep ploughing, **no fertilisers or chemicals are to be sprayed across the compensation area at any point.** This would negate soil amelioration efforts and nullify any gains obtained from amelioration and reseeded the area.

11.0 Bibliography

- **Bat Conservation Trust (BCT)**, 2018. *Bats and artificial lighting in the UK: Bats and the Built Environment series*. Available from: <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>
- **BSBI**, 2019. *BSBI Maps*. Available from: www.bsbi.org/maps
- **CIEEM**, 2019. *Biodiversity Net Gain: Good practice principles for development*. Available from: www.cieem.net/data/files/Publications/Biodiversity_Net_Gain_Principles.pdf
- **CIEEM**, 2016. *Guidelines for Ecological Impact Assessment in the UK and Ireland*, 2nd edition. Available from: www.cieem.net/data/files/Publications/EcIA_Guidelines_Terrestrial_Freshwater_and_Coastal_Jan_2016.pdf
- **CIEEM**, 2016. *UK Guidelines for Accessing and Using Biodiversity Data*. Available from: www.cieem.net/data/files/Publications/Guidelines_for_Accessing_and_Using_Biodiversity_Data.pdf
- **CIEEM**, 2017. *Guidelines for Preliminary Ecological Appraisal*, 2nd edition. Available from: www.cieem.net/data/files/Publications/Guidelines_for_Preliminary_Ecological_Appraisal_Jan2018_1.pdf
- **Collins, J** (ed.), 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines*, 3rd edition. The Bat Conservation Trust, London.
- **Communities & Local Government (C&LG)**, 2019. *National Planning Policy Framework*. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf
- **Dean, M; Strachen, R; Gow, D; Andrews, R**, 2016. *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. The Mammal Society, London.
- **DEFRA**, 2018. *Net gain: Consultation Proposals*. Available from: https://consult.defra.gov.uk/land-use/net-gain/supporting_documents/netgainconsultationdocument.pdf
- **English Nature**, 2001. *Great Crested Newt Guidelines. Version Aug 2001*.
- **Froglife**, 2015. *Surveying for reptiles*. Available from: <https://www.froglife.org/wp-content/uploads/2013/06/Reptile-survey-booklet-3mm-bleed.pdf>
- **Global Biodiversity Information Facility (GBIF)**, 2019. Available from: <https://www.gbif.org/>
- **Hodgetts, N.**, 2011. A revised Red List of bryophytes in Britain. *Conservation News*. 103 pp.40-49. Available from: <https://rbg-web2.rbge.org.uk/bbs/Activities/field%20bryology/FB103/FB103%20Conservation%20News.pdf>

- **Joint Nature Conservancy Council (JNCC)**, 2010. *Handbook for Phase 1 habitat survey*. Available from: http://jncc.defra.gov.uk/PDF/pub10_handbookforphase1habitatsurvey.pdf
- **Magic Maps Application**, 2018. Available from: www.natureonthemap.naturalengland.org.uk/MagicMap.aspx
- **Mitchell-Jones, A. J.**, 2004. *Bat mitigation guidelines*. External Relations Team, English Nature, Northminster House, Peterborough, PE1 1UA.
- **Mitchell-Jones, A. J. (ed.)**, 1987. *The bat worker's manual*. Dept. BWM, Nature Conservancy Council, Northminster House, Peterborough, PE1 1UA.
- **Natural England**, 2015. *Great Crested Newts: Surveys and mitigation for developments and projects*. Available from: <https://www.gov.uk/guidance/great-crested-newts-surveys-and-mitigation-for-development-projects>
- **North West Biodiversity Audit Group (NWBAG)**, 1999. *A biodiversity audit of north-west England*.
- **Oldham R.S.; Keeble J.; Swan M.J.S.; Jeffcote M.**, 2000. *Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*)*. *Herpetological Journal* 10 (4), 143-155
- **Sewell, D; Griffiths, R.A; Beebee, T.J; Foster, J; Wilkinson, J. W.**, 2013. *Survey protocols for the British herpetofauna*. Available from: http://www.narrs.org.uk/documents/Survey_protocols_for_the_British_herpetofauna.pdf
- **Stace. C**, 2019. *New Flora of the British Isles*, 4th edition. Cambridge University Press, The Edinburgh Building, Cambridge, CB2 2RU.
- **Strachen. R; Moorhouse. T.**, 2011. *The Water Vole Conservation Handbook*, 3rd ed. Wildlife Conservation Research Unit, University of Oxford.
- **Stroh. P. A; Leach. S. J; August. T. A; Walker. T. J; Pearman. D. A; Rumsey. F. J; Harrower. C. A; Fay. M. F; Martin. J. P; Pankhurst. T; Preston. C. D; Taylor. I.**, 2014. *A Vascular Plant Red-List for England*, 2nd edition. Trollius Publications.

Appendix I: Site Photographs



Plate 1: A view of the application site



Plate 2: Stretch of unimproved neutral grassland grading into species-rich hedgerow



Plate 3: Species-rich understorey to hedgerow



Plate 4: Crosswort on site



Plate 5: Some axiophytes found on site including Hard Shield-fern, Water Aven and Moschatel



Plate 6: A view of Boyces Brook



Plate 7: A view of Boyces Brook



Plate 8: A view of Boyces Brook



Plate 9: Character of trees on site

Appendix II: Site-Specific 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>Phylum</u>	<u>Common name</u>	<u>Scientific name</u>	<u>DAFOR</u>
Bryophyta (Bryophytes)		<i>Kindbergia praelonga</i>	R
		<i>Brachythecium rutabulum</i>	R
		<i>Rhytidiadelphus squarrosus</i>	O
		<i>Pellia</i> sp.	R
		<i>Conocephalum conicum</i>	R
		<i>Plagiomnium undulatum</i>	R
Pteridophyta (Ferns)	Broad Buckler-fern	<i>Dryopteris dilatata</i>	R
	Hard Shield-fern	<i>Polystichum aculeatum</i>	R
	Hart's-tongue Fern	<i>Asplenium scolopendrium</i>	R
	Scaly Male Fern agg.	<i>Dryopteris affinis</i> agg.	R
Anthophyta (Flowering Plants)	a Dandelion	<i>Taraxacum</i> sect. <i>Ruderalia</i>	O
	Alder	<i>Anus glutinosa</i>	R
	Apple	<i>Malus pumila</i>	R
	Ash	<i>Fraxinus excelsior</i>	R
	Bog Stitchwort	<i>Stellaria alsine</i>	R
	Bokman's Dandelion	<i>Taraxacum boekmanii</i>	R
	Broad-leaved Dock	<i>Rumex obtusifolius</i>	R
	Bush Vetch	<i>Vicia sepium</i>	R
	Cleavers	<i>Galium aparine</i>	O
	Clustered Dock	<i>Rumex conglomeratus</i>	R
	Cock's-foot	<i>Dactylis glomerata</i>	R
	Common Bent	<i>Agrostis capillaris</i>	F
	Common Mouse-ear	<i>Cerastium fontanum</i>	O
	Common Nettle	<i>Urtica dioica</i> subsp. <i>dioica</i>	O
	Cow Parsley	<i>Anthriscus sylvestris</i>	R
	Creeping buttercup	<i>Ranunculus repens</i>	O
	Creeping Thistle	<i>Cirsium arvense</i>	O
	Crosswort	<i>Cruciata laevipes</i>	R
	Cuckooflower	<i>Cardamine pratense</i>	R

Land off Preston Road, Ribchester, Lancashire, PR3 3XL
Preliminary Ecological Appraisal



Elder	<i>Sambucus nigra</i>	R
English Bluebell	<i>Hyacinthoides non-scripta</i>	R
False Brome	<i>Brachypodium sylvaticum</i>	R
False Hook-lobed Dandelion	<i>Taraxacum pseudohamatum</i>	R
Field Woodrush	<i>Luzula campestris</i>	O
Foxglove	<i>Digitalis purpurea</i>	R
Garlic Mustard	<i>Alliaria petiolata</i>	R
Germander Speedwell	<i>Veronica chamaedrys</i>	R
Glaucous Sedge	<i>Carex flacca</i>	O
Hairy Brome	<i>Bromopsis ramosa</i>	R
Hard Rush	<i>Juncus inflexus</i>	R
Hawthorn	<i>Crataegus monogyns</i>	O
Hazel	<i>Corylus avellana</i>	R
Hemlock Water-dropwort	<i>Oenanthe crocata</i>	R
Herb-Robert	<i>Geranium robertianum</i>	R
Himalayan Balsam	<i>Impatiens glandulifera</i>	O
Hogweed	<i>Heracleum sphondylleum</i>	R
Hook-lobed Dandelion	<i>Taraxacum cf. hamatum</i>	R
Hybrid Willow	<i>Salix x fragilis</i>	O
Ivy	<i>Hedera helix</i>	R
Ivy-leaved Speedwell	<i>Veronica hederifolia</i>	R
Lesser Celandine	<i>Ficaria verna</i>	O
Marsh Thistle	<i>Cirsium palustre</i>	R
Meadow Buttercup	<i>Ranunculus acris</i>	O
Meadow Foxtail	<i>Alopecurus pratensis</i>	F
Meadow Vetchling	<i>Lathyrus pratensis</i>	R
Moschatel	<i>Adoxa moschatellina</i>	R
Nipplewort	<i>Lapsana communis</i>	R
Opposite-leaved Golden-saxifrage	<i>Chrysosplenium oppositifolium</i>	R
Pedunculate Oak	<i>Quercus robur</i>	R
Perennial Dog's Mercury	<i>Mercurialis perennis</i>	R
Perennial Rye-grass	<i>Lolium perenne</i>	O
Ramsons	<i>Allium ursinum</i>	R
Red Campion	<i>Silene dioica</i>	R
Rosebay Willowherb	<i>Chamaenerion angustifolium</i>	R
Slender Hook-lobed Dandelion	<i>Taraxacum cf. hamatulum</i>	R
Soft Rush	<i>Juncus effusus</i>	F
Spear Thistle	<i>Cirsium vulgare</i>	R
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	LA
Sweet-grass sp.	<i>Glyceria sp.</i>	R
Sycamore	<i>Acer pseudoplatanus</i>	R
Thyme-leaved Speedwell	<i>Veronica serpyllifolia</i>	O

**Land off Preston Road, Ribchester, Lancashire, PR3 3XL
Preliminary Ecological Appraisal**



	Water Avens	<i>Geum rivale</i>	R
	Wavy Bitter-cress	<i>Cardamine flexuosa</i>	R
	White Clover	<i>Trifolium repens</i>	F
	White Dead-nettle	<i>Lamium album</i>	R
	Wood Anemone	<i>Anemone nemorosa</i>	R
	Wood Avens	<i>Geum urbanum</i>	R
	Yorkshire-fog	<i>Holcus lanatus</i>	O

Appendix III: Biodiversity Enhancement

Landscaping

A series of trees, woody shrubs, climbers, herbaceous plants and ferns have been given within the table below which are suitable for incorporation into the scheme proposed at the land off Preston Road; the list of plants given below are readily commercially available.

	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	
Aquatic/marginal plants	Common Water-crowfoot	<i>Ranunculus aquatilis</i>	Ponds
	Marsh Marigold	<i>Caltha palustris</i>	Marginal vegetation
	Ragged Robin	<i>Silene flos-cuculi</i>	Marginal vegetation
	Water Mint	<i>Mentha aquatica</i>	Marginal vegetation
	Water-violet	<i>Hottonia palustris</i>	Ponds
	White Water-lily	<i>Nymphaea alba</i>	Ponds
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>	-
	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>	-

Nesting Birds

Enhancement for robin / wren

This flat based open nest box has been designed specifically with the robin and wren in mind. Both prefer a small open-fronted box.

This box should be sited low down (less than 2m from the ground) in an area well hidden with vegetation. It can be attached to a tree or wall using a nail or screw and wall plug.

https://www.nhbs.com/search?q=birds%20box%20tree&hPP=60&idx=titles&p=0&fR%5Bdoc_s%5D%5B0%5D=false&fR%5Bhide%5D%5B0%5D=false&fR%5Blive%5D%5B0%5D=true&qtview=181109



Enhancement for house sparrow

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 comes in two colours and can be fixed on to the surface of a suitable wall or incorporated into the wall. It is suitable for all types of houses in built-up areas.

See - www.nhbs.com/title/174850/1sp-schwegler-sparrow-terrace



Enhancement for swift

The type of entrance possessed by the swift WoodStone Swift Nest Box is preferred by swifts and discourages competing species such as house sparrows.

This box should be installed at least five metres above ground level , ensuring that there is unobstructed access for birds entering and leaving, preferably being placed in a sheltered locality under eaves or overhanging roofs.



https://www.nhbs.com/woodstone-swift-nest-box?bkfno=217160&ca_id=1495&qclid=EAlaIqobChMI4Ovj4pXq5wIVFZ3VCh3_oQWGEAkYASABEqJ1Z_D_BwE

Appendix IV: Phase 1 Habitat Map

