

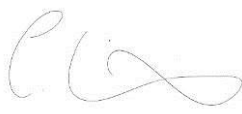
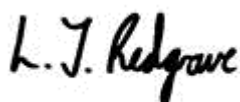


**Broad Oak Farm,
Wrexham**

Ecological Appraisal

November 2016

Control sheet

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1. Introduction

- 1.1 Bowland Ecology Ltd. was commissioned by Shaun Trowbridge to undertake an extended Phase 1 habitat survey and daytime building inspection of buildings at Broad Oak Farm, Wrexham (NGR: SJ 36736 58495). The site is subject to development proposals for a residential scheme; the proposals include the demolition of a number of the buildings on site and refurbishment of buildings that are not proposed for demolition.
- 1.2 The site is located between Chester and Wrexham, approximately 0.17 km east of the A483. The surrounding area comprises rural fields and farms.
- 1.3 The purpose of the survey was: to identify and map all habitats occurring within the survey area; and to identify the presence of (or potential for) wildlife interests with particular reference to the need for mitigation and legal requirements.
- 1.4 This report includes a description of assessment methods and results and outlines recommendations to provide protection and enhancements for biodiversity and protected species.

2. Methodology

- 2.1 The desk study, extended Phase 1 habitat survey, building inspection and ecological appraisal followed the Guidelines for Preliminary Ecological Appraisal (GPEA) (CIEEM, 2013) and are in line with the British Standard BS42020:2013 'Biodiversity – Code of practice for planning and development.

Desk Study

- 2.2 The aim of the desk study was to identify the presence of statutory wildlife sites, non-statutory wildlife sites and protected species records within 1 km of the site.
- 2.3 Online resources were also searched for records of protected species. The Multi-Agency Geographic Information for the Countryside (MAGIC) website (<http://magic.gov.uk>) was reviewed for information on locally, nationally and internationally designated sites of nature conservation importance (statutory sites only) and Habitats of Principal Importance on or within 1 km of the site boundary. Natural Environment and Rural Communities (NERC) Act Section 41 and 42 lists of Habitats and Species of Principal Importance for the Conservation of Biodiversity were also consulted.
- 2.4 Species and non-statutory designated sites records on and within 1 km of the site were obtained following a data search with North Wales Environmental Information Service (Cofnod) and RECORD the Biodiversity Information Service for Cheshire, Halton, Warrington and Wirral.
- 2.5 The Ecological Survey and Assessment completed by Environmental Research and Advisory Partnership (ERAP) in 2008 was also consulted.
- 2.6 Aerial photographs and Ordnance Survey maps were reviewed online to help identify any continuous habitat and any other notable habitats suitable for protected and notable species within the surrounding area.

Extended Phase 1 Habitat Survey

- 2.7 An ecological walkover survey was undertaken, following the 'extended Phase 1 methodology (JNCC, 2010 as amended) and Guidelines for Preliminary Ecological Appraisal (CIEEM, 2013).
- 2.8 The survey was carried out by Claire Wilson MSc, BSc (Hons), MCIEEM and Jade Relf MSc, BSc (Hons), GradCIEEM on the 14th September 2016. The weather was mild, with a light breeze (Beaufort Scale No. 1) and occasional, scattered rain showers. The temperature was approximately 18°C.
- 2.9 The timing of the Phase 1 survey was within the optimum period for completing such a survey.
- 2.10 This survey methodology records information on the habitats together with any evidence of and potential for legally protected and notable fauna, in particular:
- potential roosting sites for bats within buildings and trees (identification of suitable cracks and crevices – survey undertaken externally and from ground only);
 - assessing the suitability of habitats for other notable and protected species such as nesting birds (including any active or disused nests), reptiles, water vole (*Arvicola amphibius*), otter (*Lutra lutra*), white-clawed crayfish (*Austropotamobius pallipes*), badger (*Meles meles*) and invertebrates;

- checking for the most common invasive plant species subject to strict legal control including: Japanese knotweed (*Fallopia japonica*), giant knotweed (*Fallopia sachalinensis*), hybrid knotweed (*Fallopia x bohemica*), giant hogweed (*Heracleum mantegazzianum*), rhododendron (*Rhododendron* spp.) and Himalayan balsam (*Impatiens glandulifera*);
 - assessing the suitability of the habitat for amphibians and for the protected great crested newts (GCN). Ponds on site and within 0.25 km (access permitting) were subject to a Habitat Suitability Index (HSI, Oldham *et al.* 2000) assessment for GCN. HSI scores can be interpreted using Table 1. It should be noted that HSI cannot be undertaken on ditches.
- 2.11 The HSI is a numerical index, between 0 and 1. Values close to 0 indicate unsuitable habitat, 1 represents optimal habitat. The HSI incorporates ten suitability indices, all of which are factors known to affect GCN. The ten suitability indices include: pond location, pond area, pond drying, water quality, shade, waterfowl presence/absence, fish presence/absence, the number of ponds within 1 km, terrestrial habitat quality and macrophyte cover. Table 1 shows the classification of HSI scores:

Table 1: HSI categories

HSI Score	Pond Suitability
<0.5	poor
0.5 - 0.59	below average
0.6 - 0.69	average
0.7 - 0.79	good
>0.8	excellent

Daytime Building Inspection Survey

- 2.12 A daytime internal and external inspection of the buildings was undertaken on the 14th September 2016 by Claire Wilson (Natural England Bat Licence Number: 2015-16761-CLS-CLS) and Jade Relf. The survey followed the guidelines as described in Collins, 2016. The weather during the inspection was mild, with a light breeze (Beaufort wind scale 1) and occasional rain showers. The temperature was approximately 18°C.
- 2.13 The buildings surveyed are shown on the Phase 1 habitat plan (Appendix C).
- 2.14 The internal inspection involved a search of the affected buildings for field signs such as: bats, bat droppings, urine stains, bat feeding remains (moth wings, insect cases), bat staining, a distinctive smell of bats, scratch marks and smoothing of surfaces, which would indicate a roosting site.
- 2.15 The external inspection involved checking for field signs of bats on external features of the buildings with particular attention being paid to windowsills, windowpanes and ledges, walls, doors and the ground around the buildings. An assessment of the potential of the buildings to support bats was also made during the survey i.e. searching for suitable roosting crevices. High power torches (Cluson Clu-lite 500,000 candlepower) and close focus binoculars were used to aid the survey.
- 2.16 Natural England's Bat Mitigation Guidelines (A.J. Mitchell-Jones, 2004) states that a significant bat roost can normally be determined on a single visit at any time of the year, provided that the entire structure is accessible and that signs of bats have not been removed by others.

- 2.17 Using the information collected during the internal and external assessment, a 'roost potential' score was given to each building according to the criteria shown in Appendix B (Collins, 2016).
- 2.18 An assessment of the suitability of the site for bats was undertaken, including the identification of potential foraging and roosting areas, potential flight lines and important commuting corridors.

Survey Limitations

- 2.19 Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour, therefore the survey has not produced a complete list of plants and animals that may potentially use the site. The timing of the survey was outside the optimum period for Phase 1 habitat survey (April to September inclusive) (JNCC, 2010). However, due to the small size and nature of the habitats present, the survey timing is not considered to be a major limiting factor on the assessment of potential ecological impacts. The entire of the site was accessible, providing no constraint to the survey.
- 2.20 The list of invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is extensive and these plants are found in a range of different habitats, including aquatic habitats. The extended Phase 1 habitat survey checked, in particular, for the presence of Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, rhododendron and Himalayan balsam. There may be other invasive plant species present on the site which were not recorded, but it is considered that this survey is sufficient to identify any significant constraints posed by invasive plants.
- 2.21 Access to the banks of the ditch at TN9 was not possible due to a dense cover of bramble, blackthorn and hawthorn scrub.
- 2.22 Full access into the loft spaces of Buildings 2, 13 and 14 was not possible due to rotten timber floor boards making access unsafe.

3. Results

Statutory and Non-Statutory Wildlife Sites

- 3.1 There are no statutory designated sites within 1 km of the site.
 - 3.2 There is a single non-statutory designated wildlife site within 1 km of the site, Darland Wood which is located 0.74 km east of the site. The site comprises two small areas of woodland joined by a narrow woodland corridor with a pond in the southern wood. Horse chestnut (*Aesculus hippocastanum*), beech (*Fagus sylvatica*) and sycamore (*Acer pseudoplatanus*) are the major trees within the canopy, whilst English elm (*Ulmus minor*), wych elm (*Ulmus glabra*) and holly (*Ilex aquifolium*) are the major shrubs in the sparse understorey. The ground flora is also sparse in places and the majority of it is dominated by dog's mercury (*Mercurialis perennis*) and ground-elder (*Aegopodium podagraria*). However there is a fair overall diversity, with such species as English bluebell (*Hyacinthoides nob-scripta*), giant fescue (*Festuca gigantea*), cuckoopint (*Arum maculatum*) and wild garlic (*Allium ursinum*) found throughout.
 - 3.3 Cofnod and Record provided records of legally protected and NERC Act, 2006 Section 41 and 42 species on or within 1 km of the site, therefore these species may be present if suitable habitats are found on site:
 - Amphibians: GCN;
 - Reptiles; grass snake (*Natrix natrix*);
 - Birds: barn owl (*Tyto alba*), bullfinch (*Pyrrhula pyrrhula*), cuckoo (*Cuculus canorus*), curlew (*Numenius arquata*), dunnoek (*Prunella modularis*), fieldfare (*Turdus pilaris*), grasshopper warbler (*Locustella naevia*), hobby (*Falco subbuteo*), house sparrow (*Passer domesticus*), kingfisher (*Alcedo atthis*), lapwing (*Vanellus Vanellus*), lesser redpoll (*Acanthis cabaret*), linnet (*Linaria cannabina*), merlin (*Falco columbarius*), osprey (*Pandion haliaetus*), red kite (*Milvus milvus*), redwing (*Turdus iliacus*), skylark (*Alauda arvensis*), song thrush (*Turdus philomelos*), spotted flycatcher (*Muscicapa striata*), starling (*Sturnus vulgaris*), tree sparrow (*Passer montanus*), yellow wagtail (*Motacilla flava*), yellowhammer (*Emberiza citrinella*);
 - Mammals: otter, badger, brown hare (*Lepus europaeus*), west European hedgehog (*Erinaceus europaeus*), pipistrelle bat species;
 - Invertebrates; a selection of invertebrates including moths, butterflies, beetles and dragonflies typical of the surrounding habitats;
 - Plants: Black poplar (*Populus nigra* subsp. *betulifolia*).
 - 3.4 The search of MAGIC identified two areas of deciduous woodland which is classified as a Habitat of Principal Importance. The closest area is located approximately 0.9 km east of the site.
 - 3.5 A common pipistrelle roost was recorded in the two storey extension of building 15 and a brown-long eared bat roost was recorded in building 13 surveys completed by ERAP in 2008.
 - 3.6 ERAP completed amphibian surveys of Pond 1 in 2008, during the survey a single male GCN was recorded in the pond on the 28th May 2008. In addition, small numbers of smooth newts were also recorded during the amphibian surveys.
- #### **Extended Phase 1 Habitat Survey**
- 3.7 Target notes summarising the key interest features for wildlife recorded during the extended Phase 1 habitat survey are included in Appendix D. The Phase 1 habitat

plan for the study site is presented in Appendix C, which includes the habitats present on site and the locations of target notes.

Habitats

Hard Standing

- 3.8 Hard standing, comprising largely of tarmac and concrete drives, pathways and parking facilities, is spread throughout the site. Some of the tarmac pathways are covered with scattered bryophytes.

Buildings

- 3.9 The site was previously occupied as a working pig farm, therefore there are a number of piggery style buildings constructed from red brick with corrugated fibre cement roofs. There are also a number of traditional farm buildings on site which are largely two storey, red brick buildings with pitched tiled roofs.

Ditches

- 3.10 A narrow wet ditch is located along the northern boundary of the site at TN1. The ditch runs west to east and is culverted at both ends. The section of the ditch within the site boundary is approximately 50 m in length. At the time of survey the ditch was found to be very shallow (5 – 10 cm in depth), approximately 0.5 m wide, with a slow flow and riffle sections where the flow increases. The substrate comprises silt and small pebbles with some scattered leaf litter. No in-channel vegetation was noted throughout the length of the ditch. The ditch is densely shaded by overhanging broadleaved trees comprising sycamore (*Acer pseudoplatanus*), horse chestnut (*Aesculus hippocastanum*) and beech (*Fagus sylvatica*). Bankside vegetation is dominated by ivy (*Hedera helix*) with abundant common nettle (*Urtica dioica*), bramble (*Rubus fruticosus*) and iris (*Iris* sp.).
- 3.11 At TN9 a wet ditch is located at the north eastern corner of the site flowing in an easterly direction. The ditch is relatively narrow (approximately 1 m) with very steep earth banks. The water level in the ditch was approximately 20 cm, with no flow and was found to be very densely shaded by bramble, blackthorn and hawthorn scrub on both banks. Due to the very dense shading no ground flora or in channel vegetation was recorded within or along the channel and the survey was completed from the banksides due to lack of access.
- 3.12 At TN10 a wet ditch is located on the western side of Llyndir Lane on the edges of an arable field approximately 20 m west of the development boundary. The ditch is approximately 1 m wide with relatively steep earth banks covered with vegetation including meadowsweet (*Filipendula ulmaria*), creeping bent grass, perennial rye grass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), and water-cress (*Rorippa nasturtium-aquaticum*). The water level was found to be relatively shallow (approximately 20 cm) and some sections of the ditch were choked with aquatic vegetation.

Pond

- 3.13 A single pond is located approximately 0.22 km south of the survey area and was found to be densely shaded by adjacent broadleaved woodland (P1). The pond is circular in shape with a diameter of approximately 20 m. The pond is relatively shallow on the margins and deeper towards the centre, with a deep layer of leaf litter on the base of the pond. The majority of the pond is covered with duckweed (*Lemna* sp), as such, visibility was found to be very poor.

Ephemeral

- 3.14 Small areas of ephemeral vegetation and short perennial vegetation dominated by bryophytes are scattered throughout the site, this is likely to be the result of the site

being disused for some time. Areas of note include a small yard located between Buildings 4 and 5 at TN4 where the area has been left unmanaged and ephemeral vegetation has established over a stoney, concrete substrate. Species present include great willowherb (*Epilobium hirsutum*), bramble, common nettle, dandelion (*Taraxacum* sp.), perennial rye-grass (*Lolium perenne*), Yorkshire fog, common ragwort (*Senecio jacobaea*), false oat-grass (*Arrhenatherum elatius*), bittersweet (*Solanum dulcamara*) and sycamore saplings.

Tall Ruderal

- 3.15 Tall ruderal vegetation is dominant along the northern and eastern site boundaries (TNs 5, 6 and 7). At TN5 the area is dominated by nettle with occasional broad-leaved dock, creeping thistle (*Cirsium arvense*), creeping bent (*Agrostis stolonifera*), cock's-foot (*Dactylis glomerata*) and rosebay willowherb (*Chamerion angustifolium*).
- 3.16 At TN6 the entire area is dominated by nettle.
- 3.17 Along the eastern boundary at TN7 the area is dominated by nettle with occasional common hogweed (*Heracleum sphondylium*), cow parsley (*Anthriscus sylvestris*) and rosebay willowherb.

Broadleaved Woodland

- 3.18 A small area of broadleaved woodland is located at the north western edge of the site at TN5. The woodland canopy comprises sycamore, horse chestnut and beech, with an understory of hawthorn (*Crataegus monogyna*) and bramble. The majority of the ground flora is dominated by ivy with little light entering the floor of the woodland due to dense shading from canopy trees. Other scattered species within the ground flora include bittersweet, nettle, honeysuckle (*Lonicera* sp), ivy and rose (*Rosa* sp).

Scattered Scrub

- 3.19 Several areas of scattered scrub are present on site, most notably in the narrow passageways between and on the edges of the farm buildings. Species scattered throughout the site are dominated by elder (*Sambucus nigra*) and bramble.
- 3.20 A small area of scattered scrub is located within the yard and between farm buildings at TN4. Species present include silver birch (*Betula pendula*) and sycamore.
- 3.21 A small area of scrub dominated by bramble is located at TN11 on the north eastern boundary of the site.

Scattered Trees

- 3.22 A large mature sycamore is located on the northern boundary of the site.

Species Poor Grassland

- 3.23 A small area of poor semi-improved grassland is located on the eastern boundary of the site at TN8. Species present include annual meadow grass (*Poa annua*), springy turf moss (*Rhytidiadelphus squarrosus*), white clover (*Trifolium repens*), cock's-foot, false oat grass and greater plantain (*Plantago major*).

Hedgerows

- 3.24 A mature, species poor roadside hedgerow is located on the western boundary of the site (H1). The feature is approximately 2 m in height and 2 m wide and is dense to the ground. Species present include hawthorn, ash and bramble. Ground flora comprises nettle, ivy and cow parsley.
- 3.25 A mature, species rich hedgerow is located on the western side of Llyndir Lane approximately 15 west of the development boundary. The hedgerow is located on a

slight hedgebank with a dry ditch on the eastern side, with two mature oak trees (*Quercus* sp) located at the northern end. Species present include hawthorn, holly (*Ilex aquifolium*), oak, ash, rose and bramble. The ground flora comprises meadowsweet, nettle, ivy, false oat grass and cock's-foot.

Fauna

Bats

- 3.26 The habitats on site provide negligible commuting and foraging habitat for bats.
- 3.27 There are a number of buildings on site which are proposed for demolition/refurbishment as part of the development. The internal and external features of each building and their potential to support roosting bats are described in detail in Appendix E. A summary of their structure and potential roosting features is shown in Table 2 below.

Table 2: Summary of building descriptions and their potential to support roosting bats

Building No.	Brief description of buildings on site	Potential to Support Roosting Bats
1	A two storey red brick building with a corrugated, fibre cement roof. A 1.5 height monopitch extension with a tiled roof is located on the northern elevation of the building.	Low
2	A two storey, red brick building with a pitched tiled roof, with ridge tiles and Velux windows on the northern and southern roof elevations.	Moderate/high
3	A single storey, disused, red brick building with a pitched, corrugated fibre cement roof in moderate condition.	Low
4	A single storey, disused, red brick building with a monitor, corrugated fibre cement roof in poor condition. A lower height, red brick extension with a monitor corrugated roof is located on the southern elevation of the building.	Low
5 & 6	Single storey, disused, red brick buildings with monitor, corrugated fibre cement roofs in poor condition.	Low
7	A single storey red brick building with a semi-monitor, corrugated, fibre cement roof in relatively poor condition.	Low
8, 9 & 11	Single storey, red brick buildings with pitched, corrugated fibre cement roofs in moderate condition.	Low
10	A two storey, red brick building with a pitched, corrugated, fibre cement roof in poor condition.	Low
12	A two storey, red brick barn with a monopitched, corrugated, fibre cement roof.	Low/negligible
13	A traditional, two storey red brick barn building with a cross gabled, C-shaped, pitched, slate tiled roof, with ridge tiles.	High
14	A traditional, two storey red brick barn building with a gabled, pitched, slate tiled roof, with ridge tiles.	High
15	A traditional, two storey, residential farmhouse building with a pitched, slate tiled roof with ridge tiles.	Moderate

- 3.28 The mature roadside hedgerows, scattered scrub and mature trees provide foraging and commuting habitat for bats.

Reptiles

- 3.29 A small pile of timber which has the potential to provide refugia for reptiles, in particular common lizard, is located at TN4 in the north eastern corner of the yard. The desk study returned no records for the species within the 1 km search area, and the adjacent habitats are considered largely unsuitable for common lizard due to their

intensively managed, agricultural nature, therefore the species is not considered within this report.

- 3.30 There is a single record for grass snake located approximately 0.5 km east of the site. The habitats adjacent to the site are considered largely unsuitable as they are predominantly managed, agricultural fields. There are no large waterbodies on site and there is limited suitable refugia for grass snake. Therefore it is considered unlikely that the species would be present on site.

Amphibians

- 3.31 There is no amphibian breeding habitat within the development area, however, a single waterbody is located within 0.21 km south of the site. The pond returned a HSI score of 0.6 (Table 3) indicating that the pond provides average suitability to support a population of great crested newts.

Table 3: HSI Calculation

SI1 - Location	SI2 - Pond area	SI3 - Pond drying	SI4 - Water quality	SI5 - Shade	SI6 - Fowl	SI7 - Fish	SI8 - Ponds	SI9 - Terr'l habitat	SI10 - Macrop hyte	HSI	Suitability
1	0.6	1	0.67	0.2	0.67	0.67	0.6	1	0.3	0.60	Average

- 3.32 The habitats within and around the site provide suitable terrestrial habitat for GCN and other amphibians including common toad in the form of scattered scrub, timber piles, broadleaved woodland, hedgerows, and tall ruderals. The data search with Cofnod identified a total of two records for GCN from 2007 at a single location within the 1 km search area, located approximately 0.44 km south east of the site. The search with RECORD returned no records of GCN within the 1 km search area.

Birds

- 3.33 The scattered scrub, tall ruderals, broadleaved woodland, mature hedgerows and scattered tree provide foraging and nesting habitat for a variety of bird species. Evidence of nesting swallows (*Hirundo rustica*) was also recorded in Buildings 1, 13 and 14.
- 3.34 Buildings 2, 13 and 14 provide potential barn owl habitat. However, no evidence of the species was recorded in buildings during the survey, however, a full internal inspection could not be completed. The data search with Cofnod returned a single record for the species with 0.9 km of the site.

Water vole

- 3.35 The ditch at TN1 is considered to be unsuitable for water vole due to 1) the absence of aquatic vegetation and suitable ground flora, 2) dense shading from adjacent woodland, and 3) the presence of culverts at the eastern and western ends of the ditch. In addition, no field signs including burrows, latrines or feeding stations were recorded during the survey and the data search returned no records for the species within the 1 km search area.
- 3.36 The ditch at TN9 is considered to provide limited potential to support water vole due to 1) the dense shading from adjacent bankside vegetation and 2) limited ground flora. In addition no field signs including burrows, latrines or feeding stations were recorded during the survey and the data search returned no record for the species within the 1 km search area.
- 3.37 The ditch at TN10 has low/moderate potential to support water vole. The banks were found to be densely vegetated with a variety of grasses, and herbs with abundant in channel vegetation primarily consisting of watercress. Numerous small mammal

burrows and runs were also located on the southern banks of the ditch during the survey.

Otter

- 3.38 No evidence of otter in the form of holts, spraints, or feeding remains was recorded during the survey, and the ditches at TNs 1, 9 and 10 are considered to be unsuitable for the species due to their narrow, shallow and culverted nature. In addition the desk study did not return any records for the species within the 1 km search area, therefore this species is not considered further within this report.

Other species

- 3.39 No evidence of suitable habitat for any other protected or notable species including badger was identified on site at the time of survey.

4. Evaluation of Habitats and Assessment of Potential Impacts

Scheme Proposal

- 4.1 The site is subject to development proposals for a residential scheme, the proposals include the demolition of some of the buildings on site and refurbishment of buildings that are not proposed for demolition. At the time of writing detailed development proposals were not available.
- 4.2 An assessment of effects on ecological features has been made using the available design and survey information and the professional judgement of the ecologist. This includes a consideration of the relevant legislation and planning guidance. If there are changes to the proposals, such as a change to the proposed development design or to the construction method and programme, the assessment would need to be reviewed.

Designated sites

- 4.3 Due to the distance of Darland Wood from the site and the relatively small footprint of the works, it is not anticipated that there will be any negative ecological impacts on the site, therefore it is not considered further within this report.

Habitats

- 4.4 Development of the site may result in the loss of hardstanding, ephemeral habitats, species poor semi-improved grassland, tall ruderal vegetation and scattered scrub. These habitats are locally common and of limited ecological value, therefore mitigation for their loss is not currently required.
- 4.5 Development of the site will also result in the loss/renovation of buildings on site which provide potential bat roosting habitat and nesting bird habitat. Therefore works to the buildings will have a direct impact on bat and bird species utilising the habitats and unmitigated works could result in an offence.
- 4.6 The development may result in impacts to the two mature roadside hedgerows (H1 & H2), a small area of broadleaved woodland (TN5) and a section of wet ditch (TN1). These habitats are classified as Habitats of Principal Importance (Section 42, NERC Act, 2006). Whilst these habitats are relatively common in the wider landscape, they support a variety of species and provide habitat connectivity within the landscape. Therefore, impacts to these features will have a small scale, local, negative ecological impact.
- 4.6.1 There is potential to cause pollution of the ditches at TNs 1, 9 and 10 through construction related activities if adequate pollution prevention measures are not implemented.

Bats

- 4.7 No conclusive evidence of roosting bats was found during the internal and external building inspections of buildings 1 and 3 – 12 and all were assessed as having low potential to support roosting bats. A small number of butterfly wings were recorded in buildings 3, 4, 5, 6, 7, 9, 11 during the daytime building inspection, it is possible that that these could be feeding remains from brown long-eared bats. However, no other signs of the presence of the aforementioned species was recorded during the daytime building inspection, and there is the possibility that spiders could have left the feeding remains. It is considered unlikely that the buildings would be utilised by void dwelling species including brown long-eared bats as there were no separate loft spaces in the buildings. They do however all have features that could be used by

small numbers of crevice dwelling bats likely to be pipistrelle species. These features include:

- Gaps beneath corrugated roofing material and timber roof lining;
- Small gaps beneath timber joists on gable ends;
- Gaps in concrete on gable ends, possibly leading into cavity walls; and
- Open windows and doors leading into the internal spaces.

- 4.8 Therefore works to demolish these buildings will lead to the loss of roosting habitat for crevice dwelling bats and could result in an offence if bat roosts are present during the works. Therefore without suitable mitigation the impacts to bats are considered to be moderate.
- 4.9 Evidence of roosting brown long-eared bats in the form of droppings and feeding remains was recorded in Buildings 13 and 14 during the internal inspection, therefore the buildings were assessed as having high potential to support roosting bats. Only limited access into the roof voids of buildings 13 and 14 was possible.
- 4.10 No evidence of roosting bats was recorded in building 2, however no access into the first floor was possible due to health and safety and due to the presence of a large open loft void and numerous access points into the building it was assessed as having moderate to high potential to support roosting bats.
- 4.11 Buildings 2, 13 and 14 have several structural features which could potentially be utilised by roosting bats including;
- Ivy clad walls;
 - Large open loft voids;
 - Open windows and doors;
 - Structural crack in external brickwork; and
 - Numerous cracks, crevices and holes within the roof tiles and ridge tiles.
- 4.12 Therefore works to demolish/refurbish these buildings will lead to the loss of roosting habitat for bats and could result in an offence if bat roosts are present during the works. Therefore without suitable mitigation the impacts to bats are considered to be high.
- 4.13 Internal access to building 15 was not possible at the time of survey, however, the building was surveyed in 2008 by ERAP who confirmed the presence of a common pipistrelle roost within the building.

Reptiles

- 4.14 There are small piles of refugia within the development site, and the rank, overgrown habitats on the boundaries of the site may provide suitable for reptiles if present. Therefore, without mitigation development of the site has the potential to impact on a variety of reptile species if present within the development site.

Amphibians

- 4.15 Amphibian surveys completed by ERAP in 2008 confirmed that a small population of GCN is present within Pond 1 which is located over 0.2 km south of the site. The data search with Cofnod identified a total of two records for GCN from 2007 at a single location within the 1 km search area, located approximately 0.44 km south east of the site.

- 4.16 Terrestrial habitats including tall ruderal vegetation, broadleaved woodland, scattered scrub and mature hedgerows within the development boundary are considered to be suitable for GCN and other common amphibians including common toad due to their rank, overgrown nature. Therefore development of the site has the potential to lead to impacts upon GCN and other amphibians and the terrestrial habitat which they utilise, which may result in an offence. However, the habitats between the confirmed GCN records and the development site are considered to be of low quality as they comprise arable fields with limited features connecting the ponds to the development site.
- 4.17 A study of GCN in western France highlighted that 50% of the radio-tracked newts remained within only 15 m of the pond shoreline and 95% remained within a radius of 63 m (Jehle, 2000).
- 4.18 Therefore due to the distance of Pond 1 and GCN records from site (>150 m) it is considered that the core GCN area is located to the east of the site where there are a number of ponds likely to be suitable for GCN and confirmed records for GCN. It is not unfeasible that small numbers of GCN are utilising terrestrial habitats within 150 m of the site, however, it is considered that the risks of encountering GCN are low due to 1) the limited terrestrial habitat connecting the GCN pond to the development site, 2) the absence of historical records of GCN to the south, north and west of the site, 3), and 4) the lack of further ponds within 0.25 km of the site.
- 4.19 Natural England's guidance in the method statement template (WML-A14-2 Version December 2015) recognises a 'risk-averse' culture surrounding mitigation and licence applications and recommends a shift towards a 'more proportionate approach to mitigation, addressing tangible impacts on populations whilst giving lower priority to negligible effects' and that such an approach is consistent with the aims of the Habitats Directive. As such Natural England have developed a "Rapid Risk Assessment Calculator", which calculates the potential impacts to great crested newts and their associated terrestrial habitats and the likelihood of an offence occurring¹.

Table 4: Rapid Risk Assessment Calculator Results Prior to Implementation of RAMs

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)	0.5 - 1 ha lost or damaged	0.3
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	Killing or injuring newts	0.8
	Maximum:	0.8
Rapid risk assessment result:	RED: OFFENCE HIGHLY LIKELY	

- 4.20 Pond 1 also support populations of smooth newt, therefore there is the potential for them to be present in suitable habitat on site. The site

Birds

- 4.21 Removal of the scattered scrub, broadleaved woodland, scattered trees, mature hedgerows and tall ruderals as a result of any proposed works may potentially result

¹ Risks levels within the calculator will over or under estimate some risks because it cannot take into account site specific details (WML-A14-2 Version December 2015).

in the loss of habitat for nesting birds and could result in disturbance if site clearance is carried out within the breeding bird season (March – August inclusive).

- 4.22 Demolition/renovation of Buildings 1, 13 and 14 will lead to the loss of nesting habitat for swallow and potentially barn owl if present.

Water vole

- 4.23 The desk study with Cofnod and RECORD did not return any records for water vole within 1 km of the survey area. However, during the survey evidence of small mammals in the form of burrows and runs was recorded on the ditch at TN10. Therefore works directly to or adjacent to the ditch have the potential to impact on water vole if present within the ditch.

5. Recommendations

- 5.1 This section provides the required measures to mitigate the impacts of the proposed development. A key element of the National Planning Policy Framework is to minimise impacts to biodiversity and provide enhancements. Paragraph 109 states that *‘The planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible’*. It also states in Paragraph 118 that *‘when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by encouraging opportunities to incorporate biodiversity in and around developments’*. This section therefore also includes suggested enhancement measures.

Habitats

- 5.2 Planting of new trees, hedgerows and scrub within and around the perimeter of the proposed development site should be implemented to compensate for the loss of scattered scrub, hedgerows and woodland habitats. Species used should be native, berry bearing species of local provenance (see Appendix H) such as blackthorn (*Prunus spinosa*), hawthorn, wild cherry (*Prunus avium*) and elder.
- 5.3 Instead of creating low value amenity grassland, species rich grasslands should be included within the design proposals. The habitats can be situated around the periphery of the site. This can be achieved by the following:
- Preparing the areas before to ensure at least 50% of the area comprises bare ground so that the seeds are in contact with bare soil and there is limited competition from other species;
 - late cutting of the areas will allow flowers and grasses to set seed; and
 - removing cuttings as if left they may smother some plants and increase fertility which would promote the growth of rank more common species.

- 5.4 It is advised that appropriate pollution prevention measures to protect the ditches at TNs 1, 9 and 10 from leakages of fuels or lubricants from vehicles and equipment including provision of bunded refuelling areas, and from siltation and run off including installation of siltation barriers be implemented throughout the construction period. The Environment Agency’s Pollution Prevention Guidance series is currently under review and at this time is not classed as ‘good practice’. In lieu of any other interim advice or guidance these documents are still considered to provide useful advice on avoiding or minimising the risk of pollution events.

Bats

- 5.5 The buildings on site provide roosting habitat for brown-long eared bats and pipistrelle species. Therefore the risk of impacts to bats from the development is considered to be moderate to high on completion of the building inspection survey. To accurately assess impacts to bats and provide a detailed mitigation strategy it is advised that a robust suite of bat surveys including dusk/dawn emergence surveys are undertaken for all the buildings that are to be impacted by the development.
- 5.6 If roosting bats are recorded during the dusk/dawn emergence surveys the demolition/renovation works will be required to be performed under a European Protected Species mitigation licence issued by Natural Resources Wales (NRW). Licenses are usually only issued following granting of full planning permission and discharge of all relevant planning conditions. Applications can take up to six weeks to process following receipt of all required documentation. Information on the licensing

process can be found online at NRW's website "Do I Need a European Protected Species Licence".

- 5.7 The licence application will include a method statement outlining a detailed mitigation and monitoring strategy, the implementation of which will be a condition of the licence. The implementation of the mitigation strategy may be subject to seasonal constraints. Sufficient time will need to be allowed in the development programme to enable bats to find the new roosts prior to destruction of existing roosts. Subject to confirmation of a detailed mitigation strategy at the design stage and its implementation, it is anticipated that the favourable conservation test can be met and the EPS licence application will be successful.

Reptiles

- 5.8 As it is considered that reptiles could be present within areas of suitable habitat on site, the proposed works have the potential to disturb injure or kill common species of reptiles (Appendix I). Therefore it is advised that works within the areas of suitable habitat are complete using RAMs which are detailed in paragraph 5.11.

Amphibians

- 5.9 The rapid risk assessment result for the site before the completion of RAMs is "Red: Offence Highly Likely" (Table 4). With the implementation of RAMs (see paragraph 5.1) the rapid risk assessment result is "Amber: Offence Likely" (Table 5). This result is based on the loss of approximately 0.6 hectares of land within 100 – 250 m of the site. This result does not take into account the following: 1) the lower value terrestrial habitat connecting the site to the GCN pond, 2) the potential for careful timing of works to avoid impacts to great crested newt terrestrial habitat and, 3) the amount of unsuitable terrestrial habitat on site including buildings, hardstanding and ephemeral vegetation. Taking into account the above points it is considered that impacts to GCN are low and therefore the likelihood of committing an offence is "Green: Offence Highly Unlikely".

Table 5: Rapid Risk Assessment Calculator Results After Implementation of RAMs

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)	1 - 5 ha lost or damaged	0.3
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	Minor disturbance of newts	0.5
Maximum:		0.5
Rapid risk assessment result:	AMBER: OFFENCE LIKELY	

- 5.10 English Nature (2004) states that "The most comprehensive mitigation, in relation to avoiding disturbance, killing or injury is appropriate within approximately 50 m of a breeding pond. It will also almost always be necessary actively to capture newts 50-100 m away. However, at distances greater than 100 m, there should be careful consideration as to whether attempts to capture newts are necessary or the most effective option to avoid incidental mortality... At distances greater than 200-250 m, capture operations will hardly ever be appropriate."
- 5.11 Given that the GCN pond is located over 150 m from the site boundary, the poor connecting habitat between the site and the ponds, and the likelihood that the core great crested newt habitat is located to the east of the site, it is considered that the

impact from the development of the site will be of a 'low scale'. Whilst it is considered that the impacts to great crested newts is low, a small risk remains as great crested newts are a mobile species and may potentially move to suitable habitat up to 500 m from a breeding pond. It is advised that works within the suitable habitat (dense and scattered scrub, tall ruderals and introduced shrubs) on site could lead to the disturbance, injury and/or mortality of amphibians (including GCN), therefore works on site will be completed under RAMs, to reduce the risk to GCN to negligible levels, as follows:

- Before construction works commence, all contractors must receive a 'tool-box' talk or site induction from a suitably qualified ecologist to make them aware of the potential for amphibians, legislative context and procedure if amphibians are encountered during works (Appendix G);
- If clearance of tall ruderals, woodland, scattered scrub, hedgerows is undertaken during the active season for GCN, no more than two weeks prior to works commencing on site, all vegetation within any working areas, where required, should be cut or removed using hand held machinery (i.e. strimmer, brushcutter, chainsaw) to a height of no less than 150 mm;
- The working area must be left for a minimum of two days to allow any amphibians that may be present to move out of the immediate area. A second cut using hand held machinery (i.e. strimmer or brushcutter) should be then carried out to a height of 50 mm;
- Any brash/log/rubble piles should be dismantled by hand and be taken out of the working area for use to create habitat piles in suitable locations outside of the proposed works location;
- Hand search for amphibians within the cleared areas must be completed by a suitably qualified ecologist after vegetation strimming is completed and immediately prior to the commencement of construction works;
- Any excavations should be backfilled, covered over, or a means of escape provided (e.g. plank) at the end of each day in order to prevent amphibians becoming stranded within trenches;
- All works, stockpiling of materials or storage of machinery must be contained within sub-optimal habitat (bare ground or hard standing), and/or raised off the ground;
- In the event that any great crested newts are encountered during the works, all works must cease immediately and the ecologist contacted for further advice. Any great crested newts should be moved by a suitably qualified ecologist to a suitable location outside the works area.

- 5.12 To mitigate potential habitat loss, areas of scattered scrub and tall ruderal should be provided/retained around the margins of the development site. Hedgerow and scrub should be planted along the boundaries of the site to provide additional cover for GCN.

Birds

- 5.13 Any vegetation clearance across the site should take place outside the breeding bird season which runs from March until August inclusive, in order to prevent impacts upon nesting birds.
- 5.14 Vegetation clearance that must be carried out within the bird breeding season will be subject to a pre-clearance bird survey carried out by a suitably experienced ecologist. No works will be carried out within 5 m of an identified nest until the young have fledged and are no longer returning to the nest site. Works should only be undertaken once a scheme ecologist has declared the nest to be no longer in use.

- 5.15 Planting of native berry bearing trees, shrubs and hedgerows as (see paragraph 5.2) will increase the foraging potential of the site and provide nesting bird habitat. Mitigation for the loss of breeding bird habitat should include the planting of native species of trees and shrubs (Appendix H) and the provision of alternative nesting opportunities in the form of nest boxes within the proposed development.

- 5.16 It is advised that barn owl surveys are completed prior to a planning application being submitted. If barn owls are found to be present within the buildings suitable mitigation to minimise impacts to the species will be required. Depending on their use of the building this could be in the form of pre-development surveys, restrictions to the timings of works, built in nests within the new development and habitat creation.

Water Vole

- 5.17 The presence of water vole along the ditch at TN10 has not been confirmed. Therefore it is advised that water vole surveys are undertaken in 2017 to confirm presence/absence of the species along the watercourse.

- 5.18 The optimal period for completing water vole surveys is during the breeding season which runs from mid-April to September (inclusive). As the suitability of habitat for water voles can change over the course of the breeding season, affecting the distribution and apparent population size, it is advised that two survey visits should be undertaken, one in the first half of the season (mid-April to June inclusive) and another in the second half of the season (July to September inclusive). These visits should be undertaken at least two months apart.

Enhancement

- 5.19 The National Planning Policy Framework (NPPF) states that when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity.

- 5.20 Recommended measures to enhance the biodiversity of the site include:

- a) Seeking the advice of a professionally/suitably qualified ecologist throughout the progress of the development in order to maximise ecological and biodiversity gains at each stage.
- b) Planting of new trees. Species used should be native species appropriate to the locality. Specimens should be sourced locally, they should be planted at an appropriate time of year (Oct – Feb, when there is no ground frost) and protected from grazing by rabbits.
- c) Connectivity to habitats within the wider landscape should be considered. The planting of linear features such as narrow woodland belts will increase the connectivity of the site to the greenspace corridor allowing a greater availability of commuting routes and foraging habitat for bats and increased nesting bird habitat.
- d) Paths should be carefully planned to avoid the creation of ‘desire lines’ leading to visitors leaving paths and impacting sensitive ground flora.
- e) Create more diversity on site by leaving more areas of unmown grassland or creating wildflower areas on grass verges and within amenity areas, ensuring that the edges are mown to ensure they are more aesthetically pleasing.

Re-survey of the site

- 5.21 If no works are undertaken on site within 12 months of this survey or if any changes to the proposals are made, a further ecological survey may be necessary (because of the mobility of animals and the potential for colonisation of the site).

6. References

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- Cresswell W and Whitworth R, 2004. An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt. English Nature Research Report No. 576.
- Department for Communities and Local Government (2012); National Planning Policy Framework.
- English Nature (2001). Great Crested Newt Mitigation Guideline.
- Jehle, R (2000). *The terrestrial summer habitat of radio tracked great crested newts (Triturus cristatus) and marbled newts (Triturus marmoratus)*. The Herpetological Journal 10: 137-143.
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Appendix A - Legal Information ²

Species	Legislation	Offences	Notes on licensing procedures and further advice
Species that are protected by European and national legislation			
Bats <i>European protected species</i>	Conservation of Habitats and Species Regulations 2010 Reg 41	- Deliberately¹ capture, injure or kill a bat; - Deliberate disturbance² of bats; - Damage or destroy a breeding site or resting place used by a bat. The protection of bat roosts is considered to apply regardless of whether bats are present.	An licence in respect of development is required from the Welsh Assembly Government in consultation with NRW in Wales. http://www.naturalresources.wales/apply-for-a-permit/protected-species-licensing/european-protected-species-licensing/bat-licensing/?lang=en http://www.naturalresources.wales/apply-for-a-permit/protected-species-licensing/european-protected-species-licensing/do-i-need-a-european-protected-species-licence/?lang=en
	Wildlife and Countryside Act 1981 (as amended) ⁴ S.9	Intentionally or recklessly ³ obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place.	Licence from NRW is required for surveys (scientific purposes) that would involve disturbance of bats or entering a known or suspected roost site.
Birds	Conservation of Habitats and Species (Amendment) Regulations 2012	N/A	Authorities are required to take steps to ensure the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat. This includes activities in relation to town and country planning functions.
	Wildlife and Countryside Act 1981 (as amended) ⁴ S.1	- Intentionally kill, injure or take any wild bird; - Intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built; - Intentionally take or destroy the nest or eggs of any wild bird. Schedule 1 species Special penalties are liable for these offences involving birds on Schedule 1 (e.g. most birds of prey, kingfisher, barn owl, black redstart, little ringed plover). Intentionally or recklessly³ disturb a Schedule 1 species while it is building a nest or is in, on or near a nest containing eggs or young; intentionally or recklessly disturb dependent young of such a species.	No licences are available to disturb any birds in regard to development. Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development. General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety. http://www.naturalresources.wales/apply-for-a-permit/protected-species-licensing/uk-protected-species-licensing/bird-licensing/?lang=en

² This report provides guidance of potential offences as part of the impact assessment. This report does not provide detailed legal advice and for full details of potential offences against protected species the relevant acts should be consulted in their original forms i.e. The Wildlife and Countryside Act, 1981, as amended, The Countryside and Rights of Way Act 2000, The Natural Environment and Rural Communities Act, 2006 and The Conservation of Habitats and Species Regulations 2010.

Great crested newt <i>European protected species</i>	Conservation of Habitats and Species Regulations 2010 Reg 41	- Deliberately¹ capture, injure or kill a great crested newt; - Deliberate disturbance² of a great crested newt; - Deliberately take or destroy its eggs; - Damage or destroy a breeding site or resting place used by a great crested newt.	Licences issued for development by the Welsh Assembly Government in consultation with NRW. <i>Great Crested Newt Mitigation Guidelines</i> (English Nature, 2001) http://www.naturalresources.wales/apply-for-a-permit/protected-species-licensing/european-protected-species-licensing/great-crested-newt-licensing/?lang=en http://www.naturalresources.wales/apply-for-a-permit/protected-species-licensing/european-protected-species-licensing/do-i-need-a-european-protected-species-licence/?lang=en
	Wildlife and Countryside Act 1981 (as amended) ⁴ S.9	Intentionally or recklessly ³ obstruct access to any structure or place used for shelter or protection or disturb a great crested newt in such a place.	Licences issued for science (survey), education and conservation by NRW.
Reptiles (species that are not European protected): Adder Common lizard Grass snake Slow worm	Wildlife and Countryside Act 1981 (as amended) ⁴ S.9(1) (part); S.9(5)	Intentionally kill or injure any common reptile species.	No licence is required in Wales. However an assessment for the potential of a site to support reptiles should be undertaken prior to any development works which have potential to affect these animals. http://www.naturalresources.wales/apply-for-a-permit/protected-species-licensing/uk-protected-species-licensing/reptile-licensing/?lang=en
Water vole	Wildlife and Countryside Act 1981 (as amended) ⁴ S.9	- Intentionally kill, injure or take water voles; - Intentionally or recklessly³ damage, destroy or obstruct access to any structure or place used for shelter or protection; - Disturb a water vole in such a place.	No licence is required for survey in Wales, unless you are likely to commit an action that is otherwise illegal. There are currently no licensing purposes that explicitly cover development activities or activities associated with the improvement or maintenance of waterways. However when a proposed lawful activity has no opportunity to retain water voles within a development site and their translocation would result in a conservation benefit then a licence from NRW may be obtained. <i>The Water Vole Conservation Handbook</i> (R. Strachan, T. Moorhouse & M. Gelling, Wildlife Conservation Research Unit (WildCRU), 3rd Edition 2011). http://www.naturalresources.wales/apply-for-a-permit/protected-species-licensing/uk-protected-species-licensing/water-vole-licensing/?lang=en http://gov.wales/topics/environmentcountryside/consmanagement/conservationbiodiversity/watervoles/?lang=en <i>Water voles and development</i> (2009) <i>Water Voles – Guidance for recent legislation changes</i> (2008)

¹Deliberate capture or killing is taken to include “accepting the possibility” of such capture or killing

²Deliberate disturbance of animals includes in particular any disturbance which is likely a) to impair their ability (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of hibernating or migratory species, to hibernate or migrate; or b) to affect significantly the local distribution or abundance of the species to which they belong. Lower levels of disturbance not covered by the Conservation of Habitats and Species Regulations 2010 remain an offence under the Wildlife and Countryside Act 1981 although a defence is available where such actions are the incidental result of a lawful activity that could not reasonably be avoided. Thus deliberate disturbance that does not result in either (a) or (b) above would be classed as a lower level of disturbance.

³The term ‘reckless’ is defined by the case of Regina versus Caldwell 1982. The prosecution has to show that a person deliberately took an unacceptable risk, or failed to notice or consider an obvious risk.

⁴ The Wildlife and Countryside Act (1981) has been updated by various amendments, including the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006. A full list of amendments can be found at <http://jncc.defra.gov.uk/page-1377>.

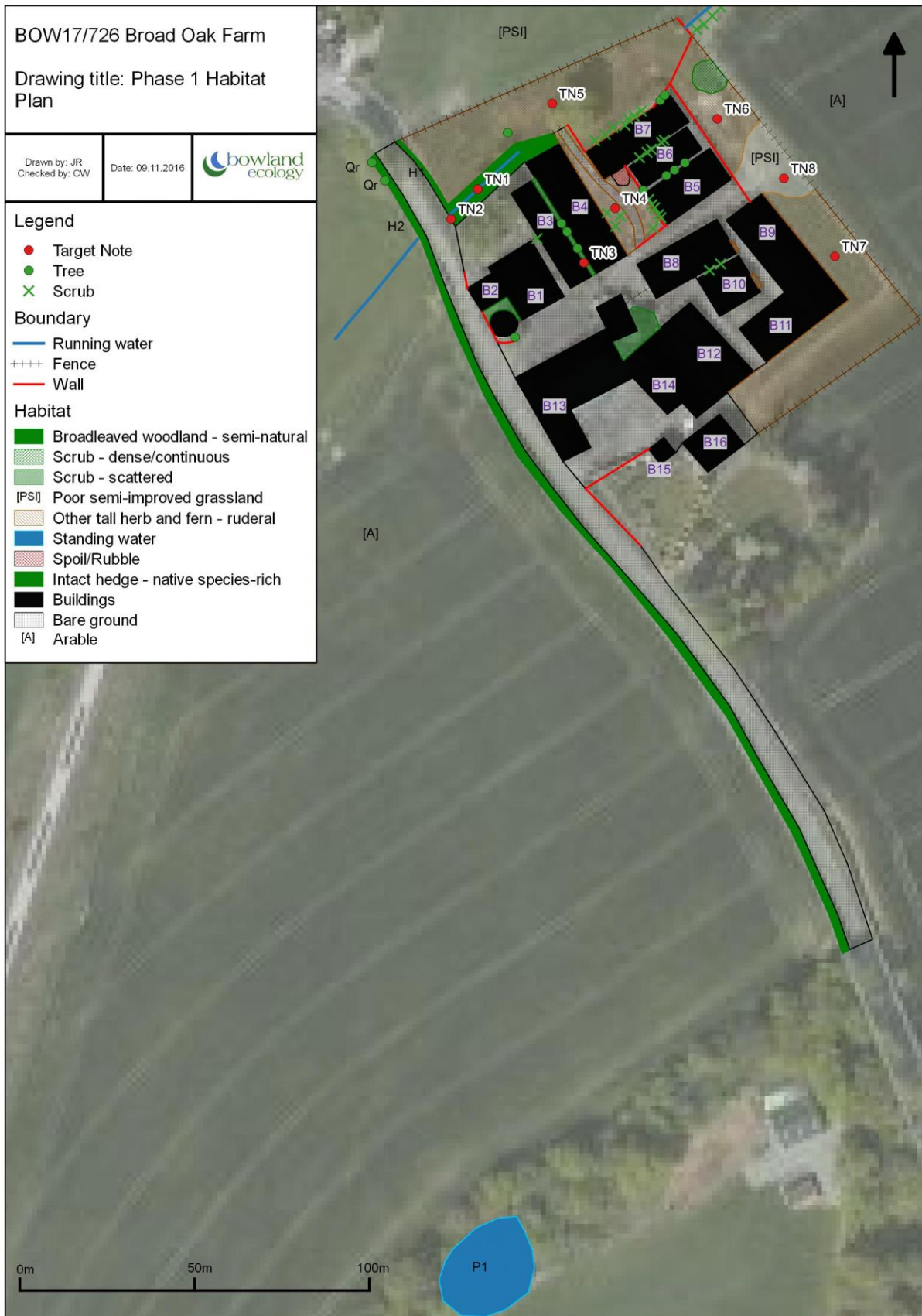
Habitats & Species	Legislation	Guidance
Species and Habitats of Principal Importance for the Conservation of Biodiversity	Natural Environment & Rural Communities Act 2006 S.40 (which superseded S.74 of the Countryside & Rights of Way Act 2000).	S.40 of the NERC Act 2006 sets out the duty for public authorities to conserve biodiversity in Wales. Habitats and species of principal importance for the conservation of biodiversity are identified by the Secretary of State for Wales, in consultation with NRW, are referred to in S.42 of the NERC Act for Wales. The list of habitats and species was updated in 2008: http://www.biodiversitywales.org.uk/49/en-GB/Section-42-Lists The habitats and species listed are not necessarily of higher biodiversity value, but they may be in decline. Habitat Action Plans and Species Action Plans are written for them or are in preparation, to guide their conservation. Ecological impact assessments should include an assessment of the likely impacts to these habitats and species.
Hedgerows	The Hedgerow Regulations 1997	Under the regulations, it is against the law to remove or destroy hedgerows that are classified as “important” under the regulations without permission from the local planning authority. The regulations apply if a hedgerow is in or runs alongside agricultural land, common land including town or village greens, land used for forestry or for the breeding or keeping of horses etc... a local nature reserve or Site of Special Scientific Interest. A hedgerow can be classified as ‘Important’ due to its wildlife and landscape value or due to its heritage value. In general, permission will be required before removing hedges that are at least 20 metres in length, over 30 years old and contain certain species/diversity of plant. The local planning authority will assess the importance of the hedgerow using criteria set out in the regulations. See Welsh Government website for further guidance and information: http://gov.wales/topics/environmentcountryside/farmingandcountryside/farming/farm-regulations-wales/farmregs-wales-woodland/hedgerow-regulations-1997/?lang=en

Appendix B - Bat Potential Category Descriptions for Buildings and Habitats

Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape (Collins, 2016).

Suitability	Description of Roosting Habitat	Commuting & 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 and/or suitable surrounding habitats to be used on a regular basis or by a larger number of bats (i.e. unlikely to be suitable maternity or hibernation). A tree of sufficient size and age to contain potential roosting features but with none seen from the ground, or feature seen with only very limited roosting potential.	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, and surrounding habitat but unlikely to support a roost of high conservation status.	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 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 and connected to known roosts.

Appendix C - Phase 1 Habitat Plan



Appendix D - Phase 1 Target Notes, Hedgerow & Pond Descriptions

Target note	Description	Photograph
TN1	A narrow wet ditch is present along the northern boundary of the site. The ditch runs in a west to east direction and is culverted at both ends. The ditch is very shallow, 5 – 10 cm deep and approximately 0.5 m wide, with a slow flow and riffle sections where the flow increases. The substrate comprises silt and small pebbles with scattered leaf litter. No aquatic vegetation is present within the channel. Broadleaved trees overhang the ditch and completely shade the ditch and banks. Bankside vegetation is dominated by ivy (<i>Hedera helix</i>) with other species including common nettle (<i>Urtica dioica</i>), bramble (<i>Rubus fruticosus</i>) and iris (<i>Iris</i> sp.). The ditch has negligible potential to support otter or water vole.	
TN2	A small area of broadleaved woodland adjacent to the wet ditch. Species present include sycamore (<i>Acer pseudoplatanus</i>), horse chestnut (<i>Aesculus hippocastanum</i>) and beech (<i>Fagus sylvaticus</i>). The ground flora comprises common nettle and bramble with some occasional wood avens (<i>Geum urbanum</i>) also present. The woodland has the potential to provide habitat for nesting birds and foraging and commuting habitat for bats.	
TN3	A narrow gap is present between Buildings 2 and 3 which has been colonised by broadleaved trees. The trees vary in age with young and semi-mature trees present. Species include sycamore and willow (<i>Salix</i> sp.) with ground flora comprising of ivy and hart's-tongue fern (<i>Asplenium scolopendrium</i>).	

Target note	Description	Photograph
TN4	A small yard area is present between Building 4 and 5 which comprises bare ground and rank ephemeral vegetation. Species present include great willowherb (<i>Epilobium hirsutum</i>), bramble, common nettle, dandelion (<i>Taraxacum</i> sp.), perennial rye-grass (<i>Lolium perenne</i>), Yorkshire fog (<i>Holcus lanatus</i>), common ragwort (<i>Senecio jacobaea</i>), false oat-grass (<i>Arrhenatherum elatius</i>), bittersweet (<i>Solanum dulcamara</i>) and sycamore saplings. Scattered scrub is also present which includes young silver birch (<i>Betula pendula</i>) and sycamore. A small pile of timber logs is also present within the north eastern corner of the yard. The timber logs have the potential to provide refugia for reptiles and amphibians.	
TN5	Area of tall ruderal vegetation along the northern and eastern site boundaries. The area is dominated by nettle with occasional broad-leaved dock, creeping thistle (<i>Cirsium arvense</i>), creeping bent (<i>Agrostis stolonifera</i>), cock's-foot (<i>Dactylis glomerata</i>) and rosebay willowherb (<i>Chamerion angustifolium</i>). The area has the potential to provide habitat for nesting birds.	
TN6	Area of tall ruderal vegetation dominated by nettle.	n/a
TN7	Area of tall ruderal vegetation dominated by nettle with occasional common hogweed (<i>Heracleum sphondylium</i>), cow parsley (<i>Anthriscus sylvestris</i>) and rosebay willowherb. The area has the potential to provide habitat for nesting birds.	

Target note	Description	Photograph
TN8	A small area of species poor grassland. Species present include annual meadow grass (<i>Poa annua</i>), springy turf moss (<i>Rhytidiadelphus squarrosus</i>), white clover (<i>Trifolium repens</i>), cock's-foot, false oat grass and greater plantain (<i>Plantago major</i>).	
TN9	Wet ditch located on the north eastern corner of the site flowing in an easterly direction. The ditch is relatively narrow (approximately 1 m) with very steep earth banks. The water level in the ditch was approximately 20 cm, with no flow and was found to be very densely shaded by bramble, blackthorn and hawthorn scrub on both banks. Due to the very dense shading no ground flora or in channel vegetation was recorded within or along the channel. The ditch has low potential to provide habitat for water vole and negligible potential to provide habitat for otter.	
TN10	Wet ditch is located on the western side of Llyndir Lane on the edges of an arable field. The ditch is approximately 1 m wide with relatively steep earth banks covered with vegetation including meadowsweet (<i>Filipendula ulmaria</i>), creeping bent grass, perennial rye grass (<i>Lolium perenne</i>), Yorkshire fog), and water-cress (<i>Rorippa nasturtium-aquaticum</i>). The ditch has low /moderate potential to provide habitat for water vole and negligible potential to provide habitat for otter.	
TN11	Small area of dense bramble scrub.	n/a

Target note	Description	Photograph
H1	Mature, species poor roadside hedgerow located on the western boundary of the site. The feature is approximately 2 m in height and w m wide and is dense to the ground. Species present include hawthorn, ash and bramble. Ground flora comprises nettle, ivy and cow parsley. The hedgerow has the potential to provide habitat for nesting birds and foraging and commuting habitat for bats.	
H2	Mature, species rich hedgerow located on the western side of Llyndir Lane. The hedgerow is located on a slight hedgebank with a dry ditch on the eastern side, with two mature oak trees (<i>Quercus</i> sp) are located at the northern end. Species present include hawthorn, holly (<i>Ilex aquifolium</i>), oak, ash, rose and bramble. The ground flora comprises meadowsweet, nettle, ivy, false oat grass and cock's-foot. The hedgerow has the potential to provide habitat for nesting birds and foraging and commuting habitat for bats.	
P1	Pond located approximately 0.22 km south of the survey area and densely shaded by adjacent broadleaved woodland. The pond is circular in shape with a diameter of approximately 20 m. The pond is relatively shallow on the margins and deeper towards the centre, with a deep layer of leaf litter on the base of the pond. The majority of the pond is covered with duckweed (<i>Lemna</i> sp), as such, visibility was very poor. The pond provides aquatic habitat for amphibians including GCN.	

Appendix E - Building Descriptions

Building Number	Building Description (External & Internal)	Bat Roost Potential of the Building	Photograph
1	<i>External</i> - A two storey red brick building with a corrugated, fibre cement roost. A 1.5 high monopitch extension with a tiled roof is located on the northern elevation of the building. A second, smaller monopitch extension with a corrugated, fibre cement roof is located on the southern elevation of the building. Timber window and door frames located on the southern elevation of the building were found to be poor condition with peeling paint and rotting frames. The mortar was found to be relatively well sealed. Gaps beneath the corrugated, fibre cement roofing material allowing internal access for roosting bats were noted on the southern, eastern and western building elevations. The northern elevation of the building was found to be well sealed. Timber rafters beneath the roofing material were noted to be in moderate condition with some small gaps present which may be suitable for roosting bats. <i>Internal</i> - The roof was found to be unlined with only timber joists and rafters supporting the roof structure. The roof is not flush with the brickworks and numerous gaps were recorded along the edges of the walls allowing internal access for bats. No separate loft space is present. Access into the northern section of the building with the tiled roof was not possible.	No evidence of roosting bats was recorded during the internal and external inspection. However, bats may access the internal space via gaps between the roofing material and the brick wall. The building is considered to be unsuitable for void dwelling species, including brown long-eared bats (<i>Plecotus auritus</i>) due to the absence of a loft void and the unstable thermal conditions offered by the roofing material, however, small numbers of crevice dwelling species including pipistrelle and myotis species may occasionally use the gaps between the brickwork and the roofing material. It is therefore considered that the building has low potential to support roosting bats.	

Building Number	Building Description (External & Internal)	Bat Roost Potential of the Building	Photograph
			
2	<i>External</i> - A two storey, red brick building with a pitched, tiled roof, with ridge tiles and Velux windows on the northern and southern roof elevations. The western elevation of the building is located directly adjacent to Llyndir Lane and the majority of the elevation is covered with dense ivy cladding which provides suitable roosting habitat for crevice dwelling bats such as pipistrelle species. On the ground floor of the building on the northern and western building elevations are small steel framed winds in poor condition with broken glass. A large window which has been boarded over with timber panels is present on the first floor on the western elevation. The timber is not well sealed to the brickwork with several gaps around the edges. A small, red brick, monopitched roof extension with a tiled roof is located on the northern elevation of the building. A small amount of ivy cladding is present on the small extension, which also has steel framed windows in poor condition with broken glass. There are several gaps beneath the roof tiles along the northern and western building elevations where mortar has fallen away, thus providing suitable habitat for crevice dwelling bats.	No evidence of roosting bats was recorded during the internal and external inspection. It is considered likely that void dwelling species including brown long-eared bats may roost within the open loft space as there are multiple access points into the building through broken windows. The crevices beneath roof tiles and behind the ivy cladding may also provide habitat for crevice dwelling species including pipistrelle and myotis species. It is therefore considered that the building has moderate to high potential to support roosting bats.	

Building Number	Building Description (External & Internal)	Bat Roost Potential of the Building	Photograph
	<i>Internal</i> - The building was found to be in in poor condition with abundant cobwebs and scrubby vegetation encroaching into the building. The building has two floors and a large open loft space suitable for void dwelling species including brown long-eared bats. The timber floorboards on the first floor appeared in relatively poor condition and damp, therefore access to the first floor was only visible through the loft hatch. The roof was found to be unlined with timber joists and rafters in moderate condition supporting the roof. A few small gaps were noted between the roof tiles, and numerous gaps were noted along the timber window frames.		
3	<i>External</i> - A single storey, disused, red brick building with a pitched, corrugated fibre cement roof in moderate condition and covered with bryophytes. Ventilation gaps in the brickwork are present along the entire western elevation of the building; these potentially lead into a cavity wall, however, it is considered that they are too low to the ground to be utilised by bats. Small gaps are present between the roofing material and the rotten timber rafters, however, many of these gaps were found to be heavily cobwebbed at the time of survey. <i>Internal</i> - The building is a disused piggery which has been out of use for a number of years and is therefore in a state of disrepair. The internal space was found to be very dark at the time of inspection as the windows are covered with timber sheeting. The roof is lined with a fibreboard type material which was in poor condition where gaps in the roofing material have allowed water to leak through to the roof lining, the lining was warped and in some areas had fallen away thereby lowering the potential for crevice dwelling bats to utilise the space between the roof and the fibreboard lining material. Scattered butterfly wings were noted on the floor of the building which could potentially be the feeding remains of brown long-eared bats.	Evidence of roosting bats in the form off scattered butterfly wings was recorded during the internal building inspection. It is considered unlikely that void dwelling species including brown long-eared bats would roost within the building due to lack of a separate roof void. However, it is possible that they utilise the building as an opportunistic feeding roost. Gaps beneath the roof and the internal lining provide limited roosting habitat due to the dampness of the internal lining for crevice dwelling species including pipistrelle and myotis species. It is therefore considered that the building has low potential to support roosting bats.	

Building Number	Building Description (External & Internal)	Bat Roost Potential of the Building	Photograph
4	<i>External</i> - A single storey, disused, red brick building with a monitor, corrugated fibre cement roof in poor condition. A lower height, red brick extension with a monitor corrugated roof is located on the southern elevation of the building. The roof was found to be in poor condition; of particular note was the collapsed section of roof along the south eastern section of the building. Small gaps are present between the roofing material and the rotten timber rafters, however, many of these gaps were found to be heavily cobwebbed at the time of survey. Timber barge boards and fascias on the northern, eastern and western building elevations were found to be in poor condition with sections of barge board missing on the eastern elevation and gaps beneath that may provide roosting habitat for crevice dwelling bats. Gaps are also present in the brickwork on the northern gable end where timber wall plates are protruding from the brick wall. A small amount of dense ivy cladding is present on the northern and western elevations of the building. <i>Internal</i> - The building is a disused piggery which has been out of use for a number of years and is therefore in a state of disrepair. The internal space was found to be very dark at the time of inspection as the windows are covered with timber sheeting. The roof is lined with a fibreboard type material in the extension and timber panels in the larger, original building. The majority of the roof lining was found to be in poor condition. Where gaps in the roofing material have allowed water to leak through to the roof lining, the lining was warped and in some areas had fallen away thereby lowering the potential for crevice dwelling bats to utilise the space between the roof and the fibreboard lining material. Scattered butterfly wings were noted on the floor of the building which could potentially be the feeding remains of brown long-eared bats.	Evidence of roosting bats in the form of scattered butterfly wings was recorded during the internal building inspection. It is considered unlikely that void dwelling species including brown long-eared bats would roost within the building due to lack of a separate roof void. However, it is possible that they utilise the building as an opportunistic feeding roost. The ivy cladding and gaps beneath the roof and the internal lining provide limited roosting habitat due to the dampness of the internal lining for crevice dwelling species including pipistrelle and myotis species. It is therefore considered that the building has low potential to support roosting bats.	 

Building Number	Building Description (External & Internal)	Bat Roost Potential of the Building	Photograph
5 & 6	<i>External</i> - Single storey, disused, red brick buildings with monitor, corrugated fibre cement roofs in poor condition and covered with bryophytes. Timber framed windows in poor condition with rotting frames and broken glass are located on the southern and northern building elevations. Large gaps on the monitor roof used for ventilation are located along the entire apex of the building allowing internal access for bats. Timber doors on the eastern elevation are in poor condition and poorly sealed. Small gaps are present between the roofing material and the rotten timber rafters, however, many of these gaps were found to be heavily cobwebbed at the time of survey. Small crevices are located on the eastern gable end of the building where timber beams are not flush with the brickwork or the roofing material, which provides habitat for crevice dwelling bats. <i>Internal</i> - The buildings are disused piggery buildings which have been out of use for a number of years and are therefore in a state of disrepair. The roof is lined with a fibreboard type material which was in poor condition in some sections where gaps in the roofing material have allowed water to leak through to the roof lining. Several scattered butterfly wings were noted on the floor of the building which could potentially be the feeding remains of brown long-eared bats.	Evidence of roosting bats in the form of scattered butterfly wings was recorded during the internal building inspections. It is considered unlikely that void dwelling species including brown long-eared bats would roost within the building due to lack of a separate roof void. However, it is possible that they may utilise the building as an opportunistic feeding roost. The gaps beneath the roof and the internal lining and gaps on the gable end beneath timber beams provide habitat for crevice dwelling species including pipistrelle and myotis species. It is therefore considered that the buildings have low potential to support roosting bats.	

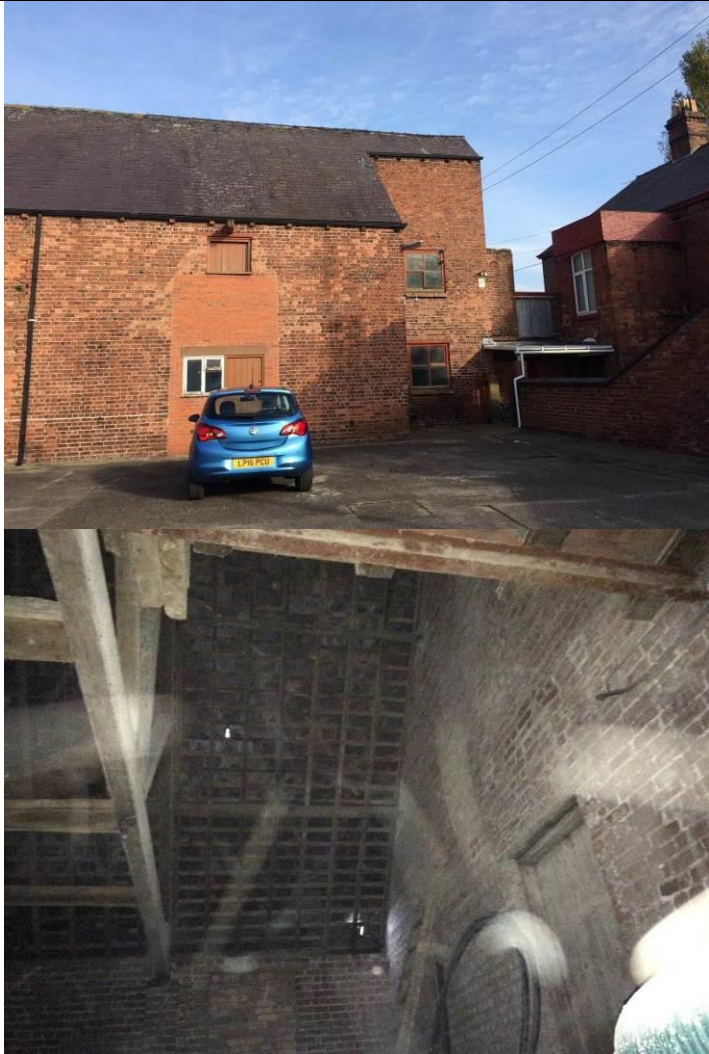
Building Number	Building Description (External & Internal)	Bat Roost Potential of the Building	Photograph
7	<i>External</i> - A single storey red brick building with a semi-monitor, corrugated, fibre cement roof in relatively poor condition. Timber framed windows in poor condition with rotting frames and broken glass are located on the southern and northern building elevations. Large gaps on the half monitor roof used for ventilation are located along the entire apex of the building allowing internal access for bats. The timber door on the eastern elevation is in poor condition and not well sealed. Small gaps are present between the roofing material and the rotten timber rafters, however, many of these gaps were found to be heavily cobwebbed at the time of survey. Roofing felt along the edges of the building is not flush with the brickwork and gaps behind the felt suitable for crevice dwelling bats were noted during the survey. <i>Internal</i> - The building is a disused piggery which has been out of use for a number of years and is therefore in a state of disrepair. The roof is lined with a fibreboard type material and supported by timber beams and joists which were in poor condition where gaps in the roofing material have allowed water to leak through to the roof lining. The timber door was found to be open at the time of survey. Cracks in the brickwork (approximately 2 cm) between pig pens provide suitable habitat for crevice dwelling bats. Several scattered butterfly wings were noted on the floor of the building which could potentially be the feeding remains of brown long-eared bats.	Evidence of roosting bats in the form of scattered butterfly wings was recorded during the internal building inspection. It is considered unlikely that void dwelling species including brown long-eared bats would roost within the building due to lack of a separate roof void. However, it is possible that they may utilise the building as an opportunistic feeding roost. The gaps beneath the roof and the internal lining and under roofing felt provide habitat for crevice dwelling species including pipistrelle and myotis species. It is therefore considered that the building has low potential to support roosting bats.	

Building Number	Building Description (External & Internal)	Bat Roost Potential of the Building	Photograph
			
8, 9 & 11	<i>External</i> - Single storey, red brick buildings with pitched, corrugated fibre cement roofs in moderate condition. The timber framed windows and doors are in relatively good condition and are all well sealed. Metal sheeting is located over some of the windows on the northern elevation. Small gaps are present at the tops of the windows, however, it is considered unlikely that bats would utilise these gaps as they are largely covered with sheeting. Concrete plates are located on the eastern and western gable ends of the building, some small holes (diameter approximately 5 cm) are located in the concrete which potentially allow access into cavity walls and the interior of the building, however a thorough inspection of these cavities was not possible due to their height on the building. <i>Internal</i> - The roofs were found to be unlined and in moderate condition. No light was visible in the internal space with no obvious gaps or crevices suitable for roosting bats.	No evidence of roosting bats was recorded in Building 8 during the internal building inspection. Some scattered butterfly wings were recorded in Buildings 9 and 11 during the inspection which may potentially be the feeding remains of brown long eared bats. However it is considered unlikely that void dwelling species including brown long-eared bats would roost within the building due to lack of a separate roof void. The gaps in the concrete walls provide potential habitat for crevice dwelling species including	

Building Number	Building Description (External & Internal)	Bat Roost Potential of the Building	Photograph
		pipistrelle and myotis species. It is therefore considered that the buildings have low potential to support roosting bats.	
10	<i>External</i> - A two storey, red brick building with a pitched, corrugated, fibre cement roof in poor condition. The building is used for storing straw bales therefore there is open space between the corrugated sheeting on the eastern and western building elevation. Windows and doors are absent, therefore the internal space is very light, airy and draughty. There are numerous cracks and gaps in the corrugated roofing material and in the corrugated sheeting on the eastern and western building elevations. However, these are considered to offer limited roosting potential for crevice dwelling bats due to the open and damp nature of the building. <i>Internal</i> - The first floor of the building is used for hay storage. The straw has been placed on timber beams which were found to be in poor condition and rotten in places. Timber rafters beneath the corrugated roofing were found to be in poor condition and showing signs of rot.	No evidence of roosting bats was recorded in Building 10 during the internal building inspection. The gaps in the corrugated sheeting and roofing material provide limited habitat for crevice dwelling species including pipistrelle and myotis species. It is therefore considered that the building has low to negligible potential to support roosting bats.	

Building Number	Building Description (External & Internal)	Bat Roost Potential of the Building	Photograph
12	<i>External</i> - A two storey, red brick barn with a monopitched, corrugated, fibre cement roof. The building is in poor condition with gaps in the roofing material. The eastern elevation of the building is open for ease of access into the barn, thus making the internal space, light, airy and damp which are conditions that are considered to be unsuitable for roosting bats. The roof is lined with timber panels which were found to be in poor condition with several areas where the timber has become rotten due to holes in the roofing material. <i>Internal</i> - The internal space on the ground floor was found to be very damp. Access to the first floor was not possible due to lack of access and damp floorboards making the building unsafe to fully access.	No evidence of roosting bats was recorded during the internal building inspection. Possible gaps between timber roof lining and corrugated roofing material may provide limited habitat for crevice dwelling species including pipistrelle and myotis species. It is therefore considered that the building has low to negligible potential to support roosting bats.	
13	<i>External</i> - A traditional, two storey red brick barn building with a cross gabled, C-shaped, pitched, slate tiled roof, with ridge tiles. Velux windows are located along the western roof elevation. Several of the slate roof tiles are raised and some of the mortar beneath the ridge tiles is missing allowing potential internal access and suitable roosting features for crevice dwelling bats. The northern elevation of the building has numerous gaps in the brickwork; it is likely that these are part of the original building design to provide ventilation and access for birds. However, these gaps will allow bats access to the internal loft void. There are also gaps and crevices behind stonework which has likely been used to patch up where the brickwork has fallen away on the northern elevation of the building, these cracks and crevices provide suitable habitat for crevice dwelling bats. The windows on the northern and western elevations of the building are in relatively poor condition. On the northern elevation they have been boarded over with timber panels, however, the panels are not well sealed against the brickwork and gaps large enough to allow internal access for void dwelling bats are present. The windows on the eastern elevation of	Evidence of roosting bats in the form of scattered butterfly wings and droppings was recorded during the internal building inspection. It is considered highly likely that void dwelling species including brown long-eared bats would roost within the building due to the presence of a large, open roof void. The ivy cladding, structural cracks and numerous gaps in the external walls provide abundant habitat for crevice dwelling bats. It is therefore considered that the building has high potential to support roosting bats.	

Building Number	Building Description (External & Internal)	Bat Roost Potential of the Building	Photograph
	the building have been bricked over and are well sealed. A large structural crack on the north western corner of the building and dense ivy cladding on the south western corner of the building provides suitable roosting habitat for crevice dwelling bats. The southern and western elevations of the building viewed from within the farmyard were found to have numerous openings from open windows and doors allowing access into the roof void, and a large structural crack is located on the southern elevation of the building providing suitable habitat for crevice dwelling bats. An open lean to with a monopitch corrugated roof is located on the southern elevation of the building. The roof on the southern elevation of the building was found to be in poor condition with several missing and lifted tiles allowing internal access into the loft space for void dwelling bats. <i>Internal</i> - The roof was found to be unlined with timber beams, rafters and purlins in moderate to poor condition with evidence of rot on some timbers and many gaps in the roof tiles allowing small amounts of light into the loft void. The first floor of the building has a large open loft void which provides abundant favourable habitat for void dwelling species. Some farm machinery and straw bales are stored within the void but they do not obstruct potential flying areas. A full search of the entire loft void, particularly the longer southern elevation, was not possible due to damp floorboards, however, a search of the void in the western elevation revealed the presence of numerous bat dropping and feeding remains in the form of butterfly wings. It is considered highly likely that the building is used by roosting brown long-eared bats.		

Building Number	Building Description (External & Internal)	Bat Roost Potential of the Building	Photograph
14	<i>External</i> - A traditional, two storey red brick barn building with a gabled, pitched, slate tiled roof, with ridge tiles. Some of the slate roofing tiles were found to be missing and others were raised at the time of survey, with mortar missing from beneath some of the ridge tiles, thus offering suitable habitat for crevice dwelling bats. The timber windows and door on the western elevation were found to be well sealed. The northern side of the building is not sealed with door or windows and is therefore open at all times allowing internal access for bats. <i>Internal</i> – The roof was found to be unlined and supported by timber beams and rafters showing signs of rot in some places. The first floor of the building had a large open loft void, however, this was not fully accessible to complete a thorough internal inspection as many of the floorboards were damp and rotten. Observation of the space through the loft hatch highlighted several areas of the roof where there were gaps in the roof tiles which would allow bats to access the internal space.	Evidence of roosting bats in the form of scattered butterfly wings and droppings was recorded during the internal building inspection. It is considered highly likely that void dwelling species including brown long-eared bats would roost within the building due to the presence of a large, open roof void. The ivy cladding, structural cracks and numerous gaps in the external walls provide abundant habitat for crevice dwelling bats. It is therefore considered that the building has high potential to support roosting bats.	

Building Number	Building Description (External & Internal)	Bat Roost Potential of the Building	Photograph
15	<i>External</i> - A traditional, two storey, residential, red brick farm building with a gabled, pitched, slate tiled roof with ridge tiles. There is a flat roofed annex on the western elevation and a two storey extension with a pitched tiled roof located on the south western elevation of the building. The white framed PVC windows appear well sealed. There are some small gaps beneath the timber barge boards which have the potential to provide roosting habitat for crevice dwelling bats.	Internal access to the building was not possible at the time of survey, however the building has several small cracks and crevices along the barge boards that may provide roosting habitat for crevice dwelling bats. It is therefore considered that the building has moderate to high potential to support roosting bats.	

Appendix F - Information Sheet for Contractors on Bats

Legislation Covering UK Bat Species

All UK Bat species are protected by European and UK law, in practical terms this means it is an offence to;

- Deliberately capture, injure or kill a bat
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time)
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat
- Intentionally or recklessly obstruct access to a bat roost

Penalties on conviction: the maximum fine is £5,000 per incident or per bat (some roosts contain several hundred bats), up to six months in prison, and forfeiture of items used to commit the offence, e.g. vehicles, plant, machinery.

Defenses include:

1. Tending/caring for a bat solely for the purpose of restoring it to health and subsequent release
2. Mercy killing where there is no reasonable hope of recovery (provided that person did not cause the injury in the first place – in which case the illegal act has already taken place).



Where bats can be found:

- Free hanging from ceilings/pipes,
- Under barge boards,
- In cavity walls,
- Under roof coverings,
- Between beams,
- In cracks in stone or concrete,
- Behind peeling paint/wall coverings,
- In holes in walls or pipes,
- Gaps behind window frames, door frames, lintels,
- Behind ivy-cladding,
- In trees (cracks, holes, ivy cladding).



Signs to Look for:

Live or Dead Bats – these can be found in various places in buildings or within trees.

Bat Droppings – the presence of droppings indicate a bat roost and can be found in all the places mentioned above and on the ground beneath these features. Bat droppings look like mouse droppings but will crumble between your fingers (they are dry and made entirely of insects).

Procedure if bats are found:

If you find a bat or suspect bats to be present you must **stop works immediately** and contact **the project manager**. Contractors should avoid handling bats as a very small number of bats in the UK have been identified as carrying a rabies virus called European Bat Lyssavirus (EBLV). If handling is absolutely essential to move bats away from harm, gloves must be worn.

If bat is in imminent danger

Stop works - - - - - > Gloves on - - - - - > place bat in a box/safe place - - - - - > Call Bowland Ecology (Tel. 01200 446777)

Bat is not in immediate danger

Stop works - - - - - > Call Bowland Ecology (Tel. 01200 446777)

Appendix G - Information Sheet for Contractors on Great Crested Newts

Legislation Covering Great Crested Newts

Great crested newts are protected by European and UK law, in practical terms this means it is an offence to;

- Deliberately capture, injure or kill a GCN
- Deliberately disturb a GCN
- Deliberately take or destroy GCN eggs
- Damage or destroy a breeding site or resting place used by a GCN

Penalties on conviction: the maximum fine is £5,000, up to six months in prison, per offence and forfeiture of items used to commit the offence, e.g. vehicles, plant, machinery.

Defences include:

3. Tending/caring for a GCN solely for the purpose of restoring it to health and subsequent release
4. Mercy killing where there is no reasonable hope of recovery (provided that person did not cause the injury in the first place – in which case the illegal act has already taken place).

Terrestrial phase



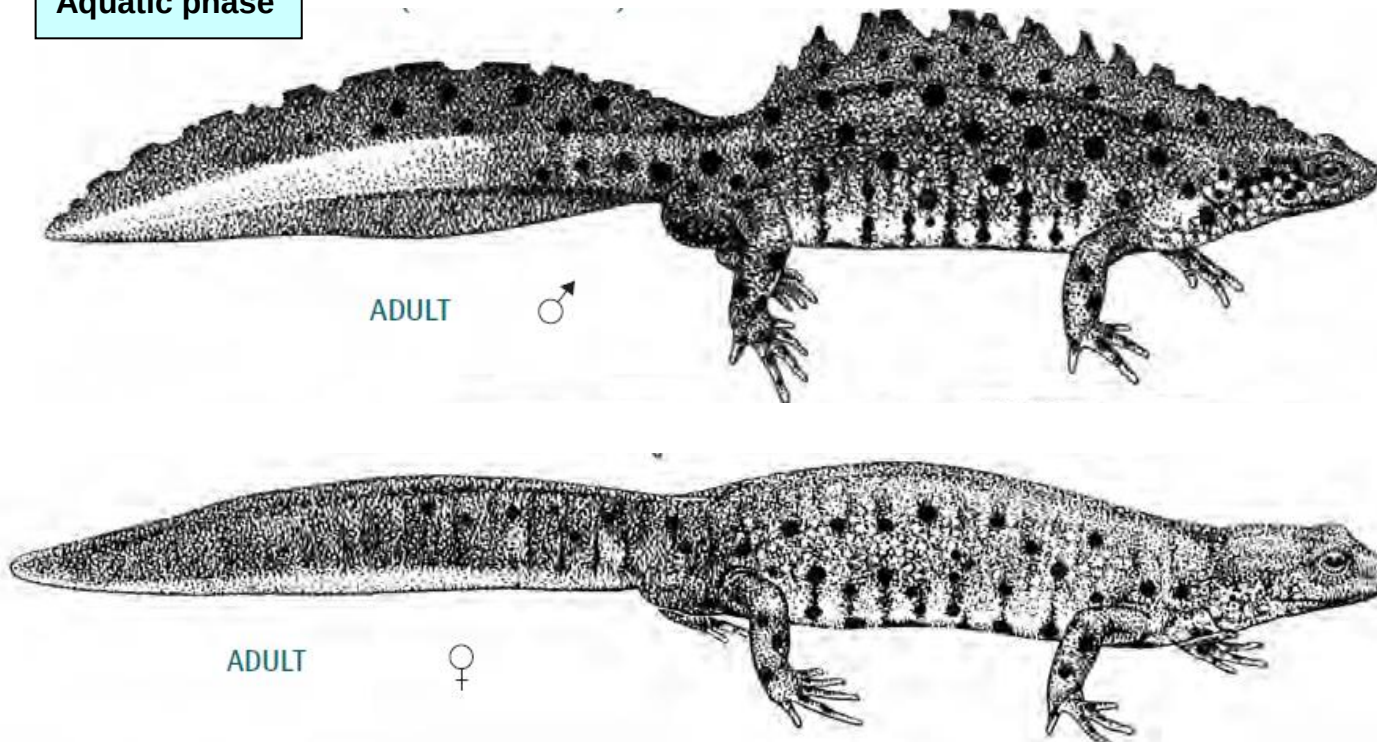
Orange belly
with black spots

GCN spend most of their time on land, returning to ponds in the spring to breed. They can be found in:

- Ponds, including field ponds, garden ponds and ditches
- Rock/log piles
- Dry stone walls,
- Debris, such as pallets, sleepers etc.,
- Root systems of trees, scrub and hedgerows
- Rough/tussocky grassland

Crest

Aquatic phase



Procedure if GCN are found:

If you find a GCN or suspect GCN to be present you must **stop works immediately** and contact **the project manager**. Contractors should avoid handling GCN. If handling is essential to move GCN away from harm, dampened gloves must be worn or hands must be dampened.

If GCN is in imminent danger

Stop works - - - - - > put on dampened gloves/dampen hands - - - - - > place GCN in a box/safe place, ideally with some damp vegetation - - - - -
 - - - > Call Bowland Ecology (Tel. 01200 446777) ***Always wash hands after handling due to GCN skin toxins***

GCN is not in immediate danger

Stop works - - - - - > Call Bowland Ecology (Tel. 01200 446777)

Appendix H - Suitable Native Species for use in Planting Schemes

Scientific name	Common Name	Scientific name	Common Name
Large trees		Large shrubs	
<i>Alnus glutinosa</i>	Alder	<i>Cornus sanguinea</i>	Dogwood
<i>Betula pendula</i>	Silver birch	<i>Euonymus europaeus</i>	Spindle
<i>Carpinus betulus</i>	Hornbeam	<i>Hippophae rhamnoides</i>	Sea buckthorn
<i>Fagus sylvatica</i>	Beech	<i>Juniperus communis</i>	Juniper
<i>Fraxinus excelsior</i>	Ash	<i>Ligustrum vulgare</i>	Wild privet
<i>Ilex aquifolium</i>	Holly	<i>Rhamnus cathartica</i>	Buckthorn
<i>Pinus sylvestris</i>	Scots pine	<i>Rosa caesia</i>	Hairy dog rose
<i>Populus nigra</i>	Black poplar	<i>Rosa canina</i>	Dog rose
<i>Quercus petraea</i>	Sessile oak	<i>Rosa micrantha</i>	Small-flowered sweet briar
<i>Quercus robur</i>	English oak	<i>Rosa stylosa</i>	Short-styled field rose
<i>Salix alba</i>	White willow	<i>Rosa tomentosa</i>	Harsh downy rose
<i>Salix fragilis</i>	Crack willow	<i>Salix myrsinifolia</i>	Dark-leaved willow
<i>Tilia cordata</i>	Small leaved lime	<i>Salix purpurea</i>	Purple willow
<i>Tilia platyphyllos</i>	Large-leaved lime	<i>Salix aurita</i>	Eared willow
<i>Ulmus glabra</i>	Wych elm	<i>Viburnum opulus</i>	Guelder rose
<i>Ulmus minor</i>	Small-leaved elm	<i>Viburnum lantana</i>	Wayfaring tree
<i>Ulmus procera</i>	English elm		
Medium trees		Medium shrubs	
<i>Betula pubescens</i>	Downy birch	<i>Cytisus scoparius</i>	Broom
<i>Crataegus monogyna</i>	Hawthorn	<i>Rosa agrestis</i>	Small-leaved sweet briar
<i>Populus tremula</i>	Aspen	<i>Rosa arvensis</i>	Field rose
<i>Prunus avium</i>	Wild cherry	<i>Rosa mollis</i>	Soft downy rose
<i>Prunus padus</i>	Bird cherry	<i>Rosa rubiginosa</i>	Sweet briar
<i>Salix caprea</i>	Goat willow	<i>Rosa sherardii</i>	Sherard's downy rose
<i>Salix pentandra</i>	Bay willow	<i>Sorbus anglica</i>	English whitebeam
<i>Salix triandra</i>	Almond willow	<i>Ulex europaeus</i>	Gorse
<i>Sorbus aria</i>	Whitebeam	<i>Ulex gallii</i>	Western gorse
<i>Sorbus aucuparia</i>	Rowan		
<i>Sorbus domestica</i>	Wild service tree		
<i>Taxus baccata</i>	Yew		
Small trees		Small shrubs	
<i>Acer campestre</i>	Field maple	<i>Rosa pimpinellifolia</i>	Burnet rose
<i>Salix reticulata</i>	Net-leaved willow	<i>Ruscus aculeatus</i>	Butchers broom
<i>Buxus sempervirens</i>	Box	<i>Salix herbacea</i>	Dwarf willow
<i>Corylus avellana</i>	Hazel	<i>Salix lanata</i>	Woolly willow
<i>Crataegus laevigata</i>	Midland hawthorn	<i>Salix lapponum</i>	Downy willow
<i>Malus sylvestris</i>	Crab apple	<i>Salix myrsinites</i>	Whortle-leaved willow
<i>Prunus spinosa</i>	Blackthorn		
<i>Pyrus cordata</i>	Plymouth pear		
<i>Frangula alnus</i>	Alder buckthorn		
<i>Salix cinerea</i>	Grey willow		
<i>Salix viminalis</i>	Osier		
<i>Sambucus nigra</i>	Elder		

Appendix I - Information Sheet for Contractors on Reptiles

There are six species of native reptile in the UK, with four species being widespread; slow worm, common lizard, adder and grass snake. Their identifying features are briefed below. Active from March to September-October, they hibernate during winter, often in brash piles, log piles etc.



Slow worm (*Anguis fragilis*)

Up to 50cm | Leg-less lizard | Shiny | Golden brown to grey in colour



Common lizard (*Zootoca vivipara*)

Up to 15cm | Generally brown but colour varies | Scaly skin



Adder (*Vipera berus*)

Venomous – no not handle | Dark zig-zag down back | V or X on head | Grey to brown in colour



Grass snake (*Natrix natrix*)

Approximately 1m | Grey/green in colour | Yellow collar | Black bars on flanks

Legislation and responsibilities:

The four widespread reptiles shown overleaf are protected by law, under the Wildlife & Countryside Act (1981) as amended, S.9(1) (part); S9(5). It is an **offense** to intentionally kill or injure any widespread reptile species

Procedure if reptiles are found:

If you find a reptile, **stop works immediately** and use the identification guide overleaf.

All species except adder: carefully move reptile into a cardboard box (avoid warming the reptile in your hands if it is in torpor) → move to new hibernacula and place inside, away from the edges, where it may get too cold → inform Bowland Ecology (Tel: 01200 446 777) → keep record of all reptiles moved

If an adder is found → stop works → do not attempt to move or handle the adder → contact Bowland Ecology (Tel: 01200 446 777) for further instruction