Preliminary Ecological Appraisal & Bat Inspection.

Land at Fauld Industrial Estate, Tutbury DE13 9HS

May 2017

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Notice to readers

This report has been prepared by Absolute Ecology with all reasonable skill, care and diligence, within the terms of the contract with the client. The actions of the surveyor on site, and during the production of the report were undertaken in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management (www.cieem.org.uk).

The results of the survey and assessment work undertaken by Absolute Ecology are representative at the time of surveying.

Every endeavour has been made to identify the presence of protected species on site, where this falls within the agreed scope of works.

The flora and fauna detailed within this report are those noted during the field survey and from anecdotal evidence. It should not be viewed as a complete list of flora and fauna species that may frequent or exist on site at other times of the year.

Up to date standard methodologies have been used, which are accepted by Natural England and other statutory conservation bodies. No responsibility will be accepted where these methodologies fail to identify all species on-site.

Absolute Ecology cannot take responsibility where Government, national bodies or industry subsequently modify standards.

Absolute Ecology cannot accept responsibility for data collected from third parties.

Reference to sections or particular paragraphs of this document taken out of context may lead to misrepresentation.

Non-technical summary

Absolute Ecology LLP were commissioned to undertake an Preliminary Ecological & Bat Appraisal of building & land at Fauld Industrial Estate, Tutbury DE13 9HS Grid reference SK 19197 28671. The Preliminary Ecological Appraisal and bat inspection was undertaken 02/05/2017 by an experienced and licensed bat ecologist who is a full member of the Chartered Institute of Ecology & Environmental Management (CIEEM).

The site comprises of offices which are currently in use and a area of short improved grassland, with young scattering of trees and bare ground. Much of the remainder of the site consists of hard standing with no flora.

Nesting birds may be present within the building or trees. If the building is to be re/developed or trees removed theses are planned during the months of March to September, inclusive, a prior check for nesting birds should be undertaken by an ecologist. Any active nests that are found must not be moved until fledglings have dispersed. Recommendations are given to provide a variety of bird nesting opportunities (e.g. bird boxes) within the site.

During the inspection of building 1, 2, 3, 4 & 5 constraints to the inspection was identified particularly, between the roofing tiles and the internal roofing boarding within buildings, Due to the identified constraints, it was not possible to conclude whether bats are present or absent also given the surrounding habitat comprises of woodlands, streams and other linear features associated with bats. It would therefore be necessary for at least two activity surveys to be carried out, one dusk and one dawn, conforming to the Bat Conservation Trust Best Practice 3rd edition 2016 These should be conducted within the appropriate season of May to September (May to August being optimal).

Contents

1.0 Introduction

Background

1.1 Absolute Ecology LLP was commissioned to undertake a Preliminary Ecological Assessment & Bat Inspection of building & land at Fauld Industrial Estate, Tutbury DE13 9HS Grid reference SK 19197 28671

1.2 It is understood the site will be subject to re/development for commercial properties.

1.3 The Assessment was undertaken on the 02/05/2017 by Matthew James Haydock an experienced ecologist who is a full member of the Chartered Institute of Ecology & Environmental Management (CIEEM) whom has been involved in many projects including designing and undertaking ecological habitat surveys and site nature conservation evaluations; writing and implementing site management plans; acting in an advisory capacity to provide recommendations for ecological protection, enhancement and mitigation measures; protected species surveys under Natural England licence for survey and development; undertaking ecological impact assessment, appropriate assessment. Matthew has a National Diploma in ecology and Landscape studies and holds higher National Diploma in Environmental Management. Matthew also holds a Natural England Bat Survey Class Licence CL18, Registration Number CLS01637. Matthew is an experienced bat surveyor with competency in activity surveys, dawn and dusk bat roost assessments, daytime surveys for bat field signs, assessments of trees as potential bat roosts and the production of reports providing advice on best practice, mitigation and compensation works relating to bats as may be required. Matthew holds a Natural England and Countryside Council for Wales licence, since 1997, to disturb bats for the purposes of science and education or conservation and has held Development Licences to permit development works affecting bats. Matthew has been an active bat group worker with the Staffordshire Bat Group since 1997, conducting various surveys throughout Staffordshire and Derbyshire. He also works alongside the Bat Conservation Trust with various projects such as the National Bat Monitoring Project, and is now a corporate member of the Bat Conservation Trust.

1.4 The scope of this appraisal has been determined in line with the proportional approach to ecological survey, assessment and subsequent recommendations for avoidance and mitigation of impacts, which is encouraged in the emerging 'BS 42020: Biodiversity – Code of practice for planning and development'. This report has been prepared with du consideration for various best-practice guidance and methodologies including those of the Chartered Institute of Ecology and Environmental Management (CIEEM (2012)1 and the emerging BS 42020.

1.5 The objective of this report is to provide the client with information on any known or potential protected or rare species that may be using the site, and to outline recommendations on how to proceed with the works in a legal and ecologically sensitive manner.

1.6 Unless the client indicates to the contrary, information on the species found to be present on the site will be passed to the county biological records centre to update records held for the area.

Site Description

1.7 The site is of hardstanding, individual young to semi-mature trees, improved grassland, with office building. The immediate surrounding area consists mainly of residential properties, commercial properties and agricultural land.

Figure 1: Showing site location indicated by red boundary line

2.0 Methodology

Desk Study

2.1 In order to compile background information on the site and immediate surroundings the Staffordshire Ecological Record (SER) & Derbyshire Biological Record Centre was contacted.

2.2 Information requested was as follows:-

- Records of protected species within the 2 km of the site.
- Records of rare or notable species within the 2 km of the site.
- Non-statutory site designations on or within 2 km of the site.

2.3 Additionally, MAGIC (Multi-Agency Geographic Information for the Countryside, 2010) was used to establish whether any of the following were present:-

- Statutory site designations on or within 2 km of the site.
- Statutory sites designated for bats within 5 km of the site.

Habitat Survey

2.4 The site was visited on the 2nd May 2017 and was surveyed in accordance with the Joint Nature Conservation Committee (JNCC) Phase I Habitat Survey methodology (JNCC, 2007). This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential that might warrant further study.

2.5 The observable higher plant species in each habitat type within the site, and their abundance, were recorded using the DAFOR scale:

D Dominant

A Abundant

F Frequent

O Occasional

R Rare

Fauna

2.6 Habitats present on the site were searched for obvious signs of faunal activity, *e.g.* presence of badger setts, mammal tracks or herpetofauna under refugia. Any buildings and mature trees on site were visually examined from the ground to identify features with the potential to support roosting bats.

2.7 All bat species resident in the UK have been recorded using trees, buildings and built structures, e.g. bridges, at some time during the year (Bat Conservation Trust, 2016 3rd Edition). The buildings were inspected externally and internally, where access was available, for signs of bat activity. These typically include bat presence, droppings, feeding remains, urine stains and grease marks. Notes were made on the following in accordance with the guidelines published by the BCT (Bat Conservation Trust, 2016 3rd Edition) for the surveying of buildings and built structures:

- Type and age of building
- Type of construction
- Presence of potential roost features, e.g. hanging tiles, raised tiles, roof voids
- Information or evidence of work having been undertaken that could affect use of the structure by bats
- Amount and location of evidence of bats such as presence of live or dead bats, droppings, grease marks, urine stains, characteristic smell of bats.

2.8 In the absence of any evidence, trees and structures have been assigned a rating of suitability from negligible to high potential for supporting bats. The rating is based on the location of the structure in the surrounding landscape, the number and type of features suitable for use by bats and the surveyor's experience. For example, a structure with a high level of regular disturbance and few opportunities for access by bats that is in a highly urbanised area with few or no mature trees, parkland, woodland or wetland would have negligible potential. Conversely, a pre-20th-century or early 20th-century building with many features suitable for use by bats close to good foraging habitat would have high potential.

2.9 Survey methodology also utilized a number of passive monitoring techniques including an infra-red night-vision camera (XLT Bushnell Trophy CamTM: USA) to qualitatively record any evidence of bat activity inside the building during surveying periods. Further equipment included a NVMT-12x24 night vision scope (Yukon: USA), a SeeSnake 2 video endoscope, a GPS eTrex Venture HC, a hand net and a CB2 Clubman Deluxe high-power lamp with filter.

Valuation of Ecological Features

2.10 The value of areas of habitat and plant communities has been measured against published criteria where available. Biodiversity Action Plans (BAPs) have been searched to identify whether action has been taken to protect all areas of a particular habitat and to identify current factors causing loss and decline of particular habitats. The presence of injurious and legally controlled weeds has also been taken into account.

2.11 When assigning a level of value to a species, its distribution and status (including a consideration of trends based on available historic records) has been taken into account. Other factors influencing the value of a species are: legal protection, rarity and Species Action Plans (SAPs). Guidance, where it is available, for the identification of populations of sufficient size for them to be considered of national or international importance has also been taken into account.

Survey Constraints

2.12 Data Search

Desk study data provides information on recorded species in the area and can be helpful for targeting survey. However, it is possible that protected species that have not been identified within the data search may occur on or adjacent to the site.

2.13 Field survey

Habitats within 30 m of the site boundary were inspected as far as access allowed. Ponds up to 500m from the site were viewed where there was public access.

The workshop could not be fully inspected to give confidence if bats are present or absence from the site.

Fauna species present may not always leave field signs and in addition, species may take up residence on site subsequent to the survey. If no development takes place within 12 months of this survey report, the findings should be reviewed and may need updating, and a full survey should be repeated within three years

Nomenclature

2.14 The English name only of flora and fauna species is given in the main text of this report; however, scientific names are used for invertebrates where no English name is available. Vascular plants and charophytes follow the nomenclature of The Botanical Society for the British Isles (BSBI) 2007 database (BSBI, 2011) with all other flora and fauna following the Nameserver facility of the National Biodiversity Network Species Dictionary (http://www.nhm.ac.uk/nbn/), which is managed by the Natural History Museum.

3.0 Legislation

3.1 The United Kingdom Biodiversity Action Plan (BAP) 1994 sets out a strategy for implementing the Convention on Biological Diversity, which was signed by the United Kingdom at the Rio de Janeiro Earth Summit in 1992. The published report contains action plans for the United Kingdom's most threatened species and habitat plans for the most vulnerable areas.

3.2 The Local BAP sets out the county's part in the UK biodiversity planning process, in the form of local habitat and species action plans. Local BAPs are intended to focus resources, to conserve and enhance biodiversity, by taking account of national and local priorities.

3.3 Schedule 1 Part 1 of The Wildlife and Countryside Act 1981 (and amendments) – this lists birds protected by special penalties at all times. It prohibits intentional killing/injuring, taking, possessing, disturbing and selling (including parts and derivatives, eggs, nests, *etc.* as applicable) as well as damaging, destroying or disturbing nests in current use or dependent young, *etc.*

3.4 Schedule 5 of The Wildlife and Countryside Act 1981 (and amendments) – this prohibits deliberate killing, injuring, taking, possessing, disturbing and selling (including parts and derivatives) as well as damaging, destroying or obstructing any structure or place of refuge of listed fauna, such as Dormouse, Otter and bat species.

3.5 The Conservation of Habitats and Species Regulations 2010, consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994, in respect of England and Wales. It is illegal to kill, disturb, destroy eggs, breeding sites or resting places, to pick, collect, take cuttings, uproot or destroy in the wild as well as keep, transport, sell/exchange and offer for sale/exchange species listed.

3.6 The Countryside and Rights of Way Act 2000 – this increases protection given by The Wildlife and Countryside Act 1981 (and amendments). The offence to intentionally damage any structure or place that a wild animal listed in Schedule 5 of the Act uses for shelter or protection or deliberately disturbing any such animal while in such a structure or place is extended so that the offence also covers reckless damage or disturbance. The CRoW Act also places a duty on Ministers and Government Departments to have regard for the purpose of conserving biological diversity in accordance with the Convention on Biological Diversity.

3.7 The Protection of Badgers Act 1992 - this Act makes it illegal to wilfully kill, injure or take any Badger, or attempt to do so and it is an offence to intentionally or recklessly damage, destroy or obstruct access to any part of a Badger sett.

3.8 The Natural Environment and Rural Communities Act, 2006 - as well as creating Natural England, this act gives all public authorities the duty to have regard for conserving biodiversity within the commission of their duties. This includes a duty to restore and enhance as well as maintain biodiversity. The act also strengthens protection for Sites of Special Scientific Interest (SSSI) and makes authorities liable for allowing damage to such sites or their features.

4.0 Results

Desk Study

4.1 There are no statutory designated sites within 2 km of the site.

4.2 There are no statutory designated sites for bats within 5 km of the site.

4.3 There are two non-statutory sites within 2 km of the site.

- SK174280 Hanbury Hill (road verge) Local Wildlife Site
- SK174282 Hanbury Hill Retained BAS
- SK177283 Hanbury Mine Local Wildlife Site (SBI)
- SK182272 Capertition Wood & Hare Holes Rough Local Wildlife Site

4.4 SER provided the following records for protected and notable species within 2 km of the site boundary:

Variety of bird species such as field fare, Barn owl, Red wing & Green Sandpiper.

Other Mammals – Badgers, Otter.

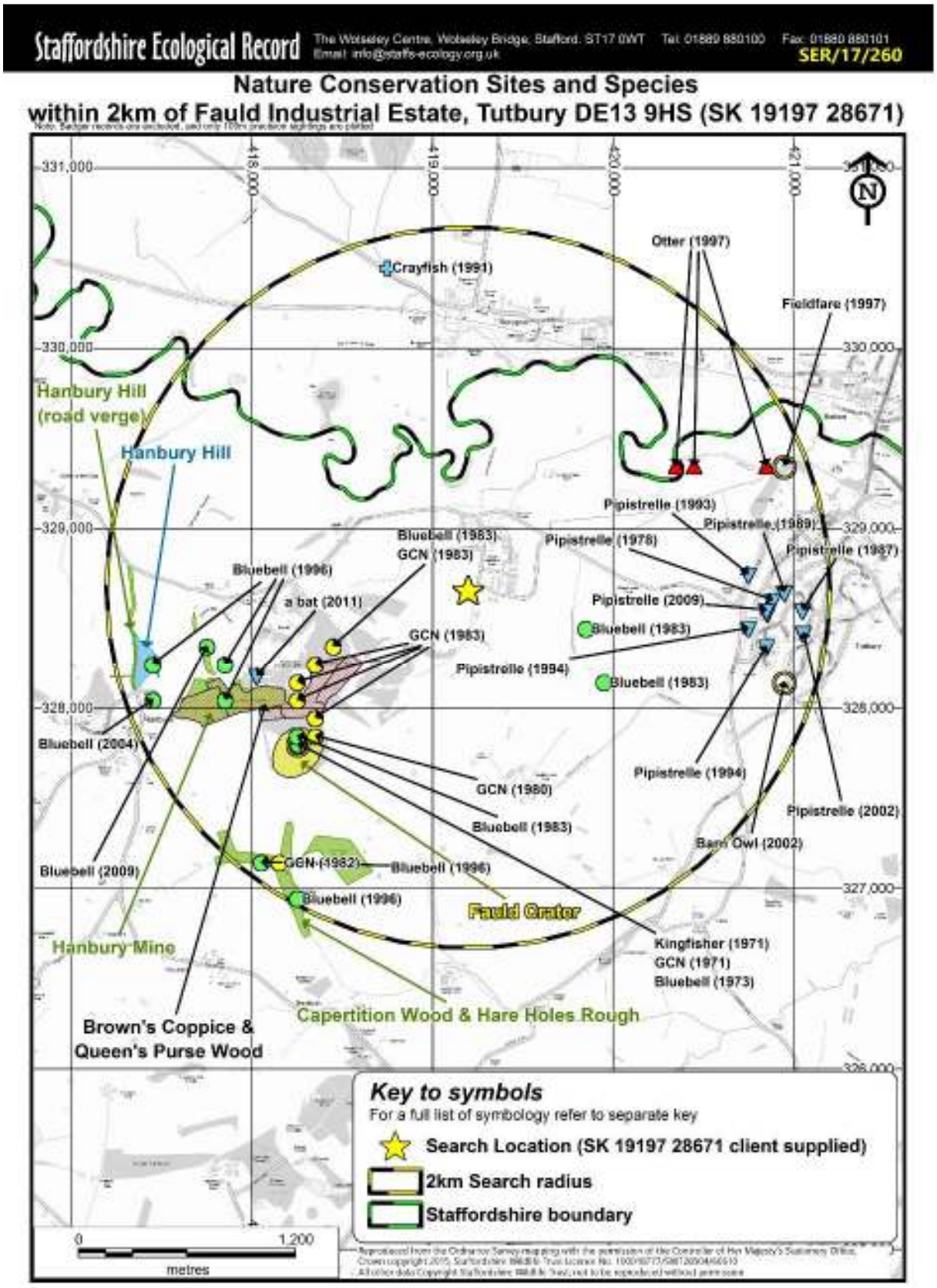
Bats- Common Pipistrelle, Soprano Pipistrelle, Natterer's Bat, Noctule Bat,

Reptiles – Grass Snake

Amphibian - Great Crested Newts,

Pages 12 & 13 showing protected species and protected sites mapping

Figure 1: Showing location of protected species & sites



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A legend to the map showing Nature Conservation Sites and Species

Introduction

These colours are used on the site alert mapping within the SWT GIS, but SER cannot guarantee the same colours are used in any other mapping system, particularly those based on ArcView.

Statutory Designations from Natural England's web-site

- National Nature Reserves
- Sites of Special Scientific Interest
- Local Nature Reserves
- NNR (boundary not available owing to OS restrictions)
- SSSI (boundary not available owing to OS restrictions)
- LNR (boundary not available owing to OS restrictions)

Non-statutory Designations from the Staffordshire Grading System (1995 onwards)

- Site of Biological Importance (ex Grade 1 SBI) equivalent to "Local Wildlife Site"
- Biodiversity Alert Site (ex Grade 2 SBI)
- Proposed/potential Site of Biological Importance

Geological Sites

- Regionally Important Geological/geomorphological Site (= Local Geological Site)

Staffordshire Wildlife Trust Sites

- SWT Nature Reserves

Other Nature Reserves

- Royal Society for the Protection of Birds

Ancient Woodland Inventory

- Ancient & Semi-natural Woodland
- Ancient Replanted Woodland

Species Information

- Mammals excluding those listed below
- Otter (Lutra lutra)
- Badger (Meles meles) - not normally supplied
- Water Vole (Arvicola terrestris)
- All bat species
- All bird species
- Any other protected species (precise to 100m)
- All Protected Species Records (precise to 1km)
- Amphibians and reptiles excluding those below
- Great Crested Newt (Triturus cristatus)
- Native Crayfish (Austropotamobius pallipes)
- Flowering plants except those below
- Bluebell (Hyacinthoides non-scripta)
- Butterflies and Moths
- BAP Species Records (precise to 100m)
- BAP Species Records (precise to 1km)

Notes:

The Local Nature Reserve and other nature reserve boundaries can overlay the current grading when both layers are actively visible

Where there are multiple species records for the same grid reference the dot for one species may obscure the dots for other species - all species records will be displayed in the accompanying spreadsheet

Not all the above categories may be present on the accompanying map

Version 2.0 July 2011

Habitats

4.5 The following habitats or vegetation types were identified on the site during the course of the habitat survey.

- Buildings
- Grassland
- Hard Standing
- Tree

Buildings

4.6 Internal/External

Table 1: Building inspection results

Building	Description	Evidence found or potential for bats
B1 & B2 External & Internal	This is a single storey buildings which is currently used as an rest area and storage. The structure of the building consists of brick which upon inspection was found that the brick work showed little in the way of cracks and crevices which bats could utilize, the roofing of the building measures 14 meters by 5 meters and the gable ends facing north to south, the roofing tiles did show some raised tiles which bats could climb under to gain access to the internal area of the buildings. The windows and doors were tightly fitted showing unlikely access for bats during the inspection no bat evidence was found though external environments can remove such evidence No internal inspection was conducted on B1 due to access. B2 was inspected for bat evidence and potential roosting opportunity the roofing height was approx. 2.5 meters from the floor to the roof which is sufficient for pre-flight emergence, the room was dark and dry with little noise the roofing contained wooden panels which constrained the inspection as between the roofing tiles and panelling no	No evidence of bats found, although access for inspection is limited due to the structure of the roof. The building is assessed to have **moderate potential** for roosting bats.

	inspection could be made. The roofing also had areas of cob webbing showing little human disturbance the building did show some roosting opportunities, though the inspection did not find any evidence such as dropping though given the constraints identified bats cannot be ruled out at this point.	
B3	This is a single storey building which is currently used as an office. The structure of the building consists of brick which upon inspection was found that the brick work showed little in the way of cracks and crevices which bats could utilize, the roofing of the building measures 10 meters by 10 meters and the gable ends facing north, east, south & west, the roofing tiles did show some raised tiles which bats could climb under to gain access to the internal area of the buildings. The windows and doors were tightly fitted showing unlikely access for bats during the inspection no bat evidence was found though external environments can remove such evidence As with B2, B3 was also inspected for bat evidence and potential roosting opportunity the roofing height was approx. 2.5 meters from the floor to the roof which is sufficient for pre-flight emergence, the room was dark and dry with little noise the roofing contained wooden panels which constrained the inspection as between the roofing tiles and panelling no inspection could be made. The roofing also had areas of cob webbing showing little human disturbance the building did show some roosting opportunities, though the inspection did not find any evidence such as dropping though given the constraints identified bats cannot be	No evidence of bats found, although access for inspection is limited due to the structure of the roof. The building is assessed to have **moderate potential** for roosting bats.
B4	This is also single storey building which is currently used as storage. The structure of the building consists of brick which upon inspection was found that the brick work showed little in the way of cracks and crevices which bats could utilize, the roofing of the building measures 5 meters by 5 meters and the	No evidence of bats found, although access for inspection is limited due to the structure of the roof. The building is assessed to have **moderate potential** for roosting bats.

	gable ends facing north to south the roofing tiles did show some raised tiles which bats could climb under to gain access to the internal area of the buildings. The windows and doors were tightly fitted showing unlikely access for bats during the inspection no bat evidence was found though external environments can remove such evidence No internal Access.	
B5 & B6	The two buildings are also single storey building which is currently derelict and un used. The structure of the building consists of brick which upon inspection was found that the brick work showed little in the way of cracks and crevices for B6 though B5 showed crevices wirthin the brick work which bats could utilize, the roofing of the buildings measures approx. 13 meters by 5 meters and the gable ends facing north to south the roofing which consists of asbestos and concrete flat roof (B6) showed little opportunity in the way of egress points which bats could climb under to gain access to the internal area of the buildings. The windows and doors showed crevices (B5) though (B6) was tightly fitted showing unlikely access for bats during the inspection no bat evidence was found though external environments can remove such evidence. The internal inspection of B5 found that the building was divided into small rooms with no roof void, the roofing of the building was boarded preventing and inspection between the asbestos roofing and internal roof boarding, the room was fairly light though dry, though the inspection concentrated on the walling, flooring, doors and windows for evidence of bat activity no bat evidence was found	B5 No evidence of bats found, although access for inspection is limited due to the structure of the roof. The building is assessed to have **Moderate potential** for roosting bats. B6 given the lack of access points into the internal of the building it is high unlikely to be used by bats therefore **Negligible** for roosting bats

Plate 1: Showing B1 building

Plate 2: Showing B1 building crevice potential Bat access point.

Plate 3: Showing B2 building

Plate 4: Showing B1 building crevice potential Bat access point

Plate 5: Showing B2 internal roofing area noticeably wooden panelling constraining inspection

Plate 5: Showing building B3

Plate 6: Showing potential bat access for B3.

Plate 7: Showing roof void within B3

Plat 8: Showing building B4

Plate 9: Showing raised roofing tile which shows potential bat access.

Grassland

4.7 Improved grassland which was found to be Short sward grass area, The field had recently currently grazed by cows. Dominated by perennial ryegrass (Lolium perenne) Abundant, with abundant white

clover (Trifolium repens), frequent daisy (Bellis perennis), Rare, ragwort (Jacobaea vulgaris), occasional dandelion (Taraxacum officinale), occasional broad-leaved dock (Rumex obtusifolius), Occasional rosebay willowherb (Chamerion angustifolium) and occasional nettle (Urtica dioica). The grassland on site was patchy in areas and short sward of (5 cm) from the intense grazing and land management.

Plate 11: Showing improved grassland.

Hardstanding

4.8 Areas of the site was found to be hardstanding which are currently used for car parking, no vegetation was present.

Plate 12: Showing area of hardstanding.

Trees

4.9 The site provided a scattering of young to semi-mature trees such as elder (Sambucus nigra), Sycamore (Acer pseudoplatanus) and a fern tree. during the inspection, none of the trees provided features that would provide suitable roosting features such as rot holes, wood pecker holes, raised bark or splits the inspection of the trees conformed to the Bat Conservation Trust Best Practice 3rd Edition 2016.

Hedgerows

4.10 A short (approx. 130m long) species-poor hedgerow is present along the western boundary. This is heavily dominated by common hawthorn, with occasional elder (Sambucus nigra), and a limited understorey dominated by common nettle.

Plate 13: Showing species poor hedgerow.

Fauna

Bats

4.11 SER & DBRC provided eighteen records of bat species within 2 km of the site. There are buildings on site; the building on site provided a number of access points for bats into possible roof spaces or crevices.

4.12 The site provides some foraging habitat for bat species.

Badgers

4.13 SER & DBRC provided records of Badger within 2 km of the site. No Badger setts were observed on site or within the immediate area. The site itself provides optimal foraging habitat for Badgers.

Dormice

4.14 There are no records of Dormice occurring within 2 km of the site. The potential for the site to support Dormice is low. No significant areas of woodland are evident in the immediate area or on site and it is considered that Dormice are likely to be absent from the site.

Water Voles and Otters

4.15 There are records of Otters occurring within 2 km of the site. There is no water courses on site or within the immediate area or on site and it is considered that Water vole and otters are likely to be absent from the site.

Birds

4.16 Records of Hobby, European Golden Plover, Merlin and Little egret were provided by SER & DBRC. Robin, Blue tit, Song thrush, house sparrow and black bird species were identified during the site survey

4.17 The buildings and trees may provide suitable nesting opportunities for birds.

Reptiles

4.18 SER & DBRC did not provide any records of reptiles. The site is generally unsuitable for reptiles and lacks extensive areas of scrub with open basking areas typically associated with reptiles. The inspection identified no refugia for reptiles to rest under.

Amphibians

4.19 SER & DBRC provided nine records of amphibian species within 2 km of the site all records are noted from the early 80s. The closest record in 900 meters. The site itself provides little in the way of terrestrial habitat to support Great Crested newts or other amphibians. A search was conducted on aerial photos and OS maps to identify any ponds within a 500-meter radius, it is concluded that no ponds were identified in the search area it is therefore likely that GCN and other amphibians are absent from site.

Invertebrates

4.20 SER did not provide any records of protected or notable invertebrate species. The site do not provide much potential for rare invertebrate species although they are expected to support a number of more common species.

5.0 Development Constraints and Recommendations

5.1 The site is the subject of a possible planning application for a commercial development. Ecological constraints and recommendations with regard to any development are discussed below.

5.2 Designated Sites

5.3 There are non-designated statutory sites within 2 km of the site. Given the size of the development and the physical distances between them, and considering the geographical features that also separate them, including residential and commercial properties and roads, it is very unlikely that the proposed development would affect any of these areas.

Habitats & Invasive species

5.4 Botanically, the site itself does not appear to have any rare species and it is not particularly diverse.

5.5 Potential Impacts of Works

5.6 There are existing plans for the site; however, if commercial development is undertaken in the future, potential impacts are likely to include the following.

5.7 The building B1 to B5 on site show potential for use by bats. If bats are present on site, then works to the buildings or demolishment are likely to cause disturbance and/or harm or kill bats if present.

5.8 Loss of the building may affect birds that use the site for breeding by causing a decrease in nesting sites. Loss of these habitats may directly harm nesting birds if carried out during the breeding season (March to September inclusive).

Recommendations

5.9 The following are general recommendations that are likely to be a minimum requirement for any future development of the site.

Bats

5.10 The building shows the potential to support bats and, given the various constraints identified during the inspection, it is considered that further survey needs to be conducted at the main time of year when bats are active and when roosts are established (May to September). The activity surveys should consist of at least two activity surveys, comprising one dusk and one dawn, or a dusk emergence and dawn re-entry survey within one 24-hour period, which is classed as a single survey visit. If bats are identified to be using the building, then further activity surveys may be required to obtain sufficient information for a Natural England Licence application. All surveys will be in accordance with the Bat Conservation Trust Guidelines (Hundt, 2016).

Birds

5.11 Where possible, habitats suitable for nesting and foraging birds should be retained, enhanced or created within any new development.

5.12 Nesting birds may be present, during the bird breeding season (March to September inclusive). If vegetation removal is planned during these months, a prior check for nesting birds should be undertaken by an ecologist. Any active nests that are found must not be moved until fledglings have dispersed.

5.13 It would be of conservation benefit to install a variety of nesting boxes for different bird species within the site in future (buildings and trees where suitable) to enhance the site for nesting birds and encourage bird diversity. Information on bird nesting boxes can be found at http://www.rspb.org.uk/advice/helpingbirds/nestboxes/. Enhancing existing hedgerows or planting new hedgerows and shrubs within any new development can benefit birds if a wide range of native species are used.

Landscaping

5.14 Any landscaping relating to the proposed development should also take into consideration bats and other wildlife, and it is recommended that only native tree and shrub species are planted. In particular, no plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 should be planted during the landscaping of this development. For further details of Schedule 9 plants, visit the Defra website: www.defra.gov.uk/wildlife-pets/non-native.

5.15 Standing trees should be retained where possible, and any new planting should contain native species of trees.

Table 1: List of native tree species

	Species	Planting Time
Native Tree Species	Ash (*Fraxinus excelsior)*	January/February

	Aspen (*Populus tremula)*	January/February
	Field maple (*Acer campestre*)	January/February
	Bird Cherry (*Prunus padus*)	January/February
	English Elm(*Ulmus minor* var *vulgaris*)	January/February
	Oak (*Quercus robur*)	January/February

5.16 Smaller scale plantings that will be included within the landscape planting design should endeavour to resemble niche habitats. For example, native ferns and other plants that thrive in low light (e.g. Ivy, Holly, and a variety of grasses and mosses) can be used. Species should be chosen according to moisture and sunlight availability, but also with regard to their wildlife value. Many grasses will offer cover and breeding places for invertebrates as well as food for some birds. More open but sheltered areas within the development site are particularly suitable for colourful plants that thrive in full sun. These can function as bee and butterfly gardens, supplying a rich source of nectar from spring to autumn. Shrubs such as Buddleia, Broom Cytisus scoparius, Lavender Lavendula sp. and Gorse Ulex europaeus, and herbs such as Willowherb Epilobium sp., Michaelmas Daisy Aster sp., Soapwort, Mullein Verbascum sp. and Thyme Thymus vulgaris all enjoy a sunny position and provide significant nectaring resources for invertebrates.

5.17 The use of climbing plants to enhance the design and aesthetic elements is generally an accepted practice. The process of allowing and encouraging plants to grow on and up walls allows the natural environment to be extended within the site. From an ecological perspective, green walls will provide resting and feeding places for birds, invertebrates and small mammals. Climbers provide nesting habitats for birds such as Wrens, Blackbirds, Song Thrushes and House Sparrows. Species such as Cotoneaster, Ivy, Climbing Roses and Honeysuckles are all important fruit resources for birds. Equally, climbing plants such as Virginia Creeper and Ivy form important habitats for invertebrates. Although native species are more likely to attract wildlife, some exotic species are also effective in this respect. Within the site grounds it may be more productive to use a combination of native and exotic species to maximise the range of annual and perennial, deciduous and evergreen foliage, and flowering, climbing and creeping species. This latter plant type provides a selection of plants suitable for green walls. The aspect of a climbing plant on a wall can have significant ancillary effects, such as insulation and moisture retention. For example, north-facing walls are more suitable for supporting native herbs and a wider range of plants. This is due to the higher moisture regime. Further structural benefits of the space between the wall and the climbing plants include pockets to collect leaf litter and provision of nesting sites, as well as baffles to trap rising warm air.

5.18 Where existing hedgerows are gappy, these should be maintained and augmented by planting native species. Hedgelaying can increase the vigour and longevity of hedgerows, but is a costly management technique and may not be appropriate in highly visible amenity areas. The sensitive use of hand tools can often achieve the same results as hedgelaying. Flailing of hedgerows by tractor-driven machinery is a more cost effective option; however, this can affect both fruiting and flowering of hedges and may affect the long-term vigour of the hedgerow.

Table 2: List of species for two types of hedgerow deemed suitable for these areas, which can be planted for conservation or to provide a thorn-less barrier.

	Species	**Planting Time**
Conservation Hedgerow	Hawthorn (*Corylus avellana*)	January/February
	Blackthorn (*Prunus spinosa*)	January/February
	Field maple (*Acer campestre*)	January/February
	Spindle (*Euonymus europaeus*)	January/February
	Hazel (*Corylus avellana*)	January/February
	Dog rose (*Rosa canina* agg.)	January/February

	Wayfaring tree (*Viburnun lantana*)	January/February
	Oak (*Quercus robur*)	January/February
Thorn-less Hedgerow	Field maple (*Acer campestre*)	January/February
	Common dogwood (*Cornus sanguinea*)	January/February
	Guelder rose (*Viburnum opulus*)	January/February
	Wild privet (*Ligustrum vulgare*)	January/February
	Hornbeam (*Carpinus betulus)*	January/February

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Web addresses for access to full UK legislation and policy text:

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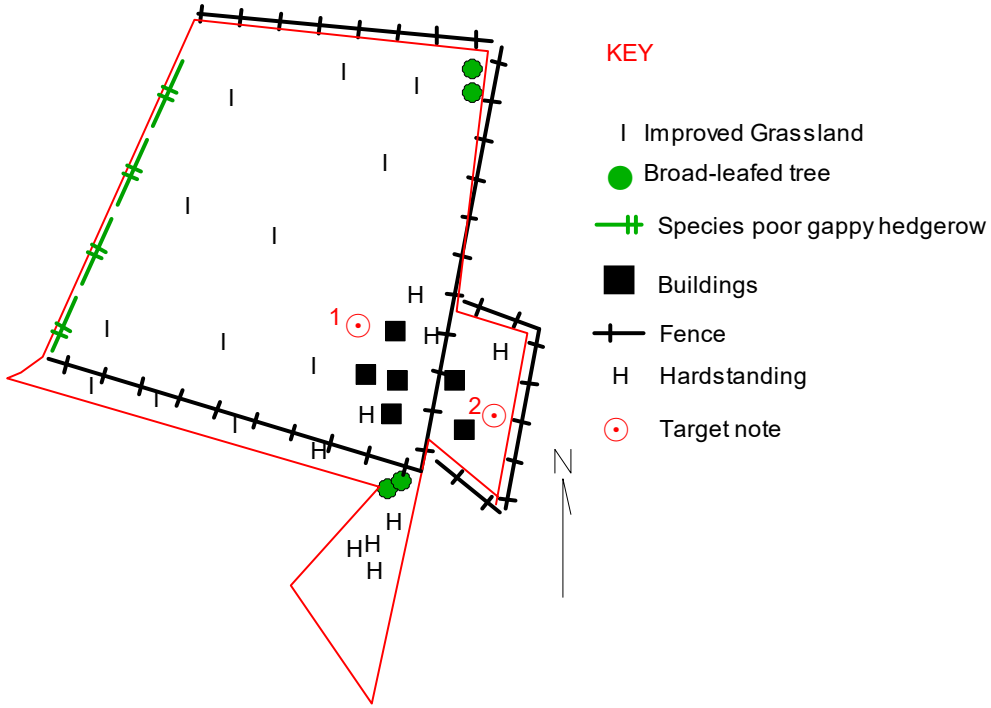
7.0 Plans

Phase I Habitat Survey Map



Target Note 1& 2	Buildings show potential to support roosting bats