

P-2011-00546 Received 16/05/11

## Tutbury, Staffordshire. Ecological Assessment



Report to:

Peveril Homes Ltd Beech Lawn Green Lane Belper DE56 1BY

#### Report prepared by:

ECUS Ltd Endcliffe Holt 343 Fulwood Road Sheffield S10 3B0

February 2010



# ECUS Ltd

Report to:	Peveril Homes Ltd Beech Lawn Green Lane Belper DE56 1BY	
Report Title:	Tutbury – Ecological Asses	ssment
Revision:	Final	
Date:	February 2010	
Report Ref:	2464	
Originated By:	ElChichell	
	Elizabeth Richell Assistant Ecologist	Date: 8 <sup>th</sup> February 2010
Reviewed By:	Holly Smith	
Approved By:	Note fighter free	Date: 8 <sup>th</sup> February 2010

Nick Birkinshaw Principal Ecologist

Date: 10<sup>th</sup> February 2010

Prepared by:

ECUS Ltd. Endcliffe Holt 343 Fulwood Road Sheffield S10 3BQ TEL: 0114 2669292 FAX: 0114 2668243

The report and the site assessments carried out by ECUS on behalf of the client in accordance with the agreed terms of contract and/or written agreement form the agreed Services. The Services were performed by ECUS with the skill and care ordinarily exercised by a reasonable Environmental Consultant at the time the Services were performed. Further, and in particular, the Services were performed by ECUS taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between ECUS and the client.

Other than that expressly contained in the paragraph above, ECUS provides no other representation or warranty whether express or implied, in relation to the services.

This report is produced exclusively for the purposes of the client. ECUS is not aware of any interest of or reliance by any party other than the client in or on the services. Unless expressly provided in writing, ECUS does not authorise, consent or condone any party other than the client relying upon the services provided. Any reliance on the services or any part of the services by any party other than the client is made wholly at that party's own and sole risk and ECUS disclaims any liability to such parties.

This report is based on site conditions, regulatory or other legal provisions, technology or economic conditions at the time of the Service provision. These conditions can change with time and reliance on the findings of the Services under changing conditions should be reviewed.

ECUS accepts no responsibility for the accuracy of third party data used in this report.



### CONTENTS

1. INTRODUCTION	3
<ul> <li>2. METHODOLOGY</li> <li>2.1 Desk Study and Data Consultation</li> <li>2.2 Ecological Walkover Survey</li> <li>2.3 Protected and Key Species Survey</li> <li>2.4 Limitations of Field Survey</li> </ul>	<b>4</b> 4 5 7
3 SURVEY FINDINGS AND EVALUATION	8
3.1 General Site Description	8
3.2 Sites of Nature Conservation Importance	8
3.3 Ecological Walkover Survey	8
Protected Species and Other Species of Nature Conservation Importance	e
	10
3.4 Invasive Plant Species	14
<ul> <li>4. ECOLOGICAL ASSESSMENT &amp; MITIGATION</li></ul>	<b>15</b> 15 15 17
5. REFERENCES	22
APPENDIX 1 - HABITAT MAP	23
APPENDIX 2 – SPECIES LISTS	24



### 1. Introduction

- 1.1.1 ECUS Ltd was commissioned by Peverill Homes Ltd to undertake an ecological assessment of land at Tutbury in Staffordshire (Ordnance Survey Grid Reference SK 412 498).
- 1.1.2 The purpose of the assessment was to carry out an ecological walkover survey and to review the potential for the site to contain, or be used by, species protected under both UK and European nature conservation legislation, namely The Wildlife & Countryside Act (1981) (as amended) and the Habitat Regulations (1994) (as amended).
- 1.1.3 This report details the findings of the survey work and subsequent assessment. Methodologies employed are described including site surveys and evaluation. Recommended mitigation measures and the need for any further survey work are included as appropriate.



### 2. Methodology

#### 2.1 Desk Study and Data Consultation

- 2.1.1 Data consultation was undertaken by ECUS Ltd with Staffordshire Ecological Record (SER) as part of the ecological assessment process, to determine whether any ecological features of note had previously been recorded within 1 km of the site. Data requested included:
  - records of protected species (including badger, bat species and reptile species);
  - records of national or local Biodiversity Action Plan (BAP species);
  - details of any non-statutory sites of ecological interest e.g. Sites of Importance for Nature Conservation (SINC), Local Wildlife Sites (LWS) etc. and,
  - details of any statutory sites of ecological interest e.g. Sites of Special Scientific Interest (SSSI), Special Protection Area (SPA) etc.
- 2.1.2 The MAGIC website www.magic.gov.uk was also consulted for information on statutory and non-statutory designated wildlife sites.
- 2.1.3 Information returned during the consultation process and data obtained from MAGIC is included within the report where appropriate.

#### 2.2 Ecological Walkover Survey

- 2.2.1 The site was surveyed on 19<sup>th</sup> November 2009 by Dr Holly Smith (MIIEM) and Miss Elizabeth Richell (AIEEM) using Phase 1 Habitat survey methodology (JNCC, 2007). The habitats and vegetation types present were recorded, together with an indication of their relative abundance. This survey method aims to characterise habitats and communities present and is not intended to provide a complete list of all species occurring across the site.
- 2.2.2 Plant species recorded were classified according to the subjective method of DAFOR abundance ratings. The standardised terms are as follows:
  - D Dominant
  - A Abundant
  - F Frequent
  - O Occasional
  - R Rare
- 2.2.3 Notable, rare or scarce plant species were highlighted if present. Evidence of protected species or species of nature conservation importance was recorded where present at the time of survey. The information is presented using



target notes (T), locations of which are shown on Figure 1 (Appendix 1). Target notes are included within the text as appropriate and species lists are included in Appendix 2.

- 2.2.4 Invasive plant or animal species listed on Schedule 9 of the Wildlife and Countryside Act (1981) (as amended) were recorded as seen.
- 2.2.5 The value and sensitivity of ecological features was determined based on the guidance given in 'Guidelines on Ecological Impact Assessment' (IEEM, 2006). Individual ecological receptors (habitats and species that could be affected by the development) were assigned levels of importance for nature conservation in one of the following categories:
  - international;
  - UK;
  - national;
  - county;
  - district;
  - local, or
  - within the immediate zone of influence only.
- 2.2.6 For a given receptor, determination of value includes consideration of the size, conservation status and quality of the species or feature.

#### 2.3 Protected and Key Species Survey

2.3.1 All signs of protected species or groups encountered during the survey visit were recorded. This included observations of tracks or other signs of species such as badger, which may be visible at the time of survey. The structure and quality of the habitats present were assessed for their suitability to support animal groups, paying particular attention to detecting signs of occupation by or suitability for protected species. In addition, a note was made of any animals or flora of conservation interest not protected by UK or European legislation.

#### Amphibians

- 2.3.2 All water bodies falling within 250<sup>[1]</sup> m of the site (as shown on an Ordnance Survey map 1:2500 scale<sup>[2]</sup>) were assessed (access permitting) using a Habitat Suitability Index (HSI) (Oldham *et al.*, 2000) for their potential to support great crested newts (GCN) (*Triturus cristatus*). This approach identifies readily observable habitat features in an objective model, which provides an informed view of the value of a site for GCN. Dr Holly Smith and Miss Elizabeth Richell are both licensed great crested newt surveyors.
- 2.3.3 The great crested newt is a habitat specialist and its status in a given waterbody is influenced by the existence of particular features (e.g. fish, heavy shading) and/or the absence of others (e.g. suitable terrestrial habitat within

<sup>&</sup>lt;sup>[1]</sup> Great crested newts generally utilise terrestrial habitats within 250 m of breeding ponds.

<sup>&</sup>lt;sup>[2]</sup> www.ordnancesurvey.co.uk



500 m). The HSI provides a numerical value (ranging from 0 to 1) that indicates the suitability of a waterbody for GCN. The higher the HSI score, the more suitable (or closer to optimum habitat conditions) the waterbody may be considered for GCN.

#### Reptiles

2.3.4 Habitats within the application area were assessed for their potential to support British reptile species that have a known distribution within the Staffordshire area.

#### Birds

2.3.5 Whilst no formal bird survey was undertaken, the opportunity was taken whilst on site to record any bird species and bird nests as seen.

#### Bats

- 2.3.6 Trees on site were inspected for evidence of use by bats or for features that are considered of likely to be of potential interest to roosting bats.
- 2.3.7 An individual tree may have several features of potential interest to roosting bats associated with it. It is not always possible to confirm usage of a feature by bats as often the animals may be present on one day and no evidence of occupation may be found on the next. Consequently it is customary when undertaking such surveys to assign each feature to a defined category of roosting potential as follows:
- 2.3.8 Negligible: This category is usually used where a feature appears initially to have significant bat roost potential, but is considered on closer inspection to have low or negligible potential to support roosting bats. It is usually used during surveys to confirm that inspection of a feature has been carried out and has found that the feature is not considered to comprise suitable habitat for roosting bats.
- 2.3.9 Low: This category is used to describe a feature that may have some superficial interest to roosting bats, but is considered suboptimal to the extent that bats are not considered likely to use the feature for shelter. A cavity that is open at the top allowing access to wind and rain may be considered to be of low bat roost potential.
- 2.3.10 Moderate: This category is used to describe a feature that has some potential to support roosting bats, but is considered to be less than ideal in some way. For example the feature may be occupied by other animals, such as birds or squirrel, it may be subject to disturbance or have sub-optimal connectivity with navigational features. A surveyor would be neither surprised nor expect to find a bat using such a feature. Features considered to be of moderate roosting potential would not automatically be subject to an activity survey unless otherwise highlighted.
- 2.3.11 High: This category is used to describe an optimal feature considered to be ideally suitable for use by roosting bats where no evidence of occupation by bats has been found. Features considered to be of high bat roost potential (BRP) may include upwards-leading cavities of appropriate dimensions and



height from the ground, with no obstructions below the cavity entrance. The tree may be particularly prominent within the landscape and is likely to have good connectivity with navigational features and sufficient suitable foraging habitat in the vicinity. Features with high BRP are likely to be subject to activity surveys to assist confirmation of their status, and may be subject to a watching brief during works that may disturb them.

2.3.12 Confirmed: This category is used where positive evidence of bats usage has been recorded from a feature. For example, bats or bat droppings may be present, or existing bat records may be associated with the feature. A licence from Natural England is likely to be required if the bat roost is to be disturbed by the development.

#### Badger

- 2.3.13 Badger (*Meles meles*) survey of all linear features within the site was undertaken following methods detailed in Surveying Badgers (Harris *et al.*, 1989). This included survey for badger setts, along with survey of linear features and boundaries for signs of badger activity including dung pits, snuffle holes, feeding signs and pathways.
- 2.3.14 Badger survey can be undertaken throughout the year.

#### 2.4 Limitations of Field Survey

2.4.1 This report serves to indicate the value of the site in nature conservation terms based upon the survey data gathered. Survey was undertaken during a sub-optimal time of year for vegetation survey and therefore, as with any survey of this kind, the information collected defines the habitat types and quality and is not intended to be a record of every species present.



### 3. Survey Findings and Evaluation

#### 3.1 General Site Description

- 3.1.1 The site at Tutbury comprises a patchwork of arable fields and semi-improved pasture, bordered by hedgerows and scattered trees. There are two ponds adjacent to the site boundary.
- 3.1.2 The site is bordered to the north and west by the village of Tutbury and to the south and east by farmland. The busy Burton Road (A511) runs along the eastern boundary of the site. The wider area comprises farmland, extensive hedgerow networks and the River Dove approximately 1 km to the north of the village.

#### 3.2 Sites of Nature Conservation Importance

- 3.2.1 There are no statutory sites of nature conservation importance within 1 km of the site.
- 3.2.2 A single non-statutory, locally designated site of nature conservation importance occurs within 1 km of the site:
  - Tutbury Mill Fleam, Biodiversity Alert Site (BAS) This site covers approximately 2.7 ha and is located approximately 750 m to the north of the application area. The BAS comprises amenity grassland of low ecological value with broadleaved, semi-natural woodland and a mill fleam. The mill fleam contains abundant aquatic vegetation.
- 3.2.3 No other designated sites of importance to nature conservation lie within 1 km of the site.

#### 3.3 Ecological Walkover Survey

#### Habitats

#### Arable

3.3.1 Approximately half of the site comprises arable fields. These are a seminatural habitat of low ecological value and at the time of survey did not contain features of interest to nature conservation, such as diverse field margins. Therefore, this habitat has not been further assessed as a botanical resource.

#### Species-poor semi-improved grassland

3.3.2 Approximately half of the site comprises species-poor, semi-improved grassland. This was grazed by cattle at the time of survey. Species present included cock's foot (*Dactylis glomerata*), perennial rye-grass (*Lolium perenne*), creeping thistle (*Cirsium arvense*), white clover (*Trifolium repens*) and ribwort plantain (*Plantago lanceolata*).



3.3.3 This habitat is species-poor and contains species that are common and widespread both locally and throughout the UK. As such, it is not considered to be of importance to nature conservation outwith its immediate zone of influence.

#### Hedgerows

- 3.3.4 There are 14 intact hedgerows (H1-14) on site and a single defunct hawthorn (*Crataegus monogyna*) hedgerow (H15). All are dominated by hawthorn or elder (*Sambucus nigra*) with blackthorn (*Prunus spinosa*), holly (*Ilex aquifolium*), English elm (*Ulnus procera*) and occasionally hazel (*Corylus avellana*). None of the hedgerows on site are classed as 'Important' under the wildlife and landscape section of the Hedgerow Regulations (1997) due to their limited species diversity and their failure to meet criteria set out in Paragraph 4 of the Regulations.
- 3.3.5 Short sections of hedgerow, along with lengths of fencing, form part of the site boundary in the west of the application area. These hedges border the curtilage of a dwelling and are exempt from assessment under the Regulations.
- 3.3.6 Hedgerows comprised predominantly (>80%) of one or more native woody species qualify as a Priority Habitat under the UK BAP and are included in the Staffordshire Local BAP. As stated in the Habitat Action Plan (HAP) for hedgerows, they increase the biodiversity of the surrounding area, are important for protected species including farmland birds, bats and butterflies and can act as wildlife corridors within a wider landscape.
- 3.3.7 Whilst the hedgerows on site are composed of native species, they are relatively species poor (with the exception of H4 and H11, which contain 5 woody species) and contain species that are common and widespread both locally and throughout the UK. This habitat is also common within the local area. As such, the hedgerows on site are not considered to be of importance to nature conservation outwith their immediate zone of influence.

#### Pond

- 3.3.8 There are two ponds immediately adjacent to the site. A single pond was recorded to the south of the application area (P1) and an additional pond was recorded adjacent to the northern boundary (P2).
- 3.3.9 Pond 1 (P1) is located adjacent to the southern boundary of the site, where H4 meets H5. It is heavily shaded and comprises a shallow depression at the junction of three hedgerows. Approximately 90 m<sup>2</sup> in area, this pond was dry at the time of survey but muddy. No aquatic vegetation was recorded.
- 3.3.10 Pond 2 (P2) is located in the northern area of the application area, where H9 meets H10. This pond is surrounded by H10 and bramble (*Rubus fruticosus*) scrub. Approximately 150 m<sup>2</sup> in area, the depth of the pond is unknown and aquatic vegetation was visible with species including water starwort (*Callitriche* sp.) and arrowhead (*Saggitaria* sp.).



3.3.11 Pond habitat is declining and becoming increasingly degraded in the UK. Whilst these ponds are not of high intrinsic nature conservation value and are not rare in a type or landscape context, if these ponds are found to support UK BAP species, species fully protected under Annex 5 of the Wildlife and Countryside Act (1981) (as amended) or Habitats Directive Annex II species, then they will qualify as a Priority Habitat on the UK BAP and the Local BAP under the broad category of standing open waters and canals. Ponds 1 and 2 are considered to be of importance to nature conservation at no more than local level.

#### Scrub

- 3.3.12 An area of blackthorn scrub exists in the south of the site adjacent to pond 1 and H5 and bramble scrub surrounds pond 2, adjacent to the northern boundary of the site.
- 3.3.13 Both patches of scrub are species-poor and contain species that are common both locally and throughout the UK. Whilst the scrub around P2 connects to a larger area of bramble scrub outside the red line boundary, the patch of scrub in the southern section of the site is limited in extent. This habitat is not considered to be of importance to nature conservation outwith its immediate zone of influence.

#### Protected Species and Other Species of Nature Conservation Importance

#### Amphibians

- 3.3.14 No records of great crested newts within 1 km of the site were provided by Staffordshire Ecological Record Centre, however existing records were found in the wider area using the National Biodiversity Network (NBN).
- 3.3.15 The HSI score for pond 1 is 0.46, indicating that the pond offers 'poor' habitat suitability for GCN. Factors attributing to this low score are the small size of the pond, its regular drying out, the absence of macrophytes and the lack of ponds in the surrounding area.
- 3.3.16 The HSI score for pond 2 is 0.63 indicating that the pond offers 'average' habitat suitability for GCN. This pond is slightly larger than pond 1 and is a more permanent waterbody. There was also some aquatic vegetation present at the time of survey. The pond is prevented from achieving a higher score due to the lack of ponds in the surrounding area.
- 3.3.17 Whilst both ponds appeared to lack large populations of fish or waterfowl; both factors which negatively affect the habitat suitability for GCN, other factors, such as the apparent lack of nearby ponds, combine to keep the HSI scores low.
- 3.3.18 Great crested newts typically require areas of open water in which to perform mating displays and aquatic vegetation on which to lay their eggs. This species also exists in a metapopulation and travels between breeding ponds, increasing genetic diversity and maintaining viable populations. The two ponds recorded appeared to be the only ponds within 1 km of the survey area, using an Ordnance Survey Map. Whilst it is recognised that this



species is capable of travelling up to 1 km, the accepted distance stated by Natural England that newts are likely to travel between breeding ponds is 250 m (Jehle, 2000).

- 3.3.19 Ponds 1 and 2 are approximately 400 m apart, however both ponds are wellconnected to the hedgerow network within the site and the wider area. Hedgerows have the potential to act as wildlife corridors facilitating the movement of species such as GCN throughout the landscape. The apparent lack of ponds in the area may increase the likelihood of any GCN in the area travelling between the 400 m between the two ponds.
- 3.3.20 Great crested newts require structurally diverse terrestrial habitat that provides suitable refuges in which they can hibernate throughout the winter period. In addition, GCN are active predators in pond-side terrestrial habitat and require sufficient cover for hunting and in which their prey e.g. invertebrates, can survive. Aside from the hedgerows, pond 1 is surrounded by arable fields, grazed pasture and a strip of blackthorn scrub, providing limited opportunity for hunting and hibernating. Pond 2, however, is adjacent to a large area of dense bramble scrub which would provide diverse terrestrial habitat.
- 3.3.21 As stated by Oldham *et al* (2000) "(the HSI) does not cover all eventualities and predictions must be treated with caution...". It must be remembered that the HSI is simply a numerical measure to aid the assessment of a pond and does not substitute the professional opinion of an experienced and licensed newt surveyor.
- 3.3.22 Whilst there are no existing records of GCN or other obvious ponds within 1 km of the site (identified on an Ordnance Survey map), the presence of records in the wider area coupled with good supporting habitats and a HSI score of 0.63 for pond 2, results in being unable to rule out the possibility that GCN may be present on site. It is considered likely that if GCN are present in pond 2, due to the limited number of ponds within 1 km of the site, pond 1 may also be used by GCN, despite this feature providing sub-optimal habitat for this species. Further survey is required to determine whether this species is present and therefore the importance of the site for great crested newts.
- 3.3.23 No records of other amphibian species within 1 km of the site were provided by Staffordshire Ecological Record.
- 3.3.24 It is possible that the UK BAP Priority Species common toad (*Bufo bufo*) will use the ponds, along with other common amphibians including common frog (*Rana temporaria*). As there no other obvious ponds within 1 km, Ponds 1 and 2 may be of local importance to these species.

#### Birds

3.3.25 Staffordshire Ecological Record Centre provided records of 16 bird species within 1 km of the site (Table 1).



Scientific Name	Common Name	Birds of Conservation Concern (BoCC) Status
Alcedo atthis	Common Kingfisher	Amber
Anas platyrhynchos	Mallard	Amber
Anthus campestris	Tawny Pipit	NA
Cuculus canorus	Common Cuckoo	Red
Falco subbuteo	Eurasian Hobby	Green
Falco tinnunculus	Common Kestrel	Amber
Fringilla montifringilla	Brambling	Green
Larus ridibundus	Black-headed Gull	Amber
Perdix perdix	Grey Partridge	Red
Phalacrocorax carbo	Cormorant	Green
Sterna hirundo	Common Tern	Amber
Sylvia communis	Common Whitethroat	Amber
Turdus iliacus	Redwing	Red
Turdus pilaris	Fieldfare	Red
Tyto alba	Barn Owl	Amber
Vanellus vanellus	Northern Lapwing	Red

 Table 1. Records of bird species within 1 km of the site

- 3.3.26 In 2009, a re-assessment of Birds of Conservation Concern was published by Eaton *et al* (2009). This updates the 2002 Birds of Conservation Concern in the UK, Channel Islands and Isle of Man (Gregory *et al*, 2002), which defined rare and threatened bird species on two lists (Red and Amber) describing the level of threat to each species of concern.
- 3.3.27 "Red" is the highest conservation priority, with species needing urgent action due to either a historical decline in breeding population, severe (>50%) decline in breeding or non-breeding population, or severe decline in breeding range over 50 years or more. "Amber" is the next most critical group, with species qualifying for this status as a result of either recovery from red list criterion, being classed as rare breeders in the UK, moderate (>25%) decline in breeding range over 25 years or more. These categories are followed by Green, indicating that the species are relatively unthreatened.
- 3.3.28 A number of Red and Amber List species have been recorded within 1 km of the site. In particular, three displaying lapwing were recorded in 2000 approximately 500 m south of the site and in 2007, three grey partridge were recorded at Rolleston Park, approximately 1 km south of the site.
- 3.3.29 Lapwing typically require unenclosed terrain affording unbroken all-round views for nesting and avoid fields enclosed by hedgerows or walls smaller than c. 5 ha (Snow and Perrins, 1998). The fields on site are enclosed by the hedgerow network, with only one field being larger than 5 ha at 6.4 ha. The remaining three fields are less than 5 ha in size. Several of the fields are also disturbed by cattle. As a result, the habitats within the site are considered sub-optimal for breeding lapwing with more suitable habitat existing in the wider area.
- 3.3.30 The field margins did not comprise tall, diverse vegetation and the majority of the hedge-bottoms were not considered suitable to provide the cover required by breeding grey partridge.



- 3.3.31 The hedgerow habitats on site have the potential to support breeding whitethroat and it is possible that Pond 2 may also support breeding mallards. The hedgerows may provide foraging opportunities for species such as kestrel, barn owl and wintering redwing and fieldfare.
- 3.3.32 The site has potential to support other declining farmland bird species including yellowhammer (*Emberiza citronella*), Eurasian skylark (*Alauda arvensis*) and corn bunting (*Emberiza calandra*) and is also likely to be used by a range of common garden and farmland birds for foraging and possibly also nesting within the hedgerows and scrub.
- 3.3.33 The habitats on site are not considered critical to any one species and there is an abundance of similar habitat in the surrounding area into which species currently using the site for foraging could readily relocate.
- 3.3.34 However, the application area comprises farmland habitats that are currently subject to degradation and decline in the UK, contributing to the loss of farmland bird species. It is possible that a number of Red and Amber list farmland birds may nest in the hedgerows and as such, the application area is considered to be of local importance to breeding bird species.

#### Bats

- 3.3.35 Staffordshire Ecological Record Centre provided 12 records of bats within 1 km of the site, 10 of which were of roosts. Of the 12 records, seven were of common pipistrelles (*Pipistrellus pipistrellus*) and five were of Daubenton's bats (*Myotis daubentonii*). The closest roost to site was a pipistrelle roost recorded in 2002, approximately 170 m to the west of the site.
- 3.3.36 There are no buildings on site which require an assessment of their potential to support roosting bats.
- 3.3.37 The only tree on site with the potential to be of interest to roosting bats is a mature ash (*Fraxinus excelsior*) (T1). A south-facing woodpecker hole was evident in the tree and based on its prominent position as one of the tallest trees on site and its location within the hedgerow network, it is considered to be of moderate potential to support roosting bats.
- 3.3.38 The ash tree is considered to be the only feature on site with the potential to be of interest to roosting bats. However, the hedgerow network within the site provides linear features that may be utilised by foraging and commuting bats resident in the wider area, as a navigation aid within the wider landscape. The connectivity to areas outside the application area and the high number of roost records within 1 km of the site also indicate that the site has the potential to be of interest to bats at a local level.

#### **Badgers**

- 3.3.39 No records of badgers within 1 km of the site were provided by Staffordshire Ecological Record Centre.
- 3.3.40 No setts were recorded during survey. An abundance of holes and earth disturbance were evident along the southern site boundary in particular but



these were attributed to rabbits due to their size, shape and abundance. No foraging evidence such as snuffle holes were noted during survey, however a single badger dropping was recorded (T2) along the eastern site boundary.

3.3.41 Badgers are not believed to be resident within the application area. It is possible that badgers resident in the wider area will utilise the site as a foraging resource, as evidenced by a single badger dropping. However there is an abundance of similar habitat in the local area and as such, the application area is not considered to be of interest to foraging badgers outwith its immediate zone of influence.

#### **Other Protected and Key Species**

- 3.3.42 No records of reptiles within 1 km of the site were provided by Staffordshire Ecological Record Centre. The habitats on site are not considered suitable for reptiles. There are no areas of optimal habitat for reptiles such as long grass, heathland or watercourses on site. As such, reptiles are not considered to be receptors for this development.
- 3.3.43 No other records considered relevant to the site were returned as part of the data consultation process.
- 3.3.44 No watercourses are present on site and therefore no assessment for water vole (*Arvicola terrestris*), otter (*Lutra lutra*) or white-clawed crayfish (*Austropotamobius pallipes*) is required.
- 3.3.45 During the survey, the site was checked for suitability for and signs of use by other protected species. No signs of other protected species were recorded on the day of survey.

#### 3.4 Invasive Plant Species

3.4.1 No invasive plant or animal species listed on Schedule 9 of the Wildlife and Countryside Act (1981) (as amended) were recorded on the day of the survey.



### 4. Ecological Assessment & Mitigation

- 4.1.1 The following assessment and mitigation recommendations are based on preliminary plans 6640 F 01 Site Layout A0 SHEET 1 and 6640 F 01 Site Layout SHEET 2, provided by Peveril Homes Ltd.
- 4.1.2 It is understood that a Habitat Management and Enhancement Plan will be designed for the site by an ecologist and in consultation with, where possible, with the County Ecologist and local Wildlife Trust. The aim of the Habitat Management and Enhancement Plan is to ensure that the ecological interest on site is retained and enhanced where possible.

#### 4.2 Designated Sites

- 4.2.1 The site is situated within 1 km of Tutbury Mill Fleam (BAS), a single nonstatutory, locally designated site of nature conservation importance.
- 4.2.2 The site is separated from Tutbury Mill Fleam by the village of Tutbury. Housing and residential roads are present between the BAS and the application area and no connective features between the two, such as hedgerows or watercourses that may act as dispersal corridors for wildlife, are evident. There is no running water on site and habitats within the application area are considered unsuitable for most species that may be found within the mill fleam.
- 4.2.3 No mechanisms have been identified by which the proposed development works may negatively affect the BAS and no impacts to the integrity of the BAS or the species this site support are anticipated to result from the development as proposed.

#### 4.3 Habitats

#### Species-poor semi-improved grassland

- 4.3.1 It is understood that landtake of approximately 5.3 ha of species-poor semiimproved grassland on site will be required in order to accommodate the proposed re-development of the site.
- 4.3.2 This habitat is species-poor and is comprised of species that are common and widespread both locally and throughout the UK. There is an abundance of this habitat in the surrounding area and as such landtake is not considered to represent a significant adverse impact to nature conservation outwith its immediate zone of effect.

#### Hedgerows

4.3.3 Based on current development proposals, the majority of the hedgerows, with the exception of the defunct hawthorn hedge (H15), will be retained and incorporated within the development. The defunct hedgerow is expected to be removed and some of the retained hedgerows (H2, 10, 11 and 12) will be severed by proposed infrastructure including roads and paths.



- 4.3.4 Whilst the hedgerows on site do not qualify as 'important' under the wildlife and landscape section of the Hedgerow Regulations (1997), they are composed of native species and provide a benefit to the biodiversity of the area, including acting as wildlife corridors. Due to the extensive hedgerow network within the wider area and the proposed retention of most hedgerows on site, the small landtake of hedgerows required is not considered to represent a significant adverse impact to nature conservation outwith its immediate zone of effects.
- 4.3.5 Consideration could be given to the enhancement of existing hedgerows by planting with additional native species and implementing management techniques, such as hedge laying and coppicing, together with planting to fill gaps in hedgerows. Hedgerow translocation could also be considered for any hedgerows or sections of hedgerow that need to be removed. A translocated hedgerow (or section) will typically establish more quickly than newly planted saplings and the ecosystem within the base of the hedgerow will also be translocated, therefore retaining hedgerow structure and helping to establish a natural field layer.
- 4.3.6 The impact of severance of hedgerows 2, 10, 11 and 12 may be reduced by planting standard trees at the ends of severed hedgerows so that the tree canopy can be allowed to bridge the gap. Tree species should be typical of the local area and of UK provenance.
- 4.3.7 It is recommended that management of hedgerows on site should be incorporated into the Habitat Management and Enhancement Plan.

#### Pond

- 4.3.8 It is understood, based on current development proposals, that pond 1 and pond 2 are outside the red line boundary for the proposed development and therefore will be retained and unaffected directly by the scheme.
- 4.3.9 Surface water drainage from the site is proposed to be channelled into the existing outfall for pond 2, *via* a new onsite attenuation pond, and therefore the proposed drainage scheme is not anticipated to affect the water level or water quality of the pond.
- 4.3.10 The potential for the proposed development to affect amphibian species that may be resident within the ponds is considered in paragraphs 4.4.1 4.4.4 below.
- 4.3.11 It is recommended that best practice guidelines (CIRIA, 2001) are followed during all proposed works to ensure that no indirect adverse effects to the ponds occur as a result of the proposed development. This requires proper storage and transport of chemicals and management of any waste controlled by waste regulations. Procedures should also be implemented to prevent run-off entering the pond during development and contingency plans in place to deal with accidental spillages. In addition, the advice set out in the relevant Environment Agency Pollution Prevention Guidelines will be applied (Environment Agency, website accessed 15/10/09).
- 4.3.12 Implementation of these guidelines will ensure that this potential impact will not occur.



4.3.13 The creation of an attenuation pond is proposed within the development and it is understood that the design of this pond will include provision for ecological enhancement for the benefit of nature conservation. Detailed design will be incorporated into the Habitat Management and Enhancement Plan so as to provide a net benefit to the biodiversity of the site.

#### Scrub

- 4.3.14 It is understood that landtake of some scrub will occur in order to accommodate the proposed re-development of the site.
- 4.3.15 Both bramble and blackthorn scrub is a common habitat locally and throughout the UK. It is species-poor and limited in extent. There is an abundance of similar habitat within the local and wider area and as such, landtake of scrub on site is not considered to represent a significant adverse impact to nature conservation outwith its immediate zone of effects.
- 4.3.16 Any planting within the proposed development should use appropriate native species typical of the local area, where practicable. Appropriate native species include hawthorn, blackthorn, crab apple (*Malus sylvestris*), wild cherry (*Prunus avium*), bird cherry (*Prunus padus*), field maple (*Acer campestre*), rowan (*Sorbus aucuparia*), English oak (*Quercus robur*) or sessile oak (*Quercus petraea*), holly (*Ilex aquifolium*), field-rose (*Rosa arvense*) and dog rose (*Rosa canina*).

#### 4.4 Protected Species and Other Species of Nature Conservation Importance

#### Amphibians

- 4.4.1 Great crested newt is listed on Annexes II and IV of the EC Habitats Directive. It is protected under the Wildlife and Countryside Act (1981) (as amended) and is identified as a European Protected Species on the Conservation (Natural Habitats, etc.) Regulations (1994). It is a UK BAP Priority Species and is listed on the Staffordshire Local BAP.
- 4.4.2 Ponds 1 and 2 are outside the red line boundary of the site and no direct impacts to these waterbodies are expected to occur as a result of the proposed development. A limited amount of landtake of hedgerow habitat will occur, along with the landtake of arable and semi-improved grassland habitat surrounding the ponds. Therefore, whilst no potential breeding ponds will be lost, surrounding terrestrial habitat that could be used by hunting and overwintering amphibian species will be subject to landtake.
- 4.4.3 Landtake of terrestrial amphibian habitat, as a result of the development as proposed, would reduce the amount of suitable foraging and hibernating habitat for any GCN present and sever connectivity between the ponds and between the ponds and the wider area. A reduction in connectivity may result in fragmenting the metapopulation in which GCN exist, if present, reducing genetic variation within populations and consequently their viability.
- 4.4.1 Presence/absence survey is recommended for both ponds to determine the status of GCN in the ponds. This should comprise four visits (English Nature, 2001) and be undertaken by an appropriately experienced and licensed



ecologist. These visits should fall between late March and June, with at least two visits between mid-April and mid-May. Surveys typically use a combination of techniques including bottle trapping, netting, torchlight searches and egg searching, appropriate to the site. Survey should also include assessment of other amphibian species using the ponds.

- 4.4.2 If GCN are found on any of the initial four visits, an additional two visits may be required, allowing three of the six visits to fall between mid-April and mid-May. These additional surveys are required to provide an estimation of the GCN population size, which is required to inform a Natural England European Protected Species (EPS) licence, which (if GCN are found) may be required.
- 4.4.3 Upon completion of surveys, appropriate mitigation should be provided to safeguard those species present. Should GCN be found, it is recommended that this species is taken into account within the Habitat Management and Enhancement Plan.

#### Birds

- 4.4.4 It is understood, based on current development proposals that limited landtake of hedgerows will occur, along with landtake of arable fields and grazed semi-improved grassland. Whilst a large proportion of the hedgerow network on site will be retained, it will be severed by roads and paths and the surrounding habitat will change to gardens, roads and amenity areas with increased disturbance including noise and predation from domestic pets. This may have a significant adverse impact upon farmland birds, decreasing suitable breeding and foraging habitat.
- 4.4.5 Whilst landtake of hedgerows and the change in land-use surrounding the hedgerows may reduce the amount of foraging habitat for species such as wintering redwing and fieldfare, these species do not breed in the UK and therefore do not form territories. They range widely over farmland and will readily forage across other nearby areas. As such, no significant adverse effects to wintering and foraging bird species are expected to occur as a result of the development as proposed.
- 4.4.6 Whilst the effects of hedgerow loss and changing land-use have the potential to affect breeding farmland bird species due to loss of suitable habitat, enhancements to the southern section of the site are included in the development plans, as proposed, to mitigate for these effects. The hedgerow along the southern boundary of the site, adjacent to neighbouring farmland will be retained and ecologically beneficial planting is proposed within this southern section. Other proposed enhancements within the scheme, including an attenuation pond, will also provide environmental enhancements for a variety of bird species.
- 4.4.7 It is recommended that the hedgerow along the southern boundary is managed for farmland birds. Alternate sides should be cut yearly and the top of the hedge should be tapered rather than cut straight across. This allows flowering and fruiting shrubs to develop along the hedge, which provide pollen, nectar and fruit for a range of bird species, as well as invertebrates and small mammals. Hedge trimming should be undertaken outside the



nesting bird season (March – August inclusive) and ideally in the winter months to avoid removing fruits and berries.

- 4.4.8 Saplings within the hedge should be retained to allow the growth of standard trees. These should be kept at a density of approximately one tree per 50-100 m. Standard tree will provide a regular perch for birds foraging along the hedge and encourage barn owls in particular.
- 4.4.9 Hedge margins of a minimum of 1 m are also suggested to provide seed and invertebrates for farmland birds and also provide a buffer strip between the hedge and the rest of the development.
- 4.4.10 The retention of areas of scrub along the southern boundary is advisable and the planting in the southern section of the site should include native species as previously listed in paragraph 4.3.16.
- 4.4.11 It is recommended that management of hedgerows on site should be incorporated into the detailed Habitat Management and Enhancement Plan.
- 4.4.12 Nesting birds are protected under the Wildlife and Countryside Act (1981) (as amended) and it is therefore recommended as a precautionary measure, that any clearance of vegetation on site is undertaken outside of the bird nesting season, where possible, to minimise risks of disturbance to nesting birds. Should clearance within the breeding season be unavoidable, no such works should be undertaken until the site has been inspected by an appropriately trained, qualified and experienced ecologist to ensure that no nests are present.

#### Bats

- 4.4.13 All species of bat are protected under the EC Habitats Directive (1992), as implemented by the Habitat Regulations (1994). These regulations amend the Wildlife and Countryside Act (1981), which provides protection to certain animals under Section 9 and listed in Schedule 5 of the Act. Under the Act (as amended) it is an offence intentionally or recklessly to kill, injure, capture or disturb bats or to damage, destroy or obstruct access to any place used by bats for shelter or protection. This is irrespective of whether the animals are present. Where disturbance to bat roosts occurs as the result of an otherwise lawful operation that could not reasonably have been avoided, no offence is committed under the Act, provided that Natural England has been consulted and allowed a reasonable time in which to give advice. All bats are European protected species (see http://www.opsi.gov.uk for full legislation details). A range of bat species are listed as UK BAP Priority Species and Pipistrelle bats are listed on the Staffordshire Local BAP.
- 4.4.14 It is understood, based on current development plans, that the mature ash tree in the centre of the site (T1) will be retained. This tree is considered to possess moderate potential to support roosting bats. The retention of this tree will be beneficial to the nature conservation value of the development, due to its prominent position, the lack of other tall standard trees and its potential to provide bat provision on site.
- 4.4.15 It is recommended that a Root Protection Zone (RPZ) should be established for T1 in accordance with British Standard 5837. Root protection zones



provide a buffer between the tree and any new construction, site traffic and machinery use, and protect the tree from damage and disturbance.

- 4.4.16 Whilst the tree will be retained, extensive development works are proposed in the immediate area and should a roost be present in the tree, any disturbance to the roost would contravene legislation and constitute an offence under the Wildlife and Countryside Act (1981) (as amended) and the Habitat Regulations (1994) (as amended). Also, the tree is isolated in the centre of the site and currently connected to the wider area by hedgerows.
- 4.4.17 Should hedgerows connected to T1 be severed by the proposed development, any roost present in the tree may become isolated and redundant. Hedgerows 10, 11 and 12 will be severed by proposed roads and paths within the housing estate. Bats can be deterred from using linear features such as hedgerows by gaps as small as 10 m (JNCC, 2001). Further survey is therefore recommended to determine the presence or absence of a roost in T1.
- 4.4.18 Further bat survey would comprise one or more emergence or re-entry survey (in accordance with Bat Conservation Trust Guidelines, 2007) undertaken by a suitably experienced and licensed bat worker. Survey should be undertaken between May and August (ideally May-June). The licensed bat worker would also visually inspect the woodpecker hole using close-focussing binoculars, a high powered torch and an endoscope, where appropriate, to identify evidence of bat occupation including staining or droppings. Appropriate mitigation should be provided upon completion of such surveys. If a bat roost if found, appropriate mitigation should be recommended.
- 4.4.19 It should be appreciated that almost any structure may be used by an individual or transient bat from time to time. Bats require very limited cavity space and only very small roost entry gaps. Should bats be discovered on site at any time works should be halted in the immediate area and an appropriately trained, qualified and licensed ecologist consulted immediately.
- 4.4.20 The habitats on site may provide foraging opportunity for bats resident in the local area. In particular, the hedgerow network on site may provide a navigational aid to foraging and commuting bats. The majority of this network will be retained within the proposed development, however a number of hedgerows will be severed creating gaps. It is recommended that the severance of hedgerows is kept to a minimum and, where practicable, tree and shrub planting at the side of roads and paths be used to create canopy cover to reduce the size of gaps created. The creation of new hedgerows to increase connectivity between existing hedges and the wider area is also suggested as a benefit to nature conservation.
- 4.4.21 Hedgerow planting and translocation as described in Section 4.3.5 would enhance the quality of bat commuting and foraging habitat within the application area, as would suggestions made in paragraphs 4.4.7-4.4.11 and the creation of an attenuation pond.
- 4.4.22 As general guidance and taking a best practice approach to nature conservation issues, bat roosting provision could be incorporated into the fabric of new structures. In this instance roosting provision may include incorporation of 'bat bricks' into walls to allow bat access to wall cavities



and/or incorporating raised ridge tiles into new pitched roof areas to allow bats access to roof voids. Installing bat boxes within any new structures would be considered a positive benefit for nature conservation. A range of bat box models are available including the Schwegler 2F Bat Box and the Schwegler 1FF Bat Box.

- 4.4.23 It is recommended that lighting plans associated with the proposed development on the site should be designed sympathetically and avoid directly illuminating any mature trees, hedgerows, the roofs of the buildings or any added bat provision. This will prevent disturbance to any bats in the area that may forage or commute over the site or roost on site.
- 4.4.24 It is recommended that bat species are taken into account within the Habitat Management and Enhancement Plan.

#### Badgers

4.4.25 No badger setts were recorded on site and no signs of foraging activity were recorded, however badgers are highly mobile animals and it is possible that foraging badgers, resident within the wider area, may use the site from time to time. There is an abundance of similar habitat within the local and wider area that badgers will readily utilise and as such, landtake associated with the proposed development is not considered to represent a significant adverse impact to foraging badgers outwith the immediate zone of influence.



### 5. References

CIRIA (2001) Best Practice Guide. Ciria, 2001.

- Cresswell, P., Harris, S. and Jeffries, D. (1990). *The history, distribution, status and habitat requirements of the badger in Britain.* Nature Conservancy Council, Peterborough.
- Eaton, M.A; Brown, A.F; Noble, D.G; Musgrove, A.J; Hearn, R.D; Aebischer, N.J; Gibbons, D.W; Evans, A. And Gregory, R.D. (2009) The population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds*, 102: 296-341.
- Gregory, R.D., Wilkinson, N.I., Noble, D.G., Robinson, J.A., Brown, A.F., Hughes, J., Procter, D, Gibbons, D.W. & Galbraith, C.A. (2002) The population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds*, 95: 410-448.
- Harris, S., Cresswell, P. & Jefferies, D. (1989). Surveying for badgers. Occasional Publication of the Mammal Society No. 9. Mammal Society, Bristol.
- Institute of Ecology and Environmental Management. 2006. Guidelines for Ecological Impact Assessment in the United Kingdom (version 7 July 2006). http://www.ieem.org.uk/ecia/index.html
- Jehle, R. (2000) The terrestrial summer habitat of radio-tracked great crested newts (*Triturus cristatus*) and marbled newts (*T. marmoratus*). *Herpetological Journal*, 10: 137-142.
- JNCC (2001) Habitat Management for Bats: A guide for land managers, land owners and their advisors. JNCC. Peterborough.
- JNCC (2007) Handbook for Phase 1 habitat survey A technique for environmental audit. JNCC. Peterborough.
- Oldham, R.S; Keeble, J; Swan, M.J.S. and Jeffcote, M. (2000) Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal.* 10: 143-155.
- Snow, D.W. and Perrins, C.M. (1998) *The birds of the western Palearctic, Concise ediditon.* Oxford University Press.
- Stace, C. (1997). *New Flora of the British Isles*. Second Edition. Cambridge University Press, Cambridge.
- Statutory Instrument (1997) No. 1160 *The Hedgerow Regulations.* The Stationary Office Limited, ISBN 0 11 064458 1.



# Appendix 1 - Habitat Map



# Appendix 2 – Species Lists



Scientific Name	Common Name	DAFOR		
Cirsium arvense	Creeping thistle	LA		
Dactylis glomerata	Cock's foot	A		
Lolium perenne	Perennial rye-grass	A		
Plantago lanceolata	Ribwort plantain	F		
Trifolium repens	White clover	F		

Table 1. Species composition of poor semi-improved grassland

#### Table 2. Species composition of hedgerows

Scientific Name	Common Name	DAFOR
Corylus avellana	Hazel	0
Crataegus monogyna	Hawthorn	D
llex aquifolium	Holly	F
Prunus spinosa	Blackthorn	A
Sambucus nigra	Elder	F
Ulnus procera	English elm	F

#### **Target Notes**

- T1 Mature ash tree with moderate bat roost potential.
- **T2** Badger dropping.

