

# LAND OFF PEARTREE LANE, EUXTON

## ECOLOGICAL ASSESSMENT (Report Ref: 1817.001A)

for

Euxton Parish Council  
9 Ambleside Avenue  
Euxton  
Chorley  
PR76NX

November 2008

Written: VJG	Checked: RAH	Approved: RAH
-----------------	-----------------	------------------

<b>CONTENTS</b>	<b>PAGE</b>
1.0 SUMMARY .....	2
2.0 INTRODUCTION .....	3
3.0 SITE DESCRIPTION .....	3
4.0 METHODS .....	4
Desktop survey .....	4
Walkover assessment of species of conservation concern .....	5
Phase 1 habitat survey .....	5
Great crested newt Habitat Suitability Index .....	5
5.0 RESULTS .....	6
Desktop survey .....	6
Habitat assessment .....	6
Assessment for species of conservation concern .....	9
6.0 CONCLUSIONS .....	10
Designated sites .....	10
Protected and priority habitats .....	10
Local Plan .....	10
Species of conservation concern .....	11
7.0 IMPLICATIONS .....	11
Habitats .....	11
Amphibians .....	12
Bats .....	12
Birds .....	13
8.0 RECOMMENDATIONS .....	13
9.0 REFERENCES AND FURTHER READING .....	15

## DRAWINGS

G.1817.001           Phase 1 Habitat Survey

## APPENDICES

Appendix One:       DESKTOP CORRESPONDENCE  
 Appendix Two:      TARGET NOTES REPORT  
 Appendix Three:    STANDARD COMPENSATION MEASURES FOR BATS  
 Appendix Four:     STANDARD COMPENSATION MEASURES FOR BIRDS

Ecological legislative and planning context can be found at [www.tep.uk.com](http://www.tep.uk.com)

## 1.0 SUMMARY

- 1.1 TEP was commissioned by Euxton Parish Council to conduct an ecological assessment at land off Peartree Lane, Euxton for proposed leisure fields, such as football pitches and possible hard surface sport areas.
- 1.2 The ecological assessment included a desktop survey to identify species records and protected areas within a 1km radius of the site. Field surveys at the site included a Phase 1 habitat survey which included a walkover assessment for the potential occurrence of species of conservation concern.
- 1.3 There are no statutorily protected sites within 1km of the site. The site is within Greenbelt. However, facilities for outdoor sport and outdoor recreation are accepted forms of development within Greenbelt.
- 1.4 The pond and surrounding habitats provide suitable habitats for great crested newts. The high density of ponds in the area around the site increases the suitability for great crested newt metapopulation structures. Therefore, amphibian surveys will be required to determine if great crested newts are present in the pond. If great crested newts are identified, a licence from Natural England will be required before any works can commence, due to the close proximity to the pond.
- 1.5 Desktop records show that bats have been recorded immediately adjacent to the site. There are no trees to be removed that have bat roost potential and there are no proposals to install permanent features that may obstruct bat commuting routes. It is also understood that there are no proposals to install flood lighting at the site. Therefore, there are no apparent legal implications for development of the site in respect to bats.
- 1.6 No evidence of water voles or badger was identified on site during survey and desktop records show that the last recorded dates for both species was in the early 1970's. Therefore, there are no apparent legal implications for development of the site in respect to badgers and water voles.
- 1.7 Due to the suitability of habitats within the site for nesting birds, it is recommended that any necessary hedgerow, tree or scrub clearance works be carried out during autumn, winter or early spring (September – February inclusive) to avoid the bird nesting season.
- 1.8 Planning Policy Statement 9 (PPS9) seeks biodiversity gain but at least no net loss. It is recommended that the hedgerows, mature trees and scrub be retained along the site boundaries and within the site wherever possible. Planting of locally appropriate native species is recommended to reinforce these existing features. This would provide feeding, shelter and nesting areas for birds, small mammals and invertebrates.

## 2.0 INTRODUCTION

2.1 TEP was commissioned by Euxton Parish Council to conduct an ecological assessment at land off Peartree Lane, Euxton. It is intended to use the two fields for outdoor sport facilities, such as football pitches and possible hard surface sport areas.

2.2 The purpose of this survey report is to:

- Provide an effective summary of any ecological issues relating to the site and the surrounding environment;
- Identify further survey requirements if necessary.

2.3 The following surveys were therefore carried out:

- Desktop survey;
- Phase 1 habitat survey which included a walkover and assessment for species of conservation concern;
- Great crested newt Habitat Suitability Index (HSI).

2.4 For the purposes of this report, species of conservation concern are those which fall into any of the following categories (some of which overlap):

- Species protected by the *Wildlife and Countryside Act 1981*, or the *Habitats Regulations 1994*;
- Species prioritised in the UK Biodiversity Action Plan (BAP);
- Species prioritised in the Local Biodiversity Action Plan (LBAP).

## 3.0 SITE DESCRIPTION

3.1 The land off Peartree lane, Euxton is initially bordered by agricultural fields and hedgerows, but the immediate surrounding land is in turn bordered to the north, west and south by Euxton itself and by Chorley to the west (Figure1, below). These conurbations comprise mainly of residential housing and some commercial development. Euxton Lane is approximately 200m north of the site and the M6 is approximately 1.5 kilometres to the west.

3.2 The site comprises two medium sized fields of pasture bordered by hedgerows. There is also a hedgerow that runs through the centre of the site that separating the two fields. A large pond sits in the centre of the site within a gap in the central hedge.



Figure 1: Land off Peartree Lane – landscape context

## 4.0 METHODS

### Desktop survey

4.1 Information regarding historic species records, protected sites, land allocation and relevant policies was also requested/gathered from the sources listed in Table 1 below.

Table 1: Ecological information and consultations

CONSULTEE/SOURCE OF INFORMATION	NATURE OF INFORMATION
Magic map	Maps showing legally protected areas
Google Earth/Live local	Satellite imagery
National biodiversity network	Location of protected species near site
Natural England – Nature on the Map	Protected habitats
United Kingdom Biodiversity Action Plans (UKBAP)	Species/habitats with UK action plans
Lancashire BAP	Species/habitats with Lancashire action plans
Chorley Borough Council	Local Plan

4.2 Correspondence and other relevant information is presented at Appendix One.

### Walkover assessment of species of conservation concern

- 4.3 The walkover survey to assess the site's potential to support protected species was carried out by TEP ecologist Christopher Barrett aided by Val Gateley on Wednesday 17<sup>th</sup> September 2008. The survey aims to identify any ecological issues that might affect the site, including the presence of habitats that may support species of conservation concern.

### Phase 1 habitat survey

- 4.4 The Phase 1 Habitat survey was carried out by ecologists Val Gateley and Christopher Barrett on Wednesday 17<sup>th</sup> September 2008. This is a standard method of survey (Joint Nature Conservation Committee, 2007) and gives an overview of key habitats. Target notes provide a botanical list of the immediate area and any other additional information thought useful.

### Great crested newt Habitat Suitability Index

- 4.3 The site assessment was undertaken out of season to allow pond survey for amphibians. Therefore, the quality of the pond and surrounding terrestrial habitat were assessed for their potential to support a breeding great crested newt population during the walkover of the site. This Habitat Suitability Index (HSI) provides a quantitative assessment of the likelihood for great crested newts to be present within a waterbody and therefore allows for early consideration of potential mitigation requirements. However, this assessment cannot replace pond survey to confirm actual presence or absence of great crested newts within a waterbody.
- 4.3 Great crested newts are dependent upon the quality of a large number of habitat features. Ten of these features, isolated as being of particular importance, were used as diagnostic factors in determining the likelihood of great crested newt occurrence (Swan & Oldham 1994):
- geographic location;
  - pond size;
  - degree of shading;
  - presence of fish;
  - presence of water fowl;
  - water quality;
  - amount of suitable habitat within 500 m radius (including barrier effects);
  - pond density;
  - degree of permanence;
  - macrophyte content.
- 4.3 The HSI for the great crested newt (*Triturus cristatus*) was developed by Oldham *et al.* (2000). In 2007 the index was revised for national recording. The 2007 index assessment criteria were used to assess the pond within the site.

## 5.0 RESULTS

### Desktop survey

#### Designated Sites

- 5.1 There are no statutorily or non-statutorily protected sites within 1km of the proposed development site.
- 5.2 The closest non-statutorily protected site is an area of ancient and semi-natural woodland just over a kilometre southeast of the site, which is also registered as upland oakwoods, a UKBAP priority habitat.

#### Protected Species

- 5.3 Records for water vole (*Arvicola terrestris*) and badger (*Meles meles*) have been identified in a 10 km square containing the site, but these records predate 1980.
- 5.4 Results of the desktop survey identified bats as being present in the adjacent 1 kilometre grid square SD 5519, which is immediately adjacent to the site (approximately 50m to the west). These records are from 2006.
- 5.5 There were no records for reptiles within 1 kilometre of the development site.

#### Local plan

- 5.6 The site lies within Greenbelt, identified in the Chorley Borough Council Local Plan (adopted 2003).

### Habitat assessment

- 5.7 The habitat survey is presented at Drawing G1817.001. Target notes are listed at Appendix Two. The following habitats are present on site:

- Dense scrub
- Scattered scrub
- Scattered broad-leaved trees
- Semi-improved grassland
- Improved grassland
- Tall ruderal herbs
- Swamp
- Open water
- Running water
- Species-poor intact hedge
- Species-poor hedge and trees
- Native species-rich hedge and trees
- Wet ditch
- Dry ditch

#### Dense scrub

- 5.9 There is one area of dense scrub in the centre of the site, surrounding the northeast edge of the pond. It is dominated by willow species (*Salix sp.*) hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*).

#### Scattered scrub

- 5.10 The scattered scrub on site is mainly associated with the eastern boundary, hawthorn is the dominant species (Target note 12). There is also scattered hawthorn and grey willow (*Salix cinerea*) scrub associated with the pond edge.

#### Scattered broad-leaved trees

- 5.11 The majority of the scattered trees on site are along the eastern boundary, English oak (*Quercus robur*) is the dominant species (Target note 12). There are also two English oak trees on the western edge of the pond.

#### Semi-improved grassland

- 5.12 There is a thin strip of semi-improved grassland which runs along the majority of the northern boundary of the site (Target note 2).

#### Improved grassland

- 5.13 The southern field of the site is improved grassland. The northern field is predominantly improved grassland with a thin strip of semi-improved grassland along the northern boundary. The dominant species in both fields are Italian rye-grass (*Lolium multiflorum*), Yorkshire fog (*Holcus lanatus*), creeping bent (*Agrostis stolonifera*) and creeping buttercup (*Ranunculus repens*) (Target notes 5 and 10).

#### Tall ruderal herbs

- 5.14 There is a strip of tall ruderal herb along the northern site boundary between the hedgerow and the area of semi-improved grassland.

#### Swamp

- 5.15 There is an area of swamp along the southern edge of the pond in the centre of the site. Branched bur-reed (*Sparganium erectum*) and reed canary grass (*Phalaris arundinacea*) are abundant (Target note 9).

#### Open water

- 5.16 There is a large (approximately 200m<sup>2</sup>) pond in the centre of the site. There is little aquatic vegetation, the southern edge has a thick band of marginal vegetation. It is shaded on the east, north and west sides by scrub and trees. (Target note 9).

### Running water

- 5.17 There is a shallow drainage ditch that runs along the southern boundary of the site, between the hedgerow and the public footpath.

### Species-poor intact hedge

- 5.18 There are three stretches of species-poor intact hedge on site. The small section on the western half of the northern boundary and the section running adjacent to the dense scrub in the centre of the site are both dominated by blackthorn. The section of species-poor intact hedge on the southern boundary is dominated by hawthorn with occasional bittersweet (*Solanum dulcamara*), holly (*Ilex aquifolium*) and hazel (*Corylus avellana*).

### Species-poor hedge and trees

- 5.19 Species-poor hedge and trees is the main hedgerow type found on site. It dominates most of the western and northern boundaries and also stretches from the pond edge (in the centre of the site) to the eastern boundary. There are small sections present in the northeast and southeast corners of the site. The frequently occurring species in these areas include English oak, hawthorn, blackthorn, elder (*Sambucus nigra*), ivy (*Hedera helix*) and sycamore (*Acer pseudoplatanus*) (Target notes 1, 3, 4, 6 and 8).

### Species-rich hedge and trees

- 5.20 There are two sections of native species-rich hedge<sup>1</sup> and trees on site. One is found in the centre of the site, it runs from the middle of the western boundary to the edge of the pond. English oak, ivy, blackthorn, hazel, holly, hawthorn and mountain ash (*Sorbus aucuparia*) make up the native woody species present in this section of hedge (Target note 7).
- 5.21 The second stretch of species-rich hedge and trees runs along the majority of the southern boundary. English oak, ivy, blackthorn, hazel, holly, hawthorn, mountain ash and elder are the native woody species found in this section.

### Wet ditch

- 5.22 There is a ditch containing shallow standing water (at the time of survey) that runs between the eastern site boundary and Whinney Lane.

### Dry ditch

- 5.23 There is a dry ditch which runs along the length of the species-rich hedge and trees in the centre of the site.

---

<sup>1</sup> These hedges were categorised as species-rich due to the diverse number of native woody species present. The quality of groundflora is also a factor in the richness of hedgerows, however due to the time of survey typical woodland groundflora may not have been recorded. Therefore these hedges have been categorised solely due to diverse number of native woody species present.

### Wildlife Corridors

- 5.24 The site is well connected by hedgerows to the immediate surrounding countryside. However the immediate countryside is fairly cut off by the residential developments of Chorley and Euxton (Figure 1, above). The railway to the North and east of the site along with Euxton brook and German Brook are likely to act as a wildlife corridor to the surrounding open countryside to the north, west and south.

### Assessment for species of conservation concern

#### Amphibians

- 5.25 The pond is located in the centre of the site. A great crested newt Habitat Suitability Index (HSI) assessment was carried out on the pond.
- 5.26 The results of the HSI assessment for the pond is presented at Table 2, below.

**Table 2: HSI results**

SI Ref	Description of Index	Measure / Comment	SI score
SI <sub>1</sub>	Geographic location	A	1
SI <sub>2</sub>	Pond area m <sup>2</sup>	200m <sup>2</sup>	0.4
SI <sub>3</sub>	Pond permanence	never dries	0.9
SI <sub>4</sub>	Water quality	poor	0.33
SI <sub>5</sub>	Shading %	50%	1
SI <sub>6</sub>	Presence of waterfowl	minor	0.67
SI <sub>7</sub>	Presence of fish	possible	0.67
SI <sub>8</sub>	Pond density in area	25	1
SI <sub>9</sub>	Terrestrial habitat quality	good	1
SI <sub>10</sub>	Macrophyte cover in pond	10%	0.4
<b>HSI</b>	<b>Overall HSI for Pond:</b>	<b>0</b>	<b>0.681</b>

- 5.27 The calculations give a HSI score of 0.681 which equates to 'average suitability' for great crested newts. Nationally this category demonstrates a 55% occupancy rate by Great crested newts (NARRS, 2007).

### Bats

- 5.28 There are no buildings present on site that could support roosting bats. Five trees present on the site possessed features such as cracks, crevices and dense ivy cover which provide roost opportunity for bats.

### Badgers

- 5.29 No evidence of badgers was identified on site during the survey. The grassland and hedgerows present on site do provide suitable habitat for foraging, should badgers be present in the wider countryside.

### Birds

- 5.30 The scattered broad-leaved trees and hedgerows within and around the site boundaries provide suitable habitat for birds to nest and forage.

### Water voles

- 5.31 No evidence of water voles was identified along the ditches on the eastern and southern site boundaries and on the pond banks. The ditches were shallow and considered to have poor potential to support water voles.

## **6.0 CONCLUSIONS**

- 6.1 The ecological assessment, including desktop and Phase 1 habitat survey were completed in September 2008. Desktop information is given in Appendix One and target notes at Appendix Two. The habitat survey is presented at Drawing G1817.001.

### Designated sites

- 6.2 There are no statutorily-protected sites within 1km of the site. Therefore there are no restrictions in terms of protected or otherwise designated areas.

### Protected and priority habitats

- 6.3 All the hedgerows on site are UKBAP priority habitats. Also the pond has a good probability to satisfy criteria to be a UKBAP priority habitat due to the high likelihood of toad and potentially great crested newt (both species are UKBAP priority species) presence.
- 6.4 Trees on site should be retained where possible to ensure no net loss of biodiversity under PPS9.

### Local Plan

- 6.5 The site falls within Greenbelt, but the proposed pitches and ancillary structures are an appropriate form of development within Greenbelt.

## Species of conservation concern

### Amphibians

- 6.6 The waterbody located on site was assessed to be of average suitability for great crested newts, resulting in a HSI with a category of 55% occupancy for this species. There is therefore a medium – high probability that great crested newts will be present within the pond.
- 6.7 The surrounding terrestrial habitat has good potential for amphibian foraging. The landscape also contains a high density of ponds (25) within 1km of the site. This high pond density increases the suitability for great crested newts in the landscape, due to the tendency of this species to form metapopulations using pond clusters across the wider landscape.

### Bats

- 6.8 Five of the trees on site possessed features such as crack, crevices and dense ivy cover. These trees have the potential to support roosting bats. The tree and hedge lines along the field boundaries also provide good foraging habitat for bats and are likely flight paths.

### Badgers

- 6.9 No setts or badger field signs were identified on site during the walkover. It is considered unlikely that development would impact upon badgers.

### Birds

- 6.10 Birds could use the trees, hedges and scrub on site for nesting and foraging. It will be possible to mitigate for breeding birds using the site by timing vegetation clearance and ensuring replacement planting.

### Water voles

- 6.11 No evidence of water vole was identified in the pond within the site or within either of the ditches adjacent to the site boundaries. The habitats were considered to have low potential to support water vole.

## **7.0 IMPLICATIONS**

### Habitats

- 7.1 PPS9 places a duty on Local Planning Authorities to maintain and protect biodiversity interest at a site and where possible maximise opportunities for building in biodiversity gain as part of good design. Where harm to biodiversity interests can not be reasonably avoided, planning authorities must ensure that adequate mitigation or compensation is provided to ensure not net loss to biodiversity interest.

- 7.2 Mature trees, ponds and hedgerows provide valued biodiversity interest and should be retained or replaced to ensure no net loss of these ecological resources.

### **Amphibians**

- 7.3 The pond and surrounding terrestrial habitats on site provide suitable breeding, refuge, foraging and ranging habitats for great crested newts. The high density of ponds in the landscape increases the suitability for great crested newt metapopulations.
- 7.4 The landscape proposals for the site will not affect potential breeding sites or refuge sites and will not significantly alter foraging or ranging opportunities. The impacts of the proposals would result only in temporary disturbance and reinstatement of terrestrial habitats which is a low impact (English Nature 2001) and the loss of a small area of grassland for car parking and changing facilities, which is a low-medium impact, depending on the population size(s) of any amphibian species, particularly great crested newt, supported by the pond.
- 7.5 Construction of the pitches, car park and changing facilities will involve some ground disturbance which may introduce a risk of injury to amphibians that may be ranging within the grassland habitats to be affected. This risk will generally be low, given that the grassland habitats do not contain any refuge features and the carrying capacity of such habitats is low density. However, if great crested newts were present, this risk might constitute an offence under the legislative framework protecting the species.
- 7.6 If great crested newts are present within the pond, a licence from Natural England would be required before works could commence, due to the proximity of the works to the pond increasing the likelihood of foraging or ranging amphibians within the grasslands to be affected.
- 7.7 The proposals for the site, if implemented applying the best practice measures below, will not significantly affect the conservation status of any local amphibian population.

### **Bats**

- 7.8 It is understood no removal of trees or hedgerow will take place, apart from a small section of species poor hedgerow in the northwest corner of the site. This section is required to provide access to the site.
- 7.9 The five trees with bat potential (Drawing G.1817.001) on site are not located in the section of hedgerow to be removed, and are to be retained and protected in the current proposals. If they are required to be removed for any reason in the future, a more detailed bat survey of these trees will be required before any works on the trees can commence.

- 7.10 It is also understood that no permanent features will obstruct possible flight lines along hedgerows (such as netting behind archery ranges) are planned and that no flood lighting will be installed which could also interfere bat flight lines or bat foraging. Therefore, there are no apparent implications for development of the site in respect to bats.
- 7.11 However, if permanent features such as netting or flood lighting are subsequently required, a bat activity survey might be required to advise appropriate location/use.

### **Birds**

- 7.12 Section 1 of the *Wildlife and Countryside Act 1981*, as amended, makes it an offence to disturb a wild bird while it is at, on or building a nest, injure or take any wild bird, nest or egg.
- 7.13 To mitigate for breeding birds, trees, hedges and scrub should have necessary vegetation clearance works carried out during autumn, winter or early spring (September – February inclusive) to avoid the bird nesting season.

## **8.0 RECOMMENDATIONS**

- 8.1 An amphibian survey will be required at the pond during the spring survey season of 2009 (March – June) to determine whether great crested newts are present within the pond. Ideally, surrounding ponds within 500m of the site should be included in the survey. However, inclusion of offsite ponds in the survey will require third party permission to access, which cannot be guaranteed. All pond surveys should be conducted by licensed personnel in accordance with current guidelines (English Nature 2001).
- 8.2 If great crested newts are confirmed present during survey in spring 2009, the proposals for the site will need to be implemented under licence by Natural England.
- 8.3 Tree and hedge removal should be avoided wherever possible to maintain existing commuting routes and foraging habitats for bats within and across the site. If hedge removal is required, for example to create access, the hedgerow should be felled avoiding the bird nesting season (March – August inclusive). If great crested newts are confirmed within the site, hedgerows should be felled to stump to avoid the bird nest season. The stumps should then be removed and hedge base grubbed out under licence from Natural England.
- 8.4 Consideration should be given to planting new hedgerows and strengthening of current hedgerows, within the landscape of the site, such as in and around the nature area. Strengthening of existing hedgerows could be achieved by providing a buffer at the hedge base to allow groundflora to establish and widen the base. Hedges could be managed on a phased basis (one side in alternate years) and cut to a wedge shape which is more naturalistic. Hedges should

- ideally not be flailed as part of their future management, but if no other method is available flailing should be done to avoid the bird nesting season and when hedge species are in fruit.
- 8.5 When planting new trees and hedgerows, care should be taken to avoid increasing the shade over and around the pond. Following pond survey in spring 2009, enhancement measures may be identified that could improve the biodiversity value of the pond and, potentially, increase the pond's value for amenity and education, if desired.
- 8.6 New planting should incorporate locally appropriate native species and should aim to include at least five woody species. Hedgerows or similar linear native planting across the site would help strengthen wildlife corridors through the landscape.
- 8.7 In the event that great crested newts are confirmed present in spring 2009, the areas of the car park, hard surfaces, changing rooms and, potentially, paths, will likely need to be excluded from amphibian access by the installation of barrier fences. If any of the sports pitches require significant turf stripping, drainage works or re-turfing, these pitches may also need to be included within the exclusion area.
- 8.8 The footprints of these excluded areas would need trapping out and any animals captured would need to be translocated to safe undisturbed habitats, such as the habitats around the pond. Five days before completion of the trapping period, the excluded areas should be cut to amenity height (5mm). If the grass height is above 150mm at this time, the cutting should be implemented in two stages; the first to 150mm and the second to 5mm, with at least 24 hours between cuts. This will ensure any remaining amphibians or small mammals are encouraged to move out of the grass sward towards pitfall traps, maximising efficiency of the trapping scheme.
- 8.9 Ideally, arisings from grass cutting should be raked up immediately after (or collected during) each cut. Arisings could be used to create refuge piles in the proposed nature area, or along hedgerow bases or in corners of the site.
- 8.10 The exclusion, trapping and translocation activities would need to be implemented under licence from Natural England. Provided the exclusion areas maintain access to the pond and pond margins from the surrounding landscape, the temporary exclusion measures will not significantly affect the local amphibian populations.
- 8.11 The use of permeable surfaces for the proposed car park and footpaths should be considered. The permeable surfaces would create less of an obstacle to species such as common toad and great crested newt, and will improve sustainable development of the site. It is not considered that loss of the small area of grassland to car park, hard surface or changing rooms will significantly affect the conservation status of local amphibian populations. The use of the site for sport and recreation is not likely to have any long term impacts on amphibians using the site or surrounding habitats.

- 8.12 Other potential enhancement measures include the provision of wildlife refuge features such as log piles and insect houses, particularly in the nature area and associated with hedges. Seeding or planting native wildflower and shrub species would improve the botanical diversity of grassland areas outside the sport pitches and viewing areas. Such areas might include along hedgerows, in corners and within the nature area.
- 8.13 Specific features to provide additional opportunities for roosting bats and nesting birds include as bat boxes and nesting boxes or breeding ledges. Installation of bat boxes might be more appropriate for suitable mature trees, rather than the single storey changing facilities. The nest boxes and ledges can be fixed to new buildings, such as the changing facilities, to attract house sparrows, swallows, house martins and swifts all of which have declined in number over recent years and all of which might forage across the site. (Appendices Three and Four).

## 9.0 REFERENCES AND FURTHER READING

ANON (1994) *Biodiversity: the UK action plan* HMSO, London

GREGORY RD, EATON MA, NOBLE DG, ROBINSON JA, PARSONS M, BAKER H, AUSTIN G & HILTON GM. (2003) *The state of the UK's birds 2002* RSPB, BTO, WWT & JNCC, Sandy.

THORPE RI & YOUNG A. (2003) *The population status of birds in Wales: an analysis of conservation concern 2002 - 2007* RSPB Cymru, Cardiff.

HERPETOFAUNA GROUPS OF BRITAIN AND IRELAND (1998) *Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards*. HGBI advisory notes for Amphibian and Reptile Groups (ARGs). HGBI, c/o Froglife, Halesworth. Unpubl.

JOINT NATURE CONSERVATION COMMITTEE (1998) *Herpetofauna Worker's Manual* (Gent, T. and Gibson, S. eds) JNCC, Peterborough

LANGTON, T. (1989) *Snakes and lizards*. Whittet Books Ltd, London

OFFICE OF THE DEPUTY PRIME MINISTER (2005) '*Planning Policy Statement 9: Geological and Biological Conservation*' HMSO, Norwich

OFFICE OF THE DEPUTY PRIME MINISTER (2005) '*Government Circular: Geological and Biological Conservation – Statutorily obligations and their implications within the planning system*' ODPM circular 06/2005, DEFRA circular 01/2005

OLDAM *et al.* (2000). *Herpetological Journal* vol. 10, no. 4, pp143-156.

JOINT NATURE CONSERVATION COMMITTEE (2007) *Phase 1 Habitat Survey- a technique for environmental audit. Revised reprint 2003, reprinted 2007*. JNCC. Peterborough

STACE, C. A. (1997) *Flora of the British Isles, 2nd ed.* Cambridge University Press