



Boozey Field,
Griffiths Road, Gwersyllt

Ecological Assessment

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1 Introduction

1.1 Background

Kingdom Ecology have carried out an ecological assessment of an area of improved pasture land known as Boozey Field located in Gwersyllt, Wrexham. The ecological assessment has been carried out in support of a planning application to redevelop the site as housing.

Development proposals are to construct approximately 50 new dwellings at the site with associated gardens and infrastructure. The development will require the removal of some boundary features and immature trees to provide site access.

Field survey was undertaken on the 21st January 2015. Surveys were carried out by Richard Roe (BSc, MSc, MIEEM, CEnv). Richard has extensive experience of undertaking habitat and protected species surveys as a professional ecological consultant with over twelve years experience. Richard is also a licensed great crested newt worker (Natural Resources Wales License Number 56898:TH:SA:2014).

1.2 Purpose of Report

This report provides and outlines the ecological information gained from field survey undertaken at the study site in January 2015.

The field survey aimed to identify habitats and species which are either of importance in terms of their conservation value or are afforded statutory legal protection. The presence of such habitats or species would form a material consideration during the planning process and could pose a constraint to the redevelopment of the site.

The field surveys comprised of an Extended Phase 1 Habitat assessment, a great crested newt Habitat Suitability Index assessment and a desktop study.

Species considered during the assessment included breeding birds, badger, bats, reptiles and great crested newt.

The report evaluates the conservation importance of the habitats and species recorded and goes on to make recommendations for further works, mitigation and ecological enhancement measures where relevant.

1.3 Study Area

The study area comprises of a 2.1ha field land known as Boozey Field and is located immediately to the north of Griffiths Road, Gwersyllt, Wrexham, LL11 4YT. (Ordnance Survey Grid Reference SJ 318 524). The site location is shown on Figure 1 in the Appendix.

The field comprises of horse grazed pasture land. The site is bounded to the south by Griffiths Road, to the east by Old Mold road and to the north and west by the gardens of residential properties located on Glascoed Way, The Meadows, Vyrny Close and Celyn Close.

The boundary features at the site included fencing, tree lines and stone walls. The site is accessed via a gate on Griffiths Road.

Surrounding habitats comprise of suburban housing and gardens to the north and agricultural land to the south, east and west. The A541 Mold Road lies approximately 75m to the east of the site.

1.4 Evaluation Methodology

The results of the desktop and field surveys are used to identify ecological resources that may be of relevance to the proposals. The *IEEM Guidelines for Ecological Impact Assessment* (IEEM, 2006) sets out the recommended approach for valuing ecological resources, and for assessing the effects of proposed activities on them. It suggests that three types of value can be attributed to ecological resources – biodiversity value, community/social value and economic value, and that these should, as far as possible, be considered separately. IEEM (2006) also advises that legal protection should be considered separately from value, and that the value of an ecological or nature conservation resource should be determined within a defined geographical context; it recommends that the following frame of reference be used:

- International
- UK
- National
- Regional
- County or Metropolitan
- District (or Unitary Authority, City or Borough)
- Local or Parish
- Within zone of influence only (this may be the project site or a larger area)

Designated sites (eg. SSSIs, SPAs etc) are generally straightforward to evaluate in relation to this frame of reference. Evaluation of other habitats and species needs to take into consideration a range of criteria, such as their rarity, diversity levels, population sizes and trends, whether they are replaceable or 're-creatable' (for habitats) etc. Appropriate criteria are proposed and discussed in various documents,

such as in *A Nature Conservation Review* (Ratcliffe, 1977)¹, *Guidelines for the selection of biological SSSIs* (JNCC, 1989)², *Local Sites* (Defra, 2006)³, *Local Wildlife Site Selection Criteria for the Cheshire Region* (Cheshire Wildlife Trust 2014)⁴ and also in local and national Biodiversity Plans (BAPs) including Species and Habitat Action Plans (SAPs and HAPs)(see Anon, 1995 for UK BAP)⁵.

Species may be evaluated by reference to their rarity and status in the national or local context. In addition to protected species, rare species, as defined in the Red Data Books/Red Lists/Scarce species lists and in the national and local Biodiversity Action Plans, are recognised to hold value.

The list of national priority BAP species has recently been updated (available on: <http://www.ukbap.org.uk/NewPriorityList.aspx>). The conservation status of declining British birds has been defined in the *Birds of Conservation Concern Report 2009* (Eaton et al. 2009)⁶; where appropriate, this assigns bird species to the Red or Amber list of birds of either high or medium conservation concern, according to a range of defined criteria.

1.5 Legislative and Policy Context

This report and its recommendations have been produced in accordance with relevant legislation, best practice guidance and local biodiversity targets. They also take into account the National Planning Policy Framework (NPPF)⁷ in addition to nature conservation policies within local and regional planning policy documents.

¹ Ratcliffe, D.A. 1977. *A Nature Conservation Review*. Cambridge University Press.

² JNCC, 1989. *Guidelines for the selection of Biological SSSIs*. Nature Conservancy Council, Peterborough.

³ DEFRA 2006. *Local Sites Guidance on their Identification, Selection and Management*

⁴ Cheshire Wildlife Trust 2014, *Local Wildlife Site Selection Criteria for the Cheshire Region*

⁵ Anon, 1995. *Biodiversity: The UK Biodiversity Steering Group Report*. Vol. 2. Action Plans. HMSO.

⁶ Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) *Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man*. *British Birds* 102, pp296-341

⁷ National Planning Policy Framework (NPPF) (2012). Department for Communities and Local Government. March 2012.

The principal legislation relating to ecological resources that are relevant to this appraisal are as follows:

Conservation of Habitats and Species Regulations (as amended) 2010 - these Regulations implement protection for European protected sites and species, updating and consolidating the Conservation (Natural Habitats &c.) Regulations (as amended) 1994. The level of protection afforded to habitats and species remains the same. The Regulations implement the Council Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (92/43/EEC).

Wildlife and Countryside Act (1981) (as amended) - this Act comprises the principal means of protecting wildlife in the UK and provides the mechanism by which a number of international directives are implemented in the UK.

Countryside and Rights of Way (CROW) Act (2000) - this Act strengthens the Wildlife and Countryside Act in relation to SSSIs and threatened species.

Natural Environment and Rural Communities (NERC) Act (2006) - this Act places an obligation on public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity.

Biodiversity Action Plan (BAP) - the UK BAP and local BAPs is the UK Government's response to the Convention on Biological Diversity, signed in 1992. The BAPs describe the UK's biological resources and commits a detailed plan for the protection of these resources through the implementation of Habitat and Species Action Plans. Whilst UK BAP species and habitats are afforded no statutory protection, their conservation must be considered by a planning authority during the planning process as described under the NERC Act 2006.

1.6 Protected Species Legislation

1.6.1 Birds

All wild birds in England and Wales are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird, or take, damage or destroy the nest (whilst being built or in use) or its eggs.

1.6.2 Bats

All British bat species are fully protected under the Wildlife and Countryside Act 1981 (as amended) and through their inclusion in Schedule II of the Habitats Regulations 2010 which transpose Annex II of the Council Directive 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora ("EC Habitats Directive") which defines European protected species of animals.

British bats species are afforded further protection by the Countryside and Rights of Way Act 2000; and the Natural Environment and Rural Communities Act 2006.

Taken together, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture bats.
- Deliberately disturb bats, whether at roost or not.
- Damage, destroy or obstruct access to bat roosts.
- Possess or transport bats, unless acquired legally.
- Sell, barter or exchange bats.

A bat roost is interpreted as “any structure or place, which any wild bat uses for shelter or protection.” (Bat Conservation Trust 2012⁸). A bat roost is protected whether or not bats are present at the time.

All species of British bat are considered a European Protected Species (EPS). The Conservation of Habitat and Species Regulations (2010) provide derogation against certain offences which could potentially affect an EPS through the EPS Licensing system.

The UK Biodiversity Action Plan lists common pipistrelle *Pipistrellus pipistrellus* as a priority species (United Kingdom Biodiversity Partnership 2005).

1.6.3 Badger

Badgers are afforded protection under the Protection of Badgers Act (PBA) 1992; this act was introduced on welfare grounds. The Act is based primarily on the need to protect badgers from baiting and deliberate harm or injury. Badgers are not considered to be a species of any conservation concern. However the Act contains restrictions that apply more widely and can have implications where badgers and development come into conflict. All the following are considered criminal offences:

- to willfully kill, injure, take, possess or cruelly ill-treat a badger;
- to attempt to do so; or
- to intentionally or recklessly interfere with a sett.

Sett interference includes damaging or destroying a sett, obstructing access to a sett, and disturbing a badger whilst it is occupying a sett. It is not illegal, and therefore a licence is not required, to carry out

⁸ Bat Conservation Trust (2012) 'Bat Surveys: Good Practice Guidelines 2nd Edition'

disturbing activities in the vicinity of a sett if no badger is disturbed and the sett is not damaged or obstructed.

1.6.4 Great Crested Newt

The great crested newt (*Triturus cristatus*) receives full protection under the Wildlife and Countryside Act 1981 (as amended) and through their inclusion in Schedule II of the Habitats Regulations 2010. This legislation makes it an offence to:

- intentionally kill, injure or take a great crested newt;
- disturb a great crested newt;
- intentionally or recklessly damage, destroy, obstruct access to a breeding site or resting place of a great crested newt;
- sell, offer for sale, possess or transport a great crested newt for the purpose of sale.

The great crested newt is listed as a priority species within the UK Biodiversity Action Plan and under the NERC Act 2006.

1.6.5 Common Reptiles

All common reptiles, i.e. slow worm (*Anguis fragilis*), common lizard (*Lacerta vivipara*), adder (*Vipera berus*) and grass snake (*Natrix natrix*), are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) in respect of Section 9(1) which makes it an offence to intentionally kill or injure the animals.

2 Desktop Study

2.1 Sources of Information

Ecological information on habitats, species and designated nature conservation sites has been sought from the National Biodiversity Network (NBN) (<http://www.nbn.org.uk/>) and the Multi Agency Geographic Information for the Countryside website (Magic) (<http://www.magic.gov.uk>). Additional information on local great crested newt populations was obtained from a planning meeting between the developer and the planning officer in February 2014.

2.1.1 National Biodiversity Network

The NBN was interrogated to identify the presence of protected and other notable vertebrate species (apart from birds and fish) in the countryside surrounding the site. Only biological records gathered since 2000 were sort. Protected species recorded within the site's 10km grid square (SJ35) included the following:

- Great Crested Newt (*Triturus cristatus*)

- Hedgehog (*Erinaceus europaeus*)
- Brown hare (*Lepus europeaus*)
- Polecat (*Mustela putorius*)
- Brown Long-eared Bat (*Plecotus auritus*)
- Common Pipistrelle (*Pipistrellus pipistrellus*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)
- Noctule Bat (*Nyctalus noctula*)
- Badger (*Meles meles*)
- Otter (*Lutra lutra*)
- Water Vole (*Arvicola amphibious*)
- Slow worm (*Anguis fragilis*)
- Grass snake (*Natrix natrix*)
- Adder (*Vipera berus*)
- Common lizard (*Zootoca vivipara*)

2.1.2 Multi Agency Geographic Information for the Countryside

The MAGIC website identified only one statutorily protected site within 2km of the study site. This site is the Gatewen Marsh Site of Special Scientific Interest which is located approximately 800m to the south of the site. This site will not be affected by the proposed development.

2.1.3 Planning Meeting

A meeting between the developer and the Wrexham Council Planning Officer was held on the 7th February 2014. The meeting identified two potential ponds within 500m of the study site.

Pond 1 is located within the grounds of Stansty Park at grid reference SJ 319 523 and is located approximately 130m south of the study site.

Pond 2 is supposedly located within the Gwersylt housing estate at grid reference SJ 318 529 which lies approximately 400m to the north of the study site.

There are records of great crested newt at both of these locations. These records are also present on the NBN Gateway. Both locations are shown on Figure 1.

The locations of both of these ponds were visited during the field survey. Potential terrestrial routes between these ponds and the proposed development site and the likelihood of great crested newt being present within the development site were considered. Pond 2 could not be found.

3 Field Survey Methods

3.1 Survey Aims and Objectives

The survey aim was to assess the site as to its ecological importance by assessing the value of habitats and their suitability to support any protected or notable species. The purpose of this was to highlight any ecological constraints associated with the development proposals. Survey also aimed to identify opportunities for ecological enhancement and to inform potential mitigation measures if required to ameliorate any negative impacts attributable to the proposed works.

Field survey comprised of an Extended Phase 1 Habitat survey, an assessment of aquatic and terrestrial habitats to support great crested newt and an assessment of other habitats at the site in terms of their suitability to support protected species including the suitability of the site to support reptiles, a search for evidence of badger activity and an assessment of the suitability of trees to support either roosting bats or nesting birds during the breeding bird season.

Species that are considered highly unlikely to be affected by the proposed development, even if known to be present in the general vicinity, were 'scoped out' of the assessment.

3.2 Extended Phase 1 Habitat Survey

3.2.1 Methods

An Extended Phase 1 Habitat Survey of the study site was undertaken on the 21st January 2015. Survey was carried out following standard methodologies as described in the '*Handbook for Phase 1 Habitat Survey - a technique for environmental audit*' (JNCC, 2004⁹).

The aims of the Extended Phase 1 Habitat Survey were to:

- identify and map all areas of semi-natural habitat within the study area;
- provide a botanical description of the semi-natural habitats surveyed;
- identify areas or habitats that are of particular ecological interest for nature conservation and which require more detailed investigation;

⁹ JNCC (2004) '*Handbook for Phase 1 Habitat Survey - a technique for environmental audit*'

- provide additional information regarding incidental observations of protected species and the potential of habitats to support such species. Specifically the suitability of the site to support reptiles and badgers and an assessment of the suitability of surrounding trees to support either roosting bats or nesting birds during the breeding bird season.
- A habitat map was produced and lists of dominant or notable vascular plant species were recorded in each of the major habitat types.

3.3 Great Crested Newt

3.3.1 Habitat Suitability Index Assessment

The Extended Phase 1 Habitat Survey also visited the two pond sites as identified during a planning meeting in 2014 (See Section 2.1.3). Both of these locations are located within 500m of the study site. Pond locations are shown on Figure 1 in the Appendix.

Where present, the ponds were assessed as to their suitability to support great crested newt by assessing habitats present. This assessment followed the Habitat Suitability Index (HSI) Guidelines as produced by the National Amphibian and Reptile Recording Scheme (NARRS 2008¹⁰) which in turn are based on a paper produced by Oldham et al. (2000¹¹). The HSI examines ten key habitat features of a site in order to produce a numerical score of between 0 and 1. This score signifies the suitability of a pond as defined in Table 1.

The habitat features evaluated/measured to obtain the habitat suitability index are as follows: -

- Geographic location,
- Pond area,
- Pond permanence,
- Water quality,
- Pond shading,
- Number of waterfowl,
- Occurrence of fish,
- Pond density,

¹⁰ NARRS (2008) 'Great Crested Newt Habitat Suitability Index'

¹¹ Oldham R.S et al (2000) 'Evaluating the suitability of habitat of the Great Crested Newt (*Triturus cristatus*)'. Herpetological Journal 10 (4), 142-155

- Terrestrial habitat,
- Macrophyte cover.

Table 1- HSI Score Categories

<i>HSI</i>	<i>Pond Suitability</i>
<0.5	Poor
0.5-0.59	Below Average
0.6-0.69	Average
0.7-0.79	Above Average
>0.8	Excellent

3.4 Badger

3.4.1 Methods

The survey was undertaken on 21st January 2015 and adopted the standard approach used in the National Badger Survey (Cresswell *et al.*, 1990)¹² and recommended by the Mammal Society (described in the booklet '*Surveying Badgers*' (Harris, Cresswell and Jefferies, 1989¹³)). It involved searching for badger signs, including setts, latrines, foraging marks, badger hairs, trails and footprints. Setts and other signs were, if found, marked on maps or aerial photographs.

3.5 Bats

The survey objectives were to identify and evaluate bat roosting habitat on site.

¹² Cresswell, P., Harris, S., and Jeffries, D.J., 1990. The history, distribution, status and habitat requirements of the badger in Britain. Nature Conservancy Council.

¹³ Harris, S., Cresswell, P. and Jefferies, D., 1989. Surveying Badgers. Occasional Publication of the Mammal Society, No.9. Mammal Society, London.

3.5.1 Methods

Surveys followed methodologies prescribed in English Nature's *Bat Mitigation Guidelines* (Mitchell-Jones 2004)¹⁴ and the Bat Conservation Trust's *Bat Surveys: Good Practice Guidelines* 2nd Edition (BCT 2012)¹⁵.

A visual inspection of mature trees within and immediately bordering the site was made to assess their bat roosting potential. The inspection was made from ground level during daylight conditions using binoculars and a high powered torch to assess the potential of any cracks and holes to support bat roosts, and to search for evidence of bat use such as droppings, scratch marks, staining etc.

In addition to identifying actual bat roosts the surveys also aimed to assess the suitability of the trees to support bats and consequently the likelihood of a bat roost being present that did not exhibit obvious field signs. Roost suitability was assessed by examining structural features and surrounding habitat. Structural features that could influence the suitability of a tree to support roosting bats include:

- frost cracks
- trunk and branch splits
- woodpecker holes
- rot holes where branches have been removed
- hollow sections of trunk, branches and roots
- loose bark
- cavities beneath old root buttresses and coppice stools
- dense ivy
- bat or bird boxes

Important habitat features surrounding individual trees, which could influence roost potential include; whether the trees are in a semi-rural or parkland location, proximity to a significant linear feature (e.g. watercourse, mature hedgerow, wooded lane) or proximity to known bat roosts etc.

Taking account of these structural and habitat features, trees were assigned a level of roost suitability based upon professional judgement.

¹⁴ Mitchell-Jones, A.J. 2004. *Bat Mitigation Guidelines*. English Nature, Peterborough.

¹⁵ Bat Conservation Trust (2012) *Bat surveys – Good Practice Guidelines* 2nd Edition. Bat Conservation Trust, London.

Surveys were undertaken in January 2015 which is a good time of year to carry out surveys as potential roosting features are not obscured by foliage.

4 Results

4.1 Habitats and Flora

4.1.1.1 Overview

The study site comprises of a horse grazed pasture field of approximately 2.1 ha in size located to the north of Griffiths Road, Gwersyllt, Wrexham, LL11 4YT. (Ordnance Survey Grid Reference SJ 318 524).

The site is bounded to the south by Griffiths Road, to the east by Old Mold Road and to the north by the gardens of residential properties located on Glascoed Way, The Meadows, Vyrny Close and Celyn Close.

A barbed wire stock fencing runs around the boundary of the entire site. Further boundary features are summarised below.

A habitat map of the site is shown on Figure 2 in the Appendix. Photographs showing typical habitat at the site are also given in the appendix.

Habitats are described below.

4.1.1.2 Improved pasture land

The study site is mainly comprised of horse grazed improved pasture (Target Note 1 on Figure 2). At the time of survey the field had been closely grazed and supported a short grass sward.

Grass species present include frequent Yorkshire fog (*Holcus lanata*) and cock's-foot (*Dactylis glomerata*). Herbs present include frequent creeping buttercup (*Ranunculus repens*), occasional common ragwort (*Senecio jacobaea*), common mouse ear (*Cerastium fontanum*) and white clover (*Trifolium repens*) with rare meadow buttercup (*Ranunculus acris*).

There are scattered small patches of nettle (*Urtica dioica*) distributed throughout the field. These are indicative of localised nutrient enrichment attributable to horse manure.

4.1.1.3 Disused Railway Line and Northern Boundary

A disused railway line formerly ran along the northern edge of the site immediately outside of the study area (Target Note 2 on Figure 2). However the former railway line now forms part of the gardens of the adjacent residential properties. Many of the residents have extended

their gardens into the disused railway line whilst others use it to dump garden waste.

The former railway grades into an embankment as it approaches Old Mold Road. A line of trees and scrub runs along the route of the disused railway line and forms a boundary feature between the study site and the neighbouring gardens.

Tree and scrub species principally comprise of hawthorn (*Crataegus monogyna*), sycamore (*Acer pseudoplatanus*) and ash (*Fraxinus excelsior*) with occasional elder (*Sambucus nigra*), holly (*Ilex aquifolium*), alder (*Alnus glutinosa*) and cypress. The ground flora comprises of bare earth and occasional patches of ivy (*Hedera helix*).

All tree species were found to be reasonably young and so had not developed any suitable rot holes or crevices which could be used by roosting bats. However trees and scrub in this area could be used by nesting birds during the breeding bird season.

4.1.1.4 Southern Boundary

The southern boundary of the site is marked by Griffiths Road. The site is separated from Griffiths Road by a treeline and a stone wall. The tree line (Target Note 3 on Figure 2) comprises of a row of mature sycamore, ash, oak (*Quercus robur*) and elder and an outgrown hawthorn hedge. It runs from the western end of the site until roughly half way along Griffiths Road. A stone wall (Target Note 4 on Figure 2) then runs along the remaining half of the site and extends around the eastern site boundary along Old Mold Road. The site is accessed via a gate in the stone wall located on Griffiths Road.

The trees running along Griffiths Road were found to support limited bat roosting potential, with the only suitable features identified within ivy growth on some of the tree's trunks.

The trees and hedgerow habitats are likely to be used by nesting birds during the breeding bird season.

4.1.1.5 Tall Herb Community

There is a small area of tall ruderal vegetation at the western corner of the site (Target Note 5 on Figure 2). This area is fenced off from the remainder of the field and so has not been grazed by horses. Vegetation in this area comprises of abundant nettle, bramble (*Rubus fruticosus agg.*) and hogweed (*Heracleum sphondylium*).

4.1.2 Evaluation and Conclusions

The habitat/botanical survey has demonstrated that the majority of the site contains agriculturally improved grassland of negligible nature conservation value according to the IEM (2006) framework guidelines with limited semi-natural habitats present.

The mature trees, scrub and outgrown hedgerow running along the southern and northern boundary of the site are considered to be the habitat features of greatest ecological importance at the site and are considered to be of **local** conservation value.

4.2 Badger

4.2.1 Results

No field signs indicative of badgers were found within the proposed development site or within immediately adjacent habitats.

4.2.2 Evaluation and Conclusions

It is possible that badgers reside in the general area however no field signs or badger setts were identified within the proposed development site or adjoining habitats. It is possible that any unidentified badger social group in the area could use the application site for earthworm foraging, but, judging by the absence of field signs, such usage would be infrequent. Improved pasture is widespread in the surrounding countryside, so it is very unlikely that the application site would represent a significant part of any local badger clan's foraging resource.

The badger is a widespread and common mammal in rural parts Wrexham County Borough and it is therefore assigned to the **Local** value category in this assessment.

Badgers and their setts are protected under the Protection of Badgers Act 1992. However, the proposed development would not affect any setts or individuals, so there is no possibility that it would infringe this legislation.

4.3 Great Crested Newt

4.3.1 Pond Survey Results

Two potential great crested newt breeding ponds had been identified by Wrexham County Borough within 500m of the study site (see Section 2.1.3 and Figure 1 in the Appendix).

Pond 1 is located within the grounds of Stansty Park at grid reference SJ 319 523 and is located approximately 130m south of the study site.

Pond 2 is supposedly located within the Gwersylt housing estate at grid reference SJ 318 529 which lies approximately 400m to the north of the study site.

The NBN gateway also holds records of great crested newt being present at these locations.

Both locations were visited during the field visit undertaken on the 21st January 2015 and were assessed as to their suitability to support great crested newt.

Pond 1 is located within the grounds of Stansty Park. It is a manmade pond measuring approximately 1100m² in size. The pond has sheer stone banks around approximately 80% of the pond's circumference which would prevent amphibians from exiting the pond. The pond is relatively deep and it is considered unlikely that the pond ever dries up. The pond is shaded by mature trees along approximately 25% of its circumference. Habitats surrounding the pond are considered to be of a moderate quality for great crested newt with suitable foraging and refugia habitats offered by the adjacent woodland habitats. No other ponds were identified within 1km of the pond which are not separated by barriers to newt dispersal. No aquatic vegetation was observed to be present within the pond however survey was undertaken in January when aquatic vegetation may have died back.

The habitat suitability index score for the pond was 0.61 indicating the pond to be of 'average' suitability. Full HSI results are given in Table 3 below and a photograph of the pond is shown in the appendix.

Pond 2 could not be found during the site visit nor is the pond identifiable from aerial photographs of the site. The pond may be present within a garden of one of the residential property but this could not be determined during survey. There is also the possibility that the pond no longer exists.

Table 3- Habitat Suitability Index Results

<i>HSI Feature</i>	<i>Pond 1</i>	<i>Pond 2</i>
Location	1	N/A
Pond area	0.95	
Pond drying	0.9	
Water quality	0.67	
Shade	1	
Fowl	1	
Fish	0.67	
Ponds	0.1	

Terrestrial habitat	0.67
Macrophytes	0.3
HSI	0.61

4.3.2 Terrestrial Habitat Results

This assessment examined potential terrestrial dispersal routes that newts might use from Pond 1 and a hypothetical Pond 2 to the proposed development site.

Pond 1 is considered to be isolated from the proposed development site by a stone wall which runs around the boundary of the Stansty Estate (see photograph 3). The wall runs along the length of Griffiths Road along the estate's northern boundary and along Summerhill Road to the west and Old Mold Road to the east. There is a small gap in the estate wall along Griffiths Road to provide access to Stansty Park Farm but this would require any migrating newt to navigate around the existing farm buildings and to cross a large area of open hardstanding. A further length of stone wall runs around the eastern half of the proposed development site along Griffiths Road and Old Mold Road which is likely to act as a further barrier to colonisation of the site by newts from Pond 1.

If Pond 2 does exist, this would also be separated from the site by a series of manmade barriers. The pond lies approximately 400m to the north of the proposed development site inside a housing estate. Consequently any newts using this pond would need to navigate across several roads and travel around houses to reach the site. This is considered to be unlikely.

Furthermore, the majority of the proposed development site comprises of closely grazed pasture land which is likely to be of low value to great crested newt.

4.3.3 Evaluation and Conclusions

The desk study has identified great crested newt to be present at two locations within 500m of the proposed development site including within a pond located 140m to the south of the site.

However, the study site is considered to be isolated from these ponds by a series of manmade barriers which render the site inaccessible to any great crested newt populations present within the wider landscape.

It is therefore considered to be very unlikely that the study site is used by great crested newt.

4.4 Reptiles

4.4.1 Evaluation and Conclusions

The NBN gateway hold no records of reptiles within 2km of the study area however adder, slow worm, grass snake and common lizard are known to be present within 10km of the site.

The railway embankment could offer suitable reptile habitat as it supports suitable refuge and basking sites. However habitat in the general vicinity of the embankment is not considered to be of high quality as it principally comprises of closely mown amenity grassland and ornamental shrubbery within residential gardens or closely grazed pasture land within the proposed development site.

The study site is also reasonably isolated from the wider countryside owing to the housing estate located to the north of the site, the A541 Mold Road running to the east of the site and the stone walls running along eastern half of the site and along the length of Griffiths Road. These are all likely to act as barriers to any reptile dispersal to or from the site.

It is consequently considered unlikely that reptiles are present at the site.

4.5 Breeding Birds

4.5.1 Results

The trees, scrub and hedgerow habitats running along the northern and southern boundaries of the site (Target Notes 2 and 3) are likely to be used by nesting birds during the breeding bird season.

4.5.2 Evaluation and Conclusions

The site is likely to support farmland and garden bird species that are common in rural parts Wrexham County Borough. Bird assemblages are therefore assessed as being of **Local** value.

All wild birds in England and Wales are protected during the breeding season under Section 1 of the Wildlife and Countryside Act 1981 (as amended).

4.6 Bats

4.6.1 Tree Surveys

All trees at the site were assessed as to their suitability to support bat roosts.

All tree species located along the northern boundary of the site (Target Note 2) were found to be reasonably young and so had not developed any suitable rot holes or crevices which could be used by roosting bats.

The trees running along the southern boundary of the site and Griffiths Road (Target Note 3) were also found to support to limited bat roosting potential, with the only suitable features identified within ivy growth on some of the trees.

No other trees are present within the study area.

4.6.2 Evaluation and Conclusions

Trees at the study site were found to support limited bat roosting features with only trees located along the southern boundary of the site considered to support low value, potential bat roosting habitat within thin ivy growth. The precise status and conservation value of these potential bat roosts is currently unknown but the identified roosting features are not considered suitable for large aggregations of bats such as a maternity site.

5 Recommendations

5.1 Potential Constraints and Recommendations

5.1.1 Habitats

The majority of the site comprises of intensively managed pasture land. This habitat is considered to be of negligible conservation value.

However the boundary features that run along the northern and southern boundary of the site (Target Notes 2 and 3) are considered to be of **local** conservation value. The tree, scrub and hedgerow species present here are likely to provide suitable refuge and foraging habitat for birds and other wildlife.

Any development of the site should aim to limit impacts upon these locally valuable habitats.

Where new access routes to the site are required, it is recommended that these are sited along the stone wall at Target Note 4 as this section of the southern boundary supports less valuable habitats than those present further west at Target Note 3.

Notwithstanding this any development of the site should also aim to avoid unnecessary impacts to any mature trees at the site including those located along the stone wall at Target Note 4.

Mature trees as well as being culturally and ecologically valuable in their own right are also of importance to invertebrates, birds, mammals and other associated ecological groups through the provision of foraging resources and a variety of ecological niches including standing dead wood and the fungi and other organisms associated with decay.

Dead wood can support nationally rare, highly specialised invertebrates which often have limited abilities to disperse.

5.1.2 Great Crested Newt

It is considered to be unlikely that the site supports any great crested newt. This is on account of the site's isolated location with surrounding manmade barriers rendering the site inaccessible to any great crested newt populations present within the wider landscape.

5.1.3 Birds

The hedgerows, scrub and trees could be used by nesting birds during the breeding bird season.

Any future development of the site should avoid impacting upon these habitats during the bird breeding season (March-August inclusive).

All wild birds in England and Wales are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird, or take, damage or destroy the nest (whilst being built or in use) or its eggs.

5.1.4 Bats

Whilst no field signs of roosting bats were found, field survey identified several trees located at Target Note 3 which offer some low value potential bat roosting features within ivy growth.

If development of the site were to require the removal of these trees, further nocturnal bat surveys may be necessary to establish likely bat presence or absence.

5.2 Ecological Enhancements

It is recommended that any development of the site should aim to retain at least 10-20% of the site as wildlife habitat.

It is recommended that areas retained or managed as wildlife habitat are situated at the western end of the site. This area supports the greatest density of mature trees and hedgerow habitat which are in turn likely to support the broadest range of ecological niches and resources at the site.

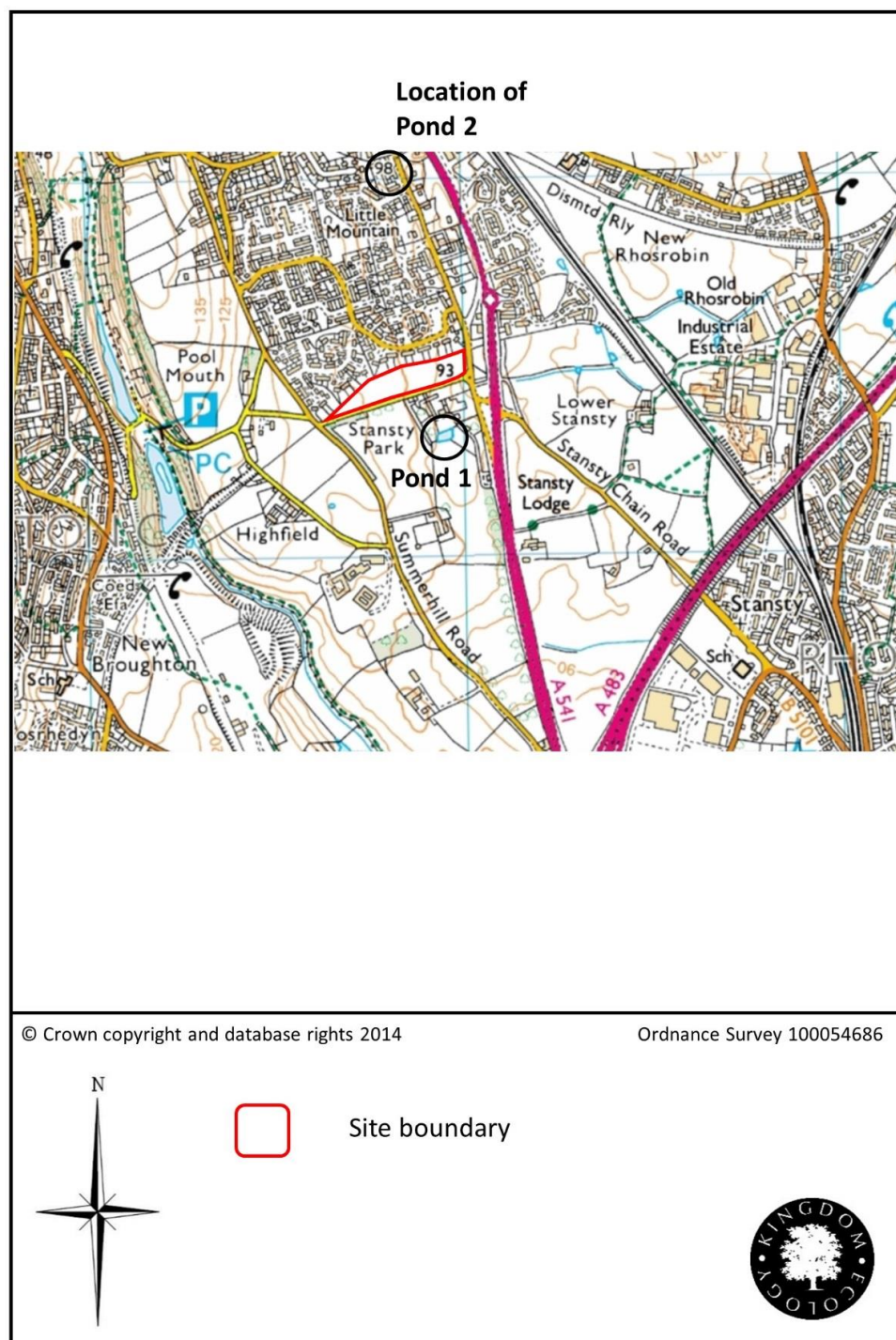
Valuable habitat enhancements could include scrub, woodland, pond or wetland habitat creation. Habitats should aim to provide a linkage between the northern and southern site boundary habitats (Target Notes 2 and 3). This will enhance their ability to function as wildlife corridors.

It is recommended that a bat and bird box scheme is also designed for the site. The scheme can incorporate the bat and bird boxes into any new structures or could have them positioned on retained mature trees.

It is recommended that the nature, scale and layout of the proposed development is designed with cognisance of the described constraints and recommendations for site enhancement. It is recommended that any ecological enhancement features are designed in collaboration with an appropriately qualified ecologist.

6 Appendix

Figure 1- Site and Nearby Pond Locations



KEY

	Site boundary		Tall Herb
	Target Note		Tree
	Improved grassland		Hedge
	Dense scrub		Wall
	Amenity grassland		

PHOTOGRAPHS

Photograph 1- Boozey Field viewed from east



Photograph 2- Target Note 2 viewed from east



Photograph 3- Target Note 3 & Griffiths Road viewed from south west corner of site also showing wall around Stansty Park



Photograph 4- Pond 1

