



Pendine Park,
Summerhill, Wrexham

Preliminary Ecological Appraisal

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1 Introduction

1.1 Background

Kingdom Ecology have carried out a preliminary ecological appraisal of an open area of grassland and woodland located at Pendine Park Care Home, Summerhill Road, Wrexham.

The ecological assessment has been carried out to identify any ecological constraints which should be considered during any future development of the site.

Field survey was undertaken on the 26th May 2015. Surveys were carried out by Richard Roe (BSc, MSc, MCIEEM, 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 and bat worker.

1.2 Purpose of Report

This report provides and outlines the findings of a Desk Study and Preliminary Ecological Appraisal Survey undertaken in May 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 and a desktop study.

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

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 an area of grassland and tall herb vegetation with scattered hawthorn trees and broadleaved woodland around the study site's edges. The study area lies immediately to the south of the existing Pendine Park Care Home and is located immediately to the west of Summerhill Road, Gwesylt, near Wrexham, LL11 4YE (Ordnance Survey Grid SJ 318518).

The site measures approximately 3ha in size. The study site is bounded to the east by a stone wall and Summerhill Road, to the south and west by arable land and to the north by the existing Pendine Park care facility.

Wider surrounding habitats largely comprise of pasture land and arable land with some small areas of woodland.

The site location is shown on Figure 1 in the Appendix.

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 *CIEEM Guidelines for Ecological Impact Assessment* (CIEEM, 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. CIEEM (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 and also in local and national Biodiversity Plans (BAPs) including Species and Habitat Action Plans (SAPs and HAPs)(see Anon, 1995 for UK BAP)⁴.

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>).

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)⁵ in addition to nature conservation policies within local and regional planning policy documents.

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

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

⁵ National Planning Policy Framework (NPPF) (2012). Department for Communities and Local Government. March 2012.

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 2012⁶). 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 disturbing activities in the vicinity of a sett if no badger is disturbed and the sett is not damaged or obstructed.

⁶ Bat Conservation Trust (2012) ‘Bat Surveys: Good Practice Guidelines 2nd Edition’

2 Desktop Study

2.1 Sources of Information

Ecological information on habitats, species and designated nature conservation sites has been sought from COFNOD who are the local biological records centre for the North Wakes Region. Additional records were sort 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>).

2.1.1 Species

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*)

COFNOD holds several records of protected species within 1km of the site including the following:

- Barn owl
- Common pipistrelle
- Badger
- Great crested newt

COFNOD hold no records of protected species at the site itself. The nearest species record is of great crested newt located approximately 500m to the northeast and northwest of the site. COFNOD holds no records of reptile within 1km of the study site.

2.1.2 Designated Sites

No statutory or non-statutory designated sites are located within the study area itself.

The only designated sites located within 1km of the study site are:

- Gatewen Marsh Site of Special Scientific Interest located approximately 250m southwest of the site;
- Moss Valley Local Wildlife Site located approximately 250m northwest of the site; and
- New Broughton Meadow Local Wildlife Site located approximately 1km southwest of the site.

None of these designated sites will be affected by the proposed development.

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 future development proposals.

Field survey comprised of an Extended Phase 1 Habitat survey and an assessment of habitats at the site in terms of their suitability to support protected species including 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 26th May 2015. Survey was carried out following standard methodologies as described in the '*Handbook for Phase 1 Habitat Survey - a technique for environmental audit*' (JNCC, 2004⁷).

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;
- 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 badgers and an assessment of the suitability of surrounding trees to support either roosting bats or nesting birds during the breeding bird season.

⁷ JNCC (2004) '*Handbook for Phase 1 Habitat Survey - a technique for environmental audit*'

A habitat map was produced and lists of dominant or notable vascular plant species were recorded in each of the major habitat types.

Habitats on site have been evaluated with reference to the CIEEM Guidelines for Ecological Impact Assessment (CIEEM, 2006)⁸ which sets out the recommended approach for valuing ecological resources. It recommends that the following frames of geographic reference be used when attributing value:

- International
- UK
- National
- Regional
- County or Metropolitan
- District (or Unitary Authority, City or Borough)
- Local or Parish
- Within zone of influence only

3.3 Badger

3.3.1 Methods

The survey was undertaken on 26th may 2015 and adopted the standard approach used in the National Badger Survey (Cresswell *et al.*, 1990)⁹ and recommended by the Mammal Society (described in the booklet ‘*Surveying Badgers*’ (Harris, Cresswell and Jefferies, 1989¹⁰)). It involved searching for badger signs, including setts, latrines, foraging marks, badger hairs, trails and footprints. Setts and other signs were marked on maps.

3.4 Bats

The survey objectives were to identify and evaluate bat roosting habitat on site through a daytime inspections of trees at the site.

⁸ CIEEM. 2006. Guidelines for Ecological Impact Assessment in the United Kingdom. Institute of Ecology and Environmental Management.

⁹ Cresswell, P., Harris, S., and Jeffries, D.J., 1990. The history, distribution, status and habitat requirements of the badger in Britain. Nature Conservancy Council.

¹⁰ Harris, S., Cresswell, P. and Jefferies, D., 1989. Surveying Badgers. Occasional Publication of the Mammal Society, No.9. Mammal Society, London.

Surveys followed methodologies prescribed in English Nature's *Bat Mitigation Guidelines* (Mitchell-Jones 2004)¹¹ and the Bat Conservation Trust's *Bat Surveys: Good Practice Guidelines* 2nd Edition (BCT 2012)¹².

3.4.1 Tree Surveys

A visual inspection of mature trees within 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.

¹¹ Mitchell-Jones, A.J. 2004. *Bat Mitigation Guidelines*. English Nature, Peterborough.

¹² Bat Conservation Trust (2012) *Bat surveys – Good Practice Guidelines* 2nd Edition. Bat Conservation Trust, London.

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

4 Field Survey Results

4.1 Habitats and Flora

4.1.1 Overview

The study site comprises of approximately 3ha of the grounds of the Pendine Park Care Home. A tarmacked road (Target Note 1 on Figure 2) runs from Summerhill Road at the east of the site to the western part of the site. The track roughly divides the site in two with habitats located north of the track being largely managed and developed whilst south of the track habitats are unmanaged and the site is largely undeveloped.

The northern part of the site comprises of buildings, managed gardens, tarmacked roads and pavements. The southern part of the site supports unmanaged, semi-natural habitats with an extensive area of semi-improved grassland with areas of tall herb and scattered hawthorn scrub and trees. This southern section was the focus of field survey (study site boundary shown on Figure 2 in the Appendix).

The western boundary of the site is marked by a band of broadleaved woodland beyond which lie arable fields; the southern boundary of the site is marked by a species-poor hedge with trees beyond which lies another arable field; the eastern boundary is marked by a wall which divides the site from Summerhill Road; the northern boundary of the study area is not marked but comprises of the buildings and grounds of the existing Pendine Park Care Facility.

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.

4.1.2 Target Note 2- Semi-improved grassland

This is an area of closely mown grassland located around the buildings at the northern end of the site. Although the grassland is used for its amenity value and the sward is kept short, the grassland supports a diverse array of herbs and so is considered to represent poor semi-improved grassland.

Species present include frequent Yorkshire fog, red fescue and perennial ryegrass with occasional white clover, creeping buttercup, broad-leaved dock, dandelion, creeping thistle with occasional woodland indicator species including lady's mantle, bluebell, germander speedwell, dog's mercury plus occasional red clover, eyebright, ragwort, bugle, meadow buttercup, daffodil and ribwort plantain.

The species present suggest that the site is likely to have been wooded in the past with many woodland herb species still present within the seedbank.

There are early-mature scattered trees in this area comprising of silver birch, hawthorn and holly. None of the trees present are considered to offer any suitable bat roosting habitat.

Habitats present in this area are shown in Photograph 1 in the Appendix.

The grassland habitats present are considered to be of **local** conservation value.

4.1.3 Target Note 3- Poor semi-improved grassland

This is an area of recently reseeded grassland. The area of grassland is located on an embankment which has been recently re-profiled and the grassland restored. Grasses present comprise of frequent red fescue and annual meadow grass with occasional white clover, creeping buttercup, creeping thistle, field forget-me-not, daffodil, cut-leaved cranesbill and black medick.

Habitats present in this area are shown in Photograph 2 in the Appendix.

The grassland habitats present are not considered to be of any significant conservation value.

4.1.4 Target Note 4- Grassland/tall herb mosaic

The majority of the site south of the access track at Target Note 1 comprises of a mosaic of semi-improved neutral grassland and tall herb community with scattered hawthorn trees and scrub plus occasional young oak trees. The trees in this area are relatively young with a maximum height of 7m. None of the trees are considered to offer suitable bat roosting habitat.

The ground is uneven with the land sloping from the access track at Target Note 1 down towards the southern boundary of the site with various mounds and ridges. There are occasional rubble piles of stone, slates and logs (Target Notes and Photographs 8 and 9). The semi-improved neutral grassland species comprise of abundant Yorkshire fog with frequent perennial rye-grass, white clover, creeping buttercup and germander speedwell with occasional cock's-foot, sweet vernal grass, meadow foxtail, red fescue, rough meadow-grass, ribwort plantain, creeping thistle, common mouse-ear, bloody crane's-bill, silverweed, black medick, common ragwort, red clover, creeping cinquefoil and rare soft rush, wood avens, lady's mantle, meadow buttercup, white dead-nettle, bugle, bird's-foot trefoil, common sorrel and common vetch.

The areas of tall herb vegetation comprise of frequent broad-leaved dock and bramble with occasional comfrey, nettle, red campion, white campion, garlic mustard, butterbur, hogweed, cleavers, rosebay willow-herb and occasional grasses including Yorkshire fog, perennial rye, cock's-foot, sweet vernal grass, meadow foxtail, red fescue and rough meadow-grass.

Habitats present in this area are shown in Photographs 3 and 4 in the Appendix.

The grassland mosaic is of some minor conservation interest owing to the broad range of grass and herb species present some of which are indicative of unimproved neutral grassland however the frequent occurrence of perennial rye-grass, white clover and creeping buttercup within the sward indicates that the site has undergone some nutrient enrichment in the past and may have been used as pasture land. Given that the site is unmanaged, it is likely that the habitats present will succeed to further tall herb or rank grassland habitats which are less botanically interesting than the habitats present and will ultimately succeed to scrub and woodland habitat.

The habitats present are considered to be of **local** conservation value.

4.1.5 Target Note 5- Woodland belt

There is a belt of semi-natural broad-leaved woodland running along the western edge of the site. Mature trees are largely restricted to the boundary of the site and comprise of sycamore with one English oak and one common lime, the remainder of the trees comprise of young hawthorn, elder and further sycamore. These younger trees extend into the site itself and along the site's boundary.

None of the trees identified in this area supported any suitable bat roosting features.

Habitats present in this area are shown in Photograph 5 in the Appendix.

The habitats present are considered to be of **zone of influence** conservation value.

4.1.6 Target Note 6- Hedge with trees

An outgrown hedgerow runs along the southern boundary of the site. Species present include hawthorn, silver birch, holly and elder with standard trees including further silver birch and oak.

None of the trees identified in this area support any suitable bat roosting features.

The habitats present are not considered to be of **zone of influence** conservation value.

4.1.7 Target Note 7- Broadleaved woodland

At the southeast corner of the hedge line at Target Note 6 is a small copse of mature woodland comprising of sycamore, ash and horse chestnut with an understorey of nettle and cleavers.

None of the trees identified in this area supported any suitable bat roosting features.

Habitats present in this area are shown in Photograph 6 in the appendix.

The habitats present are considered to be of **zone of influence** conservation value.

4.1.8 Target Note 10- Avenue of planted trees

Along the eastern boundary of the site is an access track. The track is planted up with avenues of robinha, hornbeam, sycamore, holly and cherry. Either side of the track is a strip of mown amenity grassland plus managed flowerbeds.

None of the trees identified in this area supported any suitable bat roosting features.

Habitats present in this area are shown in Photograph 7 in the appendix.

The habitats present are not considered to be of **zone of influence** conservation value

4.1.9 Evaluation and Conclusions

The habitat/botanical survey has found much of the site to comprise of a mosaic of semi-improved neutral grassland with extensive patches of tall herb vegetation with encroaching hawthorn scrub and trees (Target Note 4).

There are also small pockets of broadleaved woodland located at Target Note 5 and 7.

The grassland mosaic is considered to be of minor ecological interest owing to the broad range of grass and herb species present within the sward and is assessed as being of **local** conservation value. However it is considered that without the changes to the current management practices at the site (the grassland is currently unmanaged); the semi-improved grasslands will ultimately develop into rank tussocky grassland, bramble and eventually scrub and woodland. These habitats would be considered to be much less botanically interesting than that which is currently present.

The semi-natural blocks of woodland at Target Notes 5 and 7 and the boundary features at Target Notes 6 and 10 are considered to be of a **zone of influence** conservation interest. These features are likely to offer suitable refuge and foraging habitat for birds and other wildlife.

Where they form boundary features they are also likely to act as linear wildlife corridors through the landscape.

4.2 Protected Species

4.2.1 Badgers

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

4.2.2 Breeding Birds

Tree, scrub and hedgerow habitats at the site are likely to be used by nesting birds during the breeding bird season. Likewise grassland habitats could support ground nesting birds including skylark, meadow pipit or lapwing.

4.2.3 Bats

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

No trees with obvious bat roosting potential were identified. It is considered unlikely that any bats are roosting within the study site.

The site is considered to support good quality bat foraging habitat with the grassland mosaic, treelines and scattered scrub and trees likely to support a reasonably diverse assemblage of aerial insects.

4.2.4 Reptiles

The study site support some suitable habitats for common reptiles within the area of grassland mosaic at Target Note 4. There are also log piles and rubble piles at the site (Target Notes 8 and 9 and Photographs 8 and 9) which could offer suitable hibernation habitat. However the site is considered to be relatively isolated and small in size. The Summerhill Road and boundary wall to the east would act as a barrier to reptile colonisation from the east, whilst the site is bounded by intensively managed arable fields to the north, south and west which would offer sub-optimal reptile habitats. The COFNOD data search did not hold any records of reptiles within 1km of the site.

It is considered to be unlikely that reptiles are present at the study site in spite of the suitable habitats that are present.

4.2.5 Great Crested Newt

There are two ponds located within 250m of the study site (ponds shown on Figure 1). Pond 1 is located approximately 220m to the north of the site on the opposite side of Highfield Road. This pond is considered to be isolated from the proposed development site by the

presence of the existing Pendine Park buildings and infrastructure and by Highfield Road itself.

Pond 2 is located 250m to the south west of the study site. It is located within Gatewen Marsh SSSI. It is considered unlikely that any hypothetical great crested newt population using Pond 2 would travel across the intervening 250m of arable land to reach the study site when extensive more suitable terrestrial habitats are present within Gatewen Marsh itself.

There are no records of great crested newt using either Pond 1 or Pond 2.

The nearest known great crested newt breeding pond is located at Stansty Park which is located approximately 500m to the northeast of the site (Pond 3 on Figure 1). Summerhill Road and the study site's eastern boundary wall along with the boundary wall along the western side of the Stansty Park Estate would prevent terrestrial habitats at the study site from being used by newts associated with Pond 3.

It is therefore considered unlikely that great crested newt are present at the study site.

4.2.6 Evaluation and Conclusions

The study site is considered unlikely to support reptiles, great crested newt or badger.

The site is also considered unlikely to support roosting bats but is likely to represent a locally valuable foraging resource for bats.

It is considered likely that the site supports nesting birds during the breeding bird season. The site is likely to support farmland and garden bird species that are common in rural parts of Wrexham County Borough.

Bird and bat assemblages at the site are considered to be of **local** conservation value.

5 Recommendations

5.1 Potential Constraints and Recommendations

5.1.1 Ecological Receptors

Several of the habitats at the site are considered to be of ecological value either in terms of their botanical interest or through them providing habitats for other organisms. Development of the site should therefore be sensitive to these habitats and aim to retain or enhance them where possible (see Section 5.1.2).

The site is considered likely to support nesting birds and foraging bats. No other protected species are considered likely to be present. The development should therefore also aim to preserve/enhance the site in terms of its value to both bats and birds. This should can be achieved by protecting grassland and woodland habitats where possible and also through provision of additional nesting and roosting features at the site (See Section 5.1.3).

Scrub, tree, woodland and grassland habitats at the site offer suitable bird nesting habitat. Therefore any future development of the site should be timed to avoid impacting upon birds during the breeding season (March-August inclusive).

5.1.2 Habitats

The majority of the site comprises of a mosaic of semi-improved neutral grassland with extensive patches of tall herb vegetation with encroaching hawthorn scrub and trees (Target Note 4).

There are also small pockets of broadleaved woodland located at Target Note 5 and 7.

Where possible the development proposals should aim to retain as much of these habitats as possible.

The development proposals will retain extensive areas of open space between the proposed living apartments. It is recommended that these areas of open space are managed as species-rich grassland. This can be achieved through the implementation of a habitat management plan at the site with grasslands managed for their nature conservation value. This should be done through a carefully timed mowing regime with no mowing taking place in the spring; a hay crop should be taken in the summer, the grassland can then be periodically mown from late summer through to the winter. This will allow plants to flower and set seed in spring and summer, but will also prevent vegetation from becoming so tall and dense that its botanical diversity is reduced.

Mowing will also prevent the vegetation from developing into scrub or woodland. If left without grazing or mowing, larger plants will take

over. This process will begin with coarse grasses such as false oat-grass, cock's-foot, Yorkshire fog and red fescue forming tall, thick swards of much less botanical interest. If left for longer, bramble can become abundant with scrub and finally woodland developing. This process can be seen to already be in action at the site with the development of extensive areas of tall herb and bramble with scattered hawthorn trees developing amongst the grassland. This is likely to be on account of the habitats at Target Note 4 currently going unmanaged.

In order to maintain the species-rich grassland it is recommended that further ornamental tree planting is limited immediately adjacent to areas of this habitat. This is because the shade and leaf litter cast by trees can lead to losses of grassland plants and a reduction in botanical diversity.

Furthermore, no fertiliser should be applied to the soils and arisings from the late summer hay cut should be removed from the site.

As well as being of benefit in terms of its conservation value, the management of a species-rich meadow habitat is likely to be of amenity value to the residents of Pendine Park by providing a colourful and floristically interesting green space throughout late spring and summer.

The proposed development should also aim to avoid impacts to mature trees at the site particularly the trees located around the site's boundaries at Target Notes 5, 6, 7 and 10.

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 plus fungi and other organisms associated with decay.

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

The retention of these grassland habitats and mature trees should ensure that foraging habitats at the site for birds and bats are retained.

The site management plan should be designed in conjunction with a suitably qualified ecologist.

5.1.3 Bats and Birds

It is also recommended that bird nest boxes and bat boxes are installed at the site. The bird box scheme should aim to provide suitable nesting sites for a variety of different bird species.

It is recommended that 16 bird boxes of type Schwegler 1B (10 boxes with 32mm entrances and 6 boxes with 26mm entrances) should be erected on retained trees at the site.

The bird boxes should be positioned in a shaded area, at a height of 2-4m and positioned so that flight lines in and out of the boxes are not hindered by any vegetation

These bird boxes will provide suitable nesting habitat for a variety of garden and woodland bird species including tits, wren, nuthatch and sparrows.

It is also recommended that 12 bird boxes of type Schwegler 9a are erected onto several of the proposed new accommodation buildings. This model of bird box will provide suitable nesting habitat for swallows and house martins. These bird boxes should be located immediately below the eaves of the building.

It is also recommended that 6 bird boxes of type Schwegler 1SP are erected on new buildings at the site. This model of bird box provides suitable nesting habitat for house sparrow colonies. These bird boxes should be located immediately below the eaves of the building, they can be built into the walls or fitted to the building exterior.

It is recommended that bat roosting habitat is built into six of the new buildings at the site. This can be achieved by building dedicated bat roosting modules into the external masonry walls of the new buildings. The Habibat 001 or the Habibat 003 are suitable types of bat roosting module. These bat boxes provide suitable roosting habitat for large aggregations of crevice dwelling bats including maternity sites.

The Habibat bat roosts should be built into the south facing gable walls of the new buildings. The roosts should be located as close to the gable apex as possible and should be positioned at a minimum height of 4m.

It is also recommended that a further 8 Schwegler bat boxes (4 boxes of type 1FF and 4 boxes of type 2FN) are erected on retained trees at the site. These should be positioned at a minimum height of 4m; should be positioned with a more or less southerly aspect and sited so that flight lines in and out of the bat boxes are not hindered by vegetation.

The precise location of bat and bird boxes should be determined by a suitably qualified ecologist.

6 Appendix

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Figure 1- Site Location Showing Ponds 1-3

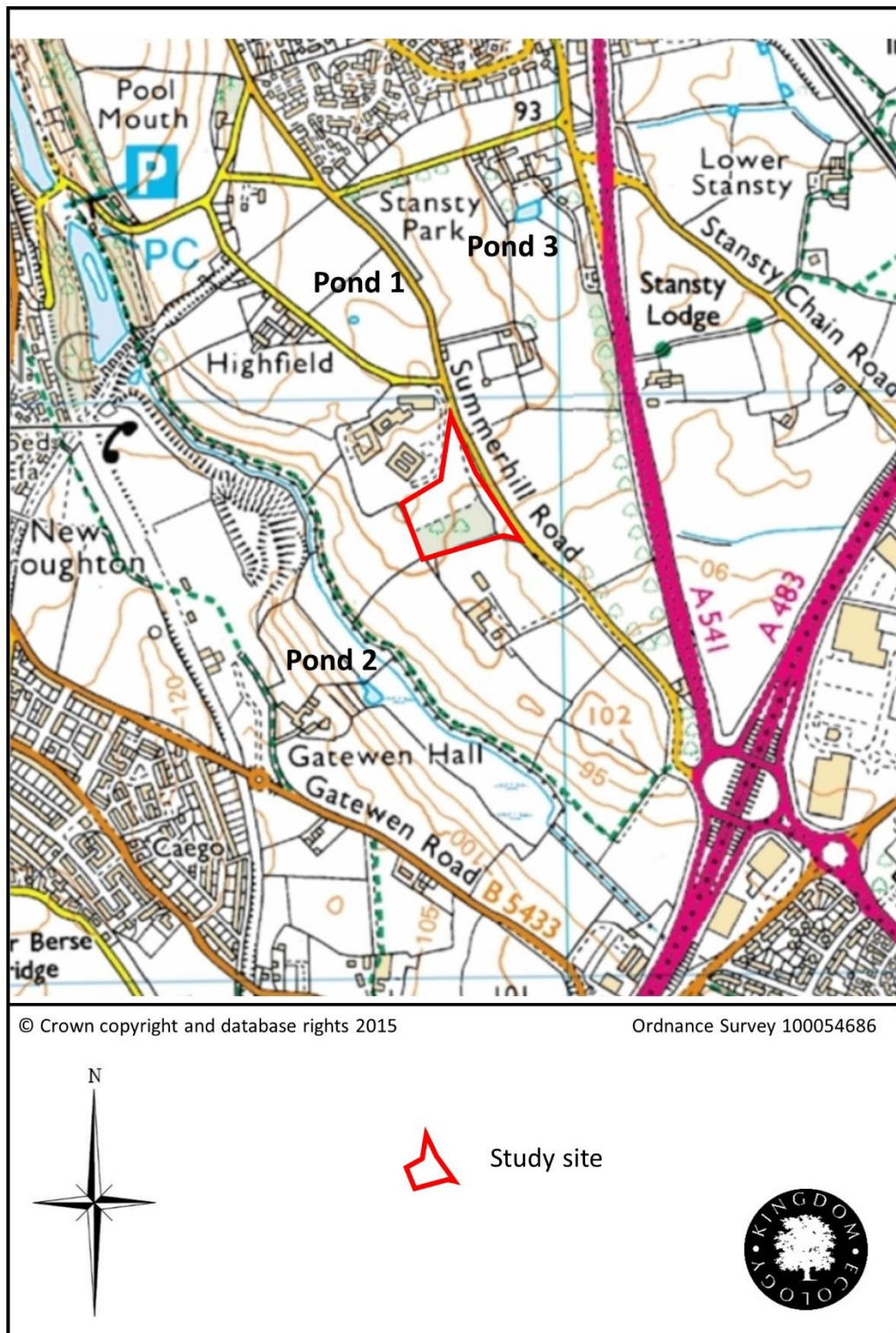


Figure 2- Habitat Map



PHOTOGRAPHS

Photograph 1- Grassland at Target Note 2



Photograph 2- Grassland at Target Note 3



Photograph 3- Grassland Mosaic at Target Note 4



Photograph 4- Grassland Mosaic at Target Note 4



Photograph 5- Woodland at Target Note 5



Photograph 6- Woodland at Target Note 7



Photograph 7- Path and Treelines at Target Note 10



Photograph 8- Stock-piled Masonry at Target Note 8



Photograph 9- Log Pile at Target Note 9

