

Report Title	Re-development of Penycae Infants School, Copperas Hill, Penycae, Wrexham - Extended Phase 1 Habitat Survey of Adjacent Land
Client	Read Construction
Date	June 2016

this report was produced by



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Marches Ecology Ref	C295/EP1HS
Date issued	June 2016
Author	Tom Knight
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Extended Phase 1 Habitat Survey	Tom Knight	23/05/16

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1.0	07/06/16	Tom Knight	Max Ellson	Max Ellson

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Figure 1 – Extended Phase 1 Habitat Survey

1 INTRODUCTION

1.1 Project Background

1.1.1 Marches Ecology was commissioned by Read Construction to undertake an Extended Phase 1 Habitat Survey of land adjacent to Penycae Infants School, off Copperas Hill, Penycae, Wrexham (Approximate OS Grid Ref. SJ 285 449). The existing Penycae School land and two adjacent land parcels were previously subject to survey in 2011 and 2013. At this time no access permission was provided to the area referred to as 'Site 5'. Marches Ecology (2013) recommended completing an Extended Phase 1 Habitat Survey of this area prior to any development. The proposed development was subsequently provided with planning consent (Ref. PENP/2013/0614). This report presents the findings of the Extended Phase 1 Habitat Survey of the area previously referred to as 'Site 5'.

1.1.2 This report has three principal aims:

- to provide an initial appraisal of the ecological value of the site and local ecological resource;
- to detail further surveys that may be required; and
- to identify potential development constraints relating to ecology and outline potential mitigation/ enhancements.

1.1.3 This report was produced by Tom Knight of Marches Ecology. Tom Knight is an ecologist with over seventeen years of consultancy experience and has undertaken Extended Phase 1 Habitat Surveys on a wide range of sites. His relevant academic qualifications and professional memberships are as follows:

- Chartered Environmentalist (Society for the Environment).
- Full Member of the Chartered Institute of Ecology and Environmental Management (CIEEM).
- PgDip Conservation Management.
- BSc (Hons) Environmental Studies.
- C&G Biological Surveying.

1.2 The Proposed Development

1.2.1 The proposed development is presented on a WCBC plan entitled '*Combined Infants/ Junior Site Proposed Plan*' dated March 2011. This plan briefly shows the following:

- An extension of the existing building largely to the south.
- An extension of the hard-surfaced play area to include a new yard and Multi-use Games Area (MUGA).
- A new car park and access road located in the field to the southeast of the existing school boundary.
- A new playing field located in the field to the south of the existing school boundary.

No other information with regards the proposed development is available at this time.

- 1.2.2 It is understood that a revised planning application is to be submitted though the amendments would only concern the proposed extension to the existing school building. No information with regards this revision has been provided at this time.

1.3 Legislation

Introduction

- 1.3.1 This sub-section provides a brief summary of key legislation relevant to ecology/ nature conservation and the proposal. It should not be considered a comprehensive review and is not meant to be so. It is provided here for information only and is not intended to replace specialised legal advice. It does not replace the text of the legislation, but summarises the salient points. Further information on how this legislation affects the protection of particular species of potential relevance to this proposal is provided in *Appendix 1*.

The Conservation of Habitats and Species Regulations 2010, as amended (The Regulations)

- 1.3.2 Transposes the *EC Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992* into UK law. The Regulations provide for the protection of sites in the UK that support habitats and species of European importance (e.g. Special Protection Areas (SPAs) and Special Areas of Conservation (SACs)). The Regulations also provide full protection for certain species which are frequently referred to as European Protected Species (EPS). EPS of potential relevance to the site include bats.

The Wildlife and Countryside Act 1981, as amended (WCA)

- 1.3.3 The WCA strengthened protection for nature conservation sites of at least national importance, and provides varying levels of protection for a number of species within the UK. This protection may include prohibition of some or all of: killing, injuring, disturbing, taking, sale/barter or possession of species and also protection of breeding/ sheltering places. The following species/ species groups receive some level of protection under the WCA and are of relevance to the proposal; bats and birds. The WCA also prohibits the spread of certain non-native invasive species (e.g. *Cotoneaster*).

The Countryside and Rights of Way Act 2000 (The CRoW Act)

- 1.3.4 The CRoW Act includes legislation in relation to the Biodiversity Action Plan; more stringent management, protection and consenting measures for SSSIs; greater penalties for wildlife crime; and greater protection for species listed in the WCA. Some of this legislation was superseded by the NERC Act.

The Natural Environment and Rural Communities Act 2006 (The NERC Act)

- 1.3.5 *Sections 40 to 42* of the NERC Act replace *Section 74* of the CRoW Act. *Section 40* of the NERC Act extends to all public authorities (including local planning authorities) the existing *Section 74* duty to have regard to biodiversity as far as is consistent with the proper exercise of their functions. In addition, *Sections 41* (England) and *42* (Wales) provide a list of species and habitats of principal importance for conservation of biological diversity. Government has a statutory duty to promote steps "to further the conservation" of habitats and species listed in *Sections 41* and *42*.

2 METHODOLOGY

2.1 Extended Phase 1 Habitat Survey

General

- 2.1.1 The Extended Phase 1 Habitat Survey was carried out on 23rd May 2016 by Tom Knight of Marches Ecology. The Extended Phase 1 Habitat plan is provided as *Figure 1*. The survey focussed on land within the site boundary (henceforth referred to as the 'survey site', refer to *Figure 1*). Immediately adjacent habitat was considered where appropriate and viewed from the survey site boundary where possible. The weather during the survey was sunny with 75% cloud cover and a light breeze.
- 2.1.2 The standard initial habitat survey method is Phase 1 Habitat Survey. It involves identifying areas or features of particular interest either in terms of their botanical interest, and/or habitat potential for protected or other notable species.
- 2.1.3 The Phase 1 Habitat Survey has been adapted in this instance as an 'extended' Phase 1 Habitat Survey, where more information has been obtained to inform site assessment. The methods used centre on the Phase 1 Habitat Survey approach (JNCC 2010) as extended for use in Environmental Impact Assessment (Institute of Environmental Assessment 1995). Extended Phase 1 Habitat Survey is necessarily a more holistic approach than Phase 1 Habitat Survey and provides an understanding of habitat use by faunal groups (IEEM 2005). This involves the following elements:
- Habitat mapping using a set of standard colour codes to indicate habitat types on a Phase 1 Habitat map.
 - Description of features of ecological or nature conservation interest in notes relating to numbered locations on the Phase 1 Habitat map, called target notes. Target notes are recorded for habitat and features of possible botanical interest and features relating to animals including protected/ notable vertebrates that are likely to occur in the region and within the survey site. Evidence of activity was noted when encountered. The Target Notes are provided in *Section 5* and shown on *Figure 1*.
- 2.1.4 In addition to the habitat map and target notes, a plant species list was compiled (provided in *Table 1, Section 7*). The plant species list includes plants recorded in 2011, 2013 and 2016. Plant nomenclature in this report follows Stace (2010). May is within the accepted survey period for Extended Phase 1 Habitat Surveys however some flowering species may not be evident at this time. It is unrealistic to suppose that walk-through surveys can generate completely exhaustive species lists at any time of year. It is considered that the list in this report indicates the character of the vegetation and the ecological value of the area inspected.
- 2.1.5 Further information describing the assessment conducted during the Extended Phase 1 Habitat Survey for particular species is provided briefly below:
- Bats. The potential value of the habitat for foraging/ commuting was assessed in accordance with *Table 4.1* provided in Collins (2016). There is one feature within the survey site that provides potential roosting opportunities.

- Water Vole. The potential value of available habitat for Water Voles was assessed in accordance with guidance provided in Dean *et al.* (2016) and JNCC (2004a).
- Reptiles. A qualitative assessment of the habitat for reptiles was undertaken. The survey involved identifying potential basking areas, hibernation sites and foraging habitat. English Nature (2004) provides further information on the distribution and ecology of the four widespread species. Habitat requirements differ between species but are summarised in Edgar *et al.* (2010).
- Birds. The habitat within the survey site was assessed for its potential value for breeding birds based on guidance provided in e.g. JNCC (2004b).

2.1.6 A Badger (*Meles meles*) pre-construction survey was undertaken on 10th May 2016. The findings of this survey were reported in a separate Reasonable Avoidance Measures Method Statement (Marches Ecology 2016). This document should be referred to for information on Badgers; they will not be discussed further in this report.

2.1.7 Marches Ecology (2013) states that '*... it is considered unlikely that Great Crested Newts are present at this time*'. This species is not considered further in this report.

2.2 Survey Constraints

2.2.1 The following may be considered a survey constraint:

- May is within the accepted period for undertaking an Extended Phase 1 Habitat Survey. However some flowering plants would not be visible at this time.

3 BASELINE ECOLOGICAL CONDITIONS

3.1 Habitats and Flora

Context

- 3.1.1 The survey site is located immediately to the south and east of the existing School grounds. It is a single agricultural field that supports grassland bounded by hedges and fences. The northern boundary is bordered by Copperas Hill and the School. To the south and east of the survey site there are further similar agricultural fields. To the west there is an area of land previously referred to as the 'Scout land' (Marches Ecology 2013). The Scout land supports a range of habitats including areas of dense, mature scrub, mature trees, grassland and tall herb vegetation.

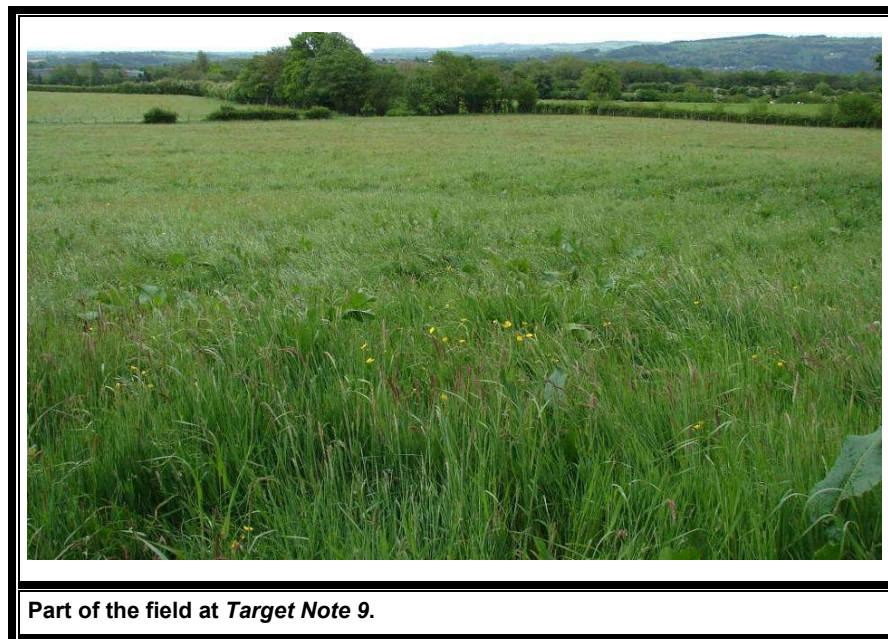
Site Description

Introduction

- 3.1.2 The Extended Phase 1 Habitat map is provided as *Figure 1*. The Target Notes (numbered 1 to 9) are provided in *Section 5* and shown on *Figure 1*. Some of the Target Notes provided in Marches Ecology (2013) have been updated where relevant and re-numbered.

Grassland

- 3.1.3 The re-sown grassland that characterises the site is currently un-grazed and approximately 0.5-0.7 m high (*Target Note 9*). It contains abundant *Bromus hordeaceus* (Soft-brome) and *Holcus lanatus* (Yorkshire-fog) with frequent *Lolium multiflorum* (Italian Rye-grass), *Lolium perenne* (Perennial Rye-grass), *Poa* sp. (Meadow-grass), *Alopecurus pratensis* (Meadow Foxtail), *Ranunculus repens* (Creeping Buttercup), locally frequent *Rumex obtusifolius* (Broad-leaved Dock), *Cerastium fontanum* (Common Mouse-ear), occasional *Ranunculus acris* (Meadow Buttercup), *Taraxacum officinale* (Dandelion), *Dactylis glomerata* (Cock's-foot) and *Rumex acetosa* (Common Sorrel).



Part of the field at *Target Note 9*.

- 3.1.4 In the northeast corner of the site there is an old spoil mound (*Target Note 2*). It supports un-grazed poor semi-improved grassland/ semi-improved neutral grassland with scattered scrub. The grassland across the mound exhibits varying levels of agricultural improvement and is most species-poor across the level top. Part of the base of the slope is formed by a low stone wall. The wall has two courses and is approximately 0.5 m high. A plant of *Cotoneaster* sp. (a Cotoneaster) was noted in this wall.



Hedgerows and Trees

- 3.1.5 Some of the site boundaries are formed by hedgerows (*Target Notes 1, 3, 5 and 8*). The hedgerow at *Target Note 1*, adjacent to Copperas Hill, is moderately species-rich though it may be of relatively recent planted origin as the shrubs appear to be in a single row/ slightly staggered. This hedgerow was surveyed in 2013 in order to identify whether it qualifies as an 'important' hedge within the meaning of the *Hedgerow Regulations 1997* (ecological criteria only) (Marches Ecology 2013). It was not considered to be 'important'. The hedgerow at *Target Note 8* is similar to that described at *Target Note 1*.



3.1.6 The hedgerow at *Target Note 3* is gappy and species-poor. The hedge/ line of trees and shrubs at *Target Note 5* is located outside the site boundary. The site is bordered by dense scrub at *Target Note 6*.

3.1.7 A large *Quercus robur* (Pedunculate Oak) tree is described at *Target Note 7*. There are no other trees within the survey site. The slopes of the spoil mound at *Target Note 2* support scattered scrub.

Watercourse

3.1.8 A short section of watercourse is located within the survey site (*Target Note 4*). It is approximately 0.5-1 m wide and 0.02-0.05 m deep. It has a moderate flow over stones and silt. There is no aquatic or marginal vegetation present at this location. Further to the west and outside the site this watercourse is contained within a deeper, excavated channel. The banks are approximately 1.2 m above the water level. The channel appears to support *Apium nodiflorum* (Fool's Water-cress), *Mentha aquatica* (Water-mint), *Juncus effusus* (Soft Rush), *Glyceria fluitans* (Floating Sweet-grass) and *Equisetum telmateia* (Great Horsetail).



The short section of watercourse within the survey site at *Target Note 4*.

Fauna

Introduction

- 3.1.9 The Extended Phase 1 Habitat Survey assessed the potential value of the survey site for relevant protected species/ species groups. Relevant species/ species groups to the survey site are limited to bats, Water Vole, reptiles and birds.

Bats

- 3.1.10 There is a single tree within the survey site (*Target Note 7*). It appears to contain splits where four large limbs have come off, a woodpecker hole and other rotholes. This Pedunculate Oak is of at least moderate potential value for roosting bats. There are no other features that could provide potential roosting for bats within the site.
- 3.1.11 The improved grassland that dominates the site is unlikely to be of particular value for foraging bats. However the hedge/ tree line that is adjacent to a small stream (*Target Notes 4 and 5*) may provide a feature of potential value for foraging/ commuting bats. This habitat resource is assessed as being of low value in accordance with Collins (2016).

Water Vole

- 3.1.12 There is a stream aligned along the southern boundary (*Target Note 4*) though most of it appears to be outside the survey site. The short stretch within the survey site is not considered to be of potential value for Water Voles while that visible outside the site is of sub-optimal potential value at most.

Reptiles

- 3.1.13 The improved grassland field (*Target Note 9*) offers potential habitat of negligible value to reptiles. The semi-improved grassland along with the low wall at *Target Note 2* offers potential habitat of sub-optimal value. The grassland on the slope of the old spoil mound occupies a relatively small area and is isolated from other potentially suitable habitat. It was also noted as being well grazed/ poached by livestock in 2013 (Marches Ecology 2013).

Birds

- 3.1.14 Fourteen species of bird were recorded during the Extended Phase 1 Habitat Survey either within the survey site or flying over it. The House Sparrow (*Passer domesticus*) is included on *Section 42* of the *Natural Environment and Rural Communities Act 2006*¹ and on the Amber List of Birds of Conservation Concern in Wales (RSPB 2009). The Dunnock (*Prunella modularis*) is included on the *Section 42* list and the Swallow (*Hirundo rustica*) on the Amber List.
- 3.1.15 Potential nesting opportunities within the survey site are limited to the tree at *Target Note 7*, the scrub at *Target Note 2* and the various hedgerows at *Target Notes 1, 3* and *8*. Both the House Sparrow and the Dunnock could potentially nest within the site.

¹ Species listed on *Section 42* of the *Natural Environment and Rural Communities Act 2006* as being of principal importance for the conservation of biological diversity in Wales.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 Introduction

4.1.1 Brief details regarding the proposal are provided in *Section 1.2*. An assessment of ecological issues based on the information provided is detailed below and considers:

- further survey requirements; and
- potential development constraints and associated avoidance/ mitigation requirements.

These are dealt with in turn for habitats and flora, and specific species groups in the section below.

The various ecological resources were evaluated in Marches Ecology (2013) and as such this exercise will not be repeated here.

For non-mobile ecological resources potential ecological issues are only considered where such resources might be directly or indirectly impacted where possible (and not the remainder of the survey site). Resources that would not be impacted (e.g. hedgerow at *Target Note 3*) are not considered.

4.1.2 No further detailed information regarding the proposed development has been provided. In the absence of such information potential impacts have been considered with reference to the plans provided only.

4.2 Conclusions and Mitigation

Habitat and Flora

4.2.1 The hedgerow at *Target Note 1*, parts of the semi-improved neutral grassland and scrub at *Target Note 2*, and parts of the improved grassland at *Target Note 9* would be directly impacted.

4.2.2 To offset the loss of the hedgerow at *Target Note 1* it is suggested that a similar length of hedge is created elsewhere. This could perhaps be achieved by planting a hedge along the eastern site boundary as well as inter-planting the gaps in the hedgerow at *Target Note 3*. An appropriate species mix is provided in Marches Ecology (2013).

4.2.3 Part of the spoil mound that supports semi-improved neutral grassland will be directly impacted. It is not known to what extent the remaining area would be retained unaffected. However it is suggested that as far as is reasonably possible the remaining semi-improved neutral grassland is retained, particularly that towards the eastern side. The area retained should include the low stone wall as well as some exposed soil banks (for mining bees). Marches Ecology (2013) also states the following '*Any loss of the grassland... should also be offset through the provision of replacement habitat*'.

4.2.4 The large Pendunculate Oak tree at *Target Note 7* will not be directly impacted. Marches Ecology (2013) states that '*Where trees are located adjacent to any work area protection*

measures should include exclusion barriers and signage, and be in accordance with 'BS 5837:2012 Trees in Relation to Design, Demolition and Construction. Recommendations'.

4.2.5 It is not currently known what work (e.g. cultivation and re-seeding) may be undertaken in the playing field where the sports pitches are to be provided. A number of features of some ecological value (e.g. the scrub at *Target Note 6* and stream at *Target Note 4*) are located directly adjacent to the proposed development footprint and could be indirectly impacted. Marches Ecology (2013) recommended the installation of temporary protective fencing prior to the start of works and for the duration of the construction phase. The location and alignment of this fencing should be agreed with a suitably qualified ecologist.

4.2.6 An individual *Cotoneaster* sp. (*Cotoneaster*) shrub was recorded at *Target Note 2*. Under the *Wildlife & Countryside Act 1981* (as amended) it is an offence to '*plant or otherwise cause [certain species of Cotoneaster] to grow*' in the wild. This includes spreading the species or transferring polluted ground material from one area to another. As this shrub is located in the low wall on the eastern side of the spoil mound should this area be retained unaffected there would be no implications due to the presence of this plant.

Fauna

Bats

4.2.7 The tree at *Target Note 7* will be retained and encircled with temporary protective fencing for the duration of the construction phase. As this tree provides features of potential value for roosting bats the protective fencing should be located a minimum of 10 m from the tree. Should it become necessary to fell this tree or even to undertake any pruning works then it is likely that further survey for roosting bats would be required.

4.2.8 A car parking area is to be constructed in the field at *Target Notes 2* and *9*. Should any lighting be provided in this area it would need to consider potential impacts on foraging/commuting bats. Further information and advice is provided in Marches Ecology (2013). The lighting layout and specification may need to be reviewed by a suitably qualified ecologist.

4.2.9 The habitat within the survey site is generally considered to be of low value for foraging/commuting bats. Proposed landscaping should consider opportunities for enhancing the habitat resource; this could include planting of hedgerows, patches of trees/ shrubs, creation of wildflower grassland and the creation of a pond.

Water Vole

4.2.10 There is a short section of watercourse located within the site that is not considered to offer habitat of any potential value for Water Vole (*Target Note 4*). This watercourse will not be directly impacted. The temporary protective fencing should be aligned along this boundary and at least 20 m from it. Assuming the installation and maintenance of this fencing it is concluded that there would be no implications in relation to Water Voles.

Reptiles

4.2.11 The semi-improved neutral grassland at *Target Note 2* provides a small area of potential habitat of sub-optimal value for reptiles. This area of grassland has been well grazed/ poached in the past. It is also isolated from other potentially suitable habitat. It is concluded

that it is unlikely that any species of reptile would be present and as such there are no associated implications.

Birds

4.2.12 Marches Ecology (2013) proposed the following mitigation/ compensation measures:

*'Loss of any potential nesting sites associated with the development should be compensated for, for example by the provision and maintenance of bird-boxes (appropriate to the potential bird resource) and/ or other nesting habitat e.g. shrubs/ trees. In addition to any such compensation, similar measures could be provided as enhancements for birds in accordance with Technical Advice Note 5. Such measures should target particular species of conservation concern such as the House Sparrow (*Passer domesticus*) and or Swift (*Apus apus*). Any new building could incorporate features that could be utilised by these species or alternatively Sparrow-terrace nest-boxes², Schwegler Brick Box No. 24 nest-boxes³, Schwegler Brick Box No.25 for Swifts⁴ and or Ibstock Swift box⁵ could be erected.*

The destruction of any bird nests that are in use is illegal. The simplest option to avoid issues arising from the presence of nesting birds is for any work that affects nesting habitat (e.g. removal of trees, shrubs, other vegetation and buildings) to be scheduled for outside the nesting period. If it is not possible to undertake vegetation clearance/ works to buildings outside the nesting season all such areas should be checked by a suitably qualified ecologist prior to commencement of works. If a nest is found a buffer zone of no less than 5 m should be retained and fenced off around the nest until any chicks have fledged. At present no further survey is envisaged, however should any vegetation clearance or other preparatory work be scheduled for the nesting period (March to August inclusive) further survey may be required'.

² E.g. <http://www.jacobijayne.co.uk/nest-boxes-by-species/house-sparrow/>

³ <http://www.livingwithbirds.com/nest-boxes-by-species/house-sparrow/brick-box-no24/>

⁴ <http://www.livingwithbirds.com/nest-boxes-by-species/swift/brick-box-no25-for-swifts/>

⁵ <http://www.ibstock.com/sustainability-ecozone.asp>

5 TARGET NOTES

Target Note 1. A road-side hedge managed to approximately 1.8 m high and 1.5 m wide. It is dominated by *Crataegus monogyna* (Hawthorn) with small amounts of *Fraxinus excelsior* (Ash), *Ilex aquifolium* (Holly), *Rosa canina* agg. (Dog-rose), *Rosa arvensis* (Field-rose), *Ligustrum ovalifolium* (Garden Privet), *Prunus avium* (Wild Cherry), *Sambucus nigra* (Elder), *Acer pseudoplatanus* (Sycamore), *Ribes sanguineum* (Flowering Currant) and *Taxus baccata* (Yew). The base is locally dominated by *Hedera helix* (Ivy) with locally abundant *Galium aparine* (Cleavers) and *Mercurialis perennis* (Dog's Mercury), locally frequent *Geranium lucidum* (Shining Crane's-bill), *Anthriscus sylvestris* (Cow Parsley), *Alliaria petiolata* (Garlic Mustard) and *Festuca rubra* (Red Fescue), frequent *Urtica dioica* (Common Nettle) and small amounts of *Arum maculatum* (Lords-and-ladies), *Rubus fruticosus* agg. (Bramble), *Heracleum sphondylium* (Hogweed) and *Vicia sepium* (Bush Vetch). The climbing plant *Tamus communis* (Black Bryony) is present. Grasses from the adjacent improved grassland field extend into the hedge base. This hedge may be of relatively recent planted origin as the shrubs appear to be in a single row/ slightly staggered. As per **Target Note 7** in Marches Ecology (2013).

Target Note 2. A low mound to approximately 3-5 m high with sloping sides of 30°. It supports ungrazed poor semi-improved grassland/ semi-improved neutral grassland with scattered scrub mostly of *Crataegus monogyna* (Hawthorn), *Cytisus scoparius* (Broom), *Ulex europaeus* (Gorse) and *Rosa canina* agg. (Dog-rose), and a small amount of *Ilex aquifolium* (Holly). The grassland across the mound exhibits varying levels of agricultural improvement and is most species-poor across the level top. Where agricultural improvement is more evident there is an increase in species such as *Lolium perenne* (Perennial Rye-grass), *Trifolium repens* (White Clover) and *Alopecurus pratense* (Meadow Foxtail). The slopes are generally more species-rich with greater amounts of Common Bird's-foot trefoil, Common Knapweed, Field Woodrush, Yarrow, Lesser Trefoil and Mouse-ear-hawkweed. The semi-improved neutral grassland supports abundant *Festuca rubra* (Red Fescue), *Agrostis capillaris* (Common Bent) and *Anthoxanthum odoratum* (Sweet Vernal-grass) with frequent *Ranunculus bulbosus* (Bulbous Buttercup), *Ranunculus repens* (Creeping Buttercup), *Trifolium dubium* (Lesser Trefoil), occasional *Holcus lanatus* (Yorkshire-fog), *Cynosurus cristatus* (Crested Dog's-tail), *Rumex acetosa* (Common Sorrel), *Trifolium pratense* (Red Clover), *Vicia sativa* (Common Vetch), *Cerastium fontanum* (Common Mouse-ear), *Luzula campestris* (Field Wood-rush), *Dactylis glomerata* (Cock's-foot), *Trifolium repens* (White Clover), *Potentilla reptans* (Creeping Cinquefoil), *Plantago lanceolata* (Ribwort Plantain) and small amounts of *Conopodium majus* (Pignut), *Hypochaeris radicata* (Cat's-ear), *Leucanthemum vulgare* (Oxeye Daisy), *Centaurea nigra* (Common Knapweed), *Achillea millefolium* (Yarrow), *Lotus corniculatus* (Common Bird's-foot-trefoil), *Pilosella officinarum* (Mouse-ear-hawkweed) and *Trifolium medium* (Zigzag Clover). The sward height is generally 0.5-0.7 m. Part of the base of the slope is formed by a low stone wall. The wall has two courses and is approximately 0.5 m high. A plant of *Cotoneaster* sp. (a Cotoneaster) was noted in this wall. A number of mining bees were noted around areas of exposed substrate on the slopes. Revised after **Target Note 8** in Marches Ecology (2013).

Target Note 3. A gappy hedge managed to approximately 2 m high by 1.5 m wide. It is dominated by *Crataegus monogyna* (Hawthorn) with small amounts of *Rosa canina* agg. (Dog-rose), *Rosa arvensis* (Field-rose), *Acer pseudoplatanus* (Sycamore), *Sambucus nigra* (Elder) and *Prunus spinosa* (Blackthorn). The base is largely dominated by *Anthriscus sylvestris* (Cow Parsley) and *Urtica dioica* (Common Nettle).

Target Note 4. A small stream to approximately 0.5-1 m wide and 0.02-0.05 m deep. It has a moderate flow over stones and silt. There is only a short stretch (approximately 10 m) within the site. There is no aquatic or marginal vegetation present. It is bordered by a hedge/ line of trees and shrubs outside the site. It is unlikely to be of potential value for Water Voles.

Further to the west this watercourse can be viewed in places through the hedge at **Target Note 5** though it is largely obscured. At this location it is contained within a deeper, excavated channel. The banks are approximately 1.2 m above the water level. The channel appears to support *Apium nodiflorum* (Fool's Water-cress), *Mentha aquatica* (Water-mint), *Juncus effusus* (Soft Rush), *Glyceria*

fluitans (Floating Sweet-grass) and *Equisetum telmateia* (Great Horsetail). The channel here is of sub-optimal potential value for Water Voles at most.

Target Note 5. A hedge/ line of trees and shrubs that appears to be located outside the site boundary on a low earth bank. The trees and mature shrubs at the eastern end include *Corylus avellana* (Hazel), *Salix cinerea* (Grey Willow) and *Alnus glutinosa* (Alder). The earth bank is dominated by *Holcus lanatus* (Yorkshire-fog) with abundant *Anthoxanthum odoratum* (Sweet Vernal-grass) and *Festuca rubra* (Red Fescue) with occasional *Silene dioica* (Red Campion) and *Hyacinthoides non-scripta* (Bluebell). The western three-quarters of this feature is managed as a hedge to approximately 2 m wide and 2 m high. The hedge is dominated by *Prunus spinosa* (Blackthorn) with frequent *Corylus avellana* (Hazel) and lesser amounts of *Crataegus monogyna* (Hawthorn) and *Rosa canina* agg. (Dog-rose). The vegetation in the base is as described above but with locally frequent *Pteridium aquilinum* (Bracken).

Target Note 6. The site boundary here is bordered by dense mature scrub outside the site. The scrub is often dominated by *Rubus fruticosus* agg. (Bramble) with locally abundant *Ulex europaeus* (Gorse), locally frequent *Crataegus monogyna* (Hawthorn), frequent *Sambucus nigra* (Elder) and small amounts of *Ilex aquifolium* (Holly), *Prunus spinosa* (Blackthorn), *Rosa arvensis* (Field-rose) and *Rosa canina* agg. (Dog-rose). There are a small number of young *Fraxinus excelsior* (Ash) trees. See **Target Note 16** in Marches Ecology (2013).

Target Note 7. A *Quercus robur* (Pedunculate Oak) with an approximate dbh of 1.5 m. It appears to contain splits where four large limbs have come off, a woodpecker hole and other rotholes. This tree is of at least moderate potential value for roosting bats. Revised after **Target Note 13** in Marches Ecology (2013).

Target Note 8. A hedge managed to approximately 1.8 m high and 2 m wide. It is dominated by *Crataegus monogyna* (Hawthorn) with lesser amounts of *Ilex aquifolium* (Holly), *Prunus spinosa* (Blackthorn) and *Sambucus nigra* (Elder). The base is largely dominated by *Urtica dioica* (Common Nettle), *Galium aparine* (Cleavers) and *Anthriscus sylvestris* (Cow Parsley) with locally frequent *Alliaria petiolata* (Hedge Mustard).

Target Note 9. The site largely consists of a single large agriculturally improved (re-sown) grassland field. The sward is currently un-grazed and approximately 0.5-0.7 m high. It contains abundant *Bromus hordeaceus* (Soft-brome) and *Holcus lanatus* (Yorkshire-fog) with frequent *Lolium multiflorum* (Italian Rye-grass), *Lolium perenne* (Perennial Rye-grass), *Poa* sp. (Meadow-grass), *Alopecurus pratensis* (Meadow Foxtail), *Ranunculus repens* (Creeping Buttercup), locally frequent *Rumex obtusifolius* (Broad-leaved Dock), *Cerastium fontanum* (Common Mouse-ear), occasional *Ranunculus acris* (Meadow Buttercup), *Taraxacum officinale* (Dandelion), *Dactylis glomerata* (Cock's-foot) and *Rumex acetosa* (Common Sorrel). There are some small areas of more species-rich grassland around the field edges. Revised after **Target Note 4** in Marches Ecology (2013).

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7 DATA

Table 1 – Vascular plant species recorded within the survey site during the Extended Phase 1 Habitat Survey

Plant species
<i>Acer pseudoplatanus</i> (Sycamore)
<i>Cotoneaster</i> sp. (Cotoneaster)
<i>Crataegus monogyna</i> (Hawthorn)
<i>Cytisus scoparius</i> (Broom)
<i>Fraxinus excelsior</i> (Ash)
<i>Ilex aquifolium</i> (Holly)
<i>Ligustrum ovalifolium</i> (Garden Privet)
<i>Prunus avium</i> (Wild Cherry)
<i>Prunus spinosa</i> (Blackthorn)
<i>Quercus robur</i> (Pedunculate Oak)
<i>Ribes sanguineum</i> (Flowering Currant)
<i>Rosa arvensis</i> (Field-rose)
<i>Rosa canina</i> agg. (Dog-rose)
<i>Sambucus nigra</i> (Elder)
<i>Taxus baccata</i> (Yew)
<i>Ulex europaeus</i> (Gorse)
<i>Achillea millefolium</i> (Yarrow)
<i>Aegopodium podagraria</i> (Ground-elder)
<i>Agrostis capillaris</i> (Common Bent)
<i>Alliaria petiolata</i> (Garlic Mustard)
<i>Alopecurus geniculatus</i> (Marsh Foxtail)
<i>Alopecurus pratensis</i> (Meadow Foxtail)
<i>Angelica sylvestris</i> (Wild Angelica)
<i>Anisantha sterilis</i> (Barren Brome)
<i>Anthoxanthum odoratum</i> (Sweet Vernal-grass)
<i>Anthriscus sylvestris</i> (Cow Parsley)
<i>Arum maculatum</i> (Lords-and-ladies)
<i>Bellis perennis</i> (Daisy)
<i>Bromus hordeaceus</i> (Soft-brome)
<i>Capsella bursa-pastoris</i> (Shepherd's-purse)
<i>Cardamine flexuosa</i> (Wavy Bittercress)
<i>Cardamine pratensis</i> (Cuckooflower)

Plant species
<i>Centaurea nigra</i> (Common Knapweed)
<i>Centaureum erythraea</i> (Common Centaury)
<i>Cerastium fontanum</i> (Common Mouse-ear)
<i>Cirsium arvense</i> (Creeping thistle)
<i>Cirsium vulgare</i> (Spear Thistle)
<i>Cynosurus cristatus</i> (Crested Dog's-tail)
<i>Dactylis glomerata</i> (Cock's-foot)
<i>Dryopteris filix-mas</i> (Male-fern)
<i>Epilobium hirsutum</i> (Great Willowherb)
<i>Epilobium montanum</i> (Broad-leaved Willowherb)
<i>Epilobium parviflorum</i> (Hoary Willowherb)
<i>Equisetum telmateia</i> (Great Horsetail)
<i>Festuca rubra</i> (Red Fescue)
<i>Fumaria officinalis</i> (Common Fumitory)
<i>Galium aparine</i> (Cleavers)
<i>Geranium lucidum</i> (Shining Crane's-bill)
<i>Geranium pyrenaicum</i> (Hedgerow Crane's-bill)
<i>Geranium robertianum</i> (Herb-robert)
<i>Hedera helix</i> (Ivy)
<i>Heracleum sphondylium</i> (Hogweed)
<i>Holcus lanatus</i> (Yorkshire-fog)
<i>Holcus mollis</i> (Creeping Soft-grass)
<i>Hyacinthoides non-scripta</i> (Bluebell)
<i>Hypochaeris radicata</i> (Cat's-ear)
<i>Lamium album</i> (White Dead-nettle)
<i>Lapsana communis</i> (Nipplewort)
<i>Lathyrus pratensis</i> (Meadow Vetchling)
<i>Leucanthemum vulgare</i> (Oxeye Daisy)
<i>Lolium multiflorum</i> (Italian Rye-grass)
<i>Lolium perenne</i> (Perennial rye-grass)
<i>Lonicera periclymenum</i> (Honeysuckle)
<i>Lotus corniculatus</i> (Common Bird's-foot-trefoil)
<i>Luzula campestris</i> (Field Wood-rush)
<i>Mercurialis perennis</i> (Dog's Mercury)
<i>Pilosella officinarum</i> (Mouse-ear-hawkweed)
<i>Plantago lanceolata</i> (Ribwort Plantain)
<i>Plantago major</i> (Greater Plantain)

Plant species
<i>Poa annua</i> (Annual Meadow-grass)
<i>Potentilla reptans</i> (Creeping Cinquefoil)
<i>Pteridium aquilinum</i> (Bracken)
<i>Ranunculus acris</i> (Meadow Buttercup)
<i>Ranunculus bulbosus</i> (Bulbous Buttercup)
<i>Ranunculus ficaria</i> (Lesser Celandine)
<i>Ranunculus repens</i> (Creeping Buttercup)
<i>Rubus fruticosus</i> agg. (Bramble)
<i>Rumex acetosa</i> (Common Sorrel)
<i>Rumex obtusifolius</i> (Broad-leaved Dock)
<i>Senecio jacobaea</i> (Common Ragwort)
<i>Silene dioica</i> (Red Campion)
<i>Sisymbrium officinale</i> (Hedge Mustard)
<i>Solanum dulcamara</i> (Bittersweet)
<i>Sonchus arvensis</i> (Perennial Sow-thistle)
<i>Stachys sylvatica</i> (Hedge Woundwort)
<i>Stellaria media</i> (Common Chickweed)
<i>Tamus communis</i> (Black Bryony)
<i>Taraxacum</i> sect. <i>Ruderalia</i> (Common Dandelion)
<i>Trifolium dubium</i> (Lesser Trefoil)
<i>Trifolium medium</i> (Zigzag Clover)
<i>Trifolium pratense</i> (Red Clover)
<i>Trifolium repens</i> (White Clover)
<i>Tripleurospermum inodorum</i> (Scentless Mayweed)
<i>Urtica dioica</i> (Common Nettle)
<i>Veronica arvensis</i> (Wall Speedwell)
<i>Veronica chamaedrys</i> (Germander Speedwell)
<i>Veronica serpyllifolia</i> (Thyme-leaved Speedwell)
<i>Vicia sativa</i> (Common Vetch)
<i>Vicia sepium</i> (Bush Vetch)

8 APPENDIX 1

Species-specific Legislation

Introduction

- 8.1.1 The species-specific legislation below is presented here due either to the actual or suspected/ possible presence of each species on the site or within the zone of influence and is therefore considered to be relevant for this study.
- 8.1.2 This sub-section provides a brief summary of key relevant species legislation. It should not be considered a comprehensive review and is not meant to be so. It is provided here for information only and is not intended to replace specialised legal advice. It does not replace the text of the legislation, but summarises the salient points.

Bats

- 8.1.3 All species of British bat are listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receive full protection under *Section 9*. They are also listed as European Protected Species on *Schedule 2* of *The Conservation of Habitats and Species Regulations 2010* (as amended) which gives them full protection under *Regulation 40(1)*. Protection was extended by the *Countryside and Rights of Way Act 2000* (the *CRoW Act 2000*).
- 8.1.4 Under the above legislation it is an offence to intentionally or recklessly:
- kill, injure or take an individual of such a species;
 - possess any part of such species either alive or dead;
 - damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
 - disturb such a species whilst using any place of shelter or protection; or
 - sell or attempt to sell any such species.
- 8.1.5 Several species of bat are included on *Section 42* of the *NERC Act 2006*.
- 8.1.6 All species of British bat are also protected under *Schedule 6* of the *Wildlife and Countryside Act 1981* (as amended). This protection relates specifically to trapping and direct pursuit of the species.

Water Vole

- 8.1.7 The Water Vole (*Arvicola amphibius*) is protected under *Section 9* of *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended). This protection was extended by the *CRoW Act 2000*. Under the above legislation it is an offence to:
- intentionally or recklessly damage, destroy or obstruct access to any structure or place that Water Voles use for shelter or protection;
 - intentionally or recklessly disturb a Water Vole while it is using such a place;
 - intentionally kill, injure or take any wild Water Vole;
 - possess or control any live or dead wild Water Vole or any part of, or anything derived from, such an animal;

- sell, offer or expose for sale, or have in his possession or transports for the purpose of sale, any live or dead water vole, or any part of, or anything derived from, such an animal; or
- publish or cause to be published any advertisement likely to be understood as conveying that he buys or sells, or intends to buy or sell, any of those things.

8.1.8 The Water Vole is included on *Section 42* of the *NERC Act 2006*.

Reptiles

8.1.9 Viviparous Lizard, Grass Snake, Slow-worm and Adder are all listed under *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), in respect of *Section 9(5)* and part of *Section 9(1)*. This protection was extended by the *CRoW Act 2000*.

8.1.10 Under the above legislation it is an offence to:

- intentionally or recklessly kill or injure any individual of such a species; or
- sell or attempt to sell any part of the species alive or dead.

8.1.11 All four of the above listed reptiles are included on *Section 42* of the *NERC Act 2006*.

Birds

8.1.12 All species of bird are protected under *Section 1* of the *Wildlife and Countryside Act 1981* (as amended). The protection was extended by the *CRoW Act 2000*.

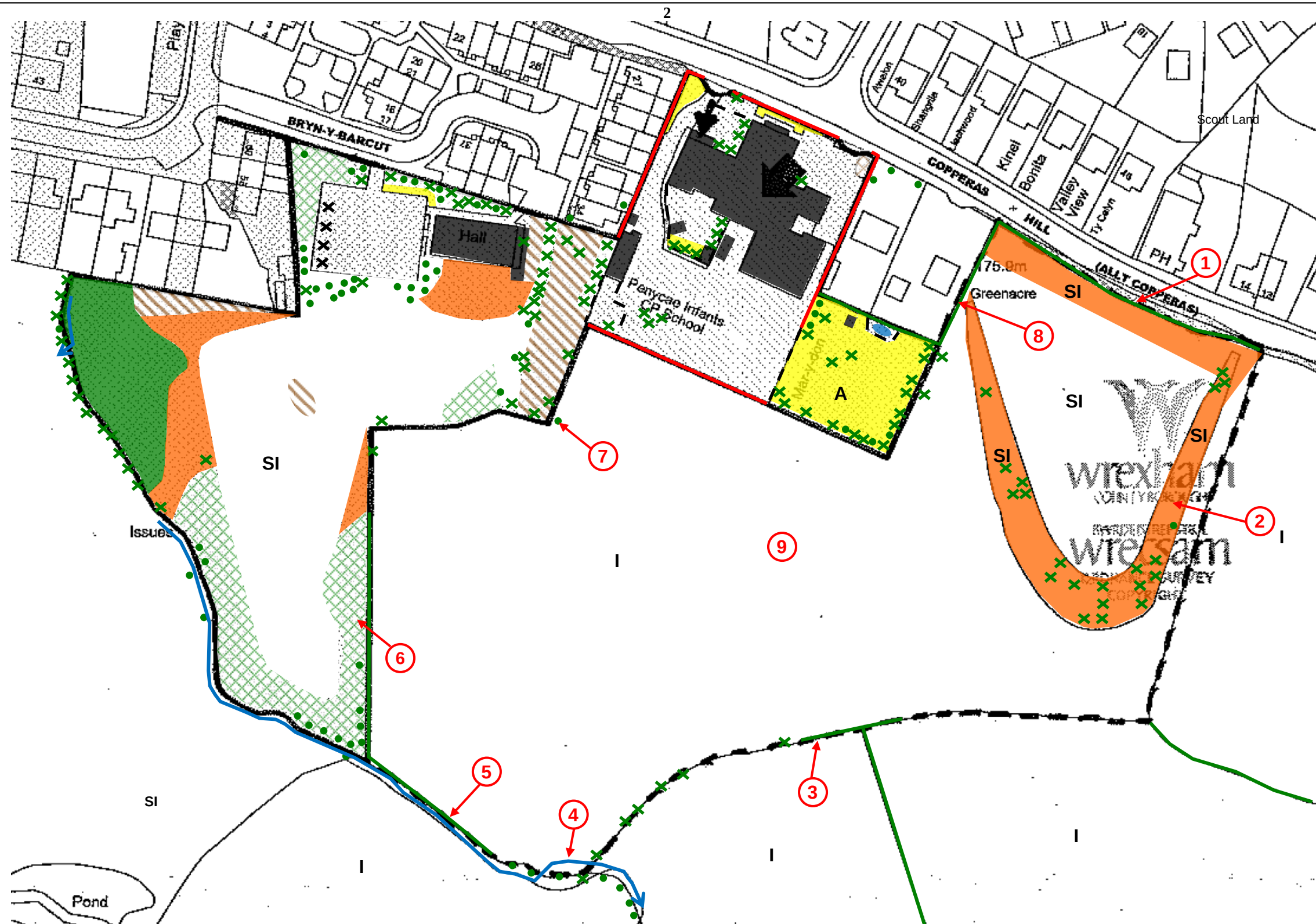
8.1.13 The legislation makes it an offence to intentionally or recklessly:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

8.1.14 Certain species of bird are listed on *Schedule 1* of the *Wildlife and Countryside Act 1981* (as amended) and receive protection under *Sections 1(4)* and *1(5)* of the Act. The legislation confers special penalties where the above mentioned offences are committed for any such bird and also make it an offence to intentionally or recklessly:

- disturb any such bird, whilst building its nest or it is in or near a nest containing dependant young; or
- disturb the dependant young of such a bird.

8.1.15 *Section 42* of the *NERC Act 2006* includes several birds.



Base mapping provided by a Wrexham County Borough Council plan entitled 'Penycae CP - Infants Block, Copperas Hill, Penycae' dated 6 Jan 2011.

marches ecology

C295 Re-development of Penycae Infants School,
Copperas Hill, Penycae, Wrexham - Extended Phase 1
Habitat Survey of Adjacent Land

Figure 1 – Extended Phase 1 Habitat Survey

Drawn by: ME
Checked by: TK
Date: 07.06.16

Key

- Semi-natural broad-leaved woodland
- Hedgerow
- Individual broad-leaved tree (indicative only)
- Continuous scrub
- Scattered scrub
- Neutral grassland

- SI Semi-improved neutral grassland
- A Amenity grassland
- SI Poor semi-improved grassland
- I Improved grassland
- Tall ruderal
- Ephemeral/ short perennial
- Standing water

- Introduced shrub
- Flowing water
- Building/ hard standing or bare ground
- Fence/ wall
- Target Note