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Flint Acre, Littlehampton:
Phase 1 Habitat Survey

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1 Introduction

Scope of Survey

1.1 In July 2013 Sally Clifton Ecology was commissioned by Mr Carlo Celini to undertake a Phase 1 Habitat Survey in relation to a planning application for development of two additional residential plots at Flint Acre, Toddington Lane, Littlehampton, West Sussex BN17 7PP (NGR: TQ 034038).

The Proposal Site and Development

1.2 The proposal site lies adjacent to a lane off Toddington Lane, on the northern outskirts of Littlehampton. This roughly rectangular site currently includes an existing residential property on its western boundary with car parking and other hardstanding and a small formal garden, accessed from the lane by a tarmac drive. At the northern corner there is a large greenhouse. The eastern and southern edges of the plot are bordered by wide belts of trees and shrubs, mostly non-native ornamentals with some native colonisers. The northern boundary until recent years had a non-native conifer hedge and shrub belt, most of which have recently been removed in stages. The centre of the site is comprised of a large pond, surrounded on two-thirds of the shore nearest the house with closely-mown amenity grassland. The remaining third is bordered by a patch of Reed Canary-grass and more roughly mown grassland.

1.3 Immediately to the north of the site, beyond a hedge, is a small paddock of low diversity grassland. The minor road off Toddington Lane runs round the eastern and southern edges of the site, and another house and garden lie to the west.

1.4 Much of the wider area surrounding the site is currently occupied by redundant commercial greenhouses. However it is understood planning consent has been granted for construction of around 1500 residential properties and associated facilities on this land.

1.5 The approximate location of the two proposed new residential plots within the Flint Acre site is shown in Figure 1.

Survey Objectives

1.6 The aims of the Phase 1 Habitat Survey were to describe and evaluate the important ecological features of the existing site and assess the potential of the proposed development for impact upon these features, including any protected species present. Specific objectives therefore included walking the site and ‘target noting’ the following:

- important habitats and their relationship to each other;
- any protected species, signs of and potential habitat for these species (a summary of Protected Species Legislation is provided in Appendix A);
- where potential habitat for protected species is identified, scoping the need for more detailed surveys of these species;

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- any opportunities for biodiversity enhancement, within the scope of the proposed development, to complement existing habitats.

1.7 A search for data of relevance to assessment of the ecological significance and potential of the proposal site was carried out prior to the survey. A review of these data is provided in chapter 2 and their relevance to the proposal site is incorporated in the evaluation given in chapter 4.

1.8 Chapter 3 of this report describes the Phase 1 Habitat Survey, the methods used and the results. Chapter 4 gives an evaluation of the results and conclusions based on this survey and on the review of data summarised in chapter 2. It then recommends any further data collection and more detailed surveys necessary to assess the impact of the proposed development and to prepare appropriate detailed mitigation and enhancement measures. Finally chapter 4 assesses the residual impact of the proposal upon ecology of the site and its surroundings.

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2 Data Collection and Review

Introduction

2.1 The National Biodiversity Network (NBN) website was accessed to obtain records of any protected, BAP or rare species within approximately 2 km of the proposal site (or 5 km in the case of Bats), focusing particularly on those with any likelihood of occurring in the types of habitat present on the proposal site. Some relevant survey results from the Environmental Statement for the North Littlehampton development were also taken into account. The Multi-agency Geographic Information for the Countryside (MAGIC) website was searched for data relating to any statutory and non-statutory sites designated for their nature conservation importance on or close to the site.

Review

Summary of Designated Sites in the Vicinity of Proposed Development Site

2.2 This section summarises the features of sites designated for their nature conservation interest within 1 km of the site, as indicated on the MAGIC website.

Statutory Sites of International Importance: Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar Site

2.3 None.

Statutory Sites of National Importance: Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR)

2.4 None.

Statutory Sites of Local Importance: Local Nature Reserve (LNR)

2.5 None.

Non-statutory Sites of Local Importance: Site of Nature Conservation Importance (SNCI), UK Biodiversity Action Plan (BAP) Habitats

2.6 There are no SNCI within 1 km of the proposal site. Approximately 0.5 km north of the site, along the Black Ditch, is an area of the UK BAP Habitat 'Floodplain Grazing Marsh'. The site is separated from it by a complex of greenhouses, hardstanding and some small hedges and scrub areas.

Ancient Woodland

2.7 None.

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Protected, Notable/Rare and UK Biodiversity Action Plan Priority Species

2.8 These records are for species protected by either local, national or international legislation. Table 1 summarises species with any of the above designations occurring within at least 1 km of the site, giving the most recent records. More detail of designations for these species is provided in Appendix B.

Table 1 Protected, Notable/Rare, UK Biodiversity Action Plan Priority Species List for the Search Area

Common Name	Latin Name	Most Recent Record	Distance (km) and direction from Proposal Site
Hedgehog	*Erinaceus europaeus*	2012	1.2km south-south-west in residential area
Pipistrelle	*Pipistrellus pipistrellus*	1999	Grid ref not specific, within 2 km
Daubenton's Bat	*Myotis daubentonii*	1997	2 records within 3 km
Badger	*Meles meles*	1973	Grid ref not specific, within 2 km
Common Frog	*Rana temporaria*	1996	Within 1 km to south
Slow Worm	*Anguis fragilis*	2008	Within 1 km to north
Grass Snake	*Natrix natrix*	2008	Within 1 km to north
Common Lizard	*Zootaca vivipara*	2008	Within 1km to west

2.9 The potential significance of these records is evaluated in section 4 of this report.

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3 Phase 1 Habitat Survey

Introduction

3.1 The survey was carried out on 17 July 2013; the weather was dry, sunny and very hot, with virtually no wind. The survey methods were based on those given in the Handbook for Phase 1 Habitat Survey (JNCC 2007) and general best practice.

3.2 July is an acceptable time of year for botanical survey, though some early spring-flowering plants might have been less visible. Given the very hot, dry weather, Reptiles in particular would be most unlikely to be seen basking, and more likely to be sheltering deep in humid vegetation. However, it is considered that the habitats at the survey site were such that evaluation of their ecological significance and potential to support protected species was feasible on the date of survey.

Methods and Approach

Habitats and Plants

3.3 As well as walking all areas within the proposal site boundary as far as access was possible, the immediately adjacent areas were visited or viewed from the survey site itself. The habitat types were noted and mapped in accordance with the Phase 1 Habitat Survey Handbook categories. Areas too small to map and features of any conservation interest have been identified using Target Notes (Appendix C). In addition any features in adjacent areas were noted where these were considered relevant to assessment of potential ecological impacts of the proposed development.

3.4 For each habitat unit the dominant and characteristic plant species observed during the survey were recorded. The nomenclature for the flora is that of Stace (1999). This list of species is not intended to be exhaustive, but serves to broadly characterize the habitat and to identify any species of conservation interest visible at the time of the survey.

3.5 The Phase 1 Habitat Survey maps natural and semi-natural habitats, together with certain structural features such as fences where these are of ecological significance. Ornamental species were also only recorded where they were considered ecologically relevant. The results of the Phase 1 Habitat Survey were mapped at a scale of approximately 1:1000 (Figure 2).

Protected Species of Fauna

3.6 Any protected species of fauna, signs of their presence, and potential habitat for them, were recorded in the Target Notes. The protected species which from knowledge of this type of area were more likely to be present received particular attention, as listed below, but notes were also made on signs of any other animal activity. For those groups which might be less visible due to the very hot weather, potential habitat for them could still be assessed. The list also indicates the suitability of the survey date for each species:

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- Badgers (slightly sub-optimal; February to May is their most active period);
- Bats (optimal, normally active between mid-May and September);
- Hedgehog (optimal, between March and October);
- Breeding bird habitat (slightly late, but some species still nesting);
- Common Reptiles (sub-optimal for direct observation due to the hot weather);
- Amphibia (slightly sub-optimal, normally most active February to June);
- Invertebrates (optimal for most terrestrial species are active May to September, aquatic species being most abundant April to June but still present in July).

Badger (Meles meles)

3.7 The following signs can indicate the presence of Badger:

- Footprints, dung pits, snuffle holes, runways through vegetation;
- latrines and stray hairs on boundary hedges, walls, fences;
- sett-building activity in hedgerows, earth banks, woodland and scrub: discarded bedding, recent spoil heaps.

Bats

3.8 Trees on and immediately adjacent to the proposal site were checked for:

- holes that extend upwards into the tree;
- rot or storm damage;
- spaces behind flaking or peeling bark;
- dense cover of ivy, droppings;
- scratch marks or oil stains.

There are no buildings on the proposal site to be potentially affected by the development.

Hedgehog (Erinaceus europaeus)

3.9 A standard method for detailed survey of Hedgehogs has recently been developed, using ‘footprint tunnels’. However some indication of the presence of Hedgehogs can be obtained by looking for the following signs:

- droppings: 50mm long, 10mm wide – black in colour, containing insect remains;

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- footprints: Hind 40-45mm long, 25mm wide / Front 40mm long, 25mm wide;
- summer nests: made of grass, lined with moss and leaves, situated in woodland and hedges;
- winter nests: made of neatly packed grass, dry bracken and leaves, situated at the base of trees, in tree hollows, compost heaps and old Rabbit burrows.

Breeding Bird Habitat

3.10 Potential Bird Breeding habitat for various different species could include woodland and other Trees, Scrub, undisturbed areas of rough Grassland and tall marginal vegetation. The locations of these were mapped (approximately). In addition a list was made during the survey of any bird species seen or heard. However this was not the main focus of the survey, and did not represent a comprehensive bird survey, but serves only to characterize the potential of the habitat.

Reptiles

3.11 Assessment for this group was based on habitat suitability, as follows:

Slow Worm (Anguis fragilis):

- Scrub;
- rough Grassland (particularly with areas of rubble, hardstanding, log piles to provide shelter and hibernacula);
- thick ground vegetation: less often found basking than other British reptiles;
- habitats influenced by man, such as gardens, farmyards.

Common Lizard (Zootoca vivipara):

- open patches for basking, especially sunny piles of stones, rubble and wood;
- ground cover of ivy for feeding and shelter from predators;
- dense but short, open vegetation;
- Scrub.

Grass Snake (Natrix natrix):

- Water bodies or damp habitat surrounded by long grass, scrub or woodland.

Adder (Vipera berus):

- Scrub

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- Woodland edge habitats
- Heathland

Amphibia, including Great Crested Newt (Triturus cristatus)

3.12 This species requires still water (with good quality) of a suitable size, ideally with some submerged and emergent vegetation and natural banks, adjacent to suitable terrestrial habitat for foraging and hibernation, and an absence of dense populations of large fish.

Invertebrates

3.13 Given the diversity of Invertebrates as a group and their differing life cycles, although any observations made during this one-day Phase 1 Habitat Survey would be recorded they would not be representative of the true diversity present on a site. However, the presence of any habitats with particular Invertebrate potential were noted, for example:

- rotting wood such as old tree stumps, fallen trunks (habitat for saproxylic invertebrates, including rare beetles);
- trees known to support a high diversity of Invertebrates, for example willows and oaks;
- species-rich Grassland and Tall Ruderals, especially for Moths, Butterflies, Bees, Hoverflies, Grasshoppers and Crickets;
- aquatic habitats such as Ponds, Lakes, Ditches and Streams.

3.14 Habitats with particular potential to support Invertebrates were noted on the Phase 1 Habitat map, and their potential importance for Invertebrates described in the Target Notes.

3.15 Absence of protected fauna or their signs does not necessarily confirm absence of these species. Where the presence of habitat suitable for protected species indicates the need for more detailed surveys, recommendations for these are given in chapter 4.

Survey Results

Summary Description of Habitats

3.16 The habitats potentially affected by either the proposed construction, works storage or access are summarised below in terms of their ecological significance. The Phase 1 Habitat Map for the survey area is provided in Figure 2, and Target Notes providing fuller descriptions of the features recorded, in Appendix C. A list of dominant and characteristic plant species recorded during the survey is provided in Appendix D, with English and Latin names in Appendix E.

Habitats on and Close to Proposal Site

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3.17 The following paragraphs describe those habitat types present on the site which are listed (and defined) in the Phase 1 Habitat Survey methodology. Their potential to support protected species is described in section 3.34 onwards.

3.18 Habitat areas on the Phase 1 Habitat Survey Map are not to scale, and the locations of features are also not exact except where these features are shown on the base map.

A 2.1 Dense/Continuous Scrub

3.19 This habitat, intermixed with Introduced Shrubs, occurs as a belt along most of the southern and eastern edges of the site (except where it has been cleared at TN 7, the location of development Plot 2). Both these belts are dominated by an intermittent row of mature Cypresses, shown on the Phase 1 Habitat Survey map as Coniferous Scattered Trees (see below). The associated Scrub is very dense in places, and plants were recorded mostly from the margins. Native species in the Scrub layer are dominated by English Elm, Elder, Bramble and Hazel with occasional Grey Willow and a single Crab Apple in the eastern belt. The dense shade is likely to limit the ground flora, which is dominated by Ivy. Other frequent species in the ground flora are Common Nettle, Goosegrass and Fumitory species, with occasional White Bryony, Creeping Thistle and Woody Nightshade. This habitat is of low ecological value, its main significance being as potential habitat for Reptiles and Breeding Birds, as discussed below from section 3.34 onwards.

A 3.2 Scattered trees: Coniferous

3.20 The intermittent row of mature Cypresses within the Dense Scrub is best classified in this category. This habitat is also of limited ecological value, its main significance being as potential habitat for Bats and Breeding Birds, as discussed below.

C 3.1 Tall Ruderal Vegetation

3.21 Tall Ruderal vegetation occurs as a narrow (0.2 – 0.7 metres) fringe around the northern, eastern and part of the southern borders of the Pond, the widest fringe being at the eastern end where it appeared roughly mown at the time of survey. Around most of the circumference of the Pond this habitat is bordered by Amenity Grassland and has very little direct continuity with the aquatic habitat, being separated from it by concrete edges. However that on the eastern side has continuity with the Dense Scrub on that side. Tall Ruderal vegetation is also present among recently cleared Introduced Shrubs along the northern edge of the site and in the south-western corner. Both these communities are on slightly mounded spoil excavated during construction of the Pond.

3.22 The narrow Pond edge community nearest the house, having poor continuity with any more diverse habitats, has the lowest diversity among these communities, and has a few species in common with the adjacent Amenity Grassland. The eastern Pond fringe and the smaller cleared plot in the south-west have higher and similar diversity, while the larger cleared plot in the north is the most diverse. This habitat is of moderate ecological value at a local level, being of some significance for its plant diversity, but its main significance is as potential habitat for Reptiles and Invertebrates.

F 2.1 Marginal Vegetation

3.23 Although it has limited continuity with the adjacent Pond, the small bed dominated by Reed Canary-grass on part of the southern Pond shore can best be described as

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Marginal Vegetation due to its species composition. Other species present include Bramble, Grey Willow, Common Nettle, Willowherbs, Marsh Marigold and Yellow Iris. This habitat is of low ecological value at a local level, its main significance being as potential habitat for Reptiles and Breeding Birds.

G 1 Standing Water

3.24 The Pond was constructed in the 1990s and is butyl rubber-lined with concrete edges and no zonation of semi-natural bank vegetation. The smaller lobe nearest the house is understood to be up to 1.3m deep, and has a patch of White Water-lily in the centre. The larger lobe of the Pond, around 2.5m deep, has a more extensive patch of White Water-lily along the southern shore adjacent to the Marginal Reed Canary-grass. No other aquatic vegetation, either emergent or submerged, was visible in the Pond at the time of survey, though the water was very turbid. The recently fallen Weeping Willing is likely to be adding some degree of structural diversity to the Pond ecosystem. Large Carp and Goldfish were present, probably contributing to the turbidity of the water. Azure and Blue-tailed Damselflies and Brown Hawker Dragonfly were also recorded. A Moorhen was observed on the Pond; it is not known whether it is nesting in the vicinity. This Pond is currently of low ecological value at a local level, mainly for Invertebrates, its potential being limited by the presence of fish and the absence of semi-natural zonation of plant communities on the banks.

J 1.2 Amenity Grassland

3.25 Close-mown Amenity Grassland surrounds the Pond to the north, west and part of its southern shore, separated from it by only a very narrow fringe of Tall Ruderal vegetation. This grassland has low to medium plant diversity, and is dominated by Perennial Rye-grass, Red Fescue, Bents and White Clover, with a few frequent herb species including Daisy, Creeping Buttercup, Ragwort and Selfheal. This habitat is of negligible ecological value.

J 1.4 Introduced Shrub

3.26 Two open areas of ornamental Introduced Shrubs, to the north of the Pond and in the south-western corner of the site, have been recently cut: there are several bonfire sites and piles of logs and fallen trees. These areas have become partly colonised by Tall Ruderals (see above). A belt of intact ornamental Introduced Shrubs remains to the south-west of the northern cleared area. A small area of this habitat is present in the formal garden adjacent to the drive. While these non-native shrubs are of little ecological value in themselves their significance for protected fauna is discussed below.

J 2.1.2 Intact Species-poor Hedge

3.27 The short remnant of Intact Species-poor Hedge north of the greenhouse has very low diversity, being comprised largely of relatively young Cypresses. The few native Scrub species present include Elder, and the sparse ground flora is dominated by Ivy, Common Nettle, Perennial Sow-thistle, Fumitory and Goosegrass. This habitat is of low ecological value at a local level, possibly offering potential habitat for a few nesting Birds.

J 3 Buildings

3.28 It is understood that all of these would be unaffected by the proposed development, including the existing house, the greenhouse at the western end of the site and the summer house at the eastern end of the Pond.

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J 4 Bare Ground

3.29 This classification describes the hardstanding around the existing house, together with the entrance drive, and the small areas of bonfire sites. A few areas of bare ground on the edges of suitable habitat may offer potential basking sites for any Reptiles present.

Wider Area

B 4 Improved Grassland

3.30 The paddock north of the proposal site is comprised of Improved Grassland. Although marked 'Playing Fields' on the Ordnance Survey map it has no ground markings indicating the presence of pitches, and is roughly mown. Its plant diversity and general ecological value are currently very low.

A 2.1 Dense/Continuous Scrub

3.31 This habitat is present between the proposal site and the minor road running along its southern and eastern boundaries, and its composition appears similar to that adjacent to it on the site. This habitat is of low ecological value, its main significance being as potential habitat for Reptiles and Breeding Birds, and its continuity with similar habitat on the proposal site.

J 2.6 Dry Ditch

3.32 The above Dense Scrub bordering the southern and eastern edges of the proposal site covers a Dry Ditch. It has no signs of aquatic or marsh vegetation which might suggest it is seasonally wet. A short length of it towards the south-eastern end is either culverted or filled in. As an ecological feature this ditch is of negligible ecological significance.

J 2.8 Earth Bank

3.33 An earth bank is present between the eastern Cypresses and the minor road, on the eastern boundary, gradually increasing in height further north (not shown on Phase 1 Habitat Survey map due to the thickness of lines on the base map). This bank has signs of a number of animal paths into the proposal site, probably those of Rabbit, Fox or Cat, but these are of negligible ecological significance.

Protected and Other Important Species

Badgers

3.34 No signs of Badger activity were observed on the proposal site or within 30 metres of its boundaries (as far as these areas were visible from the site).

Bats

3.35 Although no actual signs of Bats were observed during the survey, some of the mature Cypresses along the southern and eastern boundaries may have some potential to support roosting Bats, having a few holes, cracks or crevices. The

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presence of the Pond may also contribute a limited Invertebrate food resource for this group. None of the younger trees in the short northern hedge or elsewhere on the proposal site currently has any potential to support roosting Bats. None of the existing buildings on the site is to be affected by the proposed development.

Hedgehog

3.36 No signs of Hedgehog were observed during the survey, though the Dense Scrub areas on and adjacent to the proposal site may have low potential to support this species.

Breeding Birds

3.37 Table 3 lists Birds observed or heard during phase 1 habitat survey; this list is broadly indicative of characteristic species and does not represent a comprehensive Bird survey. The mature and semi-mature trees, Dense Scrub and larger Introduced Shrubs on the proposal site all have good potential to support nesting birds, both in holes in the trunks and amongst the canopies. The small area of Marginal Vegetation may have low potential as habitat for nesting birds, possibly including Moorhen.

Table 3 Birds Observed or Heard during Phase 1 Habitat Survey

Blackbird	*Turdus merula*
Great Tit	*Parus major*
Blue Tit	*Cyanistes caeruleus*
Starling (dead)	*Sturnus vulgaris*
Wren	*Troglodytes troglodytes*
Moorhen	*Gallinula chloropus*
Magpie	*Pica pica*
Wood Pigeon	*Columba palumbus*
Herring Gull (seen flying over site)	*Larus argentatus*

Reptiles

3.38 No signs of Reptiles were observed during the survey, though given the very hot weather it is likely that most would be sheltering in cool, damp vegetation. However the following habitats on or near the proposal site have potential to support Reptiles:

- the Pond has low-moderate potential as a food source (especially Amphibia, if present) for Grass Snake, which could be present in suitable adjacent habitat. The larger patch of White Water Lily may provide some habitat for Invertebrates and small Amphibia, and hence potential prey for Grass Snake. At the southern edge of the Pond, the Reed Canary-grass gives a degree of connectivity between the Water Lily patch and the adjacent Dense Scrub;

- all the Dense Scrub areas offer potential shelter for Reptiles including Grass Snake, and foraging opportunities for Slow Worm and Common Lizard;

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- the presence of roughly mown Tall Ruderal vegetation along the eastern bank of the Pond offers potential basking sites adjacent to good Reptile foraging habitat in the adjacent Dense Scrub;

- the more open areas of cleared Introduced Shrubs and Tall Ruderal vegetation, as well as the intact bed of Introduced Shrub, provide potential foraging habitat for common Reptiles, and the southern edge in particular has potential basking sites;

- the piles of logs, and also of grass cuttings, offer potential hibernation sites for all common Reptiles, and egg-laying sites for Grass Snake.

Amphibia

3.39 The Pond has low potential to support Common Frog and Toad, and small newts (Smooth and Palmate). A number of factors would further reduce the potential of the Pond to support breeding Great Crested Newt in particular:

- predation by the large fish;

- apparent lack of submerged and marginal vegetation (other than White Water Lily) which in turn could support a greater abundance and diversity of Invertebrate food for newts;

- the absence of any natural banks supporting vegetation, which would offer potential food resources as well as cover for newts entering and leaving the Pond.

Invertebrates

3.40 Given the considerable diversity of Invertebrates in the UK, the potential for this group on the site was assessed in terms of habitats suitable for supporting this group. The main habitats present on the proposal site with some potential are as follows:

- the open areas largely cleared of Introduced Shrubs and colonised by Tall Ruderals are likely to support a moderate diversity of Invertebrates including butterflies, moths, bees, flies and other species feeding on plant material, together with their Invertebrate predators;

- the Dense Scrub areas would also be likely to provide moderately good potential habitat for this group. Willows (including Goat and Grey) in particular are known to support a high diversity of Invertebrate species;

- Introduced Shrubs, especially those introduced for their flowers, will be a good food source for bees and butterflies in particular;

- the Pond is likely to have some potential habitat for freshwater Invertebrates, though predation by fish and the apparent absence of submerged or emergent flora (other than White Water Lily) is likely to limit their abundance and diversity. Nevertheless, 2 species of Damselfly and one of Dragonfly were observed here.

Other Protected or Important Species

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3.41 Although some Hazel and Bramble was present, these small areas of Dense Scrub are very unlikely to support Dormouse due to their lack of continuity with any other suitable Dormouse habitat. The Pond is unsuitable for Water Vole, having concrete banks.

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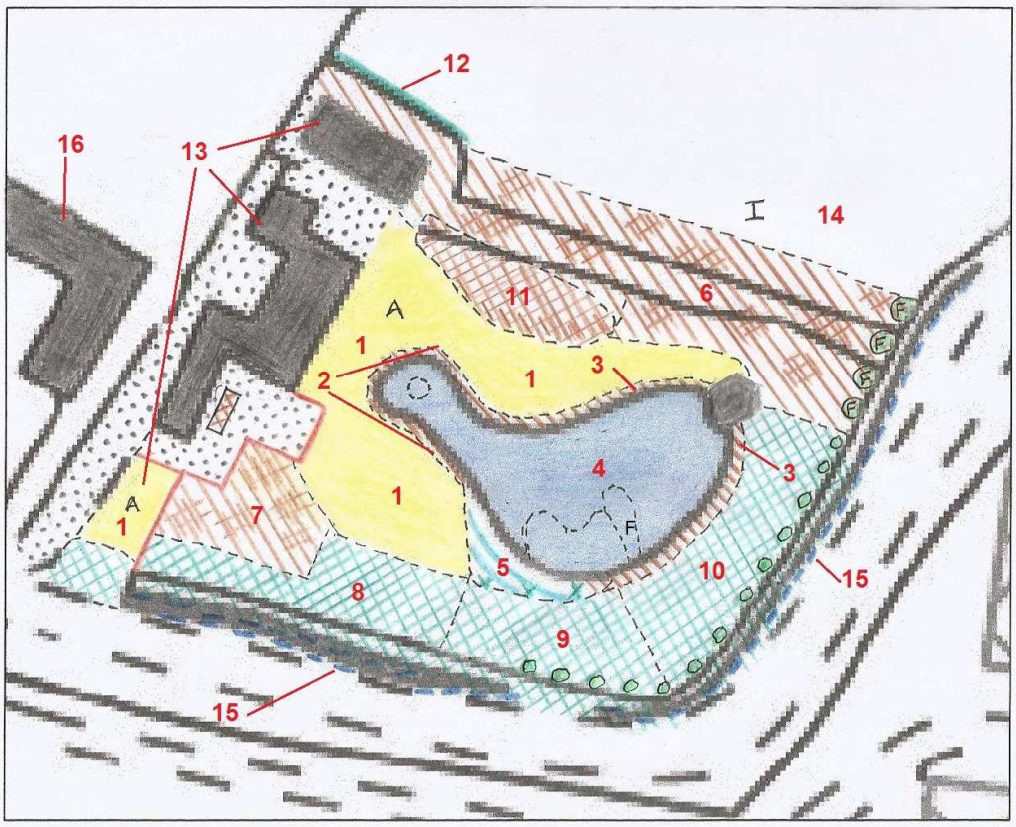
Figure 2 Phase 1 Habitat Survey Map



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KEY

A 2.1	Dense/continuous Scrub		(green)
A 3.2	Scattered Trees: Coniferous		(true green)
A 4.2	Recently – felled/fallen Conifers		(true green)
B 4	Improved grassland		(no colour)
C 3.1	Tall Ruderal Vegetation		(terra cotta)
F 2.1	Marginal Vegetation		(sky blue)
G 1	Standing Water		(indigo blue)
J 1.2	Amenity Grassland		(canary yellow)
J 1.4	Introduced Shrub		(terra cotta)
J 2.1.2	Intact Species-poor Hedge		(green)
J 2.6	Dry Ditch		(indigo blue)
J 3	Buildings		(black)
J 4	Bare ground		(black)
Target Note			(red)
Dividing line between habitats where no boundary Is marked on map			(black)

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4 Conclusions and Recommendations

Evaluation Summary

4.1 This evaluation summary is based on the results of the Phase 1 Habitat Survey given in chapter 3 together with the data review outlined in chapter 2.

Designated Areas

4.2 The proposal site bears no statutory or non-statutory designations for nature conservation interest, and there are no statutory designations within 1 km of the proposal site. The site has no significant ecological links with the only non-statutory site within 1km, the UK BAP Floodplain Grazing Marsh 0.5km to the north, or to any other habitat of particular ecological interest.

Habitats

4.3 The significance of habitats for protected species is evaluated separately below. The only habitats of any significance for their plant communities are:

- the two larger areas of Tall Ruderal vegetation (around cleared Introduced Shrubs), but these are of only moderate diversity. No protected or rare plant species were recorded here;
- the Pond is currently of only low ecological value at a local level (mainly for Invertebrates), due to the presence of fish, the concrete edges and the absence of semi-natural zonation of plant communities on the banks. However it has considerable potential for enhancement during the proposed development work, as described below.

Protected Species

Bats

4.4 The data review found fairly old records of two Bat species (Pipistrelle and Daubenton's) within 3 km of the proposal site. The presence of the mature Cypresses, with potential roosting habitat in their cracks and crevices together with the Pond as a potential food source slightly enhances the potential for Bats on this site. However it is understood that none of the trees is to be further affected (those in the location of the access for Plot 1 having recently been felled).

Hedgehog

4.5 While no signs of Hedgehog were observed during the survey, there was a record in 2012 for Hedgehog within 1.2km in a residential area, and some of the Dense Scrub on and adjacent to the proposal site may have low potential to support this species. There is scope for enhancement for Hedgehog as part of the proposed development.

Breeding Birds

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4.6 The list of birds observed during the survey includes Herring Gull (seen flying over the site) and Starling (dead, probably killed by a predator) both of which are on the Red List of UK Birds. These are defined in the UK Biodiversity Action Plans as having suffered a decline of 50% or more in the last 40 years. Herring Gull normally nest in coastal areas, but although no evidence of Starling nests was seen they could find suitable nesting habitat in holes in the mature trees.

Reptiles

4.7 Common Lizard, Grass Snake and Slow Worm were all recorded within 1 km of the proposal site in 2008. The present survey confirmed that the site offers potential foraging, basking and hibernation sites for any of these three species of common Reptiles, especially in the following areas:

- all the Dense Scrub areas offer potential shelter and foraging opportunities;
- the Pond has low-moderate potential as a food source (especially Amphibia, if present) for Grass Snake, which could be present in suitable adjacent habitat;
- the roughly mown Tall Ruderal vegetation east of the Pond offers potential basking sites;
- the areas of cleared Introduced Shrubs and Tall Ruderal vegetation and intact bed of Introduced Shrub provide potential foraging habitat, and the southern edge has potential basking sites;
- the piles of logs and grass cuttings offer potential hibernation sites for all common Reptiles, and egg-laying sites for Grass Snake.

Amphibia

4.8 No recent records were found for Great Crested Newt within 1 km, and the Pond on the proposal site is considered unsuitable for this species in its present condition. There is an old record for Common Frog within 1 km to the south of the site, and the Pond on site has low potential to support Common Frog and Toad, and possibly small newt species. However enhancement of this Pond (as recommended below) could in time make it more suitable for all these species.

Invertebrates

4.9 The main habitats present on the proposal site with some potential to support a moderate diversity of this group are as follows:

- the open areas largely cleared of Introduced Shrubs and colonised by Tall Ruderals together with their Invertebrate predators;
- the Dense Scrub areas, especially the Willows (including Goat and Grey);
- the Pond is likely to have some potential habitat for freshwater Invertebrates, though has considerable scope for enhancement.

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Recommendations

Data Collection

4.10 As a basis for preparing mitigation measures, it is recommended that recent records are sought from:

- the local Amphibian and Reptile Group (ARG);
- (only if felling or pruning is required to any mature trees on the site) the local Bat Group.

Detailed Surveys

4.11 The following detailed surveys are recommended in order to verify the presence of protected species upon the proposal site, and as a basis for planning appropriate mitigation of any adverse impacts upon them:

- **Reptiles**: it is recommended that a detailed Reptile Survey be carried out, ideally over autumn (September – October), and possibly also spring (April – June), survey periods unless the results of autumn survey are conclusive. Its purpose would be to establish the species, numbers and distribution of any Reptiles on the proposal site;
- Any **Amphibia** using the site for foraging are likely to be recorded during the Reptile survey by the methods used (refuges) for that group;
- **Breeding Bird survey** would only be necessary if any work affecting Breeding Birds is to be carried out during the nesting season, and if no mitigation measures for loss of habitat were proposed.

Potential Impact Assessment

4.12 It is understood the proposed development would comprise the following elements of relevance to the ecology of the site:

- construction of two dwellings in the locations shown in Figure 1. The building on Plot 1 would be accessed from the road to the east, and that on Plot 2 from the entrance drive to the existing house;
- as preparation for this construction, the vegetation (Dense Scrub, Tall Ruderal vegetation, Introduced Shrubs, Amenity Grassland) would be cleared in these areas and the ground re-graded as necessary;
- the existing Pond would be divided between the two lobes, creating a small Pond as part of the garden of the existing house and the large lobe in the garden of Plot 1;
- installation of utilities.

4.13 This section outlines potential issues which could adversely affect the ecological features evaluated above (in sections 4.3 - 4.9) in the absence of measures to mitigate any adverse effects. However, it is considered that these potential

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ecological impacts can be avoided or mitigated for by appropriate measures, which are outlined subsequently below.

4.14 The construction of the development could result in the following potential ecological impacts:

- loss of semi-natural habitat in the areas affected, including the felled Cypresses, about half the open Tall Ruderal area in the north of the site, the open Tall Ruderal area in the south and possibly a further area of Dense Scrub immediately to the east of this.
- loss of the small formal garden south of the existing house, comprised of Amenity Grassland and some Introduced Shrubs, to create access to Plot 2;
- damage to any Reptiles present during vegetation clearance and construction;
- damage to any fauna, including Reptiles, burrowing in the earth mounds to be re-graded;
- damage to nesting Birds, only if vegetation clearance was carried out during the nesting season, or any construction works were carried out sufficiently close to nests to disturb them;
- division of the Pond into two would result in a slightly smaller total volume of water, but could create an opportunity to naturalise some lengths of the shoreline of both Ponds and introduce appropriate native submerged plants;
- there could only be damage to any Bats present or roosting Bat habitat if any trees or large boughs need to be removed as part of construction;
- damage to Amphibia and Pond Invertebrates through adverse effects on water quality during construction of the houses, division of the Pond and laying of utilities.

4.15 The significance of these potential impacts **in the absence of any mitigation** is assessed in Table 3 below.

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Table 3 Summary of Potential Impact Assessment in the Absence of Mitigation

Impact	Positive/ negative	Magnitude	Extent	Duration	Reversibility	Timing/ frequency
Loss of semi-natural habitat	Negative	Moderate	Local	Partly permanent	Some reversible: much habitat to be lost is recently disturbed	Single construction activity
Loss of the formal garden	Negligible	Negligible	Negligible	Permanent	Reversible in the long-term if required	Single construction activity
Damage to any Reptiles present and their habitat	Negative	Moderate	Local	Partly permanent	Partly reversible	Single construction activity
Damage to fauna, including Reptiles, in earth mounds during re-grading	Negative	Moderate	Local	Partly permanent	Reversible	Single construction activity
Damage to nesting Birds and their habitat	Negative	Moderate	Local	Partly permanent	Partly reversible	Single construction activity
Division of the Pond	Positive	Minor	Local	Permanent if required	Partly reversible	Single construction activity
Damage to any Bats present/ roosting Bat habitat	Negative	Minor	Local	Permanent	Reversible	Single construction activity
Adverse effects on water quality, Amphibia and Invertebrates	Negative	Minor	Local	Temporary	Reversible	Single construction activity

Mitigation and Enhancement Measures

Mitigation Measures

4.16 The mitigation measures recommended for this scheme would take account of the results of the present survey, further data collection and also the results of any detailed surveys. Measures might include the following:

- the loss of relatively species-rich Tall Ruderals could be offset by seeding some of the new garden areas with appropriate wildflower seed-mixes;
- if the detailed survey identifies the presence of Reptiles on the site, mitigation measures may include any of the following, depending on the numbers present:
    - capture and translocation of Reptiles to a suitable receptor site which would need to be surveyed first to assess its capacity to receive Reptiles from the development site;
    - Reptile fencing around the development site during construction;
    - controlled clearance of the vegetation under supervision by the ecologist;
    - controlled excavation of earth during re-grading works under supervision of the ecologist;
    - enhancement of a suitable area in the vicinity to offset the loss of Reptile habitat on the proposal site;
    - if numbers are very small, hand-capture and translocation to a suitable receptor site of any Reptiles observed by the ecologist during vegetation clearance.
- adverse impacts upon nesting Birds can best be avoided by undertaking works outside of the Bird breeding season (normally February to July, though this varies with progression of the seasons);
- prior to removal of any trees, or large boughs, these trees would need to be checked by an ecologist for their potential as roosting Bat habitat. If such habitat is present, a licensed Bat surveyor must be present while the felling//pruning is undertaken;
- to avoid runoff from the construction site into the Pond, and adverse impact on its water quality, appropriate Environment Agency Pollution Prevention Guidelines must be followed during construction.

4.17 In terms of a suitable receptor site for any Reptiles found, the low-diversity Improved Grassland immediately to the north of the site (target note 14, as shown on Figure 2, the Phase 1 Habitat Survey map) is within the client's ownership and offers ideal scope for enhancement for this purpose. The actual area of land used would be proportional to the size of Reptile populations, if any, indicated by the detailed Reptile Survey. Enhancement measures could include any of the following:

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- seeding some of the area with a species-rich wildflower mix to attract Invertebrates as a food source for Reptiles. This should be allowed to grow longer, and mown only 2 – 3 times a year at a height at least 15cm to avoid damage to Reptiles;

- maintaining some short grass areas along south-facing habitat edges for basking Reptiles;

- allowing some native Scrub species to colonize;

- if Grass Snakes are present on the site, construction of a small Pond with natural banks and native submerged and emergent species;

- addition of piles of logs, dead leaves and grass cuttings for use as hibernation and egg-laying sites.

Enhancement Measures on the Site

4.18 In addition to mitigation of potential impacts, national and local Planning Policy requires that as part of proposed developments, opportunities should be identified for enhancement of nature conservation value in the vicinity of the proposal. The following list outlines some possible options for enhancement measures appropriate to the site and to its primary function for residential use:

- incorporating more natural plant zonation to the new Pond edges, increasing the value of both new Ponds for Amphibia and Grass Snake;

- if possible, removing fish from the new Ponds;

- planting native submerged plant species in the new Ponds, to diversify Invertebrate life;

- seeding of any areas of grassland in the new gardens with wildflower seed mix of local provenance, including seed of Tall Ruderal species which benefit bees, butterflies and other Invertebrates;

- leaving more piles of logs, grass cuttings and dead leaves along sunny border edges for basking, hibernating and egg-laying by Reptiles and Amphibia;

- adding Bird and Bat nesting boxes to the mature trees, and where appropriate to the roofs of the new houses.

Residual Impact

4.19 Implementation of the above mitigation and enhancement measures will ensure there is very unlikely to be any adverse impacts upon the ecological resources of the site or adjacent areas from this development.

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APPENDIX A Relevant Legislation: Protected Species

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Relevant Legislation: Protected Species

The following paragraphs summarize legislation relating to the protected species with the greatest likelihood of occurring on the site.

Bats

All 16 British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. They are also all included on Schedule 2 of the Conservation (Natural Habitats etc.) Regulations 1994 as European Protected Species. This legislative context makes it an offence to:

- intentionally or recklessly kill, injure or capture bats;
- deliberately or recklessly disturb bats (whether in a roost or not);
- damage, destroy or obstruct access to bat roosts.

Further protection is given to rarer bat species (Greater Horseshoe *Rhinolophus ferrumequinum*, Lesser Horseshoe *Rhinolophus hipposideros* , Barbastelle *Barbastella barbastellus* and Bechstein's bat *Myotis bechsteini*). These, together with Pipistrelle (*Pipistrellus spp.*), are also UK Biodiversity Action Plan (BAP) Priority Species.

A Natural England licence is required to handle or disturb bats.

Breeding Birds

Birds are protected under the Wildlife and Countryside Act 1981 (as updated by the Countryside and Rights of Way Act 2000). With certain exceptions, it is illegal to:

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

Schedule 1 of the Act contains a list of birds for which all offences carry harsher penalties and for which the following additional protection applies. Under the legislation it is illegal to:

- intentionally or recklessly disturb a Schedule 1 bird while it is building a nest or is in or near a nest containing eggs or young;
- intentionally or recklessly disturb dependent young of such a bird.

The breeding season for most birds is between March and August. Breeding bird surveys (undertaken without contravening the above legislation) do not require a licence.

Badger

Badgers (*Meles meles*) and their setts are protected under various legislation, drawn together under the Protection of Badgers Act 1992. This makes it a criminal offence to:

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- wilfully kill, injure, take, possess, or cruelly ill-treat a Badger, or to attempt to do so;
- interfere with a sett by damaging or destroying it;
- obstruct access to, or any entrance of, a Badger sett;
- disturb a Badger when it is occupying a sett.

A Natural England licence is required to disturb or interfere with setts; guidelines are provided by Natural England on which particular activities are licensable. For example, a licence is required for works with heavy machinery within 30m of an active Badger sett. This legislation effectively prevents development on a site, or within 30m of a site, with an active Badger sett without mitigation being agreed with Natural England and carried out prior to construction works.

Hedgehog

Hedgehogs are a protected species under the Wildlife and Countryside Act (1981) Schedule 6. They are also protected under the Wild Mammals (Protection) Act 1996. In November 2008 they also became a UK Biodiversity Action Plan [BAP] Priority Species. Hedgehogs may not be trapped without a licence from Natural England.

Reptiles

All British reptile species are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as updated by the Countryside and Rights of Way Act 2000). The commoner species (Adder *Vipera berus*, Grass Snake *Natrix natrix*, Slow Worm *Anguis fragilis* and Common Lizard *Lacerta vivipara* receive partial protection under part of Section 9(1) and all of Section 9(5). As such it is an offence to:

- intentionally or recklessly kill or injure any individual; and
- sell, offer for sale, possess or transport for the purpose of sale or publish advertisements to buy or sell individual reptiles.

However, survey for the commoner species of reptiles does not require a licence.

Amphibia

Great Crested Newts are listed on Schedule 5 and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. They are also all included on Schedule 2 of the Conservation (Natural Habitats etc.) Regulations 1994 as European Protected Species. They are also listed on Annexes II and VI of the EC Habitats Directive, and they are UK Biodiversity Action Plan Species. This legislative context makes it an offence to:

- intentionally or recklessly kill, injure or capture these species;
- possess them;
- intentionally or recklessly damage, destroy, obstruct access to any structure or place used by these species for shelter or protection, or disturb an animal occupying such a structure or place; or

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- sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative) or advertise for buying or selling these things.

A Natural England licence is required to disturb or handle Great Crested Newts. The commoner amphibia (Palmate Newts, Smooth Newts, Common Frogs and Common Toads) are all protected against sale only under Schedule 5 of the Wildlife and Countryside Act 1981.

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APPENDIX B: Summary of Designations for Protected Species Data

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Protected, Notable/Rare and UK Biodiversity Action Plan Priority Species

Common Name	Latin Name	Designation
Hedgehog	*Erinaceus europaeus*	**Bern Convention Appendix 3, UK BAP P**
Pipistrelle	*Pipistrellus pipistrellus*	**The Conservation (Natural Habitats, &c.) Regulations 2010 (Sch. 2), W &C Act 1981 (Sch. 5 All Sections) Bern Convention Appendix 2, Bern Convention Appendix 3, Habitats Directive Annex 4**
Daubenton's Bat	*Myotis daubentonii*	**Habitats Directive Annex 4, The Conservation (Natural Habitats, &c.) Regulations 2010 (Sch. 2), W &C Act 1981 (Sch. 5 All Sections) Bern Convention Appendix 2, Bern Convention Appendix 3**
Badger	*Meles meles*	Bern_III, Badger Act
Common Frog	*Rana temporaria*	**W &C Act 1981 (Sch. 5 Sec. 9.5a & 9.5b), Bern Convention Appendix 3, Habitats Directive Annex 5**
Slow Worm	*Anguis fragilis*	**W &C Act 1981 (Sch. 5 Sec. 9.1 (killing/injuring)), W &C Act 1981 (Sch. 5 Sec. 9.5a & 9.5b), Bern Convention Appendix 3 UK BAP P**
Grass Snake	*Natrix natrix*	**W &C Act 1981 (Sch. 5 Sec. 9.1 (killing/injuring)), W &C Act 1981 (Sch. 5 Sec. 9.5a & 9.5b), Bern Convention Appendix 3, UK BAP P**
Common Lizard	*Zootaca vivipara*	**W &C Act 1981 (Sch. 5 Sec. 9.1 (killing/injuring)), W &C Act 1981 (Sch. 5 Sec. 9.5a & 9.5b), Bern Convention Appendix 3, UK BAP P**

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APPENDIX C: Target Notes from Phase 1 Habitat Survey

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Target Notes

These Target Notes (TNs) provide descriptions which either characterize the habitats present at the location, or identify features of ecological interest, based on observations during the survey. These include signs of, or habitat potentially suitable for, protected species. The locations of these Target Notes are indicated on the Phase 1 Habitat Map (Figure 1); however it should be noted that the locations of features which are not marked on the original base map are only very approximate.

The features recorded are evaluated in more detail in the main text of the report. Fuller lists of dominant plant species are provided in Appendix D, and English and Latin names in Appendix E.

1. Close-mown Amenity Grassland surrounds the Pond to the north, west and part of its southern shore. It has low to medium plant diversity, dominated by Perennial Rye-grass, Red Fescue, Bents and White Clover, with a few frequent herb species including Daisy, Creeping Buttercup, Ragwort and Selfheal. The edges adjacent to the Pond and shrub borders could provide basking sites for any Reptiles present; otherwise this habitat is of very limited ecological value.

2. Along the border of the Pond nearest the existing house (which will remain part of the garden of this house) is a narrow fringe of Tall Ruderals. As there is no zonation of Pond shore vegetation, this fringe has the character of unmown Amenity Grassland rather than marginal Pond vegetation, with many species in common with the adjacent Grassland, including Perennial Rye-grass, Red Fescue, White Clover and Ragwort. It also has occasional Monkeyflower (probably introduced) Common Knotgrass, Willowherbs and Fumitory. There are two duck houses on the southern bank; it is understood attempts to encourage breeding ducks have failed due to predation by Foxes. This fringe of vegetation is of very limited value to Invertebrates, and possibly any basking Reptiles present.

3. This fringe of Tall Ruderal vegetation continues around the northern border of the Pond as far as the decking by the summer house at the north-eastern corner of the Pond. It then continues down the eastern border, and is wider and more roughly mown and slightly more diverse here, although more shaded by trees. This fringe of vegetation is of slightly more value to Invertebrates, and any basking Reptiles present, being more roughly mown in places and adjacent to habitat of more value to these groups.

4. The Pond itself is dumbell-shaped, the end nearest the house being smaller and that further from it considerably larger. It is butyl rubber-lined, with concrete edges. The smaller end is understood to be around 1.3m deep in the centre; this area supports a patch of White Water-lily. The larger end is around 2.5m deep in the centre, with a more extensive patch of White Water-lily along the southern shore. At the eastern end of this patch, a recently fallen Weeping Willing extends out towards the centre of the Pond. No other aquatic vegetation, either emergent or submerged, was visible in the Pond, though the water was very turbid. Large Carp and Goldfish were present, and Azure and Blue-tailed Damselflies, Brown Hawker Dragonfly, and also a Moorhen, were recorded. At the eastern end of the Pond is a small wooden summer house, which is to remain as part of Plot 1.

   Invertebrate, Reptile, Amphibian and other wildlife diversity here is likely to be limited by the absence of natural Pond banks and sparsity of aquatic vegetation, and to some extent by the presence of large fish. It is understood the fish are rarely artificially fed, so the Invertebrates are likely to be their main food source. A Moorhen was observed on the Pond.

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5. There is a bed of Marginal Vegetation largely comprised of Reed Canary-grass, with some Scrub and Tall Ruderal species, extending round part of the southern bank of the Pond. Behind it is Amenity Grassland at its western end and unmown Tall Ruderals at the eastern end. The Marginal Vegetation is likely to be of some value to nesting and feeding Birds, and any Reptiles or Amphibia present.

6. The open area to the north of the Pond and formal garden is largely taken up with native Tall Ruderals and the remains of mostly Introduced Shrubs. (The proposed location of the house on development Plot 1 is at the eastern end of this area.) The vegetation here has been recently cut: there are several bonfire sites and piles of logs and fallen trees. The hedge indicated on aerial photos has been removed along this length. It is understood this took place in stages, most recently about 3 years ago.

   The southern edge of this area has a slight mound of earth, understood to be some of the spoil from the excavation of the Pond. There is a small pile of grass cuttings on the southern edge of this area. The more vegetated parts of this area have moderate to good potential to support common Reptiles such as Common Lizard, Slow worm and Grass Snake; the Tall Ruderals provide shelter and potential food supplies, and the piles of logs and grass cuttings offer good hibernation and basking sites.

7. On the south-western corner of the site is a smaller open area of native Tall Ruderals and the remains of mostly Introduced Shrubs, also recently cut, with scattered piles of logs. (The proposed location of the house on Plot 2 is at the western end of this area). This vegetation is also growing on a low mound of Pond excavation material. It has good potential to support common Reptiles, having similar resources to area 6 but being adjacent to more extensive Dense Scrub.

8. This area, which would also form part of Plot 2, is of similar plant composition to area 7 but is uncleared and very Dense Scrub, much of it impenetrable and plants were recorded largely from the margins. It is possible that some species may have been missed, though the heavy shade is likely to limit ground flora which appeared to be dominated by Ivy. A short row of mature Cypress (indicated on the Phase 1 Habitat Survey Habitat Map as Scattered Trees) is present near the eastern end. Some of the Cypresses have cracks and crevices in the bark which could have low potential for roosting Bats. This area also has good potential to support common Reptiles, having similar resources to areas 6 and 7 but being comprised of more extensive Dense Scrub, and good potential value to breeding Birds.

9. This area of very Dense Scrub is similar in composition and its potential to support Reptiles and Birds to area 8, but is part of Plot 1. It also has more mature Cypresses on its southern edge with low potential to support roosting Bats.

10. This belt of trees and Dense Scrub is a mixture of native and ornamental species, similar in composition to that in the southern belt, and marks the eastern boundary of the site (and Plot 1). It is bordered on the road side by mature Cypresses except at the northern end where these have recently been felled, leaving piles of trunks and logs. A number of animal paths going into this area from the Pond side are likely to be those of Rabbit (which are plentiful on the site), Fox or possibly cats. The potential here to support Reptiles and breeding Birds, and Bats in the mature Cypresses, is similar to that in area 9.

11. This belt of ornamental Introduced Shrubs is a remnant of that which has been cleared at no. 6. It is now partly overgrown with native Tall Ruderals and herb species, and has low potential to support Reptiles, and possibly breeding Birds.

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12. The short Intact Species-poor Hedge north of the greenhouse is a remnant of the former hedge shown on aerial photos as extending along the northern boundary of the site. It is comprised largely of Cypresses, much less mature than those along the southern and eastern boundaries. This hedge has moderate potential to support breeding Birds, and low potential to support Reptiles.

13. The western boundary of the site is comprised of the existing house, hardstanding areas including the entrance drive, a greenhouse in the north-western corner, and a formal garden area in the south-western corner adjacent to the drive. It is understood the only part of this area to be affected by the proposed development of Plot 1 is the formal garden adjacent to the drive. This is comprised of Amenity Grassland and Introduced Shrubs. The latter could have potential to support breeding Birds, and moderate potential for common Reptiles given it proximity to the adjacent Dense Scrub.

Adjacent Habitats

14. To the north of the proposal site is a paddock of Improved Grassland (within the ownership of the client), marked Playing Fields on the OS map. It is roughly mown and there are no markings on the ground indicating the presence of pitches, suggesting only informal recreational use, if any. The plant diversity, and general ecological value here, is currently very low.

15. Along most of the southern and eastern edges of the site, between the proposal site Dense Scrub and Tree Belt and the minor road, is a Dry Ditch also largely covered in Dense Scrub similar to that on the site. A short length of Ditch towards the south-eastern end is either culverted or filled in. The Ditch has no signs of aquatic or marsh vegetation which might suggest it is seasonally wet. As the road dips down towards the east, then north, a bank appears along this edge, becoming higher further along. It has a few animal paths, most likely to be those of Rabbits, Fox or Cat. There is good potential habitat here to support Reptiles and breeding Birds.

16. To the west of this property is a slightly larger house with a more formal garden of Amenity Grassland with Introduced Shrubs.

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APPENDIX C: Dominant and Characteristic Plant Species Recorded

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Dominant and Characteristic Plant Species Recorded √

English Plant Name	1	2	3	4	5	6	7	8	9	10	11	12	13
Bent sp.			√										
Blackthorn								√					
Bramble					√	√	√	√	√	√	√		
Bristly Ox-tongue	√		√				√	√					
Broad-leaved Dock					√	√							√
Buddleia							√						
Cock'sfoot	√		√										√
Common Chickweed		√				√	√						√
Common Knot-grass	√	√	√										
Common Nettle	√				√	√	√	√	√	√	√	√	
Crab Apple										√			
Creeping Bent	√		√										
Creeping Buttercup	√				√	√							√
Creeping Thistle	√				√	√	√			√			√
Cypress sp.								√	√	√		√	
Daisy	√				√								
Dandelion	√		√										
Elder						√	√	√	√	√	√	√	
English Elm								√	√	√			
False Fox-sedge			√										
Field Maple						√				√			
Forget-me-not sp.					√	√							
Fumitory sp.		√	√			√	√	√	√	√	√	√	
Galingale			√										
Goat Willow			√			√	√						
Goosefoot sp.						√							
Goosegrass						√	√	√	√	√	√	√	
Greater Bittercress	√	√	√					√					
Greater Plantain						√							
Great Willowherb	√	√	√		√	√							
Grey Willow					√			√	√				
Ground Ivy							√	√	√				
Groundsel						√							
Hawthorn							√			√			
Hazel								√	√	√			
Hedge Bindweed					√		√						
Hedge Mustard											√		
Hoary Plantain			√										
Hoary Willowherb	√	√			√	√	√						
Hogweed						√							√
Ivy			√			√	√	√	√	√	√	√	
Lesser Trefoil	√												
Male Fern							√	√	√				
Marsh Marigold					√								
Monkeyflower	√	√											

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English Plant Name	1	2	3	4	5	6	7	8	9	10	11	12	13
Mosses	√												
Perennial Rye-grass	√	√	√			√							
Perennial Sow-thistle					√	√					√	√	
Prickly Sow-thistle						√	√						
Ragwort	√	√	√		√	√							√
Red Clover	√												
Red Fescue	√	√	√	√									
Reed Canary-grass	√				√			√	√				
Ribwort Plantain		√				√							
Rough Hawkbit	√												
Rowan							√						
Scarlet Pimpernel							√						
Scot's Pine								√					
Scentless Mayweed						√	√				√		
Selfheal	√		√		√		√				√		
Silver Birch						√		√					
Spear Thistle	√										√		
Speedwell sp.						√							
Toadflax sp.	√	√	√		√	√	√				√	√	
Traveller's-joy									√	√			
Weeping Willow (orn.)										√			
Weld	√	√	√			√	√	√	√	√	√	√	
White Bryony						√	√	√	√	√	√	√	
White Clover	√	√			√								
White Dead-nettle											√		
White Water Lily				√									
Willowherb sp.	√	√	√			√	√	√	√				
Wood Avens						√							
Woody Nightshade						√	√	√	√	√			
Yellow Iris					√						√		
Yew								√					
Yorkshire-fog	√	√	√			√					√		

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APPENDIX D English – Latin Plant Names

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English – Latin Plant Names

English plant name	Latin name
Bent sp.	*Agrostis sp.*
Blackthorn	*Prunus spinosa*
Bramble	*Rubus fruticosa agg.*
Bristly Ox-tongue	*Picris echioides*
Broad-leaved Dock	*Rumex obtusifolius*
Buddleia	*Buddleia davidii*
Cock'sfoot	*Dactylis glomerata*
Common Chickweed	*Stellaria media*
Common Knot-grass	*Polygonum aviculare*
Common Mouse-ear	*Cerastium fontanum*
Common Nettle	*Urtica dioica*
Crab Apple	*Malus sylvestris*
Creeping Bent	*Agrostis stolonifera*
Creeping Buttercup	*Ranunculus repens*
Creeping Thistle	*Cirsium arvense*
Cypress sp.	*Cupressus sp.*
Daisy	*Bellis perennis*
Dandelion	*Taraxacum officinale agg.*
Elder	*Sambucus nigra*
English Elm	*Ulmus procera*
False Fox-sedge	*Carex otrubae*
Field Forget-me-not	*Myosotis arvensis*
Field Maple	*Acer campestre*
Fumitory sp.	*Fumaria sp.*
Galingale	*Cyperus longus*
Goat Willow	*Salix caprea*
Goosefoot sp.	*Atriplex sp.*
Goosegrass	*Galium aparine*
Greater Bittercress	*Cardamine flexuosa*
Greater Plantain	*Plantago major*
Great Willowherb	*Epilobium hirsutum*
Grey Willow	*Salix cinerea*
Ground Ivy	*Glechoma hederacea*
Groundsel	*Senecio vulgaris*
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus avellana*
Hedge Bindweed	*Calystegia sepium*
Hedge Mustard	*Sisymbrium officinale*
Hoary Plantain	*Plantago media*
Hoary Willowherb	*Epilobium parviflorum*
Hogweed	*Heracleum sphondylium*
Ivy	*Hedera helix*
Lesser Trefoil	*Trifolium dubium*
Male Fern	*Dryopteris filix-mas*
Marsh Marigold	*Caltha palustris*

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English Plant Name	Latin name
Monkeyflower	*Mimulus guttatus*
Mosses	Bryophyta
Perennial Rye-grass	*Lolium perenne*
Perennial Sow-thistle	*Sonchus arvensis*
Prickly Sow-thistle	*Sonchus asper*
Ragwort	*Senecio jacobaea*
Red Clover	*Trifolium pratense*
Red Fescue	*Festuca rubra*
Reed Canary-grass	*Phalaris arundinacea*
Ribwort Plantain	*Plantago lanceolata*
Rough Hawkbit	*Leontodon hispidus*
Rowan	*Sorbus aucuparia*
Scarlet Pimpernel	*Anagallis arvensis*
Scot's Pine	*Pinus nigra*
Scentless Mayweed	*Tripleurospermum inodorum*
Selfheal	*Prunella vulgaris*
Silver Birch	*Betula pendula*
Spear Thistle	*Cirsium vulgare*
Speedwell sp.	*Veronica sp.*
Toadflax sp.	*Linaria sp.*
Traveller's-joy	*Clematis vitalba*
Weeping Willow (orn.)	*Salix x sepulcralis*
Weld	*Reseda luteola*
White Bryony	*Bryonia dioica*
White Clover	*Trifolium repens*
White Dead-nettle	*Lamium album*
White Water-lily	*Nymphaea alba*
Willowherb sp.	*Epilobium sp.*
Wood Avens	*Geum urbanum*
Woody Nightshade	*Solanum dulcamara*
Yellow Iris	*Iris pseudacorus*
Yew	*Taxus baccata*
Yorkshire-fog	*Holcus lanatus*

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