



CALA Homes (Midlands) Ltd

Fringford Road, Bicester, Oxfordshire

Ecological Assessment

July 2013

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Rev	Issue Status	Prepared / Date	Approved/Date
-	Draft	SLC/ CAG 19.06.13	KG / 20.06.13
	Final	KG / 09.07.13	KG / 09.07.13

CONTENTS

1.0 INTRODUCTION..... 2

2.0 METHODOLOGY..... 3

3.0 RESULTS13

4.0 DISCUSSION AND RECOMMENDATIONS26

TABLES

- Table 1: Classification of Bat Potential in Trees
- Table 2: Non Statutory Designated Sites
- Table 3: Notable Bird Species Recorded Within 1km Of The Site
- Table 4: Hedgerow Species Composition and HEGS Grades
- Table 1: Classification of Bat Potential in Trees
- Table 2: Non Statutory Designated Sites
- Table 3: Notable Bird Species Recorded Within 1km Of The Site
- Table 4: Hedgerow Species Composition and HEGS Grades

FIGURES

- Figure 1: Site Location & Consultation Data Results
- Figure 2: Phase 1 Habitat Plan
- Figure 3: Transect Survey Plan 08.05.13
- Figure 4: Transect Survey Plan 24.06.13
- Figure 5: Pond Location Plan
- Figure 6: Nocturnal Survey Plan

GRAPHS

- Graph 1: Static survey data (April)
- Graph 2: Static survey data (June)

APPENDICES

- Appendix 1: Botanical Species List

1.0 INTRODUCTION

- 1.1. This report has been prepared by FPCR Environment & Design Ltd. on behalf of Cala Homes (Midlands) Ltd. It provides details of an Extended Phase 1 Habitat Survey and further species specific survey for protected species including badgers, bats, great crested newts and breeding birds on a site at Fringford Road, Bicester (hereafter referred to as the site). The initial survey was carried out on 27th February 2013 and the subsequent surveys have been completed over the appropriate survey period in April . June 2013.

Site Location and Context

- 1.2. The site is centred on grid reference SP 584 250 (Figure 1: Site Location). Habitats within the site were dominated by heavily grazed species poor semi-improved grassland. Three hedgerows, one area of scrub and one small area of mixed woodland were also present within the site. A tree line track run through the centre of the site and further mature / semi-mature trees are scattered of the periphery of the site.
- 1.3. The site was surrounded by residential housing to the east and south. Further areas of agricultural land was present to the north and west of the site

Development Proposals

- 1.4. The development proposals include the construction of 200 residential units with associated gardens, infrastructure, car parking and public open space.

2.0 METHODOLOGY

Desk Study

- 2.1. In order to compile existing baseline information, relevant ecological information was compiled for the purposes of this Ecological Assessment, including:
 - Multi Agency Geographic Information for the Countryside (Magic) website,
 - Thames Valley Environmental Records Centre (TVERC),
 - Oxfordshire Bat Group,
 - Oxfordshire Badger Group,
 - Oxfordshire Amphibian and Reptile Group.
- 2.2. Further inspection of colour 1:25000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk) was also undertaken in order to provide additional context and identify any features of potential importance for nature conservation in the wider countryside.
- 2.3. The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:
 - 5km around the application area for sites of International Importance (e.g. Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites).
 - 2km around the application area for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSIs) and species records (protected or notable species).
 - 1km around the application site for non-statutory Sites of biological importance (e.g. Local Wildlife Site and proposed wildlife sites).

Flora

- 2.4. The survey was undertaken in February 2013 using the standard Extended Phase 1 Habitat Survey Methodology (JNCC, 2006), as recommended by Natural England, to identify specific habitats and features of ecological interest. Habitats were marked on a base plan and where appropriate, target notes were made. An inspection of the site for the presence of any invasive weed species was also carried out. Features such as trees were considered with regard to their ecological value and potential to provide suitable habitats for protected species.
- 2.5. Hedgerows were surveyed individually using the Hedgerow Evaluation and Grading System (HEGS) after Clements and Toft (1993) to enable identification and evaluation of hedgerows of nature conservation importance within the site. Hedgerows were graded on a scale of 1-4, within which grades 1 and 2 are generally considered to be of nature conservation priority:
 - 1= high to very high value
 - 2 = moderately high to high value
 - 3 = moderate value
 - 4 = low value.

- 2.6. Hedgerows were also considered against the Hedgerow Regulations 1997 Wildlife and Landscape criteria, to identify any hedgerows, which would be classified as ~~un~~important for nature conservation under this part of the act. Under this methodology, hedgerows are considered according to the average number of woody species per 100m of hedgerow. Additional features which enhance hedgerows, when found in association with the hedge, such as mature trees, ditches and hedge banks are also considered.
- 2.7. It should be noted that hedgerows may also qualify as Important under the Archaeological criteria of this Act, which is beyond the scope of this assessment.

Fauna

- 2.8. Throughout the survey, consideration was given to the actual or potential presence of protected species, such as, although not limited to those protected under the Wildlife and Countryside Act 1981 (as amended), the Protection of Badgers Act 1992, and the Conservation of Habitats and Species Regulations 2010 (as amended). Consideration was also given to the existence and use of the site by other notable fauna such as Red Data Book (RDB) species, and species of principal importance for biodiversity under Schedule 41 of the Natural Environment and Rural Communities Act (NERC) 2006 (formerly known as UK Biodiversity Action Plan (UKBAP) species). Such species included, but was not limited, to bats, badger, reptiles and bird species.

Avifauna

Winter Bird Surveys

- 2.9. On 27th February 2013 an ornithologist from FPCR completed a habitat assessment of the site for wintering bird potential. During this assessment a species list of winter birds present was also recorded.

Breeding Birds

- 2.1. The survey methodology employed was broadly based on that of territory mapping (Bibby et al 1992) as used for the British Trust for Ornithology (BTO) Common Bird Census (CBC). Standard BTO species codes and symbols for bird activities were used to identify birds and denote activity, sex and age where appropriate. The criteria used in the assessment of breeding birds has been adapted from the standard criteria proposed by the European Ornithological Atlas Committee (EOAC 1979) and are grouped into four categories, each with their own BTO breeding codes:

Confirmed breeder

- DD . distraction display or injury feigning
- UN . used nest or eggshells found from this season
- FL . recently fledged young or downy young
- ON . adults entering or leaving nest-site in circumstances indicating occupied nest
- FF . adult carrying faecal sac or food for young
- NE . nest containing eggs
- NY . nest with young seen or heard

Probable breeder

- Evidence accumulated during the survey indicates that the bird species is breeding on site.
- P . pair in suitable nesting habitat
- T . permanent territory (defended over at least 2 survey occasions)
- D . courtship and display

- N . visiting probable nest site
- A . agitated behaviour
- I . brood patch of incubating bird (from bird in hand)
- B . nest building or excavating nest-hole

Possible breeder

Evidence accumulated during the survey indicates that the bird species could be breeding on site, but the evidence is less conclusive than that obtained for probable breeders.

- H . observed in suitable nesting habitat
- S . singing male

Non-breeder

- F . flying over
- M . migrant
- U . summering non-breeder
- UH . observed in unsuitable nesting habitat

- 2.2. To provide a reasonable level of accuracy for determining the population status of the breeding birds on the site, three surveys were undertaken between 05.00 and 11.00 one in each month of April, May and June 2013. A route was mapped out prior to the surveys being undertaken, paying particular attention to any linear features, such as hedgerows and tree lines, and natural features such as ponds, lakes, areas of scrub and woodland. Bird surveys were not undertaken in unfavourable conditions such as heavy rain or strong wind, which may negatively affect the results. The survey dates and conditions are presented in Table 1.

Table 1 Survey Dates and Conditions

Date	Cloud Cover	Rain	Wind	Visibility
19 April 2013	50%	None	Still	Good
14 May 2013	90%	None	Calm	Excellent
14 June 2013	20%	None	Calm	Good

- 2.3. The conservation value of bird populations has been measured using two separate approaches: nature conservation value and conservation status. The IEEM guidance on ecological impact assessment assesses nature conservation value within a geographical context. To attain each level of value, an ornithological resource or one of the features (species population or assemblage of species) should meet the criteria set out in Table 2 below. In some cases, professional judgement may be required to increase or decrease the allocation of specific value, based upon local knowledge.

Table 2: Definition of Terms Relating to Nature Conservation Value

Nature Conservation Value	Examples of Selection Criteria
International	<p>A species which is part of the cited interest of an SPA and which regularly occurs in internationally or nationally important numbers.</p> <p>A species present in internationally important numbers (>1% of international population).</p>

Nature Conservation Value	Examples of Selection Criteria
National	<p>A species which is part of the cited interest of a SSSI and which regularly occurs in nationally or regionally important numbers.</p> <p>A nationally important assemblage of breeding or over-wintering species.</p> <p>A species present in nationally important numbers (>1% UK population).</p> <p>Rare breeding species (<300 breeding pairs in the UK).</p>
Regional	<p>Species of principle importance under S41 of the NERC Act, which are not covered above, and which regularly occur in regionally important numbers.</p> <p>Species present in regionally important numbers (>1% of regional population).</p> <p>Sustainable populations of rare or scarce species within a region.</p> <p>Species on the BoCC Red List and which regularly occurs in regionally important numbers.</p>
County	<p>Species of principle importance under S41 of the NERC Act, which are not covered above, and which regularly occur in county important numbers.</p> <p>Species present in county important numbers (>1% of county population).</p> <p>Sustainable populations of rare or scarce species within a county or listed in a county BAP.</p> <p>A site designated for its county important assemblage of birds (e.g. a SINC Site).</p> <p>Species on the BoCC Red List and which regularly occur in county important numbers.</p>
District	<p>Species of principle importance under S41 of the NERC Act, which are not covered above, and are rare in the locality or in the relevant Natural Area profile.</p> <p>Species present in numbers just short of county importance.</p> <p>Sustainable populations of rare or scarce species within the locality.</p> <p>A site whose designation falls just short for inclusion for its county important assemblage of birds (e.g. a SINC Site).</p> <p>Other species on the BoCC Red List and which are considered to regularly occur in district important numbers.</p>
Local	<p>Other species of conservation interest (e.g. all other species of principle importance under S41 of the NERC Act and on the BoCC Red and Amber lists which are not covered above) regularly occurring in locally sustainable populations.</p>
Site	<p>All other BoCC Green-listed common and widespread species.</p>

Bats

Assessment of Buildings

- 2.4. An external survey of the buildings present within the site boundary was carried out on the 10th April 2013 by a licensed bat worker from FPCR (Licence Reference Number: 20123276). This involved examination of the exterior of the buildings to determine their potential as bat roost sites. From this, areas of likely / potential value for bats can be broadly identified and a decision made over the selection of locations for more detailed work if required. Any potential bat access points observed together with any suitable features were noted, in addition to evidence of occupation.

The methodology employed takes into account the statutory guidance from Natural England and further guidelines introduced by the Bat Conservation Trust (April 2012) and JNCC.

- 2.5. Internal building inspections, including any roof voids, were carried out to identify evidence of previous or present occupation by bats or features suitable to support a bat roost. Evidence of occupation comprises the presence of live or dead bats, droppings, urine staining, the conspicuous absence of cobwebs and grease / scratch marks on timbers.

Nocturnal Emergence Surveys

- 2.6. From the results of the internal / external surveys, buildings 1 and 2 were assessed as requiring nocturnal survey to confirm the presence / absence of a bat roost. The following methodology was employed during the surveys.
- 2.7. A single nocturnal survey was conducted on the buildings affected by demolition. During the survey, bat workers were placed around the buildings so all the aspects of the buildings could be observed, from 20 minutes prior to & at least 90 minutes following sunset.
- 2.8. During the survey the species and location of any bat activity was recorded. Ultrasonic bat detectors were used by surveyors. Surveys were conducted in appropriate conditions, i.e. ambient temperature above 10_C and little wind and no rain.
- 2.9. Dusk emergence survey, 30th May 2013 (Emergence): 20:54 to 23:16 (sunset 21:24) 13°C, 100% cloud cover, no wind or rain.

Nocturnal Transect Surveys

- 2.10. The primary objective of the transect surveys was to identify foraging areas, commuting routes and species utilisation of the application area. This methodology takes into account the statutory guidance from Natural England and further guidelines introduced by the Bat Conservation Trust and JNCC. Two transect surveys were carried out on 8th May and 24th June 2013, additional survey will be completed in the autumn season.
- 2.11. The transect routes were predetermined prior to the survey in order to comprehensively cover all areas of the site and included point count stops to identify activity levels around the features of potential value to bats (i.e. Hedgerows / tree lines / water bodies / woodland etc.). Each point count was 5 minutes long, during which time all bat activity was recorded. The point counts were strategically located throughout the site to ensure a comprehensive coverage of habitats present.
- 2.12. The dusk transects commenced 15 minutes prior to sunset and the dawn transect was complete from 2 hour prior to dawn to 15 minutes after dawn. Transects were over 2hrs in duration which is in accordance to standard survey guidance.
- 2.13. The transect surveys were walked at a steady pace and when a bat passed by, the species, time and behaviour was recorded on a site plan. This information provides a general view of the bat activity present on site and identifies the key foraging areas and commuting routes. Bat Box Duet bat detectors were utilised in conjunction with MP3 recorders to provide back-up information and enable field identification of bats encountered.
- 2.14. Post-survey, bat calls were analysed using Bat Sound (version 4), by taking measurements of the peak frequency, inter-pulse interval, call duration and end frequency. From this, the level of bat

activity across the site in relation to the abundance of individual species foraging and commuting along habitats was assessed.

- 2.15. The transect surveys were undertaken when conditions were suitable (i.e. when the ambient air temperature exceeded 10°C and there was little wind and no rain) (Table 3).

Table 3: Survey Dates & Conditions

Survey Date	Weather Conditions	Survey Times
08.05.13	12°C, 70% cloud cover with a slight breeze, no rain	Start Time: 20.11 Finish Time: 22.41 Sunset Time: 20.41
24.06.13	11°C, 40% cloud cover with a slight breeze, no rain	Start Time: 02.45 Finish Time: 05.00 Sunset Time: 04.45

Static Detector Surveys

- 2.16. Passive monitoring was undertaken (SM2BAT, Wildlife Acoustics) between 16th and 19th April 2013 using automated logging systems (Titley Scientific and SM2 Bat+, Wildlife Acoustics) placed along the line of common lime trees that border the eastern boundary of the site. This information was used to supplement transect survey data and derive an index of activity and species composition at different points within the site. Table 4 shows the survey dates and weather conditions during the survey.
- 2.17. Detectors were placed at the turbine location for a minimum of five nights and were programmed to activate 30 minutes before dusk and recorded continuously until 30 minutes following sunrise. The output from this detector was subjected to computer analysis using the AnalookW software package (Titley Electronics).
- 2.18. The analysis of the SM2BAT files recorded can highlight the presence of more than one bat if they are recorded simultaneously on the same sound file. However, it is not possible to determine whether consecutive sound files have been recorded as the result of a single bat passing the detector as it commutes across the landscape or by one bat repeatedly triggering the detector as it forages in close proximity for an extended period. Therefore, each sound file is counted as a single bat registration. The number of bat registrations does however reflect the relative importance of the location of the detector by calculating the bat registrations per hour.

Table 4: Survey Dates & Conditions

Date	Mean Temp	Rainfall	Wind
15 th April	12°C	0.0 mm	16 km/h
16 th April	12°C	0.0 mm	17 km/h
17 th April	12°C	0.0 mm	16 km/h
18 th April	11°C	0.0 mm	21 km/h
20 th June	16°C	0.0 mm	11 km/h
21 st June	17°C	1.0 mm	7 km/h
22 nd June	14°C	0.4 mm	14 km/h
23 rd June	13°C	0.2 mm	14 km/h
24 th June	12°C	0.0 mm	10 km/h

Assessment of Mature Trees

- 2.19. An assessment was made of trees located within the site by a licensed bat worker from FPCR to assess their potential to support roosting bats and to enable recommendations with respect to the proposed works. Trees were examined in February 2013 from ground level, with the aid of binoculars for features that could provide suitable roosting opportunities including cracks, cavities, woodpecker/rot holes, fissures or missing limbs, and for evidence of use by roosting bats such as staining or the presence of bat droppings. Dense ivy cover was also noted when present as this can obscure the aforementioned features. The number, size and condition of these features were then used by the surveyor to classify potential to support roosting bats in accordance with the criteria set out by the Bat Conservation Trust Good Practice Guidelines (2012) (Table 5 below).

Table 5: Classification of Bat Potential in Trees

Roost Potential	Description of Feature
Confirmed roost site	The presence of bats within features or the presence of bat evidence associated with suitable features.
High	Features of particular significance, offering conditions that are uncommon in the local area such as large cavities or multiple woodpecker holes.
Moderate	Features which provide a more secure form of roost for small groups of bats or individuals.
Low	One or two minor opportunities offered to individual bats that are easily replaced elsewhere, including features such as minor branch splits and small sections of loose bark.
None	No access points/potential roost sites.

Badger

- 2.20. A general walkover and assessment of habitats within the site boundary was undertaken during the extended Phase 1 Habitat Survey with regard to evaluating the potential of the site to support badgers. This survey incorporated a search for any evidence of badger activity including setts, latrines, paths or evidence of digging following the methodology outlined by Harris, Creswell and Jefferies (1991).

Great crested newtsHabitat Suitability Index (HSI)

- 2.21. Where access to ponds was possible, as part of the Phase 1 habitat survey a habitat suitability index (HSI) assessment was undertaken on ponds within 500m of the survey area identified using OS mapping and aerial photographs (Figure 5). This provides a measure of the likely suitability that a water-body has for supporting newts (Evaluating the suitability for the Great Crested Newt, Herpetological Journal 10(4); Oldham et al., October 2000). Whilst not a direct indication of whether or not a pond will support great crested newts, generally, those with a higher score are more likely to support great crested newts than those with a lower score and there is a positive correlation between HSI scores and ponds in which great crested newts are

recorded. Ten separate attributes are assessed for each pond to calculate the suitability of the ponds to support GCN:

- Geographic location
- Pond area
- Pond drying
- Water quality
- Shade
- Presence of water-fowl
- Presence of fish
- Number of linked ponds
- Terrestrial habitat
- Macrophytic coverage

2.22. A score is assigned according to the most appropriate criteria level set within each attribute and a total score calculated of between 0 and 1. Pond suitability is then determined according to the scale set out in Table 6 below. Using the index score the predicted presence of great crested newts being found within a pond can be made, based on the proportion of ponds typically occupied at that suitability level.

Table 6: HSI Score and Suitability for supporting Great Crested Newts

HSI score	Pond Suitability
<0.5	Poor
0.5 - 0.59	Below average
0.6 . 0.69	Average
0.7 . 0.79	Good
>0.8	Excellent

Aquatic Surveys

- 2.23. Where access to ponds was possible aquatic survey in ponds within / adjacent to the site were completed. To obtain access to ponds, land registry searches were completed and letters to relevant land owners were delivered in person to the relevant address on 8th May 2013 prior to undertaking the first survey. Initially, access to ponds outside the site boundary was not permitted by third party land owner. On the 10th June 2013 access was permitted to ponds within the grounds of Caversfield House (Ponds 6, P7, P8 and P9) and aquatic surveys were undertaken upon granting of access.
- 2.24. For all suitable assessable ponds the following methods were employed to confirm the presence / absence of great crested newts (survey information is provided at Table 7). These methods follow those as recommended in the Great Crested Newt Mitigation Guideline (English Nature, 2001).

Bottle Trapping

- 2.25. Bottle traps were set within the water body in the evening at densities of one trap per two metres of shoreline (where feasible) and left overnight for inspection in the morning. Traps were partially submerged in the water leaving an air bubble in the bottle and secured by a cane marked with a high visibility tape to ensure relocation the following day. Care was taken to ensure that trapping did not occur during excessively warm weather, when the temperature inside the trap could rise considerably, reducing oxygen levels and potentially suffocating the newts.

Sweep Netting

- 2.26. Long handled sweep-nets were used to sample the margins of the pond for great crested newts, with approximately 15 minutes of netting per 50m of the shoreline.

Torching

- 2.27. Torching involved searching the water body after dusk using high-powered torches to scan the margins and potential display areas for newts. The perimeter of the pond was walked slowly spending approximately 15 minutes torching each 50m of shoreline recording any newts observed. Torch surveys are unsuitable within heavily vegetated and/or turbid ponds or after periods of heavy rain as visibility is diminished.

Egg Searching

- 2.28. Newts lay single eggs on leaves of aquatic plants or other suitable pliable material, after which the material is folded over the egg to protect it. Great crested newt eggs can be distinguished from those of the other newts by their size, shape and colour. Submerged vegetation was examined for newt eggs and folded leaves gently opened to check for eggs. Once a great crested newt egg is identified, no further leaves need to be examined to minimise any further potential disturbance.

Table 7: Timing & Survey Conditions for the Great Crested Newt Surveys

Survey Occasion	Date	Ponds Surveyed	Weather Conditions
1	13.06.13	Pond 6, P7, P8 and P9	13°C, Light Wind, No Rain.
2	15.06.13	Pond 6, P7, P8 and P9	13°C, No Wind or Rain.
3	18.06.13	Pond 6, P7, P8 and P9	13°C, No Wind, Light Rain.
4	20.06.13	Pond 6, P7, P8 and P9	17°C, No Wind, Light Rain.
5	24.06.13	Pond 6, P7, P8 and P9	15°C, No Wind, Light Rain.
6	27.06.13	Pond 6, P7, P8 and P9	11°C, Slight breeze, Light Rain.

Reptiles

- 2.29. An assessment of the suitability of the habitats present to support common reptile species was completed at the time of the habitat survey. The assessment of suitability involved a review of habitats and habitat structure for suitable shelter for reptiles, such as areas of scrub, grassland with well-developed and varied structure, areas suitable for basking, large tussocks etc. This assessment was based on the methodology detailed in the Herpetofauna Workers Manual (Gent and Gibson, 1998) and the Froglife Advice Sheet 10 . Reptile Survey (Froglife 1999).
- 2.30. Surveys to confirm the presence / absence of common species of reptiles were also completed over the period of April . June 2013 (Table 8).
- 2.31. A strategic reptile presence/absence survey was undertaken at the site in specific locations identified as offering potential habitat (Figure 2). The survey was undertaken based on methodology detailed in the Herpetofauna Workers Manual (Gent and Gibson, 1998) and the Froglife Advice Sheet 10 - Reptile Survey (Froglife 1999). Methods involved a search for basking reptiles on/under naturally occurring and strategically positioned artificial refugia. These were

placed in locations that offered the most suitable habitat for common reptiles, i.e. structurally diverse grassland habitats with areas of bare ground/short vegetation and wetland features.

2.32. Surveys were undertaken in accordance with guidelines as follows:

- At temperatures of between 9°C - 18°C;
- On sunny/cloudy days with little or no wind;
- Between 0900 & 1100 hrs and between 1600 & 1900 hrs;

In addition the surveys also followed the guidelines recommendations by:

- Using regularly spaced corrugated tin sheeting/similar (0.5m²) as artificial refugia, with a black upper side;
- Approaching refugia from downwind, casting no shadow and with care so as to not disturb basking animals when checking;
- That the location and number of tins are mapped to aid survey and avoid the possibility of leaving tins *in situ* after completion of the survey.

2.33. Reptile populations, if confirmed, were assessed in accordance with population level criteria as stated in the Key Reptile Site Register (HGBI, 1998). This system classifies populations of individual reptile species into three population categories assessing the importance of the population (Table 8). These categories are based on the total number of animals observed during individual survey occasions.

Table 8. Key Reptile Site Survey Assessment Categories (HGBI 1998)

Species	Low Population (No. of individuals)	Good Population (No. of individuals)	Exceptional Population (No. of individuals)
Adder	<5	5 - 10	>10
Common lizard	<5	5 - 20	>20
Grass snake	<5	5 - 10	>10
Slow-worm	<5	5 - 20	>20

Other Species

2.34. The potential for other protected and/or notable species was assessed during the Phase 1 survey. Bird species present at the time of survey were also noted.

Survey Constraints

2.35. The habitat survey was undertaken outside the optimal survey period (April to September); however sufficient information was obtained to determine broad habitat types and relative value.

2.36. The aquatic GCN surveys were not commenced in the pond located within Caversfield House until 13 June 2013 due to access restrictions. Whilst late in the breeding season the unseasonal cold weather during the main breeding period of mid-April to mid-May is likely to have result in the main breeding season being extended. Consequently, the result of the surveys will provide an adequate assessment of the population size and provide adequate information to assess the potential effects of the proposed development and inform the level of required mitigation.

3.0 RESULTS

Desk Study

Statutory Designations

- 3.1. There are no statutory sites of International nature conservation importance (e.g. SPAs, SACs or Ramsar Sites) present within the proposed development site or within a 5km radius.
- 3.2. There are two sites of National nature conservation importance present within a 2km radius. The Stratton Audley Quarry SSSI sites lie 1.5km and 1.9km to the east of the site boundary.

Non-Statutory Designations

- 3.3. There are three non statutory sites within 1km of the site boundary. The details of these are listed in Table 9 below:

Table 9: Non-Statutory Designated Sites

Site name	Site ref	Description	Relative Location
Bicester Airfield LWS	52X10	Species rich grassland and scrub	990m east
Stratton Audley Quarries LWS	62C01	Limestone quarry	1km east
Bure Park		grass meadow, young broad-leaved woodland, hedges and scrub	990m south

Protected / Notable Species

Mammals

Badger records are confidential and should not be disclosed to third parties or the general public without prior permission.

- 3.4. There was one badger record within 1km of the site boundary.
- 3.5. A number of hedgehog records were found amongst the residential housing to the east and south of the site. The nearest record was approximately 600m to the east.

Reptiles

- 3.6. There were no records within 1km of the site boundary.

Birds

- 3.7. There was one record of turtle dove *Streptopelia turtur* approximately 500m to the east of the site boundary.

Invertebrates

- 3.8. There were records of grizzled skipper and small heath butterflies within two 1km squares approximately 800m to the north and south of the site.

Site Description

- 3.9. The dominant habitat within the site was short grazed species poor semi-improved grassland. Three hedgerows were present, one area of scrub and one small area of mixed woodland. A tree line track ran through the middle of the site and was bordered by trees. There were numerous scattered trees on the edges of the site boundary. Two ponds are also present within the site boundary.
- 3.10. The site was surrounded by residential housing to the east and south. Further field agricultural land was present to the north and west of the site.

Habitats/Flora

- 3.11. The locations of the habitats described below are illustrated in Figure 2 - Phase 1 Habitat Plan. Species lists are detailed in Appendix 1.

Species poor semi-improved grassland

- 3.12. The dominant habitat within the site was short grazed semi-improved grassland. The species assemblage of this grassland was characterised by the presence of species such as false oat-grass *Arrhenatherum elatius*, creeping bent *Agrostis stolonifera*, cocks-foot *Dactylis glomerata*, cow parsley *Anthriscus sylvestris*, and creeping buttercup *Ranunculus repens*. Field boundary species included common nettle *Urtica dioica*, lords & ladies *Arum maculatum* and hedge bindweed *Calystegia sepium*.

Semi-improved grassland (Target Note 1, Figure 2)

- 3.13. An area of rough semi-improved grassland with coarse grass species including cocks-foot and false oat-grass was also present within the site (Target Note 1). It was a dumping area for garden waste with leaf piles and rosebay willowherb *Chamerion angustifolium* growing.

Improved grassland

- 3.14. The area of improved grassland surrounding the residential dwelling house. This habitat was short mown and the species assemblage was species poor including species such as perennial rye-grass *Lolium perenne*, crested dogs-tail *Cynosurus cristatus*, creeping buttercup and ribwort plantain *Plantago lanceolata*.

Scrub (Target Note 5, Figure 2)

- 3.15. The small patch of dense scrub (Target Note 5) was dominated by blackthorn *Prunus spinosa* and hawthorn *Crataegus monogyna*, but also contained ground species such as lords & ladies, cow parsley *Anthriscus sylvestris* and holly *Ilex aquifolium*.

Mixed Woodland & scattered trees (Target Note 3, 4 & 6, Figure 2)

- 3.16. The area of woodland to the north west of the site (Target Note 6) included a mix of semi mature trees such as scots pine *Pinus sylvestris*, field maple *Acer campestre*, silver birch *Betula pendula*, and beech *Fagus sylvatica*. There is a small area of semi mature trees to the east of the site (Target Note 3) with lombardy poplar *Populus nigra 'Italica'*, field maple, silver birch, walnut *Juglans regia*, larch *Larix decidua* and dogwood *Cornus sanguinea*. There is also a line of leyland cypress *Cupressus x leylandii* trees bordering the semi improved grassland area (Target Note 4). Scattered trees included elder *Sambucus nigra*, walnut, and horse chesnut. *Aesculus hippocastanum*.

Ponds

- 3.17. There were two ponds present within the site boundary (Figure 5). Pond 1 measured 5m by 8m with a concrete edge and wooden beams and steep sides. There were three elder trees along the edge and pond species included floating sweetgrass *Glyceria fluitans* and common duckweed *Lemna minor*. This pond was heavily stocked with koi Carp with a plastic pond liner.
- 3.18. Pond 10 measured 20m by 5m and was an ornamental pond heavily stocked with Koi carp.
- 3.19. Four ponds were present adjacent the north western boundary. Pond 7 and pond 8 were assessed as providing suitable breeding habitat for the great crested newt with a HSI score of 0.66 (average) for Pond 7 and HSI score of 0.65 (average) for Pond 8. Pond 6 provided a HSI score of 0.35 (poor) and a HSI score of 0.50 (below average) for Pond 9.
- 3.20. Letters requesting access to landowners of ponds 2, 3, 4 and 5 were sent recorded delivery although no responses were received. Therefore, these ponds could not be surveyed for the presence/absence of great crested newt.

Hedgerows

- 3.21. All three hedgerows were similar in shape and character, predominantly hawthorn with occasional species such as elder and field maple (Table 10). All hedgerows were of moderate to low nature conservation priority under the Hedgerow Evaluation Grading System (HEGS). None qualified as 'important' under the Hedgerow Regulations 1997 criteria. All of the hedgerows comprise 80% native species and therefore classify as a priority habitat type as listed in S41 of the NERC Act 2006.

Table 10: Hedgerow Species Composition and HEGS Grades

Hedge	Length (m)	HEGS Grade	Woody Species Present	Important Under Habitat Regulations	>80% Native Species
H1	210	-3	Elder, hawthorn, field maple, sycamore, ash	N	Y
H2	90	-3	Elder, blackthorn, hawthorn	N	Y
H3	140	-3	Elder, hawthorn, hazel, apple, blackthorn, field maple	N	Y

Fauna

Avifauna

Winter Birds

- 3.22. The grassland paddocks which were the dominant habitat type within the site were of limited value to winter birds being short grazed. The small/medium compartments particularly to the northwest were heavily disturbed and in regular use by horses for either grazing or jumping. Species recorded during the scoping survey were predominantly species of low conservation concern (BoCC Green List) including blackbird *Turdus merula*, chaffinch *Fringilla coelebs*, blue tit *Parus caeruleus*, rook *Corvus frugilegus* and jackdaw *Corvus monedula*.
- 3.23. House sparrow *Passer domesticus*, a species of high conservation concern (BoCC Red list and NERC priority species) was recorded foraging along the southern boundary hedgerows. These individuals were considered to be part of a colony associated with residential properties beyond the southern site boundary.
- 3.24. Evidence of barn owl *Tyto alba* (pellets) was found below suitable roost/hunting posts along the south-western hedgerow boundary. While limited barn owl hunting ground was present within the site boundary it is considered likely that surrounding grassland habitat and arable field margins provide foraging opportunities for this species. A further barn owl pellet was found in an open fronted barn (the most westerly unit in the stable complex) confirming use by the species; but no additional evidence of occupation was identified during the survey period.
- 3.25. The grassland paddocks do not provide a suitable foraging resource for wintering flocks of geese or waders due to the size of the compartments and levels of disturbance.
- 3.26. Mature boundary hedgerows may provide foraging opportunities for winter thrushes such as fieldfare *Turdus pilaris* and redwing *Turdus iliacus* (both Schedule 1, BoCC Red list) which feed upon winter berries and fruits such as hawthorn berries and rose hips.
- 3.27. The site is considered to be of no more than **site** value for wintering birds and the need for full winter bird surveys is not required.

Breeding Birds

- 3.28. A total of 25 bird species were recorded (Table 11), of which seven either appear on the BoCC Red or Amber lists as declining and/or are listed as Species of Principle Importance under Section 41 of the NERC Act.

Schedule 1 Species

- 3.29. No Schedule 1 bird species were recorded within the site.

NERC / BoCC Red-Listed Species

- 3.30. One BoCC Red-listed (high conservation concern) and NERC Species of Principle Importance were recorded - house sparrow *Passer domesticus* was recorded. An established breeding colony was associated with existing residential properties along Fringeford Road beyond the southern boundary. House sparrows were not breeding on site.

NERC / BoCC Amber-Listed Species

- 3.31. One Amber-listed (medium conservation concern) and NERC Priority Species - dunnoek *Prunella modularis* - was recorded and considered to be a probable breeding species on site.

BoCC Amber-listed Species

- 3.32. Five Amber-listed species were recorded, of which swallow *Hirundo rustica* was confirmed as breeding on site; whitethroat *Sylvia communis* displayed evidence conducive with probably breeding; stock dove *Columba oenas* and green woodpecker *Picus viridis* were possible breeding species and mallard *Anas platyrhynchos* was not breeding on site.

BoCC Green-listed Species

- 3.33. Seventeen BoCC Green-listed (low conservation concern) and one introduced (unlisted) species were also recorded, of which three were confirmed as breeding.

Table 11: Bird Species Recorded at Fringeford Rd, Bicester during Breeding Bird Surveys 2013.

Species			UK Conservation Status				Survey			Breeding Status on site
BTO code	Common name	Scientific name	Schedule 1	Red	Amber	NERC	19.04.13	14.05.13	14.06.13	
PH	Pheasant	<i>Phasianus colchicus</i>					4	1	2	Probable
RO	Rook	<i>Corvus frugilegus</i>					12	6	15	Non-breeder
JD	Jackdaw	<i>Corvus monedula</i>					53	9	20	Non-breeder
SL	Swallow	<i>Hirundo rustica</i>			*		5	3	6	Confirmed
R.	Robin	<i>Erithacus rubecula</i>					11	8	4	Probable
WP	Wood Pigeon	<i>Columba palumbus</i>					1	12	19	Probable
CC	Chiffchaff	<i>Phylloscopus collybita</i>					1	1		Possible
G.	Green Woodpecker	<i>Picus viridis</i>			*		1	1		Possible
C.	Carrion Crow	<i>Corvus corone corone</i>					1	3	8	Probable
B.	Blackbird	<i>Turdus merula</i>					1	2	4 + 2 juvs	Confirmed
WR	Wren	<i>Troglodytes troglodytes</i>					1	1	1	Probable
GR	Greenfinch	<i>Carduelis chloris</i>					6	3	5	Probable
D.	Dunnoek	<i>Prunella modularis</i>			*	*	1	1	1	Probable
LT	Long-tailed Tit	<i>Aegithalos caudatus</i>					1		1 family	Confirmed
BT	Blue Tit	<i>Parus caeruleus</i>					2	3	2	Probable
CH	Chaffinch	<i>Fringilla coelebs</i>					4	3	5	Probable
MA	Mallard	<i>Anas platyrhynchos</i>			*			2		Non-breeder
BC	Blackcap	<i>Sylvia atricapilla</i>					1	1		Possible
GO	Goldfinch	<i>Carduelis carduelis</i>					1	4	4	Probable
WH	Whitethroat	<i>Sylvia communis</i>			*			1	1	Probable
HS	House Sparrow	<i>Passer domesticus</i>		*		*	1 colony	1 colony	1 colony	Non-breeder
SD	Stock Dove	<i>Columba oenas</i>			*			2		Possible
GT	Great Tit	<i>Parus major</i>					1	2	1 family	Confirmed
MG	Magpie	<i>Pica pica</i>						1	3	Possible
CT	Coal Tit	<i>Parus ater</i>					1	2	1	Probable
TOTALS			Schedule 1	Red	Amber	NERC	19.04.13	14.05.13	14.06.13	
			0	1	6	2	20	23	16	

Bats

Assessment of Buildings

3.34. The following is a summary description of the buildings present on site. Building references are provided in Figure 2.

3.35. Building 1 (B1), was two-storey stone built house with a multi-pitched clay tiled roof. Gables, barge boards and lead flashing were present. Other structural features of note comprise of dormer windows with wooden weather boarding, skylights, brick chimneys and over hanging eaves (see plate 1). Potential bat access points were limited to occasional gaps along the eaves via gaps around the over-hanging wooden eaves and around sky lights. All other areas of the buildings were in good condition and no obvious access points for roosting bats



Plate 1: view of B1

observed. Internally, the roof void consisted of three sections. The first section was approximately 2.5m to the ridge and was fully underlined with a breathable felt membrane (see plate 2) with insulation present between the joists. The second section of roof void was fully underlined with bituminous under-felt throughout with horizontal timber roof supports between the joists and ridge (see plate 3). The final section of roof void was only accessible through a small gap in the eastern gable wall leading to a smaller void of approximately 1.5m in height and 7m in length. Bituminous under-felt was also present as was insulation. No internal or external evidence of a roost was identified during the survey. The building was considered to have **low** potential to support roosting bats.



Plate 2: Internal view of the first roof void.

Plate 3: Two-storey section of B1

3.36. Building B2 (B2) was a two-storey stone built detached garage with a pitched clay tiled roof. Structural features of note comprised of sky lights and overhanging eaves. Potential access points were limited to gaps along the eaves where gaps were visible around the wooden overhanging eaves. All other areas of the building were well sealed. No internal access was

available at the time of the survey although the presence of sky lights indicates the first floor of the garage has been converted into storage/office space. No external evidence of a roost was identified during the survey. The building was assessed as having **low** potential to support roosting bats.

- 3.37. Building 3 (B3) was a single storey steel framed structure with wooden sides used as a horse ménage. This building has a shallow pitched corrugated sheet metal roof. Gables, barge boards and fascia boards were present. Other structural features of note comprised of wooden hit and miss panelling along the upper sections of the building (see plate 4), sky lights and a small single storey extension on the western aspect with a lean-to corrugated sheet metal roof.



Plate 4: Internal view of B3

Potential bat access points comprised numerous gaps between the hit and miss wooden panelling

on all aspects of the building with gaps above the eastern entrance doors. Internally, no roof voids were present with plastic panelling observed underlining the corrugated roof. Due to the lack of potential roosting features associated with the building, the building was assessed as providing **negligible** potential to support roosting bats.

- 3.38. Building B4 was a single storey L-shaped block of wooden horse stables with lean-to single skin corrugated sheet metal roof. Other structural features of note comprised of open fronts to all the stables, section of fascia boards, hit and miss wooden panelling and over hanging roof on the eastern aspect of the stables. Potential bat access points comprised of open fronts to the stables and gaps in the wooden hit and miss wooden panelling. Internally, no roof void was present with horizontal wooden beams supporting the roof. Internally, the building lacked any potential features that could be utilised by roosting bats and no internal or external evidence of a roost was identified during the survey. Therefore, due to the construction and lack of roosting opportunities the building was assessed as providing **negligible** potential to support roosting bats.
- 3.39. Building B5 (B5) was a single-storey wooden framed open fronted stable with a shallow pitched single skin corrugated sheet metal roof. Other structural features of note comprised of wooden hit and miss wooden panelling and open fronted stables. Potential bat access points were limited to gaps in the hit and miss wooden panelling and open fronted stables. Internally, the roof was supported by horizontal roof timbers with under-felt lacking throughout the building. No internal or external evidence of a bat roost was identified during the survey. The building was assessed as providing **negligible** potential to support roosting bats.
- 3.40. Building B6 (B6) was a single storey wooden constructed horse stable with a shallow pitched corrugated asbestos sheet roof. Gables, barge boards, and fascia boards were present. Other structural features of note comprised of corrugated clear plastic sky lights and stable doors. open upper stable doors and. Potential bat access points were limited to gaps along the eaves beneath corrugated sheeting and via open upper sections of stable doors. Internally, no under-felt or roof void was present with horizontal beams supporting the roof. No internal or external evidence of a bat roost was identified during the survey. The building was identified as providing **negligible** potential to support roosting bats.

- 3.41. Building B7 (B7) was a small wooden framed breezeblock based storage shed with a lean-to corrugated sheet metal roof. The building was being used to store miscellaneous items. Other structural features of note comprised of wooden hit and miss panelling above the breezeblock base on all aspects of the shed and open access point on the south western corner. Internally, the building lacked any roof void with horizontal wooden beams supporting the lean-to roof. No internal or external evidence of a bat roost was identified during the survey. The building was assessed as providing **negligible** potential to support roosting bats.

Nocturnal Survey

- 3.42. Dusk (emergence) Survey 30.05.13 . During the survey the first bat observed was a common pipistrelle *Pipistrellus pipistrellus* which passed through the site heading in a north westerly direction at 21.46 (see Figure 6). Bat activity throughout the survey was low with occasional common pipistrelle and Noctule *Nyctalus noctula* passes during the survey. No bats were observed emerging or entering any of the buildings during the survey.

Transect Surveys

- 3.43. The site, for the most part, comprised short grazed horse pasture with hard-standing and buildings. The majority of the field compartments were bordered by wooden fencing with traditional hedgerows absent within much of the site. These features providing low quality foraging and commuting habitat for bats throughout the site. However, suitable foraging and commuting habitats were identified around the periphery of the site along boundary hedgerows and a tree line which runs along the driveway from the south western boundary.
- 3.44. The first of the three transect surveys was undertaken on the 8th May 2013. During the walked transect bat activity was low with occasional common pipistrelle bats recorded. A single soprano pipistrelle *Pipistrellus pygmaeus* bat was recorded during foraging along within the south eastern corner of the site (Figure 3). A total of 11 separate bat records were recorded during the transect survey. Bat behaviour during the survey was mainly associated with foraging along linear features such as the tree line bordering the driveway and along the south eastern boundary adjacent the rear gardens of the residential houses.
- 3.45. The second transect was undertaken on the 24th June 2013. During the walked transect bat activity was low given the rural location of the site with common pipistrelle, soprano pipistrelle and a *Myotis* sp. bat recorded during the survey. Common pipistrelle were mostly recorded within the east of the site along the boundary hedgerow. A single *Myotis* sp. was recorded foraging adjacent the woodland edge habitat along the western edge of the site boundary. Common and soprano pipistrelle were also identified foraging along the double tree line either side of the driveway which enters the site from the south eastern boundary. Bat activity was recorded in association with linear features along the boundary hedgerows and inner tree line along the drive.

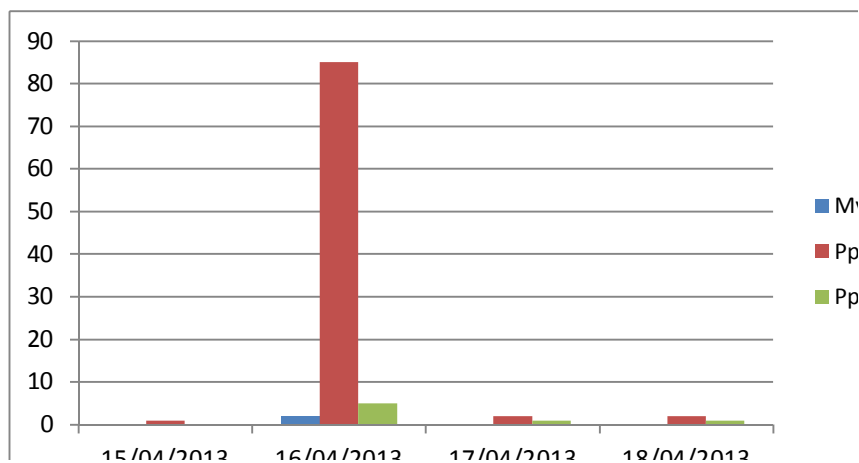
Static Detector

- 3.46. The first static recorder was located adjacent along the edge of the strip of woodland on the north western boundary (Figure 4). During the survey a similar level and distribution of activity was recorded apart from the second night of recording where a peak in activity was identified within the data records, excluding the data from the peak activity a total of 14 bat contacts were recorded over the survey occasion, an average of 4.6 contacts per night. However, a total of 85

passes by soprano pipistrelle bats was recorded on the 16th April 2013, including this data the average passes per night increases to an average of 24.75 passes per night.

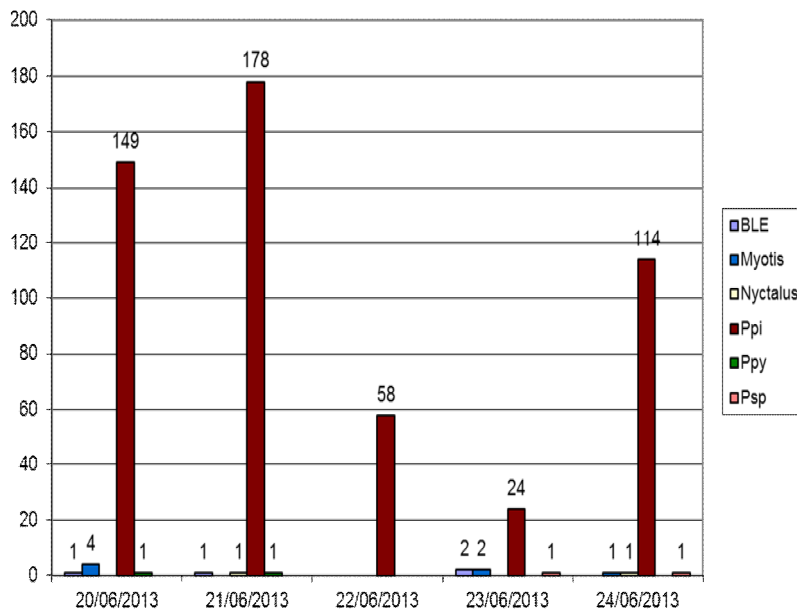
- 3.47. A total of three species/groups were recorded comprising: common / Soprano pipistrelle and Myotis sp. The species distribution throughout the three nights was very evenly matched apart from a skew in the data set with a peak in activity by soprano pipistrelle bats on the second night of recording period. One registration from Myotis sp was identified over the surveys, all other registrations were from common and soprano pipistrelle bats (Graph 1). This level of activity indicates the site does not represent a significant foraging resource for the local population.

Graph 1: Static survey data (April)



- 3.48. On the second occasion the static recorder was cited within the north eastern corner of the site within the boundary hedgerow (Figure 4). During the survey (5 nights) a total of 523 bat contacts were recorded over the survey occasion, an average of 104.6 contacts per night. The maximum number of contacts recorded was 181 on the 21st of June 2013 (Graph 2).
- 3.49. A total of five species/groups were recorded comprising: common / Soprano pipistrelle, brown long eared, Nyctalus sp. and Myotis sp. The species distribution throughout the five nights was very evenly matched apart from the third and fourth nights where the peak activity dropped in comparison. The dominant species was common pipistrelle with all other species comprising a total of 17 records out of the 523 recorded during the survey period. This level of activity indicates the site boundary along the north eastern corner of the site is an important feature for commuting bats to navigate through the local area with five species of bat recorded.

Graph 2: Static survey data (June)



Badger

- 3.50. Woodland, trees, scrub, and grassland habitats within the site provide potential foraging habitat for badger. There was no evidence of badger activity identified within the site.

Water Vole and Otter

- 3.51. There are no habitats present within the site suitable to support these species.

Great Crested Newts

Terrestrial Habitats

- 3.52. The dominant terrestrial habitat within the site comprises short grazed species poor semi-improved grassland. This grassland does not provide areas of shelter or rest for great crested newts and has been identified as sub-optimal terrestrial habitats. This grassland will provide suitable connectivity for GCN during mitigation to other suitable habitats within and adjacent to the site.
- 3.53. The hedgerows and areas of scrub will provide suitable areas of shelter or rest for GCN. These habitats are limited within the site. All of the terrestrial habitats affected by the proposed development were over 250m from the confirmed aquatic population of GCN. Consequently, the terrestrial habitats within the site have only been identified as providing limited terrestrial habitats for the confirmed population within Caversfield House.
- 3.54. Terrestrial habitats within the curtilage of Caversfield House provide optimal terrestrial habitats comprising areas of woodland to the south eastern area of the house with well-maintained gardens and short mown grassland and associated buildings on the remaining areas of the site. These habitats will provide the core terrestrial habitats which are used by the confirmed population being within the 0-50m and 50-250m impact areas.

Aquatic Surveys

- 3.55. Pond 1 was dry at the time of the first survey and remained dry throughout the survey period and therefore was not surveyed. Pond 10 was plastic lined and well stocked with koi carp and the HSI for this pond was below average. Given the presence of fish and the low HSI, the pond was identified as providing unsuitable conditions for GCN and was not surveyed.
- 3.56. Following the granting of access to water bodies within Caversfield House a small population of GCN was confirmed in pond P7 (Table 12 and Appendix B). This pond is situated approximately 250m from the north western boundary of the proposed development area. GCN were not confirmed in the other ponds situated within the ground of Caversfield House. Furthermore, pond 10 had a HSI of below average and is heavily stocked with fish. Consequently, the likelihood of GCN being present in the pond is low.

Table 12: 2013 Great Crested Newt Survey Results

Survey Occasion	Date	Pond	Bottle Trap		Torching		Netting		Egg Search	
			GCN	SN	GCN	SN	GCN	SN	GCN	SN
1	13.06.13	6	0	0	0	0	0	0	0	0
		7	1	0	0	0	0	0	0	0
		8	0	0	0	0	0	0	0	0
		9	0	0	0	0	0	0	0	0
2	15.06.13	6	0	0	0	0	0	0	0	0
		7	3	0	0	0	0	0	0	0
		8	0	0	0	0	0	0	0	0
		9	0	0	0	0	0	0	0	0
3	18.06.13	6	0	0	0	0	0	0	0	0
		7	0	0	0	0	0	0	0	0
		8	0	0	0	0	0	0	0	0
		9	0	0	0	0	0	0	0	0
4	20.06.13	6	0	0	0	0	0	0	0	0
		7	0	0	0	0	0	0	0	0
		8	0	0	0	0	0	0	0	0
		9	0	0	0	0	0	0	0	0
5	24.06.13	6	0	0	0	0	0	0	0	0
		7	0	0	0	0	0	0	0	0
		8	0	0	0	0	0	0	0	0
		9	0	0	0	0	0	0	0	0
Survey	Date	Pond	Bottle Trap		Torching		Netting		Egg Search	

Occasion			GCN	SN	GCN	SN	GCN	SN	GCN	SN
6	27.06.13	6	0	0	0	0	0	0	0	0
		7	1	0	0	0	0	0	0	0
		8	0	0	0	0	0	0	0	0
		9	0	0	0	0	0	0	0	0

Reptiles

- 3.57. The site surrounding the buildings was dominated by horse grazed pasture with a slightly smaller area of scattered scrub and semi-improved grassland to the east of the buildings. Connectivity throughout the site was considered poor with the majority of the field compartments consisting of wooden/wire fencing with limited available commuting habitat. However, the site boundary of the site was connected to the wider countryside by means of small woodland areas and hedgerows.
- 3.58. Survey of suitable habitat confirmed the presence of small population of grass snake. No other reptile species were recorded during the surveys.
- 3.59. Grass snakes were recorded on three of the seven survey occasions beneath refugia tins within the small area of semi-improved grassland to east of the buildings within the same area denoted as TN1 (see Figure 2). No other reptiles were recorded within any other habitats within the site boundary during the survey period.

Table 13: Results of Reptile Surveys

Survey	Date and Time	Weather	Common lizard	Grass snake	Slow worm	Other Species
1	24 th April 2013	13 ^o C 80% cloud, light wind and dry.	0	0	0	0
2	30 th April 2013	15 ^o C Sunny, 60% cloud cover, no wind and dry.	0	3	0	0
3	3 rd May 2013	13 ^o C No cloud, rain or wind	0	0	0	0
4	9 th May 2013	13 ^o C 50% cloud cover and dry	0	2	0	0
5	14 th May 2013	15 ^o C 10% cloud, no wind or rain	0	3	0	0
6	16 th May 2013	16 ^o C Intermittent cloud	0	0	0	0
7	6 th June 2013	11 ^o C 800% cloud, no wind or rain	0	0	0	0

Population Size Assessment

- 3.60. The results indicate that the site supported a low population (<5 adults on a single occasion) of grass snake.
- 3.61. It is probable that the reptiles recorded during survey are likely to form part of a population that occupies suitable habitat in the wider landscape. This species of reptile are relatively widespread and common species, particularly in association with riparian habitats, and is considered to be of no more than Local significance.

Other Species

- 3.62. There were no sightings or evidence of other protected or notable species during the survey. The habitats were not considered suitable for any other protected or notable species.

4.0 DISCUSSION AND RECOMMENDATIONS

Proposals

- 4.1. The proposals include the loss of all buildings within the site to facilitate a new residential development with associated gardens, infrastructure, car parking, balancing facilities, and public open space.

Statutory Designations

- 4.2. There are no statutory sites of International nature conservation importance (e.g. SPAs, SACs or Ramsar Sites) present within the proposed development site or within a 5km radius. There are two sites of National nature conservation importance present within a 2km radius. These sites are isolated from the proposed development area by existing residential housing and infrastructure road. Consequently, development of the site will not affect the conservation status of these sites.

Non-Statutory Designations

- 4.3. Three non-statutory designated sites occur within 1km of landownership boundary. All of these sites are physically isolated from the site by residential housing, roads, arable land and there are no direct footpath links to these sites. From this assessment it has been concluded that the proposed development will not affect the conservation value of these sites.

Habitats

- 4.4. The degree to which habitats receive consideration within the planning system relies on a number of mechanisms, including:
- Inclusion within specific policy (e.g. veteran trees and ancient woodland in the National Planning Policy Framework, or non-statutory site designation),
 - Identification as a priority habitat for conservation within the S41 of the NERC Act 2006 or local Biodiversity Action Plan (LBAP).
- 4.5. The semi-improved, species poor semi improved and improved grasslands within the site were generally species poor and of no more than local level value. Consequently, loss of the grassland to development of the site is unlikely to result in a significant negative affect to biodiversity from a botanical perspective. Compensation for loss of the grassland should be provided with areas of green space incorporated into the development design. This compensation should comprise the provision of area of species rich grassland and the future management of the grassland for nature conservation.
- 4.6. The application site incorporates a number of native trees that are of local ecological value potentially providing shelter, habitat and foraging opportunities for a range of wildlife including birds and bats.
- 4.7. The proposed development has retained boundary hedgerows and the majority of mature trees have been retained in the development design. Therefore, potential effects to such receptors are likely to be negligible. To minimise potential effect to retained trees and hedgerows it is recommended that such features are protected from damage and from soil compaction during

construction using fenced Root Protection Areas (RPAs) where construction works are to be undertaken in the vicinity, in accordance with guidance in British Standard 5837 (2005) . Trees in Relation to Construction . Recommendations. Where possible retained trees should be buffered within the soft landscaping scheme by shrub/tree/grassland planting to protect such features in the long-term.

- 4.8. Where tree losses are unavoidable these should be mitigated for by new tree and hedgerow planting throughout the site, where possible linking to retained habitats on and off-site, to facilitate the movement of foraging and commuting wildlife. Suitable linear features for incorporation include native species hedgerows and/or continuous native species tree lines. Ideally hedgerows should be established with heavy standard trees interspersed, to provide both suitable shrub layer and canopy cover and a degree of early structure.
- 4.9. Within areas of public open space and on the site boundaries the planting scheme gives preference to the use of locally native woody species of local provenance (where possible) throughout the site, with an emphasis on species bearing nectar, berries, fruit and nuts, as these enhance the foraging opportunities of local wild fauna including birds and invertebrates. Suitable quick growing amenity tree species for inclusion include field maple *Acer sylvest*, silver birch *Betula pendula*, wild cherry *Prunus avium*, bird cherry *P. padus*, holly, crab apple *Malus sylvestris* and rowan *Sorbus aucuparia* (or other species appropriate to the region). Larger tree species suitable for inclusion within more open areas include English oak, ash, wych elm *Ulmus glabra*, common beech *Fagus sylvatica*, alder *Alnus glutinosa*, white poplar *Populus alba*, aspen *Populus tremula*, and common, small-leaved and broad-leaved lime *Tilia × europaea*, *T. cordata* and *T. platyphyllos*, hornbeam and yew *Taxus baccata* (again an emphasis on species selected on their regional appropriateness). Species suitable for inclusion within mixed species hedgerows include hawthorn, hazel, beech, blackthorn *Prunus spinosa*, dog rose, honeysuckle *Lonicera periclymenum* and wild privet *Ligustrum vulgare*.
- 4.10. The two water bodies within the site were of low ecological value and loss to development will not result in significant negative effects to local biodiversity. To compensate for the loss of these ponds, balancing facilities should be designed to retain water with marginal shelves. Once formed native species marginal and aquatic planting should be provided. The implementation of such features will provide a net gain for biodiversity locally.
- 4.11. To ensure net gains to biodiversity are maintained all retained and created habitats should be managed in the long term in accordance with a Biodiversity Management Plan.

Protected and or Notable Species

- 4.12. Principal pieces of legislation protecting wild species are Part 1 of the Wildlife and Countryside Act (as amended) 1981 (WCA) and the Conservation of Habitats and Species Regulations 2010 (as amended). Some species, for example badgers, also have specific protective legislation (Protection of Badger Act 1992). The impact that this legislation has on the Planning system is outlined in ODPM 06/2005 Government Circular: Biodiversity and Geological Conservation . Statutory obligations and their Impact within the Planning System.
- 4.13. This guidance states that as the presence of protected species is a material consideration in any planning decision, it is essential that the presence or otherwise of protected species, and the extent to which they are affected by proposals is established prior to planning permission being

granted. Furthermore, where protected species are present and proposals may result in harm to the species or its habitat, steps should be taken to ensure the long-term protection of the species, such as through attaching appropriate planning conditions for example.

- 4.14. In addition to protected species, there are those that are otherwise of conservation merit, such as those listed as being of principal importance for the purpose of conserving biodiversity under the S41 of the NERC Act 2006.
- 4.15. The implications that various identified species or those that are thought reasonably likely to occur may have for developmental design and programming considerations are outlined below:

Bats

Buildings

- 4.16. During the survey, no evidence of current or previous occupation by bats was identified. However a limited number of potential access points and roost sites were identified associated with buildings 1 and B2.
- 4.17. Buildings 3 . 7 offered negligible potential for bat occupation due to the open nature of the buildings and lack of potential roosting sites and absence of features such as roof voids. The proposed development includes demolition of the buildings. Given the lack of suitable roost site associated with these buildings the presence of a bat roost has not been identified as a statutory constraint to the proposed development.
- 4.18. Buildings 1 and 2 offered low potential for bat occupation due to the limited potential access points within fabric of the buildings. No internal evidence of bats was observed during the building assessment. During the nocturnal survey, no bats were identified emerging from or returning to roost in these buildings and activity surrounding the building was low. From this assessment the presence of a bat roost in these buildings has not been identified as a statutory constraint to the proposed development.
- 4.19. As part of the development proposals enhancements for the local population should be provided within the site. These enhancements should include the provision of bat boxes on retained areas of woodland and the incorporation of suitable roost sites into a number of the new residential dwellings. The provision of such features would provide significant net gains for the local population of bats.

Trees

- 4.20. During the visual inspection no confirmed bats roosts were recorded in association with the trees on site. In addition, no trees with the potential to support roosting bats were recorded. From these result the presence of a bat roost in mature trees has not been identified as a statutory constraint to the proposed development.

Bat Activity & Static Detector Surveys

- 4.21. During the two transect surveys bat activity was low for a site on the urban fringe with low numbers of common widespread species recorded commuting and foraging in association with linear features such as boundary hedgerows and tree line present within the site. The results from the two surveys undertaken in May and June 2013 highlighted the tree line entering the site

as providing commuting and foraging habitat for use by bats, although activity recorded around the site was low and restricted to common and widespread species.

- 4.22. The two static detector surveys completed in April and June 2013 provided contrasting results within the two different location of the site boundary. The first static bat detector located along the along the edge of the woodland strip on the north western boundary provided a total of 85 bat passes by three different bat species during the three nights left in situ. The second survey occasion although 5 nights in duration recorded a total of 523 bat records from five different species of bat.
- 4.23. Over both survey types, the most abundant of the species were common and Soprano pipistrelle with the other species occurring more infrequently.
- 4.24. The numbers of unidentified bats was generally low therefore the current data is likely to represent a good representation of local bat activity. This assemblage is not considered to be particularly notable and is to be expected given the quality of the habitats present.
- 4.25. Optimal foraging habitats within the site were limited with the most commonly used habitat being the tree line which enters the site off the southern boundary and edge habitat along the periphery of the site boundary. The line of trees along the current drive way are likely to be lost to facilitate the development although the trees to be retained and those provided within the enhancements of the site will provide continue to provide commuting and foraging habitats for the local bat population.
- 4.26. Construction of the new access road through the eastern boundary of the site will remove a small length of the existing hedgerow. The loss of the hedgerow on this boundary of the site will be minimised as the existing site access is located in this area. Consequently, removal of an additional length to facilitate construction of the site access will not result in a significant affect to the local population of bats.
- 4.27. To minimise potential effect of the proposed development a sensitive lighting scheme designed should be planned in accordance with the principles set out in Landscape and Urban Design for Bats and Biodiversity (BCT 2012) and Guidance Notes for the Reduction of Obtrusive Light (Institution of Lighting Professionals 2011).
- 4.28. To further enhance the site for bats and therefore contribute to the National Planning Policy Framework (NPPF) recommendation that planning policies promote the protection and recovery of priority species populations, it is recommended that a number of bat boxes of different designs be erected within the mature trees along the north western boundary adjacent the woodland edge. Additional enhancements should also be provided along the south eastern boundary where the site boundary is adjacent a small area of woodland providing shelter for bats and birds. (for example designs see <http://www.nhbs.com>).
- 4.29. Survey works within the site are still in progress with two additional summer and autumn emergence transect and placement of a single static bat detector on two more separate occasion over the same period. From the results of the current bat surveys undertaken at the site it is considered the habitats within the site boundary are of low quality for bats.

Birds

Breeding Birds

- 4.30. All recorded species are common and widespread in Oxfordshire and the UK. The populations on site are unremarkable and typical of the habitats available. The breeding bird assemblage at Fringeford Road site is of no more than a **site** value of conservation importance.
- 4.31. All nesting birds and their nests are protected under the Wildlife and Countryside Act, 1981 (as amended). **Any removal of woody vegetation including hedgerow sections and trees should therefore occur outside of the bird breeding season** to minimise the risk of disturbance to breeding birds. If this is not possible, such vegetation should be checked prior to removal by a suitably experienced ecologist to confirm the absence of active nests. If active nests are found, vegetation must be left undisturbed and suitably buffered from works until all birds have fledged. Specific advice should be sought prior to undertaking the clearance
- 4.32. To mitigate for the loss of any potential bird nesting and foraging habitat on the site it is recommended that the scheme includes habitat enhancements through the planting of native and ornamental trees and shrubs, with preference given to species of value to local bird populations, e.g. berry- and fruit-bearing species as described above in this report, such as crab apple *Malus sylvestris*, hawthorn, rowan *Sorbus aucuparia*, holly and guelder rose *Viburnum opulus*. The scheme should aim to provide generous habitat buffers to be retained adjacent to retained hedgerows to minimise potential impacts to local bird populations in the long-term. New areas of woody species planting throughout the site would in time mature into habitats suitable for use by foraging and nesting birds.

Barn Owls

- 4.33. Over the initial survey a small number of barn owl pellets were identified under a suitable hunting post to the south west of the site and a further barn owl pellet was identified in building B6. No additional evidence of barn owl activity has been identified in these areas of the site during the additional survey and barn owl presence was not confirmed during the breeding bird survey.
- 4.34. The habitats within the site did not provide optimal barn owl foraging habitat being short grazed. Furthermore, significant areas of suitable barn owl foraging were identified in the retained farmland habitats to the north / south of the site. Consequently, loss of the habitats within the site is unlikely to result in a significant effect to the local barn owl population.
- 4.35. The evidence of use of building B6 by barn owl is indicative of use as a feeding perch and not a nest site. From this evidence it has been concluded that the presence of a barn owl nest site is not a statutory constraint to the proposed development. However, it is recommended that a further inspection of the building is completed prior to demolition, and that demolition of the building is completed outside the main bird breeding season (March to September inclusive). These precautionary measures are recommended to ensure compliance with the Wildlife & Countryside Act 1981 (*as amended*).

Great crested newt

- 4.36. A small population of GCN, with a peak count of three adult GCN, have been confirmed in Pond 7 which is located approximately 250m to the north of the site within the grounds of Caversfield House (see Figure 5). One juvenile GCN was also confirmed in pond 7 on the final survey

confirming the presence of a small breeding population in this pond. GCN were not identified in the ponds situated within the site over the survey period. Consequently, the proposed development will not result in the loss of any suitable breeding sites for GCN. The presence of this population within 500m of the site is a statutory constraint to the proposed development.

- 4.37. Habitats affected by the proposed development are within 250m - 500m impact zone. These habitats are dominated by heavily grazed species poor semi-improved grassland which does not provide suitable areas of shelter or rest for GCN. Given the distance of the habitats affected by the proposed development from the pond and the sub-optimal nature of the habitats loss of the terrestrial without the implementation of suitable mitigation will result in low negative effects to the population (GCNMG, 2001). To mitigate for the loss of sub-optimal terrestrial habitats within the site and ensure the favourable conservation status of the population is maintained the following mitigation package as outlined below will be provided as part of the proposed development. These measures will be agreed with Natural England licensing department as part of a development license application following the granting of planning permission and discharge of relevant ecological conditions.
- 4.38. Mitigation / compensation for loss of the sub-optimal terrestrial habitats within the site will be provided on the eastern, northern and southern boundaries of the site. The habitats provided in these areas of the site will be enhanced and managed in a sympathetic manner to ensure maintenance of the GCN population at a favourable conservation status. Within these areas of the site the grassland will be seeded with the species rich grassland mix and areas of native species scrub planting will be provided. In addition to the grassland seeding / scrub planting six hibernacula and six dead wood piles will be introduced on the western elevation of the site. The creation of these corridors of movement on these elevations of the site will allow continued dispersal of the population within their natural range. Following implementation these habitats and features will be managed in accordance to a Biodiversity Management Plan. The implementation of these habitats / features will significantly increase potential areas of potential shelter or rest for the local population.
- 4.39. Within the proposed development standard offset gullies and dropped kerbs will be provided to minimise potential mortality on the new road which are created as part of the new development.
- 4.40. Prior to commencement of the proposed development clearance of all habitats within 500m of the proposed development site will be cleared over a period of 30 suitable days during the active period of March - October (inclusive).

Badger

- 4.41. There were no signs of badger activity recorded on site. Therefore, the presence of badger has not been identified as a statutory ecological constraint to the proposed development.

Water Vole and Otter

- 4.42. The site is considered to be unsuitable for supporting resident water vole and otter. Consequently, these species have not been identified as a statutory constraint to the proposed development.















Reptiles


- 4.43. All common reptile species, including slow-worm *Anguis fragilis*, common lizard and grass snake *Natrix natrix* are partially protected under Section 9(1) and 9(5) of Schedule 5 of the Wildlife and Countryside Act 1981 (*as amended*). This legislation protects these animals from:
- Intentional killing and injury;
 - Selling, offering for sale, possessing or transporting for the purpose of sale or publishing advertisements to buy or sell a protected species.
- 4.44. All common reptile species, including common lizard, are species of principal importance under S41 of the NERC Act.
- 4.45. The results from the surveys undertaken to date indicate that a low population of grass snake is present within the site as less than five or more individuals were recorded present during each of three separate survey occasions. However, the short grazed habitats within the site do not provide optimal habitats for this species and loss of the habitats to development is unlikely to affect the conservation status of the species locally. Adequate compensation to maintain the favourable conservation status of the species locally will be provided in the reserve areas for GCN on the western, northern and southern elevation of the proposed development site.

To ensure no grass snakes are potentially killed or injured during development of the site, grass snake which maybe present will be cleared during translocation of the small population of GCN.

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-  Survey Area Boundary
-  Poor Semi-improved Grassland
-  Semi-improved Grassland
-  Improved Grassland
-  Scattered Broad-leaved trees
-  Scrub
-  Mixed Woodland
-  Fence
-  Road
-  Building
-  Pond
-  Species-poor hedgerow
-  Target Note
-  Reptile Refugia

 CALA Homes (Midlands) Ltd
 Fringford Road, Bicester
 Oxfordshire
 PHASE 1 HABITAT PLAN



Not to Scale SLC/SJS 22.04.2013

Figure 2

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- Survey Area Boundary
- pSI Poor Semi-improved Grassland
- SI Semi-improved Grassland
- I Improved Grassland
- Scattered Broad-leaved trees
- Scrub
- Mixed Woodland
- Fence
- Road
- Building
- Pond
- Species-poor hedgerow
- Tn# Target Note
- Reptile Refugia

fpcr CALA Homes (Midlands) Ltd
 Fringford Road, Bicester
 Oxfordshire
 PHASE 1 HABITAT PLAN

Not to Scale SLC/SJS 22.04.2013
Figure 2



-  Survey Area Boundary
-  Transect Route
-  Start / Finish Point
-  Point Count (with reference)
-  Bat Contact (with reference) and Route of Bat (if sighted)

Track 5	21.32	Common Pip	HNS
A	21.33	Common Pip	
Pc3 (A)	21.37	Common Pip	2 Passes
Track 7	21.38	Common pip	Foraging
Pc4 (B)	21.43	Soprano pip	Foraging
Track 9	21.54	Common pip	
	21.58	Common pip	
	22.02	Common pip	
	22.05	Common pip	
	22.1	Common pip	
Pc5	22.12	Common Pip	



CALA Homes (Midlands) Ltd
 Fringford Road, Bicester
 Oxfordshire
 Transect Results Plan 08.05.13

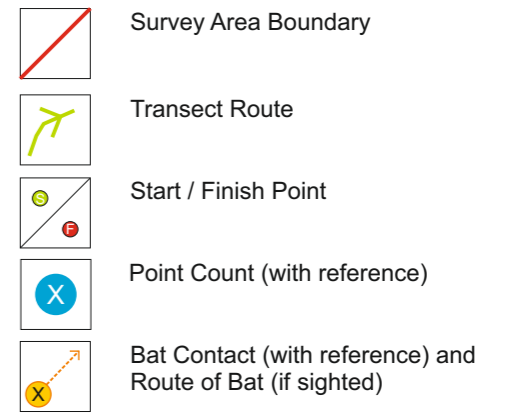


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CAG


09.05.2013

Figure 3



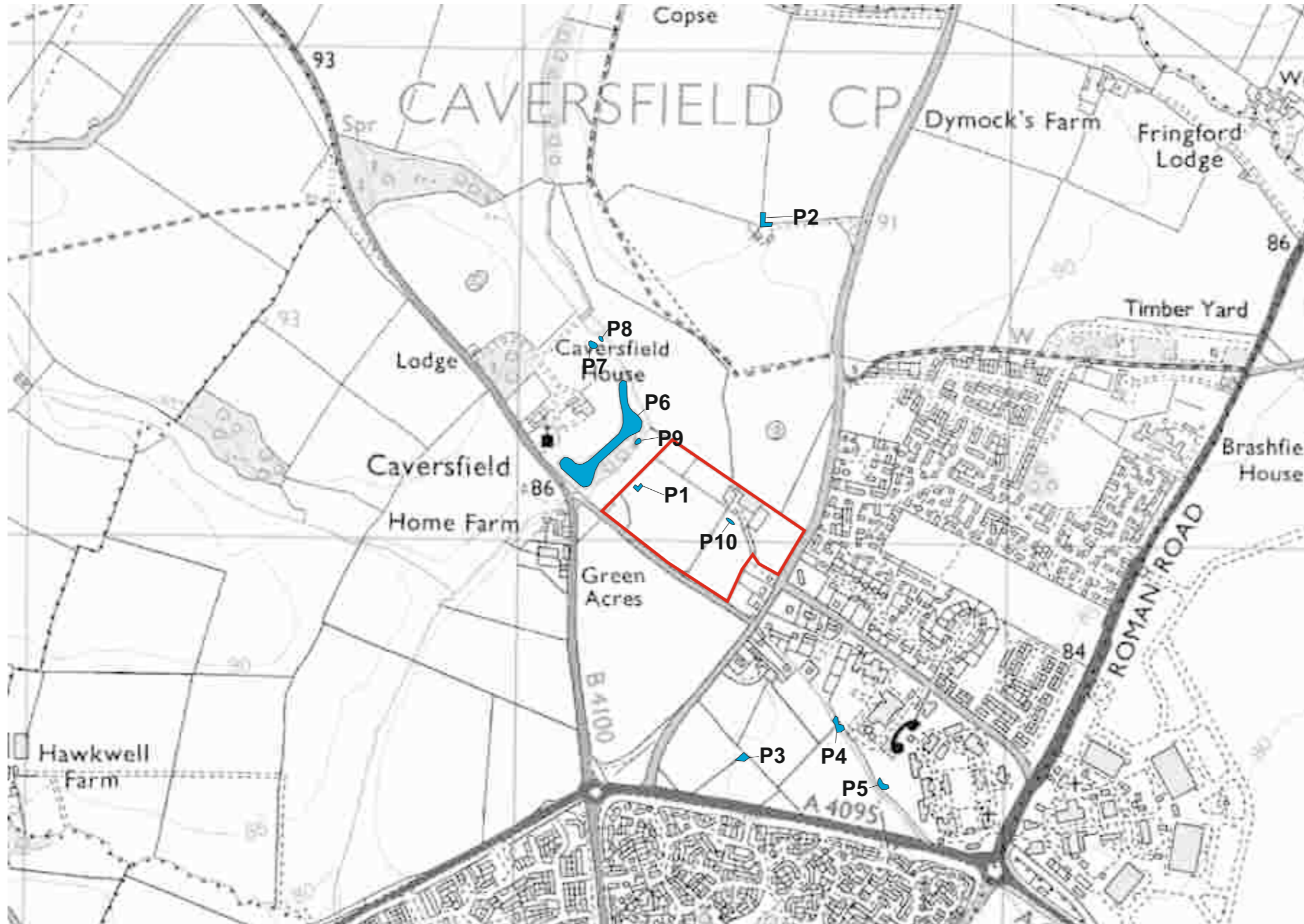
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Track 7	21.38	Common piip	Foraging
Pc4 (B)	21.43	Soprano pip	Foraging
Track 9	21.54	Common pip	
	21.58	Common pip	
	22.02	Common pip	
	22.05	Common pip	
	22.1	Common pip	
Pc5	22.12	Common Pip	



Green Acres


 CALA Homes (Midlands) Ltd
 Fringford Road, Bicester
 Oxfordshire
 Transect Results Plan 24.06.13

 NTS @ A3 CAG 25.06.2013

Figure 4



-  Survey Area Boundary
-  Ponds located within 500m of the site boundary

 CALA Homes (Midlands) Ltd
Fringford Road, Bicester
Oxfordshire
Pond Location Plan






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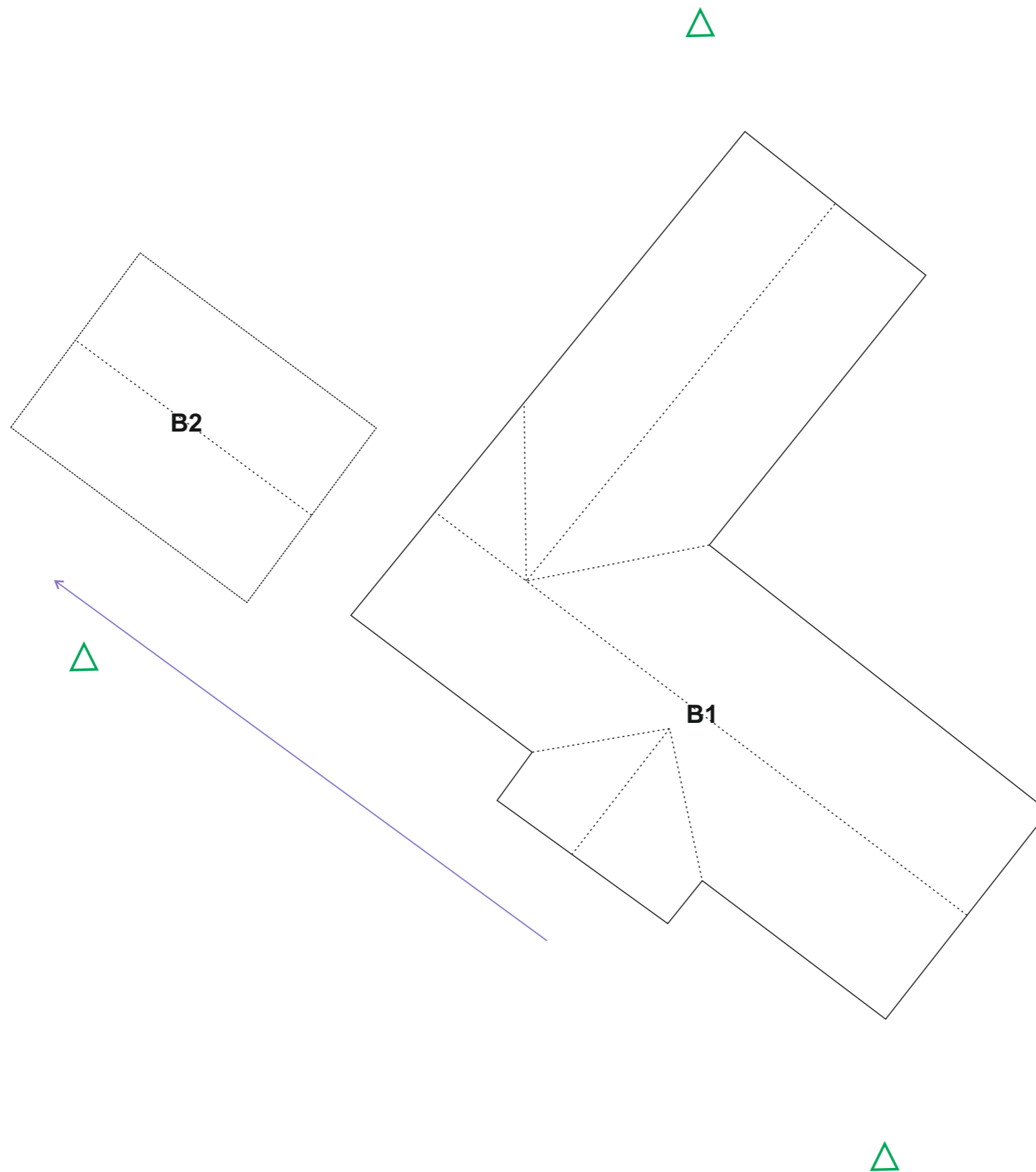
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Figure 5


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-  Building with reference number
-  Surveyor location
-  Common pipistrelle flight direction



 CALA Homes (Midlands) Ltd
Fringford Road, Bicester
Oxfordshire
Nocturnal Survey Plan 30.05.13

NTS @ A3 CAG 20.06.2013

 **Figure 6**

APPENDIX 1**Plant Species Recorded Within the Site**

Common Name	Latin Name
Poor Semi Improved Grassland	
Ribwort Plantain	<i>Plantago lanceolata</i>
Field Mouse-ear	<i>Cerastium arvense</i>
Cock's-foot	<i>Dactylis glomerata</i>
Creeping Bent	<i>Agrostis stolonifera</i>
Crested Dog's-tail	<i>Cynosurus cristatus</i>
Bulbous Buttercup	<i>Ranunculus bulbosus</i>
False Oat-grass	<i>Arrhenatherum elatius</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Cow Parsley	<i>Anthriscus sylvestris</i>
Red Fescue	<i>Festuca rubra agg.</i>
Timothy	<i>Phleum pratense sens.lat.</i>
Yarrow	<i>Achillea millefolium</i>
Perennial Rye-grass	<i>Lolium perenne</i>
Common Fleabane	<i>Pulicaria dysenterica</i>
White Clover	<i>Trifolium repens</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale agg.</i>
Cleavers	<i>Galium aparine</i>
Lords-and-ladies	<i>Arum maculatum</i>
Common Nettle	<i>Urtica dioica</i>
Ground-ivy	<i>Glechoma hederacea</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Semi Improved Grassland	
Ribwort Plantain	<i>Plantago lanceolata</i>
Field Mouse-ear	<i>Cerastium arvense</i>
Cock's-foot	<i>Dactylis glomerata</i>
Creeping Bent	<i>Agrostis stolonifera</i>
Crested Dog's-tail	<i>Cynosurus cristatus</i>
Bulbous Buttercup	<i>Ranunculus bulbosus</i>
False Oat-grass	<i>Arrhenatherum elatius</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Cow Parsley	<i>Anthriscus sylvestris</i>
Red Fescue	<i>Festuca rubra agg.</i>
Timothy	<i>Phleum pratense sens.lat.</i>
Yarrow	<i>Achillea millefolium</i>
Perennial Rye-grass	<i>Lolium perenne</i>
Common Fleabane	<i>Pulicaria dysenterica</i>
White Clover	<i>Trifolium repens</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale agg.</i>
Cleavers	<i>Galium aparine</i>
Lords-and-ladies	<i>Arum maculatum</i>
Common Nettle	<i>Urtica dioica</i>
Ground-ivy	<i>Glechoma hederacea</i>
Hedge Bindweed	<i>Calystegia sepium</i>

Common Name	Latin Name
Rosebay Willowherb	<i>Chamerion angustifolium</i>
Improved Grassland	
Crested Dog's-tail	<i>Cynosurus cristatus</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale</i> agg.
Perennial Rye-grass	<i>Lolium perenne</i>
Yorkshire-fog	<i>Holcus lanatus</i>
Creeping Bent	<i>Agrostis stolonifera</i>
Creeping Buttercup	<i>Ranunculus repens</i>
White Clover	<i>Trifolium repens</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Scrub	
Blackthorn	<i>Prunus spinosa</i>
Hawthorn	<i>Crataegus monogyna</i>
Field Maple	<i>Acer campestre</i>
Lords-and-ladies	<i>Arum maculatum</i>
Ivy	<i>Helix helix</i>
Cow Parsley	<i>Anthriscus sylvestris</i>
Silver Birch	<i>Betula pendula</i>
Scots Pine	<i>Pinus sylvestris</i>
Larch	<i>Larix decidua</i>
Holly	<i>Ilex aquifolium</i>
Lime	<i>Tilia x europaea</i>
Pond	
Common Duckweed	<i>Lemna minor</i>
Rosebay Willowherb	<i>Chamerion angustifolium</i>
Floating Sweet-grass	<i>Glyceria fluitans</i>
Elder	<i>Sambucus nigra</i>
Common Water-starwort	<i>Callitriche stagnalis</i> sens.lat.
Bramble	<i>Rubus fruticosus</i> agg.
Pond water-cress	<i>Nasturtium microphyllum</i>
Trees	
Dogwood	<i>Cornus sanguinea</i>
Elder	<i>Sambucus nigra</i>
Beech	<i>Fagus sylvatica</i>
Field Maple	<i>Acer campestre</i>
Hawthorn	<i>Crataegus monogyna</i>
Horse-chestnut	<i>Aesculus hippocastanum</i>
Larch	<i>Larix decidua</i>
Walnut	<i>Juglans regia</i>
Blackthorn	<i>Prunus spinosa</i>
Norway Maple	<i>Acer platanoides</i>
Scots Pine	<i>Pinus sylvestris</i>
Silver Birch	<i>Betula pendula</i>
White Poplar	<i>Populus alba</i>
Leyland Cypress	<i>Cupressus x leylandii</i>
Lombardy Poplar	<i>Populus nigra</i> 'Italica'