Land to the North East of KGV Playing Fields, Cuffley

Ecological Appraisal

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LAND TO THE NORTH EAST OF KING GEORGE V PLAYING FIELDS

ECOLOGICAL APPRAISAL

Prepared for Lands Improvement

by

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APPENDICES

EXECUTIVE SUMMARY

This report describes an updated ecological appraisal, including updates of bat and Badger survey work, of approximately 4.89ha of land at Cuffley, Hertfordshire, hereinafter referred to as 'the Site'. The site centre is located by National Grid Reference TL 3045 0210. The study was commissioned by Lands Improvement in October 2012.

No areas of international, national, regional or district nature conservation importance were identified within or adjacent to the Site during the study and the findings of the field surveys indicate that the majority of the Site, dominated by a single arable field, is of negligible nature conservation importance in its own right. Where designated sites occur within the wider area these are not expected to be impacted by the proposed development, either alone or in combination with other plans or projects.

The habitats of highest nature conservation value are located around the Site margins and include the hedgerow on the north western Site boundary, the treeline and hedgerow on the southern Site boundary, the southernmost ditch and the railway embankment to the east. Although these habitats are of limited nature conservation interest in their own right, in combination they form part of a network of semi-natural habitats around the site and the wider area, and appreciably enrich the habitat resource of the Site. Of particular note is the treeline and hedgerow on the southern Site boundary which was identified in the 2008 and 2013 bat surveys as being of high local value for commuting bats.

Development proposals should seek to maintain and, where appropriate, enhance the value of these features for wildlife. Measures by which this can be achieved are provided in Section 8.

Construction works should also be carried out in such a manner as to avoid adverse effects on the Northaw Brook located to the south of the Site, especially in association with any linkage of the surface water drainage scheme to the southernmost ditch. It is therefore recommended that development works are carried out in accordance with Environment Agency Pollution Prevention Guidance, particularly PPG6 'Working at construction and demolition sites' (Environment Agency, 2010) and PPG5 'Works and maintenance in or near water' (Environment Agency, 2007). Precautionary measures with regard to Water Vole should also be implemented.

No trees potentially supporting roosting bats are expected to be affected by the proposed development. Should works to trees potentially supporting roosting bats be identified (e.g. for safety) then measures with regard to further survey and/ or appropriate working practice is given in Section 8 in accordance with best practice guidelines.

The Site is considered unlikely to support an important assemblage of breeding birds and no further survey for this group is recommended. Notwithstanding this, breeding birds are likely to use the Site and therefore the legislation relating to this group will apply. It is recommended that all scrub/ tree clearance and initial ground works on the arable land is carried out outside of the bird breeding season (March to September inclusive), as wild birds, their nests and eggs are protected under the Wildlife and Countryside Act 1981. Where this is not possible it is recommended that an ecologist carries out a check for nesting birds immediately prior to the commencement of these works.

No reptiles were recorded using the site during either the 2008 or 2013 surveys. Therefore no specific avoidance or mitigation measures are proposed in relation to this group.

No active Badger setts were recorded within or adjacent to the Site during the 2008 and 2012 surveys. It is recommended however that the Site be re-surveyed prior to commencement of development works to ensure that the status of Badgers has not changed.

Where appropriate, development proposals should seek to maintain and provide new opportunities for wildlife in accordance with national and local planning policy and guidance (NPPF, 2012; ODPM, 2005) and the 2006 NERC Act. A selection of measures appropriate to the Site is given in Section 8. These include habitat creation through the Site's surface water drainage strategy; provision of opportunities for roosting bats and nesting birds; use of native and nut/fruit/pollen and nectar-rich species in planting schemes; and provision of semi-natural habitats such as meadow grasslands, scrub and hedgerows as part of the Site landscape strategy. Inclusion of these measures could potentially increase the current nature conservation interest of the Site, in addition to enhancing opportunities for locally recorded protected and notable species.

Subject to the implementation of the recommended measures for habitat retention, creation and enhancement, no reduction in the ecological interest of the Site is likely to arise as a result of the proposed development. It is concluded that, beyond the normal requirements identified above to avoid impacts on protected species, there appear to be no overriding nature conservation constraints that would preclude development of the Site.

1 INTRODUCTION

1.1 This report describes an updated ecological appraisal, including updates of bat and Badger survey work, of approximately 4.89ha of land at Cuffley, Hertfordshire, hereinafter referred to as 'the Site'. The site centre is located by National Grid Reference TL 3045 0210. The study was commissioned by Lands Improvement in October 2012.

1.2 The Site is located on the southern edge of Cuffley and is currently in agricultural use. It is bound by existing residential development to the north and north-west; the grounds of Cuffley Primary School also adjoin the Site along its northern boundary. The railway line and Northaw Road East (B156) form strong eastern and western boundaries respectively. The southern boundary is defined by a mature hedgerow and tree belt lining the Hertfordshire Way footpath. Beyond the footpath to the south west of the Site is the King George V Playing Fields, which contains three sports pavilions, a recreation area with hard surfaced Multi Use Games Areas (MUGA), sports pitches and a small area of formal play equipment. The location and boundary of the site are shown in Appendix A.

1.3 The aims of the study are:

i. To assess the likely nature conservation importance of habitats within the Site;
ii. To assess the likely presence of protected species and species of principal importance (NPPF, 2012: ODPM, 2005);
iii. To identify any potential constraints to development due to the above;
iv. To identify requirements for any additional ecological surveys in support of a planning application; and
v. To identify measures to avoid and mitigate potential effects of development on identified features of ecological interest.

2 METHODOLOGY

2.1 Desk study

2.1.1 Existing ecological and nature conservation data relevant to the Site was collated from various sources including the 'Multi Agency Geographic Information for the Countryside' (MAGIC) online database (http://magic.defra.gov.uk) and Hertfordshire Biological Records Centre (HBRC). All relevant protected species records have been mapped for an area of approximately 2km around the Site and a check for statutory designated sites within 5km of the site was carried out using the Magic database. The findings of the desk study are summarised in Section 3 below and the full results are given in Appendix A.

2.2 Field survey

2.2.1 The updated field survey comprised an extended Phase 1 Habitat survey (JNCC, 2007), a Phase 1 Bat survey and a full Badger survey carried out by Alex Leishman GradIEEM on 20th November 2012. Where appropriate this updated and reviewed the findings of a full

suite of surveys including an extended Phase 1 Habitat survey and Phase 1 Bat Scoping, Bat Activity, Badger, Reptile and Hedgerow surveys carried out at the Site between February and September 2008.

Phase 1 Habitat Survey

2.2.2 The updating of the extended Phase 1 habitat survey involved walking over the Site, mapping the main habitat types and compiling detailed 'target notes'. Target notes record habitat features and a list of vascular plant species noted, together with a qualitative assessment of relative abundance, where appropriate. The full results of the Phase 1 Habitat survey are given in Appendix B. Botanical names follow Stace (1997) for higher plants.

Phase 1 Bat Survey

2.2.3 The updating of the Phase 1 Bat Scoping survey comprised an assessment of the value of trees potentially affected by the proposals for bats. This involved external ground-level inspections of trees to identify features potentially used by roosting bats, such as loose bark, splits and hollows. In accordance with current best practice guidelines (BCT, 2012), trees were categorised into one of five categories:

- confirmed bat roosts;
- trees with multiple, highly suitable features capable of supporting larger roosts (BCT Category 1*);
- trees with definite bat potential, supporting fewer suitable features than Category 1* trees or with potential for use by single bats (BCT Category 1);
- trees with no obvious potential although the tree is of size and age that elevated surveys may result in cracks or crevices being found, or the tree supports some features that have some limited potential to support bats (BCT Category 2);
- trees with no potential to support bats (BCT Category 3).

Categorisation was based on the nature, size, location and quality of features present in each tree. The results of the Phase 1 Bat Scoping survey determine the need for further surveys in relation to trees.

2.2.4 The survey focussed on trees most likely to be affected by the proposed development i.e. those trees located adjacent to the arable field which would subject to development. The survey did however include consideration of all trees within the Site although detailed notes were only taken for trees located north of the Hertfordshire Way path.

Badger Survey

2.2.5 The Badger survey comprised a systematic search of the Site for Badger setts and evidence of Badger activity. For each confirmed Badger sett a recording card was

completed detailing the type of sett, number of entrances and level of activity (from disused to active). A plan showing the results of the Phase 1 Bat Scoping and Badger survey is provided in Appendix C.

Other

2.2.6 Observations on the presence, or potential presence, of other protected species were recorded as incidental information to the extended Phase 1 Habitat survey. Where appropriate further surveys for bats and reptiles were subsequently undertaken in 2013 and the findings of this work are summarized in Section 5 below with full reports of survey included in Appendices E and F respectively.

2.2.7 A total of five hours was spent carrying out the field survey. Weather conditions were cool with a slight breeze and intermittent light rain.

2.3 Evaluation Criteria

2.3.1 The evaluation of the Site, and the habitats within it, is based on the results of the field surveys described above, any designations pertaining to the site and existing ecological information collected during the desk study.

2.3.2 Each ecological resource (site, habitat, species or feature) was assigned a value at the following geographic scales (IEEM, 2006):

- International
- National (England/ Scotland/ Wales/ Northern Ireland)
- Regional
- County / Metropolitan
- District / Borough
- Local/ Parish
- within immediate zone of influence only (negligible)

2.3.3 Assigning value is relatively straightforward in the case of designated sites, and undesignated sites meeting designation criteria. However, in most cases evaluation of ecological resources is not straightforward and requires a degree of knowledge, training, experience and professional judgement (Usher, 1986; Spellerberg, 1992). Evaluation of an ecological resource was based on a number of criteria (Ratcliffe, 1977; IEEM 2006). These are summarised in Appendix G.

2.3.4 The potential for protected species and species of principal importance (NPPF, 2012; ODPM, 2005 as amended) to be present within the site has been assessed based on the habitats and features present within the site and the results of the desk study.

2.4 Limitations

2.4.1 Phase 1 Habitat surveys in the south of England during the period mid-October to early April are generally less efficient than during the spring or summer and it is possible that some species may have been missed during the field survey.

2.4.2 However, in view of (a) the ecological character of the habitats present at the Site (b) previous ecological survey and assessment carried out at an optimal time of year, and (c) observations made during further surveys at the Site between May and September 2013, it is considered that the survey is adequate to make a robust assessment of the Site's likely nature conservation significance.

3 DESK STUDY

3.1 Introduction

3.1.1 The following section summarises the findings of the desk study, consolidating the information provided during both the updated 2012 desk study and previous desk studies for the Site. The original data are given in Appendix A. The findings of the field surveys and an assessment of the importance of the site for protected species and species of principal importance are given in Sections 4 and 5 respectively.

3.2 Designated Sites

3.2.1 No statutory or non-statutory nature conservation designations pertain to the Site. This is confirmed by information from the Magic online database and Hertfordshire Biological Records Centre.

Statutory designated areas

3.2.2 One site of international nature conservation importance is located within 5km of the Site, this is the Wormley Woods/Hoddesdon Park Special Area of Conservation (SAC) located approximately 2.5km north. The SAC is designated for its Hornbeam *Carpinus betulus* and Sessile Oak *Quercus petraea* woodland, which rarely occurs in lowland Britain. SACs are protected under the EU Habitats Directive 92/43/ECC. This site receives additional statutory protection as a Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR).

3.2.3 One other SSSI is located within 5km of the Site. Northaw Great Wood SSSI is located approximately 1.9km to the northwest at NGR TL280043. This SSSI is designated for its ancient coppiced Hornbeam woodland and its northern extent receives additional statutory protection as a Local Nature Reserve (LNR). SSSIs are sites of national importance for nature conservation and are protected under the 1981 Wildlife and Countryside Act (as amended) and the Countryside and Rights of Way Act 2000.

3.2.4 Cheshunt Park LNR is located 4.2km northeast of the Site at NGR TL344041. Cheshunt Park is designated for its woodland and grassland habitats. Local Nature Reserves are considered of local importance for nature conservation.

Non-statutory designated areas

3.2.5 There are twelve non-statutory designated sites, known as Wildlife Sites (WSs), located within the desk study area. The closest non-statutory designated areas to the Site include:

- Cuffley Station Embankment WS: This WS lies 800m north of the Site and is designated for its populations of Common Lizard *Lacerta vivipara* and Slow-worm *Anguis fragilis*.
- Cattlegate Wood WS: A 12ha area of ancient semi-natural Hornbeam and Oak woodland, which lies 900m southwest of the Site at NGR TL296012. The woodland is also listed on Natural England's Inventory of Ancient Woodland.
- The Dell WS: A 14ha area of acid grassland, heathland, mature scrub and woodland, which lies 1km northwest of the Site at NGR TL293029.

3.3 Biodiversity Action Plan (BAP) Habitats and Species

3.3.1 The UK Biodiversity Action Plan (UKBAP, 2007) lists species and habitats which have undergone significant declines in recent years and for which conservation is a priority in order to preserve biodiversity in the UK. The BAPs provide a list of actions to be implemented to halt or reverse these declines.

3.3.2 These species and habitats are identified as Habitats and Species of Principal Importance for the conservation of biological diversity in England under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006. The National Planning Policy Framework (NPPF, 2012) and underpinning guidance (ODPM, 2005) require that these species are a material consideration in the planning process.

3.3.3 The Hertfordshire BAP, published in 1998 and revised in 2006, includes action plans for habitats and species considered to be of county biodiversity importance. Of the habitats included within the BAPs, the site contains examples of farmland habitats, including arable land and boundary features such as hedgerows and field margins.

3.3.4 The Hertfordshire BAP also lists priority species such as, Hazel Dormouse *Muscardinus avellanarius*, Natterer's Bat *Myotis nattereri* and Song Thrush *Turdus philomelos*. This report considers the actual, or likely, presence of such species in the habitats identified at the Site.

3.3.5 The Biodiversity Action Plans contain objectives and targets for each species and habitat identified. These should be considered for any development proposal for the Site, both in terms of impact avoidance and opportunities to enhance the Site and contribute to BAP targets. The objectives potentially most relevant to this Site are:

> *"Protect and enhance through appropriate management, ancient and species rich hedgerows"*
>
> *"Increase the total length of hedgerows where appropriate within the farmland environment"*
>
> *"Enhance arable field habitats to support a greater biodiversity"*
>
> *"To protect urban habitats and protected species within the urban areas of Hertfordshire"*
>
> *"To increase the biodiversity of existing urban greenspaces and promote opportunities for biodiversity gain in all appropriate developments"*
>
> *"Raise awareness of urban biodiversity and promote opportunities for involvement in urban conservation"*

3.4 Protected Species

3.4.1 The desk study has indicated that there are currently no records of protected species occurring within the Site held by third parties (Appendix A).

3.4.2 However, data provided by Hertfordshire Biological Records Centre has shown that there are records of protected species in the vicinity of the Site including bats, Great Crested Newts, Hazel Dormice, Water Voles, Badgers and reptiles, in addition to notable bird, invertebrate and plant species.

3.4.3 **Bats**

3.4.3.1 Twenty-nine records of bats were provided in 2012 for the desk study area including the following species: Common Pipistrelle *Pipistrellus pipistrellus*, Brown Long-eared *Plecotus auritis*, Daubenton's *Myotis daubentonii* and Natterer's as well as undetermined species. In 2008 thirty-seven records were provided including Soprano Pipistrelle *Pipistrellus pygmaeus* in addition to those already mentioned. These include records relating to the 1km grid square in which the Site is located.

3.4.3.2 All UK bat species are protected under the Conservation of Habitats and Species Regulations 2010, which implements the EU Habitats Directive 92/43/EEC in the United Kingdom. In relation to European Protected Species (EPS), the 2010 Regulations make it an offence to:

- Deliberately capture, injure or kill any wild animal of an EPS.
- Deliberately disturb wild animals of any such species, in particular any disturbance which is likely to: (i) impair their ability to survive, to breed or reproduce, or to rear or

nurture their young; or to hibernate or migrate; (ii) affect significantly the local distribution or abundance of the species to which they belong.

- Damage or destroy a breeding site or resting place of such an animal.
- To (a) be in possession of, or to control; (b) to transport any live or dead animal or any part of an animal; (c) to sell or exchange or (d) offer for sale or exchange any live or dead animal or part of an animal of an EPS.

3.4.3.3 In addition, all UK bats are protected under the Wildlife and Countryside Act 1981 (as amended). All species are listed on Schedule 5 of the Act and are subject to the provisions of Sections 9.4b and 9.4c, which make it an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by a bat.

3.4.3.4 Seven species of bat (Barbastelle, Bechstein's, Noctule, Soprano Pipistrelle, Brown Long-eared, Greater Horseshoe and Lesser Horseshoe) are included as priority species on the UKBAP. Natterer's bat is also a priority species on the Hertfordshire BAP.

3.4.4 Great Crested Newts

3.4.4.1 Six records of Great Crested Newt were supplied for the desk study area. Four of these records relate to an area located over 2km northwest of the Site with the most recent from 1999. The remaining records pertain to an area just south of Northaw around 2km west of the Site and the other to the area of Crews Hill over 2km south of the Site.

3.4.4.2 The Great Crested Newt is protected through its inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 and is a European Protected Species (EPS) through the EU Habitats Directive 1992 as implemented by the Conservation of Habitats and Species Regulations 2010 (see Section 3.4). It is also a priority species on the UK Biodiversity Action Plan.

3.4.5 Badgers

3.4.5.1 Nine records of Badger were provided for the desk study area in 2012. A record made in 2004 is located around Home Wood, which lies approximately 1.6km northwest of the Site and a record made in 1995 pertains to Cattlegate farm which lies around 1km south of the Site. In addition, historic records from 1985 of Badger occurring within the 1km grid square containing the Site were provided.

3.4.5.2 Badgers and their setts are protected under the Protection of Badgers Act 1992. This makes it an offence to:

- kill, injure or capture a Badger,
- damage, destroy or obstruct access to a Badger sett, and

- disturb Badgers while they are occupying a sett,

unless permitted under a licence issued by Natural England.

3.4.6 **Reptiles**

3.4.6.1 Eleven records of reptiles were provided for the desk study area in 2012, many of which were made in Cuffley dating between 1960 and 1997. Records for Grass Snake *Natrix natrix*, Slow-worm and Common Lizard exist for land within 500m of the Site boundary. It may also be assumed that Slow-worm and Common Lizard were recently present in high numbers at Cuffley Station Embankment WS in view of its citation and corresponding designation.

3.4.6.2 All native reptiles are protected against killing and injuring under the Wildlife and Countryside Act 1981 and listed as priority species on the UKBAP.

3.4.7 **Otter**

3.4.7.1 No records of Otter were provided for the desk study area. The Otter is protected through its inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 and is a European Protected Species (EPS) through the EU Habitats Directive 1992 as implemented by the Conservation of Habitats and Species Regulations 2010. It is also a priority species on the Hertfordshire BAP.

3.4.8 **Water Vole**

3.4.8.1 Four records of Water Vole were provided for the desk study area in 2012, all dating from 1987. The location data for these historic records is of poor resolution and cannot be related to a suitably defined area. Nine records were provided in 2008, all of which date from between 2000 and 2001 and pertain to areas just north of or south of the M25 motorway (1.5km or further from the site). The closest record to the Site was from 1987 and pertains to the area of Wells Farm, approximately 300m southwest.

3.4.8.2 The Water Vole has, since April 1998, received legal protection through its inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 (see Section 3.4) which also protects this species against killing and injuring. It is also a priority species on the UK and Hertfordshire BAPs.

3.4.9 **Hazel Dormouse**

3.4.9.1 Two records of Hazel Dormouse *Muscardinus avellanarius* were provided for the desk study area. These records were made in 1972 and 1985 and location data is of low resolution and cannot be related to a suitably defined area.

3.4.9.2 The Dormouse is protected through its inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 and is a European Protected Species (EPS) through the EU Habitats Directive 1992 as implemented by the Conservation of Habitats and Species Regulations 2010. It is also listed as a UK and Hertfordshire BAP priority species.

3.4.10 **Birds**

3.4.10.1 Six records of notable birds were provided in 2012 for the desk study area. Records include Kingfisher which is protected under Schedule 1 of the Wildlife and Countryside Act 1981 and included on the RSPB Amber list. Records of RSPB Red List species within the desk study area include Reed Bunting, which is also a UKBAP priority species, and Song Thrush which is a Hertfordshire BAP species. Other records include Green Woodpecker and Grey Wagtail which are on the RSPB Amber List. The RSPB Red and Amber Lists denote bird species of conservation concern in the UK (RSPB, 2009).

3.4.11 **Invertebrates**

3.4.11.1 No records of protected invertebrate species (other than protection against sale) were provided for the desk study area. Hertfordshire Biological Records Centre provided records of 52 UKBAP priority butterfly and moth species including Sallow, Oak Hook-tip and Cinnabar. The majority of these records pertain to the northwest edge of Cuffley bordering Home Wood.

3.4.12 **Plants**

3.4.12.1 No records of plants of conservation concern were provided for the desk study area. The only protected plant records were of Bluebell, which is protected against sale only.

3.4.13 **Other Species**

3.4.13.1 Records of Brown Hare *Lepus europaeus* and Hedgehog were also provided for the desk study area both of which are UKBAP priority species. No records of other protected or notable species were provided for the desk study area.

3.5 Planning Policies

3.5.1 Saved policies from the Welwyn Hatfield District Plan relating to nature conservation and the environment include:

R11 - Biodiversity and Development

"All new development will be required to demonstrate how it would contribute positively to the biodiversity of the site by;
(i) The retention and enhancement of the natural features of the site;
(ii) The promotion of natural areas and wildlife corridors where appropriate as part of the design;
(iii) The translocation of habitats where necessary, where it can be demonstrated that the habitat or species concerned cannot be successfully accommodated within the development;

(iv) The use of locally native species in planting in accordance with Policy D8 Landscaping;
(v) Helping meet priorities/targets set out in the Local Biodiversity Action Plan."

R13 - Site of Special Scientific Interest

"Proposals for development in or likely to affect Sites of Special Scientific Interest will be subject to special scrutiny. Where such development including that on land adjoining or adjacent to the sites may have an adverse effect, directly or indirectly, on the SSSI it will not be permitted unless the reasons for the development clearly outweigh the nature conservation value of the site itself and the national policy to safeguard the national network of such sites.
Where development is permitted the Council will consider the use of conditions and/or planning obligations to ensure the protection and enhancement of the site's nature conservation interest."

R14 - Local Nature Reserves

"Planning permission will not be granted for any development likely to have an adverse effect on local nature reserves unless it can be clearly demonstrated that there are reasons for the proposal which outweigh the need to safeguard the substantive nature conservation value of the site.
Where development is permitted which would damage the nature conservation value of the site such damage should be kept to a minimum. Where appropriate the Council will consider the use of conditions and/or planning obligations to provide appropriate compensatory measures."

R15 - Wildlife Sites

"Planning permission will not be granted for any development which would have an adverse effect on Wildlife Sites or Regionally Important Geological/Geomorphological Sites unless:
(i) It can be demonstrated that the reasons for development outweigh the need to safeguard the biodiversity of the site; and
(ii) Measures are taken to mitigate the effect of the development, to compensate for any residual adverse effects and to reinstate the nature conservation value of the site."

R17 - Trees, Woodland and Hedgerows

"The Council will seek the protection and retention of existing trees, hedgerows and woodland by the use of planning conditions, section 106 agreements, hedgerow retention notices and tree preservation orders where applicable. New development will be required to incorporate wherever appropriate new planting with locally native species and should be in accordance with Policy D8 Landscaping."

4 PHASE 1 HABITAT SURVEY

4.1 General description

4.1.1 The results of the Phase 1 habitat survey are presented in map form with target notes (represented by numbered dots) in Appendix B. A brief non-technical description of the habitats and features of the site is given below. Numbers in brackets refer to target notes.

4.1.2 In general terms, the Site is dominated by one large arable field with hedgerows, fences and scattered mature trees forming the boundaries.

4.2 Arable Land

4.2.1 The Site is dominated by one large arable field with cereal stubble at time of survey. The uncultivated field margin (2) was generally around 1m or less in width apart from the northwest boundary which was slightly wider and supports more species. The field margin and hedgerow ground flora are dominated by species characteristic of fertile improved soil including Common Nettle *Urtica dioica*, Cleavers *Galium aparine*, Broad-leaved Dock *Rumex obtusifolius* and Creeping Thistle *Cirsium arvense*. Other frequent field margin species included Bramble *Rubus fruticosus*, Cow Parsley *Anthriscus sylvestris*, Cocksfoot *Dactylis glomerata*, False Oat-grass *Arrhenatherum elatius*, Brome species *Bromus* sp., Wood Avens *Geum urbanum*, Great Willowherb *Epilobium hirsutum*, Bristly Ox-tongue *Picris echioides* and Common Hogweed *Heracleum sphondylium*. In-field weeds included Chives *Allium schoenoprasum*, Hedgerow Crane's-bill *Geranium pyrenaicum* and Redshank *Persicaria maculosa*.

4.2.2 A spur from the southern Site boundary extends southwards to where it meets a seasonally wet ditch (9). The field is used for growing cereal crops.

4.3 Hedgerows

4.3.1 Hedgerows are located on the northwestern and southern Site boundaries (1, 3, 4). The intact hedgerow on the northwestern boundary along Northaw Road (1) was dominated by Hawthorn *Crataegus monogyna* and Blackthorn *Prunus spinosa* with occasional Common Ash *Fraxinus excelsior*, Dog Rose *Rosa canina*, Ivy *Hedera helix* and Horse Chestnut *Aesculus hippocastanum*. A mature Horse Chestnut and Common Lime *Tilia × europaea* also occur along this boundary.

4.3.2 The western end of the southern boundary (3) comprises a defunct hedgerow formed by flailing of the understorey scrub associated with the treeline bordering the Hertfordshire Way footpath. Mature and immature specimens of Hawthorn, Blackthorn. Ash, Dog Rose, Elder *Sambucus nigra*, Pedunculate Oak *Quercus robur*, English Elm *Ulmus procera* and Crab Apple *Malus sylvestris* occur along this section of the boundary.

4.3.3 The eastern end of the southern boundary comprises an intact recently planted double hedgerow associated with the Hertfordshire Way footpath (4) including Hawthorn, Blackthorn, Ash, Elm, Crab Apple, Dog Rose, Hazel *Corylus avellana*, and Oak and Cherry *Prunus* sp. standards.

4.3.4 The western end of the northern boundary bordering onto residential development does not classify as a hedgerow but contains occasional native scrub species along with few mature trees and a number of non-native shrubs.

4.3.5 A Hedgerow Regulations Assessment survey was carried out by HDA in 2008. The findings of the assessment are summarised in Section 5 and the full report is provided in Appendix D.

4.4 Scattered trees

4.4.1 The most notable trees within the Site are associated with the mature treeline forming the southern Site margin in association with the Hertfordshire Way footpath. Ash is the dominant species together with Pedunculate Oak.

4.4.2 Individual Common Lime and Horse Chestnut occur on the western boundary of the Site. Other tree species present include Goat Willow *Salix caprea*, Grey Willow *Salix cinerea* and Crack Willow *Salix fragilis* on the eastern boundary and a line of mature cultivated Poplar trees, likely *Populus nigra* 'Italica' (Lombardy Poplar), within the school grounds on the northern boundary. Other tree species occurring along the northern boundary include non-native Oak *Quercus* sp., Field Maple *Acer campestre*, Sycamore *Acer pseudoplatanus*, Silver Birch *Betula pendula*, and immature Holly *Ilex aquifolium*.

4.5 Scrub

4.5.1 Small patches of Bramble scrub are found along the southern and northern boundaries.

4.5.2 Larger areas of scrub habitat are located outside of the Site boundary in association with the railway embankment to the east and the Kin George V Playing Fields to the south beyond the central section of the treeline forming the southern site boundary.

4.6 Ditches

4.6.1 A shallow ditch runs parallel to the southern boundary within the mature tree line along the path. At time of survey this was filled with water approximately 10cm deep following a period of very wet weather and it is considered that this ditch is normally dry throughout much of the year. The base comprised a layer of dead leaves and the occasional stand of Pendulous Sedge *Carex pendula*.

4.6.2 The spur extending from the eastern section of the southern Site boundary meets a ditch at its southern extremity. The ditch is seasonally wet and its banks comprise rough grassland and ruderal vegetation. The ditch leads to the Northaw Brook to the south.

5 PROTECTED AND NOTABLE SPECIES

5.1 Bats

Phase 1 tree survey

5.1.1 Fifty six trees and tree groups within and immediately adjacent to the Site were assessed as having 'Category 2' or higher bat roosting potential during the Phase 1 tree survey. All

trees identified as having potential to support roosting bats located adjacent to the proposed development area are described in *Table 1* below and their locations are shown in Appendix C. Other trees mapped with bat roosting potential that are not described in the table are typically located over 6m from the development area boundary on the southern side of the Hertfordshire Way path.

Table 1: Results of the Phase 1 tree survey

Tree Ref	Description	Findings	BCT Category
T1	Horse Chestnut tree in northwest corner of the Site.	Cavities at bases of missing branches. Most with visible cobwebs and most likely too shallow.	1
T2	Lime at southern end of northwest Site boundary.	No obvious features but mature tree with visible dead branches. Features may be concealed.	2
T3	Mature Oak at northern end of southwest Site boundary.	Multiple large branch cavities and large woodpecker hole. Many opportunities for roosting bats.	1*
T4	Ash along path on southwest boundary.	Mature Ivy on trunk may be of sufficient age to create suitable conditions for roosting bats or conceal potential features within tree.	2
T5	Ash along path on southwest boundary.	Top of trunk broken away. Large rotting trunk cavity visible.	1*
T6	Dead Ash along path on southwest boundary.	Dense Ivy growth may be concealing features. Features considered highly likely in dead trunk with missing top.	1
T7	Ash along path on southwest boundary.	Dense Ivy growth may be concealing features or be sufficiently mature to provide suitable conditions for roosting bats.	2
T8	Ash along path on southwest boundary.	Hollow trunk with multiple holes leading into main cavity.	1*
T9	Ash along path on southwest boundary.	Dense Ivy growth may be concealing features. Considered moderate likelihood of features.	2
T10 (G3)	One large Ash and a smaller Ash along path on southwest boundary.	Large tree with hollow trunk and multiple holes leading into cavity. Smaller tree with visible trunk cavity.	1*
G1	One Oak and one Ash along path on southwest boundary.	No obvious features but trees with visible dead branches and mature Ivy cover. Features may be concealed.	2
T11	Ash along path on southwest boundary.	Woodpecker hole near top of main branch. Ivy may be concealing further features. Rotting trunk.	1*
T12	Ash on southwest boundary.	Multiple trunk cavities visible. Inside trunk rotting.	1*
T13	Ash along path on southwest boundary.	Cavity at base of branch which may be rotting inside.	1
T14	Oak along path on southwest boundary.	No obvious feature but mature tree with some dieback of branches. Potential for concealed features.	2
T15	Ash along path on southwest boundary.	Visible cavity leading into possible rotting trunk. Some Ivy cover could be concealing further features.	1
T16	Oak along path on southwest boundary.	Woodpecker hole leading into rotting trunk. Second large hole possibly leading into same main cavity.	1*

Tree Ref	Description	Findings	BCT Category
T17	Dead Oak along path on southwest boundary.	Dense Ivy growth may be concealing features. Features considered highly likely in dead trunk with missing top.	1
T18	Dying Oak along path on southwest boundary.	Top of trunk broken away. Large rotting trunk cavity visible.	1*
G2	Three Oak trees along path on southwest boundary.	Middle tree with broken trunk which may have small cavity in top concealed by Ivy. Other two trees with few dead branches and some Ivy cover. Concealed features possible.	2
T19	Oak on southwest boundary.	Potential cavities around dying branches. Peeling bark on one branch may lead into rotting branch cavity.	1
T20	Ash along path on southwest boundary.	No obvious feature but mature tree with some Ivy cover and dieback of branches. Potential for concealed features.	2
T21	Ash along path on southwest boundary.	Snapped branch with likely feature but concealed by dense Ivy cover.	1
T22	Ash along path on southwest boundary.	Multiple woodpecker holes and large cavity opening in top of trunk.	1*
T23	Ash along path on southwest boundary.	Top of trunk broken away. Large rotting trunk cavity visible.	1*
T24	Ash along path on southwest boundary.	Trunk cavity opening going up tree and multiple woodpecker holes in trunk and on branch	1*
T25	Ash along path on southwest boundary.	No obvious feature but mature tree with some Ivy cover and dieback of branches. Potential for concealed features.	2
T26	Ash along path on southwest boundary.	Possibility of some gaps around broken branches with limited bat potential and others concealed by Ivy growth.	2
T27	Ash along path on southwest boundary.	Trunk and branch cavities and woodpecker holes visible.	1*
T28	Silver Birch just off-Site along western section of the northern Site boundary.	Small trunk cavity holes low down on tree when viewed from south. May have some limited bat potential.	1

5.1.2 It is understood that the trees identified during the Phase 1 Bat Survey as having potential to support roosting bats will be retained as part of the proposed residential development. No further survey of these trees was therefore undertaken. Notwithstanding this, measures to maintain the integrity of opportunities for roosting bats provided by trees both within and adjacent to the Site are recommended in *Section 8* of this report.

Foraging and commuting habitat

5.1.3 A bat activity survey was carried out by HDA between August and September 2008 to determine the importance of foraging and commuting habitats on the Site for local bat populations. The survey found that the arable field which dominates the Site provides poor quality habitat for foraging bats and is of negligible value to the local bat population. Foraging activity was restricted to the Site margins where approximately 10 foraging Common Pipistrelles are thought to regularly forage in addition to Brown Long-eared bats and occasional individual Soprano Pipistrelle and Leisler's Bats.

5.1.4 Of greatest interest was the role that the Site margins play in providing a commuting corridor between bat roosts located in Cuffley and the wider countryside. Of particular note was the hedgerow located along the northwestern site boundary and the strip of broadleaved woodland that abuts the southern site boundary identified as being of local interest.

5.1.5 The 2008 survey was subsequently updated between May and September 2013 and a report of survey is provided in Appendix E. The findings of the 2013 survey work were similar to those in 2008. Five species of bat were recorded using the Site during the 2013 activity surveys, although the vast majority of activity related to Common Pipistrelles. Much of the activity recorded was once again associated with the tree belt associated with the Hertfordshire Way along the southern Site boundary which was assessed as being of 'high local' value for foraging and commuting bats.

5.2 Badger Survey

5.2.1 The findings of the Badger survey are summarised in Appendix C. No Badger setts, latrines or other field signs such as foraging signs, footprints or hair were found within the Site or within 30m of the Site boundary.

5.2.2 A number of animal paths were recorded around the boundaries of the site, particularly along the eastern boundary. However, the presence of footpaths and droppings indicated that these paths are used by Rabbits. The area of dense scrub to the south of the Site displays evidence of a high Rabbit population including many burrows accompanied by frequent droppings.

5.2.3 The 2008 Badger survey (HDA, 2008) found a disused potential outlying sett and other signs of Badger presence within the arable fields south of the site indicating the presence of Badgers in the wider area. No evidence of Badgers was found within the Site boundary during the 2008 survey and no setts were identified within 30m of the boundary.

5.2.4 The majority of the Site, comprising an arable field used for cereal crop cultivation, provides poor quality foraging habitat for Badger. The field margins could potentially provide moderate quality foraging habitat but, at least at the time of survey, were very limited in width and sparsely vegetated. The mature treeline and hedgerows on the southern Site margin provides good quality foraging habitat for Badger.

5.2.5 In view of the absence of evidence of Badgers within or adjacent to the Site during the 2012 Badger survey, the low value of the habitat present and the abundance of similar and

higher quality habitat in the surrounding area, the Site is considered to be of negligible value for the local Badger population.

5.3 Great Crested Newts

5.3.1 The ditches associated with the southern margins of the Site are considered to be unsuitable for Great Crested Newts with both being shallow and only seasonally wet. The arable field that dominates the site provides unsuitable terrestrial habitat for Great Crested Newts although limited areas of higher quality habitat occur along hedgerow bases, field margins and the southern treeline. A review of aerial photographs and OS mapping data suggests that the closest pond to the site is located over 300m from the Site boundary. This is well beyond the typical maximum migratory distance of Great Crested Newt from their breeding ponds (Cresswell and Whitworth, 2004) and it is therefore considered extremely unlikely that Great Crested Newts are present on Site.

5.4 Otter

5.4.1 There is no suitable habitat for Otter on or adjacent to the Site.

5.5 Water Vole

5.5.1 The ditch associated with the treeline along the southern Site margin is considered unsuitable for Water Voles. Although the ditch adjoining the spur from the southern Site boundary is considered to provide suboptimal habitat for Water Voles (Appendix B: Target Note 10), precautionary measures regarding any works to this ditch are given in Section 8 below due to its connectivity with the Northaw Brook to the south and potential (albeit unlikely) to be used on a seasonal basis.

5.6 Hazel Dormouse

5.6.1 Although the hedgerows and treelines on Site are considered to provide some suitable Dormouse habitat, these are generally suboptimal due to low diversity or maturity, and subject to high anthropogenic disturbance. In addition, the Site is relatively geographically isolated from other areas of potentially suitable habitat by roads, railways and poor quality linear habitat and there are no recent records of Dormice occurring within the surrounding area. It is therefore considered highly unlikely that Dormice are present at the Site.

5.7 Birds

5.7.1 The hedgerows, scrub, trees and arable land at the Site offer nesting opportunities for a number of bird species. Notable bird species recorded on or adjacent to the Site during the survey included Red listed House Sparrow, Starling and Fieldfare, and Amber listed Dunnock, Grey Wagtail and Green Woodpecker. All these species remain common and widespread, and similar and higher quality habitats are abundant in the wider area. It is therefore highly unlikely that the Site is of local importance for birds.

5.8 Reptiles

5.8.1 The arable land that comprises the majority of the Site is unsuitable for reptiles. Field margins and hedgerow bases have potential to support common and widespread reptiles albeit of limited extent.

5.8.2 A full reptile survey of the Site was carried out by HDA in 2008 and this was updated in 2013 (Appendix F). No reptiles were recorded during either survey and it is considered that locally significant numbers of reptiles are extremely unlikely to be present.

5.9 Brown Hare

5.9.1 The arable land at the Site offers some potential habitat for Brown Hares. No Brown Hares were recorded during the survey however and, given the size of the site and abundance of similar suitable habitat within the area, it is unlikely that the Site itself supports locally significant numbers of this UK BAP priority species.

5.10 Invertebrates

5.10.1 There is no suitable habitat for White Clawed Crayfish on or adjacent to the Site.

5.10.2 The Site is dominated by an arable field and where semi-natural habitats do occur, in the form of hedgerows, scrub, treelines and ditches, these are generally limited in extent and diversity, and occur widely in the surrounding area. It is therefore considered highly unlikely that the Site supports a notable invertebrate assemblage in a local context.

5.11 Arable Plants

5.11.1 No protected or notable species of plants were recorded during the extended Phase 1 Habitat survey or subsequent site work. The Site lies inside a national important arable plant area identified by Plantlife International (2005). However due to the limited extent of the site and the intensively farmed nature of the field it is considered unlikely that the Site supports an important assemblage of arable plants.

5.12 Hedgerows

5.12.1 The 2008 Hedgerow Survey assessed the hedgerows within the Site against the 'landscape and wildlife' and 'historical' criteria for the identification of 'important' hedgerows under the 1997 Hedgerow Regulations. This identified the following findings:

- The hedgerow/treeline along the southern Site boundary qualifies as 'important' under both the 'landscape and wildlife' and 'historic' criteria of the 1997 Hedgerow Regulations.
- The hedgerow forming the northwest Site boundary, adjacent to Northaw Road, qualifies as important under the 'historical' criteria only.

5.12.2 The full report of the survey is provided in Appendix D.

6 NATURE CONSERVATION EVALUATION

6.1 The habitats within the Site have been assessed with consideration given to the criteria summarised in Appendix G of this report (Ratcliffe 1977; IEEM 2006). A summary of the site habitat evaluation is given in Table 2. Numbers in brackets refer to target notes.

Table 2: Site Habitat Evaluation

Importance	Habitats Present
International	None
National	None
Regional	None
County	None
District	None
Local	Hedgerows (2,4) (on-site) Scattered mature trees/treeline (3) Southern Ditch (10) Railway Embankment (off-site)
Negligible	All other habitats recorded

6.2 There are no habitats of International, National, Regional, County or District conservation importance within the Site.

6.3 The habitats of highest nature conservation interest associated with the Site are the treeline/ hedgerow along the southern boundary, the railway embankment abutting the eastern Site boundary, the southernmost ditch and the north western boundary hedgerow. Each of these features are considered to be of only limited interest in their own right as they are not particularly diverse and similar features are likely to be widespread in the surrounding area. These areas of semi-natural habitat do however provide opportunities for a range of species and, in combination, appreciably enhance the nature conservation interest of the Site. In addition these habitats also form part of a network of semi-natural habitats, enabling the movement of wildlife across the Site and the wider area. In combination these habitats are therefore considered to be of moderate local importance in their own right.

6.4 The remaining habitats recorded within and bordering the Site, including the arable land, narrow field margins, small patches of scattered scrub and young trees have been assessed as being of only site/ negligible nature conservation importance.

7 ADDITIONAL DATA REQUIREMENTS

7.1 Recommendations for further surveys were made following the 2012 Desk Study and extended Phase 1 Habitat Survey. These surveys included updating of the 2008 Bat Activity and Reptile Surveys and the findings of this work are summarised above and full reports of survey are given in Appendices E and F respectively.

7.2 Consideration of other surveys not recommended in support of the application is given below:

Roosting bats: Development proposals for the Site will retain all trees identified during the Phase 1 Bat Scoping Survey as having potential to support roosting bats due to their location around the Site margins or beyond the Site boundary. No further survey in relation to roosting bats is therefore required.

Dormice: Although some suitable habitat for Dormouse occurs around the Site margins, it is limited in extent and poorly connected to suitable habitat in the wider area. Furthermore there are no recent records of Dormice occurring in the vicinity of the Site. It is therefore considered unlikely that the site supports Dormice and therefore a survey for this species is not required.

Water Voles: The ditch associated with the treeline along the southern Site margin is considered unsuitable for Water Voles. Although the ditch adjoining the spur from the southern Site boundary is considered to provide suboptimal habitat for Water Voles (Appendix B: Target Note 10) and no further survey is recommended at this time, due to its connectivity with the Northaw Brook to the south precautionary measures regarding any works to this ditch are given in Section 8.

Great Crested Newts: It is unlikely that Great Crested Newts are present at the Site due to a lack of suitable breeding habitat, limited suitability and extent of terrestrial habitat, and distance and isolation from potential breeding habitat in the wider area. No further surveys are therefore recommended for this species.

Birds: Although breeding birds are likely to occur at the Site it is unlikely that locally significant populations are present and therefore further survey for this group is not recommended. Nature conservation legislation relating to birds would however still apply, and measures to ensure compliance are set out in Section 8 below.

Hedgerows: The findings of the 2012 Phase 1 Habitat Survey suggest that the character of the hedgerows within the Site is highly unlikely to have significantly changed, either

historically or ecologically, since the 2008 Hedgerow Regulations Assessment. A repeat of this work is therefore not recommended.

8 CONCLUSION AND RECOMMENDATIONS

8.1 *Designated Sites*

8.1.1 One site of international nature conservation importance is located within 5km of the Site, this is the Wormley Woods/Hoddesdon Park Special Area of Conservation (SAC) located approximately 2.5km to the north. The SAC is designated for its Hornbeam *Carpinus betulus* and Sessile Oak *Quercus petraea* woodland, and is also designated as a Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR).

8.1.2 Adverse effects of development on the integrity of the SAC are not expected to arise during the construction or operational phases of the proposed development, either alone or in combination with other plans or projects. This is due to a combination of: the relatively small scale of the proposed development; the availability of alternatives to the SAC for informal recreation; the distance of the proposed development to the SAC, the size and distribution of the SAC and the relatively robust nature of the habitats for which the SAC is designated. An Appropriate Assessment is therefore not considered necessary in support of the proposed scheme. This is supported by recent planning consents granted for larger development in much closer proximity (i.e. <500m) to this designated area.

8.1.3 Similarly, no adverse effects on the integrity of other designated areas in the vicinity of the Site are expected to arise as a result of the proposed development, including the Northaw Great Wood SSSI, located approximately 1.9km to the northwest of the site, and a number of non-statutory designated sites. Measures to ensure the protection of undesignated habitats of wildlife value within and adjacent to the Site are given in Section 8.2 below.

8.2 *Habitats*

8.2.1 Current knowledge suggests that there are no habitats of international, national, regional or district nature conservation importance located within or adjacent to the Site. The findings of the field surveys have indicated that the majority of the Site, dominated by a single arable field, is of negligible nature conservation importance in its own right.

8.2.2 The habitats of highest nature conservation value are located around the Site margins and include the hedgerow on the north western site boundary, the treeline and hedgerow on the southern Site boundary, the southernmost ditch and the railway embankment to the east. Although these habitats are of limited nature conservation interest in their own right, in combination they form part of a network of semi-natural habitats around the site and the wider area, and appreciably enrich the habitat resource of the Site. Of particular note is

the treeline and hedgerow on the southern Site boundary which was identified in the 2008 and 2013 bat surveys as being of high local value for commuting bats.

8.2.3 Development proposals should seek to maintain and, where appropriate, enhance the nature conservation value of these features. This could be achieved through:

- Minimising any loss of hedgerows and trees, through use of existing gaps at hedgerow crossing points and/ or provision of compensatory planting;
- Maintenance of suitable stand-offs between developed areas and retained trees and hedgerows in accordance with BS5837:2012 or the recommendations of an appropriately qualified arboriculturalist;
- Supplementary hedgerow, scrub and tree planting along site boundaries where appropriate to do so;
- Sensitive use of lighting to maintain suitability for nocturnal wildlife. Further discussion on maintaining the integrity of these features for foraging and commuting bats is provided in Appendix E.

8.2.4 Construction works should also be carried out in such a manner as to avoid adverse effects on the Northaw Brook located to the south of the Site, especially in association with any linkage of the surface water drainage scheme to the southernmost ditch. It is therefore recommended that development works are carried out in accordance with Environment Agency Pollution Prevention Guidance, particularly PPG6 'Working at construction and demolition sites' (Environment Agency, 2010) and PPG5 'Works and maintenance in or near water' (Environment Agency, 2007). Although only a very small section of the southernmost ditch would be affected by the construction of any outfall and it is considered unlikely that Water Vole are present, it is recommended that as a precautionary measure the area affected is subject to a localised survey immediately prior to works commencing to confirm absence of any burrows.

8.3 *Species*

8.3.1 The proposed development would not require the removal of trees identified during the Phase 1 Bat Scoping Survey as having potential to support roosting bats due to their location around the Site margins or beyond the Site boundary. No further survey in relation to roosting bats is therefore recommended in support of the planning application. In the event that future Site management, regardless of the proposed development, has potential to affect Category 1 or 1* trees (e.g. for reasons of health and safety) it is recommended that these are first surveyed in line with current best practice guidance (BCT, 2012) in order to ensure compliance with UK nature legislation and where necessary identify measures to avoid or mitigate impacts on roosting bats. Should Category 2 trees be affected, these should be soft felled prior to development in accordance with BCT 2012 Guidelines.

8.3.2 The Site is considered unlikely to support an important assemblage of breeding birds and no further survey for this group is recommended. Notwithstanding this, breeding birds are likely to use the Site and therefore the legislation relating to this group will apply. It is recommended that all scrub/ tree clearance and initial ground works on the arable land is carried out outside of the bird breeding season (March to September inclusive), as wild birds, their nests and eggs are protected under the Wildlife and Countryside Act 1981. Where this is not possible it is recommended that an ecologist carries out a check for nesting birds immediately prior to the commencement of these works.

8.3.3 No reptiles were recorded using the Site during either the 2008 or 2013 surveys. Therefore no specific avoidance or mitigation measures are proposed in relation to this group.

8.3.4 No active Badger setts were recorded within or adjacent to the Site during the 2008 and 2012 surveys and current knowledge suggests that no licensing or measures to avoid impacts on Badger setts would be required to facilitate development of the Site. Badgers are however highly mobile animals and old setts can be occupied and new setts created within relatively short periods of time. It is therefore recommended that the Site be re-surveyed prior to commencement of development works to ensure that the status of Badgers has not changed. Although no evidence of Badger activity was recorded during the 2012 survey, the 2008 surveys showed that Badgers were present in the wider area. Development proposals should therefore seek to maintain opportunities for foraging Badgers through inclusion of high quality Badger foraging habitat such as woodland and scrub planting, establishment of rough and meadow grasslands and use of fruit and nut providing species within planting schemes.

8.4 *Enhancements*

8.4.1 Where appropriate, development proposals should seek to maintain and provide new opportunities for wildlife in accordance with national and local planning policy and guidance (NPPF, 2012; ODPM, 2005) and the 2006 NERC Act. A selection of measures appropriate to the Site is given below:

- Creation of new wetland habitats as part of SuDS proposals. This could include a selection of ditches, swales, ponds, reedbeds and/ or wet grassland habitats.
- Provision of bat roosting opportunities and bird boxes (e.g. Sparrow terraces and/or Starling boxes) on new buildings and existing trees;
- Provision of log and brash piles around the edges of hedgerows and scrub to provide habitat for invertebrates, amphibians and reptiles;
- Inclusion of habitats of high nature conservation interest within areas of open space through use of herb-rich grassland seed mixes and native species-rich scrub and tree planting;
- Enhancement of existing hedgerows and other linear features through sensitive management and infilling of gaps using native species appropriate to the local area;

- Provision of new opportunities for movement of wildlife within and across the Site through strengthening of existing or creation of new hedgerows and treelines, and corridors of semi-natural habitat;
- Use of nectar/pollen-rich and fruit-producing species within formal landscaping schemes.

Inclusion of these measures within the development proposals could potentially increase the current nature conservation interest of the Site, in addition to enhancing opportunities for locally recorded protected and notable species.

8.5 *Conclusions*

8.5.1 Subject to the implementation of the recommended measures for habitat retention, creation and enhancement, no reduction in the ecological interest of the Site is likely to arise as a result of the proposed development. It is therefore concluded that, beyond the normal requirements identified above to avoid impacts on protected species, there appear to be no overriding nature conservation constraints that would preclude development of the Site.

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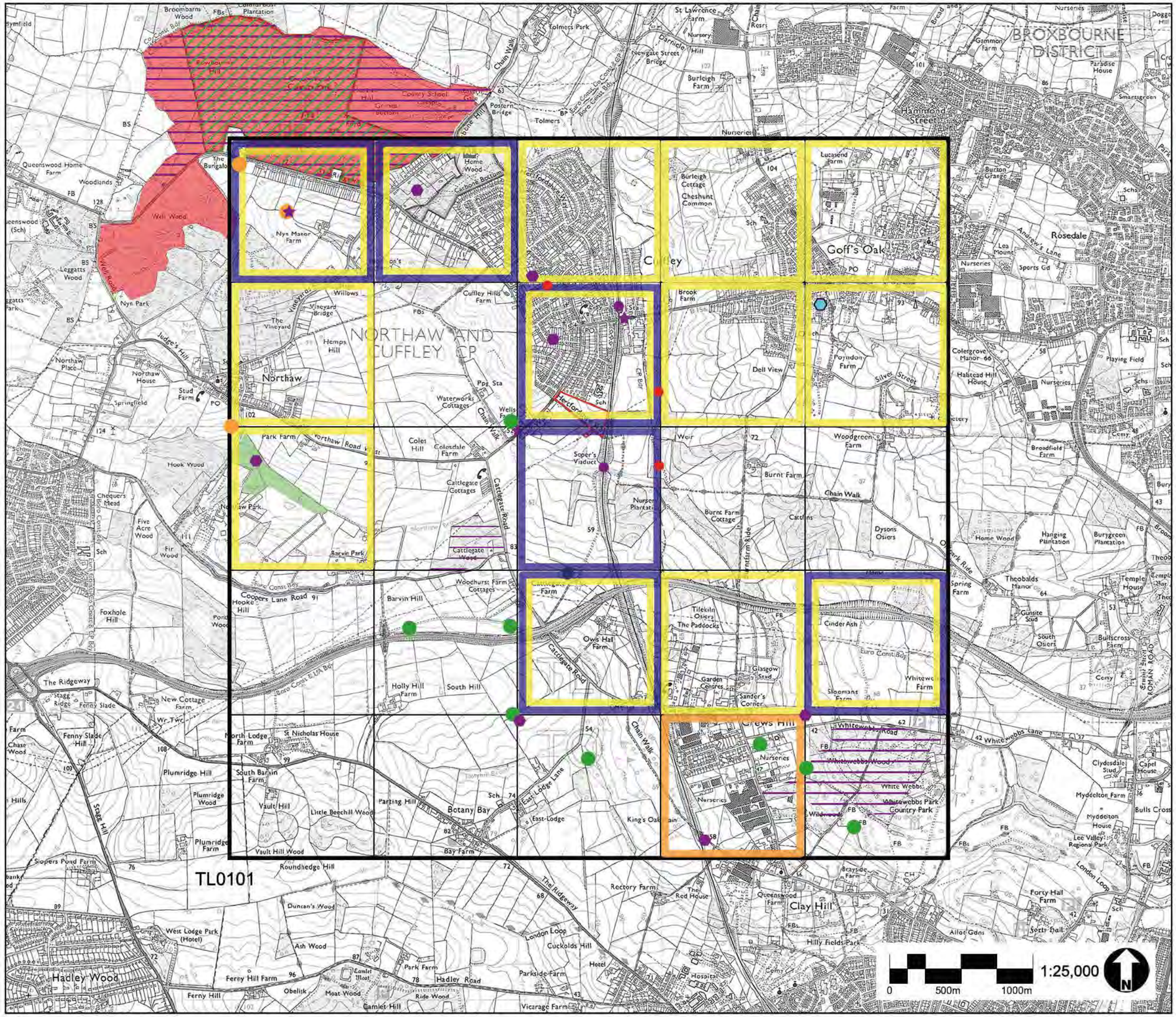
APPENDIX A

Desk Study Results



KEY

- Site boundary
- Desk study area
- SSSI
- LNR
- Ancient Woodland
- Grassland Inventory Site
- Bat
- Great Crested Newt
- Badger
- Grass Snake
- Slow Worm
- Viviparous Lizard
- Water Vole
- Notable Birds
- Stag Beetle

CLIENT:
Lands Improvement

PROJECT:
Land to the north east of King George V Playing Fields

TITLE:
Desk Study Results

SCALE AT A3:
1:25,000

DATE:
November 2014

2130.24/ 01 Rev A

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Landscape Architecture
Masterplanning
Ecology

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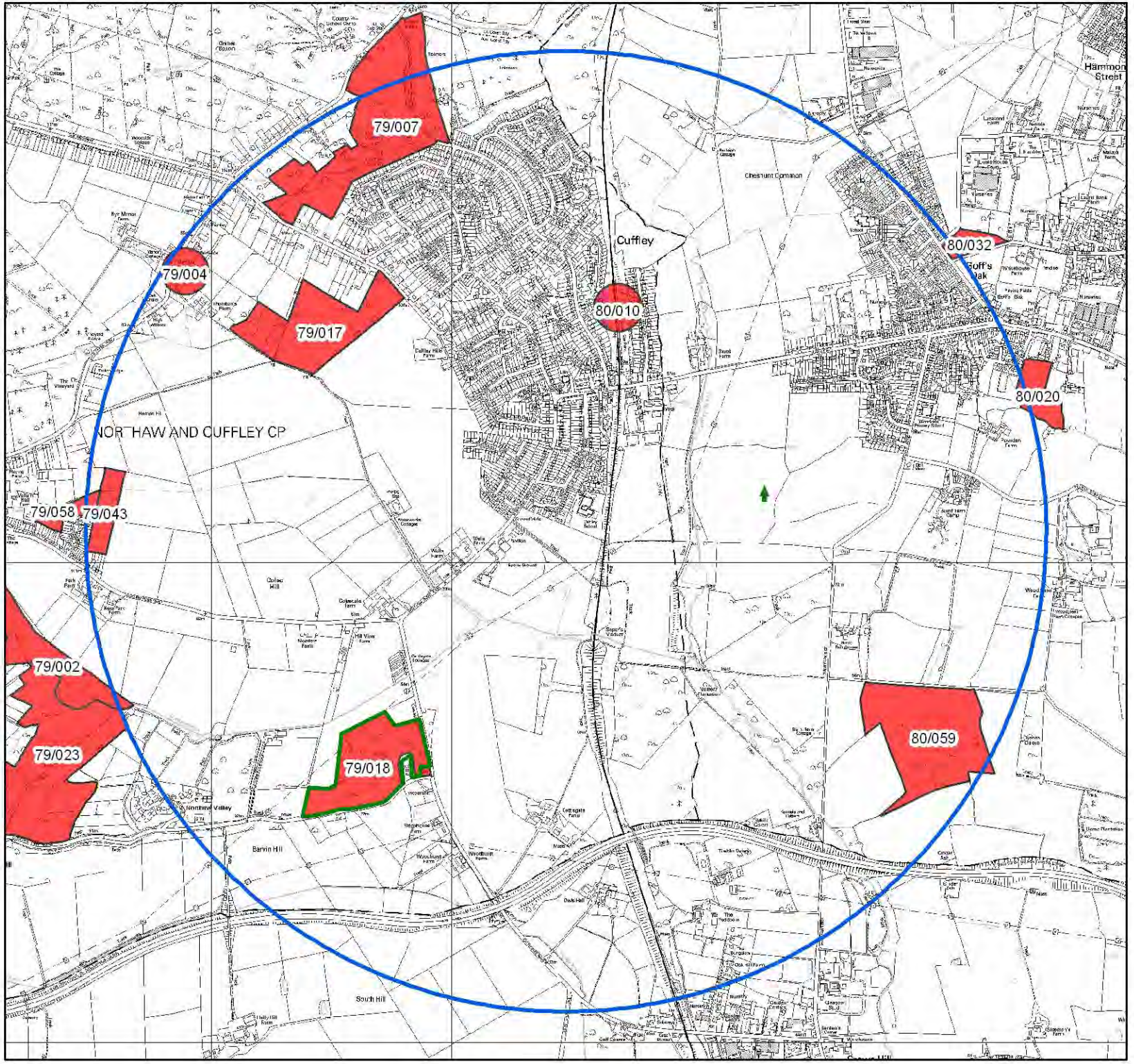
HERTFORDSHIRE NON-STATUTORY SITES and VETERAN / MATURE TREE RECORDS



2km search area

Veteran & mature tree

Ancient Woodland Inventory site

Wildlife Site

Produced by

HERTFORDSHIRE BIOLOGICAL RECORDS CENTRE

Wildlife Sites Report from HBRC 17/12/2012

SITE REFERENCE	SITE NAME	GRID REFERENCE	AREA(ha)	RATIFIED	DESCRIPTION
79/002	Northaw Brook Pastures	TL282017	10.09	1997	Species-rich marshy neutral to somewhat acidic grassland situated within the London Clay region on Valley Gravels. The site lies within the shallow valley of the Northaw Brook. The marshy grassland supports species such as Wild Angelica (Angelica sylvestris), Meadowsweet (Filipendula ulmaria), Marsh Marigold (Caltha palustris), Greater Bird's-foot Trefoil (Lotus pedunculatus), Great Horsetail (Equisetum telmateia), Ragged Robin (Lychnis flos-cuculi) and Water Mint (Mentha aquatica). There is unimproved neutral grassland in the valley bottom dominated by Yorkshire Fog (Holcus lanatus) with other grasses such as Meadow Foxtail (Alopecurus pratensis), Sweet Vernal-grass (Anthoxanthum odoratum) and herbs including Common Knapweed (Centaurea nigra), Meadow Buttercup (Ranunculus acris), Common Sorrel (Rumex acetosa), Lady's Bedstraw (Galium verum), Meadow Vetchling (Lathyrus pratensis) and Sneezewort (Achillea ptarmica). The upper slopes are more improved. Acidic areas support Common Bent (Agrostis capillaris), Betony (Betonica officinalis), Upright Tormentil (Potentilla erecta) and Common Cat's-ear (Hypochaeris radicata). Other species of interest recorded from the site include Stone Parsley (Sison amomum), Pepper-saxifrage (Silaum silaus) and Devil's-bit Scabious (Succisa pratensis). Further diversity is provided by mature scrub associated with the brook and surrounding hedgerows. Wildlife Site criteria: Grassland indicators.
79/004	Northaw Brick Kiln Area	TL28-03-	0	1997	Site and environs important for protected species. Wildlife Site criteria: Species.
79/007	Home Wood (Cuffley)	TL298040	24.65	1997	Area of very old scrub and plantation developed into semi-natural woodland. The canopy is mainly Pedunculate Oak (Quercus robur) and Hornbeam (Carpinus betulus) with birch (Betula spp.)

					and locally frequent Sycamore (Acer pseudoplatanus) plus other species such as Beech (Fagus sylvatica), Wild Cherry (Prunus avium) and Hazel (Corylus avellana). Many of these species are present as coppice. Some old scattered ornamental planted trees also occur. The ground flora is diverse with many woodland indicators recorded including Dog's Mercury (Mercurialis perennis), Pendulous Sedge (Carex pendula), Opposite-leaved Golden Saxifrage (Chrysosplenium oppositifolium), Wood Sorrel (Oxalis acetosella), Bluebell (Hyacinthoides non-scripta), Yellow Pimpernel (Lysimachia nemorum), Goldilocks Buttercup (Ranunculus auricomus) and Common Dog-violet (Viola riviniana). A stream with deeply incised banks flows through the southern part of the wood and the damp conditions created provide important habitat for bryophytes and invertebrates. A sunken lane is present to the eastern side. Wildlife Site criteria: Old secondary woodland with a semi-natural canopy and varied structure; shown as woodland on Bryant's map (1822); woodland indicators.
79/017	The Dell (Cuffley)	TL293029	13.69	1997	Old brick pit and surrounding area which has developed a mosaic of habitats including acid grassland plus heathland remnants, old mature scrub and old secondary woodland. Part of the pit has been infilled. The site is a remnant of the once extensive heathland/woodland complex of Northaw Common. The scrub is dominated by Hawthorn (Crataegus monogyna) with some Pedunculate Oak (Quercus robur) and Silver Birch (Betula pendula) while the woodland is mainly of old Pedunculate Oak with Hornbeam (Carpinus betulus), including large coppiced specimens, and Sycamore (Acer pseudoplatanus). Species recorded in the acid grassland areas include Heath Bedstraw (Galium saxatile), Lady’s Bedstraw (Galium verum), Lesser Stitchwort (Stellaria graminea), Sheep’s Sorrel (Rumex acetosella), Upright Tormentil (Potentilla erecta) and Heath

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					Speedwell (Veronica officinalis). Wildlife Site criteria: Grassland indicators.
79/018	Cattlegate Wood	TL296012	11.95	1997	Ancient semi-natural Pedunculate Oak (Quercus robur)/Hornbeam (Carpinus betulus) woodland with dense mature Hornbeam coppice and Pedunculate Oak present as standards, maiden stems or coppice. There is also some Ash (Fraxinus excelsior), birch (Betula spp.), Sycamore (Acer pseudoplatanus), willows (Salix spp.) and Hawthorn (Crataegus monogyna). The ground flora, though typically sparse, supports a good diversity of species with numerous woodland indicators recorded such as Bluebell (Hyacinthoides non-scripta), Giant Fescue (Festuca gigantea), Wood Sorrel (Oxalis acetosella), Goldilocks Buttercup (Ranunculus auricomus), Common Dog-violet (Viola riviniana), Broad Buckler-fern (Dryopteris dilatata) and Lady Fern (Athyrium filix-femina). Two small ponds in the wood add to the diversity. Wildlife Site criteria: Ancient Woodland Inventory site; woodland indicators.
79/023	Grassland by Hook Copse	TL283013	27.73	1997	A complex of old neutral to slightly acidic grasslands surrounded by mature hedgerows. The sward is quite variable in quality but overall a reasonable diversity of species has been recorded. Species noted include Sweet Vernal-grass (Anthoxanthum odoratum), Crested Dog's-tail (Cynosurus cristatus), Meadow Buttercup (Ranunculus acris), Meadow Vetchling (Lathyrus pratensis), Oxeye Daisy (Leucanthemum vulgare), Common Sorrel (Rumex acetosa), Lesser Stitchwort (Stellaria graminea), Sheep's Sorrel (Rumex acetosella) and Grass Vetchling (Lathyrus nissolia). Scrub is invading the northern-most field and the south-east field is unmanaged with areas of dense scrub developing. The northern-most field also contains a pond, which adds diversity. Elsewhere there are some scattered trees and scrubs. Wildlife Site criteria: Grassland indicators.
79/043	Meadow E. of	TL285022	2.92	1997	Species-rich unimproved damp neutral to slightly acidic

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	Park Road, Northaw				grassland with invading scrub. The sward is mainly of Crested Dog's-tail (Cynosurus cristatus), Yorkshire Fog (Holcus lanatus) and Creeping Bent (Agrostis stolonifera) with herbs such as Creeping Buttercup (Ranunculus repens), Self-heal (Prunella vulgaris), Common Knapweed (Centaurea nigra), Bird's-foot Trefoil (Lotus corniculatus) and Common Sorrel (Rumex acetosa). Tufted Hair-grass (Deschampsia cespitosa) is dominant in the damp/marshy sward which also contains species such as Hairy Sedge (Carex hirta), Common Fleabane (Pulicaria dysenterica), Soft Rush (Juncus effusus) and Lady's Smock (Cardamine pratensis). Stone Parsley (Sison amomum) has also been recorded within the site. A brook crosses the field near the northern end. The scrub is mainly rose (Rosa agg.) and Bramble (Rubus fruticosus agg.) with some willow (Salix sp.) in the wetter ground by the brook. Wildlife Site criteria: Grassland indicators.
79/058	Park Road Pastures	TL284022	1.95	1997	Old semi-improved/unimproved neutral grasslands with a reasonable diversity of grasses and herbs. Species of note recorded include Hairy Sedge (Carex hirta), Common Knapweed (Centaurea nigra), Common Sorrel (Rumex acetosa), Meadow Buttercup (Ranunculus acris), Bird's-foot Trefoil (Lotus corniculatus), Oxeye Daisy (Leucanthemum vulgare), Common Fleabane (Pulicaria dysenterica) and Stone Parsley (Sison amomum). The western field is becoming invaded by scrub. Wildlife Site criteria: Grassland indicators.
80/010	Cuffley Station Embankment	TL30-03-	0	1997	Area of embankment with grassy slopes, scrub and dumped hardcore provides habitat for the Common Lizard (Lacerta vivipara) and Slow Worm (Anguis fragilis). One of the best reptile sites in Hertfordshire. Wildlife Site criteria: Species.
80/020	Poyndon Farm	TL325027	3.65	1997	Neutral semi-improved rough grassland with the greatest diversity occurring to the southern end of the site. Prominent species recorded in the sward includes Tufted Hair-grass (Deschampsia cespitosa), Sweet Vernal-grass (Anthoxanthum

					odoratum), Common Knapweed (Centaurea nigra) and Bird's-foot Trefoil (Lotus corniculatus). Other plants include Agrimony (Agrimonia eupatoria), Common Sorrel (Rumex acetosa), Meadow Buttercup (Ranunculus acris), Common Fleabane (Pulicaria dysenterica), Marsh Thistle (Cirsium palustre) and Ragged Robin (Lychnis flos-cuculi). A large Pedunculate Oak (Quercus robur) is present towards the south-west corner. Wildlife Site criteria: Grassland indicators.
80/032	Meadow W. of Whitehouse Farm	TL322033	1.77	1997	Neutral grassland with a damper area alongside a central drain. The sward is moderately diverse with species recorded such as Bird's-foot Trefoil (Lotus corniculatus), Meadow Buttercup (Ranunculus acris), Oxeye Daisy (Leucanthemum vulgare), Meadow Vetchling (Lathyrus pratensis) and Lesser Stitchwort (Stellaria graminea). Soft Rush (Juncus effusus) and Ragged Robin (Lychnis flos-cuculi) occur in the damper ground. There are hedges around the boundary. Wildlife Site criteria: Grassland indicators.
80/059	Cattlins Wood	TL320013	18.34	1997	Old semi-natural broadleaved woodland comprising mainly Pedunculate Oak (Quercus robur) standards with Hornbeam (Carpinus betulus) and Hazel (Corylus avellana) coppice. Other structure trees include Ash (Fraxinus excelsior), Beech (Fagus sylvatica), Sweet Chestnut (Castanea sativa) and Sycamore (Acer pseudoplatanus). The wood supports a variable structure and is generally fairly open below. There is some broadleaved and conifer planting and Rhododendron (Rhododendron ponticum) is occasional. The ground flora supports several woodland indicators including Dog's Mercury (Mercurialis perennis), Giant Fescue (Festuca gigantea), Enchanter's Nightshade (Circaea lutetiana), Hairy-brome (Bromopsis ramosa), Broad Buckler-fern (Dryopteris dilatata), Wood Meadow-grass (Poa nemoralis) and Pendulous Sedge (Carex pendula). A stream crosses the wood in the north-east and wide

					grassy rides add habitat diversity. Wildlife Site criteria: Old secondary woodland with a semi-natural canopy and a varied structure; shown on the 1866 map (but not on Bryant's map (1822) or the 1st ed. 1 OS); >2 ha; woodland indicators.

Hertfordshire Biological Records Centre - Species Records

Common Name	Scientific Name	Sample Location	Location Name	Date	GridRef	Abundance	European	UK_Legal	BAP2007	IUCN	ScarceRare	Local
Common Toad	Bufo bufo	TL30B		1985	TL30B	1 present Default			BAP:2007			
Common Toad	Bufo bufo	TL20W		1985	TL20W	1 present Default			BAP:2007			
Great Crested Newt	Triturus cristatus	TL20W	The Ridgeway Garden Ponds	1985	TL20W		HSD2p, HSD4	WCA5/9.1k/l, WCA5/9.	BAP:2007, LBAP			
Blue Tit	Cyanistes caeruleus	Great Lake Field		36754	TL310017							
Common Buzzard	Buteo buteo		Northaw	40735	TL2801	1 Exact						
Common Kingfisher	Alcedo atthis	Great Lake Field		36754	TL310017			WCA1i		BAmb		
Common Moorhen	Gallinula chloropus	Tilekiln Osiers		32252	TL312008							
European Greenfinch	Carduelis chloris	TL30B	Cuffley	37943	TL302030	40 Exact						
European Robin	Erithacus rubecula	Great Lake Field		36754	TL310017							
Great Spotted Woodpecker	Dendrocopos major	TL30B	Cuffley	37943	TL302030	1 Exact						
Green Woodpecker	Picus viridis	TL30B	Cuffley	37943	TL302030	1 Exact				BAmb		
Grey Wagtail	Motacilla cinerea	Great Lake Field		36754	TL310017					BAmb		
Little Owl	Athene noctua		Northaw	40735	TL2801	1 Exact						
Mallard	Anas platyrhynchos	Great Lake Field		36754	TL310017					BAmb		
Reed Bunting	Emberiza schoeniclus	Great Lake Field		1987	TL310017				BAP:2007	BAmb, BRed		
Song Thrush	Turdus philomelos		Brook Farm, Cuffley	37943	TL310022	1 Exact			LBAP	BRed		
Song Thrush	Turdus philomelos	TL30B	Cuffley	37943	TL302030	1 Exact			LBAP	BRed		
Tawny Owl	Strix aluco	Great Lake Field		36754	TL310017							
Bluebell	Hyacinthoides non-scripta	The Dell (Cuffley)		32253	TL291030	A		WCA8				
Bluebell	Hyacinthoides non-scripta	Cattlegate Wood		28635	TL292029	O		WCA8				
Bluebell	Hyacinthoides non-scripta	Burnt Farm Plantation	East compartment	31995	TL314018			WCA8				
Bluebell	Hyacinthoides non-scripta	Cattlins Wood		31995	TL320013			WCA8				
Bluebell	Hyacinthoides non-scripta	Barvin Park Walk		32316	TL288013	O		WCA8				
Bluebell	Hyacinthoides non-scripta	TL20X	Newgate Street area	1987 - 1999	TL20X			WCA8				
Bluebell	Hyacinthoides non-scripta	TL20W	Northaw and Cuffley (west)	1987 - 1999	TL20W			WCA8				
Bluebell	Hyacinthoides non-scripta	TL20V	Northaw (south)	1987 - 1999	TL20V			WCA8				
Bluebell	Hyacinthoides non-scripta	TL30B	Cuffley	1987 - 1999	TL30B			WCA8				
Bluebell	Hyacinthoides non-scripta	TL30A	Cuffley (south)	1987 - 1999	TL30A			WCA8				
Bluebell	Hyacinthoides non-scripta	TL30C	Newgate Street area	1987 - 1999	TL30C			WCA8				
Bluebell	Hyacinthoides non-scripta	TL30F	Theobalds area	1987 - 1999	TL30F			WCA8				
Bluebell	Hyacinthoides non-scripta	TL30G	Goffs Oak area	1987 - 1999	TL30G			WCA8				

Butcher's-broom	Ruscus aculeatus	Cattlegate Wood		28635	TL292029		HSD5					HRaN
Dyer's Greenweed	Genista tinctoria	TL20W	Cuffley: Lower Dell, dumped ground	1993	TL294028	1 present Default						HV/HRQ
Garden Solomon's-seal	Polygonatum multiflorum x odoratum = P. x hybridum	TL20W	Home Wood: by brook	32259	TL295035	1 present Default						HR
Hyacinthoides non-scripta x hispanica = H. x massartiana	Hyacinthoides non-scripta x hispanica = H. x massartiana	TL30B	Cuffley: wooded track by playing fields	1991	TL303021			WCA8				
Large-leaved Lime	Tilia platyphyllos	TL30A	Cuffley (south)	1987 - 1999	TL30A						NS	
Large-leaved Lime	Tilia platyphyllos	TL30G	Goffs Oak area	1987 - 1999	TL30G	1 present Default					NS	
Lime	Tilia platyphyllos x cordata = T. x europaea	TL20W	Northaw and Cuffley (west)	1987 - 1999	TL20W						NS	
Lime	Tilia platyphyllos x cordata = T. x europaea	TL30A	Cuffley (south)	1987 - 1999	TL30A						NS	
Lime	Tilia platyphyllos x cordata = T. x europaea	TL30B	Cuffley	1987 - 1999	TL30B						NS	
Lime	Tilia platyphyllos x cordata = T. x europaea	TL30G	Goffs Oak area	1987 - 1999	TL30G	1 present Default					NS	
Lime	Tilia platyphyllos x cordata = T. x europaea	TL30F	Theobalds area	1987 - 1999	TL30F						NS	
Lime	Tilia platyphyllos x cordata = T. x europaea	TL30C	Newgate Street area	1987 - 1999	TL30C						NS	
Lime	Tilia platyphyllos x cordata = T. x europaea	TL20X	Newgate Street area	1987 - 1999	TL20X						NS	
Rubus britannicus	Rubus britannicus	TL20X	Northaw Great Wood: Cuffley School Camp	36733	TL2904					NR(vp)		
Snowdrop	Galanthus nivalis	TL30G	Goffs Oak	1992	TL30G		HSD5					
Snowdrop	Galanthus nivalis	TL20W	Northaw and Cuffley (west)	1987 - 1999	TL20W		HSD5					
Stag Beetle	Lucanus cervus	TL30G	Goffs Oak, Goffs Crescent	35582	TL321028	1 female Default	HSD2p		BAP:2007, LBAP		Nb	
Stag Beetle	Lucanus cervus		Waltham Cross	1959	TL30	1 present Default	HSD2p		BAP:2007, LBAP		Nb	
Stag Beetle	Lucanus cervus	Northaw Great Wood SSSI		1964	TL20X	1 present Default	HSD2p		BAP:2007, LBAP		Nb	
Stag Beetle	Lucanus cervus		Waltham Cross	1959	TL30	1 present Default	HSD2p		BAP:2007, LBAP		Nb	
Stag Beetle	Lucanus cervus		Cheshunt	1947	TL30	1 present Default	HSD2p		BAP:2007, LBAP		Nb	
Stag Beetle	Lucanus cervus		Cheshunt	1947	TL30	1 present Default	HSD2p		BAP:2007, LBAP		Nb	
Purple Emperor	Apatura iris	Northaw Great Wood SSSI	Northaw Great Wood	39271	TL2803	2 Exact				RLGB.Lr(NT)		
Purple Emperor	Apatura iris	Northaw Great Wood SSSI	Northaw Great Wood	38202	TL20W	1 Exact				RLGB.Lr(NT)		
Purple Emperor	Apatura iris	Northaw Great Wood SSSI	Northaw Great Wood	38190	TL20W	3 Exact				RLGB.Lr(NT)		
Purple Emperor	Apatura iris	Northaw Great Wood SSSI	Northaw Great Wood	39293	TL2803	1 Exact				RLGB.Lr(NT)		

Purple Emperor	Apatura iris	Northaw Great Wood SSSI	Northaw Great Wood	39285	TL2803	2 Exact				RLGB.Lr(NT)		
Purple Emperor	Apatura iris	Northaw Great Wood SSSI	Northaw Great Wood	39284	TL2803	2 Exact				RLGB.Lr(NT)		
Purple Emperor	Apatura iris	Northaw Great Wood SSSI	Northaw Great Wood	39640	TL2803	1 Exact				RLGB.Lr(NT)		
Purple Emperor	Apatura iris		Herts	36365	TL20	1 Exact				RLGB.Lr(NT)		
Purple Emperor	Apatura iris		Herts	36351	TL20	1 Exact				RLGB.Lr(NT)		
Purple Emperor	Apatura iris		Potwells / Oak Lodge	36347	TL20	1 Exact				RLGB.Lr(NT)		
Small Heath	Coenonympha pamphilus	Northaw Great Wood SSSI	Northaw Great Wood	38536	TL20X	1 Exact			BAP:2007	RLGB.Lr(NT)		
Small Heath	Coenonympha pamphilus		Hemps Hill / Cuffley Hills Farm	36305	TL2902	1 Exact			BAP:2007	RLGB.Lr(NT)		
Wall	Lasiommata megera		Homewood Ave Cuffley	34845	TL304036	1 Exact			BAP:2007	RLGB.Lr(NT)		
White-letter Hairstreak	Satyrium w-album		Barvin Hill	36336	TL292011	2 Exact			BAP:2007	RLGB.EN		
White-letter Hairstreak	Satyrium w-album		Cuffley - Cuffley Hill	39980	TL312028	1 Exact			BAP:2007	RLGB.EN		
White-letter Hairstreak	Satyrium w-album		Goffs Oak	35638	TL318022	2 Exact			BAP:2007	RLGB.EN		
White-letter Hairstreak	Satyrium w-album		Goffs Oak	35638	TL321015	1 Exact			BAP:2007	RLGB.EN		
White-letter Hairstreak	Satyrium w-album		Goffs Oak	35638	TL3101	5 Exact			BAP:2007	RLGB.EN		
Argent & Sable	Rheumaptera hastata	Hertfordshire	Hoddesdon	1948	TL30	1 Adult Exact			BAP:2007			
Beaded Chestnut	Agrochola lychnidis	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Beaded Chestnut	Agrochola lychnidis	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Beaded Chestnut	Agrochola lychnidis	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Blood-Vein	Timandra comae	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Blood-Vein	Timandra comae	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Blood-Vein	Timandra comae	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Blood-Vein	Timandra comae	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Blood-Vein	Timandra comae	Hertfordshire	Homewood Avenue, Cuffley	37443	TL3003	1 Adult Exact			BAP:2007			
Blood-Vein	Timandra comae	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Blood-Vein	Timandra comae	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Blood-Vein	Timandra comae	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Brindled Beauty	Lycia hirtaria	Hertfordshire	Homewood Avenue, Cuffley	37347	TL3003	1 Adult Exact			BAP:2007			
Brindled Beauty	Lycia hirtaria	Hertfordshire	Homewood Avenue, Cuffley	37723	TL3003	2 Adult Exact			BAP:2007			
Brindled Beauty	Lycia hirtaria	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			

Brindled Beauty	Lycia hirtaria	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Buff Ermine	Spilosoma luteum	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Buff Ermine	Spilosoma luteum	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Buff Ermine	Spilosoma luteum	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Buff Ermine	Spilosoma luteum	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Buff Ermine	Spilosoma luteum	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Buff Ermine	Spilosoma luteum	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Buff Ermine	Spilosoma luteum	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Buff Ermine	Spilosoma luteum	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Buff Ermine	Spilosoma luteum	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Centre-barred Sallow	Atethmia centrago	Northaw Great Wood SSSI	Northaw Great Wood	38241	TL2803	1 Adult Exact			BAP:2007			
Centre-barred Sallow	Atethmia centrago	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Centre-barred Sallow	Atethmia centrago	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Centre-barred Sallow	Atethmia centrago	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Centre-barred Sallow	Atethmia centrago	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Centre-barred Sallow	Atethmia centrago	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Centre-barred Sallow	Atethmia centrago	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Centre-barred Sallow	Atethmia centrago	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Cinnabar	Tyria jacobaeae	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Cinnabar	Tyria jacobaeae	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Cinnabar	Tyria jacobaeae	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Cinnabar	Tyria jacobaeae	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Cinnabar	Tyria jacobaeae	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Cinnabar	Tyria jacobaeae	Hertfordshire	Silver Street	38160	TL3102	1 Adult Exact			BAP:2007			
Cinnabar	Tyria jacobaeae	Hertfordshire	Silver Street	38127	TL3102	1 Adult Exact			BAP:2007			
Common Fan-foot	Pechipogo strigilata	Hertfordshire	Hoddesdon	1899	TL30	1 Adult Exact			BAP:2007			

Crescent	Celaena leucostigma	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Deep-brown Dart	Aporophyla lutulenta	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Deep-brown Dart	Aporophyla lutulenta	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Deep-brown Dart	Aporophyla lutulenta	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Deep-brown Dart	Aporophyla lutulenta	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Deep-brown Dart	Aporophyla lutulenta	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Dot Moth	Melanchra persicariae	Hertfordshire	Homewood Avenue, Cuffley	37443	TL3003	1 Adult Exact			BAP:2007			
Dot Moth	Melanchra persicariae	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Dot Moth	Melanchra persicariae	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Dot Moth	Melanchra persicariae	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Dot Moth	Melanchra persicariae	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Dot Moth	Melanchra persicariae	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Dot Moth	Melanchra persicariae	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Dot Moth	Melanchra persicariae	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Dot Moth	Melanchra persicariae	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Dot Moth	Melanchra persicariae	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Double Dart	Graphiphora augur	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Double Dart	Graphiphora augur	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Dusky Brocade	Apamea remissa	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Dusky Brocade	Apamea remissa	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Dusky Brocade	Apamea remissa	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Dusky Brocade	Apamea remissa	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Dusky Thorn	Ennomos fuscantaria	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Dusky Thorn	Ennomos fuscantaria	Hertfordshire	Homewood Avenue, Cuffley	37114	TL3003	1 Adult Exact			BAP:2007			
Dusky Thorn	Ennomos fuscantaria	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Dusky Thorn	Ennomos fuscantaria	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			

Dusky Thorn	Ennomos fuscantaria	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Dusky Thorn	Ennomos fuscantaria	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Dusky Thorn	Ennomos fuscantaria	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Dusky Thorn	Ennomos fuscantaria	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Dusky Thorn	Ennomos fuscantaria	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Dusky Thorn	Ennomos fuscantaria	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Feathered Gothic	Tholera decimalis	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Feathered Gothic	Tholera decimalis	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Feathered Gothic	Tholera decimalis	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Feathered Gothic	Tholera decimalis	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Feathered Gothic	Tholera decimalis	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Feathered Gothic	Tholera decimalis	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Feathered Gothic	Tholera decimalis	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Figure of Eight	Diloba caeruleocephala	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Figure of Eight	Diloba caeruleocephala	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Figure of Eight	Diloba caeruleocephala	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Figure of Eight	Diloba caeruleocephala	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Figure of Eight	Diloba caeruleocephala	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Figure of Eight	Diloba caeruleocephala	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Figure of Eight	Diloba caeruleocephala	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Figure of Eight	Diloba caeruleocephala	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Figure of Eight	Diloba caeruleocephala	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Forester	Adscita statices	Hertfordshire	Goffs Oak	1900	TL3201	1 Adult Exact			BAP:2007			
Garden Dart	Euxoa nigricans	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Garden Dart	Euxoa nigricans	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Garden Dart	Euxoa nigricans	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			

Garden Dart	Euxoa nigricans	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Garden Dart	Euxoa nigricans	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Garden Dart	Euxoa nigricans	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Garden Dart	Euxoa nigricans	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Garden Dart	Euxoa nigricans	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Garden Dart	Euxoa nigricans	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Garden Tiger	Arctia caja	Hertfordshire	Cuffley Station	25385	TL3002	1 Adult Exact			BAP:2007			
Green-brindled Crescent	Allophyes oxyacanthae	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Green-brindled Crescent	Allophyes oxyacanthae	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Green-brindled Crescent	Allophyes oxyacanthae	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Green-brindled Crescent	Allophyes oxyacanthae	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Green-brindled Crescent	Allophyes oxyacanthae	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Grey Dagger	Acronicta psi	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Grey Dagger	Acronicta psi	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Grey Dagger	Acronicta psi	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Grey Dagger	Acronicta psi	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Grey Dagger	Acronicta psi	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Hedge Rustic	Tholera cespitis	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Hedge Rustic	Tholera cespitis	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Knot Grass	Acronicta rumicis	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Knot Grass	Acronicta rumicis	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Knot Grass	Acronicta rumicis	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Knot Grass	Acronicta rumicis	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Knot Grass	Acronicta rumicis	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Knot Grass	Acronicta rumicis	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Lackey	Malacosoma neustria	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			

Lackey	Malacosoma neustria	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Large Nutmeg	Apamea anceps	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Large Wainscot	Rhizedra lutosa	Hertfordshire	Homewood Avenue, Cuffley	38237	TL3003	1 Adult Exact			BAP:2007			
Latticed Heath	Chiasmia clathrata	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Latticed Heath	Chiasmia clathrata	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Latticed Heath	Chiasmia clathrata	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Minor Shoulder-knot	Brachylomia viminalis	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Minor Shoulder-knot	Brachylomia viminalis	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Minor Shoulder-knot	Brachylomia viminalis	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Minor Shoulder-knot	Brachylomia viminalis	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Minor Shoulder-knot	Brachylomia viminalis	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Minor Shoulder-knot	Brachylomia viminalis	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Minor Shoulder-knot	Brachylomia viminalis	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Mottled Rustic	Caradrina morpheus	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Mottled Rustic	Caradrina morpheus	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Mottled Rustic	Caradrina morpheus	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Mottled Rustic	Caradrina morpheus	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Mottled Rustic	Caradrina morpheus	Hertfordshire	Homewood Avenue, Cuffley	37422	TL3003	1 Adult Exact			BAP:2007			
Mottled Rustic	Caradrina morpheus	Hertfordshire	Homewood Avenue, Cuffley	37443	TL3003	3 Adult Exact			BAP:2007			
Mottled Rustic	Caradrina morpheus	Hertfordshire	Homewood Avenue, Cuffley	36708	TL3003	1 Adult Exact			BAP:2007			
Mouse Moth	Amphipyra tragopoginis	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Mouse Moth	Amphipyra tragopoginis	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Mouse Moth	Amphipyra tragopoginis	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Mouse Moth	Amphipyra tragopoginis	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Mouse Moth	Amphipyra tragopoginis	Hertfordshire	Homewood Avenue, Cuffley	36792	TL3003	1 Adult Exact			BAP:2007			
Mullein Wave	Scopula marginepunctata	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			

Mullein Wave	Scopula marginepunctata	Hertfordshire	Homewood Avenue, Cuffley	37424	TL3003	1 Adult Exact			BAP:2007			
Mullein Wave	Scopula marginepunctata	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Oak Hook-tip	Watsonalla binaria	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Oak Hook-tip	Watsonalla binaria	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Oak Hook-tip	Watsonalla binaria	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Oak Hook-tip	Watsonalla binaria	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Oak Hook-tip	Watsonalla binaria	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Oak Hook-tip	Watsonalla binaria	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Oak Hook-tip	Watsonalla binaria	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Oak Hook-tip	Watsonalla binaria	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Oak Hook-tip	Watsonalla binaria	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Pale Eggar	Trichiura crataegi	Hertfordshire	Homewood Avenue, Cuffley	37493	TL3003	1 Adult Exact			BAP:2007			
Pale Eggar	Trichiura crataegi	Hertfordshire	Homewood Avenue, Cuffley	37495	TL3003	1 Adult Exact			BAP:2007			
Pale Eggar	Trichiura crataegi	Hertfordshire	Homewood Avenue, Cuffley	36402	TL3003	1 Adult Exact			BAP:2007			
Pale Eggar	Trichiura crataegi	Hertfordshire	Homewood Avenue, Cuffley	38594	TL3003	1 Adult Exact			BAP:2007			
Powdered Quaker	Orthosia gracilis	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Powdered Quaker	Orthosia gracilis	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Powdered Quaker	Orthosia gracilis	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Pretty Chalk Carpet	Melanthia procellata	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Rosy Rustic	Hydraecia micacea	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Rosy Rustic	Hydraecia micacea	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Rosy Rustic	Hydraecia micacea	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Rosy Rustic	Hydraecia micacea	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Rustic	Hoplodrina blanda	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Rustic	Hoplodrina blanda	Hertfordshire	Homewood Avenue, Cuffley	37443	TL3003	3 Adult Exact			BAP:2007			
Rustic	Hoplodrina blanda	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			

Rustic	Hoplodrina blanda	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Rustic	Hoplodrina blanda	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Rustic	Hoplodrina blanda	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Rustic	Hoplodrina blanda	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Rustic	Hoplodrina blanda	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Rustic	Hoplodrina blanda	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Rustic	Hoplodrina blanda	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Sallow	Xanthia icteritia	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
September Thorn	Ennomos erosaria	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
September Thorn	Ennomos erosaria	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
September Thorn	Ennomos erosaria	Hertfordshire	Homewood Avenue, Cuffley	37463	TL3003	1 Adult Exact			BAP:2007			
Shaded Broad-bar	Scotopteryx chenopodiata	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Shaded Broad-bar	Scotopteryx chenopodiata	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Shaded Broad-bar	Scotopteryx chenopodiata	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Shaded Broad-bar	Scotopteryx chenopodiata	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Shaded Broad-bar	Scotopteryx chenopodiata	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Shaded Broad-bar	Scotopteryx chenopodiata	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Shaded Broad-bar	Scotopteryx chenopodiata	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Shaded Broad-bar	Scotopteryx chenopodiata	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Shoulder-striped Wainscot	Mythimna comma	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Shoulder-striped Wainscot	Mythimna comma	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Shoulder-striped Wainscot	Mythimna comma	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Shoulder-striped Wainscot	Mythimna comma	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Small Emerald	Hemistola chrysoprasaria	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Small Emerald	Hemistola chrysoprasaria	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Small Emerald	Hemistola chrysoprasaria	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			

Small Emerald	Hemistola chrysoprasaria	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Small Emerald	Hemistola chrysoprasaria	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Small Emerald	Hemistola chrysoprasaria	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Small Phoenix	Ecliptopera silaceata	Hertfordshire	Homewood Avenue, Cuffley	37114	TL3003	1 Adult Exact			BAP:2007			
Small Phoenix	Ecliptopera silaceata	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Small Phoenix	Ecliptopera silaceata	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Small Phoenix	Ecliptopera silaceata	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Small Phoenix	Ecliptopera silaceata	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Small Phoenix	Ecliptopera silaceata	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Small Phoenix	Ecliptopera silaceata	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Small Phoenix	Ecliptopera silaceata	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Small Square-spot	Diarsia rubi	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Small Square-spot	Diarsia rubi	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Small Square-spot	Diarsia rubi	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Small Square-spot	Diarsia rubi	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Small Square-spot	Diarsia rubi	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Small Square-spot	Diarsia rubi	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Small Square-spot	Diarsia rubi	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Spinach	Eulithis mellinata	Hertfordshire	Homewood Avenue, Cuffley	37422	TL3003	1 Adult Exact			BAP:2007			
Spinach	Eulithis mellinata	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Spinach	Eulithis mellinata	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
Spinach	Eulithis mellinata	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
Spinach	Eulithis mellinata	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
Spinach	Eulithis mellinata	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Spinach	Eulithis mellinata	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
Spinach	Eulithis mellinata	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			

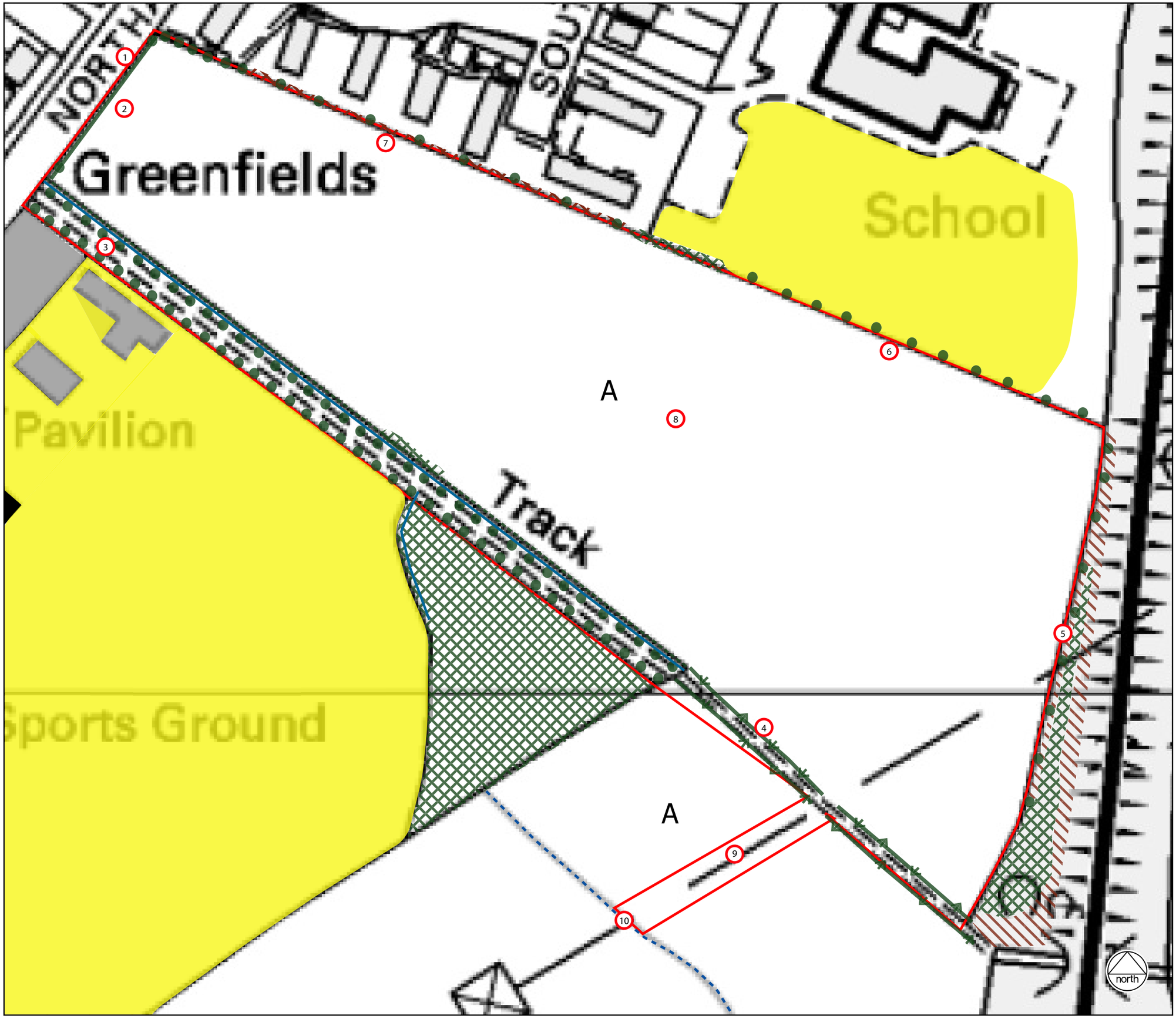
Spinach	Eulithis mellinata	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
Spinach	Eulithis mellinata	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Sprawler	Asteroscopus sphinx	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
Sprawler	Asteroscopus sphinx	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
Sprawler	Asteroscopus sphinx	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
White Ermine	Spilosoma lubricipeda	Hertfordshire	Homewood Avenue, Cuffley	2004	TL3003	1 Adult Exact			BAP:2007			
White Ermine	Spilosoma lubricipeda	Hertfordshire	Homewood Avenue, Cuffley	37422	TL3003	5 Adult Exact			BAP:2007			
White Ermine	Spilosoma lubricipeda	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
White Ermine	Spilosoma lubricipeda	Hertfordshire	Homewood Avenue, Cuffley	1997	TL3003	1 Adult Exact			BAP:2007			
White Ermine	Spilosoma lubricipeda	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
White Ermine	Spilosoma lubricipeda	Hertfordshire	Homewood Avenue, Cuffley	1999	TL3003	1 Adult Exact			BAP:2007			
White Ermine	Spilosoma lubricipeda	Hertfordshire	Homewood Avenue, Cuffley	2000	TL3003	1 Adult Exact			BAP:2007			
White Ermine	Spilosoma lubricipeda	Hertfordshire	Homewood Avenue, Cuffley	2002	TL3003	1 Adult Exact			BAP:2007			
White Ermine	Spilosoma lubricipeda	Hertfordshire	Homewood Avenue, Cuffley	2005	TL3003	1 Adult Exact			BAP:2007			
White Ermine	Spilosoma lubricipeda	Hertfordshire	Homewood Avenue, Cuffley	2001	TL3003	1 Adult Exact			BAP:2007			
White-line Dart	Euxoa tritici	Hertfordshire	Homewood Avenue, Cuffley	1998	TL3003	1 Adult Exact			BAP:2007			
Blunt-leaved Bog-moss	Sphagnum palustre	Hertfordshire	Cowheath wood, marshy area	33695	TL30		HSD5					
Cow-horn Bog-moss	Sphagnum denticulatum	Hertfordshire	Cowheath Wood	33695	TL30		HSD5					
Large White-moss	Leucobryum glaucum	Northaw Great Wood SSSI	Northaw Great Wood	33695	TL20		HSD5					
Common Lizard	Zootoca vivipara	Cuffley Station Embankment		31260	TL3003			WCA5/9.1k/I	BAP:2007			
Common Lizard	Zootoca vivipara	TL30A	Sopers Viaduct	1987	TL3001			WCA5/9.1k/I	BAP:2007			
Grass Snake	Natrix natrix	Home Wood (Cuffley)		33383	TL2903			WCA5/9.1k/I	BAP:2007			
Grass Snake	Natrix natrix	TL30B	East Ridgeway,Cuffley	35613	TL3003			WCA5/9.1k/I	BAP:2007			
Grass Snake	Natrix natrix	TL30B	Cuffley garden	35703	TL3002			WCA5/9.1k/I	BAP:2007			
Grass Snake	Natrix natrix	TL30F		1985	TL30F	1 present Default		WCA5/9.1k/I	BAP:2007			
Grass Snake	Natrix natrix	TL30A	Cuffley	1965	TL30A			WCA5/9.1k/I	BAP:2007			
Grass Snake	Natrix natrix	TL20X		1985	TL20X	1 present Default		WCA5/9.1k/I	BAP:2007			
Slow-worm	Anguis fragilis	Cuffley Station Embankment		31260	TL3003			WCA5/9.1k/I	BAP:2007			
Slow-worm	Anguis fragilis	TL30B	Cuffley	1960	TL30B			WCA5/9.1k/I	BAP:2007			

Slow-worm	Anguis fragilis	TL20X		1985	TL20X	1 present Default		WCA5/9.1k/I	BAP:2007			
a Bat	Chiroptera	Northaw Brick Kiln Area		34706	TL2803		Yes	Yes				
a Bat	Chiroptera	TL30B	Goffs Oak, Woodland Way	36740	TL3103		Yes	Yes				
a Bat	Chiroptera	TL30B	Cuffley, High Ridge	37452	TL3003		Yes	Yes				
a Bat	Chiroptera	TL30B	Cuffley, High Ridge	37452	TL3003		Yes	Yes				
a Bat	Chiroptera	TL20W		1994	TL20W		Yes	Yes				
Brown Hare	Lepus europaeus			1985	TL30B				BAP:2007			
Brown Long-eared Bat	Plecotus auritus	TL30B	Cuffley	29128	TL30B		HSD4	WCA5/9.1k/I, WCA5/9.	BAP:2007			
Common Pipistrelle	Pipistrellus pipistrellus	TL30B	Goffs Oak, Broadfields	37300	TL3102		HSD4	WCA5/9.1k/I, WCA5/9.				
Common Pipistrelle	Pipistrellus pipistrellus	TL30B	Jones Road Goffs Oak	38935	TL30B		HSD4	WCA5/9.1k/I, WCA5/9.				
Common Pipistrelle	Pipistrellus pipistrellus	TL30B	Jones Road, Goffs Oak EN7	38590	TL30B		HSD4	WCA5/9.1k/I, WCA5/9.				
Daubenton's Bat	Myotis daubentonii	Northaw Brick Kiln Area	Kiln Vineyards Road	33835	TL2802		HSD4	WCA5/9.1k/I, WCA5/9.				
Daubenton's Bat	Myotis daubentonii	Northaw Brick Kiln Area		38043	TL2802		HSD4	WCA5/9.1k/I, WCA5/9.				
Daubenton's Bat	Myotis daubentonii	Northaw Brick Kiln Area		34706	TL2803		HSD4	WCA5/9.1k/I, WCA5/9.				
Eurasian Badger	Meles meles	Home Wood (Cuffley)		38056	TL2903			PBA				
Eurasian Badger	Meles meles	Great Lake		29069	TL3001			PBA				
Eurasian Badger	Meles meles	TL30A		1985	TL30A	1 present Default		PBA				
Eurasian Badger	Meles meles	TL30B		1985	TL30B	1 present Default		PBA				
Eurasian Badger	Meles meles	TL30C		1985	TL30C	1 present Default		PBA				
Eurasian Badger	Meles meles	TL30F		1985	TL30F	1 present Default		PBA				
Eurasian Badger	Meles meles	TL20V		1985	TL20V	1 present Default		PBA				
Eurasian Badger	Meles meles	TL20W		1985	TL20W	1 present Default		PBA				
Eurasian Badger	Meles meles	TL20X		1985	TL20X	1 present Default		PBA				
European Water Vole	Arvicola terrestris	TL20V		1987	TL20V	1 present Default		WCA5/9.1k/I, WCA5/9.	BAP:2007, LBAP			
European Water Vole	Arvicola terrestris	TL20W		1987	TL20W	1 present Default		WCA5/9.1k/I, WCA5/9.	BAP:2007, LBAP			
European Water Vole	Arvicola terrestris	TL30A		1987	TL30A	1 present Default		WCA5/9.1k/I, WCA5/9.	BAP:2007, LBAP			
European Water Vole	Arvicola terrestris	TL30B		1987	TL30B	1 present Default		WCA5/9.1k/I, WCA5/9.	BAP:2007, LBAP			
Harvest Mouse	Micromys minutus	TL20V		1985	TL20V				BAP:2007			
Harvest Mouse	Micromys minutus	TL20X		1985	TL20X				BAP:2007			
Hazel Dormouse	Muscardinus avellanarius	TL30G	Goffs Oak	1972	TL30G	1 hibernating Default	HSD4	WCA5/9.1k/I, WCA5/9.	BAP:2007, LBAP			
Hazel Dormouse	Muscardinus avellanarius	TL20W		1985	TL20W		HSD4	WCA5/9.1k/I, WCA5/9.	BAP:2007, LBAP			

Natterer's Bat	Myotis nattereri	Northaw Brick Kiln Area		37315	TL2803		HSD4	WCA5/9.1k/l, WCA5/9.	LBAP			
Natterer's Bat	Myotis nattereri	Northaw Brick Kiln Area		36912	TL2803		HSD4	WCA5/9.1k/l, WCA5/9.	LBAP			
Natterer's Bat	Myotis nattereri	Northaw Brick Kiln Area		34706	TL2802		HSD4	WCA5/9.1k/l, WCA5/9.	LBAP			
Natterer's Bat	Myotis nattereri	Northaw Brick Kiln Area	Cuffley	37998	TL2803		HSD4	WCA5/9.1k/l, WCA5/9.	LBAP			
Natterer's Bat	Myotis nattereri	Northaw Brick Kiln Area		35483	TL2803		HSD4	WCA5/9.1k/l, WCA5/9.	LBAP			
Natterer's Bat	Myotis nattereri	Northaw Brick Kiln Area		35819	TL2803		HSD4	WCA5/9.1k/l, WCA5/9.	LBAP			
Natterer's Bat	Myotis nattereri	Northaw Brick Kiln Area		35455	TL2803		HSD4	WCA5/9.1k/l, WCA5/9.	LBAP			
Natterer's Bat	Myotis nattereri	Northaw Brick Kiln Area		38043	TL2802		HSD4	WCA5/9.1k/l, WCA5/9.	LBAP			
Natterer's Bat	Myotis nattereri	Northaw Brick Kiln Area		35854	TL2803		HSD4	WCA5/9.1k/l, WCA5/9.	LBAP			
Natterer's Bat	Myotis nattereri	Northaw Brick Kiln Area		37261	TL2803		HSD4	WCA5/9.1k/l, WCA5/9.	LBAP			
Pipistrelle	Pipistrellus pipistrellus		Cuffley	34500	TL3002		HSD4	WCA5/9.1k/l, WCA5/9.				
Pipistrelle	Pipistrellus pipistrellus		Cuffley, Sutherland Avenue	36069	TL2903		HSD4	WCA5/9.1k/l, WCA5/9.				
Pipistrelle	Pipistrellus pipistrellus	TL30B	Acorn Lane, Cuffley	33791	TL3003		HSD4	WCA5/9.1k/l, WCA5/9.				
Pipistrelle	Pipistrellus pipistrellus	TL20W	Bradgate Close, Cuffley	32721	TL2903		HSD4	WCA5/9.1k/l, WCA5/9.				
Pipistrelle	Pipistrellus pipistrellus	TL20W	Bradgate Close, Cuffley	32724	TL2903		HSD4	WCA5/9.1k/l, WCA5/9.				
Pipistrelle	Pipistrellus pipistrellus	TL30G	Goffs Oak, Crouch Lane	35166	TL30G		HSD4	WCA5/9.1k/l, WCA5/9.				
Pipistrelle	Pipistrellus pipistrellus	TL20W	Northaw, Vineyards Road	33824	TL20W		HSD4	WCA5/9.1k/l, WCA5/9.				
West European Hedgehog	Erinaceus europaeus	TL30B	East Ridgeway,Cuffley	35613	TL3003				BAP:2007			
West European Hedgehog	Erinaceus europaeus	TL30C		1985	TL30C	1 present Default			BAP:2007			
West European Hedgehog	Erinaceus europaeus	TL20W		1985	TL20W	1 present Default			BAP:2007			
West European Hedgehog	Erinaceus europaeus	TL20X		1985	TL20X	1 present Default			BAP:2007			

APPENDIX B

Phase 1 Habitat Survey Plan and Target Notes



KEY

- Site boundary
- Scattered trees
- Dense scrub
- Tall ruderals
- Introduced shrub
- Intact species-poor hedgerow
- Defunct species-poor hedgerow
- Intact species-rich hedgerow with trees
- Wet ditch and direction of flow
- A — Arable land
- Amenity grassland
- Hardstanding
- Buildings
- Ditch
- 6 — Target Note

CLIENT:
Lands Improvement

PROJECT:
Land to the north east of King George V Playing Fields

TITLE:
Phase 1 Habitat Survey

SCALE AT A3:
1:1250

DATE:
November 2014

2130.24 / 02 Rev A

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Target Notes

1. **Hedgerow:** Hedgerow on the northwestern boundary of the Site along Northaw Road. Species-poor; almost completely dominated by Hawthorn *Crataegus monogyna* and Blackthorn *Prunus spinosa* with occasional Common Ash Fraxinus *excelsior*, Dog Rose *Rosa canina* and Horse Chestnut *Aesculus hippocastanum*. At the northern end of the hedgerow is a mature Horse Chestnut tree and at the southern end a mature Lime *Tilia x europaea*. Ground flora largely consisted of Common Nettle *Urtica dioica*, Cleavers *Galium aparine*, Bramble *Rubus fruticosa* and Ivy *Hedera helix*.

2. **Field Margins:** The field margin at the base of the northwestern hedgerow (1) is the widest on the Site, up to around 3m. Species on this boundary include frequent Common Nettle *Urtica dioica*, Bramble *Rubus fruticosa*, Cleavers *Galium aparine*, Broad-leaved Dock *Rumex obtusifolius*, Cow Parsley *Anthriscus sylvestris*, Cocksfoot *Dactylis glomerata*, False Oat-grass *Arrhenatherum elatius*, Brome species *Bromus* sp., Wood Avens *Geum urbanum* and Common Hogweed *Heracleum sphondylium*, with occasional Chives *Allium schoenoprasum*, Hedgerow Crane's-bill *Geranium pyrenaicum* and Redshank *Persicaria maculosa*. The other boundary field margins are much narrower (<1m) and support fewer species. Great Willowherb *Epilobium hirsutum* is common around the Site particularly on the southern and eastern boundaries where it is likely wetter. Other occasional arable weeds present around much of the Site include Bristly Ox-tongue *Picris echioides* and Creeping Thistle *Cirsium arvense*.

3. **Path with Treeline and Ditch:** A mature deciduous double treeline with a scrub understorey dominates the western section of the southern Site boundary. A footpath runs through the treeline parallel to the Site boundary. The dominant species of mature tree is Ash, with frequent Pedunculate Oak *Quercus robur* and abundant Hawthorn *Crataegus monogyna*. Occasional mature Crab Apple *Malus sylvestris* and Elder *Sambucus nigra*, and English Elm *Ulmus procera* saplings are also present. The understorey provides a defunct hedge where it has been managed by flailing along the northern edge where it abuts the arable field. A shallow (up to approx. 30cm) seasonally wet ditch occurs along the southern margin of the arable field to the north of the path and has a base of dead leaves. At the time of the 2012 Phase 1 Habitat survey the ditch contained 10cm of water along much of its extent although it was recorded as dry during subsequent site visits.

4. **Hedgerow:** A section of double hedgerow at the eastern end of the southern Site boundary comprising immature planted hedgerow of at least 2m high with some older tree standards. Hedgerow plants fairly recently planted but now create a thick intact hedgerow with a number of species including Hawthorn, Blackthorn, Elm, Crab Apple, Ash, Hazel *Corylus avellana*, Dog Rose and standards of Pedunculate Oak and Cherry *Prunus* sp.

5. **Eastern Boundary:** The eastern boundary of the Site abuts the railway embankment which comprises mostly tall ruderal vegetation and Bramble scrub. A treeline runs along the edge of the Site including Hawthorn, Blackthorn, Oak, Elder, Goat Willow *Salix caprea*, Crack Willow *Salix fragilis*, Grey Willow *Salix cinerea*, Elm and Cherry.

6. **Northern Boundary - Eastern Section:** The boundary that borders the school playing field to the north comprises a fence with occasional trees and scrub vegetation on the boundary and a line of large Lombardy Poplar *Populus nigra* 'Italica' within the school grounds. Other species on the boundary include Hawthorn, Blackthorn, Oak, Holly *Ilex aquifolium* and Dog Rose.

7. **Northern Boundary - Western Section:** The section of the boundary bordering onto the grounds around neighbouring residential properties. Occasional parts occur with vegetation forming a defunct hedgerow but with long stretches with very sparse vegetation in between. Frequent species include Ash, Dog Rose, Blackthorn and Bramble, with occasional Field Maple *Acer campestre*, Silver Birch *Betula pendula* and Hazel. There are a number of non-native species mostly rooting from gardens,

such as Cotoneaster *Cotoneaster* sp., Laurel *Prunus laurocerasus*, non-native Oak *Quercus* sp. and Sycamore *Acer pseudoplatanus*.

8. **Arable Field:** The single arable field dominating the Site is intensively managed for cereal cultivation. At time of survey, the land had cereal crop stubble (likely wheat) and little other vegetation across its extent. Field margins were generally very narrow with flora including Bramble, Nettle, Broad-leaved Dock, Cocksfoot, False Oat-grass, Brome species, Wood Avens, Common Hogweed, Chives, Hedgerow Crane's-bill, Redshank, Creeping Thistle and Bristly Ox-tongue.

9. **Arable Field:** A spur from the southern Site boundary extends southwards to where it meets a seasonally wet ditch See Target Note 10 below). The field was cultivated at the time of survey and is used for growing cereal crops.

10. **Ditch:** The spur extending from the southern Site boundary meets a ditch at its southern extremity. The ditch is seasonally wet and its banks comprise rough grassland and ruderal vegetation. The ditch leads to the Northaw Brook to the south.

APPENDIX C

Bat Scoping and Badger Survey Plan

KEY

Site boundary

Bat Scoping

Category 1 Trees

Category 1 Trees

Category 2 Trees

All other trees within and bordering the site are Category 3 negligible bat roost potential.

Badger Survey

Mammal paths

CLIENT:
Lands Improvement

PROJECT:
Land north east of King George V Playing Fields

TITLE:
Phase 1 Bat Scoping and Badger Survey Plan

SCALE AT A3:
1:1250

DATE:
November 2014

2130.24 / 03 Rev A

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APPENDIX D

Hedgerow Survey Report (HDA, 2009)

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NORTHAW ROAD ECOLOGY

HEDGEROW SURVEY

Prepared for Lands Improvement Holdings

by

Hankinson Duckett Associates

HDA ref: 2130.17
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APPENDICES

1 INTRODUCTION

1.1 This report describes an assessment of approximately 0.8km of hedgerow within and bordering approximately 8ha of land at Northaw Road, Cuffley, Hertfordshire, hereinafter referred to as the site. The centre of the site is located by National Grid Reference TL304020. The study was commissioned by Lands Improvement Holdings in February 2008.

1.2 The site is located on the southern edge of Cuffley, approximately three kilometers west of Potters Bar. The site is bordered to the north by a school and residential dwellings; to the west by the B156; to the south by a sports ground and farmland; and to the east by a railway. A detailed description of the habitats within the site are given in the Preliminary Ecological Assessment (HDA, 2008). The location and boundary of the site are shown in Appendix A.

1.3 The aims of the study are:

i. To assess the hedgerows against criteria used for the protection of hedgerows under the Hedgerow Regulations 1997;
ii. To identify hedgerows meeting UK Biodiversity Action Plan (BAP) 'favourable condition' status.

1.4 Hedgerows are now listed as priority habitat on the revised UK BAP list.

2 METHODOLOGY

2.1 Desk Study

2.1.1 Ecological Information: The results of the ecological desk study (HDA, 2008) were reviewed in order to identify any statutory designations or records of protected species pertaining to the hedgerows associated with the site. Relevant findings of the ecological desk study are given in section 3 and Appendix B.

2.1.2 Historical Information: Historical documents relating to the historical criteria cited in the Hedgerow Regulations 1997 were sourced, where possible, from local records offices and other appropriate authorities including the Historic Environment Unit at Hertfordshire County Council and Hertfordshire Archives and Local Studies. The findings of the historical desk study are given in section 3 and Appendix C.

2.2 Field survey

2.2.1 A hedgerow survey was conducted using a methodology adapted from 'The Hedgerow Regulations 1997: A guide to the law and good practice' (Department of the Environment, 1997) and the 'Hedgerow Survey Handbook: a standard procedure for local surveys in the UK' (Defra, 2007). The survey was carried out by Kerry Elliott on 23rd May 2008.

2.2.2 The extent of each hedgerow was determined, measured, and then divided into sample lengths of 30 metres. The ecological characteristics of each sample, and the entire hedgerow where appropriate, were then recorded, including:

- hedgerow size (height and width)
- number of woody species within each sample
- number of woodland ground flora species
- number of standard trees
- presence of rare trees
- presence of non-native species
- width of adjacent undisturbed ground and perennial herbaceous vegetation cover
- indications of nutrient enrichment (e.g. presence of Nettles, Cleavers and Docks)
- connections to hedgerows, woods and ponds
- presence of parallel hedgerows within 15m
- presence of parallel footpath, bridleway or byway open to all traffic
- percentage of gaps within the hedgerow
- presence and length of wall or bank
- presence and length of ditch

2.2.3 The results of the field survey are given in section 3 of this report and completed recording cards are given in Appendix D. Botanical names follow Stace (1997) for higher plants.

2.2.4 A total of 2 hours was spent carrying out the field survey. Weather conditions were overcast with high cloud and sunny intervals.

2.3 Evaluation Criteria

Hedgerow Regulations Assessment

2.3.1 The information obtained through the desk study and the fieldwork was evaluated against ecological and historical criteria cited in the publication 'Hedgerow Regulations 1997: A guide to the law and good practice' (Department of the Environment 1997) and Part 2, paragraphs 1 - 8 of the Hedgerow Regulations 1997. A summary of the criteria is provided in Appendix E.

2.3.2 Hedgerows pertaining to domestic properties are exempt from the Regulations.

Hedgerow condition assessment

2.3.3 All hedgerows were assessed against the 'favourable condition' characteristics identified by the Steering Group for the UK BAP (Defra, 2007). A summary of the assessment criteria is provided in Appendix F.

3 HEDGEROW REGULATIONS ASSESSMENT

3.1 Ecological Results and Evaluation

Ecological desk study

3.1.1 A search of the Magic Database and the information provided by Hertfordshire Biological Records Centre indicates that no statutory nature conservation designations pertain to land associated with any of the hedgerows (Appendix B). Therefore, the hedgerows are not automatically considered important under the Hedgerow Regulations through their inclusion in a statutory nature reserve. The information provided by Hertfordshire Biological Records Centre also indicates that there are no records pre-1997 of protected species pertaining to any of the hedgerows within the site. Therefore, the hedgerows are not automatically considered important under the Hedgerow Regulations through the recorded presence of specially protected species.

Ecological field study

3.1.2 Table 1 displays the findings of the field survey. Where a hedgerow meets one of the ecological criteria used to assess the importance of hedgerows under the Hedgerow Regulations 1997, the relevant box has been shaded. Hedgerow B pertains to domestic properties and is therefore exempt from the regulations. A plan showing hedgerows qualifying as ecologically important under the Hedgerow Regulations is given in Appendix A and a summary of the ecological criteria is provided in Appendix E.

Table 1: Assessment of hedgerows against ecological criteria of the Hedgerow Regulations 1997

	Hedgerow reference (see Appendix E)				
Hedgerow feature	A	B	C	D	E
Length (m)	60	148	415	170	150
Average no. of qualifying woody species per sample*	4	3	5	5	5
Parallel hedge within 15m	N	N	Y	Y	Y
Ditch along >50% length of hedgerow	N	N	N	Y	N
Bank/wall along >50% length of hedgerow	N	N	N	N	N
>90% intact	Y	Y	Y	Y	Y
No. connected hedgerows	3	1	2	2	0
No. connected ponds/ woods	0	0	2	1	2
Connection point score	3	1	6	4	4
No. standard trees	2	0	9	9	0
Protected/ rare species recorded**	0	0	0	0	0
No. and species of scarce trees	0	0	0	0	0
No. qualifying ancient woodland indicator plants****	1	0	0	0	0
Adjacent to a public right of way? ***	No	No	Yes	Yes	Yes
Adjacent to domestic properties?	No	Yes	No	No	No
Hedgerow qualifies as important?	No	No	Yes	Yes	No

* As listed under Schedule 3 of the Hedgerow Regulations 1997

** As described in publications listed in Paragraph 6, sub-paragraph 3 and 4 of the Hedgerow Regulations 1997

*** A bridleway or footpath within the meaning of the Highways Act 1980 [43], a road used as a public path within the meaning of section 54 of the Wildlife and Countryside Act 1981[44], or a byway open to all traffic within the meaning of Part III of the Wildlife and Countryside Act 1981[45]

**** As listed under Schedule 2 of the Hedgerow Regulations 1997

■ Meets Hedgerow Regulations 1997 criteria

3.1.3 None of the hedgerows has an average of at least 7 species per 30m sample.

3.1.4 Hedgerows C and D have an average of 5 woody species per sample, are adjacent to a public right of way and meet at least two of the relevant sub-criteria. These hedgerows are therefore considered ecologically important under the Hedgerow Regulations. These hedgerows are also notable for their position in a network of habitats and the presence of a parallel hedgerow within 15m.

3.1.5 Hedgerow E also has an average of at least 5 species per sample and is adjacent to a public right of way. However, it only meets one of the relevant sub-criteria and is therefore not considered ecologically important under the Hedgerow Regulations.

3.1.6 Hedgerow A has an average of four woody species per sample and is therefore not considered important under the regulations.

3.1.7 Hedgerow B has an average of three woody species per sample and pertains to domestic properties. This hedgerow is therefore not considered important under the Hedgerow Regulations, and in any case would be exempt.

3.2 Historical Results and Evaluation

3.2.1 Each hedgerow was assessed against the historical criteria using the information gained from Hertfordshire Archives and Local Studies Unit and Hertfordshire Historic Environment Unit. The results are shown in Table 2. Where a hedgerow meets one of the historical criteria listed in Appendix E used to assess the importance of hedgerows under the Hedgerow Regulations 1997, the relevant box has been shaded. Hedgerow B pertains to domestic properties and is therefore exempt from the Regulations. A plan identifying the historically important hedgerows is given in Appendix A.

Table 1: Assessment of hedgerows against historical criteria of the Hedgerow Regulations 1997

	Hedgerow reference (see Appendix E)				
Historical Criteria	A	B	C	D	E
1					
2					
3					
4					
5	*		*	*	*

aaa Qualifies under Hedgerow Regulations 1997 criteria

* 'Pre-dating Inclosures Acts' taken to mean before 1845 (see Appendix E)

3.2.2 None of the hedgerows associated with the site mark a historic parish or township boundary (Criteria 1), incorporate an archaeological feature (Criteria 2), are associated with an archaeological site (Criteria 3) or are associated with a pre-1600 AD estate or manor (Criteria 4).

3.3.3 No pre-Inclosure maps were available during the desk study exercise to confirm whether the hedgerows associated with the site qualify under Criteria 5 of the Regulations, i.e. whether they are an integral part of a field system pre-dating the Inclosure Acts. A number of maps, including the 1806 Enclosure Award Map, the 1811 Manor of Northaw Map and the 1849 Tithe Map, clearly show Hedgerow A, which runs along Northaw Road, and hedgerows C, D and E, which flank a public right of way (known as 'Hertfordshire Walk), as line boundaries. It is highly likely that hedgerows were present along these boundaries at this time, despite the fact that no hedgerows are specifically marked on these maps, with all field boundaries on the maps depicted by lines.

3.3.4 Although no evidence was available that would suggest that the hedgerows associated with the site form part of a field system predating the Inclosure Acts, hedgerows A, C, D and E and considered to qualify under Criteria 5 of the Regulations in light of an amendment made to the guidance for the Hedgerow Regulations which states that "*the phrase 'pre-dating the Inclosure Acts' should be taken to mean before 1845 (whether or not Inclosure Acts exists for the area in question), that being of the earliest of the Acts known by the collective title given by the Short Titles Act 1896*" (The Hedgerow Regulations: A Gude to the Law and Good Practice, as amended August 1998) (see Appendix E).

3.3.5 Although hedgerows C and E are considered historically important under Criteria 5 of the Hedgerow Regulations, it should be noted that the southern end of hedgerow C and the entire length of hedgerow E appear to have been replanted within the past 30 years along the line of the original boundary. It is not known however whether there was a period of no hedgerow being present along the boundary prior to the new planting.

4 HEDGEROW CONDITION ASSESSMENT

4.1 Each hedgerow was assessed against the 'favourable condition' criteria identified by the Steering Group for the UK BAP (Defra, 2007). The results are shown in Table 3. Where a hedgerow meets one of the 'favourable condition' criteria, the relevant box has been shaded. To qualify as being in 'favourable condition', a hedgerow must meet all thresholds listed below.

Table 3: Assessment of hedgerows against UK BAP 'favourable condition' criteria

	Hedgerow reference (see Appendix E)				
Criteria	A	B	C	D	E
At least 2m of undisturbed (uncultivated) ground vegetation cover	N	N	Y	N	N
At least 1m of perennial herbaceous vegetation	Y	N	N	Y	Y
Cover of nettles, cleavers and docks within 2m wide band alongside hedgerow less than 20%	N	Y	N	Y	Y
Cover of non-native herbaceous species within 2m wide band alongside hedgerow less than 10%	Y	Y	Y	Y	Y
Cover of non-native woody species within hedgerow less than 10%	Y	Y	Y	Y	Y
Cross-sectional area of hedgerow $3m^2$ or more	Y	Y	Y	Y	Y
<10% gaps	Y	Y	Y	Y	Y
Single gaps less than 5m in width	Y	Y	Y	Y	Y
Base of canopy less than 0.5m above ground for shrubby hedgerows.	Y	Y	Y	Y	Y
Hedgerow in favourable condition?	No	No	No	No	No

4.2 None of the hedgerows associated with the site meet all nine of the attributes and are therefore not considered to be in favourable condition in accordance with the UK BAP criteria. Notwithstanding this, all the hedgerows meet at least seven of the nine criteria and hedgerows D and E have just one criteria missing.

5 SUMMARY AND CONCLUSION

5.1 Hedgerows A, C, D and E are considered important under the Hedgerow Regulations 1997.

5.2 Hedgerows C and D are considered important as they meet both ecological and historical criteria cited in the Regulations. The remaining qualifying hedgerows are considered important under historical criteria only.

5.3 None of the hedgerows associated with the site meet all nine of the criteria for the UK BAP 'favourable condition' status (Defra, 2007), however hedgerows D and E are missing just one of the criteria needed to qualify for this status.

5.4 Although Hedgerow E does not qualify under either the ecological criteria of the Hedgerow Regulations 1997 or the UK BAP 'favourable condition' status, it can be considered to be species-rich as it contains an average of at least 5 woody species per 30m sample.

5.5 Wherever possible development proposals should seek to maintain the hedgerow resource within the site, giving special consideration to those identified as being of historical and ecological interest. The following measures are recommended in order to maintain the long-term integrity of retained hedgerows:

- Maintenance of buffer zones between hedgerows and areas affected by development works in order to maintain the integrity of rooting zones and avoid over-shading by adjacent buildings. Buffer zones should be sufficiently large to protect any hedgerow trees present.
- Where appropriate semi-natural habitats such as rough grassland should be allowed to establish in buffer zones between the hedgerows and development areas in order to provide supporting habitat for hedgerow species.
- Development proposals should seek to avoid using important hedgerows as residential curtilages in order to secure their long-term existence and appropriate management.
- Retained hedgerows should be managed in an appropriate manner. Where possible this should include cutting on a long rotation (every 2-3 years) and cutting during late winter when the majority of fruit will have been consumed by wildlife. Hedgerows should not be cut between March and August inclusive when breeding birds could be present.

5.6 Where it is unavoidable that hedgerows will be lost, development proposals should give consideration to inclusion of the following measures in order to avoid impacts on the local hedgerow resource:

- Species-rich hedgerow planting. Hedgerows lost to development should be replaced through the planting of new species rich hedgerows using native species appropriate to the local area. Where possible these should be sourced from stock of local provenance. Suitable species include Hazel, Hawthorn, Blackthorn, Dog Rose, Field Maple, Ash and English Oak Locations of replacement hedgerow planting (or suitable alternative habitat) should give consideration to the maintenance of habitat connectivity within the site and the wider area.
- Gaps within existing hedgerows should be infilled using a selection of the aforementioned species.
- Landscape proposals should give consideration to the use of native hedgerow planting around site and property boundaries instead of the use of fences.

5.7 In the event that a hedgerow is to be removed outside of activities permitted by an award of planning consent, either entirely or in part, it would be necessary to submit a Hedgerow Removal Notice to the local planning authority. Before submitting a formal notice, it may be advisable to discuss the proposal informally with the local authority, as early discussion and possibly a site visit may save time later. After a formal notice has been submitted, the

local authority has 42 days (which may be extended if the applicant agrees) to decide whether to issue a Hedgerow Retention Notice. During this time the local planning authority may make a site visit, and will consult the local parish council or community council and consider their views. All applications are kept on a public register, but there is no requirement to publicise the order or put up signs.

5.8 Where a hedgerow is considered important under the Regulations (i.e. Hedgerows A, C, D and E), the local authority may (but does not have to) issue a Hedgerow Retention Notice. If the authority does not issue a notice for an important hedgerow it is usually on the condition that the removal is mitigated, such as the reinstatement or replanting to a predetermined standard, or the creation of an equivalent boundary elsewhere.

6 REFERENCES

Defra (2007) *Hedgerow Survey Handbook: a standard procedure for local surveys in the UK.* Defra, London.

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HDA (2008) *Northaw Road: Preliminary Ecological Assessment.* Hankinson Duckett Associates, January 2008.

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HDA Document Control and Quality Assurance Record

Project Title:	Northaw Road Ecology
Project Reference:	2130.17
Document Title:	Hedgerow Survey
Commissioning Party:	Lands Improvement Holdings

Issue	Description	Date of Issue	Signed
1	Hedgerow survey report	January 2009	
2			
3			
4			

	Personnel	Position
Author	Kerry Elliott	Ecologist
Checked by	Adrian Meurer	Associate Director
Approved for issue	Brian Duckett	Director

APPENDIX A

Hedgerow survey results plan

KEY

- Site boundary
- Hedgerows qualifying as ecologically important under 1997 Hedgerow Regulations
- Hedgerows qualifying as historically important under 1997 Hedgerow Regulations*
- Hedgerow exempt from regulations
- A — Hedgerow label

*Includes Hedgerows qualifying under Defras 1998 updated guidance

CLIENT:
Lands Improvement Holdings

PROJECT:
Northaw Road Ecology

TITLE:
Hedgerow Survey Results

SCALE AT A3:
1:1250

DATE:
January 2009

2130.17/06/KE

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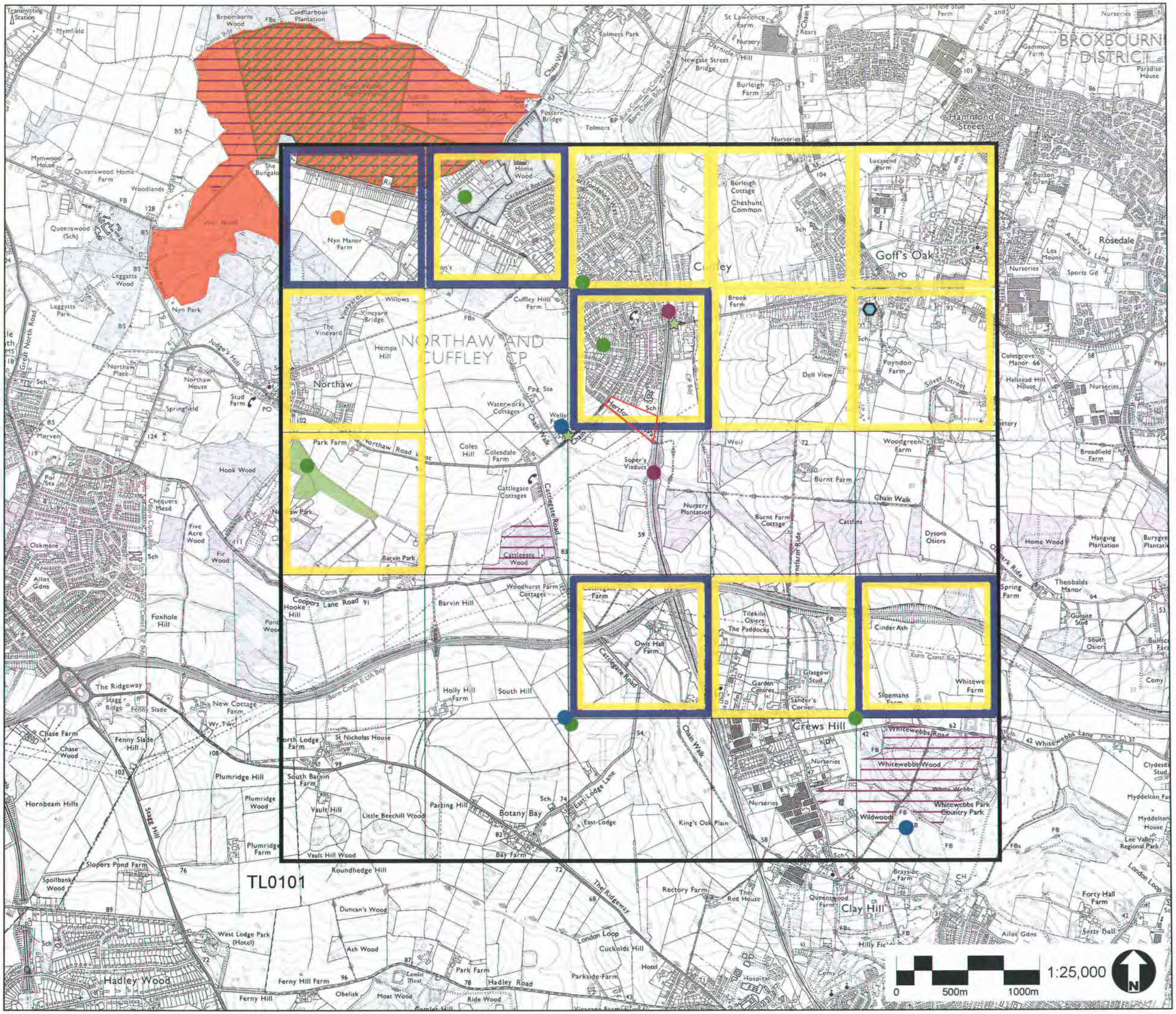
APPENDIX B

Ecological desk study information



KEY

- Application Site boundary
- Desk study area
- SSSI
- LNR
- Ancient Woodland
- Grassland Inventory Site
- Bats
- Great Crested Newt
- Badger
- Stag Beetle
- Grass Snake
- Water Vole
- Slow Worm
- Viviparous Lizard

CLIENT:
Lands Improvement Holdings

PROJECT:
Northaw Road

TITLE:
Ecological desk study information

SCALE AT A3:
1:25,000

DATE:
January 2009

2130.17/003

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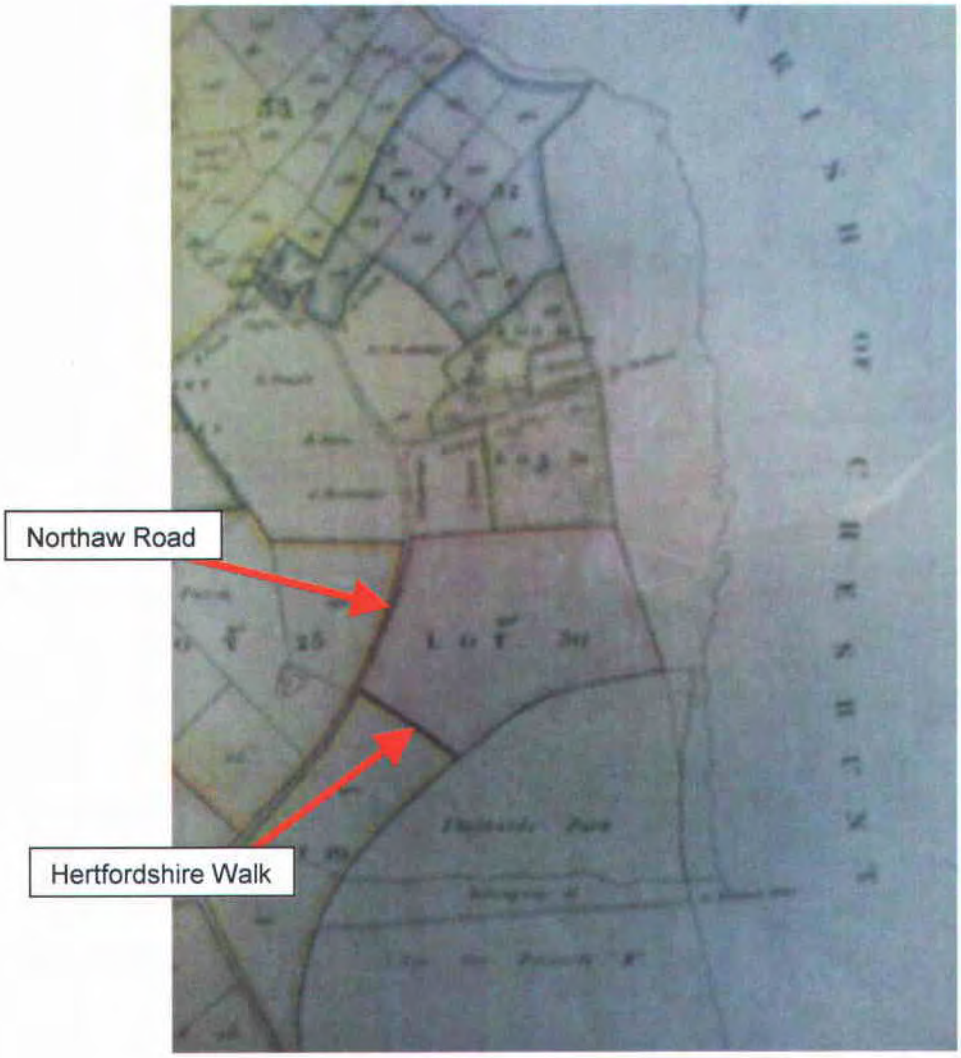
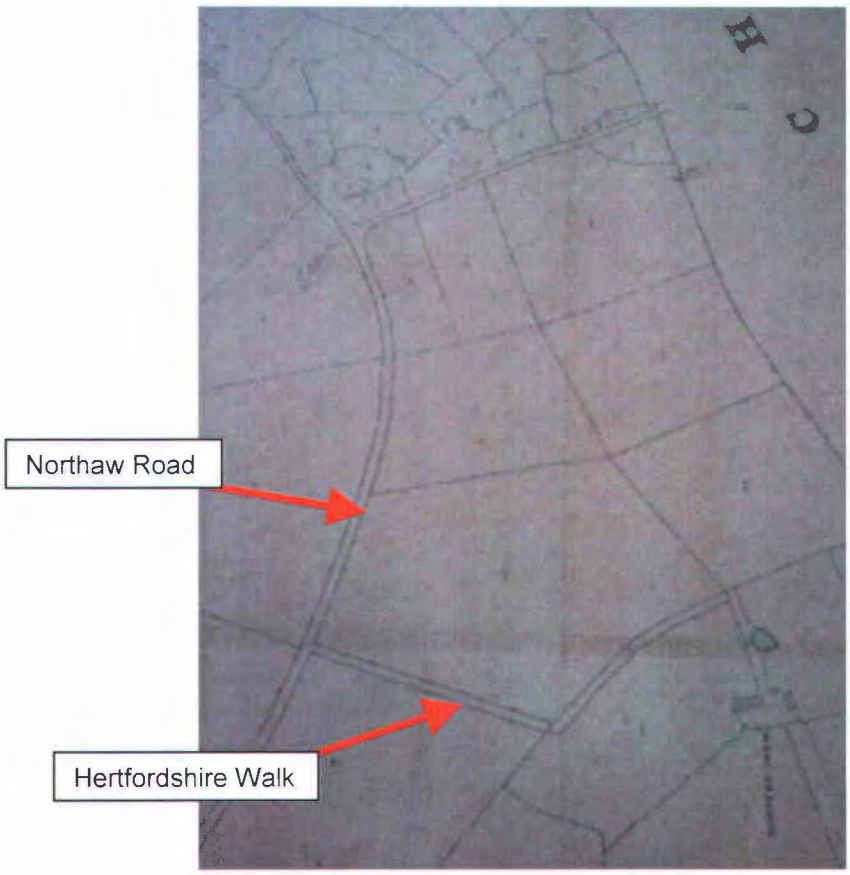
APPENDIX C

Historical desk study information

Photographs of the 1806 Enclosure Award Map, the 1811 Manor of Northaw Map and the 1849 Tithe Map showing Northaw Road (along which hedgerow A is located) and the Hertfordshire Walk (along which hedgerows C, D and E are located) as line boundaries.




Northaw Road
Hertfordshire Walk


Northaw Road
Hertfordshire Walk

APPENDIX D

Hedgerow survey recording cards

Site: Northaw Road

Date: 23/05/08		Time start/finish 10:15 - 12:15	
Name KE		Weather Overcast	
Hedgerow reference:	A	Side surveyed:	South-east

Length	Height	Width	Hedgerow type (shrubby hedge/line of trees/shrubby with trees)	Hedgerow shape
60m	2.5m	1.5m	Shrubby hedgerow	Trimmed and dense
Total % gaps <10% Y/N			Any gaps >5%? Y/N	Height of canopy base <0.5m Y/N
Yes			No	Yes

Woody species

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Ash Blackthorn Common Lime Hawthorn					
Introduced, non-native species					% cover <10% Y/N
Horse chestnut					Yes

Ground flora

Species	
Dock sp	Bramble
Cleavers	Creeping Buttercup
Common Nettle	Wood Avens
Cowsparsley	Grasses sp.

Width of undisturbed ground - from centre line of hedge on both sides >2m Y/N	No
Width of undisturbed herb layer on both sides >1m Y/N	Yes
% cover of cleavers/docks/nettles <20% Y/N	No
% of non-native herb species <10%	Yes

Connections How many? Must be within 10m

Hedgerows	3
Woods	/
Ponds	/
Other features?	/

Associated features

X	Bank (e.g. Devon bank/man made)	Height:		Length (>50% total length):
X	Ditch	Internal / external	Wet / dry	Length (>50% total length):
X	Wall (>50% total length):			
✓	Parallel hedge (within 15m)			
X	Adjacent to footpath, bridleway etc			

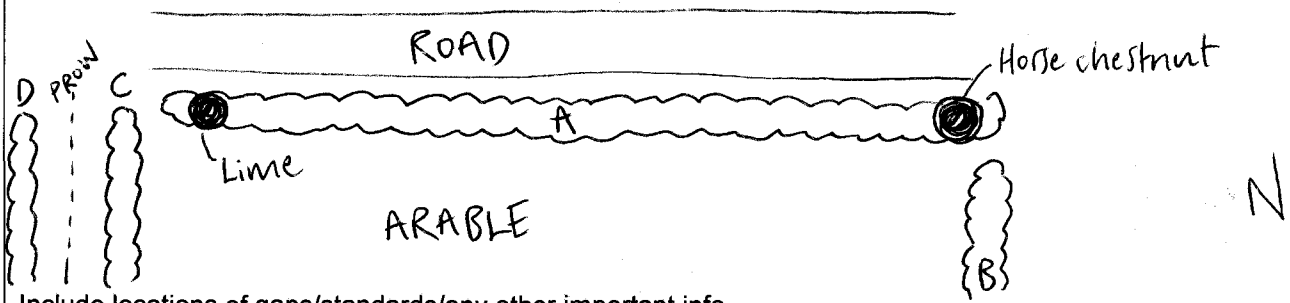
Adjacent land use

Side A	Side B
Arable	Road

Standard trees - 20cm for single stem 15cm for multi stem

Species	Number	Diameter at 1.3m
Horse chestnut	1	
Common Lime	1	

Diagram



Include locations of gaps/standards/any other important info

Other notes

Intact/defunct (stock proof)
Any grazing/fencing
Previous management

Site: Northaw Road

Date: 23/05/08		Time start/finish 10:15 - 12:15	
Name KE		Weather Overcast	
Hedgerow reference:	B	Side surveyed:	South

Length	Height	Width	Hedgerow type (shrubby hedge/line of trees/shrubby with trees)	Hedgerow shape
148m	6m	2m	Shrubby	untrimmed/tall and leggy
Total % gaps <10% Y/N			Any gaps >5%? Y/N	Height of canopy base <0.5m Y/N
Y			N	Y

Woody species

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Ash Hawthorn Field Maple Dogwood	Ash Hawthorn Blackthorn				
Introduced, non-native species					% cover <10% Y/N
Turkey Oak Cotoneaster sp. Viburnum sp (ornamental)		Norway Maple.			Yes

Ground flora

Species	
Willowherb False oat-grass Dock Creeping Buttercup.	Cow Parsley Ivy Bramble.

Width of undisturbed ground - from centre line of hedge on both sides >2m Y/N	No
Width of undisturbed herb layer on both sides >1m Y/N	No
% cover of cleavers/docks/nettles <20% Y/N	Yes
% of non-native herb species <10%	Yes.

Connections How many? Must be within 10m

Hedgerows	1
Woods	/
Ponds	/
Other features?	/

Associated features

X	Bank (e.g. Devon bank/man made)	Height:		Length (>50% total length):
Y	Ditch	Internal / external	Wet / dry	Length (>50% total length):
Y	Wall (>50% total length):			
X	Parallel hedge (within 15m)			
X	Adjacent to footpath, bridleway etc			

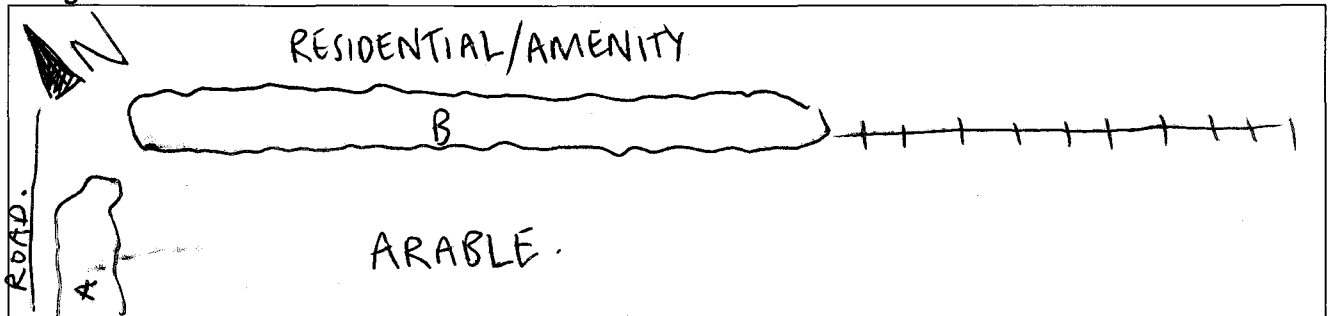
Adjacent land use

Side A	Side B
Arable	Residential/Amenity grassland

Standard trees - 20cm for single stem 15cm for multi stem

Species	Number	Diameter at 1.3m
/		

Diagram



Include locations of gaps/standards/any other important info

Other notes

Intact/defunct (stock proof)
Any grazing/fencing
Previous management

Recently planted

Site: Northaw Road

Date: 23/05/08	Time start/finish 10:15 - 12:15
Name KE	Weather Overcast

Hedgerow reference:	C	Side surveyed:	North

Length	Height	Width	Hedgerow type (shrubby hedge/line of trees/shrubby with trees)	Hedgerow shape
415m	8m	5m	Shrubby w/trees (west end) shrubby hedgerow (east end)	untrimmed w/outgrowth (West) untrimmed (East)
Total % gaps <10% Y/N			Any gaps >5%? Y/N	Height of canopy base <0.5m Y/N
Yes			No	Yes

Woody species

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Hazel Hawthorn Blackthorn Rose sp.	Ash Hawthorn Hazel Blackthorn Elm Rose Field Maple Lime	Hawthorn Elm Oak (Eng) Blackthorn	Hawthorn Ash Rose Field Maple Oak		
Introduced, non-native species					% cover <10% Y/N

Ground flora

Species		
Dock sp. Common Nettles Hogweed Thistle (creeping)	Cleavers Cowsparsley Barley sp. Brome sp.	Bramble Ivy

Width of undisturbed ground - from centre line of hedge on both sides >2m Y/N	Y
Width of undisturbed herb layer on both sides >1m Y/N	N
% cover of cleavers/docks/nettles <20% Y/N	N
% of non-native herb species <10%	Y

Connections How many? Must be within 10m

Hedgerows	2
Woods	2
Ponds	x
Other features?	x

Associated features

	Bank (e.g. Devon bank/man made)	Height:		Length (>50% total length):
x	Ditch	Internal / external	Wet / dry	Length (>50% total length):
x	Wall (>50% total length):			
	Parallel hedge (within 15m)	Yes		
	Adjacent to footpath, bridleway etc	Yes		

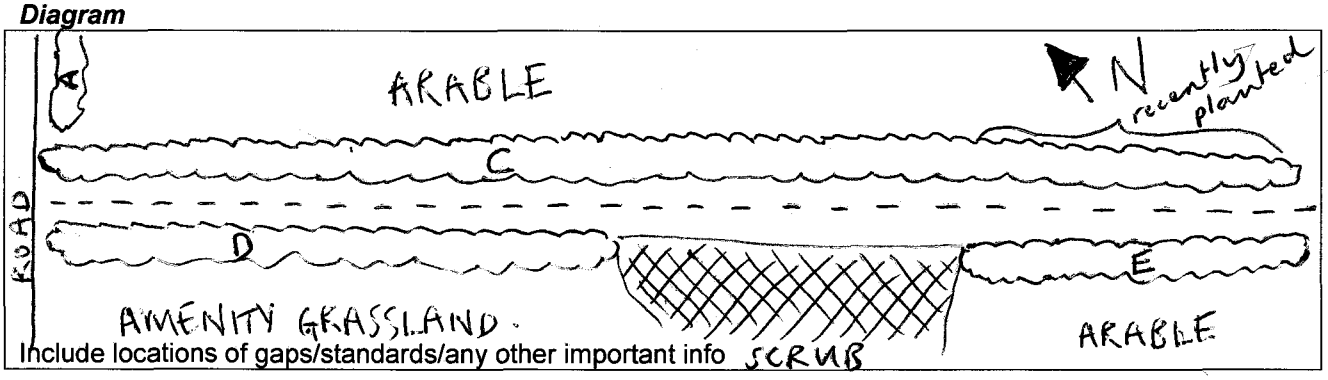
Adjacent land use

Side A	Side B
Arable	PROW

Standard trees - 20cm for single stem 15cm for multi stem

Species	Number	Diameter at 1.3m
English Oak Ash Hawthorn	9 in total	

Diagram



Include locations of gaps/standards/any other important info

Other notes

Intact/defunct (stock proof) Any grazing/fencing Previous management	Eastern end of hedgerow enclosed by stock-proof fencing and recently planted.

Site: Northaw Road

Date: 23/05/05		Time start/finish 10:15 - 12:15	
Name KE		Weather Overcast	
Hedgerow reference:	D	Side surveyed:	N

Length	Height	Width	Hedgerow type (shrubby hedge/line of trees/shrubby with trees)	Hedgerow shape
170	12	5m	shrubby hedgerow w/trees	Untrimmed w/outgrowth
Total % gaps <10% Y/N			Any gaps >5%? Y/N	Height of canopy base <0.5m Y/N
Yes			No	Yes

Woody species

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Oak Hawthorn Blackthorn Ash	Hawthorn Hazel Rose Common Lime Oak Elm Ash				
Introduced, non-native species					% cover <10% Y/N
/					

Ground flora

Species
Cow Parsley (dominant) Cleavers Dock sp Common Nettle.

Width of undisturbed ground - from centre line of hedge on both sides >2m Y/N	No
Width of undisturbed herb layer on both sides >1m Y/N	Yes
% cover of cleavers/docks/nettles <20% Y/N	Yes
% of non-native herb species <10%	Yes.

Connections How many? Must be within 10m

Hedgerows	2
Woods	✓ (x1)
Ponds	X
Other features?	Y

Associated features

Y	Bank (e.g. Devon bank/man made)	Height:		Length (>50% total length):
✓	Ditch	Internal / external	Wet / dry	Length (>50% total length):
Y	Wall (>50% total length):			
	Parallel hedge (within 15m)	✓		
	Adjacent to footpath, bridleway etc	✓		

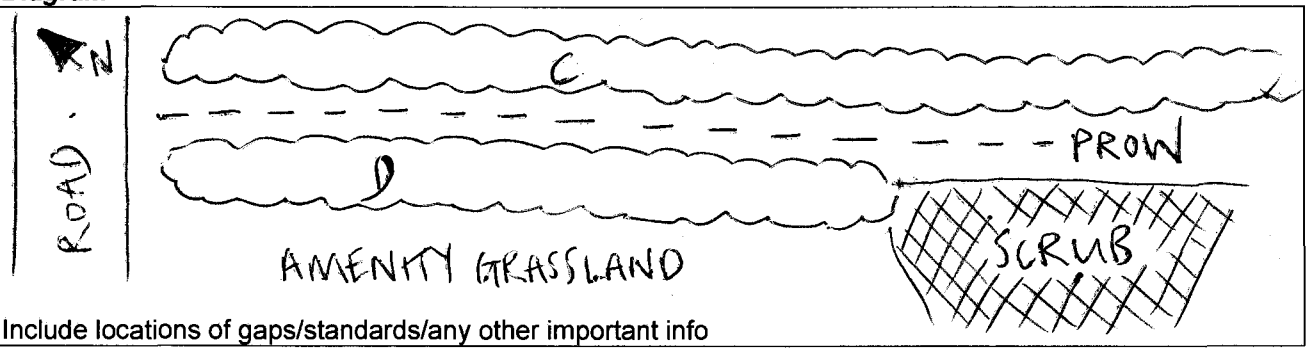
Adjacent land use

Side A	Side B
Amenity grassland	PROW

Standard trees - 20cm for single stem 15cm for multi stem

Species	Number	Diameter at 1.3m
Predominantly oak plus Ash.	9	

Diagram



Include locations of gaps/standards/any other important info

Other notes

Intact/defunct (stock proof)
Any grazing/fencing
Previous management

Site: Northaw Road

Date: 23/05/08		Time start/finish 10:15 - 12:15	
Name KE		Weather Overcast	
Hedgerow reference:	E	Side surveyed:	South

Length	Height	Width	Hedgerow type (shrubby hedge/line of trees/shrubby with trees)	Hedgerow shape
150	2.5	2.5	Shrubby hedgerow	Untrimmed
Total % gaps <10% Y/N			Any gaps >5%? Y/N	Height of canopy base <0.5m Y/N
Yes			No	Yes

Woody species

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Blackthorn Hawthorn Hazel Ash Rose	Hawthorn Hazel Blackthorn Oak Ash				
Introduced, non-native species					% cover <10% Y/N
/					

Ground flora

Species	
Dock sp.	Dandelion
Hogweed	Willowherb sp.
Bramble	
creeping thistle	

Width of undisturbed ground - from centre line of hedge on both sides >2m Y/N	No
Width of undisturbed herb layer on both sides >1m Y/N	Yes
% cover of cleavers/docks/nettles <20% Y/N	Yes
% of non-native herb species <10%	Yes.

Connections How many? Must be within 10m

Hedgerows	/
Woods	2
Ponds	/
Other features?	/

Associated features

X	Bank (e.g. Devon bank/man made)	Height:		Length (>50% total length):
X	Ditch	Internal / external	Wet / dry	Length (>50% total length):
X	Wall (>50% total length):			
	Parallel hedge (within 15m)	✓		
	Adjacent to footpath, bridleway etc	✓		

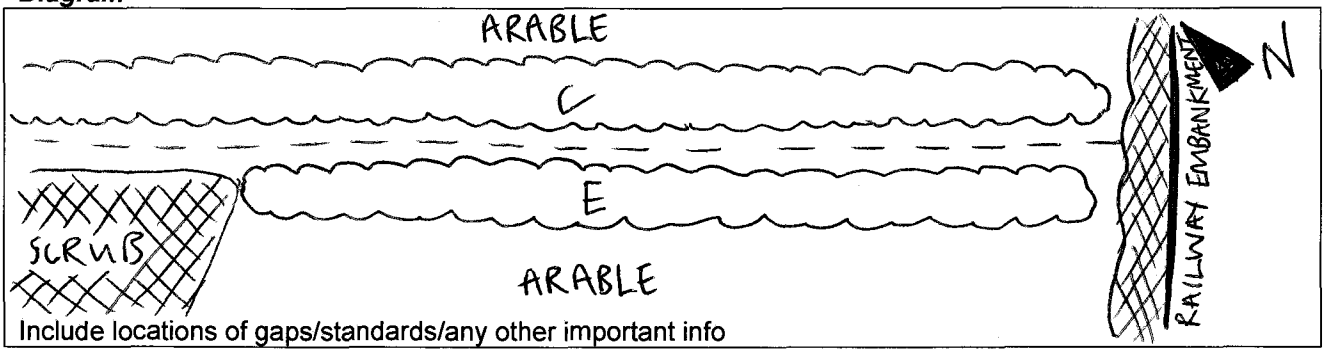
Adjacent land use

Side A	Side B
Arable	PRoW

Standard trees - 20cm for single stem 15cm for multi stem

Species	Number	Diameter at 1.3m
/		

Diagram



Include locations of gaps/standards/any other important info

Other notes

Intact/defunct (stock proof) Any grazing/fencing Previous management	Stock-proof fencing enclosing hedgerow. Recently planted

APPENDIX E

Hedgerow Regulations 1997 criteria

Ecological Criteria (Department of the Environment, 1997)

A hedgerow is considered important if it meets the following criteria:

1. An average of at least 7 species per 30m sample.
2. An average of 6 woody species per 30m sample and meets at least three of the following sub criteria:
    i. A bank or wall for at least half its length.
    ii. A ditch for at least half its length.
    iii. At least one standard tree per 50m.
    iv. Gaps which do not add up to more than 10% of the hedgerow
    v. At least 3 woodland ground flora species as described in Schedule 2 of the Regulations within 1m of the hedgerow.
    vi. Connections scoring 4 or more points where a connection to another hedgerow counts as one and a broad-leaved woodland or pond counts as two.
    vii. A parallel hedge within 15m.
3. An average of 5 woody species per 30m sample and meets at least four of the sub-criteria shown above.
4. Is adjacent to a bridleway, footpath or a byway open to all traffic, contains an average of 4 woody species per 30m sample and meets at least two of the following sub-criteria:
    i. A bank or wall for at least half its length.
    ii. A ditch for at least half its length.
    iii. At least one standard tree per 50m.
    iv. Gaps which do not add up to more than 10% of the hedgerow
    v. At least 3 woodland ground flora species as described in Schedule 2 of the Regulations within 1m of the hedgerow.

Historical Criteria (Department of the Environment, 1997)

A hedgerow is considered important if it meets the following criteria:

1. Any hedgerow that marks the boundary or part of the boundary, of at least one historic parish or township; and for this purpose "historic" means existing before 1850.
2. Any hedgerow that incorporates an archaeological feature which is:
   (a) included in the schedule of monuments compiled by the Secretary of State under section 1 (schedule of monuments) of the Ancient Monuments and Archaeological Areas Act 1979; or
   (b) recorded on or prior to the 24th March 1997 in a Sites and Monuments record.
3. Any hedgerow that:
   (a) is situated wholly or partly within an archaeological site included or recorded as mentioned in paragraph 2, or on land adjacent to and associated with such a site; and
   (b) is associated with any monument or features on that site.
4. Any hedgerow that:
   (a) marks the boundary of a pre-1600 AD estate or manor recorded on or prior to the 24th March 1997 in a Sites and Monuments Record or in a document held at that date at a Record Office; or
   (b) is visibly related to any building or other feature of such an estate or manor.
5. Any hedgerow that:
   (a) is recorded in a document held on 24th March 1997 at a Record Office as an integral part of a field system pre-dating the Inclosure Acts; or
   (b) is part of, or visibly related to, any building or other feature associated with such a system, and that system:
      (i) is substantially complete; or
      (ii) is of a pattern which is recorded in a document prepared by a local planning authority, within the meaning of the 1990 Town and Country Planning Act, for the purposes of development control within the authority's area, as a key landscape characteristic.

NB: The phrase 'pre-dating the Inclosure Acts' should be taken to mean before 1845 (whether or not Inclosure Acts exist for the area in question), that being the earliest of the Acts known by the collective title given by the Short Titles Act 1896.

APPENDIX F

UK BAP 'favourable condition' criteria

UK Biodiversity Action Plan (BAP) 'favourable condition' criteria

Under the UK Biodiversity Action Plan (BAP) a hedgerow is considered to be in favourable condition if it meets all of the following criteria:

1. The hedgerow is bordered by a buffer of least 2m of undisturbed (uncultivated) ground vegetation cover measured from the hedgerow base. The buffer must include:
   - At least 1m of perennial herbaceous vegetation adjacent to the hedgerow base
   - No more than 20% of vegetation cover within 2m of the hedgerow base comprising nettles, cleavers and docks.
   - No more than 10% of vegetation cover within 2m of the hedgerow base comprising non-native herbaceous species.
2. The hedgerow must feature a cross-sectional area of $3m^2$ or more.
3. The sum of all the gaps in the hedgerow must not exceed 10% of the hedgerows total length.
4. No individual gaps within the hedgerow can exceed 5m in length.
5. The base of the hedgerow canopy must be less than 0.5m above the ground for shrubby hedgerows.

APPENDIX E

2013 Bat Survey Report (HDA, 2013)

Landscape Architecture
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LAND TO THE NORTH EAST OF KING GEORGE V PLAYING FIELD

2013 BAT SURVEY REPORT

Prepared for Lands Improvement

by

Hankinson Duckett Associates

HDA ref: 2130.24

November 2014

hankinson duckett associates
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HDA Document Control and Quality Assurance Record

HDA Project Title: Northaw Road Ecology
Project Reference: 2130.24
Document Title: 2013 Bat Survey Report
Commissioning Party: Lands Improvement

Issue	Description	Date of Issue	Signed
1	Bat Survey Report	December 2013	
2	2013 Bat Survey Report Rev A: Updated to reflect application format	November 2014	

	Personnel	Position
Author	Alex Leishman GradCIEEM	Assistant Ecologist
Approved for issue	Adrian Meurer MCIEEM	Director

CONTENTS **Page**

APPENDICES

EXECUTIVE SUMMARY

This report describes the results of updated Phase 1 Bat Scoping and Phase 2 Bat Activity surveys carried out in support of the development of approximately 4.89ha of land at Cuffley, Hertfordshire, hereinafter referred to as 'the Site'. The Site is located by National Grid Reference TL 3045 0210. The study was commissioned by Lands Improvement in May 2013.

The Phase 1 Bat Scoping survey identified a number of trees on the Site boundary and adjacent to the Site with the potential to support roosting bats. Most of these are associated with the tree belt associated with the Hertfordshire Way on the southern boundary. It is understood that all these trees will be retained as part of the residential development scheme and the integrity of any opportunities that these trees provide could be maintained through the recommended measures to prevent indirect effects of lighting and maintain connectivity with habitat in the wider area as described in *Section 5* of this report. This includes the use of directional, cut-off and low-level lighting as appropriate together with narrow spectrum and low UV bulbs.

Five species of bat were recorded using the Site during the Phase 2 bat activity surveys, although the vast majority of activity related to Common Pipistrelle bats. The majority of the Site including the proposed residential development area, comprises an intensively farmed arable field, providing low quality habitat for foraging and commuting bats and is considered to be of **'negligible'** value for bats. Much of the activity recorded was associated with the tree belt associated with the Hertfordshire Way along the southern Site boundary. The integrity of the tree belt, assessed as being of **'high local'** value for foraging and commuting bats, should be maintained through sympathetic use of artificial lighting in combination with maintenance of habitat linkages from existing residential development to the north-west and other suitable habitats to the south-east of the Site.

Subject to the implementation of standard measures described in *Section 5* to avoid adverse potential effects of lighting on bats and maintain the integrity of the habitats bordering the Site to be used by bats, no adverse effects on the favourable conservation status of the local bat population would be expected to arise as a result of the proposed development.

Furthermore, opportunities to strengthen the corridor of vegetation along the eastern and northern Site boundaries and provide habitats of high value for foraging bats, such as a selection of hedgerows and treelines, meadow grassland, garden and scrub habitats within the Site in areas currently comprising arable farmland would provide a considerable opportunity to improve the value of the Site for foraging and commuting bats.

Along with the recommended provision of new roosting opportunities within the buildings of the proposed development, these habitat enhancement opportunities could considerably increase the value of the Site for bats in order to support the long-term favourable conservation status of bats in accordance with nature conservation legislation, planning policy and the 2006 NERC Act.

1 INTRODUCTION

1.1 Survey location and summary description

1.1.1 This report describes the results of updated Phase 1 Bat Scoping and Phase 2 Bat Activity surveys carried out in support of the development of approximately 4.89ha of land at Cuffley, Hertfordshire, hereinafter referred to as 'the Site'. The Site is located by National Grid Reference TL 3045 0210. The study was commissioned by Lands Improvement in May 2013.

1.1.2 The Site is located on the southern edge of Cuffley and is currently in agricultural use. It is bound by existing residential development to the north and north-west; the grounds of Cuffley Primary School also adjoin the Site along its northern boundary. The railway line and Northaw Road East (B156) form strong eastern and western boundaries respectively. The southern boundary is defined by a mature hedgerow and tree belt lining the Hertfordshire Way footpath. Beyond the footpath to the south west of the Site is the King George V Playing Fields, which contains three sports pavilions, a recreation area with hard surfaced Multi Use Games Areas (MUGA), sports pitches and a small area of formal play equipment. The location and boundary of the Site is shown in Appendix A.

1.1.3 In general terms, the Site is dominated by one large arable field with narrow grassland and scrub margins. Hedgerows, fences and mature trees form the boundaries as described above.

1.2 Legislative context

1.2.1 All UK bat species are protected under The Conservation of Habitats and Species Regulations 2010 (as amended), which implements the EC Habitats Directive 92/43/EEC in the United Kingdom. In relation to European Protected Species (EPS), the 2010 Regulations make it an offence to:

- Deliberately capture, injure or kill any wild animal of an EPS.
- Deliberately disturb wild animals of any such species, in particular any disturbance which is likely to: (i) impair their ability to survive, to breed or reproduce, or to rear or nurture their young; or to hibernate or migrate; (ii) affect significantly the local distribution or abundance of the species to which they belong.
- Damage or destroy a breeding site or resting place of such an animal.
- To (a) be in possession of, or to control; (b) to transport any live or dead animal or any part of an animal; (c) to sell or exchange or (d) offer for sale or exchange any live or dead animal or part of an animal of an EPS.

1.2.2 In addition, all UK bat species are protected under the Wildlife and Countryside Act 1981 (as amended). All species are listed on Schedule 5 of the Act and are subject to the provisions of Sections 9.4b and 9.4c, which make it an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by a bat.

1.2.3 If works are planned that are likely to constitute an offence under the current legislation, an application for a licence should be made to Natural England.

1.3 Scope and purpose of the report

1.3.1 This report and corresponding surveys provide an update to Phase 1 and Phase 2 bat survey work carried out by HDA in 2008, for which full details can be found in the 2009 HDA Bat Activity Survey report (HDA, 2009). Where relevant the results of the earlier survey work are referred to in this report.

1.3.2 An extended Phase 1 Habitat Survey carried out on 20th November 2012 confirmed that no significant changes in the extent or character of suitable habitat across the proposed development area had occurred since the 2008 surveys were carried out. In view of the time that had elapsed since the original bat surveys were undertaken however, the surveys have been updated to confirm the extent of any current constraints to the proposed development of the Site for residential use.

1.3.3 Specifically, the aims of the updated surveys were:

i) To identify potential bat roost sites provided by trees within the Site where affected by the proposed development;
ii) To determine levels of bat activity within the Site, and identify species and approximate numbers;
iii) To provide an assessment of the importance of the Site for foraging and/or commuting bats;
iv) To determine the requirement, if any, for licensing in respect of bats; and
v) To provide outline recommendations for any mitigation and/or enhancement required to ensure that the development avoids adverse impacts on bats, and, where possible, provides enhancements to support the long-term favourable conservation status of bats in accordance with nature conservation legislation, planning policy and the 2006 NERC Act.

2 METHODOLOGY

2.1 Introduction

2.1.1 The methodology followed in relation to all bat survey work undertaken at the Site accords with current legislation and good practice guidelines set out by the Bat

Conservation Trust (BCT, 2012). The following sections detail the suite of specific bat surveys undertaken to inform the potential development of the Site.

2.2 Phase 1 Bat Survey

2.2.1 A Phase 1 bat survey was conducted by Alex Leishman MCIEEM of Hankinson Duckett Associates on 20th November 2012 in combination with the extended Phase 1 Habitat survey. All trees within and immediately adjacent to the Site were assessed for their potential to support roosting and/or hibernating bats and classified into categories according to their potential. The methodology for each has been outlined in the following sections. There are no buildings situated within the Site.

2.2.2 All trees within and immediately adjacent to the Site were inspected from ground-level, with the aid of binoculars and a powerful torch, to identify potential features suitable for use by roosting and/or hibernating bats. Potential features include splits, cracks and cavities, peeling bark, woodpecker holes, broken branches and a covering of Ivy *Hedera helix* where this is of a sufficient age to provide a suitable micro-climate between the tree and Ivy stem(s).

2.2.3 In accordance with current good practice guidelines (BCT, 2012), trees were categorised into one of five categories. Categorisation was based on the nature, size, location and quality of features present in each tree:

- confirmed bat roosts;
- trees with multiple, highly suitable features capable of supporting larger roosts (BCT Category 1*);
- trees with definite bat potential, supporting fewer suitable features than Category 1* trees or with potential for use by single bats (BCT Category 1);
- trees with no obvious potential although the tree is of size and age that elevated surveys may result in cracks or crevices being found, or the tree supports some features that have some limited potential to support bats (BCT Category 2);
- trees with no potential to support bats (BCT Category 3).

2.3 Phase 2 Bat Activity Survey

2.3.1 In order to provide an assessment of the importance of the Site for foraging and commuting bats, dusk activity surveys were undertaken between May and September 2013 by Adrian Meurer MCIEEM of HDA. This involved carrying hand-held bat detectors[1] and walking transects of the Site, with listening stops at regular intervals for periods of up to 10 minutes. Visual observations of bats and bat call registrations were noted,

[1] Pettersson D240x heterodyne and time-expansion detector with MP3 recorder, Anabat SD1 with 'Analook' recording software.

recording time, location, activity and, where known, species. Recordings of foraging and/or commuting activity made using digital devices were subsequently analysed to determine the identity of any unconfirmed species recorded during the surveys. Times and dates of surveys are given in *Table 1* below, along with weather conditions.

Table 1: Details of bat activity surveys (2013)

Visit no.	Date	Sunset	Time	Weather conditions
1	30/05/13	21.06	20.52- 23.14	13 - 11ºC; breezy early on then fairly calm; dry; 100% cloud
2	26/07/13	20:58	20.35 - 23.28	24 - 19ºC; still; dry; <5% cloud
3	22/09/13	18:59	18:46 - 21:09	18 - 14ºC; still; dry; <5% cloud

2.4 Limitations of surveys

2.4.1 Subsequent to the 2013 bat survey work the Site boundary was extended to include the treeline along the southern Site boundary and a spur of land across an arable field to a drain. This is not considered to be a significant limitation to the purpose of the survey however as the treeline forming the southern boundary of the Site was included in both the 2008 and 2013 Phase 1 and Phase 2 bat survey work as 'adjacent habitat' and the spur of land across the arable field to the south does not support features suitable for roosting bats and only comprises a very small area of highly suboptimal habitat for foraging and commuting bats. The 'Site boundary' and 'survey boundary' are given in Appendices A and B of this report for comparison.

2.4.2 In conclusion, no limitations were experienced during the Phase 1 survey and all activity surveys followed current best practice guidelines (BCT, 2012) and were conducted at an appropriate time of year, during suitable weather conditions and with an appropriate level of survey effort both in terms of the number of surveyors used and number of survey visits undertaken. The findings of the surveys therefore provide a robust basis for an assessment of the likely importance of the Site for bats.

3 RESULTS

3.1 Desk study

3.1.1 An updated desk study carried out in November 2012 identified twenty-nine records of bats for within 2km from the Site which included the following species; Common Pipistrelle *Pipistrellus pipistrellus*, Brown Long-eared *Plecotus auritis*, Daubenton's *Myotis daubentonii* and Natterer's as well as undetermined species. Records of Soprano Pipistrelle *Pipistrellus pygmaeus* had also been provided previously for the local area. These include records relating to the 1km grid square in which the Site is located.

3.2 Phase 1 Bat Survey

3.2.1 Fifty six trees and tree groups within and immediately adjacent to the Site were assessed as having 'Category 2' or higher bat roosting potential during the Phase 1 tree survey. All trees identified as having potential to support roosting bats located adjacent to the proposed development area are described in *Table 2* below and their locations are shown in Appendix A. Other trees mapped with bat roosting potential that are not described in the table are typically located over 6m from the development area boundary on the southern side of the Hertfordshire Way path.

Table 2: Results of the Phase 1 tree survey

Tree Ref	Description	Findings	BCT Category
T1	Horse Chestnut tree in northwest corner of the Site.	Cavities at bases of missing branches. Most with visible cobwebs and most likely too shallow.	1
T2	Lime at southern end of northwest Site boundary.	No obvious features but mature tree with visible dead branches. Features may be concealed.	2
T3	Mature Oak at northern end of southwest Site boundary.	Multiple large branch cavities and large woodpecker hole. Many opportunities for roosting bats.	1*
T4	Ash along path on southwest boundary.	Mature Ivy on trunk may be of sufficient age to create suitable conditions for roosting bats or conceal potential features within tree.	2
T5	Ash along path on southwest boundary.	Top of trunk broken away. Large rotting trunk cavity visible.	1*
T6	Dead Ash along path on southwest boundary.	Dense Ivy growth may be concealing features. Features considered highly likely in dead trunk with missing top.	1
T7	Ash along path on southwest boundary.	Dense Ivy growth may be concealing features or be sufficiently mature to provide suitable conditions for roosting bats.	2
T8	Ash along path on southwest boundary.	Hollow trunk with multiple holes leading into main cavity.	1*
T9	Ash along path on southwest boundary.	Dense Ivy growth may be concealing features. Considered moderate likelihood of features.	2
T10 (G3)	One large Ash and a smaller Ash along path on southwest boundary.	Large tree with hollow trunk and multiple holes leading into cavity. Smaller tree with visible trunk cavity.	1*
G1	One Oak and one Ash along path on southwest boundary.	No obvious features but trees with visible dead branches and mature Ivy cover. Features may be concealed.	2
T11	Ash along path on southwest boundary.	Woodpecker hole near top of main branch. Ivy may be concealing further features. Rotting trunk.	1*
T12	Ash on southwest boundary.	Multiple trunk cavities visible. Inside trunk rotting.	1*
T13	Ash along path on southwest boundary.	Cavity at base of branch which may be rotting inside.	1
T14	Oak along path on southwest boundary.	No obvious feature but mature tree with some dieback of branches. Potential for concealed features.	2
T15	Ash along path on southwest boundary.	Visible cavity leading into possible rotting trunk. Some Ivy cover could be concealing further features.	1

Tree Ref	Description	Findings	BCT Category
T16	Oak along path on southwest boundary.	Woodpecker hole leading into rotting trunk. Second large hole possibly leading into same main cavity.	1*
T17	Dead Oak along path on southwest boundary.	Dense Ivy growth may be concealing features. Features considered highly likely in dead trunk with missing top.	1
T18	Dying Oak along path on southwest boundary.	Top of trunk broken away. Large rotting trunk cavity visible.	1*
G2	Three Oak trees along path on southwest boundary.	Middle tree with broken trunk which may have small cavity in top concealed by Ivy. Other two trees with few dead branches and some Ivy cover. Concealed features possible.	2
T19	Oak on southwest boundary.	Potential cavities around dying branches. Peeling bark on one branch may lead into rotting branch cavity.	1
T20	Ash along path on southwest boundary.	No obvious feature but mature tree with some Ivy cover and dieback of branches. Potential for concealed features.	2
T21	Ash along path on southwest boundary.	Snapped branch with likely feature but concealed by dense Ivy cover.	1
T22	Ash along path on southwest boundary.	Multiple woodpecker holes and large cavity opening in top of trunk.	1*
T23	Ash along path on southwest boundary.	Top of trunk broken away. Large rotting trunk cavity visible.	1*
T24	Ash along path on southwest boundary.	Trunk cavity opening going up tree and multiple woodpecker holes in trunk and on branch	1*
T25	Ash along path on southwest boundary.	No obvious feature but mature tree with some Ivy cover and dieback of branches. Potential for concealed features.	2
T26	Ash along path on southwest boundary.	Possibility of some gaps around broken branches with limited bat potential and others concealed by Ivy growth.	2
T27	Ash along path on southwest boundary.	Trunk and branch cavities and woodpecker holes visible.	1*
T28	Silver Birch just off-Site along western section of the northern Site boundary.	Small trunk cavity holes low down on tree when viewed from south. May have some limited bat potential.	1

3.2.2 It is understood that the trees identified during the Phase 1 Bat Survey as having potential to support roosting bats will be retained as part of the proposed residential development. No further survey of these trees was therefore undertaken. Notwithstanding this, measures to maintain the integrity of opportunities for roosting bats provided by trees both within and adjacent to the Site are recommended in *Section 5* of this report.

3.3 Phase 2 Bat Activity Surveys

3.3.1 Details of the date and time of bat activity surveys, along with weather conditions and sunset times, are provided in *Table 1* above.

3.3.2 A visual summary of bat foraging and commuting activity recorded during the activity surveys has been provided in Appendix B. In total, five species of bat were recorded

during the surveys; Common Pipistrelle, Soprano Pipistrelle, Noctule, Leisler's, and Brown Long-eared bat. A summary of each species recorded, their activity and an estimation of numbers using the Site at any one time is provided in *Table 3*.

Table 3: Summary of bat activity

Species	Activity Summary	Approx. number recorded*
Common Pipistrelle	Common Pipistrelle was the most frequently recorded species during the activity surveys. The peak area of activity was the wooded Hertfordshire Way footpath which is located on the southern boundary and comprises a path with rows of mature Oak and Ash either side. The Hertfordshire Way was found to provide a popular commuting route and foraging area for up to 12 Common Pipistrelle bats at any one time. These bats were observed foraging on the western side of Northaw Road after sunset before passing across the road and along the wooded path. These bats would then forage along the path for around 30-45 minutes before dispersing into the wider area. Throughout the remainder of the surveys, all boundaries would be used occasionally by foraging or commuting Common Pipistrelle bats.	8-12
Soprano Pipistrelle	Soprano Pipistrelle was recorded on less than five occasions during the surveys. This included brief periods of foraging in the north-east and south-west corners of the Site and a single pass along the Hertfordshire Way path. It is therefore considered that very low numbers of Soprano Pipistrelle bats use the Site on an occasional basis for foraging and commuting.	1
Noctule	One faint registration of Noctule was made, early on during the second (July) survey visit, from the south-western corner of the Site. Due to the characteristics of the Noctule call (being strong and likely to carry long distances) it is possible that the individual recorded was flying far overhead and/or outside the Site boundary. It is therefore considered unlikely that Noctule use the Site on a regular basis.	1
Leisler's	A single Leisler's bat was recorded during the second survey visit only. The bat was recorded late in the evening foraging along the eastern Site boundary abutting the railway corridor. It is considered that very low numbers of individual Leisler's bats may use the Site margins for foraging and/or commuting on an occasional basis.	1
Brown Long-eared	A single pass, which was probably of a Brown Long-eared bat, was recorded late on during the final (September) visit, along the eastern boundary abutting the railway. Although only one registration of Brown Long-eared bat was made during the survey, the call of Long-eared bats is very quiet, so it is considered likely that the Site is used on an occasional basis by low numbers of Brown Long-eared bats.	1

**This is an approximation of the number of bats of any one species estimated to have been using the site during any one visit.*

3.3.3 The majority of activity recorded within and adjacent to the Site related to Common Pipistrelle bats. Much of this activity pertained to the wooded footpath running along the southern boundary, known as the Hertfordshire Way. Up to 12 Common Pipistrelle bats were expected to have been foraging or commuting along this path at any one time and

many were seen entering this corridor from the residential area to the west of Northaw Road beyond the western Site boundary. This is very similar to the activity observed at the Site during the 2008 activity surveys although higher numbers (in excess of 50 Common Pipistrelle bats) were reported using this commuting route in 2008.

3.3.4 Other activity within the Site was mostly limited to occasional passes and foraging by very low numbers of Common and Soprano Pipistrelles around the Site boundaries. Brown Long-eared and Leisler's bat were recorded on single occasions within the Site and it is likely that individuals of these species use the Site for foraging on an occasional basis. Noctule was also recorded on one occasion but it is not expected to have been directly related to the Site.

4 EVALUATION

4.1 Roosting Bats

4.1.1 It is expected that all trees identified with bat roosting potential within or adjacent to the Site will be retained and, subject to the implementation of recommended measures to avoid indirect effects of lighting, will experience no significant adverse effects as a result of the proposed residential development. Subsequently, no Phase 2 bat emergence surveys were carried out in relation to roosting bats and trees at the Site.

4.1.2 The numbers of Common Pipistrelle bats recorded commuting from development to the north-west of the Site, across Northaw Road, to the Hertfordshire Way corridor along the southern Site boundary suggests that there is a sizeable roost of this species nearby to the north-west of the Site in the settlement of Cuffley. The observations made during the activity survey suggested however that the trees along the wooded path to the south of the Site, although providing a number of roosting opportunities, are unlikely to support significant numbers of roosting bats, and no bat roosts were expected to have been present within the trees located around the Site boundaries.

4.1.3 Although potential roosting Sites including buildings and mature trees are abundant in the wider area, wherever possible development proposals should aim to maintain and enhance existing opportunities for roosting bats within and adjacent to the Site, in order to support the long-term favourable conservation status of this group in accordance with nature conservation legislation, planning policy and the 2006 NERC Act. Recommendations to enhance the value of the Site for roosting bats are included in *Section 5.*

4.2 Foraging and Commuting Bats

4.2.1 The bat activity surveys recorded five bat species using the Site for foraging and commuting, with varying levels of activity observed throughout the surveys. The plan in

Appendix B provides an overview of bat activity recorded during the three activity surveys.

4.2.2 Common Pipistrelle was the species most commonly recorded during the survey. Soprano Pipistrelle was recorded on less than five occasions and Noctule, Leisler's and Brown Long-eared bats were only recorded once during the three survey visits.

4.2.3 The treeline associated with the Hertfordshire Way running along the southern Site boundary was frequently used by up to 12 Common Pipistrelle and occasionally Soprano Pipistrelle. However, in excess of 50 commuting Pipistrelle bats were reported to have used the path during the 2008 survey during one survey visit. The path is likely to be of high importance for these bats as post-emergence foraging habitat and as a commuting corridor linking the roosting site(s) in the settlement of Cuffley to other foraging areas to the south-east. In view of the survey findings, the wooded path should be considered of **'high local'** value to bats and development proposals should seek to maintain the integrity of this habitat for foraging and commuting bats. This can be achieved through the implementation of the recommended measures described in *Section 5*.

4.2.4 Elsewhere activity within the Site itself was generally limited to occasional passes and foraging around the Site margins in association with suitable off-Site habitat including residential gardens, mature treelines and scrub occurring just beyond the boundaries. The Site itself is likely to comprise only a small proportion of a much wider foraging territory for these bats. Hedgerows on the western and south-eastern boundaries are used by only a small proportion of the bats commuting from the north-west of the Site. These boundaries in combination are therefore considered be of no higher than '**low local**' value for foraging and commuting bats.

4.2.5 The remainder of the Site, comprising intensively farmed arable land offers poor quality habitat for foraging and commuting bats and is considered to be of **'negligible'** value for the local bat population.

4.2.6 In addition, development proposals should seek to maintain and enhance roosting, foraging or commuting opportunities for all species of bats using the Site and adjacent habitats in accordance with nature conservation legislation, planning policy and the 2006 NERC Act. Recommendations to maintain and enhance the value of the Site for bats are included in *Section 5*.

5 ASSESSMENT AND RECOMMENDATIONS

5.1 This section assesses the likely effects of the proposed development on bats and identifies any requirements for measures to be implemented during development of the Site in order to avoid, mitigate and compensate potential effects of development on bats.

In addition, measures for enhancement of the Site for roosting and foraging bats are included in accordance with the NPPF (2012) and the NERC Act (2006).

5.2 Roosting habitat

5.2.1 It is understood that all trees identified with bat roosting potential located on the western and southern Site boundaries or along the adjacent wooded path will be retained as part of the proposed residential development scheme and, subject to the implementation of measures recommended to avoid indirect effects of lighting described in *Section 5.3.2* below, will experience no significant adverse effects as a result of the proposed development.

5.2.2 In the unlikely event that detailed design or ongoing Site management results in the loss of a Category 1/1* tree or any tree features with bat roosting potential is unavoidable (e.g. for reasons of health and safety), further surveys in the form of tree climbing inspections and/or emergence/re-entry surveys should be carried out to determine whether roosting bats are present. If Category 2 trees are affected, although further survey in support of the application is not required, felling work should follow a precautionary methodology (i.e. soft felling) in accordance with the BCT 2012 guidelines.

5.2.3 The proposed development would present significant opportunities to enhance the value of the Site for roosting bats which could be achieved through the provision of a range of bat roosting features throughout the Site. The detailed design and precise location of such features, should be determined through consultation with an appropriately qualified and experienced ecologist at an appropriate stage prior to construction, but should include a selection of the following:

- Erection of bat boxes on mature trees across the Site, particularly those with good connections to foraging habitat such as along the southern Site boundary and other areas of newly created and retained semi-natural habitats within and around the Site; and
- Creation of roosting opportunities on new dwellings and other buildings, e.g. through inclusion of bat tubes or 'Habibat' type bat boxes within the external walls, access to roof voids etc.

5.2.4 By providing a variety of roosting opportunities in different locations and orientations, a range of roost spaces with varied microclimates could be provided by the Site, offering opportunities for roosting bats throughout the year and increasing the future potential of the Site to support roosting bats. In the long-term, any proposed new tree planting is likely to provide an additional bat roosting resource as trees develop suitable bat roosting features such as cracks, splits and holes. This is expected to further increase opportunities for roosting bats.

5.2.5 The integrity of retained potential roost Sites associated with trees around the site margins should be conserved through the maintenance of connections to commuting and foraging habitat and sensitive use of lighting throughout the construction and operational phases.

5.3 Foraging and commuting bats

5.3.1 The proposed development area comprises an intensively farmed arable field providing low quality habitat for foraging bats with activity restricted to its margins in association with habitats beyond and is considered, as a whole, to be of only **'low local**' value to the local bat population. Notwithstanding this, development proposals should seek to maintain suitable opportunities for foraging and commuting bats throughout the Site, as although foraging and commuting habitats are not directly protected by law, several bat species including Soprano Pipistrelle and Brown Long-eared bats are a 'priority species' and therefore the effects of development on foraging and commuting habitat are a material consideration in the planning process. The hedgerows on the western and south-eastern boundaries are used by a small proportion of the bats commuting from the north-west of the Site and these should be retained where possible or replaced elsewhere within the Site maintaining habitat linkages between residential development in the north-west, the wooded path and wider habitats to the south-east.

5.3.2 Although the vast majority of activity at the Site relates to Pipistrelle bats, which are relatively light tolerant species, and were seen to be actively foraging beneath the streetlights on Northaw Road and land to the north, it is recommended that any new lighting provided is designed to minimise any additional light spill onto the Site margins whilst maintaining the minimum level required for safety. The use of directional, cut-off and low-level lighting should be used as appropriate together with narrow spectrum and low UV bulbs.

5.3.3 Particular attention should be given to minimising light spill onto the wooded path along the southern Site boundary, identified as being of **'high local'** value for foraging and commuting bats, and the eastern Site boundary which are currently relatively unaffected by artificial light. This would maintain dark corridors for all bat species including Brown Long-eared, which was recorded on the Site during the activity surveys and has a low tolerance to artificial light.

5.3.4 In addition to the measures outlined above, in order to maximise the value of landscape planting for foraging bats and other wildlife within the proposed development it is recommended that where possible the landscape planting scheme should include provision of a selection of new native-species hedgerow, shrub and tree planting, and meadow grassland within the development area. Consideration should also be given to

the use of nectar- and pollen-rich plant species in boundaries and gardens, to encourage invertebrate prey for foraging bats.

6 CONCLUSION

6.1 The Phase 1 bat scoping survey identified a number of trees on the Site boundary and adjacent to the Site with the potential to support roosting bats, most of which are associated with the tree belt associated with the Hertfordshire Way on the southern boundary. It is understood that all these trees will be retained and the integrity of any opportunities that these trees provide could be maintained through the recommended measures to prevent indirect effects of lighting and maintain connectivity with habitat in the wider area as described in *Section 5* above.

6.2 Five species of bat were recorded using the Site during the Phase 2 bat activity surveys, although the vast majority of activity related to Common Pipistrelle bats. The majority of the Site including the proposed development area, comprises an intensively farmed arable field, providing low quality habitat for foraging and commuting bats and is considered to be of **'negligible'** value for bats in isolation. Much of the activity recorded was associated with the tree belt associated with the Hertfordshire Way along the southern Site boundary. The integrity of the tree belt, assessed as being of **'high local'** value for foraging and commuting bats, should be maintained through sympathetic use of artificial lighting in combination with maintenance of habitat linkages from residential development to the north-west and other suitable habitats to the south-east of the Site. Measures by which this could be achieved are provided in Section 5.

6.3 Subject to the implementation of standard measures described on *Section 5* to avoid adverse potential effects of lighting on bats and maintain the integrity of the habitats bordering the Site to be used by bats, no adverse effects on the favourable conservation status of the local bat population would be expected to arise as a result of the proposed development.

6.4 Furthermore, opportunities to strengthen the corridor of vegetation along the eastern and northern Site boundaries and provide habitats of high value for foraging bats, such as a selection of hedgerows and treelines, meadow grassland, garden and scrub habitats within the Site in areas currently comprising arable farmland would provide a considerable opportunity to improve the value of the Site for foraging and commuting bats.

6.5 Along with the recommended provision of new roosting opportunities within the buildings of the proposed development, these habitat enhancement opportunities could considerably increase the value of the Site for bats in order to support the long-term

favourable conservation status of bats in accordance with nature conservation legislation, planning policy and the 2006 NERC Act.

6.6 In conclusion, subject to the implementation of the measures described in *Section 5* to avoid adverse effects on foraging and commuting bats currently using habitats within and adjacent to the Site, it is considered unlikely that any adverse effects would arise as a result of the proposed development on the local bat population. Furthermore, development of the Site would provide opportunity to enhance the value of the Site for bats through provision of high quality foraging habitat and new roosting opportunities on buildings and trees.

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APPENDIX A

Phase 1 Bat Scoping Results Plan

KEY

Survey boundary

Site boundary

Bat Scoping

1 Category 1* Trees

1 Category 1 Trees

1 Category 2 Trees

All other trees within and bordering the site are Category 3 (negligible bat roost potential).

CLIENT:
Lands Improvement

PROJECT:
Land to the north east of King George V Playing Fields

TITLE:
Phase 1 Bat Scoping Results Plan

SCALE AT A3:
1:1250

DATE:
November 2014

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Masterplanning
Ecology

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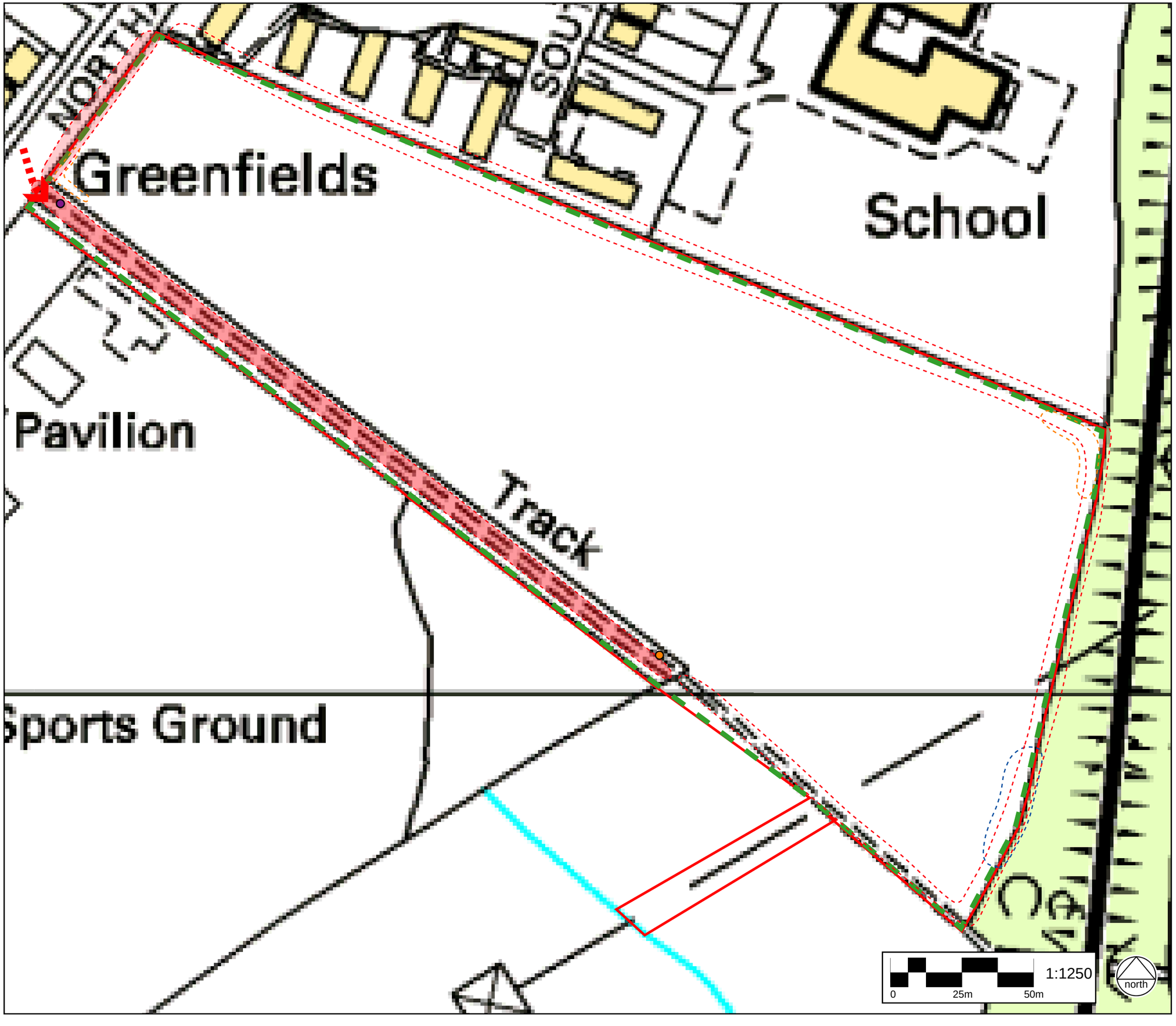
APPENDIX B

Phase 2 Bat Activity Survey Plan



KEY

Survey boundary

Site boundary

Bat Activity

Common Pipistrelle

Occasional bat passes

Moderate foraging activity

Heavy foraging activity

Common Pipistrelles seen crossing Northaw Road from off-site roost(s) to north

Soprano Pipistrelle

Single bat pass

Occasional bat passes

Noctule

Single bat pass

Leisler's

Occasional bat passes

Brown Long-eared

Single bat pass

CLIENT:
Lands Improvement

PROJECT:
Land to the north east of King George V Playing Fields

TITLE:
2013 Phase 2 Bat Activity Survey Plan

SCALE AT A3:
1:1250

DATE:
November 2014

2130.24 / 04 A

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APPENDIX F

2013 Reptile Survey Report (HDA, 2014)

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LAND TO THE NORTH EAST OF KING GEORGE V PLAYING FIELD

REPTILE SURVEY REPORT

Prepared for Lands Improvement

by

Hankinson Duckett Associates

HDA ref: 2130.24

November 2014

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HDA Document Control and Quality Assurance Record

HDA Project Title: Northaw Road: Ecology
Project Reference: 2130.24
Document Title: Reptile Survey Report
Commissioning Party: Lands Improvement

Issue	Description	Date of Issue	Signed
1	Reptile Survey Report	December 2013	
2	Reptile Report Rev A: Updated to reflect application format	November 2014	

	Personnel	Position
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Approved for issue	Adrian Meurer MCIEEM	Director

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APPENDICES

EXECUTIVE SUMMARY

This report describes an updated reptile survey carried out at approximately 4.89ha of land at Cuffley, Hertfordshire, hereinafter referred to as 'the Site'. The Site centre is located by National Grid Reference TL 3045 0210. The study was commissioned by Lands Improvement in May 2013.

No reptiles were recorded during either the 2013 or 2008 reptile surveys. It is therefore considered that the Northaw Road Site is extremely unlikely to support reptiles on a regular basis. This result is reinforced by the placing of a higher than recommended density of refugia which would have increased the likelihood of finding any reptiles present at the Site. No mitigation specific to reptiles is therefore recommended in relation to the proposed development of the Site.

1 INTRODUCTION

1.1 Site location and summary description

1.1.1 This report describes an updated reptile survey carried out at approximately 4.89ha of land at Cuffley, Hertfordshire, hereinafter referred to as 'the Site'. The Site centre is located by National Grid Reference TL 3045 0210. The study was commissioned by Lands Improvement in May 2013.

1.1.2 The Site is located on the southern edge of Cuffley and is currently in agricultural use. It is bound by existing residential development to the north and north-west; the grounds of Cuffley Primary School also adjoin the Site along its northern boundary. The railway line and Northaw Road East (B156) form strong eastern and western boundaries respectively. The southern boundary is defined by a mature hedgerow and tree belt lining the Hertfordshire Way footpath. Beyond the footpath to the south west of the Site is the King George V Playing Fields, which contains three sports pavilions, a recreation area with hard surfaced Multi Use Games Areas (MUGA), sports pitches and a small area of formal play equipment. The location and boundary of the Site is shown in Appendix A.

1.1.3 In general terms, the Site is dominated by one large arable field with narrow grassland and scrub margins. Hedgerows, fences, scrub and mature trees form the boundaries as described above.

1.2 Background and legislative context

1.2.1 Four species of reptile are widespread in England, Grass Snake *Natrix natrix*, Slow-worm *Anguis fragilis*, Common Lizard *Zootoca vivipara* and Adder *Vipera berus.* The Sand Lizard *Lacerta agilis* and Smooth Snake *Coronella austriaca* are restricted to certain sand dune and heathland Sites.

1.2.2 Reptiles can be found in a range of habitats and typically require a mosaic of vegetation types. Habitat interfaces are important with reptiles requiring woodland, scrub or hedgerow for shelter, with adjacent longer vegetation for hunting and patches of sheltered short turf, bare ground or log piles for basking areas. Areas which catch the sun (i.e. those with a southerly aspect) are preferred over those where direct sunlight is absent for most of the day. In addition, Grass Snakes favour damp habitats such as those associated with still and running water, grazing marshes, mires etc.

1.2.3 All species of reptile are protected through Sections 9(1) and 9(5) of the Wildlife and Countryside Act 1981 (as amended). It is an offence to:

- Intentionally kill or injure any reptile;
- Sell, offer for sale, possess or transport for the purposes of sale or publish advertisements to buy or sell any reptile.

Due to their rarity, Sand Lizards and Smooth Snakes have additional protection.

1.2.4 Reptiles across the UK have undergone significant declines in recent years and all species of reptile within the UK are now listed as Priority Species for conservation action under the UK Biodiversity Action Plan (BAP). Planning policy, legislation and guidance requires that these species are a material consideration when making planning decisions.

1.3 Scope and purpose of the report

1.3.1 This report and corresponding surveys provide an update of reptile survey work carried out by HDA in 2008 (HDA, 2009). No reptiles were recorded during the 2008 survey and it was concluded that locally significant numbers of reptiles were extremely unlikely to be present. Although an updated Phase 1 Habitat Survey carried out on 20th November 2012 found no significant changes in the extent or character of suitable reptile habitat at the Site since the 2008 reptile survey was carried out, in view of the time that had elapsed since the 2008 survey, the reptile survey was updated in 2013 to confirm the extent of any current constraints to the proposed development of the Site for residential use.

1.3.2 In addition to the continued presence of suitable habitat recorded during the extended Phase 1 Habitat survey, eleven records of reptiles were provided by Hertfordshire Biological Records Centre during the 2012 desk study. A small number of records for Grass Snake, Slow-worm and Common Lizard exist for land within 500m of the Site boundary, all of which date from between 1960 and 1997. It may however be assumed that Slow-worm and Common Lizard were recently present in high numbers at Cuffley Station Embankment Wildlife Site (WS) located approximately 800m north of the Site, in view of its citation and corresponding designation.

1.3.3 The aims of this study are:

i. To establish the presence/probable absence of reptiles at the Site;
ii. To assess the relative importance of different parts of the Site for reptiles; and
iii. To predict likely impacts potentially arising from development of the Site and give recommendations for impact avoidance, minimisation and mitigation.

2 METHODOLOGY

2.1 The methodology has been devised to accord with the requirements of all relevant legislation and good practice guidance, including The Herpetofauna Worker's Manual (JNCC, 1999) and Reptile Survey guidance (Froglife, 1999).

2.2 The Site was surveyed six times in total between May and June 2013 by Michael Berwick of HDA. The six survey visits were carried out on 17th May, 21st May, 27th May, 29th May, 14th June and 16th June during optimum temperature and weather conditions (intermittent or hazy sunshine, temperature between 9°C and 20°C and low winds).

2.3 Two methods of surveying were used. Firstly, artificial refugia (squares of roofing felt 0.5m x 0.5m) were placed, in advance of the survey commencing, at potential basking areas throughout the Site. A total of 60 refugia were placed, giving a total density of 14.3 refugia per hectare. Although this is above the recommended density of 5 to 10 refugia per hectare, this density was considered appropriate in order to obtain accurate more robust representation of reptile presence/ probable absence and distribution across the Site. Locations of refugia are shown on the map in *Appendix A*.

2.4 During each of the six visits, each refugium was inspected for any reptiles basking on the upper side, then lifted and checked for sheltering animals before being carefully replaced.

2.5 The second survey method involved transect searches across suitable habitats within the Site. This ensured that all areas were represented in the survey, and that the survey was not biased towards those reptiles more likely to use refugia. Transect searches involve walking slowly around the Site, visually searching potential basking areas and marking the locations of any reptiles observed on a map. Potential reptile refuges already present on the Site such as discarded wooden boards and plastic sheets were also lifted to check for the presence of animals.

2.6 The following information was recorded for each reptile survey: species seen, number of animals seen, location (refugium number), date, start and finish times, temperature and weather.

2.7 Limitations

2.7.1 Subsequent to the 2013 bat survey work the Site boundary was extended to include the treeline along the southern Site boundary and a spur of land across an arable field to a drain. This is not considered to be a significant limitation to the purpose of the survey however as the treeline forming the southern boundary of the Site was effectively sampled in both the 2008 and 2013 reptile surveys and the spur of land across the arable field to the south does not support suitable reptile habitat. The 'Site boundary' and 'survey boundary' are given in Appendices A and B of this report for comparison.

2.7.2 In summary, no significant limitations were encountered during the course of the survey and the results therefore allow a robust assessment of the likely presence/ probable absence of reptiles and their distribution across the Site.

3 RESULTS

3.1 Habitat assessment

3.1.1 The majority of the Site is dominated by a single arable field which is considered unsuitable for reptiles. Field margins in the form of rough grassland with scattered scrub

and hedgerow bases have potential to support common and widespread reptiles. However, the field margins were generally very narrow to non-existent in many places, providing very limited areas of reptile habitat including rough grassland, ruderals and scrub. Additional suitable habitat is provided by the tree belt along southern Site margin. Scrub areas beyond the Site boundary to the east on the railway embankment provide good quality habitat for common and widespread reptile species but adjacent suitable habitat on the Site margins is generally very limited.

3.2 Refugia and visual searches

3.2.1 Despite the presence of suitable habitat within the Site and the higher than recommended density of refugia placed, no reptiles were recorded during the survey.

4 CONCLUSION AND RECOMMENDATIONS

4.1 No reptiles were recorded during either the 2013 or 2008 reptile surveys. It is therefore considered that the Northaw Road Site is extremely unlikely to support reptiles on a regular basis. This result is reinforced by the placing of a higher than recommended density of refugia which would have increased the likelihood of finding any reptiles present at the Site. No mitigation specific to reptiles is therefore recommended in relation to the proposed development of the Site.

5 REFERENCES

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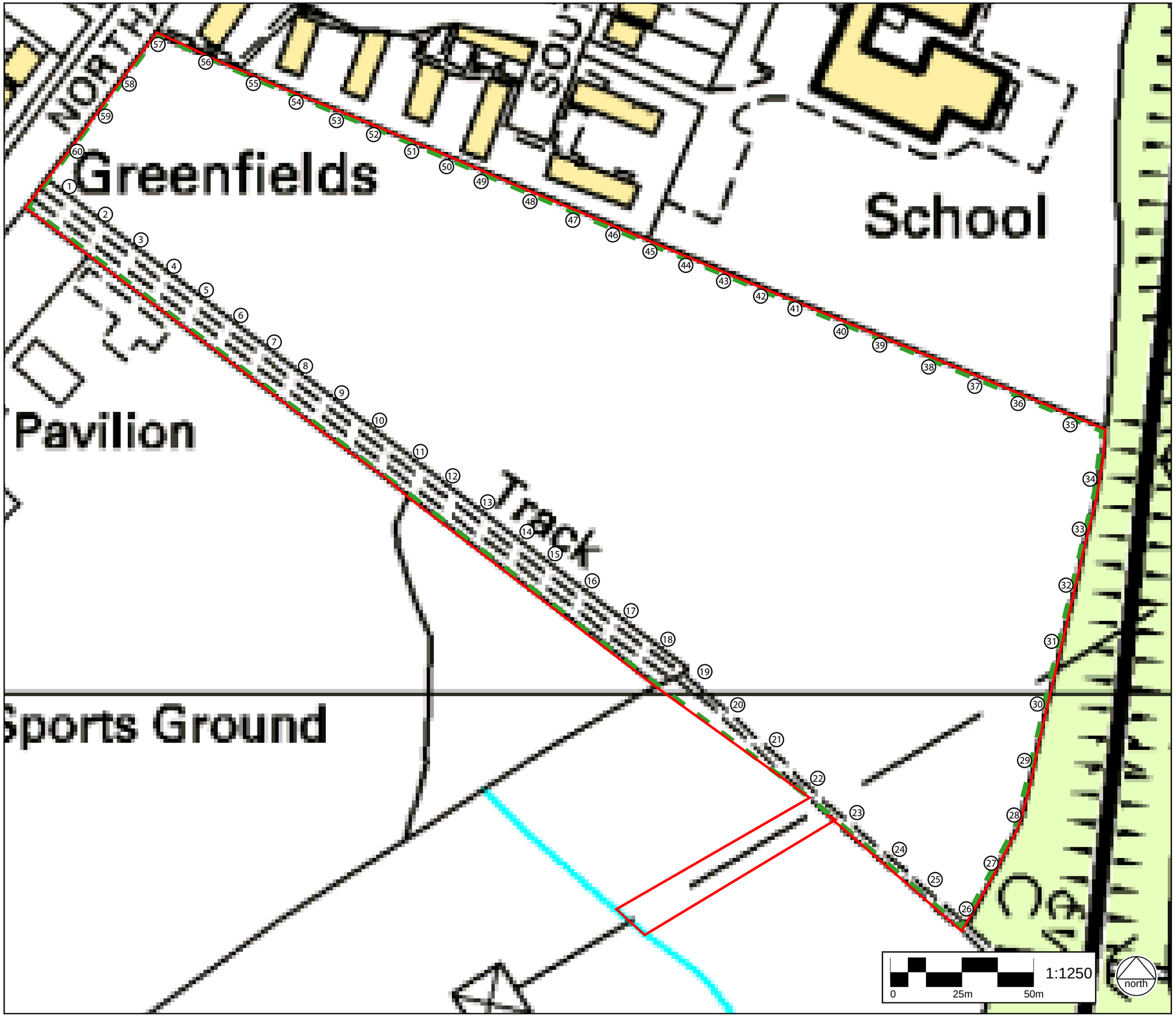
APPENDIX A

Reptile Survey Summary Plan



KEY

- Survey boundary
- Site boundary
- ① Reptile refugia

CLIENT:
Lands Improvement

PROJECT:
Land to the north east of King George V Playing Fields

TITLE:
Reptile Survey Summary Plan

SCALE AT A3: 1:1250

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APPENDIX G

Evaluation Criteria

Criteria used for the evaluation of ecological receptors (based on Ratcliffe, 1977; IEEM 2006)

Assigning value is relatively straightforward in the case of designated sites, and undesignated sites meeting designation criteria. However, in most cases evaluation of ecological resources is not straightforward and requires a degree of knowledge, experience and professional judgement (Usher, 1986; Spellerberg, 1992). Evaluation of an ecological receptor was based on a number of criteria (Ratcliffe, 1977; IEEM 2006) summarised below:

- Site designations; SPA, SAC, Ramsar, SSSI, NNR, LNR, SINC or equivalent.
- Site designation criteria; e.g. Guidelines for the Selection of Biological SSSIs, JNCC, 1989.
- Conservation status; whether a habitat or species is rare, declining or threatened at a given geographic scale.
- Geographic location; the value of a habitat or species may change depending on whether it is being assessed in the south of England or the north of Scotland.
- Distribution; habitats or species on the edge of their distribution, particularly where that distribution is changing as a result of global trends and climate change and endemic species or locally distinct sub-populations of a species are more valuable;
- Rarity; the presence of habitats, species, subspecies or varieties that are rare or uncommon at a given geographic scale.
- Diversity; of habitats, or species, particularly of vascular plants. Species-rich assemblages of plants or animals are likely to be important in terms of biodiversity;
- Naturalness; habitats least affected by human disturbance are normally of relatively higher importance.
- Size; larger areas are generally more valuable than lots of small ones. Notably large populations of animals or concentrations of animals considered uncommon or threatened in a wider context may be important.
- Fragility; sensitivity to, and probability of, human impact.
- Typicalness; a good example of the type, particularly plant communities (and their associated animals) that are considered to be typical of valued natural/semi-natural vegetation types, including examples of naturally species-poor communities.
- Potential value (if restored to favourable conservation status).
- Secondary or supporting value; value of a receptor in supporting the integrity or conservation status of another valued receptor.
- Ability to be recreated; the more difficult a habitat is to re-create, were it to be destroyed, the greater the importance usually attached to it.