CSA environmental

Land at Thieves Lane,
Hertford

Preliminary Ecological Appraisal

Prepared by
CSA Environmental

on behalf of
Croudace Strategic Ltd

Report No: CSA/2028/04

April 2016

urban design | ecology | landscape

Report Reference	Date	Revision	Prepared by	Approved by	Comments
CSA/2028/04	14/04/2016	-	TJC	JW	Draft for comment

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EXECUTIVE SUMMARY

CSA Environmental (CSA) was instructed by Croudace Strategic Ltd. to undertake a Preliminary Ecological Appraisal (PEA) of the Thieves Lane, Hertford Site to identify ecological constraints to proposed residential. This PEA is intended to inform recommendations for design based on anticipated ecological constraints, highlight opportunities for ecological enhancement and determine the need for any additional investigation/survey work.

As part of this PEA, a desk study and extended Phase 1 Habitat survey of the Site were undertaken in March/April 2016. The Site comprises a large arable field with restricted field margins and sections of boundary hedgerow.

Confirmed ecological constraints to development at the Site are:

- Blakemore Wood: Adjacent ancient semi-natural woodland (15m minimum buffer from to development)
- Panshanger Park Local Wildlife Site (LWS) [on-site]
- Hedgerow boundary
- Nesting birds and seasonal vegetation removal restrictions

The following additional update investigation/survey work is considered appropriate to inform an 'Ecological Assessment' of the proposed development:

- Consultation with LPA with regard to scope of further surveys and ancient woodland / LWS constraints
- Update surveys for bats, badgers and arable plants
- Dormouse survey (given new populations recorded in the local area in 2013)

Recommendations have been provided for ecological enhancement that could be delivered as part of the proposed development, including:

- New habitat creation to complement the wider Panshanger Park including:
  - Woodland planting
  - Grassland seeding (seed mixes and management dependent upon trophic and structural soil conditions)
- Design of any Sustainable Drainage Systems (SuDS) to incorporate semi-natural habitats including aquatic, wetland and grassland
- New bat roosting and bird nesting features provided within residential areas

1.0 INTRODUCTION

1.1 This report has been prepared by CSA on behalf of Croudace Strategic Ltd. It sets out the findings of a Preliminary Ecological Appraisal (PEA) of Thieves Lane, Hertford, Hertfordshire (hereafter referred to as 'the Site').

1.2 The scope of this appraisal has been determined with due consideration for best-practice guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM)[1,2]. The *Biodiversity: Code of practice for planning and development* published by the British Standards Institute (BS 42020:2013) cites CIEEM Guidelines as the acknowledged reference on ecological impact assessment.

1.3 The Site occupies an area of c. 9ha and is located around central grid reference TL 30754 12802, to the west of Hertford. It comprises two arable fields bisected by a public footpath, with restricted field margins and sections of boundary hedgerow.

1.4 Residential development is proposed at the Site, for which planning permission will be sought.

1.5 A desk study and extended Phase 1 Habitat survey were undertaken for the Site, the findings of which are presented herein. Reference is made to previous survey work undertaken at the Site in 2012 and 2013, where appropriate.

1.6 This PEA aims to:

- Identify any ecological constraints to the project.
- Make recommendations for emerging design of the project.
- Identify further ecological surveys necessary to inform a full 'Ecological Assessment' of the Site Ecological Impact Assessment methodology
- Highlight opportunities for ecological enhancement.

1.7 As set out in CIEEM guidelines[2] a PEA is typically only suitable for planning if there are no ecological constraints relating to the project. Where ecological constraints are identified these should be dealt with in a separate 'Ecological Assessment' report to cover those constraints, which would supersede the PEA.

2.0 LEGISLATION, PLANNING POLICY & STANDING ADVICE

Legislation

2.1 Legislation relating to wildlife and biodiversity of particular relevance to this PEA includes:

- The Conservation of Habitats and Species Regulations 2010 (as amended)
- The Wildlife and Countryside Act 1981 (as amended)
- The Natural Environment and Rural Communities (NERC) Act 2006
- The Protection of Badgers Act 1992

2.2 This above legislation has been addressed, as appropriate, in the production of this report. Further information on the above legislation is provided in Appendix B.

National Planning Policy

2.3 The National Planning Policy Framework (2012)[3] (NPPF) sets out the government planning policies for England and how they should be applied. Chapter 11: Conserving and Enhancing the Natural Environment, is of particular relevance to this report as it relates to ecology and biodiversity. Further details are provided in Appendix B.

2.4 The Government Circular 06/2005, which is referred to by the NPPF, provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.

Local Planning Policy

2.5 A number of local planning policies relate to ecology, biodiversity and/or nature conservation. These are summarised in Table B.1 of Appendix B. These policies have been addressed, as appropriate, in the production of this report.

Standing Advice

2.6 Natural England Standing Advice[4] regarding protected species aims to support local authorities and forms a material consideration in determining applications in the same way as any individual response received from Natural England following consultation. Standing advice is therefore been given due consideration, alongside other detailed guidance documents, in the production of this report.

3.0 METHODOLOGY

Desk Study

3.1 The Multi-Agency Geographic Information for the Countryside (MAGIC)[5] online database was interrogated in April 2016 to identify:

- Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites within 10km of the Site.
- Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature Reserves (LNR) within 3km of the Site.
- Other relevant data e.g. Ancient Woodland Inventory.

3.2 Hertfordshire Environmental Records Centre (HERC) was contacted for details of any non-statutory designations and records of protected/notable habitats and species. This information was requested for an area encompassing the Site and adjacent land within c. 1km the Site boundary.

3.3 In addition, previous ecological reports for the Site were reviewed to identify any relevant information. These comprised an Ecological Appraisal (August 2012) and a Protected Species Report (November 2013), both written by CSA.

3.4 All relevant desk study data are presented in Appendix C.

Pond scoping

3.5 In line with Natural England's Great Crested Newt Mitigation Guidelines[8], a desktop search was undertaken to identify ponds within 500m of the Site using Ordnance Survey mapping, the MAGIC database, Promap and aerial photography.

Field Survey

Extended Phase 1 Habitat Survey

3.6 An extended Phase 1 habitat survey was carried out in fine and dry weather conditions on 29 March 2016 by Tom Clemence MSc GradCIEEM, encompassing the Site and immediately adjacent habitats that could be viewed.

3.7 Phase 1 Habitat survey[6] is a method of classification and mapping wildlife habitats in Great Britain. It was originally intended to provide "...relatively rapidly, a record of semi-natural vegetation and wildlife habitat over large areas of the countryside". Phase 1 Habitat Survey methodology has been widely 'extended' beyond its original purpose to allow the capture of information at an intermediate level between Phase 1 and Phase 2 Habitat surveys. For clarity, the standard Phase 1

Habitat survey methodology has been 'extended' in this report to include the following:

- More detailed floral species lists for each identified habitat;
- Descriptions of habitat structure, the evidence of management and a broad assessment of habitat condition;
- Mapping of additional habitat types (e.g. hardstanding);
- Identification of Priority Habitats under Section 41 of the NERC Act;
- Identification of Habitats Directive Annex I habitat types;
- Evidence of, or potential for, the presence of the following species/groups:
  - European Protected Species (including bats, great crested newt, dormouse and otter)
  - Birds
  - Reptiles
  - Water vole
  - Badger
  - Other mammals, as appropriate (including red squirrel S41 Priority Species e.g. hedgehog, harvest mouse and brown hare)
  - Other amphibians (including S41 Priority Species: e.g. common toad)
  - Notable, rare, protected or controlled plants
  - Notable, rare or protected invertebrates

3.8 Results of the extended Phase 1 Habitat survey are presented on the Habitats Plan in Appendix A and in Table D.1 of Appendix D, which includes a list of floral species recorded in each habitat.

Limitations

3.9 The survey was undertaken in early Spring when many plant species may not be obvious or easily recognisable. However, it is not anticipated that this would result in significant limitation to the characterisation of habitats present.

Evaluation and Assessment

3.10 The evaluation and assessment of ecological features is beyond the scope of this PEA and has therefore not been undertaken. Formal evaluation and assessment of any identified ecological features should be undertaken as part of either a full 'Ecological Assessment', or receptor-specific survey and assessment in accordance with the published CIEEM methodology[2].

4.0 BASELINE ECOLOGICAL CONDITIONS

Designations

Statutory

4.1 There are no statutory wildlife designations covering any part of the Site.

4.2 Three internationally important designations are present within 10km of the Site, as detailed below in Table 1; the closest of which, Wormley-Hoddesdonpark Woods Special Area of Conservation (SAC), is located c. 4.7km to the south-east.

4.3 No nationally important designations are present within 3km of the Site. It is noted however that Panshanger Park was formerly designated as a Site of Special Scientific Interest (SSSI) in relation to veteran trees, and wood pasture and parkland habitats. The park also supports heathland, neutral grassland and alder carr habitats. The park remains of regional importance for beetles (having an 'Index of Ecological Continuity' [IEC] of 24). It is understood that degradation of identified SSSI interest was due to adverse management and impact of public access. It is also understood that there is a current management drive allow the reinstatement of the SSSI status for the parkland, with particular emphasis on management of wood pasture, veteran trees, heathland, neutral grassland and alder carr.

4.4 One locally important designation is present within 3km of the Site; Waterford Heath Local Nature Reserve (LNR) located c. 1.7km north-east of the Site, as described in Table 1.

Table 1. Statutory and Non-Statutory Designations within Data Search Radii

Site Name & Designation	Distance & Direction from Survey Area	Brief Description of Designated Site
Internationally Important Designations within 10km		
Wormley-Hoddesdonpark Woods SAC	c. 4.7km south-east	Broad-leaved deciduous woodland dominated by former hornbeam *Carpinus betulusheb* coppice with sessile oak *Quercus petraea* standards.
Lee Valley Ramsar Site	c. 6.7km east	Lee Valley comprises a series of wetland habitat which supports internationally important numbers of over-wintering gadwall and shoveler and nationally important numbers of several other bird species, in addition to a diverse range of wetland flora and fauna.
Lee Valley Special Protection Area (SPA)	c. 6.7km east	Lee Valley comprises a series of wetland habitat which supports internationally important numbers of over-wintering

		gadwall and shoveler and nationally important numbers of several other bird species, in addition to a diverse range of wetland flora and fauna.
Nationally Important Designations within 3km		
N/A	N/A	N/A
Locally Important Designations within 3km		
Waterford Heath LNR	c. 1.7km north-east	Former sand and gravel quarry which contains a range of habitats, including grassland, scrub, plantation woodland and a small area of ancient, semi-natural woodland. In addition, slow worm, common lizard and grass snake are known to use the site.
Non-statutory Designations within 1km		
Panshanger Park LWS	On western part of site and adjacent to western boundary	Large ornamental parkland. The site supports many veteran trees (c. 500). There are also areas of ancient woodland (which abut the Site boundary).
Long Wood (Sele Farm) LWS	c. 0.34km north	Ancient semi-natural broadleaf woodland with a dense canopy of hornbeam coppice with occasional standards.
North Road Cemetery, Hertford LWS	c. 0.49km north-east	Cemetery with semi-improved neutral grassland which generally supports a reasonable mix of grasses and herbs.
Land west of Sele Farm LWS	c. 0.4km north-west	Area of derelict old grassland and scrub including a north facing slope. The grassland is mainly rough and neutral in character with a shorter more acid community on the slope.
Archer's Spring Conifer Plantation LWS	c. 0.5km north-west	A conifer plantation on a small hilltop to the west of Hertford on the site of woodland shown on Bryant 1822. Remnants of the original broadleaved woodland survive on the margins of the plantation and to a lesser extent within a sparse field layer.
Hertingfordbury Park, Lower Pastures LWS	c. 0.62km south-east	Series of low lying neutral grasslands which contains several wet flushes and springs, giving rise to marshy/fen conditions in places.
St Mary's Churchyard, Hertingfordbury LWS	c. 0.65km north	Churchyard with moderately diverse neutral grassland supporting a range of fine grasses and herbs.
Willowmead LWS	c. 0.65km south-east	Mature riparian wet alder *Alnus glutinosa* woodland with crack willow *Salix fragilis* and white willow *Salix alba* carr on a waterlogged peaty substrate.
Elevenacre Wood LWS	c. 0.6km north	Narrow strip of ancient semi-natural pedunculate oak *Quercus robur* and

		hornbeam *Carpinus betulus* woodland on a steep north facing gravel escarpment.
Hanging Grove LWS	c. 0.72km north-west	Ancient semi-natural woodland on a west facing slope supporting mainly hornbeam standards and coppice with ash *Fraxinus excelsior* and field maple *Acer campestre* and rare pedunculate oak.
Beane Marsh LWS	c. 0.78km east	Wetland habitats on the floodplain of the River Beane.
Goldings Meadows & Woods LWS	c. 0.7km north-east	Comprises meadows, ancient woodland and several watercourses which are of high wildlife value.
Grassland E. of Icehouse Wood LWS	c. 0.82km north	Old grassland on a moderate north-east facing slope with a good mix of finer grass species and commoner herbs growing on dry neutral to slightly acid soil.
Broadoak End Pastures LWS	c. 0.83km north	Predominantly neutral old grassland with a reasonable mix of grass and herb species.

Non-Statutory

4.5 14 non-statutory designations are present within 1km of the Site. The closest is Panshanger Park LWS which covers the north-western most part of the Site and borders the entire western Site boundary.

4.6 These non-statutory designations are described in Table 1 above.

Ancient Woodland

4.7 There are no Ancient Woodland sites covering any part of the Site. However, Blakemore Wood (which forms part of Panshanger Park LWS), an area of ancient woodland is located immediate adjacent to western Site boundary. Blackmore Wood is of semi-natural ancient origin and is dominated by mature oak *Quercus* sp. trees with hornbeam, sweet chestnut *Castanea sativa*, hazel *Corylus avellana*, elder *Sambucus nigra* and holly *Ilex aquifolium* present. Ground flora included bracken *Pteridium aquilinum*, bluebell *Hyacinthoides* sp. and dog's mercury *Mercurialis perennis*. Several veteran and/or mature oak trees were noted to the edge of the wood adjacent to the Site boundary. Additionally, mature hornbeam trees adjacent to the western Site boundary shows evidence of historic hedge-laying.

4.8 It is understood that Blakemore Wood experiences high levels of public access, with well-worn paths throughout the woodland. During the field survey the wood was noted to have a relatively limited habitat structure at the shrub layer, but with a well-developed ground flora and high canopy.

Habitats and Flora

Notable Flora Records

4.9 HERC have provided 24 records of 14 notable plant species from within the search area. Those of potential relevance to the Site include henbane *Hyoscyamus niger* and corn spurrey *Spergula arvensis*, both of which were recorded in 1997 along the southern Site boundary. However, neither were identified during a dedicated arable plant surveys carried out by CSA in June 2013 (Protected Species Report, November 2013). It should be noted that seeds of these notable arable plants can remain within the seed bank for a number of years, with plants re-emerging when suitable conditions arise.

4.10 One record of a veteran/mature tree on the north-western side of the Site was provided. However, this was confirmed to be absent during the field survey, as supported by the August 2012 Ecological Appraisal.

4.11 HERC provided 12 other records of veteran/mature trees located adjacent to the Site boundary, comprising oak species *Quercus* spp. and unknown species.

Habitats

4.12 The following habitats were recorded on-site and classified in line with current Phase 1 habitat species guidance[6], as illustrated in Appendix A. Detailed species lists for each habitat are provided in Appendix D.

Arable Field

4.13 The two fields on-site are dominated by arable land, with a winter wheat crop present at the time of survey.

4.14 Short vegetation has established along the narrow field margins. Species present include common bent *Agrostis* capillaris, Yorkshire-fog *Holcus lanatus*, cow parsley *Anthriscus sylvestris*, common nettle *Urtica dioica* and red dead-nettle *Lamium purpureum*. Restricted areas of bracken were also present along the eastern boundary.

Road Verges

4.15 Beyond hedgerows to the northern boundary and fence/hedge to the eastern boundary a small strip of road verge divides the Site from adjacent highways. The northern road verge comprises short cropped grassland with more rank grassland to the eastern road verge. Species present include perennial rye grass *Lolium perenne*, false oat-grass *Arrhenatherum elatius*, hogweed *Heracleum sphondylium* and yarrow *Achillea millefolium*.

Hedgerows

4.16 A series of short hedgerows were present along the Site's northern, eastern and western boundaries (H1 to H5).

4.17 H1, located along the northern boundary, spans c. 250m west to east and is connected to an area of plantation broadleaved woodland at the Site's north-western boundary. It comprises a number of mature woody species with a gappy base (due to lack of management) and limited ground flora. The hedge is dominated by hawthorn *Crateagus monogyna* and blackthorn *Prunus spinosa* with field maple, oak, hazel and hornbeam also present. Species within the ground flora include cow parsley *Anthriscus sylvestris*, dog's mercury and lesser celandine *Ficaria verna*. Several mature oak and semi-mature ash trees are also present.

4.18 Several short unmanaged sections of cotoneaster *Cotoneaster* sp. hedge (H2) are present along the northern boundary to the east of the public footpath.

4.19 H3 comprises a c. 60m section of defunct hedgerow. Species present include oak, blackthorn, field maple and common ivy *Hedera helix*.

4.20 Short sections of elm *Ulmus* sp. hedgerow are present along the eastern boundary adjacent to Thieves Lane (H4).

4.21 A c. 50m gappy-hedge (H5) connects Blakemore Wood with Chesher's plantation at the south western corner of the Site, with common nettle beds and rough vegetation beyond this feature to the west. Woody species present include holly, hawthorn *Crataegus monogyna*, elder, elm and spindle *Euonymus europaeus*.

Woodland (off-site)

4.22 The Site is enclosed along the southern and western boundaries by woodland blocks which form parts of Panshanger Park LWS. This includes ancient woodland, Blakemore Wood to the west, Chesher's Plantation to the south and a small section of more recently established woodland to the northwest corner of the Site.

4.23 Blakemore Wood is of semi-natural ancient origin and is dominated by mature oak trees with hornbeam, sweet chestnut, hazel, elder and holly present. Ground flora included bracken, bluebell and dog's mercury. Several veteran and/or mature oak trees were noted at the edge of the wood, adjacent to the Site. Additionally, mature hornbeam trees adjacent to the western Site boundary show evidence of historic hedge-laying.

4.24 Chester's Plantation is present beyond the southernmost boundary of the Site. Tree species adjacent to the Site boundary are dominated by sweet chestnut, sycamore *Acer pseudoplatanus* and oak, with holly,

elder and hawthorn also present. Ground flora is limited with some extensive areas of dog's mercury recorded. This woodland is understood to be covered under a tree preservation order (TPO #4: Panshanger Estate).

Fauna

Bats

4.25 There are 31 bat records from within the search area dating from 1989 to 2015, these include the following species: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared *Plecotus auratus* and Natterer's bat *Myotis nattereri*. The closest records are of common pipistrelle (c. 0.15km to the north-east of the Site).

4.26 The Site being dominated by arable land with narrow field margins offers limited foraging opportunities for bat species; however, the sections of hedgerow and boundaries shared with the adjacent woodlands are likely to provide some value.

4.27 During activity surveys and static monitoring of the Site in May and August 2013 common pipistrelle, soprano pipistrelle, noctule *Nyctalus noctula*, serotine *Eptesicus serotinus*, long-eared *Plecotus* sp. and myotis *Myotis* sp. bats were recorded using the Site for foraging and/or commuting. No roosts were identified in 2013, although opportunities were noted in trees along the wooded boundaries of the Site.

4.28 No detailed tree inspection/assessment was carried out during the survey. However, no trees on-site were noted during the survey to have more than 'low' potential to support roosting bats. By contrast a number of the off-site trees abutting the Site (within Blakemore Wood and Chesher's Plantation) are likely to provide moderate and high roosting potential due to their age, condition and potential roost features (PRFs).

Badger

4.29 HERC have provided 33 records of badger *Meles meles* from within the search area dating from 1986 to 2014. The closest record is c. 0.15km from the Site. No badger setts were recorded previously on-site or adjacent in 2013.

4.30 No setts were recorded on the Site; however, badger hair was recorded at a run which led under a boundary wire fence in the south-western corner of the Site (Target note 1 on the Habitats Plan, Appendix A). c. 9 further mammal runs were recorded leading under the boundary fences, most of which led into the adjacent Blakemore Wood and Chesher's plantation, no hairs or additional evidence of badger was recorded at these locations (Habitats Plan, Appendix A).

4.31 An individual badger dung pit was recorded in the south-western corner of the Site (Target note 2 on the Habitats Plan, Appendix A).

4.32 The results of the field survey are in-line with the levels of badger activity recorded in the November 2013 Protected Species Report. Therefore, long-term low-levels of badger activity within the Site can be confirmed.

Dormouse

4.33 HERC have not provided records of dormouse *Muscardinus avellanarius* from within the search area, although it is understood that no dormouse survey or monitoring studies have been undertaken in the wider Panshanger Park area. It is however, understood that a dormouse population has been recently discovered (2013) locally at Hertford Heath, c.4km southeast of the site with records available online.

4.34 No evidence of this species was recorded during the survey. The vast majority of the Site provides negligible opportunities for this dormouse, being arable land. However, H1 to the north of the Site comprises some suitable hedgerow opportunities for this species, particularly given the connectivity to the wider woodland and hedgerow network.

4.35 Therefore, if in the event that a dormouse population has gone undetected within the woodland at Panshanger park, there is the potential for this species to use hedgerow H1 within the Site, and woodland edges adjacent to the Site.

Water vole

4.36 HERC have provided five records of water vole *Arvicola amphibius* from within the search area dating from 1999 to 2014. The closest record is c. 0.74km from the Site.

4.37 No evidence of water vole was recorded during the survey. No watercourses are present on or adjacent to the Site and consequently the Site is not considered to provide suitable habitat opportunities for this species. As such water vole are not considered further within this report.

Otter

4.38 HERC have provided two records of otter *Lutra lutra* from within the search area, both dated from1995. The closest record is c. 0.68km from the Site.

4.39 No evidence of otter was recorded during the survey. No watercourses are present on or adjacent to the Site and consequently the Site is not considered to provide suitable habitat opportunities for this species. As such otter are not considered further within this report.

Other Mammals

Brown Hare

4.40 HERC have not provided records of brown hare *Lepus europeus* from within the search area.

4.41 No evidence of brown hare was recorded during the survey. The Site provides some suitable habitat for brown hare to forage and lay-up with adjacent woodland providing refuge. However, given the proximity of residential development, it is likely that brown hare are discouraged to some extent.

Hedgehog

4.42 HERC have provided 12 records of hedgehog *Erinaceus europaeus* from within the search area dating from 1986 to 2002. The closest record is c. 0.01km from the Site.

4.43 No evidence of hedgehog was recorded during the Site survey. The majority of the on- site habitats are of limited suitability for this species; however, the on-site field margins, hedgerows and adjacent woodland provides suitable foraging and shelter opportunities.

Harvest Mouse

4.44 HERC have not provided records of harvest mouse *Micromys minutus* from within the search area.

4.45 No evidence of harvest mouse was recorded during the survey. In principle arable habitats at the Site could provide opportunities for harvest mouse, particularly as suitable habitats exist within the wider Panshanger Park. However, given the narrow field margins and currently planted crop (winter wheat) and its anticipated early harvest reduces significantly opportunities for this species. As such, the Site does not currently provide suitable conditions for this species.

Polecat

4.46 HERC have provided 6 records of polecat *Mustela putorius* from within the search area dating from 1989 to 2003. The closest record is c. 0.24km from the site.

4.47 Whilst polecats are primarily associated with riparian and wetland habitats the woodland edges of the Site may provide some limited opportunities. However, due to the unfavourable habitats present on-site for polecats, adverse impacts are considered unlikely as a result of the proposed development.

Birds

4.48 HERC have provided 912 records of 66 bird species from within the search area dating from 2007 to 2015, all of which are located off-site.

4.49 Wintering and breeding bird survey work carried out in 2013 revealed limited activity within the Site itself, with field edge/woodland boundaries and hedgerows considered to be the most valuable habitat for birds at the Site. Table 2 below summarises those species orf conservation concern recorded on or adjacent to the Site

Table 2: Species of Conservation Concern Recorded on-site/adjacent in 2013

Common Name	Latin Name	Status (BoCC, UKBAP, legal protection)	Notes
Black-headed gull	*Chroicocephalus ridibundus*	Amber Listed	Flyover only. No suitable breeding habitat.
Common gull	*Larus canus*	Amber Listed	Flyover only. No suitable breeding habitat.
Common tern	*Sterna hirundo*	Red Listed	Flyover only. No suitable breeding habitat.
Dunnock	*Prunella modularis*	Amber Listed	Singing males recorded in woodland areas, nearby gardens and northern hedgerow. Also foraging in field edges. Possible breeding habitat exists on-site.
House Sparrow	*Passer domesticus*	Red Listed	Colonies recorded consistently within garden areas north of the Site with birds sometimes present within the northern hedgerow where there is breeding
Lesser black-backed gull	*Larus fuscus*	Amber Listed	Flyover only. No suitable breeding habitat.
Mallard	*Anas platyrhynchos*	Amber Listed	Flyover only. No suitable breeding habitat.
Mistle thrush	*Turdus viscivorus*	Red Listed	Recorded within Blakemore wood and utilising field edges for foraging. May nest within trees on-site but more likely within adjacent woodland.
Redwing	*Turdus iliacus*	Red Listed Sch 1	Multiple birds recorded within adjacent woodlands before migration. Non-breeding species in southern Britain.
Skylark	*Alauda arvensis*	Red list	Two birds recorded in song flight over crop on one occasion. Potential nesting habitat was present early in the season.
Song thrush	*Turdus philomelos*	Red Listed UKBAP	One bird recorded in Blakemore Wood on one

			occasion. Potential to forage and nest within on-Site habitats.
Starling	*Sturnus vulgaris*	Red Listed UKBAP	Probable breeders within houses adjacent to the Site. Birds seen collecting nesting material from on-site.
Stock dove	*Columba oenas*	Amber Listed	Occasional flyover species and recorded singing within Chesher's Plantation. Unlikely to nest on-site.
Swift	*Apus apus*	Amber Listed	Recorded foraging over and near the Site in small numbers. No suitable nesting habitat is present.

Reptiles

4.50 HERC have provided 38 records of two reptile species from within the search area including slow-worm *Anguis fragilis* and grass snake *Natrix natrix*. The closest record is for slow-worm, located c. 0.15km north-east of the Site.

4.51 No evidence of reptiles was recorded during the Site survey. The Site, being dominated by arable land with narrow field margin provides very limited opportunities for reptiles. As such reptiles are not considered further within this report.

Amphibians

4.52 HERC have provided three records of common toad *Bufo bufo* from within the search area dating from between 2002 and 2015. The closest record is c. 0.08km south-west of the Site.

4.53 The Site, being dominated by arable land, provides poor terrestrial habitat for amphibian species with no suitable waterbodies located on or adjacent to the Site. Consequently, the Site is not considered likely to support amphibian species.

Great Crested Newt

4.54 Panshanger Park is known to support great crested newts. However, no ponds have been identified within 500m of the site. Whilst a single large lake with some marginal wetland habitats is present c.400m southwest of the Site, this habitat is considered unlikely to support great crested newts.

Invertebrates

4.55 HERC have provided 77 records of 39 invertebrate species from within the search area. The majority of these records are for Panshanger Park LWS which is known to support important assemblages of invertebrates. This includes those saproxylic species associated with deadwood

habitats of mature woodland (for which the former Panshanger Park SSSI was previously designated).

4.56 Arable habitats within the Site are considered unlikely to support a rich diversity or important assemblage of invertebrate species. Field margins, hedgerows and adjacent woodland/trees are however more likely to support a range of invertebrate species, with some important species within habitats (such as veteran trees) adjacent to the Site.

5.0 ECOLOGICAL CONSTRAINTS & OPPORTUNITIES

Ecological Constraints

Confirmed Constraints

5.1 Avoidance, mitigation and/or compensation measures will be required for the following ecological constraints, with recommendations provided for each constraint in turn:

- Ancient Semi-Natural Woodland (Blakemore Wood)
  - *The majority of the western Site boundary abuts Blakemore wood, an ancient semi-natural woodland with a number of veteran trees located on this boundary. Based on Natural England's and Forestry Commission's National Standing Advice[9] "Development must be kept as far as possible from ancient woodland, with a buffer area maintained between the ancient woodland and any development boundary. An appropriate buffer area will depend on the local circumstances and the type of development. In a planning case in West Sussex[1] the Secretary of State supported the arguments for a 15m buffer around the affected ancient woodland, but larger buffers may be required. The permanent retention of buffer zones must be secured as part of the planning permission. These should be allowed to develop into semi-natural habitat. Developments such as gardens must not be included within buffer zones as there is limited control over how they may be used, or developed in the future."*
  - *As recommended below, early consultation with the LPA and relevant consultees will be important to establish the extent of constraint upon proposals for the Site.*

- Panshanger Park LWS
  - *The north-western most portion of the Site forms part of Panshanger Park LWS, as do the adjacent southern and western woodland blocks.*
  - *Suitable vegetated buffer zones should be created between the construction zone and the bordering woodland habitats to the south and east.*
  - *As recommended below, it is important that early engagement with the LPA and any relevant consultees be undertaken to determine the acceptability of developing within the part of the Site covered by Panshanger Park LWS. Following these consultations there may be the need to limit residential development within this area, potentially using for semi-natural*

[1] Asquith, P. J. (2007) Report on Appeals by Crest Nicholson (South) Limited Relating to Bolnore Village Phases 4 And 5, Haywards Heath, West Sussex. The Planning Inspectorate, Bristol. Appeal refs: APP/D3830/A/05/1195897-98 & APP/D3830/A/06/1198282-83.

public open space, strategic landscape buffers and/or surface water attenuation features.

- Hedgerows
  - *Wherever possible the boundary hedgerows and associated vegetation should be retained and enhanced as part of the proposals, given their priority habitat status and intrinsic ecological value.*

- Nesting birds
  - *Based on their legal protection, any clearance of potential nesting habitat should be undertaken outside of the bird nesting season (March-August inclusive), or immediately following confirmation by a suitably qualified ecologist that no active nests are present.*
  - *In addition, if crop conditions suitable for ground nesting birds (such as skylark) are present, similar precautions would need to be made as above, prior to site preparation and ground works.*

Potential Constraints

5.2 Avoidance, mitigation and/or compensation measures may be required for the following potential ecological constraints, subject to further investigation and/ or surveys:

- Bats
  - Habitats on-site, primarily to the Site boundaries, provide opportunities for foraging / commuting with trees on the Site boundary providing potential features for bats to roost. It is therefore recommended that update bat activity surveys and inspection/assessments of trees be undertaken to identify potential impacts to bats resulting from the proposed development.
- Badgers
  - Evidence of badger activity is present on the Site. It is therefore recommended that an update badger survey of all Site boundaries and adjacent habitat be undertaken to identify any setts which may be present and could potential constrain development.
- Rare and notable arable plants
  - Records of notable arable plants have been returned for the Site which, if present may be adversely effected by development of the Site. It is therefore recommended that update botanical surveys be undertaken, targeting the seasons for those species recorded on Site.
- Dormouse
  - Following the local discovery of a dormouse population, and in the absence of survey information for the wider Panshanger

Park, there remains the potential for dormouse to use woodland immediately off-site and the single suitable hedgerow (H1) on-site). Therefore, development in close proximity to the woodland and hedgerow, as well as any breaches within H1, have the potential to impact dormouse, if present nearby. Given its legislative protection, dormouse surveys are recommended below.

5.3 Table 3 below sets out recommendations for further work necessary to determine the need for and scope of any avoidance, mitigation and/or compensation measures. The outcome of this further investigation and/or survey work will inform an Ecological Assessment of the final scheme.

Table 3. Recommendations for Further Inspection/Survey

Inspection/Survey	Timescales
Engagement with consultees regarding scope of survey work and LWS / ancient woodland constraints	As soon as possible
Bat- update activity surveys and monitoring	May-August
Bats- update ground based assessment of trees, followed by and climbing surveys, where necessary.	Anytime
Update badger survey	No time constraint (Feb optimal)
Dormouse survey	May - September
Update Arable plant survey	June & July (targeting key species)

Opportunities for Ecological Enhancement

5.4 The following opportunities for ecological enhancement have been identified:

- New habitat creation to complement the wider Panshanger Park including:
  - Woodland planting
  - Grassland seeding (seed mixes and management dependent upon trophic and structural soil conditions)
- Design of any Sustainable Drainage Systems (SuDS) to incorporate semi-natural habitats potentially including aquatic, wetland and grassland
- New bat roosting and bird nesting features provided within residential areas

6.0 REFERENCES

1. CIEEM (2015) Guidelines for Ecological Report Writing

2. CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

3. Department for Communities and Local Government (2012) National Planning Policy Framework

4. Natural England Standing Advice
https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals

5. Multi-Agency Geographic Information for the Countryside (MAGIC) http://www.magic.gov.uk

6. JNCC, 1990 (2003 edition) Handbook for Phase 1 habitat survey – a technique for environmental audit, English Field Unit Nature Conservancy Council, revised reprint 2003.

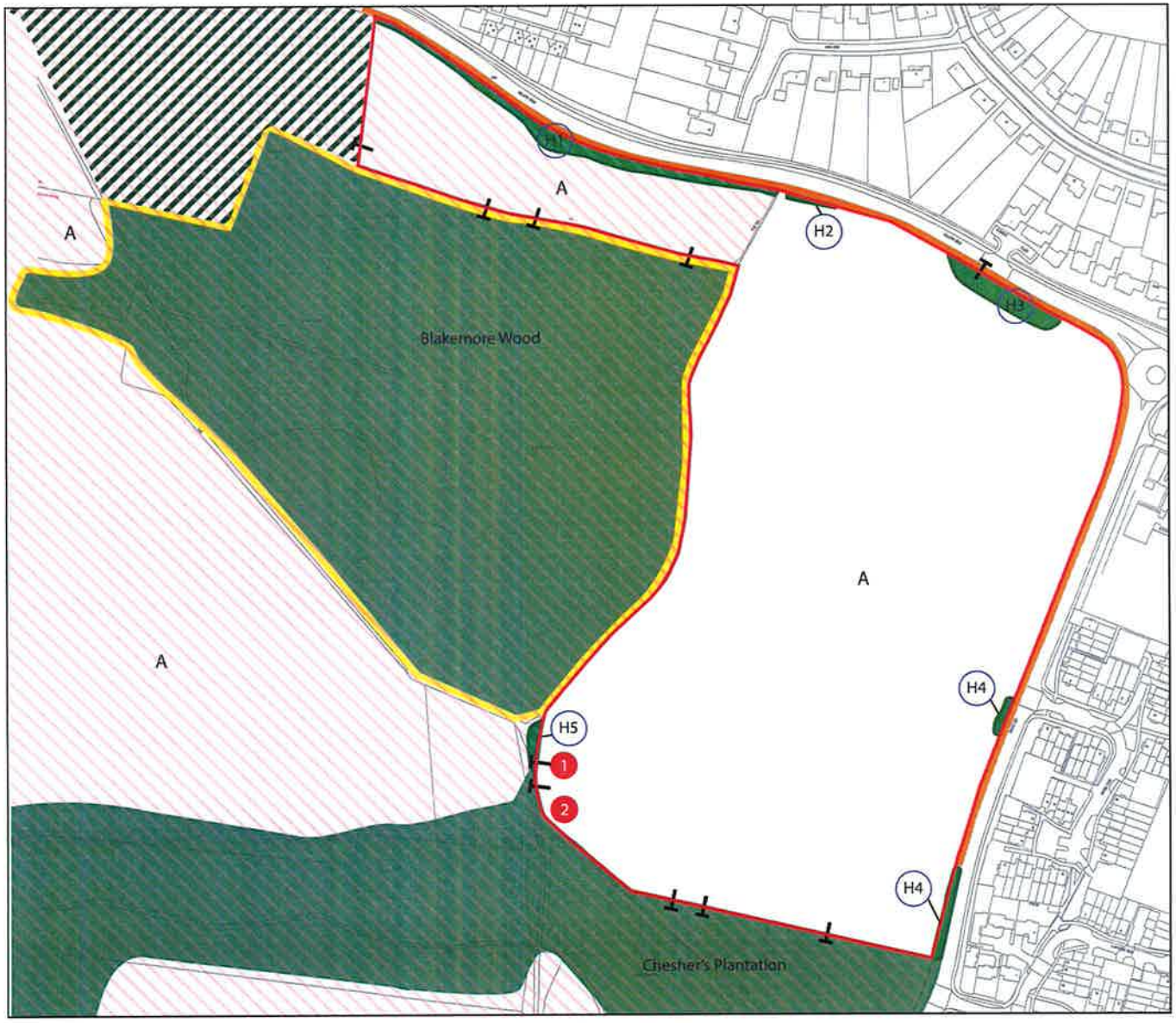
7. Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.

8. English Nature (2001) Great crested newt mitigation guidelines. English nature, Peterborough.

9. Forestry Commission & Natural England (2014) National Standing Advice For Ancient Woodland and Veteran Trees (to be reviewed April 2016)

Appendix A

Habitats Plan



N

Key

- Site Boundary (Indicative)
- A — Arable Land
- Broad-leaved Woodland
- Ancient Semi-natural Woodland
- Broad-leaved Plantation Woodland
- Hedgerow
- Road Verge
- Panshanger Park Local Wildlife Site
- H1 — Hedgerow Reference
- T — Mammal Run
- 2 — Target Note:
  1. Badger *Meles meles* hair recorded, caught on boundary wire fence.
  2. Badger dung pit.

0 50 100metres

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Project	Thieves Lane, Hertford	Date April 2016	Drawing No CSA/2028/102
Drawing title	Habitats Plan	Scale @ A3 RTS	Rev -
Client	Croudace Strategic Ltd	Drawn TJC	Checked JW

Appendix B

Legislation and Planning Policy

The **Conservation of Habitats and Species Regulations 2010** (as amended) enacts the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, and Council Directive 79/409/EEC on the Conservation of Wild Birds, into UK law. The Regulations allow for the designation of Statutory Nature Conservation-sites (SACs and SPAs) and European Protected Species ('EPS' including all UK bat species, great crested newt, hazel dormouse and otter) which are assigned a greater level of protection than under national legislation.

The **Wildlife and Countryside Act 1981** (as amended) forms the primary piece of UK legislation relating to the protection of habitats and species (including nesting birds, reptiles and water vole). Additionally, badgers are protected under the **Protection of Badgers Act, 1992**.

Section 40(1) of the **Natural Environment and Rural Communities (NERC) Act 2006** states that each public authority "must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". This legislation makes it clear that planning authorities should consider impacts to biodiversity when determining planning applications, with particular regard to the Section 41 list of 56 habitats and 943 species of principal importance, irrespective of whether they are covered by other legislation. The S41 list was taken forward for action under the UK BAP (first published in 1994). The UK BAP has now been superseded by the Biodiversity 2020 Strategy[2], which continues to prioritise the S41 list, setting national targets for the period to 2020, and the UK Post-2010 Biodiversity Framework[3], which shows how these contribute to targets at the European level. Whilst BAPs are therefore no longer formally recognised, many of the tools and resources originally developed for the BAP remain in use, such as the background information which still forms the basis of work at national level.

National Planning Policy Framework (2012)[4] (NPPF) sets out the government planning policies for England and how they should be applied. With regards to ecology and biodiversity, Chapter 11: Conserving and Enhancing the Natural Environment, paragraph 109, states that the planning system and planning policies should:

- Minimise impacts on, and provide net gains in, biodiversity where possible, "contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures".
- Recognise the wider benefits of ecosystem services.

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[2] Defra (2011) *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*. Defra, London
[3] JNCC and Defra (2012) *UK Post-2010 Biodiversity Framework* (on behalf of the Four Countries' Biodiversity Group). July 2012.
[4] Department for Communities and Local Government (2012) National Planning Policy Framework

Under these aims, paragraph 117 states the need to plan for biodiversity at a landscape scale, linked to national and local targets. Paragraph 118 sets out the principles that local planning authorities should apply when determining planning applications:

- Refuse planning permission if significant harm cannot be avoided, adequately mitigated, or, as a last resort, compensated for
- Encourage opportunities to incorporate biodiversity in and around developments
- Permission should not normally be permitted where an adverse effect on a nationally designated Site of Special Scientific Interest is likely, either individually or in combination with other developments
- Refuse planning permission if development will result in the loss or deterioration of irreplaceable habitats, such as ancient woodland and the aged or veteran trees, unless the need for, and benefits of, the development in that location clearly outweigh the loss

The **Government Circular 06/2005**, which is referred to within the NPPF, defines statutory nature conservation-sites and protected species as a material consideration in the planning process.

Local planning policies of relevance to ecology, biodiversity and/or nature conservation have been set out in Table B.1 below.

Table B.1. Summary of regional and local planning policy relating to ecology

Policy	Summary
East Herts Local Plan 2007	
ENV1 Design and Environmental Quality	(I) All development proposals, including extensions to existing buildings, will be expected to be of a high standard of design and layout and to reflect local distinctiveness. To those ends, development proposals will be expected to: ...(g) minimise loss or damage of any important landscape features; (h) provide landscape, recreation or amenity features, and where appropriate habitat creation, in accordance with the Hertfordshire Local Biodiversity Action Plan...
ENV7 Extension of Curtilage of a Residential Property	(I) The extension of the curtilage of a residential property into the countryside may be permitted if the proposal: (a) includes the provision of appropriate landscaping and boundary treatment; (b) is not likely to result in an adverse effect on the character or appearance of the local landscape; (c) does not involve areas of existing archaeological or ecological significance; (II) Where judged necessary, the District Council will, on granting planning permission, impose conditions removing Permitted Development Rights. (III) The District Council will seek to ensure the retention of communal amenity land around housing developments not adopted by the local authority and planning permission for the enclosure of such land into private

Policy	Summary
	gardens will not usually be given.
ENV11 Protection of Existing Hedgerows and Trees	(I) In its consideration of all development proposals, including new road or road improvement or maintenance works, the District Council will endeavour to ensure maximum retention of existing hedgerows and trees and their reinforcement by new planting of native broad-leaved species. (II) Where hedge and tree removal is unavoidable, replacement planting of broad-leaved species along an appropriate and natural line of the new, or realigned, highway will be expected.
ENV14 Local Sites	(I) Development and land use change likely to have an adverse effect on a Local Nature Reserve or Wildlife Site, or a Regionally Important Geological/Geomorphological Site, will not be permitted 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 or feature. (II) In all cases where development or land use change is permitted, which would damage the nature conservation value of the site or feature, such damage will be kept to a minimum. Where appropriate the District Council will consider the use of conditions and/or planning obligations (or as subsequently revised) to provide appropriate mitigatory and/or compensatory measures.
ENV16 Protected Species	(I) Development and other land use changes which may have an adverse effect on badgers and other species protected by Schedules 1, 5, and 8 of the Wildlife and Countryside Act 1981, as amended, and the Nature Conservation (Natural Habitats, &c.) Regulations 1994 will only be permitted where harm to the species can be avoided. (II) Where in exceptional cases permission is granted contrary to the above, the District Council will impose conditions and planning obligations (or as subsequently revised) which seek to: (a) facilitate the survival of existing populations of species as well as encouraging the provision of new habitats; (b) reduce disturbance to a minimum; (c) provide adequate alternative habitats to sustain at least the current levels of populations.

Appendix C

Desk Study Information

Appendix D

Extended Phase 1 Habitat Survey

Results

Table D.1 Habitats and Flora Species List

Habitat	Phase 1 Reference Codes	S41/Annex I status	Flora	
			Common name	Latin name
Arable Field	J1.1	-	Common bent	Agrostis capillaris
			Cow parsley	Anthriscus sylvestris
			Mugwort	Artemisia sp.
			Spear thistle	Cirsium vulgare
			Hemlock	Conium maculatum
			Cleavers	Galium aparine
			Yorkshire-fog	Holcus lanatus
			White dead nettle	Lamium album
			Red dead-nettle	Lamium purpureum
			Meadow grass	Poa sp.
			Bracken	Pteridium aquilinum
			Bramble	Rubus fruticosus agg.
			Broad-leaved dock	Rumex obtusifolius
			Sow thistle	Sonchus sp.
			Common nettle	Urtica dioica
Road Verges	-	-	Yarrow	Achillea millefolium
			Cow parsley	Anthriscus sylvestris
			False oat-grass	Arrhenatherum elatius
			Butterfly-bush	Buddleja davidii
			Hemlock	Conium maculatum
			Cleavers	Galium aparine
			Hogweed	Heracleum sphondylium
			Yorkshire-fog	Holcus lanatus
			Perennial rye grass	Lolium perenne
			Bracken	Pteridium aquilinum
Hedgerow (H1)	J3.3.1	S41 Priority	Field maple	Acer campestre
			Garlic mustard	Alliaria petiolata
			Cow parsley	Anthriscus sylvestris
			Lords-and-ladies	Arum maculatum
			Hornbeam	Carpinus betulusheb
			Hazel	Corylus avellana
			Hawthorn	Crataegus monogyna
			Lesser celandine	Ficaria verna
			Ash	Fraxinus excelsior

Habitat	Phase 1 Reference Codes	S41/Annex I status	Flora	
			Common name	Latin name
			Cleavers	Galium aparine
			Common ivy	Hedera helix
			Holly	Ilex aquifolium
			Dog's mercury	Mercurialis perennis
			Blackthorn	Prunus spinosa
			Oak	Quercus sp.
			Common nettle	Urtica dioica
Hedgerow (H2)	J2.1.2	-	Cotoneaster	Cotoneaster sp.
Hedgerow (H3)	J2.2	-	Field maple	Acer campestre
			Cow parsley	Anthriscus sylvestris
			Lords-and-ladies	Arum maculatum
			Lesser celandine	Ficaria verna
			Cleavers	Galium aparine
			Common ivy	Hedera helix
			Holly	Ilex aquifolium
			Blackthorn	Prunus spinosa
			Oak	Quercus sp.
Hedgerow (H4)	J2.2	-	Elm	Ulmus sp.
Hedgerow (H5)	J2.2	-	Hawthorn	Crataegus monogyna
			Spindle	Euonymus europaeus
			Common ivy	Hedera helix
			Holly	Ilex aquifolium
			Elder	Sambucus nigra
			Common nettle	Urtica dioica

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