



Preliminary Ecological Appraisal (PEA)

***Lower Sheering, Sawbridgeworth,
CM21 9PX***

Client Name: City & Country

Project Number: P2691.1.0

Date: 31 August 2016

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Site:	Lower Sheering, Sawbridgeworth, CM21 9PX
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1 Summary

Site	Lower Sheering, Sawbridgeworth, CM21 9PX
Grid Reference (Centre of Site)	TL 49158 15050
Report Commissioned by	City & Country
Date of Survey	30 th June 2016

Considerations	Description	Timings and Potential Impacts
Statutory and non-statutory wildlife sites within 2km.	One Site of Special Scientific Interest (SSSI) within 2km. Nine non-statutory Local Wildlife Sites (LWS), within 2km.	No direct or indirect impact to the SSSI or LWS due to the distance to the sites and the small size of development.
European designated statutory wildlife sites; Special Protection Area (SPA), Special Areas of Conservation (SAC) or Ramsar within 10km.	No European designated statutory wildlife sites within 10km.	
Phase 2 surveys.	Preliminary Ground Level Roost Assessment.	A preliminary ground level roost assessment of all mature trees within the site, to identify any features with potential to support tree-roosting bats is recommended.
Phase 2 surveys which may be required.	Potential Roost Feature Inspection, Presence / Absence.	If any features are identified during the initial preliminary ground level roost assessment, an aerial survey (Potential Roost Feature Inspection, Presence / Absence) by a Natural England bat-licensed ecologist will be recommended, to ascertain the historical use of such features by tree-roosting bats.
Precautionary methods.	Nesting birds.	Clearance of vegetated habitats with potential to support nesting birds should be carried out outside the nesting bird season (March through August), or preceded by a nesting bird survey.
	Hedgehogs.	Escape planks, placed in trenches or holes overnight during the construction phase.
	Amphibians.	Materials stored off the ground and no temporary standing water left on site.
	Bats.	Minimise external lighting.
Habitat types.	Habitats on the site included semi-natural broadleaved woodland, wet woodland, hedgerow, common nettle <i>Urtica dioica</i> and greater willowherb <i>Chamerion angustifolium</i> dominated field layer and a small stream.	

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Appendix 1 – Legislation and Planning Policy

Appendix 2 – Phase 1 Habitat Survey Plan

2 Introduction

2.1 Background

agb Environmental was commissioned by City & Country to undertake an ecological survey at Lower Sheering, Sawbridgeworth, CM21 9PX. Ordnance Survey grid reference TL 49158 15050 (taken from the centre of the site).

This report contains the findings of a Preliminary Ecological Appraisal (PEA) and a great crested newt *Triturus cristatus* e-DNA survey of a pond, to identify the potential for presence of species protected under European Legislation (Conservation of Habitats and Species (Amendment) Regulations 2012), UK legislation (Wildlife and Countryside Act 1981; Protection of Badgers Act 1992), and other priority species and habitats which are a consideration under the National Planning Policy Framework (NPPF).

The Natural Environment and Rural Communities (NERC) Act 2006, under Section 41, lists Species of Principal Importance for Conservation of biodiversity in England (SPIE species).

Protected and UK SPIE species are a material consideration for individual planning consents under the NPPF, which promotes the enhancement of natural and local environments through planning, and encourages a move towards achieving net gains for biodiversity where possible (DCLG, 2012).

The site survey is supported by a desk study, including consultation with the Essex Field Club and the Hertfordshire Environmental Records Centre (HERC) to identify the presence of statutory and non-statutory designated wildlife sites, and any protected species, which could be impacted by development of the site.

2.2 Proposed Development

The proposed plans are yet to be finalised, although they are likely to involve full or partial site clearance, followed by a residential development with associated hard and soft landscaping.

2.3 Scope of Survey

This PEA is based on a single site survey, and provides an overview of the likelihood of protected species occurring on the site. Where no evidence is found, this does not mean that species are not present, or using the site. An e-DNA survey of a pond within the site for great crested newts was also undertaken. Further surveys are only recommended if there is a significant likelihood that protected species may be present and impacted by the proposed development, based on the suitability of the habitat and any direct evidence.

This PEA does not constitute a full botanical survey or a Phase 2 pre-construction survey for Japanese knotweed *Fallopia japonica*.

3 Survey Methodology

3.1 Habitat Survey

The survey involved a site visit to record and map habitat types and ecological features on the site. The survey was undertaken in accordance with Guidelines for Preliminary Ecological Appraisal produced by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2013), and the general principles and methods outlined in the Handbook for Phase 1 Habitat Survey (JNCC, 2010). Features of interest were identified as target notes on the Phase 1 Habitat Map (**Appendix 2**).

The potential for presence of protected species was assessed as follows:

Amphibians – The site was assessed for suitability to support amphibians, including great crested newts *Triturus cristatus*, with reference to the Herpetofauna Workers' Manual (JNCC, 2003) and the Great Crested Newt Conservation Handbook (Langton, Beckett and Foster, 2001).

Badgers – A visual assessment for setts, hair, latrines, prints, foraging disturbance or other signs of badgers was undertaken within, and directly adjacent to, the site boundary, where access allowed.

Bats – Buildings and trees within, and adjacent to, the site boundary were assessed for any suitable habitat with potential to support roosting, foraging and commuting bats. Aided by aerial photographs of the surrounding landscape, habitat was also assessed for foraging and commuting suitability and potential.

Birds – A visual survey of bird activity and suitable nesting habitat was carried out, to determine if any areas would be suitable for WCA Schedule 1 birds, Birds of Conservation Concern (BoCC), SPIE or other common and widespread nesting birds.

Hazel Dormouse – Any wooded / scrub areas or hedges with good under-storey / shrub layer and a range of food sources throughout the active dormouse season were assessed for potential to support dormice, in accordance with English Nature Dormouse Conservation Handbook (Bright, Morris and Mitchell-Jones, 2006)

Invertebrates – The site was surveyed for high quality aquatic, deadwood or other habitats which could be used by significant assemblages of invertebrates, or any invertebrates identified in the desk study (Essex Field Club, 2016 and HERC, 2016).

Reptiles – The presence of suitable reptile habitat was assessed according to the criteria described in the Herpetofauna Workers' Manual (Gent and Gibson 1998) and Froglife guidelines (Froglife 1999).

Water voles and otters – Any water courses within the site, or within impact distance of the site were assessed for potential to support water voles *Arvicola amphibius* and otters *Lutra lutra*. The site was assessed for potential to support otter and water vole with reference to *Monitoring the Otter* (Chanin 2003) and *The Water Vole Mitigation Handbook* (Dean *et al.*, 2016).

White-clawed crayfish - The site was assessed for suitability to support white-clawed crayfish *Austropotamobius pallipes* with reference to Monitoring the White-clawed Crayfish *Austropotamobius pallipes* (Peay, 2003).

Flora and habitats – Habitats and dominant plant species which were identifiable at the time of the survey were recorded, including Wildlife and Countryside Act Schedule 9 invasive plant species, such as Japanese knotweed and giant hogweed *Heracleum mantegazzianum*.

European protected species – The Multi-Agency Geographic Information for the Countryside (MAGIC), was accessed (2nd July 2016) to identify Granted European Protected Species Licence Applications within a 2km radius.

Adjacent habitat – Aerial photographs, maps and field observation were used to identify habitats in the wider landscape which could be impacted by development of the site.

3.2 Environmental DNA analysis (e-DNA)

3.2.1 Field Protocol

Environmental DNA analysis of pond water samples can predict with confidence the recent presence / absence of breeding great crested newts. This was undertaken as great crested newt surveys are only possible between the middle of April and the end of June. Following the field protocol approved by Defra and Natural England (Briggs *et al.*, 2014) 20 sub-samples of water (30ml) were collected by a licensed great crested newt surveyor from locations evenly spaced around one on-site pond. Sub-samples were combined in a Whirl-Pak bag and gently mixed for 10 seconds. Using sterile gloves and a sterile pipette, six 15ml e-DNA samples were then transferred from the Whirl-Pak bag into tubes containing 35ml of ethanol preservative. Preserved e-DNA samples were boxed and immediately dispatched for laboratory analysis.

3.2.2 Laboratory Analysis

Preserved e-DNA samples were analysed according to the approved quantitative PCR laboratory protocol as detailed in Defra's research project WC1067 (Briggs *et al.*, 2014) at SureScreen Scientifics' laboratory, Morley Retreat, Church Lane, Morley, Derbyshire. DE7 6DE.

3.3 Desk Study

Data were obtained from the following sources.

3.3.1 Essex Field Club and Hertfordshire Environmental Records Centre (HERC)

Records were provided by Essex Field Club on 1st July 2016 and HERC on 5th July 2016 for protected and locally rare species, and Local Wildlife Sites (LWSS) within a 2km radius of the site.

3.3.2 Local Biodiversity Action Plan (BAP)

The site is covered by the Local BAP for Essex and Hertfordshire.

MAGIC was accessed (2nd July 2016), to identify the presence of statutory designated sites within a 2km radius. The search radius was extended to 10km for European designated sites; Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites, where the potential risk of impact to interest features of such sites may extend over a wider area.

3.4 Surveyor Details

The site survey was undertaken on 30th June 2016 by Senior Ecologist Leslie Cousins BSc (Hons) PhD Grad CIEEM, a graduate member of the Chartered Institute of Ecology & Environmental Management (CIEEM), subject to the CIEEM Professional Code of Conduct and licensed by Natural England to survey for great crested newts (WML-CL08; Level 1) and bats (WML-CL18; Level 2), and assisted by Henry Smith BSc (Hons) Grad CIEEM.

During the survey, the temperature was 12°C; there was a light breeze (Beaufort scale 2) and 100% cloud cover.

4 Results and Discussion

4.1 Site and Habitat Description

The site was located on the boundary of Essex and Hertfordshire, within the town of Sawbridgeworth, and approximately 3km north of Harlow. The site was approximately 0.52ha and situated 220m to the east of the River Stort.

The site was situated to the eastern side of the Sawbridgeworth railway line, with main roads (Station Road) along the northern boundary and (Sheering Lower Road) the eastern boundary. An active building development site was adjacent to the western boundary of the site.




The area which will be impacted by construction was dominated by established semi-natural broadleaved woodland with a dry drainage ditch through the centre. The ditch led into a small stream around the centre of the site, which flowed westward and then ran southward along the western boundary. Tree species recorded within the woodland were; horse-chestnut *Aesculus hippocastanum*, alder *Alnus glutinosa*, sycamore maple *Acer pseudoplatanus*, hornbeam *Carpinus betulus*, lime *Tilia x europaea*, crack willow *Salix fragilis*, ash *Fraxinus excelsior* and elder *Sambucus nigra*.



Many of the trees were mature and offered good nesting habitat for breeding birds. Bird species recorded at the time of survey included; chiffchaff *Phylloscopus collybita*, blackbird *Turdus merula*, wren *Troglodytes troglodytes*, song thrush *Turdus philomelos* and robin *Erithacus rubecula*. The ground flora was dominated by common nettle *Urtica dioica* and ivy *Hedera helix*, with notable amounts of cleavers *Galium aparine*, herb-robert *Geranium robertianum*, dog's mercury *Mercurialis perennis* and ground ivy *Glechoma hederacea*.

The boundary habitat of the site was split into six sections. Each boundary has been marked (B1-6) on the Phase 1 Habitat Survey Plan (**Appendix B**). B1 was a defunct hedgerow comprising laurel *Laurus* sp., box *Buxus* sp. and sycamore maple. B2 was a wooden fence entwined with hawthorn *Crataegus monogyna*, privet *Ligustrum* sp., ivy, sycamore maple and ash.

B3 consisted of a wooden fence and brick wall, with adjacent species horse-chestnut, crack willow, sycamore maple, snowberry *Symphoricarpos* sp. and ivy. B4 was the edge of an open wet vegetated area, and was adjacent to the building development. B5 was the margin of the woodland adjacent to the road. Species included greater willowherb *Epilobium hirsutum*, common nettle, creeping thistle *Cirsium arvense*, cleavers, common hemp-nettle *Galeopsis tetrahit*, bramble *Rubus fruticosus*, herb-robert, garlic mustard *Alliaria petiolata*, nipplewort *Lapsana communis*, white dead-nettle *Lamium album*, wood avens *Geum urbanum* and curly dock *Rumex crispus*. B6 was dominated by common nettle, adjacent to the road.

4.2 Target Notes

Target Note	Habitat Description	Photo
TN1	<p>Small section of mature wet woodland (UK BAP Habitat) comprising alder, crack willow and lime. The shrub layer was dominated by bramble with occasional crack willow saplings. The field layer was dominated by greater willowherb and common nettle, with frequent common reed <i>Phragmites australis</i>. Other occasional species were; lesser water-parsnip <i>Berula erecta</i>, comfrey <i>Symphytum</i> sp., bittersweet nightshade <i>Solanum dulcamara</i>, red campion <i>Silene dioica</i>, lords-and-ladies <i>Arum maculatum</i>, cleavers, hop <i>Humulus lupulus</i>, common hemp-nettle, iris <i>Iris</i> sp., hogweed <i>Heracleum sphondylium</i>, bindweed <i>Convolvulus</i> sp., poa <i>Poa</i> sp., creeping buttercup <i>Ranunculus repens</i> and creeping thistle.</p> <p>The wet woodland offered good potential for nesting birds.</p>	
TN2	<p>Swamp habitat with a few small willow trees. There was a dense field layer which was dominated by common reed, bramble, greater willowherb, Herb-Robert and bindweed.</p> <p>Moderate potential for nesting small birds.</p>	
TN3	<p>Slow flowing, small stream, approximately 1m in width, from the centre of the site. The stream was shallow, with no aquatic / marginal species, with moderate water quality. The stream was connected to a dry ditch running northwards, where the water flowed underground.</p> <p>The stream was approximately 1m wide and had negligible potential for water vole, otter or white clawed crayfish.</p>	

Target Note	Habitat Description	Photo
TN4	<p>North-eastern corner of site, adjacent to the road, consisted of a defunct hedgerow dominated by hawthorn. There was some management on the footpath side, but no evidence of recent management within the site. The hedgerow was not important under the Hedgerow Regulations (1997). An old wooden fence was present, although hidden amongst encroaching ivy and lime.</p> <p>Good potential for nesting birds.</p>	
TN5	<p>South-western corner of the site adjacent to the road, comprised large yland cypress <i>Cupressus x leylandii</i> with encroaching lilac <i>Syringa vulgaris</i> around the base.</p> <p>Good potential for nesting birds.</p>	

4.3 Desk Study

The site was not situated within a designated wildlife site. The SSSI Impact Risk Zone, within which the site lies, does not apply for a development of this type. Sawbridgeworth Marsh SSSI was 600m to the north of the site. No European statutory designated sites were within 10km of the site. Nine Local Wildlife Sites were identified within 2km, four of which were within 1km.

Table 4.1: Statutory designated sites within 2km.

Site Name	Distance from Site	Area (ha)	Reasons for Designation
Sawbridgeworth Marsh SSSI	600m N	6.2	Consists of waterlogged marsh, peaty meadow and willow plantation.

Table 4.2: Non-statutory Local Wildlife Sites (LWS) within 2km of the site.

Site Name	Distance from Site	Area (ha)	Reasons for Designation
Scrub E. of Railway, Sawbridgeworth	10m N	1.6	Area of mixed species scrub with rank grassland in the north and remnant rank tall fen vegetation in the south.
Sawbridgeworth Meadows	100m W	17.5	A large area of old neutral grassland, of varying wetness, along the Stort valley.
Sawbridgeworth Marsh South & North East	400m N	2.8	This site has been left as a result of removing SSSIs from Wildlife Sites

Site Name	Distance from Site	Area (ha)	Reasons for Designation
Tednambury Meadows	710m N	7.4	A complex of unimproved, wet, neutral grassland with areas of marsh, tall fen, raised, dry disturbed grassland, scrub and areas of dry and wet broadleaved woodland.
Stort Meads	1.08km SW	7.8	A series of alluvial damp to marshy semi-improved grasslands alongside the River Stort and Stort Navigation.
Pishiobury Park	1.23km SW	31.3	Parkland with a pasture-woodland structure and elements of herb-rich grassland. Although the grassland shows some signs of improvement, extensive areas of unimproved neutral to calcareous grassland communities still persist.
The Osier Bed, Pishiobury Park	1.37km SW	3.1	Old alder wood/plantation which is wet below, particularly towards the River Stort and along numerous internal drains.
River Stort Pishiobury Meander	1.47km SW	2.4	A widened, meandering section of a River Stort back channel with records for otter.
Rivers Nursery	1.63km W	10	A former nursery site supporting a mosaic of habitats including semi-improved neutral grassland, scrub and old orchard trees

Table 4.3: Protected, SPIE and locally scarce species records were provided by Essex Field Club on 1st July 2016 and Hertfordshire Environmental Records Centre (HERC) on 5th July 2016.

Species	Protection	Nearest Record to the Site	Most Recent Record
Bats			
<i>Chiroptera</i> spp.	CHSR 2010; WCA.	Four records, the nearest approximately 1.1km west, the latest from 1999.	
Pipistrelle species <i>Pipistrellus</i> spp	CHSR 2010; WCA.	One record approximately 2km south-east from 2010.	
Common pipistrelle <i>Pipistrellus pipistrellus</i>	CHSR 2010; WCA, LBAP.	50 records, the nearest approximately 800m north-west, the latest from 2011.	
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	CHSR 2010; WCA, SPIE; LBAP.	Four records, the nearest approximately 1.5km south-west, the latest from 2005.	
Brown long-eared bat <i>Plecotus auritus</i>	CHSR 2010; WCA, SPIE, LBAP.	21 records, the nearest approximately 2km south-east, the latest from 2011.	
Common noctule <i>Nyctalus noctula</i>	CHSR 2010; WCA, SPIE; LBAP.	Four records, the nearest approximately 1.73km north-west, the latest from 2006.	
Leisler's bat / Lesser noctule <i>Nyctalus leisleri</i>	CHSR 2010; WCA, LBAP.	Seven records, the nearest approximately 2km north-east, the latest from 2005.	
Natterer's bat <i>Myotis nattereri</i>	CHSR 2010; WCA, LBAP.	Two records, the nearest approximately 2km north-east, the latest from 2004.	

Species	Protection	Nearest Record to the Site	Most Recent Record
Amphibians			
Common toad <i>Bufo bufo</i>	SPIE, LBAP.	Seven records, the nearest approximately 730m north, the latest from 1997.	
Great crested newt <i>Triturus cristatus</i>	CHSR 2010; WCA, SPIE, LBAP.	17 records, the nearest approximately 1.81km south-east, the latest from 2012.	
Reptiles			
Common lizard <i>Zootoca vivipara</i>	WCA; SPIE, LBAP.	Four records, the nearest approximately 240m north, the latest from 2011.	
Grass snake <i>Natrix natrix</i>	WCA; SPIE, LBAP.	11 records, the nearest approximately 400m west, the latest from 2013.	
Badgers			
Badger <i>Meles meles</i>	The Protection of Badgers Act 1992.	60 confidential records provided, the latest from 2015.	
Other Mammals (excluding bats)			
Water vole <i>Arvicola amphibius</i>	WCA; SPIE, LBAP.	22 records, the nearest approximately 300m west, the latest from 2009.	
West European hedgehog <i>Erinaceus europaeus</i>	SPIE; LBAP.	10 records, the nearest approximately 730m north, the latest from 2009.	
Brown hare <i>Lepus europaeus</i>	SPIE; LBAP.	Three records, the nearest approximately 700m north, the latest from 1972.	
Otter <i>Lutra lutra</i>	CHSR 2010; WCA, SPIE, LBAP.	12 records, the nearest approximately 250m west, the latest from 2001.	
Harvest mouse <i>Micromys minutus</i>	SPIE; LBAP.	Five records, the nearest approximately 450m north-west, the latest from 1998.	
Nesting and Protected, BAP, SPIE birds			
Essex Field Club and HERC provided numerous bird records, several of which are associated with habitats which are not present on the site. The following species could be using habitats on or near the site and are UK BAP / SPIE species; dunnock <i>Prunella modularis</i> , song thrush <i>Turdus philomelos</i> , starling <i>Sturnus vulgaris</i> , house sparrow <i>Passer domesticus</i> , tree sparrow <i>Passer montanus</i> , bullfinch <i>Pyrrhula pyrrhula</i> and spotted flycatcher <i>Muscicapa striata</i> . There were records of 13 Schedule 1: Part 1 species, within 2 km of the site.			
Protected, SPIE and LBAP plants			
Essex Field Club and HERC provided records of SPIE flowering plant species; great water-parsnip <i>Sium latifolium</i> , tubular water-dropwort <i>Oenanthe fistulosa</i> , red hemp-nettle <i>Galeopsis angustifolia</i> and river water-dropwort <i>Oenanthe fluviatilis</i> , within 2km of the site.			
Protected /SPIE invertebrates			
Essex Field Club and HERC provided records of SPIE butterfly species; wall <i>Lasiommata megera</i> , small heath <i>Coenonympha pamphilus</i> and white-letter hairstreak <i>Satyrrium w-album</i> , as well as 54 SPIE moth species within 2km of the site.			

Table 4.4: Granted European Protected Species Applications

Case Reference	Distance from site (Km)	Species Group	Species on the Licence	Licence Start Date	Licence End Date
EPSM2009-1318	1.2km SW	Bats	Common pipistrelle	21/09/2009	20/09/2011
EPSM2008-243	1.6km E	Amphibian	Great crested newt	18/11/2008	30/04/2009

WCA = Wildlife and Countryside Act; BAP = Biodiversity Action Plan; LBAP = Local BAP; CHSR = Conservation of Habitats and Species Regulations.

4.4 Potential for Protected Species

The site was assessed to identify whether proposed works within the site boundary could impact on protected or locally rare species, either on the site or within the local area.

4.4.1 Habitats and Vegetation

Approximately 500m² (10%) of the site (TN1) met the criteria for UK BAP Habitat: Wet Woodland, along the northern bank of the stream. Approximately 80% of the site was an established semi-natural broadleaved woodland with a dense ground flora, consisting predominantly of common nettle and greater willowherb. Open areas to the north were dominated by common reed (TN2).

A hawthorn hedgerow was adjacent to the road, along the eastern boundary. There were no hedgerows which would be classified as important under the Hedgerow Regulations 1997.

4.4.2 Bats

Essex Field Club and HERC provided records of six known species of bat within 2km, including common and soprano pipistrelle, brown long-eared, common noctule, Leisler's and Natterer's bats.

4.4.2.1 Roosting Bats

The trees on site were of a size and age which may be suitable to support Potential Roost Features (PRF), which would only be discovered through an aerial inspection.

4.4.2.2 Foraging and Commuting Bats

Although the woodland within the site represents typical bat foraging and commuting habitat, the site's small size and bounding street-lit roads sever its connectivity from the wider area. The site is therefore likely to be of limited value to foraging and commuting bats.

There was a good amount of foraging habitat within the local area, with a large area of woodland approximately 40m to the east. To the west, the railway embankment and the River Stort were considered to offer good commuting habitat within the local area for bats, although these were separated from the site by a residential area.

No further bat activity surveys are recommended.

4.4.3 Reptiles

Essex Field Club and HERC provided records of common lizard and grass snake within 2km of the site.

No suitable habitat for reptiles was recorded on site. The site was predominantly woodland, which was heavily shaded, therefore offering poor basking opportunities. The site was also isolated from the wider landscape by a road and areas of surrounding development.

No further reptile surveys or precautions are recommended.

4.4.4 Amphibians (Great Crested Newt and Common Toad)

Essex Field Club and HERC provided records of common toad and great crested newts within 2km of the site. No ponds were recorded on site, although a 500m radius search identified one large pond, approximately 30m to the south-west (grid reference: TL49081 14975). This pond was a well maintained, garden pond in which numerous carp *Cyprinidae* sp. were noted.

A Habitat Suitability Index (Oldham, 2000) was calculated (**Table 4.5**), showing that the pond had **poor** potential to support breeding great crested newts.

Table 4.5: Pond Habitat Suitability Index (off-site pond, 30m south-west).

Pond Reference	Off-site Pond
SI1 - Location	1
SI2 - Pond area	0.8
SI3 - Pond drying	0.9
SI4 - Water quality	0.33
SI4 - Shade	1
SI6 - Fowl	0.67
SI7 - Fish	0.01
SI8 - Ponds	0.7
SI9 - Terrestrial habitat	0.33
SI10 - Macrophytes	0.4
HSI	0.41 (poor)

An e-DNA test for great crested newts of the off-site pond was undertaken during the survey. Results of the laboratory analysis were returned negative for great crested newt (**Table 4.6**).

Table 4.6: Great crested newt e-DNA results.

Sample Detail	Co-ordinates	Inhibition Check	Sample integrity	Result / Score
Lower Sheering	TL 49070 14969	Acceptable	Acceptable	Negative 0/12

No ponds were recorded on site and the pond located to the southwest of the site was considered to be of poor suitability according to the HSI and a negative e-DNA result was returned for great crested newts. Great crested newts are therefore likely to be absent from the site and no further surveys are recommended.

The nearby pond offered some limited breeding potential for common toads, suggesting that the common toad may use the site, particularly the wet woodland (TN1).

4.4.5 Birds

Essex Field Club and HERC provided a number of bird records for the local area which included 13 Schedule 1: Part 1 species. There were good opportunities for nesting small birds within the swamp, dense ground flora, mature trees and hedgerows. Bird species recorded at the time of survey included; chiffchaff *Phylloscopus collybita*, blackbird *Turdus merula*, wren *Troglodytes troglodytes*, song thrush *Turdus philomelos* and robin *Erithacus rubecula*.

The removal of the swamp vegetation, dense ground flora, mature trees and hedgerows is only recommended outside the nesting bird season, or preceded by a nesting bird survey to confirm presence / likely absence of active nests immediately prior to works being undertaken (within three days of the start of the works). The main bird nesting season is generally between March and August inclusive.

4.4.6 Badger

Essex Field Club and HERC provided 60 confidential badger records within the local area, with the most recent record from 2015. No evidence of badger activity was recorded on the site which was isolated from surrounding habitats which could support badgers. The high water table also reduces sett building capabilities.

No further badger surveys or precautions are recommended.

4.4.7 Water Vole and Otter

Essex Field Club and HERC provided 22 records of water vole and 12 records of otter within 2km of the site. No evidence indicating the presence / likely absence of otter or water vole was recorded at a small stream which flowed through the site (TN3). The stream flowed underground through half the site, before opening up into a surface stream. The site does not directly connect to any major watercourses above ground (according to OS maps) meaning that is not suitable as a commuting corridor for both species.

The over shading of the stream by mature trees, limits the growth of grasses *Poaceae* spp., rushes *Juncaceae* spp. and sedges *Cyperaceae* spp., which are the main food sources for water voles. The nearest records were from the River Stort (220m south-west), which was more suitable for these species and was separated by a railway culvert and residential buildings.

It was considered unlikely that the proposed development would impact on water voles or otters due to the distance and lack of connectivity to suitable habitat for these species.

No further water vole or otter surveys are recommended.

4.4.8 Hedgehogs or Other Protected, BAP or Rare Species

Essex Field Club and HERC provided 10 records of hedgehog and five records of harvest mouse within 2km of the site.

The woodland had foraging and sheltering potential for hedgehogs and suitable habitat was present in the adjacent garden to the west.

No grassland or open farmland was recorded on-site or adjacent to the site boundary. The site was dominated by woodland, which is of negligible potential to be used by brown hares or harvest mouse.

Precautions for hedgehog are recommended in section 5 during and post-development.

4.4.9 Invertebrates

Essex Field Club and HERC provided records of SPIE butterfly species, including wall, small heath and white-letter hairstreak and 54 SPIE moth species within 2km of the site. Good nectaring opportunities were available for *Lepidoptera* spp. on the site, which could be enhanced through native and wildlife-attracting landscaping post development. Adjacent to the stream was a small section of wet woodland (UK BAP Habitat). Wet woodlands, particularly willow or alder dominated woodlands are known to support rich invertebrate assemblages, however, this section of wet woodland was small in extent, with larger areas of wet woodland to the north and south of the site, within the River Stort floodplain. The site was not considered to be large enough to support significant invertebrate assemblages.

No further invertebrate surveys are recommended.

4.4.10 Hazel Dormouse

Essex Field Club and HERC did not provide any records of dormice within 2km of the site. Habitat suitable for dormice was limited within the site, with only small amounts of bramble and hawthorn along the fringes of the site and adjacent to the road. The limited availability of berry bearing shrubs was adjacent to the road, which was an area of high disturbance. The site was isolated from any connecting habitat likely to support dormouse. Given the sub-optimal habitats present, the small size of the site and its isolation from suitable off-site habitats, the site is very unlikely to support sustainable populations of dormice.

No further hazel dormice surveys or precautions are recommended.

4.4.11 Impact on Designated Wildlife Sites

There were no species or habitats within the site which served as qualifying features of local designated sites.

The site was not ecologically linked to the SSSI due to the intervening land being predominantly extensive open farmland and residential areas. The site is separated from the nearest LWS by a main road.

The proposed development is highly unlikely to indirectly impact any designated sites in the local area due to the small size of the development, with no significant increase in visitors to locally sensitive wildlife areas.

4.5 Limitations and Assumptions

The baseline conditions reported and assessed in this document represent those identified at the time of the survey on 30th June 2016. Although a reasonable assessment of habitats present can be made during a single walkover survey, seasonal variations are not observed. All areas of the site were accessible on the day of the survey, although an aerial inspection of the mature trees was not possible.

5 Recommendations

5.1 Further Surveys

5.1.1 Bat Surveys

5.1.1.1 Bat Roost Inspection Surveys – Trees

Further bat roost inspections of mature trees are recommended to determine whether there is potential for bats to roost within the site. If any trees with bat roosting features are identified, a further aerial survey may be required, to establish the historic presence of tree-roosting bats within these features. This survey can be undertaken at any point during the year.

5.2 Precautionary Methods

- 1) During construction, there is potential for impacts to the nearby LWS, Scrub E. of Railway, Sawbridgeworth, from pollution incidents, for example from split and leached material, sedimentation caused by run-off or from dust deposition caused by soil stripping and concrete batching.

A Construction Method Statement (CMP) should therefore be produced to include, but not necessarily be limited to the following measures.

- Appropriate storage and control of materials / chemicals to avoid pollution and siltation incidents (e.g. fit all plant with drip-trays and re-fuel machinery off-site);
 - Regular maintenance of diesel pumps and standing plant and use of drip trays to prevent leaks;
 - Provision of oil interceptors for discharges from any temporary oil storage or refuelling areas;
 - Provision of spill containment equipment on the site;
 - Provision of site security measures at all times to prevent vandalism;
 - Use of standard dust suppression methods as necessary e.g. dampening down of stock piles and surfaces with water and implementing a site speed limit to reduce dust deposition;
 - Provision of pollution control procedures in accordance with the Environment Agency's guidelines;
 - Appropriate training of all construction personnel;
 - Use Heras fencing and appropriate signs to prevent machinery and site staff from entering and damaging habitats and disturbing associated species;
 - Locate the site compound and park vehicles away from the sensitive habitats;
 - Avoid working at night to minimise disturbance to wildlife; and
 - Avoid use of artificial lighting e.g. flood lights, or if required, direct away from habitats.
- 2) Any clearance of vegetation during the nesting bird season (March to August inclusive), should be immediately preceded by a nesting bird survey, to avoid infringing legislation which protects all nesting birds (WCA 1981). If an active nest is located, there would be a delay to scrub clearance or tree works in that part of the site (and an exclusion zone, as determined by the ecologist), until young birds had fledged and left the nest area.
 - 3) Trees to be retained will require protection, details of which will be stated within an Arboricultural Impact Assessment.

- 4) If any trees with bat roosting potential will be impacted (by felling, management or other works), an aerial bat survey should be carried out to assess whether any bat roosts will be impacted.
- 5) Throughout the project construction phase, any trenches, holes or deep pits should be covered overnight else have a secured plank, or other means of escape made available for any animals that should fall in. An appointed person should conduct site wide checks at the end of each working day to ensure these provisions to protect nocturnal species (such as hedgehog) have been made. A precautionary check for trapped animals should be made at the start of each day prior to works commencing.
- 6) Materials should be stored off the ground on pallets to prevent commuting amphibians from taking refuge under them. No temporary standing water should be left on the site, which could be used by amphibians.
- 7) To minimise the risk of disturbance to potential foraging or roosting bats in mature trees at the eastern and western site boundary (both during and post development), external lighting should be minimised as follows:
 - Any task lighting (during construction) should not be directed at the mature boundary trees;
 - Any necessary security lighting should be set on short timers and be sensitive to large moving objects only;
 - Hoods, cowls or directional lighting should be used to avoid light directed at the sky or towards the boundary vegetation;
 - Lighting times should be limited, to provide dark periods;
 - Low pressure sodium security lights with glass glazing are recommended, as these produce the least amount of UV light. Avoid white and blue wavelengths of the light spectrum. The brightness of the lamps should be kept as low as feasibly possible (ILE/BCT, 2007; BCT interim guidance 2014).

5.3 Enhancement Recommendations

These additional recommendations will enhance the value of the site for wildlife, as encouraged through the NPPF, and to help achieve Essex and Hertfordshire BAP targets.

- 1) The hawthorn hedgerow present along the site boundary could be retained with appropriate management. Planting along the site boundaries would create habitat for nesting birds, and a linear ecological corridor. Native fruit and berry-bearing species such as hazel *Corylus avellana*, apple *Malus* spp., hawthorn, blackthorn, guelder rose *Viburnum opulus*, gorse *Ulex europaeus* and spindle *Euonymus europaeus* could be used.
- 2) The removal of non-native tree species such as the Leyland cypress, replacing them with native species.
- 3) Bird boxes could be provided on retained trees. If no trees are to remain post development, boxes could also be integrated within the external fabric of proposed buildings. These should be installed at least 3m above the ground and should avoid direct sunlight (not directly south-facing), prevailing wind and be out of reach of cats and other predators:
 - A smaller, open-fronted box, made to BTO dimensions (for song thrush and robin).

- Three hole-box type bird boxes with 32mm holes for house sparrows – which should be located in a group for this colonial nesting species.
- 4) Bat boxes could be installed on suitable mature retained trees. If no trees are to remain post development, boxes can be integrated within the external elevations of suitably positioned proposed buildings. These should be woodcrete (such as Schwegler or similar and approved), which are durable and long-lasting. Bat boxes should be located at least 5m above the ground and facing south-east, south and south-west, to receive sun for part of the day, with open flight access to the boxes. Schwegler 2F boxes for pipistrelle bats would be suitable in this location.
- 5) Any proposed solid garden fencing (such as close-board) should have hedgehog-links at the base to enable small mammals to move through the site, and to adjacent habitat. These should be small gaps (15cm x 15cm) at ground level at approximately 10m intervals.

6 Conclusion

A further bat roost inspection of the mature trees on site is recommended, to provide a baseline of ecological conditions to inform the planning application, and to enable mitigation and precautions or avoidance of impact to be designed, should these European protected species be using the site.

If any further mitigation or recommendations are carried out following further surveys for bats, and if the avoidance and precautions detailed in **Section 5** are carried out, then proposed works can proceed with minimal impact on any protected, SPIE or locally rare species within the area (individuals, or the local conservation status).

Precautionary methods for nesting birds, using good working practice. Avoid clearance of vegetated habitat and mature trees during the nesting bird season.

Enhancements to include removal of non-native trees, planting of native tree species, installation of bird and bat boxes and creating hedgehog links between proposed gardens.

A CMP should be produced to prevent potential impacts on the nearby LWS from pollution incidents. Maintaining as many of the BAP habitats within the development as possible, will help to maintain some ecological value within the site, post development.

If any further mitigation or recommendations are carried out following further surveys for bats, and if the avoidance and precautions detailed in **Section 5** are carried out, then proposed works can proceed with minimal impact on any protected, SPIE or locally rare species within the area (individuals, or the local conservation status).

If some, or all, of the additional recommendations (**Section 5.2**) are implemented, the site could be enhanced for local wildlife in the longer term.

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Appendix 1 – Legislation & Planning Policy

National Legislation

Conservation of Habitat and Species (Amendment) Regulations 2012

The Conservation of Habitats and Species Regulations transpose Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (Habitats Directive) into English law, making it an offence to deliberately capture, kill or disturb wild animals listed under Schedule 2 of the Regulations. It is also an offence to damage or destroy a breeding site or resting place of such an animal (even if the animal is not present at the time).

Wildlife & Countryside Act

The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act (CROW) 2000 and the Natural Environment and Rural Communities Act (NERC) 2006, consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive), making it an offence to:

- Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 to the Act, or its dependent young while it is nesting;
- Intentionally kill, injure or take any wild animal listed under Schedule 5 to the Act; intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 to the Act; intentionally or recklessly disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection;
- Pick or uproot any wild plant listed under Schedule 8 of the Act.

Sites of Special Scientific Interest (SSSI) are designated under this Act.

Special Protection Areas (SPA) are strictly protected sites, designated under the Birds Directive, for rare and vulnerable birds and for regularly occurring migratory species.

Natural Environment & Rural Communities Act

The NERC Act amends the CROW Act, by further extending the requirement to have regard for biodiversity to all public authorities, which includes local authorities and local planning authorities and requires that the Secretary of State consults Natural England (NE) in the publication of the list of living organisms and habitat types deemed to be of principal importance in conserving biodiversity.

National Planning Policy Framework (NPPF)

The NPPF sets out current government policy on biodiversity and nature conservation and places a duty on planners to make material consideration to the effect of a development on legally protected species when considering planning applications. NPPF also promotes sustainable development by ensuring that developments take account of the role and value of biodiversity and that it is conserved and enhanced within a development

NPPF replaced PPS9 in April 2012. NPPF works is considered in conjunction with Government Circular 06/2005 'Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System.'

National Planning Policy

Biodiversity Action Plans

The UK Biodiversity Action Plan (UKBAP) (Anon, 1995) was organised to fulfil the Rio Convention on Biological Diversity in 1992, to which the UK is a signatory. As a result of new drivers and requirements, the 'UK Post-2010 Biodiversity Framework', published in July 2012, has succeeded the UK BAP. In particular, due to devolution and the creation of country-level biodiversity strategies, much of the work previously carried out under the UK BAP is now focussed at a country level.

The UK BAP lists of priority species and habitats are still valuable reference sources. Notably, they have been used to help draw up statutory lists of priority species and habitats as required under Section 41 of the NERC act.

UK Post-2010 Biodiversity Framework

The UK Post-2010 Biodiversity Framework (2012) was produced in response to a change in strategic thinking following the publication of the Convention of Biological Diversity's Strategic Plan for Biodiversity 2011–2020. The Strategic Plan consists of 20 new biodiversity targets for 2020, termed the 'Aichi biodiversity targets' and the launch of the new EU Biodiversity Strategy in May 2011.

The framework sets a structure for action across the UK between now and 2020, including a shared vision and priorities for UK-scale activities to help deliver the Aichi targets and the EU Biodiversity Strategy. A major commitment by Parties to the Convention of Biological Diversity is to produce a National Biodiversity Strategy and/or Action Plan (NBSAP).

Natural England Standing Advice

Natural England has adopted national standing advice for protected species. It provides a consistent level of basic advice which can be applied to any planning application that could affect protected species. It replaces some of the individual comments that Natural England has provided in the past to local authorities.

Regional and Local Planning Policy

Essex and Hertfordshire Biodiversity Action Plan

The Local Habitat and Species Action Plans were first produced in 1999, and reviewed in 2003 and 2008. A complete review of all the BAPS nationally took place in 2007, and local BAPs are now monitored in a nationwide database, the Biodiversity Action Reporting System. A list of all species occurring in Essex and Hertfordshire which have BAP status from the 2007 are listed online at <http://www.essexbiodiversity.org.uk/biodiversity-action-plan> (accessed 05/08/16) and http://www.hef.org.uk/nature/biodiversity_vision/ (accessed 05/08/16).

Local Structure Plans

County, District and Local Councils have Structure Plans and other policy documents that include targets and policies which aim to maintain and enhance biodiversity. These are used by Planning Authorities to inform planning decisions.

Relevant Protected Species Legislation

Species	Relevant Legislation	Level of Protection
Bats	<ul style="list-style-type: none"> • European protected species under the Conservation of Habitats & Species (Amendment) Regulations 2012. • Full protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended. • Protected by the Wild Mammals (Protection) Act 1996. 	<p>The WCA (1981) makes it an offence to:</p> <ul style="list-style-type: none"> • intentionally kill, injure, or take any species of bat; • intentionally or recklessly disturb bats; • intentionally or recklessly damage destroy or obstruct access to bat roosts.
Nesting birds.	<ul style="list-style-type: none"> • Protection under the Wildlife and Countryside Act (1981) as amended. 	<p>Under the WCA (1981) it is an offence to:</p> <ul style="list-style-type: none"> • intentionally kill, injure or take any wild bird; • intentionally take, damage or destroy nests in use or being built (including ground nesting birds); • intentionally take, damage or destroy eggs. <p>Species listed on Schedule 1 of the WCA or their dependant young are afforded additional protection from disturbance whilst they are at their nests.</p>

Appendix 2 – Phase 1 Habitat Survey Plan



REV	DATE	DESCRIPTION
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LEGEND

- | | |
|------------------------------------|--------------------|
| Site boundary | Hedge and trees |
| Semi-natural broad-leaved woodland | Fence |
| Coniferous tree | Wall |
| Swamp | Dry ditch |
| Wet woodland | Target note |
| Running water | Boundary reference |

LOCATIONS ARE APPROXIMATE.

PROJECT

LOWER SHEERING, SAWBRIDGEWORTH

TITLE

PHASE 1 HABITAT SURVEY

CLIENT

CITY & COUNTRY



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DATE	09/08/16
SCALE	NTS

PROJECT NUMBER . DRAWING NUMBER

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