



Land and Partners

Ecological Baseline

Land North of Long Copse Lane

Emsworth

Project number 043

Version 2

December 2018

South and South East



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Profile

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We deliver surveys, reports, licences and mitigation for projects ranging in size from single dwelling to multi-phase, mixed use developments.

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1 Introduction

1.1 Terms of Reference

In April 2016, Prime Environment Limited (Prime Environment) was instructed by Land and Partners (the Client) to undertake an Ecological Baseline (PEA) of Land North of Long Copse Lane, Emsworth (Ordnance Survey (OS) grid Reference SU 747 079) (The Site).

Preliminary Ecological Appraisal (PEA) is the term used to describe a rapid assessment of the ecological features present, or potentially present, within a site and its surrounding area (the zone(s) of influence) in relation to a specific project (in this case a proposed residential development).

This report combines the results of several suites of surveys:

- Extended Phase 1 Habitat Survey (2016 and an extended area in 2018)
- Hedgerow Assessments (2016)
- Bat Preliminary Roost Assessment – buildings (2016 and 2018)
- Desk study (2016)

There are also separate reports which cover more detailed protected species surveys, a summary of the results of which are included in this report:

- Bat Activity Surveys¹
- Bat Emergence Surveys²
- Barbastelle bat radio tracking surveys³
- Great crested newt surveys⁴
- Dormouse surveys⁵
- Reptile surveys⁶

This report intends only to set out the methods used and the results of the surveys. A separate Ecological Impact Assessment (EclA) will identify the likely impacts of the proposed development and establish suitable avoidance, mitigation, compensation and enhancement measures.

The Survey Area included a slightly larger area than the Site (including an additional field to the south west of the Site), which is not reported on in this document.

The application is for up to 210 dwellings and associated parking, open space and surface water drainage on a 14.6 ha site. This site forms part of wider masterplan area which proposes approximately 260 dwellings to correspond with a proposed housing allocation in the emerging Havant Local Plan.

¹ Prime Environment (2018) *Emsworth Bat Activity v2*

² Prime Environment (2017) *Emsworth Bat Emergence v1*

³ Davidson-Watts Ecology (2017) *Emsworth Advanced Bat Surveys*

⁴ Prime Environment (2017) *Emsworth Great Crested Newts v1*

⁵ Prime Environment (2017) *Emsworth Dormouse v1*

⁶ Prime Environment (2018) *Emsworth Reptiles v2*

1.2 Aims and Objectives

The aims of this report are to describe the ecological baseline of the Site, with a particular focus on important features. The term 'ecological features' is used to cover habitats, species and ecosystems. The following have been used to define 'important' ecological features for this assessment:

Designated Sites

- Statutory sites designated or classified under international conventions or European legislation, for example:
 - World Heritage Sites
 - Biosphere Reserves
 - Wetlands of International Importance (Ramsar Sites)
 - Special Areas of Conservation
 - Special Protection Areas
- Statutory sites designated under national legislation, for example:
 - Sites of Special Scientific Interest.
 - National Nature Reserves (UK).
 - Local Nature Reserves (UK).
- Locally designated wildlife sites.

Species Lists

- Species or habitats listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006: Habitats or Species of Principal Importance (HPI or SPI) are recognised in the National Planning Policy Framework and important at a national scale.
- Country and Local Biodiversity Lists.
- Species of conservation concern, Red Data Book (RDB) species⁷.
- Species listed under Schedule 1 (birds), Schedule 5 (animals) or Schedule 8 (plants) of the Wildlife and Countryside Act.
- Species listed under Schedule 2 (animals) or Schedule 5 (plants) of the Habitat Regulations 2010 (European Protected Species EPS).
- Birds of Conservation Concern 4⁸ (2015): provides guidance on the conservation status of UK bird species. Red status species are those species of highest conservation concern and green status species are those of low or no conservation concern. Amber status species are those species of some conservation concern.
- Nationally rare and nationally scarce species⁹.

⁷ <http://jncc.defra.gov.uk/page-5335>

⁸ Eaton, MA, et al (2015) *Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man*. British Birds 108, 708–746

⁹ Nationally rare and nationally scarce species UK <http://jncc.defra.gov.uk/page-3425>

2 Methodology

2.1 Personnel

This assessment has been led and reported by Jo Pedder. The initial (2016) survey was undertaken by Principal Ecologist Hayley Farnell MSc., BSc. hons CIEEM. Hayley is a full member of the Chartered Institute of Ecology and Environmental Management and has over 14 years' professional experience within environmental consultancy. She holds a Class 2 survey licence for bats and a survey licence for great crested newts.

The 2018 surveys were undertaken by Clare Clarke, Director and Principal Ecologist for CC Ecology Ltd. Claire holds Natural England Licences for Bats (Class 2) and Great Crested Newts (Class 2); she also specialises in working as the Named Ecologist for bat development licences for a wide variety of projects. Claire's main role is to manage projects and as a technical specialist in protected species.

Relevant staff CVs are provided in Appendix 4.

2.2 Desk Study

Hampshire Biodiversity Information Centre (HBIC) and Sussex Biodiversity Record Centre (SBRC) were contacted for records of protected species and sites of nature conservation value within a 2 km search area, buffered from the Site boundary.

In addition, Ordnance Survey maps and online aerial photos were used to provide site context and the online Multi Agency Geographical Information Centre (MAGIC¹⁰) was used to identify any internationally protected areas within 5 km of the Site.

2.3 Extended Phase 1 Habitat Survey

A Phase 1 Habitat Survey was undertaken to identify and map the habitats present following published criteria¹¹ on the 01/04/2016. The Site area was extended and additional fields and The Old Dairy were surveyed on 29/03/2018 and 08/06/2018.

In addition to basic Phase 1 Habitat mapping, the Site was assessed to identify whether it includes any Habitats of Principal Importance (HPI) or is suitable to support Species of Principal Importance (SPI)¹², or other notable or legally protected species.

2.4 Hedgerow Assessment

This report has been prepared to support a planning application, and therefore there is no legal requirement for undertaking a Hedgerow Regulations assessment; removal of hedgerows is considered permitted under the legislation if the removal is part of a planning consent. However, this is a useful tool for identifying features of value within a site. Each hedgerow within the Site was assessed against the ecology criteria for 'important' hedgerows following the method set out in The Hedgerow Regulations 1997.

¹⁰ <http://magic.defra.gov.uk/> Checked on 17/12/2018

¹¹ JNCC (2010) *Handbook for Phase 1 habitat survey - a technique for environmental audit*

¹² HPI and SPI are habitats and species listed in Section 41 of the Natural Environment and Rural Communities Act 2006 and regarded as the highest conservation priorities in the UK. HPI and SPI are material consideration in planning.

The assessment did not include an historical assessment of the hedgerows, which should be considered separately.

2.5 Great Crested Newt Pond HSI

Great crested newts are a European Protected Species (EPS). The newts can travel some distance from their breeding pond. It is best practice to consider whether ponds within 500 m of a development site may support a breeding population of newts, to assess the likely risk of harm to newts if they occur on terrestrial habitat at the Site.

Waterbodies within or within 500 m of the proposed Site, that could be accessed, were assessed for their suitability to support great crested newts. Using the data from the assessment, a Habitat Suitability Index (HSI) score was calculated. The calculated HSI for a pond provides a score between 0 and 1. The pond's HSI can then be compared to the ranges of pond suitability, as shown in Table 1. An inference can then be made between the HSI of the pond, and the likelihood of great crested newt presence.

Table 1 - HSI scores and suitability of ponds for GCN

HSI Score	Classification	Proportion of Ponds Occupied by Great Crested Newts
<0.5	Poor	0.03
0.5 – 0.59	Below average	0.20
0.6 – 0.69	Average	0.55
0.7 – 0.79	Good	0.79
> 0.8	Excellent	0.93

2.6 Preliminary Roost Assessment

The Preliminary Roost Assessment (PRA) followed the Bat Conservation Trust (BCT) guidelines criteria¹³ (see Appendix 2). This entails inspecting a structure (e.g. a building or tree) for field evidence of roosting bats such as feeding remains, droppings, urine staining and Potential Roosting Features (PRFs) such as voids, cracks and crevices.

Any direct evidence, type and number of PRFs and the Site's context is then used to grade the structure as of negligible, low, medium or high suitability to support bats.

The PRA included all buildings within the Site (Holly Bank Farm in 2016 and The Old Dairy in 2018) and prominent trees within the Site. Boundary trees and woodland trees have not been individually surveyed.

2.7 Survey Constraints

Any ecology assessment must be considered as a 'snapshot' of the site conditions at the time of the survey. Ecological constraints will change over time and therefore the findings of this report are considered to be valid for a period of one year, after which the report should be reviewed to assess whether the survey should be updated.

Access beyond the Site boundary for the Extended Phase 1 Habitat Survey was limited to those areas that abutted the woodland to the north and west of the Site. The land to the immediate

¹³ Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London

east of the Site and residential gardens along the southern border were not accessible and could not be checked for signs of badgers.

No constraints were such that they affect the overall conclusions and recommendations made herein.

3 Baseline

3.1 Surrounding Area

The Site is in the South Coast Plain National Character Area (NCA). The South Coast Plain NCA is a flat, coastal landscape with an intricately indented shoreline lying between the dip slope of the South Downs and South Hampshire Lowlands and the waters of the English Channel, Solent and part of Southampton Water. The coastline includes several major inlets which have particularly distinctive local landscapes and intertidal habitats of international environmental importance for wildfowl and waders. Chichester Harbour Area of Outstanding Natural Beauty lies within the NCA and the foothills of the South Downs, along the northern boundary, fall within the South Downs National Park.

The Site is situated between the northern outskirts of Emsworth and Hollybank Woods. The surrounding landscape is dominated by the broadleaved woodland, urban areas and horse pasture.

Figure 1, an aerial photograph of the Site, shows the Site in context with the surrounding landscape. The Site is surrounded to the north and west by the forests, Long Copse Road to the south and farmland to the east.

Figure 2, shows the Site and Survey Area in greater resolution. The red line denotes the Site, the blue line denotes an additional field to the south west which was included within the Survey Area.



Figure 1 – Site Location



Figure 2 – Aerial Photo

Table 2 Details all of the designated wildlife sites that have been identified in the data search.

Table 2 – Designated Wildlife Sites

Designation / Location	Ecological Feature
Sites of Importance for Nature Conservation (SINCs)	
Barton's Copse & The Slip	Ancient semi-natural woodland
Southleigh Forest (South)	Pasture woodland which are of considerable biological and historical interest.
Southleigh Forest	Pasture woodland which are of considerable biological and historical interest and supports Purple Emperor <i>Apatura iris</i> and Coral Necklace <i>Illecebrum verticillatum</i>
Land West of Emsworth Recreation Ground	Semi-improved grasslands which retain a significant element of unimproved grassland.
Southleigh Forest (North of Emsworth Common Road)	Pasture woodland which are of considerable biological and historical interest.
Stream West of Emsworth Recreation Ground	Site which support one or more notable species including narrow-leaved water-plantain <i>Alisma lanceolatum</i> .
Westbrook Stream, Bridge Road	Site which support one or more notable species including narrow-leaved water-plantain <i>Alisma lanceolatum</i> .
Lumley Meadow	Agriculturally unimproved grassland which supports one or more notable species including Meadow Brome <i>Bromus commutatus</i> , Distant Sedge <i>Carex distans</i> , Divided Sedge <i>Carex divisa</i> .
Land East of 54 Long Copse Lane	Semi-improved grassland which retains a significant element of unimproved grassland
Road Verges of Ecological Importance (RVEIs)	
U609 Bridge Road, Emsworth	Strip of grass between Bridge Road Car park and Westbrook Stream which supports narrow leaved water plantain <i>Alisma lanceolatum</i> .
Local Wildlife Site (LWS)	
Aldsworth Pond and Meadows	Aldsworth Pond is of considerable ornithological importance, particularly for breeding waterfowl. It also supports large numbers of dragonflies and at least two species of amphibian. The English Elms near the pond support a colony of the very localised white-letter hairstreak butterfly. The two meadows are of moderate botanical interest.
River Ems and Meadows	This site consists of a section of the River Ems and the adjacent meadows. Although semi-improved the meadows still retain some botanical interest. The river is in good biological condition. There are some areas of wet woodland.
Stanstead Forest	Stanstead Forest forms an extensive block of ancient woodland. Much has been replanted with Sweet Chestnut but some of the original semi-natural woodland still remains. The site is of considerable ornithological importance with breeding nightjar and woodcock.
Cricket Ground and Meadows	This site consists of horse-grazed pasture, a cricket ground and the edge of a football pitch. They are all unimproved and support moderately species-rich plant communities, including several notable species. The presence of a large population of chamomile <i>Chamaemelum nobile</i> , a rare plant in West Sussex and declining nationally, is of great interest.

Brick Kiln Ponds and Meadow	This site consists of two large ponds, a rough unimproved meadow, scrub and woodland. The ponds are important breeding sites for amphibians, birds and dragonflies. The meadow is of botanical and entomological interest.
Slipper Mill Pond & Peter Pond	Slipper Mill Pond is a saline lagoon, a very rare wildlife habitat, both within the UK and Europe. It supports a rich invertebrate fauna including two species specifically protected under Schedule 5 of the Wildlife and Countryside Act 1981. These are the tentacled lagoon worm, sometimes also known as the marine bristle worm <i>Alkamaria romijini</i> , and the starlet sea anemone <i>Nematostella vectensis</i> .
Local Nature Reserve (LNR)	
Brooks Meadow (Emsworth)	Grassland site surrounded by woodlands and flanked by two streams.
Special Areas of Conservation (SAC)	
Solent Maritime	Estuary with inlets that are unique in Britain and Europe and supports cord-grass species and Atlantic salt meadows which are notable as being representative of the ungrazed type and support a different range of communities
Special Protection Areas (SPA)	
Chichester and Langstone Harbours	Large sheltered estuarine basins supporting mud-flats that are rich in invertebrates and support extensive beds of algae.
Ramsar Sites	
Chichester and Langstone Harbours	The site is of particular significance for water birds, especially in migration periods and in winter. It also supports important colonies of breeding terns.

3.2 Site's Habitats

The Site is 14.6 ha and comprises mostly horse grazed pasture with trees. The Site also includes a glamping field, stables, training manège, two houses and two ponds.

The Site comprises:

- Grassland fields.
- Bare Ground.
- Scrub.
- Spoil heaps.
- Tall ruderal.
- Amenity grassland.
- Woodland.
- Pond.
- Buildings.

A list of all species recorded with their Latin names is included in Appendix 2. A Phase 1 Habitat Plan is shown below, and at a higher resolution with a key in Appendix 5.

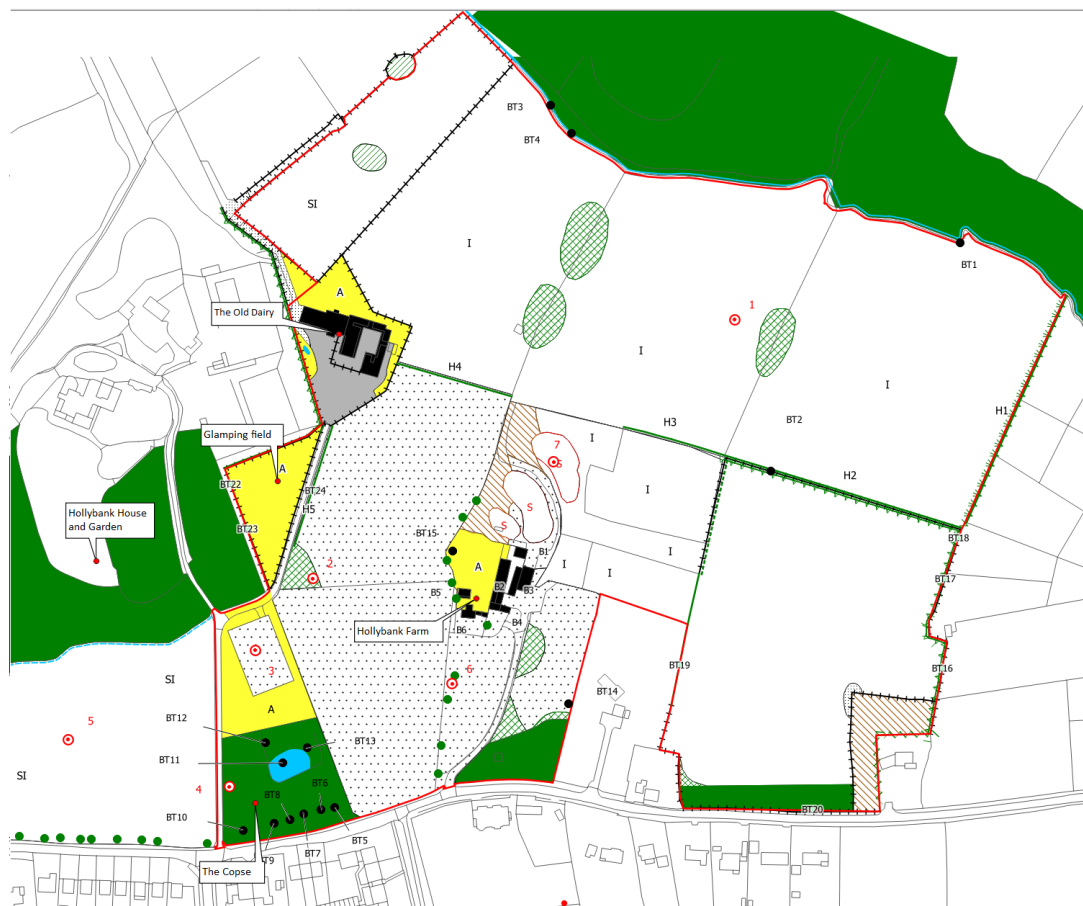


Figure 3 – Phase 1 Habitat Survey

3.2.1 Grassland

Phase 1 Habitat Survey Type / JNCC Code	Improved grassland / poor semi-improved grassland.
Quality Assessment	Low
Is this habitat a Habitat of Principal Importance?	No

The fields in the north and in the centre of the Site are improved grassland horse pastures.

Patches of soft rush in the north east corner of the Site delineate wetter areas which are occasionally prone to becoming water logged in periods of heavy rain fall. The eastern border of the north-east field is comprised of a blackthorn and hawthorn hedge with occasional oak trees.

There are patches of bramble scrub which have grown up along the fence lines which divide the three grassland fields in the north.

Phase 1 Habitat Survey Type / JNCC Code	Amenity Grassland J2
Quality Assessment	Low
Is this habitat a Habitat of Principal Importance?	No

The training manège is bordered on all sides by mown amenity grassland. This habitat also makes up the residential garden and is defined by the dominance of perennial rye grass and species present due to disturbance by regular mowing such as daises, dandelions and ribwort plantain.

Amenity grassland is also located in the front and rear garden of the house at The Old Dairy Farm, as well as the glamping field on the west boundary surrounding the yurts situated here. Some herbs are present within the sward such as lesser bird's-foot trefoil, white clover, ribwort plantain, and dock, but generally the species diversity is low. Along the boundaries of this field other species such as rosebay willowherb are present which coincides with the more nutrient rich areas located adjacent to the woodland. Here, the grassland is becoming colonised with more woody species mainly between the yurts and the woodland edge, most likely where less mowing occurs; holly, hawthorn and horse chestnut saplings are present as well as small colonised rhododendron and areas of bramble.

3.2.2 Bare Ground

Phase 1 Habitat Survey Type / JNCC Code	Bare Ground J4
Quality Assessment	Low
Is this habitat a Habitat of Principal Importance?	No

The fields in the west and south of the Site are horse paddocks which were heavily poached at the time of the 2016 surveys resulting in little to no vegetation growing. There are patches of bramble scrub within the field in the south east of the Site. The poaching appears to be relatively seasonal and becomes worse in periods of wet weather. Heavy poaching was also recorded in the April 2018 visit to the field in the south east of the Site.

A training manège located in the south west of the Site (north of the wooded copse) is also bare ground with no vegetation coverage.

3.2.3 Spoil Heaps and Tall Ruderal

Phase 1 Habitat Survey Type / JNCC Code	Spoil heaps and Tall Ruderal.
Quality Assessment	Low
Is this habitat a Habitat of Principal Importance?	No

In the centre of the Site are heaps of horse manure and log piles. Some of these are overgrown with ruderal plants such as common nettles and common hogweed.

3.2.4 Hedges

Phase 1 Habitat Survey Type / JNCC Code	Intact hedge - species-poor J2.1.2
Quality Assessment	Low
Is this habitat a Habitat of Principal Importance?	Yes

There are five sections of hedgerow across the Study Area. These are all intact and create boundaries between the horse paddocks. All of the hedgerows are species poor being mainly dominated by hawthorn with occasional bramble and blackthorn. Tall ruderal species are growing at the base of the hedgerows where there is less pressure from horse grazing, this is made up of hogweed, common nettle and ground ivy. The hedgerow located on the north east boundary also contains oak trees which may be remnants of the woodland along this boundary, or an indication of an older, outgrown hedge.

The hedgerows provide connectivity across the centre of the Site and with the woodland to the north along the east boundary.

3.2.5 Woodland and Trees

Phase 1 Habitat Survey Type / JNCC Code	Mixed woodland - semi-natural A.1.3.1
Quality Assessment	Low
Is this habitat a Habitat of Principal Importance?	Yes

Two small broadleaved woodland copses are located in the south of the Site. The copse located to the east of the access road which leads to Hollybank Farm is made up of semi mature silver birch and oak trees with a groundcover of bramble and ivy.

The copse located in the south west corner of the Site contains mature oak, aspen, ash and a pond.

To the north and west of the Site is Hollybank Woods, managed day to day by the Friends of Hollybank Woods for conservation and forestry on behalf of Havant Borough Council. Parts of the woods (although none immediately adjacent to the Site) are designated as a Site of Interest for Nature Conservation (SINC). Parts of the woods (including an area of woodland immediately north of the Site) are semi-natural ancient woodland.

The southern boundary to Long Copse Lane is predominantly a scrub and tree line (oak, ash, sycamore, goat willow and bramble).

3.2.6 Ponds

Phase 1 Habitat Survey Type / JNCC Code	Standing open water G1
Quality Assessment	Medium
Is this habitat a Habitat of Principal Importance?	Yes

There are two ponds within the Site - a small pond within the woodland copse in the south of Long Copse Farm is a shallow waterbody which dries annually. It doesn't hold any fish or support waterfowl. There isn't any emergent vegetation and the pond is approximately 70% shaded.

There is a garden pond associated with the Old Dairy Farm. This is a manmade pond with a pond liner. The immediate surrounding habitat is mown amenity grassland, but the pond is located close to the boundary hedgerow.

3.2.7 Buildings

Phase 1 Habitat Survey Type / JNCC Code	Buildings 3.6
Quality Assessment	Low
Is this habitat a Habitat of Principal Importance?	No

Holly Bank Farm

Holly Bank Farm includes a number of buildings – a residential house, stables and an outbuilding.

The residential property is constructed of brick and stone with a peg-tiled roof.

The roof contains a small void, which was too small to enter fully. The tiles are lined with bitumen felt. Some of the tiles are lifted and there are gaps under the eaves that may create access to the roof void.

There are four stable blocks of mixed construction materials including brick and breeze block walls. Three of them had corrugated asbestos roofs and one had a flat felt roof. None of the stable buildings contained roof voids.

There is a brick-built outbuilding with a corrugated asbestos roof. The building is used for storage and does not contain a roof void.

The Old Dairy Farm

The Old Dairy Farm is actually a modern (1980's), two-storey, brick-built house with an attached bed and breakfast, a conservatory to the rear of the building and an open porch over the front door.

The house, conservatory, porch, and bed and breakfast have separate roofs which are clad in slate-effect tiles with clay ridge tiles. The roof of the house is pitched and gabled and has four hipped-roofed dormers with weatherboard siding: two over the front pitch and two over the rear pitch. There are two skylights between the rear dormers and three between the front.

There is a brick chimney over the rear pitch. The main roof of the bed and breakfast is lower than that of the house, is pitched, and is hipped at the northwest end. There is a conservatory to the rear of the bed and breakfast which has a hipped roof. The building has wooden soffits and bargeboards.

The building has three loft spaces. Loft one is the largest and extends over the bed and breakfast with a rectangular footprint. It is approximately 3 m high at the ridge and has no visible ridge beam. The loft is lined with breathable roof membrane and is insulated at floor level with fibreglass insulation between the joists. It contains a small amount of storage and is heavily trussed. Light ingress was noted under the eaves which indicates an opening that may provide access for bats.

Loft two runs under the ridge of the main house. It is approximately 1 m high at the ridge and has no visible ridge beam. It is lined with breathable roof membrane and insulated at floor level with fibreglass insulation between the joists. A draught was noted during the inspection, indicating the loft likely has an opening to the outside. No evidence was found of bats using the space.

Loft three is located under the eaves of the south west corner of the house and has an L-shaped footprint. It can only be inspected through a small opening in a cupboard of the second bedroom of the house and was not fully accessible for inspection. As it is in the eaves it has no ridge. It is lined with breathable roof membrane and has Celotex insulation. The space is cluttered with pipes but is not used for storage. Light ingress was noted under the eaves.

The stable block has four wings surrounding a square courtyard. There is a large storage room in the south west wing. The other wings contain stables interspersed with storage rooms, unenclosed recesses and a WC. It is a modern, wooden shiplap building, with a pitched, corrugated Onduline roof. There are corrugated plastic roof lights into the stables and storage rooms. The stables and recesses are open to the apex and the roofs are mostly unlined. There is a storage room/office in the northern corner of the block that has wooden boarding lining the roof. There is significant light ingress in all stables and storage rooms. The large storage room to the south west is cluttered, with light ingress at the base of the doors and around the eaves. The room is open to the apex and has wooden boarding under the corrugated roof. A bank of solar panels is mounted on the southern pitch of the roof over this room.

3.3 Species Accounts

A summary of the data provided by the local records centres is provided below. Only those species which are relevant to the Site (based on the location and habitats present) are included. The data searches produced over 6000 records of animals within 2 km of the Site. To reduce the amount of data processed, only data available from the last 15-year period (between 2000 and 2015) are presented below.

Group / Species	Protection/Status	Potential to Occur at the Site?
Plants and lower plants		
Bitter-vetch <i>Lathyrus linifolius</i>	IUCN: Least concern	Y – within scrub habitats on the Site
Common Valerian <i>Valeriana officinalis</i>	IUCN: Near threatened	Y- within damp soil in woodland copse
Crosswort <i>Cruciata laevipes</i>	IUCN: Near threatened	Y – within grasslands and scrub
Crown Vetch <i>Securigera varia</i>	Notable: (CI)	Y – within scrub
Devil's-bit Scabious <i>Succisa pratensis</i>	IUCN: Near threatened	Y – within grassland and woodland copse
Dyer's Greenweed <i>Genista tinctoria</i>	IUCN: Vulnerable	Y – Grasslands and scrub
Great Yellow-cress <i>Rorippa amphibia</i>	Notable: (County scarce)	Y – Around pond in woodland copse
Heath Speedwell <i>Veronica officinalis</i>	IUCN: Near threatened	Y – within grassland
Long-headed Poppy <i>Papaver dubium subsp. dubium</i>	Notable: (CI)	Y – within areas of disturbed soil
Narrow-leaved Pepperwort <i>Lepidium rudemale</i>	Notable: (County scarce)	Y – within tall ruderal
Ragged-Robin <i>Lychnis flos-cuculi</i>	IUCN: Near threatened	Y – within the woodland copse
Rough hawk's-beard <i>Crepis biennis</i>	Notable : (County rare)	Y – within grassland
Sanicle <i>Sanicula europaea</i>	IUCN: Near threatened	Y – within woodland copse
Tormentil <i>Potentilla erecta</i>	IUCN: Near threatened	Y – within grassland
Invertebrates		
Buff Ermine <i>Spilosoma lutea</i>	Priority Species and former BAP Species	Y - Grassland, hedgerows and woodland copse
Cinnabar moth <i>Tyria jacobaeae</i>	Priority Species and former BAP Species	Y – Grassland and spoil heaps
<i>Criorhina asilica</i>	Priority Species and former BAP Species	Y – Woodland copse and hedgerows
Oak Hook-tip <i>Watsonalla binaria</i>	Priority Species and former BAP Species	Y - Grassland, hedgerows and woodland copse
Pearl-bordered Fritillary <i>Boloria euphrosyne</i>	Priority Species and former BAP Species	Y – Woodland copse
Rustic <i>Hoplodrina blanda</i>	Priority Species and former BAP Species	Y – Woodland copse and garden
September Thorn <i>Ennomos erosaria</i>	Priority Species and former BAP Species	Y – Gardens, woodland copse and hedgerows
Small Heath <i>Coenonympha pamphilus</i>	Priority Species and former BAP Species	Y – Open areas of grassland
Stag Beetle <i>Lucanus cervus</i>	Priority Species and former BAP Species	Y – Woodland copse
White Admiral <i>Limenitis camilla</i>	Priority Species and former BAP Species	Y – Woodland copse
Amphibians		
Common toad <i>Bufo bufo</i>	WCA	Yes – Ponds, marginal habitats and field margins only

Common frog <i>Rana temporaria</i>	WCA	Yes – Ponds, marginal habitats and field margins only
Smooth Newt <i>Lissotriton vulgaris</i>	WCA	Yes – Ponds, marginal habitats and field margins only
Reptiles		
Slow Worm <i>Anguis fragilis</i>	WCA, SPI	Yes – Marginal habitats, grassland habitats and spoil heaps
Common Lizard <i>Zootoca vivipara</i>	WCA	Yes – Marginal habitats, grassland habitats and spoil heaps
Grass snake <i>Natrix natrix</i>	WCA, SPI	Yes – Marginal habitats, grassland habitats and spoil heaps
Birds		
Barn Owl <i>Tyto alba</i>	WCA (Sch1)	Yes – Foraging only
Bullfinch <i>Pyrrhula pyrrhula</i>	SPI, BoCC 4 Amber, HBAP	Yes – Foraging on oak trees and hawthorn within the site. May nest in hedgerows
Cuckoo <i>Cuculus canorus</i>	SPI, BoCC 4 Red	Yes – Foraging only
Firecrest <i>Regulus ignicapilla</i>	WCA (Sch1), HBAP, Notable (County scarce)	Yes – Foraging, may nest in bordering woodland
Grey wagtail <i>Motacilla cinerea</i>	BoCC 4 Red	Yes – Foraging in winter only
Hawfinch <i>Coccothraustes coccothraustes</i>	SPI, BoCC 4 Red, HBAP, Notable (CI)	Yes – Nesting in woodland bordering the site
Hobby <i>Falco subbuteo</i>	WCA (Sch1), HBAP, Notable (CI)	Yes – Foraging only
House Sparrow <i>Passer domesticus</i>	BoCC 4_Red, SPI	Yes – Foraging in garden around house. May nest in eaves of buildings
Marsh Tit <i>Poecile palustris</i>	BoCC 4 Red	Yes – Foraging in grassland habitats
Mistle Thrush <i>Turdus viscivorus</i>	BoCC 4 Red	Yes – Nesting in woodland copse and foraging in grassland habitats
Red Kite <i>Milvus milvus</i>	Annex 1, WCA (Sch1), BoCC 4_Amber, HBAP, Notable (County rare)	Yes – Foraging only
Redwing <i>Turdus iliacus</i>	WCA (Sch1), BoCC 4_Red	Yes – Foraging in grassland habitats and roosting in hedgerows
Song Thrush <i>Turdus philomelos</i>	SPI, BoCC 4_Red, HBAP	Yes – Foraging along woodland edge and hedgerows
Spotted Flycatcher <i>Muscicapa striata</i>	SPI, BoCC 4_Red, HBAP	Yes – Foraging only
Starling <i>Sturnus vulgaris</i>	SPI, BoCC 4_Red	Yes – Foraging in all habitats, may nest in buildings in the Site
Swallow <i>Hirundo rustica</i>	WCA	Yes – Foraging and nesting in stables
Swift <i>Apus apus</i>	WCA	Yes – Foraging
Turtle Dove <i>Streptopelia turtur</i>	SPI, BoCC 4 Red, HBAP	Yes – Foraging in grassland habitats and nesting in woodland copse

Yellow Wagtail <i>Motacilla flava</i>	BoCC 4_Red, HBAP, Notable (County rare)	Yes – Foraging only
Yellowhammer <i>Emberiza citrinella</i>	SPI, BoCC 4 Red	Yes – Foraging in grassland habitats and nesting in margin habitats under hedgerows
Mammals		
Brown long-eared bat <i>Plecotus auritus</i>	EPS, WCA (Sch 5), SPI	Yes – Foraging and roosting opportunities
Bechstein's bat <i>Myotis bechsteinii</i>	EPS, WCA (Sch 5), SPI	Yes – Foraging and roosting opportunities
Common pipistrelle bat <i>Pipistrellus pipistrellus</i>	EPS, WCA (Sch 5),	Yes – Foraging and roosting opportunities
Daubenton's bat <i>Myotis daubentonii</i>	EPS, WCA (Sch 5),	Yes – Foraging and roosting opportunities
Hedgehog <i>Erinaceus europaeus</i>	SPI	Yes – Foraging and nesting opportunities
Natterer's bat <i>Myotis nattereri</i>	EPS, WCA (Sch 5),	Yes – Foraging and roosting opportunities
Noctule bat <i>Nyctalus noctula</i>	EPS, WCA (Sch 5), SPI	Yes – Foraging and roosting opportunities
Serotine bat <i>Eptesicus serotinus</i>	EPS, WCA (Sch 5),	Yes – Foraging and roosting opportunities
Soprano pipistrelle bat <i>Pipistrellus pygmaeus</i>	EPS, WCA (Sch 5), SPI	Yes – Foraging and roosting opportunities
Whiskered/Brandt's bat <i>Myotis mystacinus/brandtii</i>	EPS, WCA (Sch 5),	Yes – Foraging and roosting opportunities
Abbreviations		
WCA	Wildlife and Countryside Act 1981	
WCA (Sch 5)	Wildlife and Countryside Act 1981 Schedule 5 Section 9.	
WCA (Sch 1)	Wildlife and Countryside Act 1981 Schedule 1	
SPI	Species of Principal Importance in England under section 41 of the NERC Act (2006).	
EPS	European Protected Species Habitats Directive -Schedule 2	
BoCC 4	Birds of Conservation Concern 4	
BAP	Biodiversity Action Plan	
HBAP	Hampshire Biodiversity Action	
Hab Regs	Habitat Regulations	
Annex 1	Birds listed on Annex 1 of the European Birds Directive (1979)	
Notable	Status of species locally determined within a county	
Notable (CI)	'County of Other Interest' category is an umbrella group to cover those species defined as notable on criteria other than rarity/scarcity, and may include species that are: Rapidly declining, Hampshire responsibility (significant % of UK Resource), Long Extinct, Endemic, Nationally Protected, Internationally listed, HBAP listed, Alien of interest	

Based on the habitats recorded within the Site, the desk study results and the ecologist's professional opinion, the following table presents species groups that have been scoped out of further assessment in this appraisal.

Table 3 – Species Scoping

Species / Group	Records in the data search?	Suitable habitat within the Site or zone of influence?	Scoped out from further assessment?
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Terrestrial invertebrates	☒	☒	☐
Aquatic invertebrates	☐	☐	☒
White clawed crayfish	☐	☐	☒
Great crested newts	☐	☒	☐
Reptiles	☒	☒	☐
Birds	☒	☒	☐
Water vole	☐	☐	☒
Hedgehog	☒	☐	☐
Otters	☐	☐	☒
Dormice	☐	☒	☐
Badgers	☐	☒	☐
Bats	☒	☒	☐

3.3.1 Invertebrates

The Site's terrestrial habitats are common and wide spread and do not contain significant variation in habitats, structure or flowering plants and so are unlikely to support an important range of invertebrate species. However, populations of S41 species may occur here, in particular along the Site's woodland edges.

3.3.2 Amphibians

Great crested newts are a European Protected Species (EPS). The newts can travel some distance from their breeding pond. It is best practice to consider whether ponds within 500 m of a development site may support a breeding population of newts, in order to assess the likely risk of harm to newts if they occur on terrestrial habitat at the Site.

Four ponds were identified on OS mapping, with three of these ponds holding water and one dried out when inspected during the survey. One of the ponds is within the woodland copse within the Site and two are located 250 m north within Sawmill's farm.

HSI were completed for these ponds (see Appendix 3 for full details) to quantify their suitability for great crested newts. The pond within the woodland copse is calculated to be below average and the ponds within Sawmill's farm calculated to have good and excellent suitability to support great crested newts.

Great crested newt surveys were completed at these ponds¹⁴. No great crested newts were detected.

An additional pond has been recorded at The Old Dairy Farm. This has also been subject to an HSI assessment and was found to be of 'average' suitability for great crested newts. Given the absence of great crested newts in the data search and their absence from other ponds surveyed in the locality, it is considered unlikely that great crested newts will occur at this garden pond.

Great crested newts are not considered a constraint to this project.

3.3.3 Reptiles

The Site's grassland habitats and woodland edges are suitable for foraging and sheltering reptiles. All British reptiles are protected from killing or injury (but their habitat is not specially protected) and are SPI.

¹⁴ Prime Environment (2017) *Emsworth Great Crested Newts v1*

Reptile surveys were completed between June October 2016¹⁵. The Survey Area (including the additional field to the south west of the Site) supports 'low' populations of grass snake, slow worm and common lizard.

3.3.4 Birds

All British wild bird's nests are protected whilst they are active. The tree lines and woodland are likely to support a range of nesting birds typical of farmland and woodland edge habitats. Opportunities for ground nesting birds are limited by the grazing pressure within the Site.

The hedges and trees are likely to support a range of passerine birds.

A swallow nest was recorded within stables B02.

3.3.5 Badgers

No evidence of badger was observed on the Site or within 30 m of the Site boundary (where access was possible). No mammal pathways were observed through the grassland habitat or on any boundary and no foraging signs were recorded within the Site.

3.3.6 Bats

All species of British bat are EPS. One of the landowners notified the surveyors that there is a recorded Bechstein's bat roost in the Holly Bank Farm copse. This was later confirmed in consultation with the LPA. Bechstein's bat is one of Britain's rarest mammals.

A number of additional surveys for bats including using automated detectors, transect surveys, emergence surveys of Holly Bank Farm and radio tracking surveys have been in 2016 and 2017 and are reported separately¹⁶¹⁷¹⁸.

Tree roosts

There are a number of trees within and surrounding the Site that could support roosting bats. These are labelled BT1 – BT24 on the Phase 1 Habitat Plan (note not all individual trees in groups were surveyed). The woodlands to the north and west of the Site are also likely to support roosting bats. A Bechstein's bat roost was within the copse in 2009 (TN4) and a number of Bechstein's bat roosts have been recorded in the woodland to the north of the Site during radio tracking surveys associated with other projects.

Capture and radio tracking of Bechstein's bats in 2016 did not reveal any current Bechstein's bat roosts within the Site during the survey period.

Buildings

The residential building at Holly Bank Farm (B01) was considered to have a high suitability to support roosting bats between the roof tiles and within the roof void (which could be access by bats via the eaves).

Emergence and dawn return surveys were undertaken in 2016 – no roosting bats were recorded.

¹⁵Prime Environment (2018) *Emsworth Reptiles v2*

¹⁶Prime Environment (2017) *Emsworth Bat Emergence v1*

¹⁷Prime Environment (2018) *Emsworth Bat Activity v2*

¹⁸Davidson-Watts Ecology (2017) *Emsworth Advanced Bat Surveys*

The stables and outbuilding did not have cracks, crevices or voids considered to be suitable to support roosting bats and so are categorised as having negligible suitability.

The residential building and stables at The Old Dairy Farm were considered to have a low suitability to support roosting bats.

Foraging and Commuting

The tree lines and grassland habitats are suitable foraging and commuting habitat for bats, including Bechstein's bat.

Transect and static detector surveys were completed in 2016 and due to equipment failure of one static unit, updated in 2017.

Species recorded during surveys at the Study Area were as follows:

- Common pipistrelle *Pipistrellus pipistrellus*
- Soprano pipistrelle *P. pygmaeus*
- Nathusius' pipistrelle *P. nathusii*
- Serotine *Eptesicus serotinus*
- Barbastelle *Barbastella barbastella*
- Noctule *Nyctalus noctula*

In addition to the above species, bat calls classified to the following genus level were also recorded:

- *Myotis*¹⁹ species and Broadband *Myotis* species
- Long-eared bat *Plecotus auritus*
- *Nyctalus* species²⁰
- 'Big bat' species²¹

Common and soprano pipistrelles had the highest level of activity. These were distributed across the Site, with some evidence of concentrations of activity in the east area of the site. Pipistrelle activity was mainly associated with hedgerows, tree lines and woodland edges, showing that open areas are used little.

Nathusius' pipistrelle activity was very low, yet were recorded throughout the year with a small peak in September and October, which coincides with when bats from the mainland continental Europe arrive in the UK. However, the low levels suggest the Site is not important for these bats.

Myotis activity was generally low, and highest along the tree line and woodland edge in the east area of the site in the automated surveys, yet were more spread out across the Site during the transects with small concentrations in the west and centre of the site. This tree line is likely to be a foraging and commuting route for the bats roosting in the woodland.

¹⁹ The call characteristics of the *Myotis* genus have a large overlap and so identification to species level is not usually possible from calls alone, although Bechstein's bat *M. bechsteini* and Natterer's bat can sometimes be identified due to their broadband calls – files with *Myotis* calls with a start frequency above 100kHz and end frequency below 30kHz of at least three pulses were labelled as Broadband *Myotis* (MYBD) .

²⁰ *Nyctalus* species include the noctule and Leisler's bats.

²¹ Due to the similarity between some of the calls of *Nyctalus* species bats and the serotine, the 'Big bats' classification is attributed to bat calls which cannot be differentiated between these two genera.

Noctule and serotine activity was very low, which indicates that these bats are commuting across the Site only, likely to and from roosts in the woodlands to the north.

Plecotus and barbastelle activity was very low.

The results of the Bechstein's bat tracking data show that in 2017 no roosts appear to be within the Site. The majority of foraging/flying activity took place beyond the Site in Long Copse (part of the Forestry Commission managed areas), or in discreet woodlands/treelines to the south and north east of the Site. Two maternity roosts were confirmed during the 2017 surveys and both of these were located in relatively open habitats, single trees either near a small copse. In the case of bat 106, the maternity roost was located within 50m of suburban areas with streetlights. The field surveyor reported the roost location was relatively shielded from artificial light, although a house garden was within 25m of the roost tree.

The foraging habitat has been assessed as being of high value for bats, given the range of species that it supports.

3.3.7 Dormice

Dormouse are known to inhabit woodlands close to the Survey Area. They are a declining species and are a EPS. The tree lines along the boundaries have understorey of bramble and scrub which provide suitable habitat for commuting dormice.

Dormouse surveys have been conducted at the Site and confirmed that dormice are present at the Site. The surveys cannot determine the population size or distribution, and so it should be assumed that dormice are present in all suitable habitats.

3.3.8 Hedgehogs

Hedgehogs are known to travel around one mile every night through woodland, parkland and gardens foraging for food and looking for mates. The habitats within the Site provide resources for foraging, nesting and commuting hedgehogs. It is likely that the site supports hedgehogs.

Hedgehogs have a large home range in the breeding season²² (males 56 ha with overlap of other individual's ranges and females 16.5 ha with little overlap of other ranges). Outside of the breeding season, the range reduces to 4-5 ha for both sexes. The Site may therefore support a non-breeding population of up to four male and female hedgehogs.

²² Haigh, A., O'Riordan, R. M. and Butler, F. (2013) "*Habitat selection, philopatry and spatial segregation in rural Irish hedgehogs (Erinaceus europaeus)*", *Mammalia*, 77(2), pp. 163-172. doi: 10.1515/mammalia2012-0094

Appendix 1 Photos



Photo 1 – Improved Grassland



Photo 4 –Amenity grassland at Holly Bank Farm



Photo 2 – Patches of soft rush



Photo 5 –Amenity grassland at The Old Dairy Farm



Photo 3 –Poached fields / bare ground

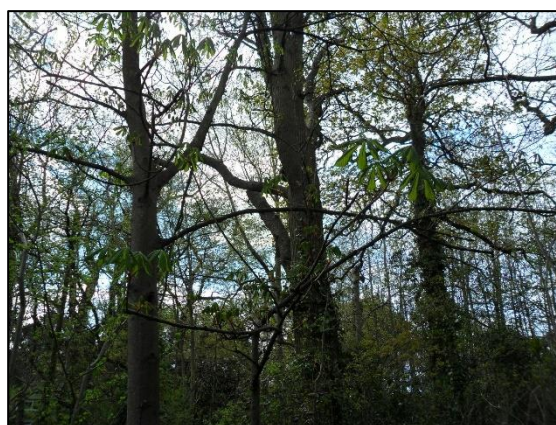


Photo 6 – Mature copse



Photo 7 – Pond at the copse



Photo 10 – Holly Bank Farm Stable



Photo 8 – Pond at The Old Dairy



Photo 11 – The Old Dairy Farm House



Photo 9 – Holly Bank Farm House



Photo 12 The Old Dairy Farm Stables

Appendix 2 BCT Assessment Criteria

Table 4 - BCT Assessment Criteria²³

Suitability	Description of Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat, but unlikely to support a roost of high conservation status ²⁴ .	Continuous habitat connected with the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions' and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

²³ From Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London

²⁴ With respect to roost type only - the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed.

Appendix 3 Data

Table 4 -Botanical Species List

Common Name	Scientific Name	wetter area to north of improved grassland field	Improved Grassland Fields	Amenity Grassland	Trees
Thistles			O		
Field Maple	<i>Acer campestre</i>				x
Foxtail	<i>Alopecurus pratensis</i>		F		
Lords and ladies	<i>Arum maculatum</i>		R		
Daisy	<i>Bellis perennis</i>		F	F	
Silver Birch	<i>Betula pendula</i>				x
Wavy bittercress	<i>Cardamine flexuosa</i>		R		
Hornbeam	<i>Carpinus betulus</i>				x
Common mouse ear	<i>Cerastium fontanum</i>		F		
Dogwood	<i>Cornus sanguinea</i>				
Hazel	<i>Corylus avellane</i>				x
Hawthorn	<i>Crataegus monogyna</i>		O		x
Leylandii	<i>Cupressus x leylandii</i>				x
Ash	<i>Fraxinus excelsior</i>				x
Ivy	<i>Hedera helix</i>		O		
Yorkshire fog	<i>Holcus lanatus</i>	A	A		
Holly	<i>Ilex aquifolium</i>				x
Ragwort	<i>Jacobaea vulgaris</i>		R		
Soft rush	<i>Juncus effusus</i>	D			
Laurel	<i>Laurus nobilis</i>				x
Privet	<i>Ligustrum vulgare</i>				x
Perennial rye grass	<i>Lolium perenne</i>		A	D	
Ribwort Plantain	<i>Plantago lanceolata</i>		F	F	
Annual meadow grass	<i>Poa annua</i>	A	D	A	
Cherry	<i>Prunus sp.</i>				x
Blackthorn	<i>Prunus spinosa</i>				x
Oak	<i>Quercus robur</i>				x
Meadow buttercup	<i>Ranunculus acris</i>	F	O	A	
Creeping buttercup	<i>Ranunculus repens</i>	F	O	A	
Rhododendron	<i>Rhododendron sp.</i>				x
Bramble	<i>Rubus fruticosus agg</i>	O			
Broad leaved dock	<i>Rumex obtusifolius</i>	O			
Elder	<i>Sambucus nigra</i>				x

Dandelion	<i>Taraxacum</i>		O	F	
White clover	<i>Trifolium repens</i>		O		
Gorse	<i>Ulex</i>		R		
Common nettle	<i>Urtica dioica</i>	O			
DAFOR scale		Dominant, Abundant, Frequent, Occasional, Rare			

Table 5 - Pond HSI

Pond #	1	2	3	4	5
Location	A	A	A	A	A
Loc. Score	1	1	1	1	1
Area m2	147	175	250	255	35
Area score	0.29	0.35	0.50	0.51	0.07
Drying	Never	Never	Annual	Annual	Never
Drying Score	0.9	0.9	0.1	0.1	0.9
Water Quality	Good	Good	Poor	Moderate	Moderate
Water Score	1	1	0.33	0.67	0.67
Shade %	10	10	70	80	5
Shade Score	1	1	0.8	0.6	1
Birds	Minor	Minor	Absent	Absent	Absent
Bird Score	0.67	0.67	1	1	1
Fish	Possible	Absent	Absent	Absent	Absent
Fish Score	0.67	1	1	1	1
Ponds 1km / Pi	5.00	5.00	5.00	5.00	5.00
Ponds Score	1.00	1.00	1.00	1.00	1.00
Terrestrial	Good	Good	Good	Good	Good
Terrestrial Score	1	1	1	1	1
Plant %	5	50	0	0	25
Plant score	0.36	0.81	0.31	0.31	0.56
HSI Score	0.73	0.84	0.58	0.60	0.69
HSI Rating	Good	Excellent	Below average	Average	Average

Table 6
Hedgerow Descriptions

Reference	Description
H1	Hedgerow 1, along the eastern boundary of the field in the north east corner of the Site is a species poor hedge with trees, Dominate by hawthorn with occasional blackthorn and oak trees. The hedgerow is not maintained, and the hawthorn is at a height of approximately 4 meters. The hedgerow is likely a remnant from the woodland to the north of the Site.
H2	Hedgerow 2, along the southern boundary of the north east corner field is a hawthorn hedge with an understorey of tall ruderal made up of bramble, nettles and hogweed. The hedgerow is not maintained and at a height of approximately 4 m.
H3	Hedgerow 3, along the southern edge of the central field in the north of the Site is a hawthorn hedge with the same make up and characteristics of H2.
H4	Hedgerow 4, along the southern edge of the north west corner field is a species poor hedge dominated by hawthorn. It also contains occasional dog rose and there is bramble. Ivy and lord and ladies growing at the base. The hedge is not maintained and at a height of approximately 3 m.
H5	Hedgerow 5, along the western edge of the horse paddock to the west of Hollybank farmhouse is a newly planted, hawthorn hedge. The saplings were still in plastic guards at the time of the 2016 survey.

Table 7
Hedgerow Regulations Assessment

Ref	Historical					Protected or rare species			Number of Woody species per 50m			Associated Features							Qualifies as important?	
	1	2	3	4	5	a	b	c	5+	6+	7+	a	b	c	d	e	f	g		
1	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	Y	N	No	
2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	No	
3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	No	
4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	No	
5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	No	

Criteria

Historic

1. Marks a pre-1850 parish or township boundary
2. Incorporates an archaeological feature
3. Is part of or associated with an archaeological site
4. Marks the boundary of or is associated with a pre-1600 estate or manor
5. Forms an integral part of a pre- Parliamentary enclosure field system

Protected or rare species

6. Contains certain categories of animals or plants:
 - a) Wildlife and Countryside Act Schedule 1 birds / Schedule 5 animals
 - b) Declining breeder (category 3) in "Red Data Birds
 - c) Categorised as "endangered", "extinct", "rare" or "vulnerable" in Britain

Woody Species

7. Includes:
 - a) At least 7 woody species, on average, in a 30 m length
 - b) At least 6 woody species, on average, in a 30 m length and has three associated features
 - c) At least 6 woody species, on average, in a 30 m length, including a black-poplar tree, or large-leaved lime, or small-leaved lime, or wild service-tree
 - d) At least 5 woody species, on average, in a 30 m length and has at least 4 associated features

Associated features are:

- a) A bank or wall supporting the hedgerow
- b) Less than 10% gaps
- c) On average, at least one tree per 50 metres

- d) At least 3 species from a list of 57 woodland plants
- e) A ditch
- f) A number of connections with other hedgerows, ponds or woodland
- g) A parallel hedge within 15 m

Table 8 – Bat Tree Preliminary Roost Assessment

Tree ID	Species	Features	Bat Roost Potential
BT1	Oak	None could be seen from the ground, but this is a large oak and so climb inspection recommended	Not known – Further survey required
BT2	Oak	5 m, north facing branch with hazard split 5 m, south facing limb with cavity going into branch	Moderate
BT3	Oak (on woodland edge)	10 m high, southern branch, hazard split	Low
BT4	Oak (on woodland edge)	Cavity between dead wood and scar tissue on south limb, 4 m high	Moderate
BT5	Oak	5 m high, south facing limb, cavity into deadwood	Low
BT6	Oak	6 m high, north facing limb, hazard split 10 m high, cavity around scaring in northern limb 5 m high cavity in split branch	Low
BT7	Oak	3 m high, cavity in branch 8 m high, cavity around scaring, south facing 10 m high, cavity around scaring, east facing 3 m high, cavity in branch, north facing 10 m high, Woodpecker hole in trunk	High
BT8	Oak	5 m high, west facing woodpecker hole 10m high, scaring creating west facing cavity	High
BT9	Oak	3 m high, cavity behind scar tissue, east facing 5 m high, south facing woodpecker hole	High
BT10	Oak	8 m high, west facing woodpecker hole	High
BT11	Oak	12 m high, east facing woodpecker hole	High
BT12	Aspen	2 x woodpecker holes in trunk	High
BT13	Oak (lightning damage)	Woodpecker holes in trunk	High
BT14	Oak	Covered in ivy (may not be able to climb)	Low
BT15	Ash (in garden)	8 m rot hole, east facing 10 m high woodpecker hole in trunk	High
BT16	Oak	No visible features during inspection but of a species, age and size that is likely to have features.	Low
BY17	Oak	Ivy clad trunk forming a dense matt. 1 dead limb with flaking bark.	Low
BT18	Oak (semi-dead)	Flaking bark on central and eastern limbs. Knot hole at 4m on western aspect	High
BT19	Oak	Dead limb on east aspect with possible hole at base. 2 large knot holes with possible access to cavities.	Moderate-High
BT20	Oak	Small number of features including dead wood and flaking bark.	Low-Moderate
BT21	Oak	Small amount of flaking bark	Low-Moderate
BT22	Oak	Matted Ivy at base of trunk. No visible features during inspection but of a species, age and size that is likely to have features.	Low

APPENDICES

BT23	Oak	Matted Ivy at base of trunk. No visible features during inspection but of a species, age and size that is likely to have features.	Low
BT24	Oak	Dead limbs and flaking bark. Of a species size and age that increases the chances of further features suitable for roosting bats	Moderate

Appendix 4 Staff Summaries

Jo Pedder – Director

Jo Pedder B.Sc. hons MCIEEM is director of Prime Environment Ltd. He is an ecologist with over 15 years' experience in the environmental consulting sector. Jo holds survey licences for bats (level 2) and great crested newts (level 1) and development licences for bats and newts. Jo oversees many of Prime's projects from barn conversions to sites over 300 ha and has a range of experience in the minerals, housing and energy sectors.

Principal Ecologist Hayley Farnell

This survey and reporting were undertaken by Principal Ecologist Hayley Farnell MSc., BSc. hons. Hayley is a full member of the Chartered Institute of Ecology and Environmental Management and has over 14 years' professional experience within environmental consultancy. She holds a Class 2 survey licence for bats [Licence number: 2015-15896-CLS-CLS] and a survey licence for great crested newts [Licence number: 2017-27675-CLS-CLS].

Appendix 5 Figures and Target Notes

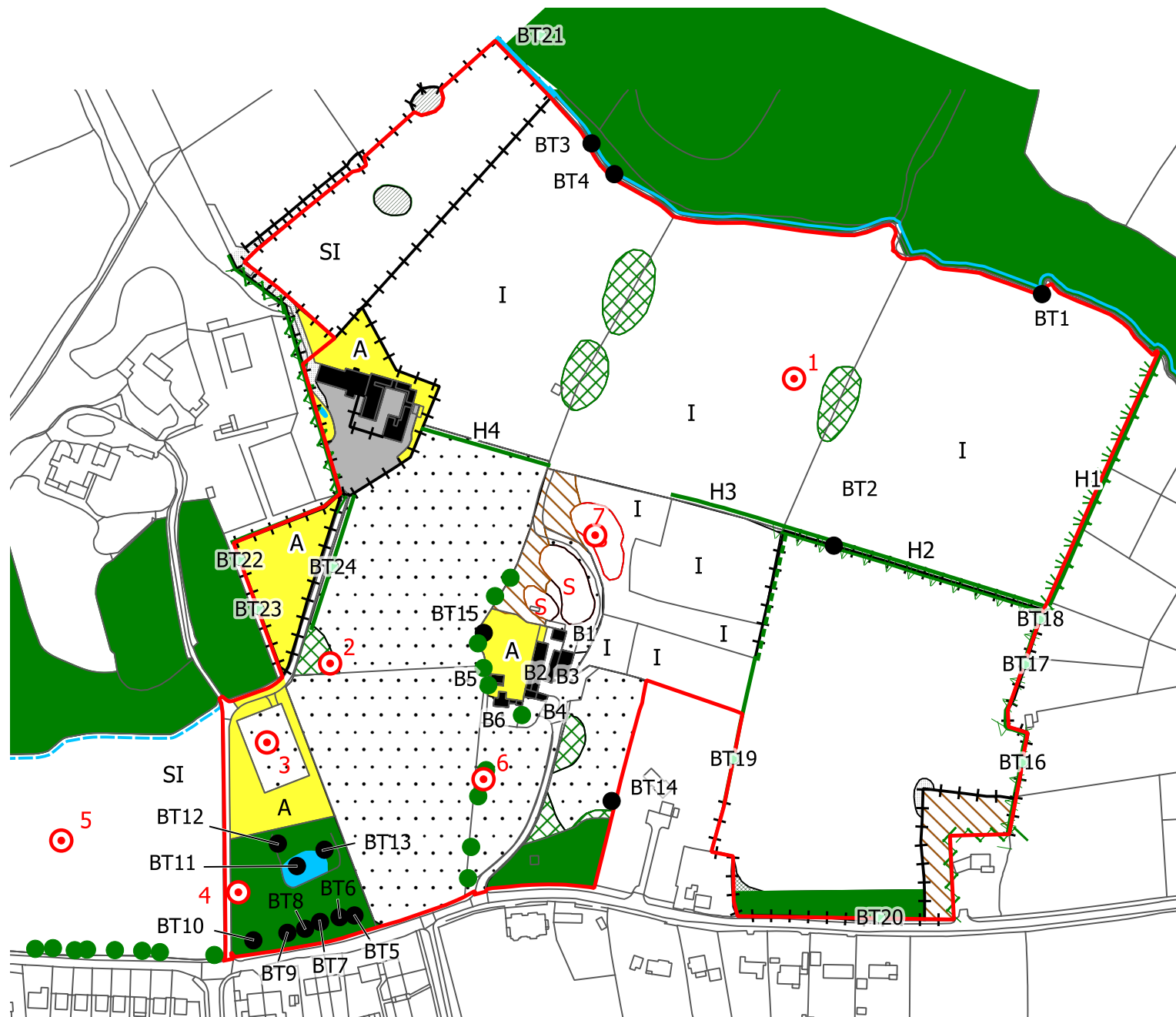
Target Notes	
No.	Description
1	Improved grassland, grazed, field, bordered by woods to the north and hedgerow with trees to the east. Flood areas in north of the field delineated by patches of soft rush.
2	Horse fields, poach, short sward/bare ground
3	Training manège bordered by short, mown, amenity grassland.
4	Woodland copse comprising mature oak and aspen trees with features that would be suitable for use by roosting bats. Bechstein's bats have been recorded roosting here in previous surveys.
5	Fields formerly used as horse pasture which have not been grazed for a year and have been left to grow unmanaged.
6	Horse paddocks – one closest to the house is heavily poached
7	Area containing manure piles, log piles and compost. Overgrown in places with tall ruderal and elder and willow saplings.

Land at Emsworth Phase 1 Habitat Survey

Phase 1 Habitat Plan

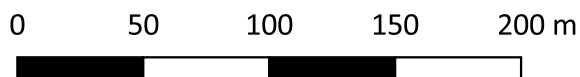
Legend

- A Amenity grassland
- . Bare ground
- Building
- Pond
- S Spoil heap
- SI Semi-improved grassland
- Deciduous woodland
- Scrub
- I Improved grassland
- Tall ruderal
- Semi-natural plantation
- Bare ground
- Hardtstanding
- Species-rich hedge
- Species-poor defunct hedge
- Fence
- Hedge with trees
- Species-poor hedge
- Drain
- Dry ditch
- Bat tree
- Scattered trees
- 0 Target note
- Site boundary



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