EXTENDED PHASE I HABITAT SURVEY AND DESK BASED STUDY OF
LAND AT STONES FARM, SITTINGBOURNE, KENT

Client: G H Dean & Co Ltd

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EXECUTIVE SUMMARY

In February 2006, ecosulis ltd was commissioned by G H Dean & Co Ltd, to undertake an Extended Phase I Habitat Survey and Desk Based Study on land at Stones Farm, Sittingbourne, Kent.

The site lies on the eastern edge of Sittingbourne, Kent. It occupies approximately 32.6ha of land comprising predominantly arable habitat, with some improved grassland and orchard, patches of scrub and wet woodland and associated watercourse.

This report outlines the methodologies and results of a desk-based study and field survey and identifies potential ecological constraints and opportunities that should be considered within the proposals for the site.

A survey of the site was undertaken in March 2006 using a standard Phase I Habitat Survey method and classification system to map habitats and land use categories. The survey was extended to record signs of protected species on site and within the vicinity. Detailed notes of vegetation, habitats and signs of animal activity were taken. This information enabled a preliminary assessment of the ecological value of the site to be undertaken.

The ecological interest of the site is related to:

- The wet woodland (which has a HAP) and associated watercourse and their potential to support species, including Great Crested Newts, Otter and Water Vole
- The potential presence of notable species of bats, birds, reptiles and invertebrates
- The proximity of the Water Vole record from Tonge Pond, although if still present, their numbers may be limited by the presence of Mink
- The presence of a Badger sett
- Its value as a potential foraging resource for local wildlife
Following a preliminary assessment of the site, the habitats are evaluated generally as being of Local to District Value, although these values may change as a result of further studies.

It is recommended that the following further surveys be undertaken:

- Daytime bat assessment of the mature trees and an evening emergence/foraging survey
- Reptile presence/absence of the improved grassland/scrub
- Riparian mammal survey, focusing predominantly on Otters, of the on site and off site waterbodies
- Great Crested Newt presence/absence of the on site and off site waterbodies
- Winter Bird Survey
- Badger survey and assessment of Badger sett status

A licence from English Nature may be required for any proposed works within 30m of the nearest entrance hole of the Badger sett.

There are several opportunities to enhance the site through appropriate, sensitive management. Retention on the wet woodland and wildlife corridors, the installation of bat/bird boxes, the creation of hibernacula and the strategic planting could promote the use of the site by protected species.
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APPENDIX III: DEFINING ECOLOGICAL VALUES

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INTRODUCTION

1. In February 2006, ecosulis ltd was commissioned by G H Dean & Co Ltd, to undertake an Extended Phase I Habitat Survey and Desk Based Study on land at Stones Farm, Sittingbourne, Kent.

2. A member of staff of ecosulis ltd visited the site in March 2006. Access was gained with the permission of the landowner/agent.

3. This report details the results of the Extended Phase I Habitat Survey and data search for records held on protected species and statutory or non-statutory site designations affecting the site or its immediate surroundings.

4. Following the evaluation of the site, habitats and species of conservation importance are highlighted as potential constraints to development.

5. Where appropriate, recommendations are made for further ecological studies to gain accurate data on the ecological status of protected species or habitats within the site and surrounding area.

Objectives of Study

6. This study provides information on the existing ecological conditions at the site and details the methodologies and results of the Extended Phase I Habitat Survey undertaken and subsequent assessment of the value of the site. The purpose of this report is to identify potential constraints and opportunities that ecology may pose to further development.

General Description of Site

7. The site lies on the eastern edge of Sittingbourne, Kent, extending eastward to Bapchild. (Central grid reference TQ928 635). The site is immediately bordered by an active railway line to the north and beyond this improved pastures and orchards, which extend towards to the east. The north-eastern boundary of the site is bordered by an improved field that was historically the site of Tonge Castle. Immediately bordering the eastern site boundary is a spring-fed pond and watercourse with associated marginal wetland, and beyond this lies improved pasture and orchards. Residential properties border the south-eastern corner of the site. The main A2 road runs adjacent to the
southern site boundary. Residential properties and a school adjoin the site to the west with a finger of housing extending east on the north side of the A2 at Fox Hill.

8. The site itself occupies approximately 32.6ha of land comprising predominantly arable habitat, with some improved grassland and orchards and patches of scrub and wet woodland with associated watercourse. Several footpaths cross the site, between the arable and improved field units and adjacent to the railway line.

9. The site adjoins a spring-fed watercourse along its eastern boundary, which encroaches into a wet woodland in the north-east corner of the site. The land gently rises from the A2 in the south and the watercourse in the east, up to the railway line to the north of the site.

NOMENCLATURE

10. The common name only of flora and fauna species is given in the main text of this report; however, Latin names are used for species where no common name is available. A full species list with Latin names is given in Appendix I. All plant names follow the nomenclature of Stace (1997).

METHODOLOGIES

Data Search

11. The Kent and Medway Biological Records Centre (KMBRC) were asked to provide any information on records of protected and/or scheduled species within a 2km radius of the site, records of bats within a 4km radius of the site and locations of any statutory and non-statutory site designations in the area. In addition the Environment Agency was asked to provide information on protected species, in particular Otter, Water Vole, White-clawed Crayfish and Great Crested Newt, within a 2km radius.

12. In-house records relating to the local area were also reviewed as part of the data search.

13. The Multi-Agency Geographical Information for the Countryside (MAGIC) website was also consulted for information on statutory site designations in the area.

Natural Area Profiles

14. English Nature and the Countryside Commission have jointly produced a series of Natural Area Profiles for 120 areas in England (97 terrestrial and 23 maritime). The profile of the Natural Area within which the site falls, was referred to for information on
characteristic local landscape features and used to put the site into context with the local surroundings.

Legislation, Policy and Biodiversity Action Plans

15. This report has taken into account the relevant European and UK legislation that affords protection to the natural environment, habitats and species. The Kent Biodiversity Action Plan (BAP), which includes action plans for a range of habitats and species, has also been reviewed in order to identify locally important habitat and species and actions proposed to safeguard these features.

16. Refer to Appendix II for details on the relevant legislation and policies.

Field Survey

Extended Phase 1 Habitat Survey

17. Phase 1 Habitat Survey is a survey method and habitat classification system that was developed by the Nature Conservation Council, now Joint Nature Conservation Committee (JNCC 1990) to map habitats and land use categories to a ‘consistent level and accuracy’. Vegetation and habitats are mapped using standard colour codes, allowing rapid visual assessment of the extent and distribution of different habitat types. An extended survey also records signs of protected species on site and in the vicinity. Target notes are taken of any particular features of interest found.

18. A survey of the site was conducted during March 2006 and detailed notes of vegetation, habitats and signs of animal activity were taken.

Assessment Methodologies

19. The value assigned to habitats adopts the recommendations for evaluating habitats in the Institute of Ecology and Environmental Management (IEEM) Guidelines for Ecological Impact Assessment (Consultation Draft, 2005). The geographical value categories used in this assessment are: International (i.e. Europe), National (i.e. UK/England), County (i.e. Kent), District (i.e. Swale), Local (i.e. within the neighbourhood of Bapchild) and Site (i.e. within the immediate zone of influence). The evaluation categories for species are the same as those for habitats. Examples of the factors that are considered in defining such ecological values are given in Appendix III.
20. The site as a whole has been assessed using criteria set out by Ratcliffe (1977) as a guide (Appendix IV).

RESULTS

Data Search Results – Summary

21. KMBRC holds two records for notable bird species that have been confirmed within several metres of the site and these comprise:

- RSPB Amber-listed species including Kestrel and Hawfinch

22. KMBRC confirmed that there are no statutory and non-statutory site designations affecting the site or the immediate area. The closest records from the site that KMBRC hold for protected species, other than birds, are as follows:

- Great Crested Newt 1.5km south-west; Common Lizard 60m north; Slow Worm 500m south-west; and Grass Snake 1km north
- Water Vole 16m north-east in Tonge Pond
- Soprano Pipistrelle Bat 20m south; Serotine Bat 30m west; Noctule Bat 30m west; Brown Long-eared Bat, Whiskered/Brandt’s Bat, Daubenton’s Bat, Natterer’s Bat and Common Pipistrelle Bat 3.2km south-east
- Stag Beetle 500m south-west

23. KMBRC informed that Highsted Quarries Site of Nature Conservation Importance (SNCI) lies 1.8km to the south-west.

24. The Environment Agency confirmed that they do not hold any information regarding White-clawed Crayfish, Water Vole or Otter occurring within the area of interest.

25. In-house records provided additional information regarding Highsted Quarries SNCI and informed that the site provides habitat for chalk-loving herbs and shrubs including orchids. It stated that the site is also likely to be important for birds. Records inform of a main Badger sett in Cromer’s Wood SNCI, located 3km to the south of this study area.

26. The MAGIC website informed that one statutory site occurs within 2km of the site. The Swale, located approximately 860m north, is classified as a Special Protected Area (SPA), Ramsar and Site of Special Scientific Interest (SSSI) on account of it being the
largest area of freshwater grazing marsh in Kent and representative of the estuarine habitats (salt marshes, mudflats and grazing marsh) found on the north Kent coast. It provides habitat for nationally important numbers of waders, wintering and passage birds.

Natural Area

27. The site falls within the North Kent Plain Natural Area, which is essentially open, low and gently undulating land. On the lower lying Plains, east of the North Downs, the area is rather poor in wildlife but is rich in agricultural land.

Biodiversity Action Plans

28. The UK and Kent BAP has two Broad and two Priority Habitat Action Plan (HAP) and eight Priority Species Action Plans (SAP) possibly relevant to the site, which include:

- Broad – Arable and Horticulture HAP (UK and Kent)
- Broad – Improved Grassland HAP (UK)
- Priority – Wet Woodland HAP (UK and Kent)
- Priority – Old Orchards HAP (Kent)
- Great Crested Newt SAP (UK and Kent)
- Serotine Bat SAP (Kent)
- Pipistrelle Bats SAP (UK)
- Corn Bunting SAP (UK and Kent)
- Skylark SAP (UK and Kent)
- Water Vole SAP (UK and Kent)
- Otter SAP (UK and Kent)
- Stag Beetle (UK)

Field Survey Results – Habitats

29. Habitats on site can be separated into five units. These are described below and shown on Figure 1. Target Notes are also shown on Figure 1 and explained in Appendix VI. Adjacent habitats are also described below.
• Arable
• Improved grassland
• Orchard
• Wet woodland and associated watercourse
• Scrub
• Adjacent habitats

**Arable**

30. This is the dominant habitat, occupying approximately 23.3ha of the site. At the time of the survey, the arable unit largely consisted of winter oilseed rape (refer to Plates 1 and 2, Appendix VII). Minimal flora comprising Red Dead-nettle and docks occur on the fringes of this habitat.

31. This is a broad habitat with a HAP under the Kent and UK BAP. Features that characterise this HAP are generally absent from this site and include field margins, fallow and set-aside areas, managed orchards and commercial horticulture land.

**Improved grassland**

32. Species generally characteristic of improved pasture occur within this habitat, which occupies approximately 4.9ha of the site and at the time of survey was heavily grazed by horses. Grasses in this area comprise species such as False Oat-grass, Perennial Rye-grass, Yorkshire-fog and Red Fescue. Herb species include clover, Creeping Thistle and Bristly Oxtongue, with Common Nettle, Red Dead-nettle and Cleavers more apparent towards the field margins (refer to Plates 1 and 3, Appendix VII).

33. Towards the eastern site boundary where the improved pasture borders the marginal vegetation of the watercourse, patches of Bramble and Soft-rush impinge into the grassland.

34. This is a broad habitat with a HAP under the UK BAP. The importance of this HAP relates to it providing habitat to wildlife, in particular birds, and being a component within the mosaic of habitats in the rural landscape rather than its conservation importance, which is generally of low value. The well grazed nature of the improved grassland on site, limited area that this site covers and the relatively low diversity of
habitats limits the potential of this habitat to be of high value to wildlife occasionally associated with this habitat, such as wintering wildfowl and nesting Skylark.

Orchard

35. An orchard consisting of rows of relatively young, planted Conference Pear of similar age and stature exists in the south-western corner of the site. Strips of managed grassland run between the rows and comprise species such as Perennial Rye-grass, Annual Meadow-grass and docks. This managed area occupies approximately 3.6ha of land.

36. Old Orchards are a priority habitat with a HAP under the Kent BAP. Features that characterise this HAP include old and rare fruit tree varieties and traditionally managed cutting of the sward, which promotes a more diverse range of wild flowers. Such features are generally absent from this site.

Wet woodland and associated watercourse

37. A wet woodland of approximately 0.8ha is located in the north-eastern corner of the site. The majority of the woodland is encroached by standing water which infiltrates from the adjacent spring-fed watercourse, the source of which falls approximately 90m to the east of the site (refer to Plates 3 – 5, Appendix VII).

38. Ground flora is minimal with species such as Lords-and-Ladies, Bramble and Dog-rose occurring on the dryer ground. Tree species predominantly comprise stands of mature willows and Alder with a sparse understory of Elder and Holly. Several larger Crack-willow standards occur on the fringes of the woodland and deadwood is present throughout.

39. Wet woodland is a priority habitat with a HAP under the Kent and UK BAP. Features that characterise this HAP, which are present on site include the predominant cover of Alder and willows, the poorly drained soil and the presence of dead wood.

Scrub

40. Patches of scrub occur predominantly along the periphery of the eastern and northern site boundaries, arising on the embankments that separate the adjacent residential properties and the railway line respectively. In addition, a line of scrub extends from the
western boundary towards the centre of the site, following an embankment that then continues up to the north.

41. Species such as Blackthorn, Hawthorn, Elder and some Honeysuckle and immature Pedunculate Oak, interspaced with patches of Bramble occur along these embankments and fringes.

Adjacent habitats

42. The Sittingbourne to Faversham railway line runs adjacent to the northern site boundary, although is separated from the site by an embankment, which is colonised by scrub species including Hawthorn, Elder and patches of Bramble. Ground flora such as Cleavers, Shepherd’s-purse, Herb-Robert, Lords-and-Ladies and Common Field-speedwell occur on the bank and fragments of brickwork, of which the embankment is made, perforate this vegetation. Beyond the railway line lies farmland that extends north towards The Swale.

43. Residential housing abuts the north-western boundary and is separated from the site by an embankment of scrub. The grounds of a school run adjacent to the south-western boundary and are demarked by a row of standard Horse-chestnut trees. The urban area of Sittingbourne extends further west beyond the site.

44. The main A2 road runs adjacent to the southern boundary, with the small residential area of Bapchild lying just to the south-east of the site. Farmland fringes the properties in this area and extends further south.

45. Immediately bordering the eastern site boundary lies the St Thomas and Becket’s Spring, which feeds a watercourse that drains to the north and filters into the wet woodland on site. The watercourse eventually pools into a large expanse of open water at Tonge Mill to the north-west of the wet woodland. Beyond the watercourse and the associated marginal vegetation, including stands of Bulrush, the land use consists predominantly of orchards and mixed farmland to the east.

46. The site of the former Tonge Castle lies immediately adjacent to the north-east boundary. This area currently comprises improved grassland with species including Yorkshire-fog and Red Fescue. It is frequently used by the public, access to which is provided via the footpaths on site.
Field Survey Results – Species

Flora

47. No rare or notable flora species were recorded on site. No invasive species listed on Schedule 9 of the amended Wildlife and Countryside Act 1981 were recorded on site or in the vicinity.

Mammals

Badger

48. The site provides some suitable habitat for sett building. A Badger sett with three active holes was recorded on site within the scrubby embankment in the north-west. The entrances were clear of debris and fresh spoil was present at the entrance holes at the time of the survey, indicating recent use by Badgers (refer to Target Note 1; Plate 6, Appendix VII). A single hole, which was inactive at the time of the survey, was found off site on a bank adjacent to the north-eastern boundary (Target Note 2). Several mammal paths are present across the site, which are likely to be used by Rabbit and Fox in addition to Badger.

49. The site does have some value to Badger as a potential foraging resource due to the presence of the orchard, scrub and improved grassland, which could provide fruit (pears and blackberries) and earthworms. However, the majority of the site comprises arable land, which is not as favourable to foraging Badgers as the adjacent railway embankment. This habitat provides optimal habitat for Badger, with foraging opportunities and food resources including blackberries, sloes, haws and grubs and suitable sett building habitat requirements. Neighbouring gardens to the south are also likely to provide an abundant supply of earthworms to foraging Badger. Based on a national average territory size of 50ha (RSPCA, 1994), the site at approximately 32ha, comprises a maximum of 64% of the territory of this local Badger population.
Bats

50. Roosting opportunities exist for bats within several of the mature trees associated with the wet woodland. Cracks, splits, loose bark, broken limbs and bore holes within trees such as Crack-willow provide suitable roost sites, i.e. at the eastern extremity of the site. In addition, the watercourse and associated vegetation within and surrounding the wet woodland is likely to support a range of invertebrates, which is likely to enhance the insect biomass and subsequent value of the area to bats as a foraging resource.

51. It is likely that local bats use the adjacent railway embankment and associated vegetation as a corridor route and foraging habitat.

Other mammals

52. No signs of Water Vole or Otter were noted on site during the survey. The terrestrial habitat within the wet woodland offers negligible burrowing and foraging habitat for Water Vole, with little bank side vegetation as a result of being shaded by overhead trees. The wet woodland does however have the potential to provide cover and holt sites for Otter, which have a SAP within the Kent and UK BAP.

53. There is anecdotal evidence of Mink being sighted in the mill stream at Tonge Mill approximately 40m to the east of the site (pers. comm.). Mink are known to predate Water Vole and it is considered that the presence of this predator is likely to limit or even remove the historical population (last recorded in 1987) of Water Vole previously found in the immediate vicinity.

54. Droppings and burrows attributable to Rabbit were recorded on the periphery of the site and it is likely that this species and Fox are accountable for some of the mammal paths that border the site.

Birds

55. Birds associated with aquatic habitats, including Moorhen and Mallard, were noted on the fringes of the improved grassland where the site bounds the marginal vegetation of the watercourse. Robin, Wren and Blackbird and other common passerines were recorded in the more vegetated areas, in particular, where the scrub separates the residential properties.
56. The site provides some shelter/nesting opportunities within the wet woodland and scrub along the northern and western boundaries.

57. Foraging opportunities exist for common species of bird within areas of scrub, grassland, orchard and wet woodland. In addition, woodpecker bore holes were noted within several dead tree stumps in the woodland and a Kestrel was noted hunting over a strip of longer grassland in the corner of one of the improved fields.

58. The arable habitat on site offers potentially suitable habitat to Corn Bunting and Skylark, which favour this type of farmland. These species have a SAP within the Kent and UK BAP. The large extent of arable habitat is likely to be of value to wintering bird species.

Reptiles

59. The site offers some suitable habitat for common species of reptile, which potentially use the embankments and fringing scrub along the northern and western site boundaries. The watercourse, marginal vegetation and surrounding grassland on the eastern site boundary provide suitable habitat for Grass Snake. The railway embankment on the northern site boundary acts as a linear feature aiding dispersal and is likely to provide reptiles with the majority of their habitat requirements with areas to bask, forage and hibernate.

Amphibians

60. The wet woodland and associated watercourse provides some suitable aquatic habitat for amphibians on site. Terrestrial habitat exists within the fringing scrub and the wet woodland, which in particular provides suitable features for hibernacula and refuge within the deadwood habitat. The majority of the site is predominantly unsuitable as it is highly disturbed with limited areas for refuge.

Invertebrates

61. The site is likely to support a range of common invertebrate species, although the wet woodland potentially provides habitat for more specialised and diverse species. It is possible that the dead wood provides habitat for the larva of Stag Beetles, which have a SAP within the UK BAP. The range of species across the remaining habitats on site is limited by the highly modified arable land and the generally low structural diversity within the habitats.
**ASSESSMENT**

Table 1. Initial Ecological Evaluation of Habitats within the Survey Area

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Qualifying Criteria</th>
<th>Preliminary Ecological Value</th>
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<tbody>
<tr>
<td>Arable</td>
<td>Provides limited foraging for Badger and some species of farmland bird, however as it is an intensively managed habitat with a limited field margin the ecological value is lowered. The site has limited features associated with the Arable and Horticulture HAP</td>
<td>Local Value</td>
</tr>
<tr>
<td>Improved grassland</td>
<td>Grassland provides potential foraging for Badgers, reptiles, and birds, however as it is an intensively managed habitat and heavily grazed the ecological value is lowered. The site has limited features associated with the Improved Grassland HAP</td>
<td>Local Value</td>
</tr>
<tr>
<td>Habitat Description</td>
<td>Local Value</td>
<td>District Value</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Orchard</td>
<td>Provides a potential foraging resource for Badgers, birds, bats and invertebrates, however as it is an intensively managed habitat with no old trees the ecological value is lowered. The site has limited features associated with the Old Orchards HAP.</td>
<td>Value may increase if protected/notable species found.</td>
</tr>
<tr>
<td>Wet woodland and associated watercourse</td>
<td>The features add to the diversity of habitats on site. Wet woodland has the potential to provide refuge (nests and roosting) and foraging opportunities to a wide range of wildlife including Great Crested Newts (both aquatic and terrestrial phases of lifecycle), Otters, Water Vole, birds, bats, reptiles and invertebrates. This habitat also has a HAP.</td>
<td></td>
</tr>
<tr>
<td>Scrub</td>
<td>Provides potential foraging and shelter for a variety of local wildlife including Badgers, reptiles, birds, bats and invertebrates.</td>
<td></td>
</tr>
</tbody>
</table>
Adjacent habitats  Neighbouring residential gardens provide temporary and permanent refuge and foraging for a range of urban wildlife and offer structural diversity, which is of value particularly to common bird species.

Data Search results suggests that the adjacent Tonge Pond provides suitable habitat for Water Vole, if still present nearby, Water Vole numbers are likely to be limited by the presence of Mink.

The adjacent railway line and embankment acts as a corridor route for wildlife and also offers habitat to species including Badger, reptiles and birds.

Surrounding farmland in the north, east and south provides some foraging for Badger and birds, however as it is an intensively managed habitat the ecological value is lowered.

Local Value

Local - District Value

Local Value

Local Value

**Overall Site Evaluation**

62. The site occupies a relatively large area of land located at the eastern fringe of the large urban area of Sittingbourne. The site generally consists of a low diversity of habitats and due to their level of modification by man, is also likely to be low in species diversity,
particularly within the arable habitat, which comprises the majority of the site. In general the species composition across the site is consistent with disturbed, modified habitats. Levels of naturalness, permanence and fragility on site are generally low.

63. The site does offer a small patch of high quality, semi-natural habitat in the form of the wet woodland and associated watercourse that provides naturalness and fragility. Wet woodlands combine elements of many other ecosystems and therefore add to the diversity of habitats on an otherwise homogeneous site.

64. The site has some limited structural diversity with planted trees in the orchard, the wet woodland and the fringing scattered scrub along the embankments.

65. The site forms part of the wider agricultural landscape and is connected to adjacent habitats by a number of links, including the railway line along the northern boundary and the adjacent watercourse and open farmland to the east. Connectivity to the habitats to the south of the site is severed by the A2.

66. Rarity on the site is limited to the wet woodland, the associated watercourse and the potential for these habitats to harbour species such as Great Crested Newt, Otter and Water Vole. The potential presence of notable wildlife including bats, birds, reptiles and invertebrate species throughout some of the other habitats on site could add to the rarity of the site. The site has value to Badger for foraging and sett building.

67. The ecological interest of the site is related to:

- The wet woodland (which has a Kent and UK HAP) and associated watercourse and their potential to support species, including Great Crested Newts, Otter and Water Vole
- The potential presence of notable species of bats, birds, reptiles and invertebrates
- The proximity of the Water Vole record from Tonge Pond, although if still present, their numbers may be limited by the presence of Mink
- The presence of a Badger sett
- Its value as a potential foraging resource for local wildlife

68. Following a preliminary assessment of the site, the habitats present are generally of Local to District Value, although these values may increase as a result of further studies.
**Constraints**

69. Any scheduled species protected by law under The Wildlife and Countryside Act ((1981), as amended), The Countryside and Rights of Way Act (2000) and The Conservation (Natural Habitats &c.) Regulations (1994), occurring, or potentially occurring within any of the habitats identified inside the survey area, will need to be protected during, and following works, in order to ensure legal compliance. Appropriate mitigation and/or compensatory measures should be implemented to offset any negative impacts on these habitats.

70. Badgers and their setts are protected under The Protection of Badgers Act 1992. It is a criminal offence to wilfully kill, injure, take, possess or cruelly ill-treat a Badger, or to attempt to do so. It is also a criminal offence to interfere with a sett by damaging or destroying it; to obstruct access to, or any entrance of, a Badger sett; and to disturb a Badger when it is occupying a sett.

71. A Badger Disturbance Licence from English Nature would be required for any works undertaken within 30m of an active Badger sett.

72. All British species of bat are protected under the Wildlife & Countryside Act ((1981) as amended) and the Conservation (Natural Habitats &c.) Regulations (1994). The UK is obliged to protect sites that are important for bats and to identify and protect important feeding areas for bats from damage or disturbance (PPS9). It is an offence to intentionally injure or disturb a bat or to damage or obstruct access to a place used for shelter or protection by bats. If bats are present, there may be timing implications on the future development proposals and should therefore be considered early within early stages of planning.

73. The Water Vole is a scheduled species protected by the Wildlife and Countryside Act 1981 (as amended). The Water Vole is included in the UK Biodiversity Action Plan (BAP) priority species list.

74. The Otter is listed as a UK priority species for conservation (UK Biodiversity Action Plan, 1995). The species is listed on Appendix I of CITES, Appendix II of the Bern Convention and Annexes II and IV of the EC Habitats Directive. It is fully protected under listing 5 of the Wildlife and Countryside Act 1981 and Schedule 2 of the Conservation (Natural Habitats) Regulations 1994 (Regulation 38). This legislation
enables the designation and conservation of Special Areas of Conservation (SAC’s) and in some cases Otters may be a reason for designation.

75. In Britain all wild birds are granted legal protection under the Wildlife and Countryside Act ((1981) as amended). This legislation protects birds, their eggs and nests while being built or whilst in use. This legislation has implications on the timing of vegetation clearance.

76. Of the six species of reptile occurring in the Britain Isles, the Sand Lizard and the Smooth Snake, are fully protected under Schedule 5, Section 9 of the Wildlife & Countryside Act 1981 (as amended). This inclusion in the Act protects these reptiles and their places of shelter or protection. The other four reptile species that occur in the British Isles and that are commonly encountered – Adder, Grass Snake, Slow Worm and Common Lizard – are partially protected under the same Act, under which it is an offence to knowingly kill or injure a reptile.

77. Great Crested Newts are protected by Schedule 5 of the Wildlife & Countryside Act ((1981) as amended) and the Conservation (Natural Habitats &c.) Regulations (1994). The legislation protects Great Crested Newts and their places of shelter or protection against damage and disturbance. Works within 500m of a Great Crested Newt population should take this species into consideration when planning a development. Mitigation may be required and timing constraints may be associated with the presence of this species.

RECOMMENDATIONS/FURTHER SURVEYS

Further Surveys

78. It is recommended that a daytime bat assessment be made of the mature trees on site, which would focus on the bat roosting potential (cracks, splits, loose bark, holes, etc) of each structure. Where possible, an internal inspection into any cavities using an endoscope should be made to check for signs of bat occupation, including droppings, foraging remains, urine stains and actual bats. An evening bat emergence survey should follow, using bat detectors to identify bat emergence, if any, from the trees identified as potentially harbouring bats. The site should then be walked and the detectors used to identify any foraging/commuting habitat. This survey should be undertaken between May and September when bats are active.
79. It is recommended that a reptile survey is undertaken within the improved grassland and scrub habitats on site. Refuges should be laid out in areas deemed suitable for reptiles and left for two/three weeks to establish. Seven subsequent visits to the site would be required to ascertain the presence/absence of reptiles and should be carried out between April and September (April/May and September being the optimal months).

80. It is recommended that a riparian mammal survey, focusing predominantly on Otters, be undertaken of the on site watercourse within the wet woodland and associated off site features between March and September. Any signs of Water Vole and Mink will also be noted during this survey.

81. A Great Crested Newt presence/absence survey should be undertaken of the on site watercourse within the wet woodland and associated off site features. This must be carried out between April and June with at least two visits undertaken between mid-April and mid-May.

82. A winter bird survey should be carried out to ascertain the value of the site to BAP bird species and important bird species identified using The Swale (SPA, Ramsar and SSSI) and the surrounding areas.

83. It is recommended that a Badger survey be undertaken between February and October to ascertain the use of the site by Badgers, noting any additional field signs, and to assess the status of the on site Badger sett. The sett should continue to be monitored during the further surveys. If the sett remains consistently active (i.e. shows signs of use at some point during a 12-month period) a licence from English Nature will be required for any proposed works within 30m of the nearest entrance hole.

**Planning Considerations**

84. Consideration should be given to the incorporation of biodiversity enhancing features within any development in order to ensure that the development meets criteria set out within PPS9 for creating biodiversity gain. For example, bat boxes to provide roosting habitat and the continued management of retained habitats in order to achieve objectives set out within the Kent BAP. It is recommended that ecological input be sought for any landscape plans or planting schemes proposed on the site in order to maximise the biodiversity potential of the proposed development.
85. The wet woodland should be retained and enhanced using the HAP as a guide to managing and maintaining the features within this habitat. With appropriate management this habitat could help promote local and national biodiversity targets by providing habitat to a diverse range of species, including those mentioned in the Kent BAP. A buffer of minimum width 10m between any development and the wet woodland and watercourse should be provided.

86. Connectivity should be promoted across the site, following existing linear features and banks. The railway embankment could be enhanced through strategic planting of native trees and shrubs to create a green corridor for migrating wildlife across the site, linking separate habitat fragments.

87. Following the recommended Badger survey, proposals will be made, based upon the status of the on site Badger sett and the use of the site by this species. For example, if the sett remains active and field signs attributable to Badger are found on site, mitigation measures such as the retention of the sett and enhancement of the surrounding habitat/creation of green corridors should be considered.

88. Depending upon the presence of protected species, consideration will need to be given to obtaining protected species licences prior to the commencement of works and the constraints associated with the timing of related works. Method statements will need to accompany any licence applications made detailing mitigation measures to protect the relevant species during development and to enhance the value of the site to these species.

89. Where practicable, all vegetation removal should avoid the bird breeding season, which is from March through to August, inclusive.

**Limitations of Survey**

90. This report records wildlife found during the survey and anecdotal evidence of sightings. It does not record any plants or animals that may appear at other times of the year and were therefore not evident at the time of the visit. Some species that might use the site or be apparent at other times of the year, or only in certain years, would not have been detected. Areas of dense undergrowth or inaccessible areas preclude a detailed inspection and may have concealed species of note.
91. The behaviour of animals can be unpredictable and may not conform to standard patterns recorded in current scientific literature. This report therefore cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.

92. The data search can only provide information on species already recorded and cannot be taken to represent a complete overview of all species present in the survey site.

93. The advice contained in this report relates primarily to factual survey results and general guidance only. On all legal matters you are advised to take legal advice.

94. This report is for the attention of the client only and we advise that it is not passed on to statutory consultees without prior discussion with ecosulis ltd.
REFERENCES/BIBLIOGRAPHY


RSPCA (1994) Problems with Badgers RSPCA


### APPENDIX I: SPECIES LIST OF FLORA AND FAUNA MENTIONED IN THE TEXT

#### Flora

<table>
<thead>
<tr>
<th>Species</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alder</td>
<td>Alnus glutinosa</td>
</tr>
<tr>
<td>Annual Meadow-grass</td>
<td>Poa annua</td>
</tr>
<tr>
<td>Blackthorn</td>
<td>Prunus spinosa</td>
</tr>
<tr>
<td>Bramble</td>
<td>Rubus fruticosus</td>
</tr>
<tr>
<td>Bristly Oxtongue</td>
<td>Picris echoides</td>
</tr>
<tr>
<td>Bulrush</td>
<td>Typha latifolia</td>
</tr>
<tr>
<td>Cleavers</td>
<td>Galium aparine</td>
</tr>
<tr>
<td>Common Field-speedwell</td>
<td>Veronica persica</td>
</tr>
<tr>
<td>Common Nettle</td>
<td>Urtica dioica</td>
</tr>
<tr>
<td>Conference Pear</td>
<td>Pyrus communis</td>
</tr>
<tr>
<td>Crack-willow</td>
<td>Salix fragilis</td>
</tr>
<tr>
<td>Creeping Thistle</td>
<td>Cirsium arvense</td>
</tr>
<tr>
<td>Dog-rose</td>
<td>Rosa canina</td>
</tr>
<tr>
<td>Elder</td>
<td>Sambucus nigra</td>
</tr>
<tr>
<td>False Oat-grass</td>
<td>Arrhenatherum elatius</td>
</tr>
<tr>
<td>Hawthorn</td>
<td>Crataegus monogyna</td>
</tr>
<tr>
<td>Herb-Robert</td>
<td>Geranium robertianum</td>
</tr>
<tr>
<td>Holly</td>
<td>Ilex aquifolium</td>
</tr>
<tr>
<td>Honeysuckle</td>
<td>Lonicera periclymenum</td>
</tr>
<tr>
<td>Horse-chestnut</td>
<td>Aesculus hippocastanum</td>
</tr>
<tr>
<td>Lords-and-Ladies</td>
<td>Arum maculatum</td>
</tr>
<tr>
<td>Pedunculate Oak</td>
<td>Quercus robur</td>
</tr>
<tr>
<td>Perennial Rye-grass</td>
<td>Lolium perenne</td>
</tr>
</tbody>
</table>
Red Dead-nettle   Lamium purpureum
Red Fescue        Festuca rubra
Shepherd’s Purse  Capsella bursa-pastoris
Soft-rush         Juncus effusus
Yorkshire-fog     Holcus lanatus

**Fauna**

Adder             Vipera berus
Badger            Meles meles
Blackbird         Turdus merula
Brandt’s bat      Myotis brandti
Brown Long-eared bat Plecotus auritus
Common Lizard     Lacerta vivipara
Common Pipistrelle bat Pipistrellus pipistrellus
Corn Bunting      Miliaria calandra
Daubenton’s bat   Myotis daubentoni
Fox               Vulpes vulpes
Grass Snake       Natrix natrix
Great Crested Newt Titurus cristatus
Hawfinch          Coccothraustes coccothraustes
Kestrel           Falco tinnunculus
Mallard           Anas platyrhyncha
Mink              Mustela vison
Moorhen           Gallinula chloropus
Natterer’s bat    Myotis nattereri
Noctule bat       Nyctalus noctula
<table>
<thead>
<tr>
<th>Animal</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Otter</td>
<td><em>Lutra lutra</em></td>
</tr>
<tr>
<td>Rabbit</td>
<td><em>Oryctolagus cuniculus</em></td>
</tr>
<tr>
<td>Robin</td>
<td><em>Erithacus rubecula</em></td>
</tr>
<tr>
<td>Sand Lizard</td>
<td><em>Lacerta agilis</em></td>
</tr>
<tr>
<td>Serotine bat</td>
<td><em>Eptesicus serotinus</em></td>
</tr>
<tr>
<td>Skylark</td>
<td><em>Alauda arvensis</em></td>
</tr>
<tr>
<td>Slow Worm</td>
<td><em>Anuis fragilis</em></td>
</tr>
<tr>
<td>Smooth Snake</td>
<td><em>Coronella austriaca</em></td>
</tr>
<tr>
<td>Soprano Pipistrelle bat</td>
<td><em>Pipistrellus pygmaeus</em></td>
</tr>
<tr>
<td>Water Vole</td>
<td><em>Arvicala terrestris</em></td>
</tr>
<tr>
<td>Whiskered bat</td>
<td><em>Myotis mystacinus</em></td>
</tr>
<tr>
<td>White-clawed Crayfish</td>
<td><em>Austopotamobius pallipes</em></td>
</tr>
<tr>
<td>Wren</td>
<td><em>Troglodytes troglodytes</em></td>
</tr>
</tbody>
</table>
APPENDIX II: LEGISLATION, POLICY AND BIODIVERSITY ACTION PLANS

National Planning Policy Context and Legislation

1. PPS9 Biodiversity and Geological Conservation (2005) sets out the Government’s vision for conserving and enhancing biological diversity in England. It includes the broad aim that planning, construction, development and regeneration should have minimal impacts on biodiversity and enhance it wherever possible. The broad objectives for planning include:

- Promotion of sustainable development
- To conserve, enhance and restore the diversity of England’s wildlife
- To contribute to rural renewal and urban renaissance

Red Data Books

2. Red Data Books and Nationally Scarce Lists (JNCC) classification of rarity is broken down into several categories, and these are summarised in Table 1 below:

Table 1: JNCC Classification of Red Data Book and Nationally Scarce Species

<table>
<thead>
<tr>
<th>Category</th>
<th>Status</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Data Book 1</td>
<td>Endangered</td>
<td>In danger of extinction, whose survival is unlikely if the causal factors continue operating</td>
</tr>
<tr>
<td>Red Data Book 2</td>
<td>Vulnerable</td>
<td>Likely to move into the Endangered category in the near future if the causal factors continue operating</td>
</tr>
<tr>
<td>Red Data Book 3</td>
<td>Rare</td>
<td>Taxa with small populations that are not at present Endangered or Vulnerable, but are at risk</td>
</tr>
<tr>
<td>Nationally Scarce</td>
<td>Nationally Notable</td>
<td>Uncommon taxa that have been recorded in 16 - 100 10km squares in Great Britain. The category is further divided for some animal groups:</td>
</tr>
</tbody>
</table>
3. Red List Bird Species are those, which are classified by the Royal Society for the Protection of Birds (RSPB 1996), as being of ‘high conservation concern’. Amber List Species are those, which are classified by the RSPB (1996), as being of ‘medium conservation concern’. Red List species have either experienced a decline in breeding population or range of 50% or more between 1971 and 1996; have declined historically between 1800 and 1995; or are a species of ‘global conservation concern’. Amber List species have either experienced a decline in breeding population or range of between 25 and 49% or more between 1971 and 1996; have a five year mean of between 0.2 and 300 breeding pairs in the UK; have 20% or more of their European breeding population in the UK; have 20% or more of the north-west European (wildfowl), East-Atlantic Flyway population (waders), or non-breeding populations (others) in the UK; have 50% or more of their UK breeding or non-breeding populations in 10 or fewer sites in the UK; or are a species of ‘European Conservation Concern’.

**Hedgerow Regulations**

4. Under the Hedgerow Regulations 1997 hedgerows are important if they have been in existence for thirty years or more and if they satisfy at least one of the ecological or historical criteria as defined in the Regulations (Department of the Environment 1997).

**Wildlife and Countryside Act 1981**

5. Schedule 1 Part I of The Wildlife and Countryside Act 1981 (and amendments) lists birds protected by special penalties at all times. It prohibits intentional killing/injuring, taking, possessing, disturbing and selling (including parts and derivatives, eggs, nests, etc as applicable) as well as damaging, destroying or disturbing nests in current use or dependent young.

6. Schedule 5 of The Wildlife and Countryside Act 1981 (and amendments) prohibits deliberate killing, injuring, taking, possessing, disturbing and selling (including parts and derivatives) as well as damaging, destroying or obstructing any structure or place of refuge of listed fauna such as Dormouse, Otter and bat species.
The Conservation (Natural Habitats &c.) Regulations 1994

7. The Conservation (Natural Habitats &c.) Regulations 1994, is concerned with animal and plant species requiring strict protection. It is illegal to kill, disturb, destroy eggs, breeding sites or resting places, pick, collect, take cuttings, uproot or destroy in the wild as well as keep, transport, sell/exchange and offer for sale/exchange species listed.

The Countryside Rights of Way Act 2000

8. The Countryside Rights of Way Act 2000 increases protection given by The Wildlife and Countryside Act 1981 (and amendments). The offence to intentionally damage any structure or place that a wild animal listed in Schedule 5 of the Act uses for shelter or protection or deliberately disturbing any such animal while in such a structure or place is extended, so that the offence also covers reckless damage or disturbance. The CRoW Act also places a duty on Ministers and Government Departments to have regard to the purpose of conserving biological diversity in accordance the Convention on Biological Diversity.

The Protection of Badgers Act 1992

9. The Protection of Badgers Act 1992 makes it illegal to wilfully kill, injure or take any Badger, or attempt to do so and it is an offence to intentionally or recklessly damage, destroy or obstruct access to any part of a Badger sett.
APPENDIX III: DEFINING ECOLOGICAL VALUES

Preliminary ecological values and examples of criteria

1. The examples contained in the table below are only for general guidance and other considerations may apply, e.g. features of low value in isolation but which are subject to cumulative national decline may be afforded higher values in certain circumstances.

<table>
<thead>
<tr>
<th>Level of Ecological Value</th>
<th>Examples of Criteria</th>
</tr>
</thead>
</table>
| International             | • An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, Ramsar site, Biogenetic Reserve)  
                            | • A sustainable area of a habitat listed in Annex I of the Habitats Directive, or smaller areas of such habitat that are essential to maintain the viability of a larger whole  
                            | • A sustainable population of an internationally important species, e.g. a UK Red Data Book species, species listed under categories 1 or 2 of the UK BAP, or listed under Annex IV of the Habitats Directive  
                            | • Sites supporting a breeding population of internationally important species or supplying a critical element of their habitat requirements |
| National                  | • A nationally designated site (SSSI, ASSI, NNR, MNR) or a discrete area that meets the selection criteria for national designation (e.g. SSSI selection guidelines)  
                            | • A sustainable area of a priority habitat identified in the UK BAP, or smaller areas of such habitat that are essential to maintain the viability of a larger whole  
<pre><code>                        | • A sustainable population of a nationally important species or a site supporting such a species, i.e. a species listed on Schedules 5 and 8 of the W&amp;CA (as amended) which is a UK Red Data Book species that is not listed as being of unfavourable conservation status in |
</code></pre>
<table>
<thead>
<tr>
<th>Level of Ecological Value</th>
<th>Examples of Criteria</th>
</tr>
</thead>
</table>
|                           | Europe, of uncertain conservation status or of global concern in the UK BAP  
|                           | - A non-Red Data Book species that is listed as occurring in 15 or fewer 10km squares in the UK (categories 1 and 2 of the UK BAP). Also sites supporting a breeding population of such a species or supplying a critical element of their habitat requirements |
| Regional                  | - Sustainable areas of key habitat identified in the relevant Regional BAP or smaller areas of such habitat that are essential to maintain the viability of a larger whole  
|                           | - Sustainable areas of key habitat identified as being of Regional Value in the appropriate Natural Areas profile  
|                           | - A population of a species listed as being nationally scarce (i.e. occurring in 16 - 100 10km squares in the UK, or in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation. Sites supporting a breeding population of such a species or supplying a critical element of their habitat requirements  
|                           | - Sites, which exceed the County-level designations but fall short of SSSI selection guidelines, where these occur |
| County                    | - Semi-natural ancient woodland greater than 0.25 ha  
|                           | - County sites and other sites which meet the ecological selection criteria for designation  
|                           | - A sustainable area of habitat identified in a county BAP  
<p>|                           | - A population of a species that is listed in a county/metropolitan ‘red data book’ or BAP on account of its regional rarity or localisation. Also sites supporting a breeding population of such a species or supplying a critical element of their habitat requirements |</p>
<table>
<thead>
<tr>
<th>Level of Ecological Value</th>
<th>Examples of Criteria</th>
</tr>
</thead>
</table>
| District                  | • Semi-natural ancient woodland smaller than 0.25 ha  
                           | • Sustainable areas of habitat identified in a sub-county (district) BAP or in the relevant Natural Area profile  
                           | • Sites/features that are scarce within the district/borough or which appreciably enrich the district habitat resource  
                           | • A diverse and/or ecologically valuable hedgerow network  
                           | • A population of a species that is listed in a district BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation. Also sites supporting a breeding population of such a species or supplying a critical element of their requirements |
| Local                     | • Areas of habitat considered to appreciably enrich the habitat resource within the context of the local neighbourhood, e.g. isolated species-rich hedgerows |
| Site                      | • Small patches of poor semi-improved grassland, amenity grassland not used by Badgers |
| Negligible                | • Areas of little current or potential ecological value |
APPENDIX IV: AN ECOLOGICAL EVALUATION

The Criteria for Evaluation

1. The criteria for evaluation have been adopted from the widely used set developed by Ratcliffe (1977). These were originally conceived to provide a systematic framework for the selection of Sites of Special Scientific Interest (SSSI) by the Nature Conservancy Council (NCC), but have since been adopted and adapted widely by ecologists, for example in Local Authorities and Wildlife Trusts.

The criteria used in this report are drawn from these widely applied criteria. They are:

Size

2. In general, larger sites are more highly valued than smaller ones, all else being equal. However, relative size to similar sites and other local sites should be considered. The area of a site is also important in management terms, i.e. whether short-term neglect/disturbance or any small changes would lead to the loss of a site’s interest.

Diversity

3. One of the most important site attributes is the variety of communities and species which is largely dependent on diversity of habitat. Large numbers of species, particularly when represented by large populations, are to be valued. Diversity can also be related to habitat instability that may affect management prescriptions.

Naturalness

4. Ecosystems least modified by man tend to be rated more highly. However, most sites are influenced by man, the degree and nature of which is important.

Fragility

5. This reflects the degree of sensitivity of habitats, communities and species to environmental change. Fragile sites often represent ecosystems that are highly fragmented, dwindling or difficult to re-create.

Typicalness

6. The typical and commonplace within a field of ecological variation are also of value.
Recorded History

7. The existence of a scientific record of long-standing adds considerably to the value of a site.

Permanence

8. A site that has been occupied by a semi-natural habitat for a long time is usually more valuable than one that has only recently arisen. This is because they have had time to acquire rich assemblages of plants and animals.

Lack of Modification

9. Adverse influences from humans, such as inappropriate management regimes and pollution, will reduce the quality of an area.

Rarity

10. Rarity is concerned with communities and habitats as well as species. The presence of rare species adds to overall ecological value especially when a habitat also ranks highly on other criteria. The habitat type too may also be nationally or regionally rare.

Position in an Ecological Unit

11. In the event of two sites being of equivalent intrinsic value, the close proximity of one site to a highly rated example of another type increases the value of the site. The presence of other areas of semi-natural habitat adjacent or close to a site enhances the value of both habitats.

Potential Value

12. Certain sites could, through appropriate management or even natural change, eventually develop a nature conservation interest substantially greater than that existing at present.

Intrinsic Appeal

13. While science may view all creatures as equal, pragmatism dictates that in nature conservation it is realistic to give more weight to the more popular appeal of some species, groups or habitats than others.
14. These criteria provide a useful basis against which to evaluate the intrinsic ecological quality of a site, but in an urban area it is also important to consider the value of an area to the local people (GLC 1985). Thus the appeal of a site, its educational and amenity value, as well as its accessibility as a wildlife area, need to be included in the evaluation.

15. The survey results were assessed and evaluated using these criteria as a guide.
APPENDIX V: BADGER SETT STATUS ASSESSMENT

1. The status of the entrances was assessed according to Harris et al. (1989) and Neal and Cheeseman (1996).

2. Main setts usually have conspicuous spoil heaps with well-used paths to and from the sett and between sett entrances. Neal (1996) indicates that they typically have five or more entrances although one and two hole main setts have been recorded. The number of entrances is affected by local conditions such as the suitability of the soil for excavation and the level of human disturbance and interference. Main setts are usually situated at the centre of the territory and are usually used for breeding. However, breeding can also take place in annexe and subsidiary setts, usually by a sub-dominant female.

3. Annexe setts are normally less than 150m from the main sett and are connected to it by well-used paths.

4. Subsidiary setts often have only a few holes (3-5 being an average) but do not have an obvious path connecting with another sett.

5. A main sett will usually have a nearby latrine although the majority of latrines will be situated on the territory boundary, and will be particularly well used during the breeding season.
APPENDIX VI: EXTENDED PHASE I HABITAT SURVEY TARGET NOTES

1. Three active entrance holes on a scrubby embankment with fresh spoil
2. One inactive entrance hole on an embankment to the north-east of the site boundary
APPENDIX VII: PHOTOGRAPHS OF SITE
Plate 1. Improved grassland and arable farmland, looking south towards the A2

Plate 2. Arable farmland and wet woodland in the distance
Plate 3. Improved grassland with wet woodland and associated watercourse beyond

Plate 4. Off site watercourse and marginal vegetation with wet woodland and site extending to the right
Plate 5. Wet woodland and deadwood

Plate 6. Active Badger entrance forming part of sett