



**Report into the findings of an extended Phase 1 Habitat Survey and
Protected Species Scoping Survey for land north of Wenny Road,
Chatteris
Final Report**

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Notice to Interested Parties

To achieve the study objectives stated in this report, we were required to base our conclusions on the best information available during the period of the investigation and within the limits prescribed by our client in the agreement.

No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations completely defined the degree or extent of e.g. species abundances or habitat management efficacy described in the report.

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0 EXECUTIVE SUMMARY

0.1 On behalf of their client Savills LLP commissioned Cambridge Ecology Ltd to carry out an extended Phase 1 Habitat Survey (including habitats, protected species and a desk based literature search) of a site known as Wenny Road, Chatteris, Cambridgeshire (Grid ref. TL 400 856). that is under consideration for a new residential development and therefore the survey was necessary to identify any potential ecological constraints to these proposals

0.2 The records from the literature search indicated that there were:

- a) No statutory designated sites present within 5km of the development site. Although it was recognised that the Ouse Washes, SPA, SAC, SSSI and Ramsar site (the nearest statutory designate site) was located less than 6km to the south east of the development site.
- b) One non-statutory site (County Wildlife Sites) within 2km of the development site. The Langwood Hill Pit was located approximately 1.7km to the east of the development site. There were six non-statutory sites within 5km of the development site. These non-statutory designated sites contained a number of UK Biodiversity Action Plan (BAP) priority habitats.
- c) Four UK Biodiversity Action Plan (BAP) priority habitats or principal habitat of importance (Fen, Coastal and Floodplain Grazing Marsh, Traditional Orchards and Deciduous Woodland), located within 2km of the development site. The closest Fen was located approximately 1.1km to the north west of the development site. The closest Coastal and Floodplain Grazing Marsh was located approximately 1.6km to the north of the development site. The closest Traditional Orchard was located approximately 1.1km to the south east of the development site. The closest Deciduous Woodland was located approximately 650m to the north of the development site.
- d) No records indicating the presence of protected species within the actual red line boundary of the development site, although a record of Brown Long-eared Bat on Wenny Road was less than 100m from the development site boundary.
- e) A variety of protected species and principal species of importance, recorded within 2km of the development site, including 82 species of birds, one species of amphibian (Common Frog), one species of bee (Large Garden Bumble-bee), two species of bats (Brown Long-eared and Common Pipistrelle), Otter and Badger.
- f) No records of Great Crested Newt, reptiles, Water Vole, Brown Hare, Dormouse sp. Hedgehog, or notable plants, within the development site boundary or within 2km of the development site.

0.3 The results of the ecology survey of the development site were as follows:

- a) Seven main habitats were present within the development site: arable, ditches, ponds, deciduous woodland, tall ruderal, hedgerows and amenity/improved grassland. Of these the wet ditches, ponds,

hedgerows and deciduous woodland were considered to be the most biodiversity valuable.

- b) Three of the habitats (ponds, deciduous woodland and hedgerows) within the development site were recognised as being UKBAP habitats and principal habitat of importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.
- c) Signs (hairs snagged on wire fence) suggesting the presence of Badger were found in the development site. No signs of other protected species were found in the development site.
- d) Bird species (e.g. Hedge Sparrow) of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 were observed.
- e) The development site contained habitats suitable for and had potential to support the life-cycle of Great Crested Newt, bats, Badger, Water Vole, reptiles, breeding birds (inc. Barn Owl), invertebrates and plant species of principal importance.
- f) The development site would be unlikely to support the following protected species: Otter and Dormouse sp.
- g) No alien invasive plant species such as Japanese Knotweed were found within the development site.

0.4 An evaluation of the ecological importance of the development site, using recognised ecological criteria, indicated that it should be considered of district biodiversity value.

0.5 The potential presence within the development site of protected species, such as, Great Crested Newt, bats, Badgers, Water Vole, reptiles, breeding birds (inc. Barn Owl), invertebrates and plant species of principal importance and the proximity of Habitats (Hedgerows) and Species (e.g. Hedge Sparrow) of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, should be of material consideration for the planning process for the development of this site. This is because these species and habitats could potentially be affected by the development at this site.

0.6 The potential adverse effects of the development are likely to include:

- habitat loss,
- displacement,
- disturbance and
- direct mortality

0.7 Potential beneficial effects of the development could include:

- habitat creation and
- biodiversity value enhancement.

0.8 It should be noted that if the development works were to take place more than 2-3 three years from the time of this ecology survey, the suitability of the habitats on the development site may change (improved/deteriorate) over time, consequently the ecology survey of the development site would

need to be repeated as the information provided could be out of date and the development sites potential to support protected species/habitats in the future may change.

0.9 Based on the findings of this ecology study (desk based literature search and ecology survey) a number of recommendations have been made, to identify the need and guide the extent and type of appropriate mitigation measures, necessary to maintain compliance to legislation and planning policy pertaining to wildlife and biodiversity. These recommendation are as follows:

- specific surveys for Great Crested Newt, bats, Badgers, Water Vole, reptiles, breeding birds (inc. Barn Owl), invertebrates and botany (species of principal importance and alien invasive species to inform the planning process and the potential need for European Protected Species licenses.
- habitat creation and ecological input to the scheme and landscaping design for the development site,
- preparation of an ecology management plan for the long term management of the habitats on the developed site.

1 INTRODUCTION

Background to the study

- 1.1 On behalf of their client Savills LLP commissioned Cambridge Ecology Ltd to carry out an extended Phase 1 Habitat Survey of a site known as Wenny Road, Chatteris, Cambridgeshire that is under consideration for a new residential development.
- 1.2 The survey involved an inspection of the land in the study area to plot the general habitat types present on the site and establish the likely presence of protected habitats and species such as bats, Badger, breeding birds, Great Crested Newt and reptiles.
- 1.3 This ecology report has been prepared on behalf of Savills LLP and their client to explain the results of the extended Phase 1 Habitat Survey in respect to the development site.

Study area and zone of influence

- 1.4 The Wenny Road development site was located approximately 1 kilometre to the south east of Chatteris town centre and is bordered to the north and west by residential properties, part of Chatteris town and the west and south by the A142 road. Chatteris lies approximately 28km north of the city of Cambridge. The centre of the site is situated at Grid Ref TL 400 856.
- 1.5 Within the development site there was a pond marked on the OS map as Robin Knight Pond. This pond was located along a public footpath/track that bisected the eastern part of the development site. The footpath/track was called Birch Fen Drove on the OS map and was dog-legged, orientated north-south with the dog-leg angled eastward.
- 1.6 Figure 1.1 shows the location of the development site (including the red line boundary) in the context of the wider area.
- 1.7 Figure 1.2 shows the 500m buffer area around the development site including the ecology field survey boundary.
- 1.8 For clarity in this report the development site comprises the red line boundary of the proposed development site and the survey area includes the area covered by the ecology survey.
- 1.9 The survey area for the field survey comprised the red line boundary of the development site, plus an area up to 500m beyond the site boundary to the east and south (where access was possible). Due to the size and nature of the development the 500m area was chosen as the maximum potential zone of influence. The area beyond the site boundary to the north and west was not included in the field survey because it comprised entirely of a built environment, mainly comprising residential properties and roads, and

therefore of very limited ecological value and access to these areas was not possible.

- 1.10 The total area within the red-line boundary of the development site covers an area of approximately 26 hectares (ha).
- 1.11 The land beyond the A142 on the east and southern boundary of the development site and in the wider area around Chatteris is primarily intensively farmed arable land.

Development Proposals

- 1.12 The development proposals for the site adjacent to Wenny Road, Chatteris, would be for various residential properties.
- 1.13 Details of the number and layout of the scheme were not available at the time of preparing this report. However it would be expected that the results of this ecology survey (and other species specific surveys in the future) would help provide details that would influence layout of the scheme and especially the landscaping and habitat creation.

Aims and objectives

- 1.14 The aim of the survey was to record all the habitats on site according to guidelines produced by JNCC (2004)¹.
- 1.15 The key objectives of the survey and report were to:
- collate baseline data for the site through desk based literature search of data less than 10 years old (search of published environmental data and internet inventories) to identify any potential ecological constraints requiring species specific surveys.
 - undertake a general walkover survey of the site to include the Phase 1 Habitat Assessment in accordance with the JNCC Guidelines;
 - produce a description of each of the habitats present and provide a list of plant species found;
 - establish the likelihood of protected species utilising the site, in particular Great Crested Newt, Badger, bats, birds, rare flora, invertebrates and reptiles.
 - determine the ecological interest of the site in relation to the surrounding area; achieved by using various ecological criteria, such as the presence of protected species, local and UK BAP species/habitats.

¹ JNCC (2004) Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit. Revised, reprint 2003.

Relevant Legislation and Policy

1.16 Relevant legislation and policies relating to the proposed development and the remit of this survey are listed below and outlined in more detail in the proceeding tables. These are divided into protected habitats and species.

- The Conservation (Natural Habitats & Conservation.) (Amendments) Regulations 2010;
- Natural Environment and Rural Communities (NERC) Act 2006;
- The Wildlife and Countryside Act 1981 (as amended);
- National Planning Policy Framework 2012;
- The UK and Cambridge and Peterborough Biodiversity Action Plan;
- Government Circular (ODPM 06/2005) Biodiversity and Geological Conservation - Statutory Obligations & Their Impact Within the Planning System.
- The UK and Cambridge and Peterborough Biodiversity Action Plan.

Habitats

1.17 A variety of sites are designated in the UK, under various Conventions, Directives and Regulations, for their nature conservation importance and interest. These are statutory designated sites. The general aim of these designations is to conserve and protect ecological resources in addition to raising awareness and understanding for the general public of the ecological value of these sites. Non-statutory sites are afforded some protection through local plans. Table 1.1 outlines the most common statutory and non-statutory designations.

Table 1.1 Common statutory and non-statutory designations

Designation	Brief Description
Ramsar Sites	Wetlands of international importance. Ramsar Sites are effectively protected, through the planning system, under the Wildlife and Countryside Act 1981, as amended, and the Countryside and Rights of Way Act 2000 through their notification as SSSIs and through other regulatory systems addressing water, soil and air quality.
Special Protection Areas (SPAs)	SPAs are the most important habitats for rare and migratory birds within the European Union. The Birds Directive, adopted by the UK in 1979, provides for the protection, management and control of all species of naturally occurring wild birds in the European territory of Member States, including the UK. The provisions of the Birds Directive are transposed into English law by the Conservation (Natural Habitats &c) Regulations 1994.
Special Areas of Conservation (SACs)	SACs are sites that are chosen to conserve the natural habitat types and species of wild flora and fauna listed in Annex I and II of the Habitats Directive. They are the best areas to represent the range and variety of habitats and species within the European Union. The

Designation	Brief Description
	provisions of the Habitats Directive were transposed into English law by the Conservation (Natural Habitats &c) Regulations 1994.
National Nature Reserves (NNRs)	NNRs are nationally important areas of wildlife habitat and geological formations in Britain. NNRs are designated and protected under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981, as amended. They receive additional protection under the Countryside and Rights of Way Act 2000. They are managed for the benefit of nature conservation.
Sites of Special Scientific Interest (SSSIs)	SSSIs are nationally important sites for wildlife, geological and geomorphological features in England. They are designated and protected under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981, as amended. They receive additional protection under the Countryside and Rights of Way Act 2000.
Local Nature Reserves (LNRs)	LNRs are similar to NNRs but they apply to the local context. They are sites of value to nature conservation and are designated under the National Parks and Access to the Countryside Act 1949. They are managed for the benefit of nature conservation.
Hedgerows	Hedgerows are a very significant wildlife habitat over large parts of Britain. They provide essential refuge for a great many woodland and farmland plants and animals. Hedgerows are given protection under The Hedgerows Regulations 1997. As a result, since 1 June 1997, it has been against the law to remove most countryside hedgerows (or parts of them) without first notifying the local planning authority.
Ancient Woodland	Ancient woodlands are woodlands that have been established since or before 1600AD. They are non-statutory sites and are not legally protected but they may be afforded some protection in, for example, structure and local plans.
Wildlife Sites	These non-statutory sites are sites designated by a local authority as being of county nature conservation value but may not be notified as SSSIs. These include County Wildlife Sites (CWS).

Species

- 1.18 In addition to habitats, a number of species have now become so rare that they are also afforded protection through international, European and National law. Other species are considered to contribute to our 'quality of life'. Although these species do not benefit from legal protection, they can be material considerations in the planning process. Table 1.2 outlines the key forms of protection afforded to species.

- 1.19 Key pieces of legislation which afford protection to UK species include the CRoW Act, the WCA 1981, The Protection of Badgers Act 1992 and The Conservation of Habitats and Species Regulations 2010 (as amended), herein referred to as the Conservation Regulations. The Conservation Regulations are the main legislative framework for protection of wild animals in the UK. Schedule 1 of the WCA 1981 covers birds; Schedule 5 covers other animals and Schedule 8 covers plants.
- 1.20 Species including bats, Otter and Great Crested Newt are fully protected under Schedule 5 of the WCA 1981 and are also protected under Schedule 2 of the Conservation Regulations. Badgers are protected under their own Act: The Protection of Badgers Act 1992. Activities affecting protected species must usually be conducted under licence obtained from the appropriate body.
- 1.21 The proposed development must be able to show that all reasonable measures have been taken to ensure that protected species are not subject to disturbance. The habitats of all Conservation Regulations Schedule 2 species, WCA 1981 Schedule 1 and some WCA 1981 Schedule 5 species are also protected from disturbance and destruction. Again, all reasonable precautions should be taken to ensure that legal compliance is maintained. The CRoW Act has strengthened enforcement powers and introduced a new offence of “reckless disturbance” that applies to both protected sites and species.

Table 1.2 Key Protection afforded to Species

Designation	Brief Description
The Habitats Directive (92/43/EEC)	Annex II of the Directive lists the European protected species that are afforded special protection under this Directive. The provisions of the Habitats Directive were transposed into English law by the Conservation (Natural Habitats &c) Regulations 1994. Schedule 2 of the Regulations lists the European protected species of animals whilst Schedule 4 lists the European protected species of plants.
The Birds Directive 79/409/EEC Directive 2009/147/EC (Birds Directive)	Bird species listed in Annex I of the Directive regularly occur in Britain but are protected under EEC law. Member countries are required to classify as SPAs the most suitable sites for these species and also for all regularly occurring migratory species.
Conservation (Natural Habitats, &c.) Regulations 1994	The 1994 Regulations transposed Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law.
The Conservation of Habitats and Species Regulations 2010.	These Regulations (the “Habitats Regulations”) consolidate and update the Conservation (Natural Habitats, &c.) Regulations 1994 1 (“the 1994 Regulations”). The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals

Designation	Brief Description
	listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.
Wildlife and Countryside Act, 1981, as amended	Bird species listed in Schedule 1, animal species listed in Schedule 5 and plant species listed in Schedule 8 of the WCA 1981, as amended, are protected. The Countryside and Rights of Way Act 2000 has strengthened this legal protection.
Protection of Badgers Act 1992	The legislation concerning Badgers has largely arisen to protect this species against the practice of Badger digging. The Badger is too common to be included in Schedule 5 of the WCA, 1981, as amended.
Convention on Biological Diversity and the Countryside and Rights of Way Act 2000	The CRoW Act, 2000, provides a statutory basis for biodiversity conservation to be undertaken as a matter of policy. The UK Biodiversity Action Plan (BAP) provides the framework for fulfilling the UK's responsibilities towards the Convention on Biological Diversity. Conservation of biodiversity (the variety of life on earth) is an essential element of sustainable development.
Natural Environment and Rural Communities Act 2006	<p>Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England.</p> <p>The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.</p> <p>In addition this Act created a new integrated agency 'Natural England'– to act as a powerful champion for the natural environment, and formally establish a Commission for Rural Communities. The Act also changes the WCA 1981 to incorporate the protection for nests of certain birds which re-use their nests.</p>

Policies

- 1.22 Under the Natural Environment and Rural Communities Act (2006), "*Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity*". In order to comply with this 'Biodiversity Duty', planning decisions must ensure that they adequately consider the potential ecological impacts of a proposed development.

- 1.23 National Policy in England on nature conservation is provided by *ODPM Circular 06/2005: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within the Planning System* (Circular 06/05) and used in conjunction with the National Planning Policy Framework (NPPF).
- 1.24 The National Planning Policy Framework states that "*the planning system should contribute to and enhance the natural and local environment by...minimising impacts on biodiversity and delivering net gains in biodiversity where possible.*"
- 1.25 Paragraph 99 of Government Circular (ODPM 06/2005) Biodiversity and Geological Conservation - Statutory Obligations & Their Impact Within the Planning System states that '*It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted otherwise all relevant material considerations may not have been addressed in making the decision.*'
- 1.26 Natural England has published Standing Advice on protected species and Ancient Woodland. When determining an application for development that is covered by the Standing Advice, Local Planning Authorities must take into account the Standing Advice. The Standing Advice is a material consideration in the determination of applications in the same way as a letter received from Natural England following consultation.
- 1.27 The intention of all nature conservation planning policy is that sites and species of nature conservation concern are to be protected from the impact of development. Where development is allowed which could potentially harm such sites, mitigation measures aimed to protect, conserve and enhance and benefit species and wildlife are required.
- 1.28 The UK Biodiversity Action Plan (BAP) published in 1994, sets out this Country's response to Article 6 of this Convention. Previously, management and progress was implemented by Species Action Plans (SAPs) and Habitat Action Plans (HAPs). However, a review completed in 2008 concluded that these action plans were best assessed at a country level, whilst still largely being delivered at a local level by Local Biodiversity Action Plans (LBAPs). This is because "priority species whose needs can be fulfilled by general habitat management actions will be the responsibility of country habitat groups. This is to try to ensure that the broad habitat management actions that are taken also consider the needs of priority species and provide suitable conditions for these species across the UK". Under the terms of NERC Act 2006 there are currently 1150 Priority Species 65 Priority Habitats that extend across the UK. They are aimed at specific species and habitats considered to be at risk of damage, decline or extinction.

2 METHODS

Desk study

- 2.1 A desk-based literature search (of various sources – see below) was undertaken in order to gather existing ecological information for the study area. Records of species and habitats that were greater than ten years old (from November 2014) were not included as these were considered to be too old to be of relevance.
- 2.2 A literature search of designated sites and data for protected habitats and species was gathered from various sources, including a request to the local Biological Records Centre (CPERC) for biological data up to a distance of 5km from the centre of the development site. The locations of designated sites greater than 5km from the development site were considered to be too distant to be relevant. The locations of non-designated sites and records of protected habitats and species, greater than 2km from the development site were considered to be too distant to be relevant.
- 2.3 The desk-based literature search also included contacting relevant biological databases and a review of the following internet sites:
- Natural England (<http://www.naturalengland.org.uk>);
 - Multi-Agency Geographical Information Coverage (MAGIC) (<http://www.magic.gov.uk>);
 - National Biodiversity Network Database (NBN) (<http://www.searchnbn.net/help/helpIndex.jsp>);
 - Environment Agency (<http://www.environment-agency.gov.uk>);
 - Biological Records Centre (CPERC); and
 - Cambridgeshire Bat Group

Extended Phase 1 Habitat survey

- 2.4 The extended Phase 1 Habitat survey was undertaken by an experienced ecologist, in accordance with the JNCC guidelines. The survey was based on mapping the distribution and location of habitat types across the site, and noting potential for protected species that could be present within the site. The survey was undertaken on 18th, 19th and 21st November 2014 during suitable weather conditions during the day.
- 2.5 The Phase 1 Habitat survey area comprised the red line boundary of the development site (from here on referred to as the site/development site); plus an area up to 500m beyond the site boundary to the east and south (where access was possible), around the development site boundary (from here on referred to as the study area)
- 2.6 The survey excluded land to the north and west of the development site, as this area comprised residential properties, part of Chatteris town, and would be considered a significant barrier to wildlife movement, of limited value to

wildlife and separated the development site from distinctly different habitats (comprising residential areas and arable land). Figure 1.2 shows the 500m buffer around the development site boundary and the study area.

- 2.7 The aim of the survey was to provide a record of the natural and semi-natural vegetation and wildlife habitats present within the development site, as well as to determine whether any species (some of which may be protected) were utilising the site. Each area within the site was visited by the surveyor and classified in accordance with the habitat codes within the JNCC guidelines.
- 2.8 Maps were annotated in the field with features of species and habitat interest. Phase 1 Target Notes (TN) assigned as appropriate.
- 2.9 Where possible a record was made of the habitats present in the 500m buffer zone beyond the red line boundary of the development site to the south and east.
- 2.10 Data collected from the field survey and potential future surveys associated with the development proposals would be expected to update the ecological baseline of the development site and be used to inform the planning process and any ecological impact assessment, where necessary.

Protected Species Scoping Survey

- 2.11 A protected species scoping survey was carried out to search for signs indicating the presence of protected species and assess the site's suitability to support protected species (including priority and rare species) in accordance with approved guidelines.
- 2.12 **Amphibians:** all known and accessible ponds within 500m of the site (unless ecologically separated from the site by significant barriers, such as major roads or rivers or where access was not possible) were assessed for potential to support breeding protected amphibians, such as Great Crested Newt. If necessary a Habitat Suitability Index for breeding Great Crested Newt would be recommended on all suitable water bodies.
- 2.13 **Bats:** Mature trees and suitable buildings within the site boundary, and adjacent to the site boundary, were surveyed externally, from the ground, to evaluate their potential to support roosting bats (see Table 2.1 for evaluation criteria).

Table 2.1 Bat roost evaluation protocol for trees and buildings

Bat Roost Potential	Field Signs
Confirmed Roost	Evidence of the past or current presence of bats, e.g. bats, droppings, staining.
High Potential Roost Site	Features suitable to support roosting bats. Character and condition of tree/building suitable to support roosting bats
Medium Potential Roost Site	Some optimal features suitable to support roosting bats. Character and

	condition of tree/building suitable to support roosting bats
Low Potential Roost Site	Few suboptimal features suitable to support roosting bats. Character and condition of tree/building unsuitable to support roosting bats
Negligible Potential Roost Site	No features present, character and condition of tree/building unsuitable to support roosting bats

- 2.14 Any buildings within the site were externally and internally (where possible) assessed for signs or evidence of past or present usage by roosting bats. Buildings were checked for entry points such as cracks or holes, plus evidence of bat activity such as staining, droppings or feeding remains (such as butterfly or moth wings) that could indicate bats had been present in the recent past.
- 2.15 **Badgers:** A visual survey for setts, hair, latrines, prints, snuffle marks or other signs of badgers was undertaken within the site boundary.
- 2.16 **Dormice:** A visual survey for the presence of suitable habitat (woodland/suitable hedges with good under-storey/shrub layer and a range of food plant species, such as hazel, bramble and honeysuckle) was carried out, to assess if dormice were likely to be present.
- 2.17 **Birds:** A visual survey of bird activity and suitable nesting habitat was carried out, to determine if any areas would be suitable for WCA Schedule 1 birds, Birds of Conservation Concern or other common and widespread nesting birds.
- 2.18 **Reptiles:** A visual survey for the presence of habitat suitable to support reptiles was carried out.
- 2.19 **Invertebrates:** The site was inspected for significant areas of rotting deadwood, open mosaic habitat, high quality aquatic or other habitats (such as short ephemeral perennial and bare-ground) which could be used by significant assemblages of invertebrates, or by any of the invertebrates highlighted in the data search. Any water bodies were assessed for potential to support white-clawed crayfish.
- 2.20 **Species and habitats listed on Section 41 of the NERC Act 2006:** all habitats, animal and plant species which were identifiable at the time of the survey were recorded.

Site Evaluation

- 2.21 An initial evaluation of the ecological importance of the site was made by comparing the desk-study and field survey results against recognised criteria for establishing the presence of valued ecological receptors (any ecological feature that is sensitive to or has the potential to be affected by an impact).

2.22 The criteria used to determine the ecological value of the development site included the following:

- Species protected as 'European Protected Species' under regulation 41 of the Conservation of Habitats and Species Regulations 2010.
- Species protected under Schedule 5 and Section 9 of the Wildlife and Countryside Act (1981 as amended).
- Badgers protected under the Protection of Badgers Act.
- Nesting birds protected under Section 1 of the Wildlife and Countryside Act.
- Bird species protected under Schedule 1 of the Wildlife and Countryside Act.
- Principal species and habitats – as listed under Section 41 of the Natural Environment and Rural Communities Act (NERC 2006).
- Birds of Conservation Concern (BoCC) Red List (Easton et. al. 2011).
- Important habitats – as listed on the UK BAP priority habitats.
- Important species – as listed on the UK BAP priority species.
- Important hedgerows – as defined by The Hedgerow Regulations 1997.

3 RESULTS

Desk Study

3.1 The key ecological features associated with the study area falls largely within the following categories:

- Designated Sites (statutory and non-statutory);
- Protected Habitats and Species; and
- Non-Protected Habitats and Species.

3.2 This section outlines the baseline data for the site under these broad headings and incorporates the results found and reported from the desk-based literature search.

Statutory Designated Sites of Nature Conservation Importance

3.3 Statutory sites are those that are legally protected and development within or near them is strictly controlled, such as Sites of Special Scientific Interest (SSSI). There were no statutory designated sites within 5km of the development site. Although it was recognised that the Ouse Washes, SPA, SAC, SSSI and Ramsar site (the nearest statutory designate site) was located less than 6km to the south east of the development site. The development site therefore falls just outside the SSSI Impact Risk Zone. This is a tool for use by Local Planning Authorities to assess planning applications for likely impacts on SSSIs.

Non-Statutory Designated Sites of Nature Conservation Importance

3.4 Non-statutory sites include County Wildlife Sites (CWS) and other locally designated sites, such as City Wildlife Sites that receive some protection. Six non-statutory sites occurred within 5km of the development site boundary (listed in Table 3.1, see Figure 3.1). None of these non-statutory sites occurred within the actual red line boundary of the development site. The nearest non-statutory designated site (Langwood Hill Pit) was located approximately 1.7km to the east of the development site.

Table 3.1: Statutory and Non-statutory designated sites within 2km of the development site

Site name	Grid Reference	Area (ha)	Interest Features	Distance (m) from site and Direction
County Wildlife Sites – Non-Statutory Sites				
Block Fen Gravel Pits	TL4384	62.33	The site qualifies because it contains waterbodies supporting at least 3 species of Pondweed (<i>Potamogeton</i> spp.); because it supports populations of Nationally Scarce vascular plant species and vascular plant species which are rare in the county.	~3000m to the south east
Forty Foot Drain (East)	TL4486	21.38	Supports at least 0.5ha of NVC S4 Common Reed swamp; contains at least 5 species of submerged, floating and emergent vascular plant per 20 metre stretch; supports a population of a Nationally Scarce vascular plant; and is Grade C site in the JNCC ISR.	~2100m to the north east
Langwood Hill Pit	TL420857	0.33	The site qualifies as CWS because it supports at least 0.05ha of NVC community S13 Lesser Reedmace swamp.	~1700m to the east
Mepal Gravel Pits	TL4283	34.43	Supports at least three species of pondweed (<i>Potamogeton</i> spp.).	~3000m to the south south east
Pidley Fen Drains	TL3581	11.09	Supports at least five submerged, floating and emergent vascular plant species per 20m stretch and populations of vascular plant species which are rare in the county (<i>Baldellia ranunculoides</i> , <i>Eleogiton fluitans</i> , <i>Potamogeton friesii</i>).	~3300m to the south south west
Sutton & Mepal Pumping Station Drains	TL4382	16.82	Contains at least 5 species of submerged, floating and emergent vascular plant per 20 metre stretch; at least three species of <i>Potamogeton</i> ; populations of Nationally Scarce vascular plant species; and groups of at least 20 mature pollard willows.	~2200m to the south

Habitats

- 3.5 The desk based literature search indicated that no protected habitats were located within the development site boundary.
- 3.6 The presence of Fen, Coastal and Floodplain Grazing Marsh, Traditional Orchards and Deciduous Woodland, UKBAP priority habitats, were noted as being present within 2km of the development site boundary. The closest Fen was located approximately 1.1km to the north west of the development site. The closest Coastal and Floodplain Grazing Marsh was located approximately 1.6km to the north of the development site. The closest Traditional Orchard was located approximately 1.1km to the south east of the development site. The closest Deciduous Woodland was located approximately 650m to the north of the development site.
- 3.7 Figure 3.2 shows the location of protected habitats within 2km of the development site.

Protected Species

- 3.8 The desk based literature search indicated that no protected species were located within the development site boundary.
- 3.9 The data search returned records for protected or notable species within a 2km radius of the site during the last 10 years. These data comprised records of:
- Amphibians - 1 species
 - Birds - 82 species
 - Bats - 2 species (Brown Long-eared and Common Pipistrelle)
 - Other mammals - 2 species (Otter and Badger)
 - Invertebrates - 1 species
- 3.10 Full lists of the UK Priority and protected amphibians, reptiles, flora and mammals are shown in Table 3.2 below. Only bird species that have some relevance to the development site and the adjacent areas are shown in Table 3.2

Table 3.2: List of UK Priority and protected records within 2km of the development site during the last 10 years

Species	Conservation Protection Status	Year of most recent record
AMPHIBIAN		
Common Frog	HSD5	2013
BIRDS		
Barn Owl	WCA Sch. 1	2012
Bullfinch	NERC Sect.41, UKBAP	2012
Cuckoo	NERC Sect.41, UKBAP	2012
Grasshopper Warbler	NERC Sect.41, UKBAP	2011
Kingfisher	BD1, WCA Sch. 1	2012
Quail	WCA Sch. 1	2012
Linnet	NERC Sect.41, UKBAP	2012
Starling	NERC Sect.41, UKBAP	2012

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Corn Bunting	NERC Sect.41, UKBAP	2012
Hobby	WCA Sch. 1	2012
Tree Sparrow	NERC Sect.41, UKBAP	2012
Golden Plover	BD1	2012
Turtle Dove	NERC Sect.41, UKBAP	2012
Grey Partridge	LBAP, NERC Sect.41, UKBAP	2007
Hedge Sparrow	NERC Sect.41, UKBAP	2010
House Sparrow	NERC Sect.41, UKBAP	2012
Redpoll	NERC Sect.41, UKBAP	2008
Lapwing	NERC Sect.41, UKBAP	2012
Reed Bunting	NERC Sect.41, UKBAP	2012
Skylark	LBAP, NERC Sect.41, UKBAP	2010
Song Thrush	LBAP, NERC Sect.41, UKBAP	2010
Spotted Flycatcher	NERC Sect.41, UKBAP	2012
Yellowhammer	NERC Sect.41, UKBAP	2012
MAMMALS		
Brown Long-eared Bat	HabRegs2, HSD4, LBAP, WCA Sch5	2009
Common Pipistrelle Bat	HabRegs2, HSD4, LBAP, WCA Sch5	2012
Otter	HabRegs2, HSD2p, HSD4, LBAP, NERC Sect.41, UKBAP, WCA Ssch5	2012
Badger	PBA	2008-2012
INVERTEBRATES		
Large Garden Bumble-bee	Notable - B	2010

BD1	Bird Directive Annex1
HabRegs2	The Conservation (Natural Habitats, &c.) Regulations, Schedule 2: European protected species of animals
HSD2p	Animal and plant species of Community interest (i.e. endangered, vulnerable, rare or endemic in the European Community) whose conservation requires the designation of special areas of conservation. Note that the contents of this annex have been updated in April 2003 following the Treaty of Accession.
HSD4	Habitats and Species Directive Annex 4 - Animal and plant species of Community interest (i.e. endangered, vulnerable, rare or endemic in the European Community) in need of strict protection. They are protected from killing, disturbance or the destruction of them or their habitat. Note that the contents of this annex have been updated in April 2003 following the Treaty of Accession.
HSD5	Animal and plant species of Community interest whose taking in the wild and exploitation may be subject to management measures.
LBAP	Cambridgeshire and Peterborough BAP
NERC Sect.41	Natural Environment & Rural Communities Act 2006 - Species of Principal Importance in England (s41)
Notable B	Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and thought to occur in between 31 and 100 10km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties. Superseded by Nationally Scarce, and therefore no longer in use.
UKBAP	UK Biodiversity Action Plan priority species
PBA	The Protection of Badgers Act 1992
WCA Sch1	Wildlife and Countryside Act 1981 (Schedule 1 Part 1) - Birds which are protected by special penalties at all times.
WCA Sch5	Wildlife and Countryside Act 1981 (Schedule 5 except for 9.5 sale only) - Section 9.1. Animals which are protected from intentional killing or injuring. Animals which are protected from taking. Section 9.2 Animals which are protected from being possessed or controlled (live or dead). Animals which are protected from intentional damage or destruction to any structure or place used for shelter or protection. Section 9.4 Animals which are protected from intentional damage or destruction to any structure or place used for shelter or protection. Animals which are protected from intentional disturbance while occupying a structure or place used for shelter or protection. Animals which are protected from their access to any structure or place which they use for shelter or protection being obstructed.

- 3.11 There were no records of Great Crested Newt, reptiles, Brown Hare, Dormouse sp. Hedgehog, Water Vole or notable flora within 2km of the development site during the last 10 years.
- 3.12 Four records of two species of bat were noted within 2km of the development site. These comprised Brown Long-eared (in 2009) and Common Pipistrelle (in 2012), bats. There were no records of bats from within the development site boundary.
- 3.13 The closest record was a Brown Long-eared bat located approximately 100m to the west of the site at a house in Wenny Road.
- 3.14 There were three records of Badger noted within 2km of the development site during the last 10 years. There were no records of Badger from within the development site boundary. The closest Badger sighting was approximately 200m to the north and south. Both related to Badgers that had been killed on the A142.
- 3.15 There was one record of Otter noted within 2km of the development site during the last 10 years. This was from Fenton Lode approximately 1.2km to the west of the development site.
- 3.16 A total of 82 species of birds were recorded within 2km of the development site. Of these species 17 were listed under Schedule 1 of the Wildlife and Countryside Act (WCA 1981 as amended). The protection afforded these species is associated with their breeding status. It was considered that due to their specialist habitat requirements, only one of these species (Barn Owl) would likely be nesting at the development site. Twenty five bird species were listed as UK Biodiversity Action Plan (UK BAP) priority species and/or 'Species of Principle Importance' as listed on Section 41 of the Natural Environment & Rural Communities (NERC) Act (2006). Of these species, due to the habitats present with the development site, it was considered that sixteen species, Barn Owl, Bullfinch, Corn Bunting, Hedge Sparrow, Grasshopper Warbler, House Sparrow, Linnet, Redpoll, Reed Bunting, Skylark, Song Thrush, Spotted Flycatcher, Starling, Tree Sparrow, Turtle Dove and Yellowhammer could potentially use the development site for breeding.
- 3.17 One invertebrate (the Large Garden Bumble bee), listed as UK Biodiversity Action Plan (UK BAP) priority species and/or 'Species of Principle Importance' as listed on Section 41 of the Natural Environment & Rural Communities (NERC) Act (2006), was recorded within 2km of the development site.

Extended Phase 1 Habitat survey

Habitats

- 3.18 The distribution of the habitat classifications identified in the Phase 1 habitat survey can be found in the Phase 1 habitat map (Figure 3.3). A list of the

plant species found in each habitat type is presented in Appendix B. Target Notes (TN) have been annotated within the text with specific descriptions given in Table 3.3.

- 3.19 Photographs showing the character of the habitats and ecological features present in the survey area were taken during the ecology survey (Appendix A). A map (Figure 3.4) has been provided to show the location and the direction of photographs taken during the Phase 1 habitat survey.
- 3.20 The habitats recorded during the Phase 1 Habitat survey are listed and described below.
- Arable
 - Dry/Wet Ditch
 - Pond/Standing Water
 - Amenity/Improved grassland
 - Scattered Scrub
 - Scattered Trees/Parkland/Broadleaved Woodland
 - Hedgerows
 - Tall Ruderal
 - Bare ground and Buildings

Arable

- 3.21 In the north east of the development site there were two arable fields. At the time of the survey these fields comprised bare ground, having been ploughed ready for sowing.
- 3.22 There were no substantial arable field margins associated with these fields.
- 3.23 Beyond the red line boundary of the development site, particularly to the south and east, the habitat was dominated by intensively farmed arable land.
- 3.24 Arable land is not a UKBAP habitat or principal habitat of importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and Species of Principal Importance in England.

Dry Ditch

- 3.25 Within the development site two dry ditches were present. One was located along the length of the eastern boundary and lay alongside the A142 and the roadside verge. This ditch was not associated with any other boundary feature, such as a hedgerow, although there were individual isolated hedgerow plants along this ditch. The other dry ditch was located intermittently along two sides of the Birch Fen Drove (footpath/track) in the eastern section of the development site. This ditch was partially obscured by and associated with intact mature hedgerows.
- 3.26 The vegetation associated with the dry ditches mainly comprised greater willow-herb, bramble, stinging nettle and bristly ox-tongue. As there were no

adjacent hedgerows the ditch next to the A142 was open and exposed to full light.

- 3.27 The dry ditches bordering the Birch Fen Drove were associated with adjacent hedgerows and were therefore very shady. The vegetation present comprised bramble, greater willow-herb and lesser hogweed.
- 3.28 These ditches were full of plant debris from the trees and bushes that bordered them. These ditches were very shallow and devoid of notable communities of the plants due to the shading by the mature trees and bushes along their length.
- 3.29 Beyond the red line boundary of the development site, especially to the east the intensively farmed arable fields were separated by some dry ditches.
- 3.30 Dry ditch habitat is not a UKBAP habitat or principal habitat of importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and Species of Principal Importance in England.

Wet Ditch

- 3.31 One main wet ditch was located within the boundary of the development site (TN3), in the north east section and was orientated in a north west to south east direction; it was approximately 250m in length. The water in this ditch was flowing north to south.
- 3.32 A footpath bordered part of the ditch, while the rest of the ditch was bordered by tall ruderal habitat and amenity grassland. At its northern end, the ditch disappeared into a tunnel under the adjacent residential areas. While at its eastern end the ditch passed under the A142 through a heavily engineered and enclosed culvert. This somewhat isolated the ditch from the watercourses beyond the development site boundary.
- 3.33 The quality of the water in the ditch was considered to be poor (drainage pipes indicated that the main source was run-off from the adjacent residential area to the northwest). The surface of the water was dominated by species of water-starwort and water-cress, which limited the light penetrating the water surface and therefore limited the presence of other aquatic plants. The banks of the ditch were heavily overgrown with various plants, including bulrush, greater willow-herb, stinging nettle and bramble.
- 3.34 Wet ditch habitat is not a UKBAP habitat or principal habitat of importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and Species of Principal Importance in England.

Pond/Standing Water

- 3.35 Within the development site there were four areas of standing water; however only one (TN2), was considered to be a pond. The other three areas were considered to comprise land inundated by flood water.

- 3.36 There was also one area that was shown on the OS map as being a pond, however upon inspection this area was without water (TN8), although there were indications that there had once been a pond in the location.
- 3.37 The typical pond (TN2) was located along Birch Fen Drove and was known on the OS map as Robin Knight pond. This pond was covered with duck weed, preventing light penetration into the water and therefore limited the opportunity for other aquatic plants to become established. There was however a stand of bulrushes in this pond. In close proximity to the pond was a mature Oak tree and tall hedgerow, suggesting that the pond would be shaded during the summer months.
- 3.38 The other areas of standing water were also located along Birch Fen Drove and appeared to comprise water that had flooded over from the adjacent hedge lined ditch into depressions in the fields. There was no specific vegetation associated with these areas standing water. The remaining two areas of standing water were located in the improved grassland areas and were both devoid of vegetation.
- 3.39 Outside the development site, but within ~50m, to the west of Wenny Road was a pond, which was associated with an amenity area next to the residential properties. This pond appeared to be related to an open urban drainage system due to the presence of drainage channels from the pond to an adjacent drainage ditch. The vegetation in this pond was dominated by bulrush, to the extent that no open water was visible.
- 3.40 It should be noted that ponds are a UKBAP habitat and principal habitat of importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and Species of Principal Importance in England. Therefore the presence of such habitat should be of material consideration during the planning process. The presence of such habitats within the development site should be considered when developing a detailed landscape design of the site.

Amenity/Improved grassland

- 3.41 Within the development site there was one area of amenity grassland, located in the north east. Outside the development site four areas of amenity grassland were present, all appeared to be playing fields of various types. This habitat was dominated by perennial rye grass, which showed signs of being mown on a regular basis.
- 3.42 Within the development site there were four areas of improved grassland. Two areas were being used for grazing horses; one area was being used as a dog walking area and the final area of improved grassland, next to the A142 at the eastern side of the development site, was currently unused, but features suggested that it had been used for grazing livestock.
- 3.43 The improved grassland habitat was dominated by various unmanaged grass species, with few flowering plant species. The vegetation in one of the

fields currently used for grazing horses (northwest field) had been heavily grazed, thereby creating a very short sward. The unused improved grassland field in the east of the site contained the Robin Knight pond, the grassland here was devoid of flower plants, although being ungrazed, the grass had grown taller than in the grazed field. Two areas of improved grassland were particularly unmanaged, having numerous areas of tall ruderal habitat scattered within the fields, although some horses had started to graze in these areas. These fields were also used by dog walkers, the presence of more flowering plant species (compared to the other two fields), sward heights and density present meant that these areas were of the most interest, ecologically.

- 3.44 Overall, the improved grassland habitat comprised species of clover, dandelion, buttercup, thistle, dock and plantain
- 3.45 Beyond the development site, six small areas of improved grassland were present located to the south and east surrounded by arable land.
- 3.46 These improved grassland areas represented the only unmanaged/non-intensively managed areas within and adjacent to the development site.
- 3.47 Amenity/improved grassland habitat is not a UKBAP habitat or principal habitat of importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and Species of Principal Importance in England.

Scattered Scrub

- 3.48 Within the development site an area of scattered scrub was present associated with the hedgerow running along Birch Fen Drove.
- 3.49 The scrub comprised a variety of species but was primarily comprised of dogrose, hawthorn, blackthorn and bramble. The understorey comprised few plants but included greater celandine and ground ivy.
- 3.50 Scattered scrub habitat on its own is not a UKBAP habitat or principal habitat of importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and Species of Principal Importance in England.

Scattered Trees/Parkland/ Broadleaved Woodland

- 3.51 Within the development site parkland comprising scattered trees was associated with the improved grassland field at the western part of the development site. The diameters of the trees suggested that they were mature specimens. The tree species primarily comprised oak, horse chestnut, ash, beech and field maple. The habitat in the parkland and amongst the scattered trees comprised improved grassland and tall ruderal.
- 3.52 There were a few scattered trees located outside the eastern boundary of the development site in amongst the arable land.

- 3.53 The broad-leaved woodland habitat was located in two areas within the development site, along the northern/north western boundary and the south western boundary. Both these areas were approximately 400m long by 20m wide creating belts of mature deciduous trees that separated the adjacent Wenny Road and residential areas from the development site. The tree species in these woodland belts primarily comprised oak, elm, silver birch, spindle, horse chestnut, ash, beech and field maple. A number of the trees had ivy growing up the tree trunks. The understory was sparse and there were large areas of bare ground. The plants that were present included small bushes of hawthorn and dog rose, while ground cover comprised chervil, greater celandine, garlic mustard and ivy.
- 3.54 Outside the development site a belt of younger trees forming a plantation was located to the north east linking with a hedgerow within the development site. This belt of trees was considered to be much younger than those within the development site and appeared to have been planted to screen the A142 from the adjacent residential area.
- 3.55 It should be noted that lowland mixed deciduous woodland is a UKBAP habitat and principal habitat of importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and Species of Principal Importance in England. Therefore the presence of such habitat should be of material consideration during the planning process and should be considered when developing a detailed landscape design of the site.

Species-poor Hedgerows

- 3.56 Within the development site there were six discrete hedgerows forming a biodiversity valuable network across the site. Together these hedgerows linked the northern belt of mature woodland trees with those in the south west.
- 3.57 The main hedgerow was located along the Birch Fen Drove track and footpath. The hedgerow lined both sides of the drove creating a sheltered pathway between. These hedgerows were considered species poor due to the limited variety of hedgerow species present, but they were mostly intact and mature, standing at least 3m tall and 3m wide. A single lined hedgerow with individual mature trees traversed the development site east to west passing across the Birch Fen Drove at the Robin Knight pond and effectively provided a good linkage across the site between these features.
- 3.58 The hedgerows plants were dominated by elm, hawthorn and blackthorn. Individual trees along the hedgerows included ash, field maple and oak. Bramble and dog-rose, dominated in areas covering parts of the hedgerows.
- 3.59 Other hedgerows along the northern part of the site that separated the arable field from the improved grassland areas were of a different structure/character; being shorter and narrower, and appeared to have been

managed on a regular basis. These hedgerows were dominated by either hawthorn or blackthorn and included brambles.

- 3.60 Along the western boundary of the site next to the A142 isolated patches of hedgerow bushes were located creating a very superficial hedgerow boundary.
- 3.61 Vegetation associated with the hedgerows mainly comprised bramble, stinging nettle, chervil, greater willow-herb, bristly ox-tongue and thistle and dock species.
- 3.62 Outside the development site to the east, the arable fields were mainly separated by ditches, with a few isolated lines of hedgerows some with lines of tall mature trees.
- 3.63 Hedgerows are a UKBAP habitat and principal habitat of importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and Species of Principal Importance in England. Therefore the presence of such habitat should be of material consideration during the planning process. The presence of such habitats within the development site should be considered when developing a detailed landscape design of the site.

Tall Ruderal

- 3.64 The tall ruderal habitats comprised 'rank unmanaged' areas, with a tall vegetation structure, often consisting of a range of grasses and large perennial species.
- 3.65 There were numerous areas of tall ruderal habitat within the development site, located in amongst the improved grassland areas and along hedgerows.
- 3.66 Dominant vegetation in this community included bramble, bristly ox-tongue, broad-leaved dock, stinging nettle, teasel, cleavers, cow parsley annual meadow grasses, lesser hogweed, ragwort, greater willow-herb and thistle species.
- 3.67 Tall ruderal habitat is not a UKBAP habitat or principal habitat of importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and Species of Principal Importance in England.

Hard surface and Buildings

- 3.68 Within the development site there were no areas that comprised hard surfaces. There were two small buildings (TN7) located within the development site. One was a wooden structure used as a stable for horses. This building was located in the western part of the site. The other building was brick built and located in the southern part of the site along the Birch Fen Drove. This building was derelict and appeared to be an old shelter.

- 3.69 In the wider area adjacent to the development site, especially to the north and west, residential properties; and hard-standing (mainly car-parks and access roads) were located.
- 3.70 Vegetation associated with these areas comprised landscaped amenity grassland areas and introduced shrubs in private gardens.

Open Mosaic Habitats on previously developed land

- 3.71 Open mosaic habitat is defined as '*an area of at least 0.25 ha in size, with a known history of disturbance at the site, or evidence that soil has been removed or severely modified by previous use(s) of the site; contains some vegetation consisting of early successional communities of stress tolerant plants, unvegetated, loose bare substrate and pools, and a spatial variation forming a mosaic of one or more of the early successional communities plus bare substrate*'. (Ref: UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008 (Updated Dec 2011)).
- 3.72 In combination the presence of ephemeral short perennial, semi-improved grassland, scattered scrub and bare ground habitats would be used to define the presence of open mosaic habitats on previously developed land.
- 3.73 The development site is not considered to contain any open mosaic habitat, because of the absence of ephemeral short perennial habitat, bare ground and the lack of evidence that soil has been removed or severely modified by previous use(s) of the site.
- 3.74 Open Mosaic Habitat on previously developed land is a UKBAP habitat and principal habitat of importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and Species of Principal Importance in England.

Target notes

- 3.75 Target notes have been added to the Phase 1 habitat map (Figure 3.3) to provide spatial information on the location of features (e.g. interesting or protected species or habitats, or sites/features) that are too small to be recorded in detail on the Phase 1 habitat map.
- 3.76 A description of the ecological features highlighted by the target notes is provided in Table 3.3.

Table 3.3. Target Notes and Descriptions

Target Note Number	Description	Reason for classification
TN1	Trees with bat roost potential	The presence of protected species is of material consideration when considering planning applications. Information is needed to ascertain the current status of protected species on and within close proximity to the development site.
TN2	Ponds, standing water with Great Crested Newt potential	
TN3	Ditch with Water Vole potential	
TN4	Habitat suitable to support reptiles	
TN5	Hairs with characteristic features of Badger, caught on the lower strand on a barbed wire fence	
TN6	Woodland with numerous tree suitable to support roosting bats	
TN7	Building with bat roost potential	
TN8	Dried up pond that could re-flood during wet periods and therefore be suitable for breeding Great Crested Newt	

Protected Species**Amphibians (inc. Great Crested Newt)**

- 3.77 During the survey no amphibians were found, despite searches of natural refugia present within the development site.
- 3.78 The development site as a whole was of some value for amphibian species due to the waterbodies (TN2) present. It was considered that the habitat (namely the ponds, tall ruderal, scattered scrub, improved grassland, hedgerows, wet and dry ditches) on the site could provide foraging, hibernating and commuting habitat for amphibians.

Mammals**Bats**

- 3.79 Despite a thorough search of the external features of the suitable trees, at the time of the survey, there were no signs of roosting bats at the development site. However, the development site included numerous (30+) trees and two buildings (TN1, TN6 and TN7) that contained features with moderate/high potential to support roosting bats.
- 3.80 The development site also contained a range of features providing suitable foraging habitat for bats. The presence of trees, hedgerows, linear tree planting tall ruderal and semi-improved grassland habitat provided good foraging opportunities and sheltered commuting routes for bats. The grassland areas in particular would be expected to provide foraging opportunities for bats as these would likely support a variety of insect species.

Badgers

- 3.81 There were no signs of any Badger setts within or adjacent to the development site.
- 3.82 Hairs showing characteristic features of Badger were found (TN5), snagged on the lower strands of a barbed wire fence. The soil conditions and presence of features such as earth banks and dry ditches were suitable for sett digging. A range of features providing suitable foraging habitat for Badgers was also present; including the areas of improved grassland, tall ruderal, woodland and hedgerows that could also be used as commuting routes.

Dormice species

- 3.83 No suitable Dormouse habitat was present at the development site and therefore their presence was considered unlikely.

Otter

- 3.84 Very limited habitat suitable to support Otters was present at the development site. Therefore their presence was considered unlikely. The ditches and watercourses were isolated, small and did not contain features to provide feeding or shelter habitats and were not considered suitable to sustain Otters.

Water Voles

- 3.85 During the survey no Water Voles or their characteristic signs were found, despite searches of the water filled ditches present within the development site.
- 3.86 Some limited habitat suitable for use by Water Vole was present at the development site, comprising the one main water filled ditch located towards the north east of the site (TN3). This ditch was approximately 250m long and not linked to other networks of open ditches.
- 3.87 The surface of the water and banks were heavily vegetated. There was a notable flow of water (albeit poor quality), therefore it was considered that this ditch was suitable for use by Water Voles. However the ditch was somewhat isolated from other ditches and habitat suitable for Water Vole. At both ends the ditch was culverted, either under the A142 to the east or residential properties to the north west, which would likely limit Water Voles ability to access to this stretch of ditch.

Birds

- 3.88 The presence of a variety of habitats in the development site would be expected to provide suitable nesting habitats for a variety of bird species that could use hedgerows, grassland and arable land to feed and nest.

- 3.89 At the time of the survey 27 species of bird were observed. However, it would be expected that other birds would be using the site as a preferred breeding/feeding area, but these were not recorded due to the nature and timing of the survey being carried out.
- 3.90 Of the 27 species observed, six were listed on the UKBAP and were principal species of conservation importance under the terms of the NERC Act 2006. These species included Hedge Sparrow, Song Thrush, Starling Bullfinch, Yellowhammer and Reed Bunting.
- 3.91 No signs were found to indicate the presence of roosting or breeding Barn Owls, although this may have been due to the nature and timing of the survey being carried out. However, the habitat within the development site and survey area, such as the unmanaged grassland (improved grassland) and tall ruderal habitat, would be expected to support small mammals and therefore could be used by Barn Owls for feeding. In addition, the habitats in and adjacent to the development site contained suitable breeding (hollow trees, farm buildings) and foraging habitat arable field margins and ditches.

Reptiles

- 3.92 During the survey no reptiles were found, despite searches of natural refugia present within the development site.
- 3.93 The development site as a whole was considered to have moderate/high potential to support reptile species, including Grass Snake and Common Lizard. The areas (TN4) of rank tall ruderal, improved grassland, hedgerows wet and dry ditches could provide suitable foraging and shelter habitat for reptiles.

Invertebrates

White-clawed Crayfish

- 3.94 There were no suitable habitats at the development site and therefore the presence of White-clawed Crayfish was considered unlikely.

Terrestrial Invertebrates

- 3.95 The development site comprised a mosaic of habitats (e.g. improved grassland, hedgerows, mature trees and dead wood) and features (dead wood piles) that had the potential to support a range of invertebrate groups and species of principal importance. At the time of the survey no specific invertebrates were recorded.

Plants

- 3.96 At the time of the survey there were no signs indicating the presence of alien invasive plant species such as Japanese Knotweed within the red line boundary of the development site.

- 3.97 The various habitats had the potential to support a range of ecologically beneficial plant communities and species of principal importance.

Survey Constraints

- 3.98 Overall the information and data gathered at the time of the survey and desk based literature search were considered to provide a robust and valid indication of the ecological value of the land within the development site, as well as of the surrounding habitats extending, where necessary some 500m from the boundary of the development site.
- 3.99 Access to the land within the 500m buffer zone of the site was restricted in places. This prevented a detailed survey beyond the development site itself; however habitats were sufficiently surveyed to determine their basic composition.
- 3.100 It should be noted that the absence of certain protected or rare species would not preclude their presence on a site. There would always be a risk of protected or rare species being over-looked, either owing to the timing (both time of day and time of year) of the survey or the scarcity of the species at the site. In addition, the ability of wildlife (including protected species) to move to new sites periodically and therefore move into an area after the survey had been carried out should not be discounted. Consequently, it would be recommended that if the development proposals were to be delayed for two years or more, then a further ecological survey (including species specific surveys) would be recommended to update the results provided in this report and inform the development proposals in the future.
- 3.101 The survey undertaken was an Extended Phase 1 Habitat Survey; consequently the species lists presented were not exhaustive; although sufficient information was gathered to determine the general character of the habitat types present.
- 3.102 In addition, biological records dating back 10 years (as provided during the desk-based literature search) were based on the information that was available at the time for the site. Therefore, a lack of species records would not necessarily indicate that a species had not been present.

4 EVALUATION

Overview

- 4.1 The desk based literature search indicated that there were no statutorily designated sites within 5km of the site, (although there was a nationally and internationally important site, the Ouse Washes located less than 6km away to the east) while six separate non-statutorily designated sites (including county wildlife sites) were located within 5km of the development site boundary. These local non-statutorily designated sites were of ecological conservation value as a result of the presence of locally rare and notable species and habitats. The nearest non-statutory designated site (Langwood Hill Pit) was located approximately 1.7km to the east of the development site.
- 4.2 The data from the desk-based literature search indicated that protected species such as breeding birds, invertebrates, bats, Badger and Otter, had been recorded within 2km of the development site, although none had been recorded within the site boundary.
- 4.3 The ecology survey indicated the development site had potential to support the life cycle of various protected species such as Great Crested Newt, reptiles, breeding birds, bats, Badger, Water Vole, and invertebrates and flowering plants species of principal importance. The habitat within the development site would be unlikely to support Otter and Dormouse sp
- 4.4 The development site was bordered by residential areas to the north and west and the A142 and intensively farmed arable land to the south and east. The residential areas and the A142 would likely act as barriers to wildlife movement to and from the development site, into the wider environment in these directions. The development site was therefore considered to be partially isolated.
- 4.5 The connectivity between habitats within the development site was considered to be good, via a combination of hedgerows and ditches. In contrast, the habitat connectivity to the wider area was considered to be poor, especially to the north and west as this area was taken up by residential areas. To the east and south there was some limited connectivity across the arable land, mainly via ditches.
- 4.6 Due to its location between the edge of residential areas and the wider rural environment, the habitats within the development site could be considered to act as a buffer zone between the existing residential areas to the north and west and the intensively farmed arable land to the south and east.
- 4.7 The mosaic of habitats present within the development site including grassland, hedgerows, scattered trees, ditches and tall ruderal habitat in combination therefore appear to provide useful habitat for the plants and animals present.

- 4.8 In summary, the potential for the development site to support the life-cycle of key protected species (namely Great Crested Newts, birds, bats, Badger, Water Vole invertebrates and flowering plants) and the development site's location between suburban and intensively farmed arable land should be considered during the impact assessment and planning process, and be included as part of the development of any ecological mitigation strategy for the development proposals.
- 4.9 Of the criteria used to evaluate the importance of the development site for biodiversity the following are considered to be relevant:
- Habitats/sites protected under the Conservation of Habitats and Species Regulations 2010,
 - Species protected as 'European Protected Species' under regulation 41 of the Conservation of Habitats and Species Regulations 2010,
 - Nesting birds protected under Section 1 of the Wildlife and Countryside Act,
 - Bird species protected under Schedule 1 of the Wildlife and Countryside Act,
 - Principal species and habitats – as listed on the Natural Environment and Rural Communities Act (NERC 2006),
 - Birds of Conservation Concern Red List (Easton et. al. 2009),
 - Species protected under Schedule 5 and Section 9 of the Wildlife and Countryside Act,
 - The Protection of Badgers Act 1992,
 - Important habitats – as listed on the UK BAP priority habitats,
 - Important species – as listed on the UK BAP priority species.
- 4.10 Based on the findings of the extended Phase 1 Habitat Survey, the limited presence of species and habitats listed on the criteria used to evaluate the ecological importance of the development site indicates that it is considered to be of local biodiversity value. It is considered that it would contain a standard and average selection of species and habitats likely to be expected of any site of comparable size and bio-geographical location and therefore of district importance.
- 4.11 A number of different species that are afforded protection under European and UK national legislation have also been identified as being present or having potential to be present within and immediately adjacent to the site. Some species may be using habitats within the site for breeding, feeding and shelter. These include:
- Protected Sites
 - Bats
 - Badgers
 - Water Vole
 - Breeding Birds (inc. Barn Owl);
 - Reptiles
 - Great Crested Newt
 - Invertebrates

- Botany

4.12 Each species/group will be discussed in turn below.

Protected Sites

4.13 The proposed development site is over 5km from the Ouse Washes, SPA, SAC, SSSI and Ramsar site (the nearest statutory designate site). The development site therefore falls just outside the SSSI Impact Risk Zone. This is a tool for use by Local Planning Authorities to assess planning applications for likely impacts on SSSIs. However, the scheme should be mindful of the proximity of this internationally important site and consider implications of various factors such as, increased visitor numbers, traffic and drainage/water quality, that may be associated with the development, which could affect the integrity of the Ouse Washes, SPA, SAC, SSSI and Ramsar site.

Bats

4.14 All British bat species are fully protected under the Conservation of Habitats and Species Regulations 2010 and the Wildlife and Countryside Act 1981 (as amended). It is an offence to:

- deliberately capture, injure, kill, or disturb bats anywhere,
- intentionally or recklessly obstruct access to their roosts, or
- damage or destroy a roost.

4.15 Roosts are protected even if no bats are present. If convicted of an offence the penalties can be severe, including a fine of up to £5000 (per bat!) and/or six months in prison and confiscation of vehicles and equipment used.

4.16 Some bat species, including Barbastelle, Bechstein's, Brown Long-eared, Common Pipistrelle (Wales only), Greater and Lesser horseshoe, Noctule, and Soprano Pipistrelle, are also priority species under the UK Biodiversity Action Plan.

4.17 A roost is defined as 'any structure which a bat uses for shelter or protection'. As bats tend to re-use the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of the survey.

4.18 Although no roosting/hibernating bats were found within the development site during the survey (due to the nature and timing of the survey), the site was considered to have potential to support roosting, commuting and foraging bats. There were a number of potential roost sites within the development site. These were located in at least 20 mature trees (TN1), in the hedgerows and woodland belts which contained features that had a moderate/high potential to support roosting bats. There were also two buildings (TN7) that had a low/moderate potential to support roosting bats.

- 4.19 Some of the trees inspected did contain suitable cracks and crevices, dead limbs and holes. These features had the potential to accommodate roosting bats.
- 4.20 The matrix of habitats and linear features such as the hedgerows and site boundaries would be expected to provide suitable foraging opportunities and commuting links between potential roost site and foraging areas. Most bat species utilise linear features and use preferred flight routes.
- 4.21 In addition to the features observed, recent biological records indicated the presence of two species of bats (although not actual roosts) in close proximity (within 100m at 32 Wenny Road) to the development site.

Badgers

- 4.22 Badgers are protected under the Protection of Badgers Act (1992); the Wildlife and Countryside Act (1981); and a subsequent Amendment to the Wildlife and Countryside Act (1985).
- 4.23 As such it is an offence to wilfully take, kill, injure or ill-treat a Badger. Under the Protection of Badgers Act (1992), their setts are also protected against obstruction, destruction, or damage in any part, and the animals within a sett cannot be disturbed.
- 4.24 A person is not guilty of killing or injuring a Badger, or damaging a sett, obstructing access to a sett or disturbing a Badger at a sett, if it can be shown that the act was 'the incidental result of a lawful operation and could not have been reasonably avoided'. This situation can be averted by undertaking Badger surveys in advance of development or forestry operations. Should an offence be inadvertently committed, work must stop immediately and Natural England contacted for advice.
- 4.25 If necessary, it is possible to move Badgers from a sett; it should be noted, however, that for each sett within an occupied territory, Natural England must sanction and issue a licence before Badgers can be moved or the sett destroyed. The success of this type of mitigation measure will depend on a number of factors, including sett type and size.
- 4.26 If an occupied sett has to be destroyed, the Badgers must first be excluded and removed, under licence, and relocated within their own territory, by encouraging them to use other suitable alternative setts. If Badgers do not have suitable alternatives, exclusion is considered to be cruel ill treatment - an offence under the legislation. Where there is no alternative method of mitigation, artificial Badger setts can be constructed; this should, however, be seen as a last resort. Artificial setts need meticulous advance planning, and can be time-consuming and expensive to build. Sites need to be carefully selected in consultation with landowners and Natural England.
- 4.27 Any attempt to move Badgers by indirect means (using exclusion fencing or one-way displacement gates, for example) must be done responsibly. The licensing authorities will need to be satisfied that the implications of such an

action have been fully investigated; that appropriate mitigation measures are to be taken; and that a person with the required expertise will undertake the work.

4.28 Licences will not normally be issued for work on setts in which Badgers are still living between December and June inclusive. There is effectively a 'close season' on activities which disturb Badgers during this period because:

- the animals are markedly less active during winter and hence such actions are unlikely to be effective;
- pregnant/lactating females and their dependent cubs are likely to be found underground between mid-January and the end of June.

4.29 In general, work involving machinery and/or excavation within 30m of a sett will require a licence. In the case of more extensive or potentially disruptive operations such as blasting and pile-driving this distance may be increased. While each case will be considered individually, it is recommended that these activities are not carried out within 100m of the closest sett entrance. In all cases, early consultation with Natural England is essential.

4.30 Although no signs confirming the presence of any Badger setts were found within the development site, hairs showing characteristic features of Badger were found snagged on the lower stand of a barbed wire fence (TN5) within the development site. The habitats within the development site were considered to have potential to support Badgers because the grassland, hedgerows, tall ruderal and woodland could provide feeding areas for Badgers and there were a variety of areas, e.g. earth banks that Badgers could use for sett building. The recent biological records indicated that there were Badgers (albeit road kill on the A142) within 200m of the development site.

Water Voles

4.31 Legislation - Water Vole is fully protected under Section 9 of the Wildlife and Countryside Act 1981 (as amended). Legal protection makes it an offence to:

- intentionally kill, injure or take (capture) a Water Vole;
- possess or control a live or dead Water Vole, or any part of a Water Vole;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place which Water Voles use for shelter or protection or disturb Water Voles while they are using such a place;
- sell, offer for sale or advertise for live or dead Water Voles.

4.32 Water Vole is listed in Section 41 of the Natural Environment and Rural Communities Act 2006 as a Principal species of conservation importance. It is also a UKBAP Priority species.

- 4.33 Although there were no signs indicating the presence of Water Vole within the development site, the wet ditch (TN3) was considered to provide suitable habitat requirements for Water Vole, including steep earth banks, a range of marginal and bank side vegetation, including reeds, sedges and grasses. There were no records indicating the presence of Water Voles within 2km of the development site.

Breeding Birds

- 4.34 Legislation – All birds, their nests and eggs are afforded protection under the Wildlife and Countryside Act 1981 (as amended). It is an offence to:
- intentionally kill, injure or take any wild bird;
 - intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
 - intentionally take or destroy the egg of any wild bird.
- 4.35 Special penalties are available for offences related to bird species (e.g. Barn Owl) on Schedule 1 of the Act, for which there are additional offences of disturbing these birds at their nests and/or their dependent young.
- 4.36 Due to the scope of the Phase 1 habitat survey only a limited number of birds were noted on the site. Even so, six species observed were listed on the UKBAP and were Principal species of conservation importance. In addition, it is very likely that a wide variety of bird species would be associated with the site throughout the year, utilising the many habitat types (e.g. woodland, hedgerows, scattered trees, grassland and tall ruderal) present for nesting, roosting and feeding. The site provides a diversity and quantity of food sources for breeding birds.
- 4.37 The recent biological data indicated that 26 species of birds (inc. Barn Owl), listed under several conservation criteria were recorded within 2km of the development site. Of these, sixteen species (inc. Barn Owl) could potentially use the development site for breeding which would indicate that the site had some value for nesting birds and had a moderate/high potential to support Barn Owl within the development site.

Reptiles

- 4.38 Legislation – All British reptile species are afforded protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as updated by the Countryside Rights of Way (CRoW) Act 2000).
- 4.39 Adder, Grass Snake, Slow Worm and Common Lizard receive partial protection under part of Section 9 (1) and all of Section 9 (5). As such it is an offence to:
- intentionally kill or injure any individual;
 - sell, offer for sale, possess or transport for the purpose of sale or publish advertisements to buy or sell individual reptiles.

4.40 The Countryside and Rights of Way Act 2000 (CROW) also strengthens their protection. It is an offence to:

- intentionally, or recklessly, kill or injure any of the above species, and/or;
- sell, or attempt to sell, any part of the species, alive or dead.

4.41 No reptiles were seen within the development site during the survey, however the site was considered to have a moderate/high potential to support reptile species, including Grass Snake, and Common Lizard. This is because the habitats (TN4) were suitable and there were a variety of refugia that reptiles may use for hibernating and breeding. Although it was recognised that there were no biological records to indicate that reptiles were present within 2km of the development site.

Great Crested Newt

4.42 Legislation – Great Crested Newt and their habitat are fully protected under Section 9 of the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats & Species Regulations 2010 making the Great Crested Newt a European Protected Species. To summarise in combination, this makes it an offence to:

- kill, injure or take (capture etc.) a Great Crested Newt;
- possess a Great Crested Newt;
- intentionally or recklessly damage, destroy, obstruct access to any structure or place/habitat used by a scheduled animal for shelter or protection, or disturb any Great Crested Newt occupying such a structure or place; and
- sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative) or advertise for buying or selling such things.

4.43 Great Crested Newt is listed as being of principal importance for the conservation of biodiversity in England, in Section 74 of the Countryside and Rights of Way Act 2000 (commonly referred to as UKBAP Priority species).

4.44 No Great Crested Newt was seen within the development site during the survey, although the site was considered to have potential to support this species. This is because the various habitats, such as water bodies (TN2), grassland, woodland and ditches were suitable that Great Crested Newt may use for breeding, feeding and hibernating. However, the recent biological records indicated that there were no records of Great Crested Newt within 2km of the development site.

Invertebrates

- 4.45 There are a number of invertebrate species that are protected by European and UK legislation including those listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010. As a result, some species are protected from some or all of the following (amongst others): (i) killing, injuring or taking; (ii) possession or control; (iii) damage to, destruction of or obstruction of access to any places used for shelter or protection; and (iv) disturbance while using such a structure. Following a review of species listed on the UK Biodiversity Action Plan (BAP) in 2007, there has been a significant increase in the number of invertebrates included. The current UK BAP now lists 411 invertebrate species. Many species of invertebrate are also listed on Section 41 of the NERC Act 2006. Therefore the presence of such species should be of material consideration during the planning process.
- 4.46 The development site contained some areas and features (e.g. improved grassland, hedgerows, standing water, mature trees and dead wood) suitable for use by invertebrates.
- 4.47 The development site could provide valuable habitat for common invertebrates (e.g. bees, butterflies & moths, ladybirds and other beetle). Due to the timing (time of year) of the survey and the specialist methods and equipment needed, a detailed investigation of the site for invertebrates was not possible. Data received indicated that there was only one invertebrate (a species of bee – Large Garden Bumble-bee). This would suggest that the area was of limited value for invertebrates of conservation value, perhaps due to the intensively farmed nature of the wider area, although the under-recording of invertebrates in this area may also take account of the few records.

Botany

- 4.48 There are a number of flowering plant species that are protected by European and UK legislation including those listed on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010. As a result, some species are protected from activities such as picking, cutting, uprooting, killing, collecting or destroying. Construction work can:
- kill or damage plants directly,
 - can make changes made to the soil, such as adding rubble or nutrients, which also affects plants.
 - Make changes to groundwater changes can make the soil too wet or dry.
- 4.49 The current UK BAP and Section 41 of the NERC Act 2006 lists 152 flowering plant species. Therefore the presence of such species should be of material consideration during the planning process.

- 4.50 The development site does contain some areas and features (e.g. improved grassland, hedgerows, standing water and woodland suitable for flowering plants).
- 4.51 The development site could provide habitat for UKBAP/NERC Act Section 41 flowering plant species of principal importance. Due to the time of year of the survey a detailed investigation of the site for flowering plants was not possible. Data received indicated that there was no UKBAP plants species or species listed as being of principal importance on Section 41 of the NERC Act 2006. This would suggest that the area was of limited value for flowering plants of conservation value, perhaps due to the intensively farmed nature of the wider area, although the under-recording of flowering plants in this area may also take account of the few records.

5 KEY POINTS AND FINDINGS

5.1 In November 2014 Cambridge Ecology successfully completed a robust extended Phase 1 habitat survey and protected species scoping survey at the development site adjacent to Wenny Road, Chatteris.

5.2 The results of the desk-based literature search of biological records from the last 10 years, within a 5km (for designated sites) and 2km (for non designated sites, protected habitats and species) search area around the development site, indicated that there were:

- No statutory designated sites present within 5km of the development site. Although it was recognised that the Ouse Washes, SPA, SAC, SSSI and Ramsar site (the nearest statutory designate site) was located less than 6km to the south east of the development site.
- One non-statutory site (County Wildlife Sites) within 2km of the development site. The Langwood Hill Pit was located approximately 1.7km to the east of the development site. There were six non-statutory sites within 5km of the development site. These non-statutory designated sites contained a number of UK Biodiversity Action Plan (BAP) priority habitats.
- Four UK Biodiversity Action Plan (BAP) priority habitats or principal habitat of importance (Fen, Coastal and Floodplain Grazing Marsh, Traditional Orchards and Deciduous Woodland), located within 2km of the development site. The closest Fen was located approximately 1.1km to the north west of the development site. The closest Coastal and Floodplain Grazing Marsh was located approximately 1.6km to the north of the development site. The closest Traditional Orchard was located approximately 1.1km to the south east of the development site. The closest Deciduous Woodland was located approximately 650m to the north of the development site.
- No records indicating the presence of protected species within the actual red line boundary of the development site, although a record of Brown Long-eared Bat on Wenny Road was less than 100m from the development site boundary.
- A variety of protected species and principal species of importance, recorded within 2km of the development site, including 82 species of birds, one species of amphibian (Common Frog), one species of bee (Large Garden Bumble-bee), two species of bats (Brown Long-eared and Common Pipistrelle), Otter and Badger.
- No records of Great Crested Newt, reptiles, Water Vole, Brown Hare, Dormouse sp. Hedgehog, or notable plants, within the development site boundary or within 2km of the development site.

5.3 The results of the ecology survey of the development site were as follows:

- Seven main habitats were present within the development site: arable, ditches, ponds, deciduous woodland, tall ruderal, hedgerows and amenity/improved grassland. Of these the wet ditches, ponds, hedgerows and deciduous woodland were considered to be the most biodiversity valuable.
 - Three of the habitats (ponds, deciduous woodland and hedgerows) within the development site were recognised as being UKBAP habitats and principal habitat of importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.
 - Signs (hairs snagged on wire fence) suggesting the presence of Badger were found in the development site. No signs of other protected species were found in the development site.
 - Bird species (e.g. Hedge Sparrow) of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 were observed.
 - The development site contained habitats suitable for and had potential to support the life-cycle of Great Crested Newt, bats, Badger, Water Vole, reptiles, breeding birds (inc. Barn Owl), invertebrates and plant species of principal importance.
 - The development site would be unlikely to support the following protected species: Otter and Dormouse sp.
 - No alien invasive plant species such as Japanese Knotweed were found within the development site.
- 5.4 Habitats that were considered to be of most biodiversity value, in the context of the site were primarily the boundary habitats, (hedgerows, wet ditches, and deciduous woodland belts) and the pond. In a local context the improved grassland and tall ruderal habitats were also of some value to the species present on site.
- 5.5 Figure 5.1 shows the indicative location of habitat and ecological features that have the highest potential to be beneficial to biodiversity value on the development site.
- 5.6 An evaluation of the ecological importance of the development site, using recognised ecological criteria, indicated that the site should be considered of district importance.
- 5.7 The potential presence within the development site of protected species, such as, Great Crested Newt, bats, Badgers, Water Vole, reptiles, breeding birds (inc. Barn Owl), invertebrates and plant species of principal importance and the proximity of Habitats (Hedgerows) and Species (e.g. Hedge Sparrow) of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, should be of material consideration for the planning process for the development of this

- site. This is because these species and habitats could potentially be affected by the development at this site.
- 5.8 During construction and post-construction operation and management, the development proposals have the potential to affect the biodiversity value of the site. Adverse effects would be likely to include habitat loss, displacement, disturbance and direct mortality. Potential beneficial effects include habitat creation and biodiversity value enhancement.
- 5.9 Features suitable to support protected species within the red line boundary of the development site itself were present. These habitats and features could be affected by the development proposals. Therefore mitigation measures would likely be necessary to address potentially adverse effects. It is therefore recommended that specific protected species surveys be undertaken to provide information necessary to ensure the mitigation measures developed as part of the development design process are suitable fit for purpose and proportionate.
- 5.10 Although no actual protected species were found during the extended Phase 1 Habitat survey, based on the study findings further species specific surveys should be carried out for Great Crested Newt, bats, Badgers, Water Vole, reptiles, breeding birds (inc. Barn Owl), invertebrates and botany (species of principal importance and alien invasive species).
- 5.11 The species-specific surveys would be necessary to gather data to meet the pre-requisite wildlife legislation and planning policy requirements (against which the local planning authority will be judging the application) where one of the key principles requires that "*the planning system should contribute to and enhance the natural and local environment by...minimising impacts on biodiversity and delivering net gains in biodiversity where possible.*"
- 5.12 The results from the species-specific surveys would therefore help ensure that any mitigation, compensation and enhancement measures were focussed, appropriate and proportionate and would provide opportunities to meet local and national biodiversity action plan targets.
- 5.13 To take account of the biodiversity present at the site, a detailed landscape/habitat creation plan should be prepared. For instance, the existing boundary features including the hedgerows, ponds and deciduous woodland areas should be retained and enhanced. To inform the landscape/habitat creation plan an ecological management plan would ensure the mitigation and enhancement measures would remain beneficial for wildlife in the long term.
- 5.14 It should be noted that if the development works were to take place more than 2-3 three years from the time of this ecology survey and the suitability of the habitats on the development site improved/changed over time, then the ecology survey of the development site would need to be repeated as its potential to support these species in the future may increase.

6 RECOMMENDATIONS

- 6.1 Based on the findings of the literature search and ecology survey the need for further species specific surveys has been identified. The specific protected species surveys recommended are outlined as followed:

Great Crested Newt

- 6.2 DNA analysis of the ponds should be undertaken (instead of an HSI assessment) to detect the presence of Great Crested Newts, although it is recognised that there are certain limitations, e.g. there is only a brief sampling period and the results of analysis can take many weeks to process.
- 6.3 Therefore, to take account of the analysis limitations, standard Great Crested Newt surveys should be commenced simultaneously, if the results of the eDNA analysis returned negative results the standard surveys could then be ended at that point. If however the eDNA analysis was positive in confirming the presence of Great Crested Newts then the standard surveys would continue through the rest of the season to complete the required six survey visit population assessment. This would mean that the information would be gathered within one season and reduce the risk of having to carrying out the standard surveys the next season (2016). The eDNA analysis would be carried out at a Natural England approved analysis laboratory.
- 6.4 The standard Great Crested Newt presence/absence surveys in ponds considered suitable for this species (TN2) would follow standard Natural England survey methodology guidelines. The surveys would involve a combination of bottle trapping, torching, netting and egg searching. Each waterbody would be visited on at least four separate occasions. A further two visits may be required if any Great Crested Newts are found, so as to determine the population size and appropriate levels of mitigation.
- 6.5 The results of both types of surveys would be valuable to inform the need to apply for an EPS development licence to avoid contravention of wildlife legislation once the proposed development had received planning permission.

Bats

- 6.6 It is recommended that Stage 1 bat inspection surveys be carried out to inspect the trees and two buildings (TN1 and TN7), to search for evidence of bats and/or investigate the potential to support roosting bats. The inspection would involve gaining access to the trees and buildings and searching for actual evidence of bats being present (droppings, oil stain marks, feeding remains).
- 6.7 If any bat roosts, or structures considered likely to support bat roosts, were located, targeted emergence surveys may then be necessary. Emergence

surveys (and dawn re-entry surveys) would be undertaken using standard recognised survey methods described in Bat Surveys - Good Practice Guidelines (BCT 2012). In conjunction with these emergence surveys, activity surveys may be required to establish what species of bat (and how many) use the site not only for roosting but for foraging and commuting. The methods used would be based on the Bat Surveys - Good Practice Guidelines (BCT 2012).

- 6.8 The results of the suite of bat surveys would inform the need to apply for a European Protected Species (EPS) development licence to avoid contravention of wildlife legislation once the development had received planning permission.

Water Voles

- 6.9 Wet ditches within the development site were considered suitable for Water Voles. Therefore, Water Vole surveys should be carried out using recognised standard survey techniques (Strachan et. al 2006). The aim would identify the presence/absence of Water Voles at the site and therefore to gather information to address any potential Water Vole issues that may arise as part of the development proposals for the site.

- 6.10 The results of the surveys would inform the need to apply for an EPS development licence to avoid contravention of wildlife legislation once the proposed development had received planning permission.

Badgers

- 6.11 Signs (hairs on barbed wire), suitable habitat and biological records of Badger suggests that this species has potential to be present within the development site.

- 6.12 It is recommended that a Badger survey be carried out to investigate the presence of other setts and inform the planning process. The survey information would inform the need for specific mitigation measures for Badgers, including the potential need to close a sett, which would then involve a requirement to apply for and obtain the appropriate sett closure licence.

- 6.13 Methods will be based on best practise guidelines detailed in Harris, S., Cresswell, P. and Jefferies, D. (1989). Surveying Badgers. The Mammal Society.

Breeding Birds (inc. Barn Owl)

- 6.14 Suitable habitat and biological records of Barn Owl suggests that this species has the potential to be present within the development site.

- 6.15 It is therefore recommended that a Stage 1 Barn Owl survey be carried out. Inspection will be made of the two buildings and the trees considered to have potential to support nesting Barn Owl within the site. The method

would aim to follow those described in Gilbert, Gibbons & Evans (1998), Bird Monitoring Methods: A Manual of Techniques and the Barn Owl Trust 'Survey Techniques' (2001). The survey would be carried out by a licensed ecologist with experienced of carrying out Barn Owl surveys.

- 6.16 Similarly the survey results and biological records suggest that habitat suitable to support a variety of bird species within the development site. A breeding bird survey of all suitable habitats on site with the potential to support breeding birds is therefore recommended. The methods would involve Common Bird Census techniques aimed at identifying the type of species, the location of the territories and the number of pair of breeding birds of conservation importance. The information gathered would be valuable to determine the breeding bird assemblage present at the site and therefore the type and extent of the mitigation necessary to address breeding bird issues and provide information for the detailed landscape/habitat creation design as part of the planning process for the development proposals.

Reptiles

- 6.17 It is recommended that a reptile survey be carried out. The results of the reptile survey would inform the impact of the development on any reptile populations found in the development site and guide the need for, location and type of mitigation necessary (e.g. installation of reptile barrier fencing and/or the translocation of populations of reptile) to avoid contravention of wildlife legislation.

Invertebrates

- 6.18 The presence of a variety of habitats (e.g. aquatic/ dead wood) suitable for specialist invertebrates species and a record of a notable species of invertebrate within 2km of the development site, suggests that an invertebrate assessment survey should be carried out. It is therefore recommended that an invertebrate appraisal survey be carried out to identify the presence of species of principal importance. The information gathered would be valuable to determine the invertebrate assemblage present at the site and therefore the type and extent of the mitigation necessary to address invertebrate issues and provide information for the detailed landscape/habitat creation design as part of the planning process for the development proposals.

Botany

- 6.19 A variety of habitats (e.g. deciduous woodland and wet ditches had potential to support specialist plant species. In addition third party feedback from the scoping exercise highlighted the requirement for a stage 2 botany surveys.
- 6.20 It is recommended that a specialist botany survey be carried out. The main aim of this survey would be to confirm the presence/absence of species of principal importance as well as alien invasive species such as Japanese Knotweed. The survey would also identify their location within the

development site, if present. In addition the survey would identify the presence of other potentially notably rare plant species that may require consideration during the planning process. The information gathered from the survey would help inform the development of appropriate mitigation measures to address the presence of these species during the planning process for the development proposals.

Habitat Creation

- 6.21 As part of the design/landscaping plan for the development site the existing boundary features deciduous woodland, hedgerows and ditches should be retained. A buffer area around the field containing a variety of habitats (scattered mature trees grassland and tall ruderal) in the south western part of the site should also be retained where possible. Figure 5.1 shows the areas to be retained or incorporated sensitively into the scheme design. In addition, various habitat creation and enhancement opportunities would be possible to meet local and national biodiversity action plan targets as required by local and national planning policy.
- 6.22 The habitat creation opportunities, which are all UK and local BAP habitats, that should be included in the landscaping for the development site include:
- Fen/swamp (e.g. NVC community S13 lesser reedmace swamp and/or NVC S4 common reed swamp; that could also incorporate swales for the sustainable urban drainage system for the site
 - Species rich native Hedgerows
 - Specimen native trees
 - Ponds/waterbodies - that could also incorporate swales for the sustainable urban drainage system for the site.
 - Installation of bird nest boxes, bat roost boxes and invertebrate boxes as appropriate.
- 6.23 Any landscaping/habitat creation and scheme design should take account and incorporate where possible the habitat and ecological features that have the highest potential to be beneficial to biodiversity value on the development site (Figure 5.1).
- 6.24 The development of an ecological management plan should also be prepared as part of the long term management of the site once it has been developed. This would detail the land management necessary to ensure that mitigation and habitat creation measures were efficiently created and maintained in their optimal condition in the long term.

Design Process

- 6.25 By linking the findings of the Phase 1 Habitat Survey results and the species specific surveys with a biodiversity mitigation strategy, design proposals and layout of the scheme proposals, it would be possible to target habitat creation and mitigation measures to minimise potential adverse effects of the proposed scheme on protected species and local biodiversity.

- 6.26 The results of the species specific surveys would identify potential ecological constraints (e.g. protected species) and therefore identify suitable mitigation measures that need to be incorporated as part of the design and planning process for the development proposals and necessary in order to maintain legal compliance.
- 6.27 It is our recommendation that a senior ecologist liaise with the planning and design team throughout the planning and design process to ensure appropriate ecological input is made to the scheme design during the early and crucial stages of the scheme development. This will ensure a fully integrated and cost effective approach that takes account of potential ecological constraints and ensures legal compliance pertain to wildlife. In addition, the ecologist would be able to provide input to habitat creation (landscaping) plans and provide guidance relating to biodiversity enhancement opportunities and create an ecological management plan for the long term management of the developed site.

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Web references

Cambridge & Peterborough Biodiversity Partnership - Local BAP
MAGIC
National Biodiversity Network Gateway
UK Biodiversity Action Plan.

FIGURES

Figure 1.1: The location of the proposed development site.

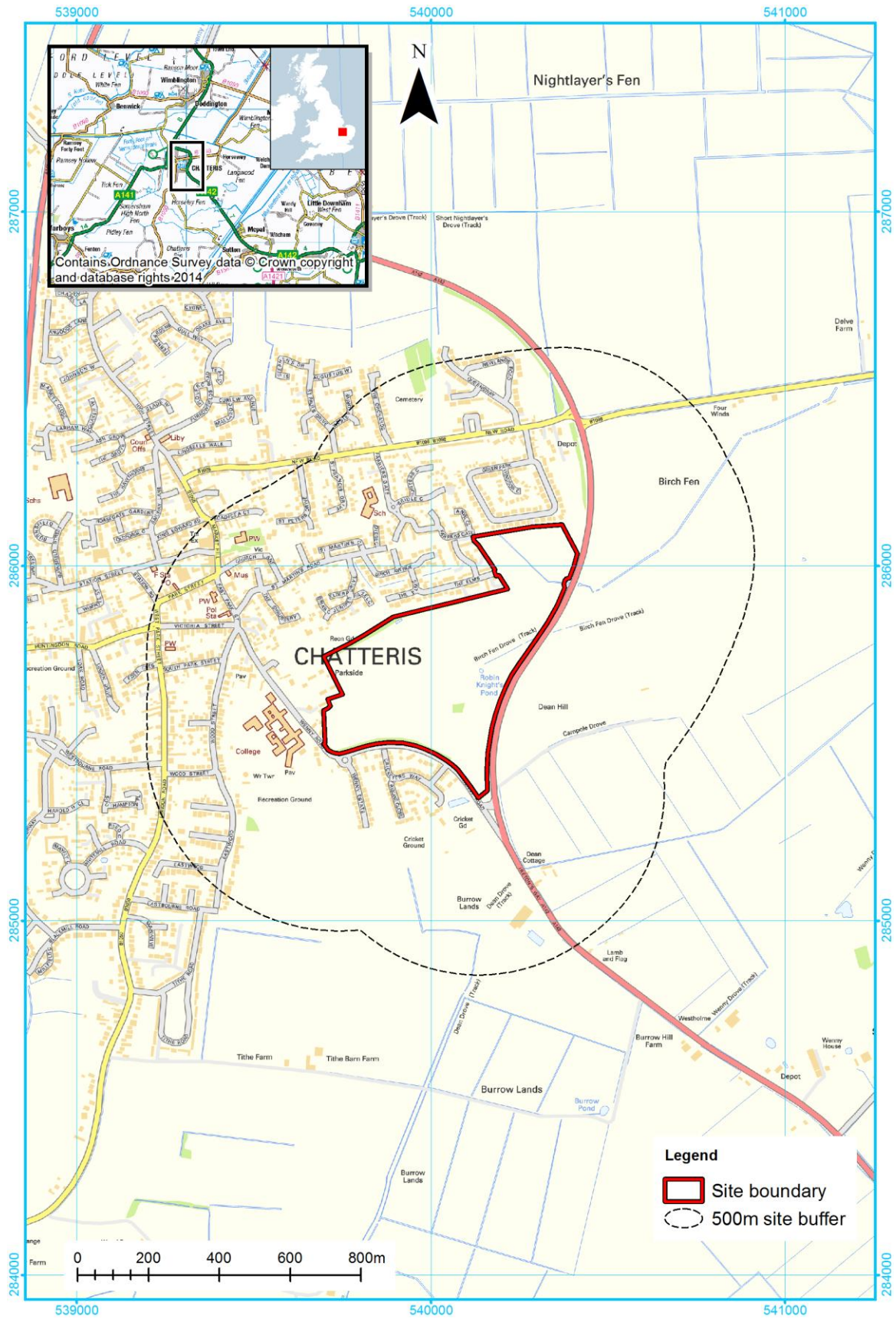


Figure 1.2: The ecology study area 500m (plus site red line boundary).

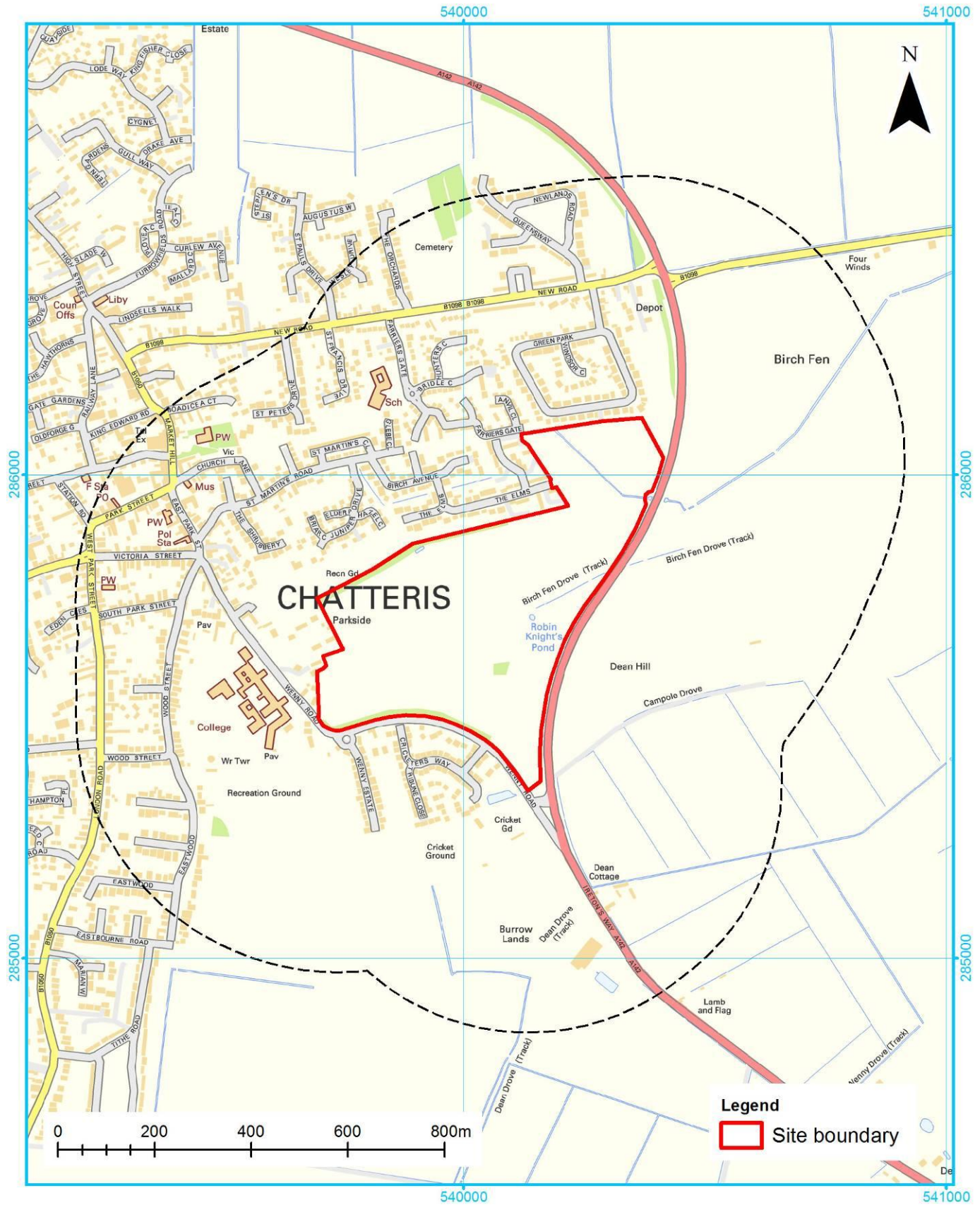


Figure 3.1: Map showing the designated sites and County Wildlife Sites within 5km of the red line boundary of the development site.

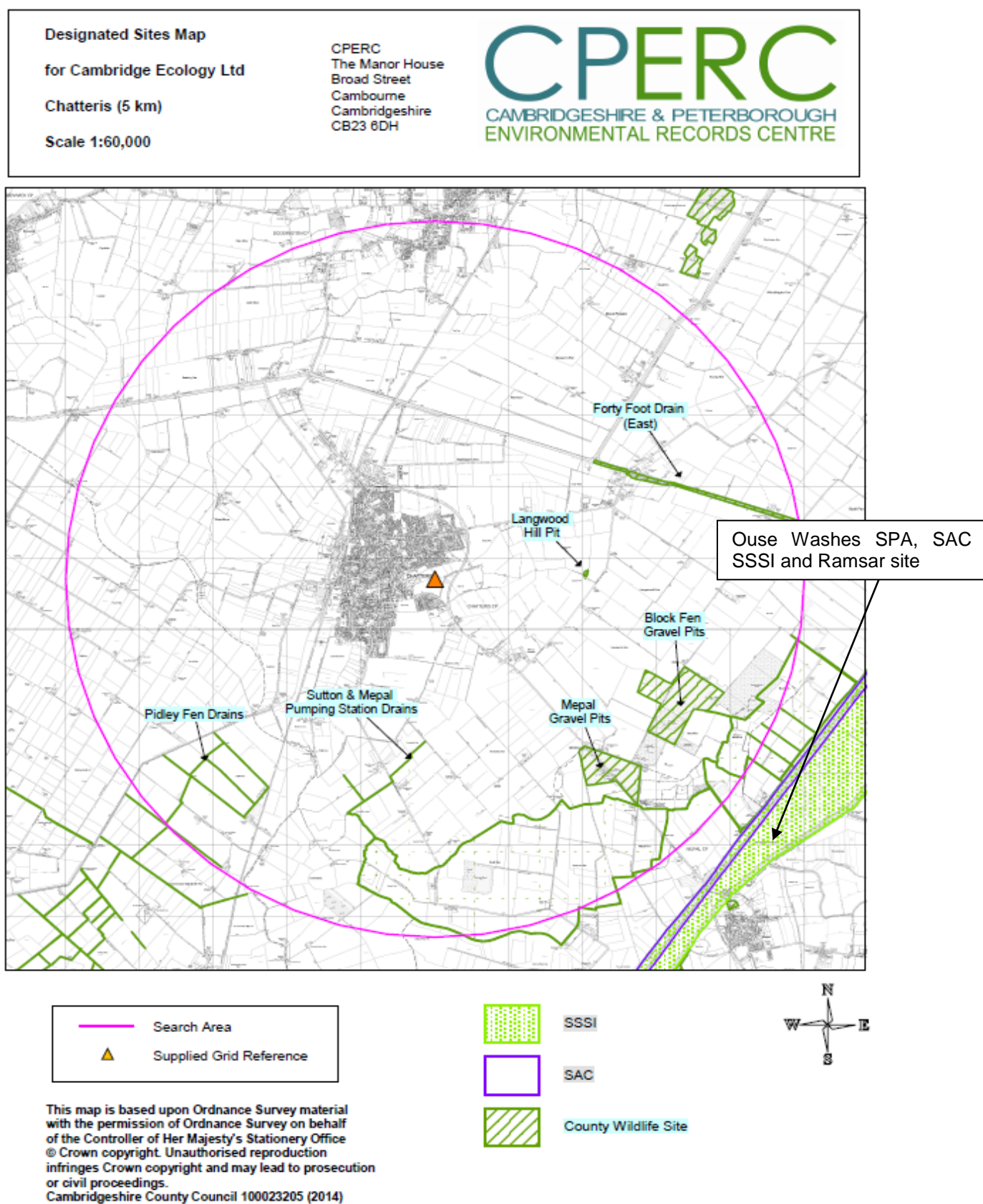
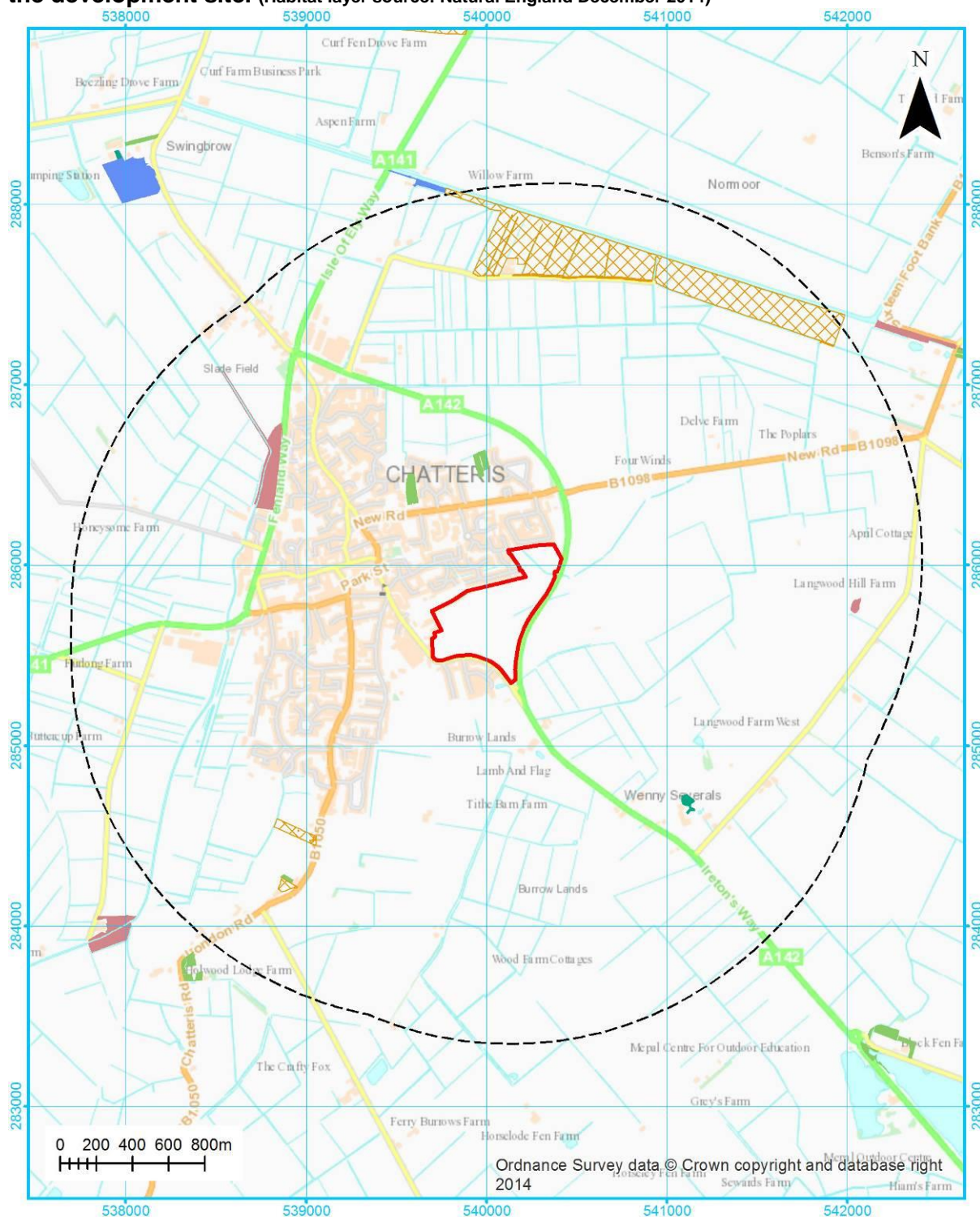


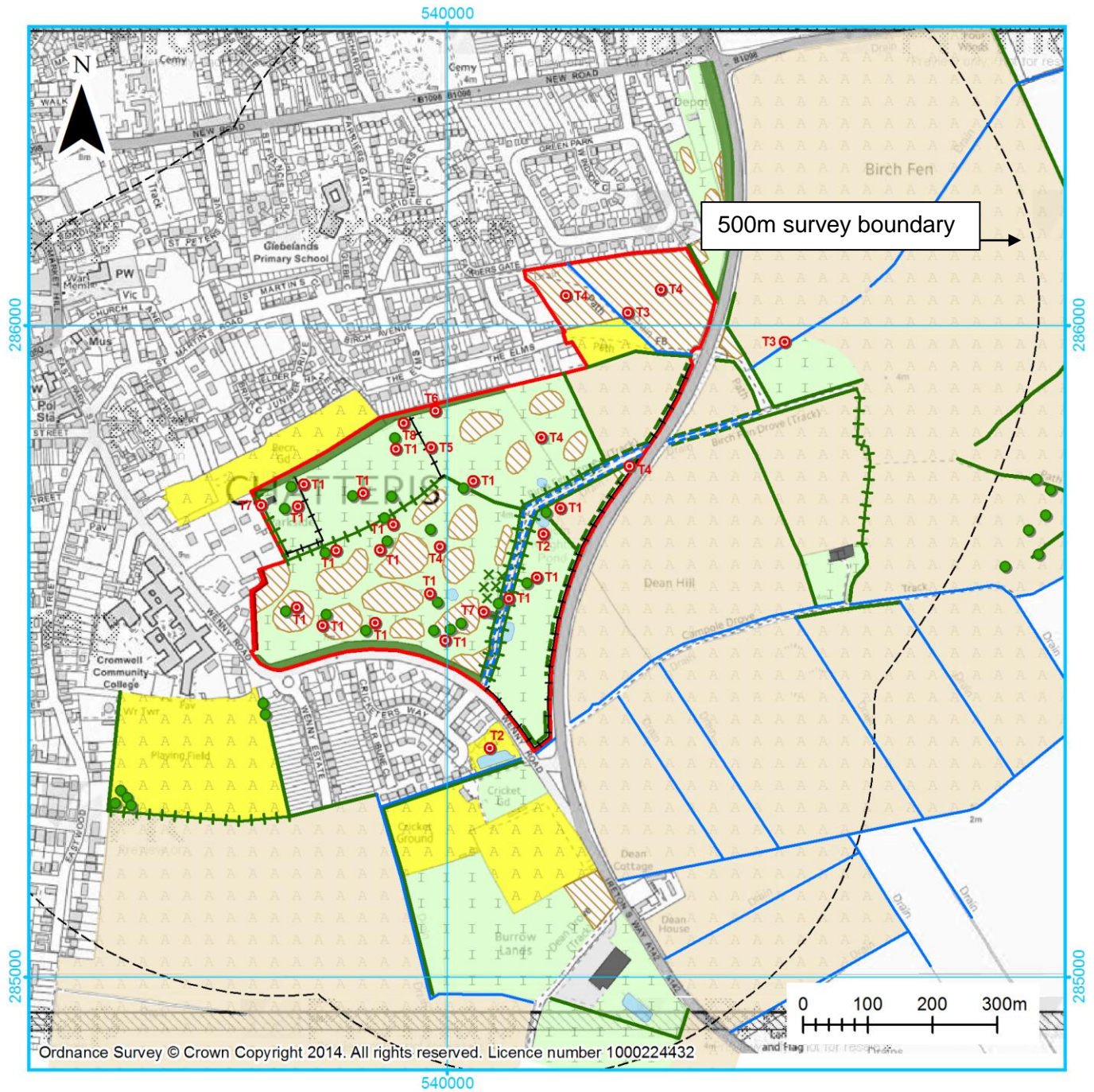
Figure 3.2: Map showing the protected habitats within 2km of the red line boundary of the development site. (Habitat layer source: Natural England December 2014)



Legend

- | | | |
|-----------------|--------------------------------------|---|
| Site boundary | Coastal and floodplain grazing marsh | No main habitat but additional habitats |
| 2km site buffer | Deciduous woodland | Traditional orchard |
| Lowland fens | | |

Figure 3.3: Phase 1 Habitat Survey Map of the Wenny Road development site (and surrounding area up to 500m in part).



Legend

- | | | | |
|------------------------------------|-------------------|------------------------------|-----------------|
| Site boundary | Tall ruderal | Species poor intact hedge | Running water |
| 500m site buffer | Standing water | Species poor defunct hedge | Dry ditch |
| Target note | Arable | Species poor hedge and trees | Fence |
| Broad leaved semi-natural woodland | Amenity grassland | Wall | Individual tree |
| Improved grassland | Buildings | Scrub scattered | |
| | Hardsurface | | |

Figure 3.4: Map showing the location where photographs were taken during the survey. (Photographs in Appendix B)

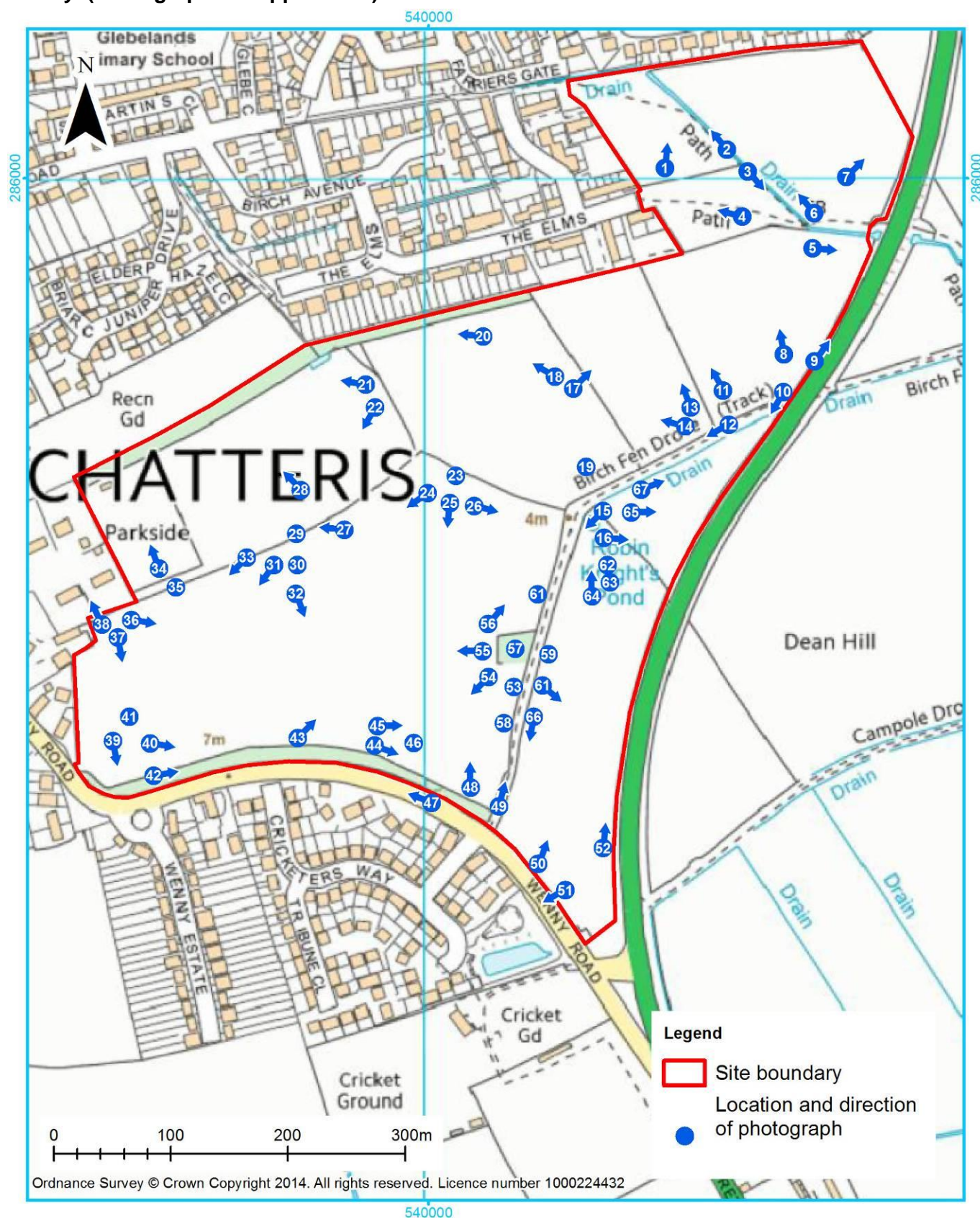
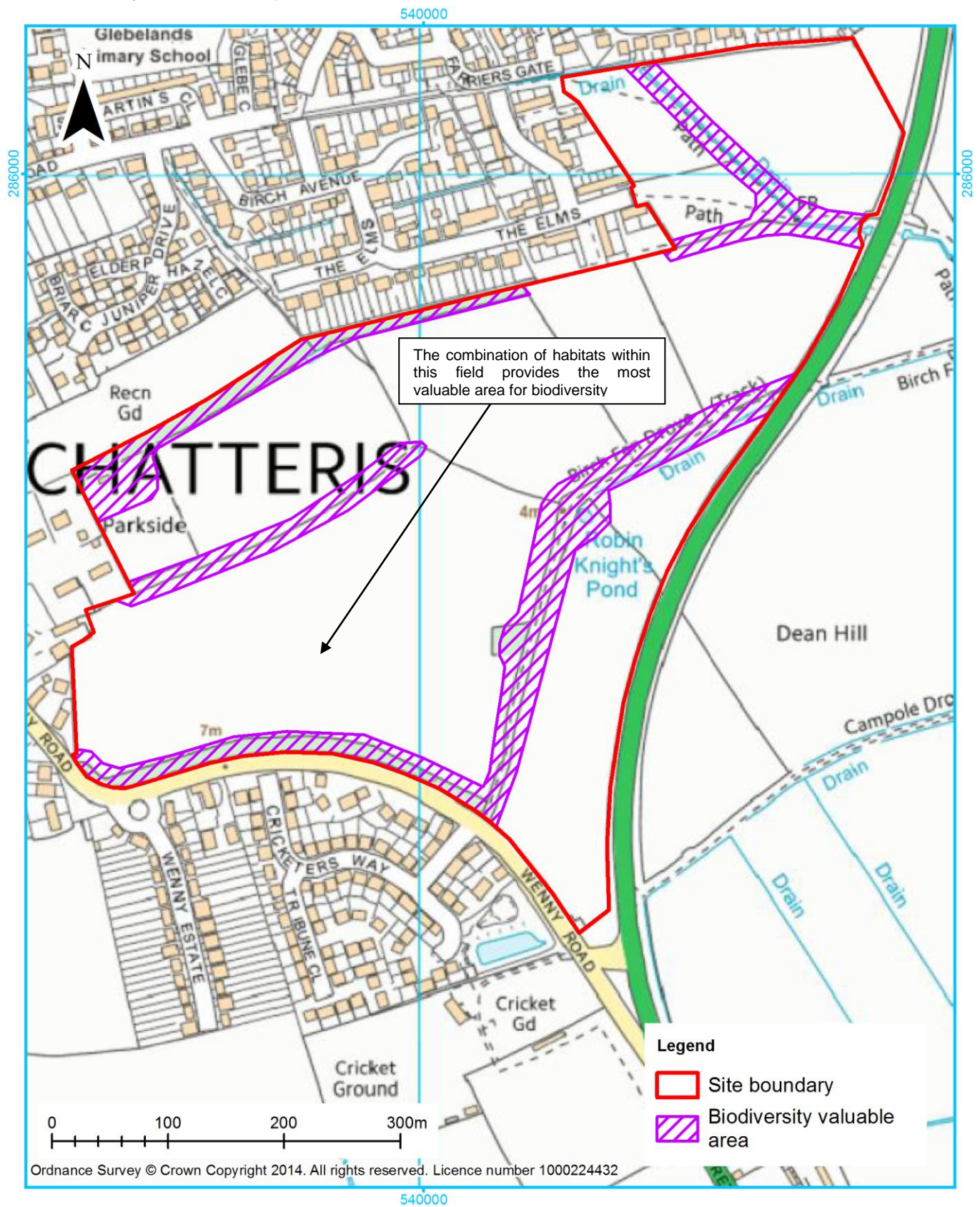











Figure 5.1: Plan showing the indicative location of features of most biodiversity value on the Wenny Road development site.







8 APPENDIX A – SELECTION OF PHOTOGRAPHS TAKEN DURING THE PHASE 1 HABITAT SURVEY




Photo No.	Photograph	Description
1		Tall Ruderal habitat, suitable for reptiles
2		Water filled ditch water vole habitat
3		Water filled ditch water vole habitat

<p>4</p>		<p>Amenity grassland</p>
<p>5</p>		<p>Water filled ditch water vole habitat</p>
<p>6</p>		<p>Water filled ditch water vole habitat</p>




7		Tall Ruderal habitat, suitable for reptiles
8		Arable land
9		Roadside verge and dry ditch by the side of the A142

<p>10</p>	 A photograph showing a grassy path or ditch on the right side of a field. The path is bordered by tall, dry, brownish vegetation and some green grass. In the background, there are trees and a clear sky.	<p>Tall Ruderal vegetation by the side of Birch Fen Drove</p>
<p>11</p>	 A photograph showing a hedgerow boundary on the left side of a field. The hedgerow is composed of various trees and shrubs. The field is dark brown, suggesting it is arable land. The sky is blue with some clouds.	<p>Hedgerow boundary by the side of arable land</p>
<p>12</p>	 A photograph showing a grassy path or ditch on the right side of a field. The path is bordered by tall, dry, brownish vegetation and some green grass. In the background, there are trees and a clear sky.	<p>Birch Fen Drove potential bat commuting route</p>




13		Improved grassland used for walking dogs suitable for reptiles
14		Improved grassland used for walking dogs suitable for reptiles
15		Robin Knight Pond potential for Great Crested Newt



<p>16</p>		<p>Mature tree with bat roost potential</p>
<p>17</p>		<p>Improved grassland used for walking dogs suitable for reptiles</p>
<p>18</p>		<p>Improved grassland used for walking dogs suitable for reptiles</p>

19		Water filled hole in the ground in improved grassland area
20		Improved grassland with tall ruderal used for walking dogs suitable for reptiles
21		Improved grassland used for gazing horses

22		Improved grassland used for gazing horses
23		Mature tree with bat roost potential
24		Scattered trees, improved grassland tall ruderal and parkland suitable for foraging bats



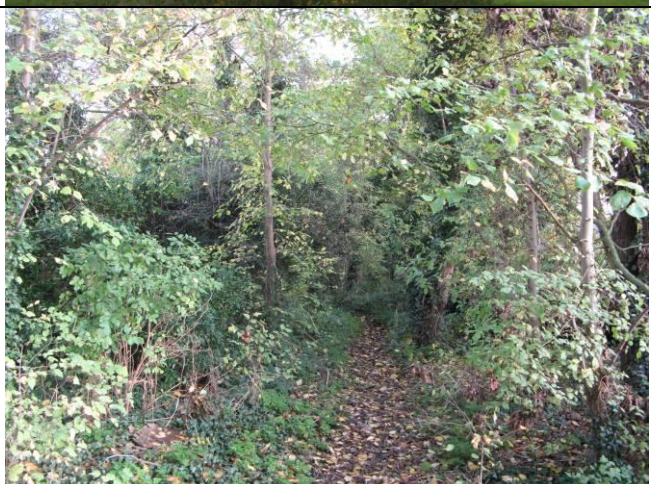
25		Scattered trees, improved grassland tall ruderal and parkland suitable for foraging bats
26		Scattered trees, improved grassland tall ruderal and parkland suitable for foraging bats
27		Mature tree with bat roost potential

<p>28</p>		<p>Scattered trees, improved grassland tall ruderal and parkland suitable for foraging bats</p>
<p>29</p>		<p>Mature tree with bat roost potential</p>
<p>30</p>		<p>Mature tree with bat roost potential</p>




31		Scattered trees, improved grassland tall ruderal and parkland suitable for foraging bats
32		Scattered trees, improved grassland tall ruderal and parkland suitable for foraging bats
33		Mature tree with bat roost potential

34		
35		Mature tree with bat roost potential
36		Improved grassland


<p>37</p>		<p>Scattered deadwood in improved grassland suitable for invertebrates</p>
<p>38</p>		<p>Improved grassland and tall ruderal with old farm buildings on boundary of the site potential for roosting bats</p>
<p>39</p>		<p>Mature tree in deciduous woodland belt habitat potential for bat roost and foraging habitat</p>

40		Mature trees in deciduous woodland belt habitat potential for bat roost and foraging habitat
41		Mature tree with bat roost potential
42		Understorey habitat within deciduous woodland belts potential for Badgers, bats and invertebrates



43		Scattered trees, improved grassland tall ruderal and parkland suitable for foraging bats
44		Mature trees in deciduous woodland belt habitat potential for bat roost and foraging habitat
45		Scattered trees, improved grassland tall ruderal and parkland suitable for foraging bats




46		Mature tree with bat roost potential
47		Deciduous woodland habitat alongside Wenny Road
48		Scattered trees, improved grassland tall ruderal and parkland suitable for foraging bats




49		Birch Fen Drove footpath
50		Improved grassland habitat
51		Bulrush filled pond, potential to support Great Crested Newt

52	 A photograph showing a roadside verge with tall grasses and a wooden fence on the left. A road with a yellow utility pole is visible on the right.	Roadside verge and dry ditch by the side of the A142
53	 A photograph of a large, mature tree with thick branches and autumn-colored leaves.	Mature tree with bat roost potential
54	 A photograph of a grassy field with scattered trees and a line of trees in the background.	Scattered trees, improved grassland tall ruderal and parkland suitable for foraging bats

55		Scattered trees, improved grassland tall ruderal and parkland suitable for foraging bats
56		Scattered trees, improved grassland tall ruderal and parkland suitable for foraging bats
57		Scattered scrub

58		Isolated building with bat roost potential
59		Partially dry ditch along Birch Fen Drove
60		Mature tree with bat roost potential

<p>61</p>		<p>Mature tree with bat roost potential</p>
<p>62</p>		<p>Mature hedgerow alongside improved grassland used for livestock grazing</p>
<p>63</p>		<p>Mature hedgerow alongside improved grassland used for livestock grazing</p>

<p>64</p>	 A photograph of a small pond surrounded by green grass and trees with autumn foliage. A log is visible on the right side of the pond.	<p>Robin Knights pond with potential for Great Crested Newt</p>
<p>65</p>	 A photograph of a large, flat, muddy area with standing water, likely flooded arable land. The sky is overcast.	<p>Flooded arable land next to Robin Knights pond</p>
<p>66</p>	 A photograph of a narrow, grassy footpath lined with dense vegetation and trees, leading into a wooded area.	<p>Birch Fen Drove footpath</p>

67



Birch Fen Drove
footpath

9 APPENDIX B - PLANT SPECIES RECORDED DURING THE PHASE 1 HABI49TAT SURVEY.

English Name ⁵⁰	Latin Name	Arable	Wet/Dry Ditch	Amenity/Improved Grassland	Scattered Scrub	Species-poor Hedgerow	Tall Ruderal	Pond	Broad leaved Woodland/Parkland
Field maple	<i>Acer campestre</i>				*	*			*
Yarrow	<i>Achillea millefolium</i>			*		*	*		
Horse chestnut	<i>Aesculus hippocastanum</i>								*
Garlic mustard	<i>Alliaria petiolata</i>					*			
Meadow foxtail	<i>Alopecurus pratensis</i>			*					
Cow parsley	<i>Anthriscus sylvestris</i>		*			*	*		*
Columbine	<i>Aquilegia vulgaris</i>					*	*		
Lesser burdock	<i>Arctium minus</i>		*			*	*		
False oat-grass	<i>Arrhenatherum elatius</i>		*				*		
Cuckoo pint	<i>Arum maculatum</i>		*			*	*		
Wild oat	<i>Avena fatua</i>		*			*	*		
Daisy	<i>Bellis perennis</i>			*					
White bryony	<i>Bryonia dioica</i>					*			
Water-starwort sp.	<i>Callitriche sp.</i>		*						
Hedge bindweed	<i>Calystegia sepium</i>					*			
Rough chervil	<i>Chaerophyllum temulum</i>		*	*		*	*		*
Greater celandine	<i>Chelidonium majus</i>		*			*			*
Creeping thistle	<i>Cirsium arvense</i>		*	*		*	*		
Spear thistle	<i>Cirsium vulgare</i>		*	*		*	*		
Field bindweed	<i>Convolvulus arvensis</i>	*				*	*		
Common hawthorn	<i>Crataegus monogyna</i>				*	*			*
Crested dogs-tail	<i>Cynosurus cristatus</i>								
Cocksfoot	<i>Dactylis glomerata</i>		*				*		
Teasel	<i>Dipsacus fullonum</i>			*			*		
Greater willowherb	<i>Epilobium hisutum</i>		*			*	*		
Broad-leaved willowherb	<i>Epilobium montanum</i>		*			*	*		
Spindle	<i>Euonymus europaeus</i>								*
Beech	<i>Fagus sylvatica</i>								*
Ash	<i>Fraxinus excelsior</i>				*	*			*
Cleavers	<i>Gallium aprine</i>	*	*	*		*	*		
Dove-foots cranes-bill	<i>Geranium molle</i>					*	*		
Herb-robert	<i>Geranium robertianum</i>					*	*		
Ground ivy	<i>Glechoma hederacea</i>		*	*					*
Ivy	<i>Hedra helix</i>	*			*	*			*
Lesser Hogweed	<i>Heracleum sphondylium</i>					*	*		
Hawkweed sp.	<i>Hieracium sp.</i>			*					
White dead-nettle	<i>Lamium album</i>	*		*		*			
Meadow vetchling	<i>Lathyrus pratensis</i>			*			*		
Common duckweed	<i>Lemna minor</i>							*	

English Name ⁵⁰	Latin Name	Arable	Wet/Dry Ditch	Amenity/Improved Grassland	Scattered Scrub	Species-poor Hedgerow	Tall Ruderal	Pond	Broad leaved Woodland/Parkland
Perennial rye grass sp.	<i>Lolium perenne</i>			*			*		
Common mallow	<i>Malva sylvestris</i>					*	*		
Common reed	<i>Phragmites australis</i>		*					*	
Bristly ox-tongue	<i>Picris hieracioides</i>			*			*		
Ribwort plantain	<i>Plantago lanceolata</i>			*			*		
Greater plantain	<i>Plantago major</i>			*			*		
Annual meadow-grass	<i>Poa annua</i>			*		*	*		
Smooth meadow-grass	<i>Poa pratensis</i>			*		*	*		
Rough meadow-grass	<i>Poa trivialis</i>			*		*	*		
Knotgrass	<i>Polygonum aviculare</i>			*		*	*		
Creeping cinquefoil	<i>Potentilla reptans</i>	*	*				*		
Blackthorn	<i>Prunus spinosa</i>					*			*
Oak	<i>Quercus robur</i>					*			*
Meadow buttercup	<i>Ranunculus acris</i>			*			*		
Lesser celandine	<i>Ranunculus ficaria</i>			*		*			
Creeping buttercup	<i>Ranunculus repens</i>			*		*			
Water-cress	<i>Rorippia nasturtium-aquaticum</i>		*				*		
Bramble	<i>Rubus fruticosus</i> agg.		*	*		*	*		
Broad-leaved dock	<i>Rumex obtusifolius</i>	*	*	*		*	*		
Dock sp.	<i>Rumex</i> sp.	*	*			*	*		
Elder	<i>Sambucus nigra</i>				*	*			
Ragwort sp.	<i>Senecio</i> sp.					*	*		
Common ragwort	<i>Senecio jacobaea</i>					*	*		
Charlock	<i>Sinapis arvensis</i>					*	*		
Hedge mustard	<i>Sisymbrium officinale</i>		*			*	*		
Prickly sow-thistle	<i>Sonchus asper</i>						*		
Sow-thistle sp.	<i>Sonchus</i> sp.						*		
Common chickweed	<i>Stellaria media</i>	*	*			*	*		
Dandelion	<i>Taxaxacum</i> agg.			*					
Upright hedge-parsley	<i>Torilis japonica</i>					*	*		
Red clover	<i>Trifolium pratense</i>			*					
White clover	<i>Trifolium repens</i>			*					
Scentless mayweed	<i>Tripleurospermum inodorum</i>	*	*				*		
Bulrush	<i>Typha latifolia</i>		*					*	
Wych elm	<i>Ulmus glabra</i>				*	*			*
Stinging nettle	<i>Urtica dioica</i>		*			*	*		
Great mullein	<i>Verbascum thapsus</i>						*		
Dog rose	<i>Rosa canina</i>					*			*