CHURCH COMMISSIONERS
FOR ENGLAND

ECOLOGYSOLUTIONS

Part of the ES Group

‘THE KINGSFIELDS’ – LAND TO THE WEST OF CAMBOURNE, CAMBRIDGE

Ecological Assessment

November 2021
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ecology solutions for planners and developers

PROTECTED SPECIES

This report contains sensitive information
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The information contained herein
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1. INTRODUCTION

1.1. Background & Proposals

1.1.1. Ecology Solutions was commissioned in October 2020 by the Church Commissioners for England to undertake an ecological assessment of the site (see Plan ECO1).

1.1.2. The proposals for the site are expected to comprise a residential-led mixed use development, with associated infrastructure, amenity areas and landscape planting.

1.2. Site Characteristics

1.2.1. The site is situated to the north and south of Cambridge Road (A428), west of the city of Cambridge. It comprises arable land which dominates, together with limited areas of woodland, hedgerows, treelines, semi-improved grassland, ditches and ponds. The complex of North East Farm and Pembroke Farm is central to the site, and considered as part of this assessment.

1.2.2. The northern part of the site is bordered by the B1040 to the west, and the A1198 along the northeastern and eastern boundary. The southern section is bordered by Bridleway 74/1, and the village of Eltisley to the southwest. Arable land surrounds the site, whilst Cambridge Road (A428) dissects the site in an east-west direction. Further to the north lies the large village of Papworth Everard, with the village of Yelling to the northwest, whilst the village of Caxton and new settlement of Cambourne lie to the southeast and east respectively.

1.3. Ecological Assessment

1.3.1. This document assesses the ecological interest of the site. The importance of the habitats within the site are evaluated with due consideration given to the guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM)[1].

1.3.2. Where necessary, mitigation measures are recommended so as to safeguard any significant existing ecological interest within the site and, where appropriate, potential enhancement measures are put forward and reference made to both Priority Species and Priority Habitats (formerly National and Local Biodiversity Habitat Plans).

[1] CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Version 1.1 – Updated September 2019. Chartered Institute of Ecology and Environmental Management, Winchester.

2. SURVEY METHODOLOGY

2.1. The methodology utilised for the survey work can be split into three areas, namely desk study, habitat survey and faunal survey. These are discussed in more detail below.

2.2. Desk Study

2.2.1. In order to compile background information on the site and the surrounding area, Ecology Solutions contacted Cambridgeshire and Peterborough Environmental Records Centre (CPERC). This data is referenced in this report where relevant.

2.2.2. Further information on designated sites from a wider search area was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC)[2] database, which uses information held by Natural England and other organisations.

2.2.3. This information is reproduced at Appendix 1 and, where appropriate, illustrated on Plan ECO1.

2.3. Habitat Survey

2.3.1. Habitat surveys were carried out by Ecology Solutions in November 2020 in order to ascertain the general ecological value of the site and to identify the main habitats and associated plant species.

2.3.2. The site was surveyed based around extended Phase 1 habitat survey methodology[3], as recommended by Natural England, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail.

2.3.3. Using the above method, the site was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified.

2.3.4. All the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent in different seasons.

2.4. Faunal Survey

2.4.1. Obvious faunal activity, such as birds or mammals observed visually or by call during the course of the surveys, was recorded. Specific attention was paid to any potential use of the site by protected species, priority species (formerly Biodiversity Action Plan (BAP) species), or other notable species.

[2] http://www.magic.gov.uk
[3] Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*. England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

2.4.2. In addition to general observations of faunal activity, preliminary surveys were completed for Badgers *Meles meles*, bats, Otters *Lutra lutra* and Water Voles *Arvicola amphibius*.

Badgers

2.4.3. During the Phase 1 habitat survey, the site was thoroughly searched for evidence of Badger setts. For any setts encountered, each sett entrance would be noted and plotted, even if the entrance appeared disused. The following information would be recorded:

i) The number and location of well used or very active entrances; these are clear of any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently.

ii) The number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance or have plants growing in or around the edge of the entrance.

iii) The number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be together with the remains of the spoil heap.

2.4.4. Secondly, evidence of Badger activity such as well-worn paths, run-throughs, snagged hair, footprints, latrines and foraging signs was recorded so as to build up a picture of the use of the site by Badgers.

Bats

2.4.5. All trees within the site were assessed for their potential to support roosting bats. Features typically favoured by bats were searched for, including:

- Obvious holes, e.g. rot holes and old Woodpecker holes;
- Dark staining on the tree, below the hole;
- Tiny scratch marks around a hole from bat claws;
- Cavities, splits and or loose bark from broken or fallen branches, lightning strikes etc.; and
- Very dense covering of mature Ivy *Hedera helix* over trunk.

2.4.6. Field surveys were undertaken with regard to best practice guidelines issued by Natural England (2004[4]), the Joint Nature Conservation Committee (2004[5]) and the Bat Conservation Trust (2016[6]).

2.4.7. The buildings present on site were subject to an initial exterior assessment to ascertain their potential for roosting bats, however an internal survey of

[4] Mitchell-Jones, A. J. (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough.
[5] Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). *Bat Workers' Manual*. 3rd edition. Joint Nature Conservation Committee, Peterborough.
[6] Collins, J. (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3rd Edition. The Bat Conservation Trust, London.

the buildings was not possible (see below survey limitations). Binoculars were used to inspect any inaccessible areas more closely.

2.4.8. The probability of a building being used by bats as a summer roost site increases if it:

- is largely undisturbed;
- dates from pre-20th Century;
- has a large roof void with unobstructed flying spaces;
- has access points for bats (though not too draughty);
- has wooden cladding or hanging tiles; and / or
- is in a rural setting and close to woodland or water.

2.4.9. Conversely, the probability decreases if a building is of a modern or pre-fabricated design / construction, is in an urban setting, has small or cluttered roof voids, has few gaps at the eaves or is a heavily disturbed premises.

2.4.10. The main requirement for a winter / hibernation roost site is that it maintains a stable (cool) temperature and humidity. Sites commonly utilised by bats as winter roosts include cavities / holes in trees, underground sites and parts of buildings. Whilst different species may show a preference for one of these types of roost site, none are solely dependent on a single type.

Otters

2.4.11. Otters, being a large mammalian predator, are present in watercourses of varying sizes ranging from small lakes to rivers, estuaries and coasts.

2.4.12. The site was subject to a preliminary bank side survey for Otters in November 2020, by a suitably qualified ecologist to identify any characteristic signs of Otters. The following signs were searched for:

- Spraint – irregular, sometimes short, rounded segments containing fish bones, scales or crayfish parts;
- Footprints of otters in soft substrates along the watercourse typically 8cm wide and 10cm long;
- Holts and couches on the banks of the watercourse; and
- Slides on the banks of the watercourse.

Water Voles

2.4.13. The site and immediate vicinity were subject to a preliminary bank side survey for Water Voles in November 2020, having been identified as supporting suitable habitats for Water Vole with the species known to be present in the locality. It is noted that November is outside of the optimum period for Water Vole survey.

2.4.14. As Water Voles are rarely seen, the survey was based around the identification of characteristic signs. The survey followed guidance by Natural England and consisted of a close examination of all the ditches on site and banks up to two metres from the water's edge.

2.4.15. The following signs were sought:

- Faeces – 8 to 12 mm long and 4 to 5 mm wide with blunt ends;
- Latrines – Water Voles will deposit the majority of their droppings at points of their territory boundary;
- Feeding Stations – Water Voles often bring pieces of cut vegetation to favoured feeding stations close to the water's edge;
- Burrows – Typically 4 to 8 cm in diameter and found in the river / ditch bank;
- Footprints of Water Vole in soft substrates along the ditches; and
- Animals / Water Voles that may be observed directly.

2.5. Survey Constraints and Limitations

2.5.1. To adhere to Government guidance on Covid-19 and Ecology Solutions' company protocols, buildings that were occupied (or where surveying would overwise cause an unacceptable risk to employees) were only subject to external appraisals. This was applicable to all of the buildings within the site.

3. ECOLOGICAL FEATURES

3.1. A habitat survey was undertaken within the site by Ecology Solutions in November 2020.

3.2. The following main habitat / vegetation types were identified within the site during the survey undertaken:

- Arable;
- Buildings;
- Hardstanding;
- Semi-improved Grassland;
- Amenity Grassland;
- Amenity Planting;
- Broadleaved Woodland;
- Hedgerows;
- Amenity Hedges;
- Semi-Mature to Mature Trees;
- Ponds; and
- Drainage Ditches.

3.3. The locations of these habitats are shown on Plan ECO2 and are described individually below.

3.1. Arable

3.1.1. The majority of this site is dominated by arable fields under active management; there are fifteen such fields across the site of varying sizes (see Photographs 1 and 2).

3.2. Buildings

3.2.1. The site is largely devoid of buildings, but there are a number of buildings and structures associated with the site, or immediately adjacent to its boundary. These mostly comprise farm buildings predominately associated with North East Farm and Pembroke Farm, such as farmhouses, agricultural warehouses, barns, greenhouses and storehouses, with some residential housing and small sheds, stables or other miscellaneous small structures also present (see Photograph 3).

3.2.2. **Building B1** is a large, modern agricultural shed located along the southern boundary of the site, adjacent to Caxton Drift. The building is constructed from steel, breezeblock and corrugated asbestos with a pitched corrugated asbestos roof; the building appears to be disused.

3.2.3. The majority of **Building B2** is a combination of three connected single storey warehouses, of double height, with roofs of corrugated asbestos, skylights and metal clad soffits. The roof structure is supported by a steel frame and large agricultural equipment was noted inside. The remaining elements of the building are used for office space and include a single-storey flat roof extension. This is located in the southern section of the building. The overall condition of the building is good.

3.2.4. **Building B3** lies adjacent to Building B2 and comprises recently constructed purpose-built office space. The building is two-storey with a brick base and clad in oak, with wooden barge boards, facias and soffit boxes alongside a pitched slate roof. Three eastern-facing dormer windows are present alongside three western-facing Velux windows.

3.2.5. **Building B4** is a metal-framed greenhouse with a greenhouse shade netting outer layer; the greenhouse contains a variety of amenity plants and lies north of Building B3 and west of Building B2.

3.2.6. **Building B5** is a group of modern Portakabin / offices (some two storey-high) adjacent to a weighbridge.

3.2.7. **Buildings B6 to B20** are a group of double and triple height structures, with roofs of pitched corrugated asbestos, skylights and metal clad soffits. These large agricultural warehouses have a brick or breezeblock base and corrugated metal walls with frequent security lighting.

3.2.8. **Building B21** is a modern two-storey brick-based timber-clad barn conversion with a pitched slate roof serving as residential dwellings. Wooden soffit boxes are present, alongside four south-facing dormer windows.

3.2.9. **Building B22** is a single-storey barn conversion, now a residential dwelling, again with a brick base, timber cladding and a pitched slate roof with several Velux windows. Large numbers of bird droppings were noted beneath the eaves, and alarm calls were heard from within, although the species of bird could not be determined.

3.2.10. **Building B23** is an agricultural building, two-storey in height with a pitched corrugated asbestos roof. The walls are constructed from corrugated metal and asbestos and lie over a steel frame.

3.2.11. **Building B24** lies adjacent to Building B22 and is titled Pembroke Farm House. The two-storey brick house has a pitched tiled roof in addition to two chimneys with lead flashing and wooden soffits.

3.2.12. **Building B25** is another modern barn conversion associated with Pembroke Farm. The roof is pitched, with wooden soffit boxes whilst the walls are clad in timber; glass windows are present across both floors, including south-facing floor-to-ceiling glass windows and large glass doors.

3.3. Hardstanding

3.3.1. The hardstanding and compacted hardcore within the site comprise access roads and tracks, in addition to areas of parking within North East Farm and Pembroke Farm (see Photograph 3). All these areas appear to be used to some degree and are largely devoid of any vegetation.

3.4. Semi-improved Grassland

3.4.1. Several areas of semi-improved grassland are present within the site (see Photographs 4 and 5). The majority of this grassland can be found in the vicinity of North East Farm and Pembroke Farm, where several paddocks

containing a variety of animals, including Alpacas, Wallabies, Rheas, Capybara, Llamas and Maras, are present. Another area of semi-improved grassland adjacent to the farms is given over to solar panels.

3.4.2. Additional areas of semi-improved grassland are present in the form of field margins at the edges of the many arable fields throughout the site. These are mostly under 1m, but some range from approximately 3m up to 8m wide. This habitat is also present on the banks alongside the many ditches running through the arable fields throughout the site (see Photograph 2). Parts of fields have also been left unmanaged and are contain greater number of forb species, in addition to higher levels of scrub species.

3.4.3. Species in this habitat include Cocksfoot *Dactylis glomerata*, False Oat-grass *Arrhenatherum elatius*, Fescue *Festuca sp.*, Perennial Rye Grass *Lolium perenne*, Annual Meadow Grass *Poa annua*, Yorkshire Fog *Holcus lanatus*, Crested Dog's-tail *Cynosurus cristatus* and Bent *Agrostis* sp. in addition to forb species such as Yarrow *Achillea millefolium*, Cow Parsley *Anthriscus sylvestris*, Creeping Buttercup *Ranunculus repens*, Wild Carrot *Daucus carota*, White Clover *Trifolium repens*, Speedwell *Veronica* sp., Spear Thistle *Cirsium vulgare*, Ribwort Plantain *Plantago lanceolata*, Teasel *Dipsacus sylvestris*, Common Knapweed *Centaurea nigra*, Groundsel *Senecio vulgaris*, Creeping Thistle *Cirsium arvense*, Traveller's Joy *Clematis vitalba*, Cleavers *Galium aparine*, Common Nettle *Urtica dioica*, Bristly Ox-tongue *Helminthotheca echioides*, Ragwort *Senecio jacobaea*, Hogweed *Heracleum sphondylium*, Vetch *Vicia* sp., Hemlock *Conium maculatum*, Shepherd's-purse *Capsella bursa-pastoris*, Creeping Cinquefoil *Potentilla reptans*, Bramble *Rubus fruticosus*, Broad-leaved Dock *Rumex obtusifolius*, Dove's-foot Crane's-bill *Geranium molle*, Herb Robert *Geranium robertianum*, Common Mouse-ear *Cerastium fontanum*, Dandelion *Taraxacum officinale*, Alexanders *Smyrnium olusatrum*, Colts-foot *Tussilago farfara*, Comfrey *Symphytum officinale*, Greater Plantain *Plantago major*, White Dead-Nettle *Lamium album*, Common Burdock *Arctium minus* and Wild Basil *Clinopodium vulgare*.

3.4.4. Some small areas of unmanaged grassland within the arable fields have been taken over by scrubby species, with Bramble, Common Nettle and Teasel, although the usual grass species are also present too.

3.5. **Amenity Grassland**

3.5.1. Areas of formerly closely-mown and well-maintained amenity grassland are close to the two farms in the centre of the site. The sward was short at the time of survey, with the following species noted as being present: Yorkshire Fog, Perennial Rye Grass, Cocksfoot and False Oat-grass.

3.5.2. Other species recorded within the grassland areas include: Ragwort, Selfheal *Prunella vulgaris*, Shepherd's-purse, Creeping Buttercup, Bristly Oxtongue, Daisy *Bellis perennis*, Creeping Thistle, White Clover, Dandelion, Ribwort Plantain, Dove's-foot Crane's-bill, Spear Thistle Yarrow and Herb Robert.

3.6. **Amenity Planting**

3.6.1. Small areas of amenity planting are present within the vicinity of North East Farm and Pembroke Farm site, within areas of semi-improved or amenity grassland. These are generally non-native and ornamental species, and include: Spanish dagger *Yucca gloriosa*, Leyland Cypress *Cupressus* x *leylandii*, Spruce, Cherry Laurel *Prunus laurocerasus* and Pampas Grass *Cortaderia selloana*.

3.7. **Broadleaved Woodland**

3.7.1. There are several wooded areas of even-aged trees within the site, some of which contain vernal ponds (see Photographs 1 and 4). The woodland areas mainly comprise open deciduous woodland habitat with sparse understories.

3.7.2. Species present include Ash *Fraxinus excelsior*, Field Maple *Acer campestre*, Goat Willow *Salix caprea*, Pedunculate Oak *Quercus robur*, Pine *Pinus* sp., Cherry *Prunus avium*, Blackthorn *Prunus spinosa*, Dog Rose *Rosa canina*, Buckthorn *Rhamnus cathartica*, Dogwood *Cornus sanguinea*, Sycamore *Acer pseudoplatanus*, Hazel *Corylus avellana*, Elder *Sambucus nigra*, Elm *Ulmus procera*, Guelder Rose *Viburnum opulus*, Hawthorn *Crataegus monogyna*, Holly *Ilex aquifolium*, Aspen *Populus tremula*, Lime *Tilia platyphyllos x cordata*, Hornbeam *Carpinus betulus*, Pear *Pyrus communis*, Horse-chestnut *Aesculus hippocastanum*, Silver Birch *Betula pendula*, Rowan S*orbus aucuparia*, Scots Pine *Pinus sylvestris*, Spindle *Euonymus europaeus*, Wild Privet *Ligustrum vulgare* and small amount of Cherry Laurel and on occasion, Lombardy Poplar *Populus nigra* 'Italica' and Wayfaring tree *Viburnum lantana*.

3.7.3. When present, the ground flora includes Bramble, Common Nettle, Cleavers, Stinking Iris *Iris foetidissima*, Bristly Oxtongue, Cow Parsley, Herb Robert, Ivy, Ground Ivy *Glechoma hederacea*, Lords-and-ladies *Arum maculatum*, Dog Violet *Viola riviniana*, Dovesfoot Cranesbill, Teasel, Goat Willow, Common Mallow *Malva sylvestris* and Yorkshire Fog.

3.8. **Hedgerows**

3.8.1. There are a large number of hedgerows along the arable field boundaries across the site. Many of the hedgerows are tall, gappy and unmanaged, where some species have grown or are growing into trees (see Photographs 2 and 6). Many of the hedgerows have an associated ditch, alongside associated damp ground vegetation such as Bulrush *Typha latifolia*, Pendulous Sedge *Carex pendula*, Hard Rush *Juncus inflexus* and Great Willowherb *Epilobium hirsutum*.

3.8.2. The vast majority of hedgerows across consist primarily of Hawthorn, Blackthorn, Ash and Oak, alongside Privet *Ligustrum* sp., Field Maple, Dog Rose, Crab Apple *Malus sylvestris*, Spindle, Guelder Rose, Hazel, Elder, Rose *Rosa* sp., Pine, Sycamore, Cherry, Hazel, Plum *Prunus domestica*, Willow *Salix* sp., Beech *Fagus sylvatica*, Rowan and Goat Willow. Leyland Cypress was also observed.

3.8.3. Woody climbing species include Bramble, Dog Rose, Traveller's Joy, Ivy and Hedge Bindweed *Calystegia sepium*.

3.8.4. Ground flora species include Ragwort, Dandelion, Creeping Cinquefoil, Bristly Ox-tongue, Groundsel, Shepherd's-purse, Cow Parsley and Teasel. Field margins of varying widths are also present at the base of the hedgerows.

3.9. **Amenity Hedges**

3.9.1. Several amenity hedges are present around North East Farm and Pembroke Farm close to the centre of the site. These are managed, and tend to comprise Leyland Cypress, Hawthorn, Scots Pine, Field Maple, Beech, Hawthorn, Spindle, Ash, Spruce *Picea* sp. and Garden Privet *Ligustrum ovalifolium*, although Cherry, Blackthorn, Pine, Sycamore, Ash, Oak, Cotoneaster *Cotoneaster* sp. and Buddleia *Buddleja davidii* were also noted.

3.10. **Semi-Mature to Mature Trees**

3.10.1. There are a number of semi-mature to mature trees within the site; these are in the main associated with the hedgerows, areas of woodland belts and the site boundaries. These are predominately native broad-leaved species; the more notable trees include Oak and Ash. A series of Elm trees is present on the edge of Eastern Brook in the southern part of the site.

3.11. **Ponds**

3.11.1. There are several ponds on site, the majority of which are associated with the farms in the centre of the site.

3.11.2. **Pond P1** lies adjacent to a farm track, adjacent to a wet ditch and a large arable field, close to the western boundary in the northern part of the site. No aquatic or emergent vegetation was noted within, although copious amounts of Common Reed *Phragmites australis* surround the pond on all sides. Other species noted amongst the Reed include Goat Willow, Lombardy Poplar, Bramble, Hogweed, Bristly Oxtongue, Common Nettle and Cow Parsley.

3.11.3. **Pond P2** is a small pond in a depression within a small block of broadleaved woodland in the south of the northern portion of the site. No emergent vegetation within the pond was noted, and the banks are bound by Sedge *Carex* sp. Large quantities of leaf litter are present within the water, which is shaded by a woodland containing Goat Willow, Hawthorn, Alder, Rose, Blackthorn and Bramble.

3.11.4. A reservoir (**Pond P3**) is enclosed by a steep mound of semi-improved grassland immediately south of Pond P2. The pond is large and surrounded on all sides by dense Common Reed, alongside occasional scrub and tree species such as Hawthorn, Oak, Goat Willow, Ash and Cherry alongside Bramble, Colts-foot, Teasel, Willow *Salix* sp. and Spindle.

3.11.5. **Pond P4** lies to the south of Pond P3 and is a long and thin pond with very steep sides. An inflow is present at the southern with an outflow at the northern end, connecting the pond to the adjacent ditches. The pond is

fringed by a row of Leyland Cypress on the eastern banks and woodland on the western banks.

3.11.6. **Pond P5** is a very steep-sided rectangular pond within an arable field close to the centre of the site. Bulrush is present within the eastern part of the pond.

3.11.7. **Pond P6** is present within a fenced-off paddock south of North East Farm and could not be accessed at the time of the survey.

3.11.8. **Pond P7** is present within a fenced-off paddock southwest of Pembroke Farm and could not be accessed at the time of the survey.

3.11.9. **Pond P8** is present within a fenced-off area of semi-improved grassland west of Pembroke Farm and could not be accessed at the time of the survey.

3.11.10. **Pond P9** is a small garden pond with steep banks adjacent to Pembroke Farm. Grass and some bramble and tall ruderal are present on the banks, whilst Hard Rush was also noted. The pond is not shaded, and no aquatic vegetation was noted within at the time of the survey.

3.11.11. **Pond 10** lies within an area semi-improved grassland south of Pembroke Farm (see Photograph 5). Bulrush covers approximately 60% of the surface of the pond, although Water-starwort *Callitriche stagnalis* was also noted beneath the water. Goat Willow standards were also noted next to the shallow banks of the pond.

3.11.12. **Pond P11** lies within a small block of broadleaved woodland in the southern portion of the site. The sides of the pond are steep, and approximately 40% of the perimeter is bound by Bramble. Large quantities of leaf litter are present within the water, alongside some emerging vegetation.

3.11.13. **Pond P12** lies within a small block of broadleaved woodland in the southern portion of the site, close to a ditch. The sides of the pond are shallow, and filled with leaf litter from the overhanging Goat Willow which shade the entire pool.

3.11.14. **Pond P13** lies within a small block of broadleaved woodland in the southern portion of the site. The pond was dry at the time of the survey and leaf litter was dense.

3.12. **Drainage Ditches**

3.12.1. A number of drainage ditches are present within the site, including Eastern Brook within the southern portion of the site (see Photographs 2 and 6); the ditches run either parallel to the site boundary or dissect the arable fields. These ditches are, in the main, associated with hedgerows. The ditch banks are steep, and in many cases could only be viewed from the top. The majority of the ditches were seen to contain water at the time of survey, although some were dry along part of their length, and a thick layer of leaf litter was a common sight.

3.12.2. Vegetation directly associated with these ditches comprise aquatic and bank vegetation, including Bulrush, Common Reed, Hard Rush, Great Willowherb, Pendulous Sedge, Fool's-water-cress, Water-cress *Rorippa nasturtium-aquaticum* and Water-starwort. Other species associated with the ditches merge with the semi-improved grass field boundaries on either side, and include species such as Cocksfoot, Common Nettle, Great Willowherb, Ragwort, Teasel and Bristly Oxtongue.

3.13. **Background Records**

3.13.1. A number of notable plant species were returned by CPERC. Species recorded within the same 1km grid squares as the site include Narrow-leaved Water-plantain *Alisma lanceolatum* recorded in 2010; Corn Mint *Mentha arvensis* and Quaking-grass *Briza media* in 2011; Dwarf Spurge *Euphorbia exigua* in 2014 and Field Scabious *Knautia arvensis* and Hoary Plantain *Plantago media* in 2017.

3.13.2. The most recent Narrow-leaved Water-plantain record is from 2014 in the grid square between 0.1km and 1.5km south of the site.

3.13.3. Records of other notable species outside of the site boundaries and associated 1km grid squares include Sulphur Clover *Trifolium ochroleucon*, Slender Tare *Vicia parviflora*, Oxlip *Primula elatior*, Strawberry Clover *Trifolium fragiferum*, Sharp Rush *Juncus acutus*, Common Valerian *Valeriana officinalis*, Crosswort *Cruciata laevipes*, Devil's-bit Scabious *Succisa pratensis*, Wild Strawberry *Fragaria vesca*, Common Cudweed *Filago vulgaris* and Chicory *Cichorium intybus*.

4. WILDLIFE USE OF THE SITE

4.1. General observations were made during the surveys of any faunal use of the site, with specific attention paid to the potential presence of protected species.

4.2. Badgers

4.2.1. The site was checked for evidence of Badgers in November 2020. No evidence, such as a Badger sett or any other field signs that could be attributed to this species, was recorded within the site. However, several mammal holes were identified [redacted], although these are considered to be attributed to [redacted]

4.2.2. The margins of the site, including the hedgerows, and areas of semi-improved grassland and broadleaved woodland provide some continued, but restricted, suitable habitat for Badger. Therefore, the site provides some limited opportunities for foraging and dispersal for any social group active in the area.

4.2.3. The data search returned several Badger records within the last decade; the most recent is from 2019 located approximately [redacted]. The most recent live sighting record is from 2016 approximately [redacted]. A record of Badger latrines was recorded within the site boundary in 2015.

4.2.4. Six records of dead Badgers were returned as being within the same 1km grid squares as the site in 2011, 2012, 2015 and 2016. The dates and locations of two of the records in 2011 and two in 2012 are close, suggesting they may be duplicate records of the same deceased Badgers.

4.3. Bats

4.3.1. Several semi-mature to mature trees within the site were identified as presenting features with potential for roosting bats (see Plan ECO2). These trees are largely associated with field boundaries and as standards within hedgerows.

4.3.2. Street and security lighting within areas of car parking and hardstanding at the farms will illuminate the immediate area, which could potentially deter bats.

4.3.3. The semi-mature to mature trees, areas of woodland, ponds, hedgerow and drainage ditch-bound arable fields and (to a lesser degree) the field margins and areas of rough and semi-improved grassland offer some bat foraging potential for locally present bat populations in the context of the site. Similar adjacent habitats, such as other nearby gardens in Eltisley or arable field boundaries and drainage ditches may also be of some interest for bats.

4.3.4. The data search returned records of five identified bat species within the search area, including Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Natterer's Bat *Myotis nattereri*, Serotine *Eptesicus serotinus* and Brown Long-eared Bat *Plecotus auritus*.

4.3.5. Three species were recorded roosting approximately [redacted]. These were summer non-breeding roosts of [redacted]. and a maternity roost of [redacted]

4.3.6. [redacted] were recorded in 2018 approximately 0.3km [redacted]

4.4. Otters

4.4.1. Some of the wet ditches within and bordering the site are suitable for use by Otter. However, the preliminary searches for evidence of this species did not identify any field signs attributed to Otter.

4.4.2. Two records of Otter were returned from the data search, including a record approximately [redacted] The second record is of a deceased Otter recorded in 2011 within a 1km grid square between [redacted]

4.5. Water Voles

4.5.1. The wet ditches containing flowing water within and bordering the site are suitable for use by Water Vole, although no signs indicating the presence of this species was recorded during the targeted survey work completed.

4.5.2. Two records of Water Vole were returned from CPERC from the last ten years. Both records are from 2013 located in the same area approximately [redacted] The records are of Water Vole latrines. There is no dispersal barrier between these records and the site.

4.6. Other Mammals

4.6.1. The habitats on site, including the arable land are overall suitable for Brown Hare *Lepus europaeus*, and the wider area does offer rich opportunities for this species. Considering the size of the site, it is not possible to dismiss the probability that individuals may be fully reliant on the site.

4.6.2. Overall, the main arable areas of the site provide very limited opportunities for Hedgehog *Erinaceus europaeus. S*uitable opportunities are present, however, and are particularly associated with the field margins, hedgerows and areas of woodland.

4.6.3. Brown Hare was observed [redacted] on multiple occasions, in both the northern and southern portions of the site, during the survey.

4.6.4. Seven records of Brown Hare were returned by the data search. The closest and most recent record is from 2019 approximately [redacted]

4.6.5. Five records of Hedgehog were returned by CPERC. Four of which were of road traffic fatalities. The closest of these records was approximately [redacted] and the most recent from 2014 [redacted]

4.6.6. A single Polecat *Mustela putorius* record was returned as being approximately [redacted] This was a road casualty.

4.6.7. Brown Hare, Hedgehog and Polecat and are classed as Species of Principal Importance for the Conservation of Biodiversity under Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006 and UK Biodiversity Action Plan (UKBAP) priority species. Hedgehogs are also classed as Vulnerable on the IUCN Red Data List, making it at high risk of extinction in the wild in the medium-term future.

4.7. **Birds**

4.7.1. Very few species of bird were noted on the site during the Phase 1 survey, with House Sparrow *Passer domesticus*, Blackbird *Turdus merula*, Blue Tit *Cyanistes caeruleus*, Magpie *Pica pica*, Pheasant *Phasianus colchicus*, Red-legged Partridge *Alectoris rufa* and Woodpigeon *Columba palumbus* observed. Black Swan *Cygnus atratus* were also observed [redacted]. Quail *Coturnix coturnix* and Peacock *Filago vulgaris* were also noted [redacted]

4.7.2. The site supports suitable nesting and foraging habitats for a number of common bird species. The main suitable nesting habitats include the areas of woodland, hedgerows and trees, as well as some of the ponds, which, along with the wet ditches, are suitable for supporting wetland birds and waterfowl. It is considered unlikely that the site would be suitable to support many ground nesting species, given the regular management of the arable fields, although some opportunities are shown to exist at the field margins and areas of rough and semi-improved grassland.

4.7.3. The data search returned records of three species within the site boundaries. These were records of [redacted].

4.7.4. Multiple records were returned as being within the same 1km grid squares as the site and may therefore have been recorded within the site boundaries. These include species protected under Annex I of the Birds Directive or Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). These records are of [redacted] These are the closest and most recent records of these species unless specified below.

4.7.5. The most recent Barn Owl record dates from 2013 [redacted] and the closest specific location in 2012 [redacted]

4.7.6. The most recent record of Golden Plover is from 2013 within [redacted]

4.7.7. The most recent Hobby record is from 2012 and was recorded at a location [redacted]

4.7.8. Two species with the same designations, but not recorded within the same 1km grid squares as the site, are Little Egret *Egretta garzetta* and Osprey *Pandion haliaetus*. Two records of Little Egret were returned from the same 1km grid square approximately [redacted] and a single record of Osprey from 2014 in a 1km grid square approximately [redacted].

4.7.9. Species of Principal Importance for the Conservation of Biodiversity under Section 41 (England) of the NERC Act 2006 and UKBAP species recorded within the same 1km grid square as the site include Song Thrush *Turdus philomelos*, Yellowhammer, Grey Partridge *Perdix perdix* and House Sparrow in 2018, as well as Dunnock in 2014.

4.7.10. The following species have the same designations but were not recorded within the 1km grid squares on-site, Bullfinch *Pyrrhula pyrrhula*, Corn Bunting *Emberiza calandra*, Cuckoo *Cuculus canorus*, Lapwing *Vanellus vanellus*, Lesser Spotted Woodpecker *Dendrocopos minor*, Marsh Tit *Poecile palustris*, Reed Bunting *Emberiza schoeniclus*, Starling *Sturnus vulgaris*, Turtle Dove *Streptopelia turtur* and Yellow Wagtail *Motacilla flava*. Further details are provided below.

4.7.11. The closest record of Bullfinch is from 2013 within the 1km grid square between approximately [redacted] The most recent record is from 2016 in a 1km grid square between 1[redacted]

4.7.12. The closest and most recent record of Corn Bunting is from 2015 located approximately [redacted]

4.7.13. A single record of Cuckoo was returned as being within the 1km grid square to the north of the site between approximately [redacted]

4.7.14. The most recent Lapwing record is from 2013 within a 1km grid square approximately [redacted]

4.7.15. A single Lesser Spotted Woodpecker record was returned as being approximately [redacted]

4.7.16. A single Marsh Tit record was returned as being from approximately [redacted].

4.7.17. The closest, and most recent, Reed Bunting record was from 2011 approximately [redacted]

4.7.18. The closest, and most recent, record of Starling was from 2011 approximately [redacted]

4.7.19. Two Turtle Dove records were returned as being within a grid square between [redacted]

4.7.20. The closest and most recent record of Yellow Wagtail was returned as being approximately [redacted]

4.7.21. Two bird species classified as Cambridgeshire and Peterborough Additional Species of Interest (CPASI) were recorded in the same 1km grid squares as the site. These were [redacted]

4.8. Reptiles

4.8.1. No evidence of reptiles was recorded during the survey work. Habitats with the potential to support reptiles are limited within the site and are restricted to the field margins along with the semi-improved grassland areas in the north.

4.8.2. The data search returned a single Grass Snake *Natrix helvetica* record. This record is from 2011 and was observed approximately [redacted]

4.9. Amphibians

4.9.1. Although no targeted surveys has been to date completed in respect of amphibians, and specifically Great Crested Newt *Triturus cristatus*, regard was had for the habitats present across the site to support this group and the identification of the any suitable breeding sites that may be present on site was sought.

4.9.2. The site was seen to support many ponds and wet ditches, mainly associated with arable field hedgerows. Many ponds contained water at the time of the survey work. Although few ponds contained vegetation associated with permanent water conditions, it is considered at this time that all the ponds have potential to support Great Crested Newt.

4.9.3. Fourteen records of Great Crested Newt were returned by CPERC. Many of these records are close to the site boundary. The closest and most recent record is from approximately [redacted] in 2019.

4.9.4. Information downloaded from MAGIC includes multiple records in close proximity to the site boundary associated with Great Crested Newt Survey Licence Returns and pond surveys including eDNA results. The closest records are from 2019 in the same location provided by CPERC.

4.10. Invertebrates

4.10.1. Given the habitats present, it is likely a common assemblage of invertebrate species would be present within the site, although there is no indication that notable species would be present.

4.10.2. Three invertebrate records were returned by CPERC from the last ten years. This includes a single White-letter Hairstreak *Satyrium w-album* recorded in 2013 within a 1km grid square approximately [redacted] This butterfly species is a NERC Priority Species in addition to being listed under the IUCN Endangered Red list and classed as a UK BAP Priority Species. Brown-spot Pinion *Agrochola litura* and Oak Hook-tip *Watsonalla binaria* moths were recorded in 2011 approximately [redacted]. These moth species are listed as species of principal importance under Section 41 of the NERC Act 2006 and classed as a UK BAP Priority Species.

5. ECOLOGICAL EVALUATION

5.1. The Principles of Ecological Evaluation

5.1.1. The guidelines for ecological evaluation produced by CIEEM propose an approach that involves professional judgement, but makes use of available guidance and information, such as the distribution and status of the species or features within the locality of the project.

5.1.2. The methods and standards for site evaluation within the British Isles have remained those defined by Ratcliffe[7]. These are broadly used across the United Kingdom to rank sites so priorities for nature conservation can be attained. For example, current Sites of Special Scientific Interest (SSSI) designation maintains a system of data analysis that is roughly tested against Ratcliffe's criteria.

5.1.3. In general terms, these criteria are size, diversity, naturalness, rarity and fragility, while additional secondary criteria of typicalness, potential value, intrinsic appeal, recorded history and the position within the ecological / geographical units are also incorporated into the ranking procedure.

5.1.4. Any assessment should not judge sites in isolation from others, since several habitats may combine to make it worthy of importance to nature conservation.

5.1.5. Further, relying on the national criteria would undoubtedly distort the local variation in assessment and therefore additional factors need to be taken into account, e.g. a woodland type with a comparatively poor species diversity, common in the south of England, may be of importance at its northern limits, say in the border country.

5.1.6. In addition, habitats of local importance are often highlighted within a local BAP. The Cambridgeshire BAP has been considered as part of this assessment and is referenced where relevant.

5.1.7. Levels of importance can be determined within a defined geographical context from the immediate site or locality through to the international level.

5.1.8. The legislative and planning policy context are also important considerations and have been given due regard throughout this assessment.

5.2. Habitat Evaluation

Designated Sites

5.2.1. **Statutory Sites.** There are no statutory designations of nature conservation value within the site, or immediately adjacent to it. The closest statutory site designated for its biodiversity is Papworth Wood Site of Special Scientific Interest (SSSI), which lies approximately 1km north of the site boundary at its closest point, and is separated from the site by residential dwellings and Papworth Business Park. The site is one of the

[7] Ratcliffe, D. A. (1977). *A Nature Conservation Review: The Selection of Biological Sites of National Importance to Nature Conservation in Britain*. Two Volumes. Cambridge University Press, Cambridge.

oldest secondary woods in Cambridgeshire. It is now dominated by invasive Small-leaved Elm *Ulmus minor* and represents a woodland type scarce in the British Isles.

5.2.2. Elsworth Wood SSSI and ancient woodland is located approximately 1.8km east of the site. It has a nationally uncommon assemblage of three types of woodland including the best example in Cambridgeshire of a woodland with a canopy that is dominated by Field Maple. This type of woodland has international significance. There are notable ground flora species including a good population of Oxlip *Primula elatior*, a species restricted to ancient woodlands in parts of East Anglia and the East Midlands. Elsworth Wood is of importance for its invertebrate fauna, in particular a number of nationally uncommon beetles, the most notable of which is the rove beetle *Stichoglossa semirufa*.

5.2.3. Considering the distance and intervening arable land and residential developments, it is not considered likely that there would be any adverse direct effects on these designated sites as a result of any development of site. However, due to the size of the site, and the topographical layout, of the land it is recommended that a precautionary approach be taken and that best practice measures in regard to dust and surface runoff be used during construction. These would be controlled through the adherence to a strict Construction Environmental Method Statement (CEMP).

5.2.4. **Non-statutory Sites.** The closest non-statutory designation is Caxton Moats County Wildlife Site (CWS), which lies approximately 0.2km southeast of the site boundary at its closest point. This site supports twenty-four neutral grassland indicator species, including ten strong indicators.

5.2.5. Eltisley Wood CWS lies approximately 0.3km southwest of the site. This site is an ancient replanted woodland (aka plantation on an ancient woodland site) supporting 40 woodland plant species and a population of Oxlip, a Nationally Scarce vascular plant species.

5.2.6. Croxton Park is the largest of the CWSs in the vicinity, and is located approximately 1.1km west of the site. It is parkland with veteran trees in semi-natural habitat, also qualifying for habitat mosaic.

5.2.7. Elsworth Protected Road Verge (PRV) S8 is neutral / calcareous grassland with local red data book species present.

5.2.8. The design and layout of the scheme would need to consider the value and location of the CWSs. Adherence to a Construction Environmental Management Plan (CEMP) would be required to avoid any potential adverse effects. Furthermore, the lighting design of any development scheme would need to be sympathetic to the local area and avoid any excessive light spillage.

5.2.9. A number of additional statutory and non-statutory sites are located in the wider area as identified on Plan ECO1, but no significant adverse effects are anticipated.

5.2.10. In due course, regard would need to be had for the potential for increased recreational impact on any local designated sites with public access, but it

would be expected that the development of the site would incorporate significant areas of new public open space and green infrastructure for new residents.

Habitats

5.2.11. The habitats within the site consist of common and widespread species. However, habitats such as the boundary hedgerows, wet ditches, ponds, woodland and semi-mature to mature trees are of relatively greater interest in the context of the site, and enhancement as part of any proposed development is recommended. These features should be protected during construction by approved fencing. The overwhelming majority consists of arable fields, which is of no nature conservation interest, besides providing opportunities for both breeding and wintering birds. Its removal to facilitate the proposed development is of no significance.

5.2.12. It is recommended that the landscape strategy for the proposed development incorporate native species of local provenance and of known value to wildlife.

5.2.13. The loss of some trees to the development is unavoidable due to the nature and scale of the proposals. However, new tree / shrub planting will provide replacement trees in time. Where trees are felled sections of wood will be recovered to provide new habitat diversity at the margins of the site.

5.2.14. Development of the site will be expected to deliver a Biodiversity Net Gain in line with emerging policy and legislation, which will be a mandatory requirement by the time proposals are brought forward. The minimum requirement is likely to be a 10% gain measured by the Natural England / Defra Metric. A high quality green infrastructure strategy, based on the retention and enhancement of the existing hedgerows, ponds and watercourses, as well as the establishment of new high quality habitats and opportunities for wildlife, will be required. Given that the majority of the site is currently intensively managed arable, of negligible value, the baseline for net gain calculations is low; nonetheless, good design will be essential to deliver the necessary improvements.

5.3. **Faunal Evaluation**

Badgers

5.3.1. **Legislation**. The Protection of Badgers Act 1992 consolidates the previous Badgers Acts of 1973 and 1991. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status.

5.3.2. As well as protecting the animal itself, the 1992 Act also makes the intentional or reckless destruction, damage or obstruction of a Badger sett an offence. A sett is defined as "*any structure or place, which displays signs indicating current use, by a Badger*". 'Current use' is defined by Natural England as any use within the preceding 12 months.

5.3.3. In addition, the intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence by constituting 'cruel ill treatment' of a Badger.

5.3.4. Any work which disturbs Badgers is illegal without a licence granted by Natural England.

5.3.5. **Site Usage.** No evidence of Badgers was found within the site. The semi-improved grassland, woodlands and hedgerows offer some foraging and dispersal opportunities for this species.

5.3.6. **Further Work and Recommendations.** Owing to the dynamic nature of this species further checks will be required before a planning application were to be submitted, and indeed prior to the commencement of any works, to ensure that no new setts have been excavated since the initial surveys.

5.3.7. In the event that a sett is recorded, the project ecologist would take a view as to whether a Natural England licence will be required to close it. This licence would be obtained from Natural England and appropriate mitigation measures implemented according to the particular requirements of the situation. There is no evidence to suggest that such a licence will be required at the time of writing.

5.3.8. The desk study returned records of Badger within the locality of the site so the potential exists for Badgers to roam into areas where construction is underway and become trapped in trenches, excavate new setts in piles of subsoil or disturb chemicals that may be being used for development.

5.3.9. The following measures will be followed throughout the construction phase of any development:

- All site personnel will be made aware of the presence of this species and the appropriate steps required to ensure the safety of the Badgers while on site;
- Inclines and mounds of loose soil present ideal habitats for Badgers seeking to establish new setts; therefore, during the construction process, all dug ground and loose soil will be levelled and compacted wherever possible. This will prevent Badgers from attempting to excavate setts prior to completion of the works and causing potential disruption;
- Any mounds of material will be regularly checked for signs of Badgers, especially before disturbance or movement;
- Planks will be left in any uncovered trenches to provide any Badger that may stray onto the site with an escape route;
- Any open trenches will be checked at the beginning of each day, to ensure that Badgers are not present, and at the end of each day, to ensure that the means of escape remain in place;

- Tools and loose materials will be stored in an appropriate container in order to reduce the risk of Badgers coming onto site and injuring themselves;

- No fires or chemicals should be left unsupervised anywhere on the site;

- Any open pipework greater than 150mm outside diameter will be blanked off at the end of each working day to prevent Badgers from entering the pipework; and

- Driven piling work will be undertaken only following consultation with the project ecologist.

5.3.10. In the event that any suspected Badger activity is observed during construction, work in the area will cease and Ecology Solutions will be contacted for advice.

5.3.11. The hedgerows present along the site boundaries are likely to be retained and included within the proposals, ensuring that both potential foraging and dispersal opportunities for Badgers remain post-development. While some loses are expected, any loss will be offset through the provision of new native tree planting.

Bats

5.3.12. **Legislation.** All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 ("the Habitats Regulations"). These include provisions making it an offence:

- Deliberately to kill, injure or take (capture) bats;
- Deliberately to disturb bats in such a way as to significantly affect:-
  (i) be likely to impair their ability to survive, to breed or rear or nurture their young; or to hibernate or migrate; or
  (ii) to affect significantly the local distribution or abundance of the species to which they belong;
- To damage or destroy any breeding or resting place used by bats;
- Intentionally or recklessly to obstruct access to any place used by bats for shelter or protection (even if bats are not in residence).

5.3.13. The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.

5.3.14. The offence of damaging (making it worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.

5.3.15. In accordance with the Habitats Regulations the licensing authority (Natural England) must apply the three derogation tests as part of the process of considering a licence application. These tests are that:

1. the activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
2. there must be no satisfactory alternative; and
3. the favourable conservation status of the species concerned must be maintained.

5.3.16. Licences can usually only be granted if the development is in receipt of full planning permission.

5.3.17. **Site Usage.** The hedgerows, semi-mature to mature trees, areas of woodland, ponds, wet ditches and, to a degree, the semi-improved grassland areas and field margins offer good foraging opportunities for bats. The arable land, hardstanding and buildings are considered to offer very limited opportunities for bats, but a more detailed internal appraisal of the buildings would be required in due course.

5.3.18. **Further Work and Recommendations.** Owing to the potential interest on site it is advised that further surveys adhering to current guidelines would be required to inform the level of interest and allow for any specific mitigation to be delivered. This may include the need for licensing should the trees highlighted as having roosting interest were confirmed as having roosting bats and were to be affected by the development scheme.

5.3.19. In the event that any structures or trees are considered to require emergence or re-entry surveys, the following requirements would apply:

Low Roost Suitability	• One survey visit. One dusk emergence or dawn re-entry survey (structures). • May to August.
Medium Roost Suitability	• Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. • May to September with at least one of surveys between May and August.
High Roost Suitability	• Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. • May to September, with at least two of surveys between May and August.

5.3.20. A series of activity surveys will be necessary to comply with guidelines. These would be undertaken according to the following requirements:

Low Suitability Habitat	• One survey visit per season in appropriate (i.e. spring, summer and autumn) • One static detector location per transect over consecutive five nights If higher than expected activity found then further surveys may be warranted.

Medium Suitability Habitat	• One survey visit per month (April to October) • At least one survey should comprise dusk and pre-dawn within one 24hr period • Two static detector locations per transect over consecutive five nights
High Suitability Habitat	• Up to two survey visits per month (April to October) • At least one survey should comprise dusk and pre-dawn within one 24hr period • Three static detector locations per transect over five consecutive nights

5.3.21. On the current evidence it is considered that the site would be classed largely as low suitability habitat, and therefore three rounds of transect surveys complemented by static detector deployments would be necessary. This may need to be increased if early surveys show higher than expected activity or record the presence of rare species.

Otters

5.3.22. **Legislation.** Otters are subject to the same legislative protection and licensing provisions as bats (see previous).

5.3.23. **Site Usage.** Although no evidence of use of the site by Otter was observed during the surveys undertaken, this species has been recorded using nearby in the data search area. Considering the suitability of the watercourses on site for Otters, it is possible that this species is using the site for feeding or as commuting corridors.

5.3.24. **Further Work and Recommendations.** Further surveys of the site for Otters would be required in support of a planning application. Given the mobility of the species, it is possible that activity levels could increase over time, particularly given the proximity of local records.

5.3.25. The watercourses should be retained and buffered as part of the proposed development works wherever possible. The adoption of a tightly controlled CEMP would ensure the watercourses and associated riparian zones are not adversely affected by the proposed scheme and suitable opportunities for Otter remain present.

Water Voles

5.3.26. **Legislation.** Water Voles are fully protected under the Wildlife & Countryside Act 1981. It is 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;
- To sell, offer for sale or advertise for live or dead Water Voles;
- 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.

5.3.27. The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that were not the primary purpose of the act.

5.3.28. Operations where Water Voles are to be trapped or displaced require a conservation licence from Natural England. This may be in the form of a class licence or a site-specific licence dependent on whether the proposals meet particular criteria. To obtain either licence the project must deliver a net benefit for Water Voles.

5.3.29. **Site Usage.** The streams and wet ditches are suitable for Water Voles. Although no signs of this species were recorded on site during the surveys undertaken, records from within the site have been returned as part of the data search.

5.3.30. **Further Work and Recommendations.** Whilst the preliminary surveys have not found evidence of presence, these were undertaken at a sub-optimal time of year. Given the proximity of local records, more detailed surveys at the correct time of year will be required to inform any masterplan.

5.3.31. As previously stated, watercourses should be retained and enhanced as part of any development.

Hedgehogs

5.3.32. **Legislation.** Hedgehog is a Species of Principal Importance for the Conservation of Biodiversity under Section 41 (England) of the NERC Act 2006.

5.3.33. The NERC Act 2006 requires the Secretary of State to:

…take such steps as appear… to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any published under this section, or…promote the taking by other of such steps.

5.3.34. **Site Usage.** No evidence of Hedgehogs was recorded during the survey work undertaken. The semi-improved grassland field margins, hedgerows and areas of woodland currently present within the site offer suitable opportunities for foraging and dispersing Hedgehogs.

5.3.35. **Further Work and Recommendations.** It is recommended that ground cover be cleared outside the winter hibernation period (October to April inclusively). The retention and enhancement of the hedgerows and any other boundary features would provide continued opportunities for commuting and foraging Hedgehogs. The establishment of new habitats and native planting would represent an increase in opportunities for this species.

5.3.36. A series of 'Hedgehog Gateways' should also be installed in any current or proposed fencing in order to facilitate movement through areas of new development and ensure continued permeability.

Birds

5.3.37. **Legislation.** Section 1 of the Wildlife and Countryside Act 1981 (as amended) is concerned with the protection of wild birds, while Schedule 1

lists species that are protected by special penalties. All species of birds receive general protection while nesting.

5.3.38. **Site Usage.** House Sparrow, Blackbird, Magpie, Pheasant, Red-legged Partridge and Woodpigeon were recorded within the site. Black Swan were also observed within a paddock close to one of the ponds. The main suitable nesting habitats include the [redacted] It is expected that the site will present some ornithological interest in a local context.

5.3.39. **Further Work and Recommendations.** Further specific breeding bird surveys and wintering bird surveys will be required be completed to ascertain the ornithological interest of the site and inform the level of mitigation and enhancement measures required. Breeding bird surveys should be completed between April and June inclusive, while wintering birds surveys are effective from November to February inclusive.

Reptiles

5.3.40. **Legislation.** All six British reptile species receive a degree of legislative protection that varies depending on their conservation importance.

5.3.41. Rare, endangered or declining species receive 'full protection' under the Wildlife and Countryside Act 1981 (as amended) as well as protection under the Conservation of Habitats and Species Regulations 2017 (as amended). Species that are fully protected are Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis*. These receive the following protection from:

- Killing, injuring, taking;
- Possession or control (of live or dead animals, their parts or derivatives);
- Damage to, destruction of, obstruction of access to any structure or place used for shelter or protection;
- Disturbance of any animal occupying such a structure or place; and
- Selling, offering for sale, possession or transport for purposes of sale (live or dead animal, part or derivative).

5.3.42. Owing to their abundance in Britain, Common Lizard *Zootoca vivipara*, Slow Worm, Grass Snake and Adder *Vipera berus* are only 'partially protected' under the Wildlife and Countryside Act 1981 (as amended) and as such only receive protection from:

- Deliberate killing and injuring;
- Being sold or other forms of trading.

5.3.43. Therefore, if reptiles are present within a site, a scheme of translocation can be implemented to avoid the offence of killing / injury.

5.3.44. **Site Usage.** No evidence of reptiles was recorded during the survey work. Habitats with potential to support reptiles restricted to the field margins.

5.3.45. **Further Work and Recommendations.** A targeted survey of areas of higher quality would be required to establish presence / absence and inform any mitigation strategy, but overall the likelihood of presence is considered to be relatively low. The survey would be effective from April to September inclusive.

Amphibians

5.3.46. **Legislation.** Great Crested Newts are subject to the same legislative protection and licensing provisions as bats (see previous).

5.3.47. **Site Usage.** The site supports several ponds. A preliminary assessment of these ponds has found that the majority are potentially suitable to support Great Crested Newts. The site supports a number of habitats that are considered to offer suitable terrestrial opportunities for Great Crested Newts, including for foraging, shelter and hibernation. Moreover, there are several known records in the immediate vicinity of the site.

5.3.48. **Further Work and Recommendations.** eDNA surveys of the ponds should be undertaken from mid-April to June to ascertain the presence of any Great Crested Newt populations. Generally, as previously stated, the network of ponds and ditches should be retained and enhanced as part of any development.

Invertebrates

5.3.49. **Site Usage.** Given the habitats present it is likely an assemblage of invertebrate species would be present within the site. However, there is no reason to suspect the site to be of any elevated entomological interest.

5.3.50. **Further Work and Recommendations.** It is recommended that any new planting be comprised of native species rather than non-native species, as native species are known to support a greater assemblage of invertebrates which should in turn benefit local bat and bird populations. New landscaping should include species of local provenance and value for pollinators to offer new resources for invertebrates.

5.3.51. Further enhancements, including the proposed residents' gardens, should increase the foraging resources for invertebrates and would represent an enhancement over the current situation.

5.3.52. The installation of invertebrate boxes on retained trees and within the proposed native species planting in addition to the establishment of log piles for saproxylic species could also provide further enhancements on site for invertebrates.

6. PLANNING POLICY CONTEXT

6.1. The planning policy framework that relates to nature conservation at the site is issued at two main administrative levels: nationally through the National Planning Policy Framework (NPFF) and locally through the local planning policies of the South Cambridgeshire Local Plan.

6.2. Any proposed development will be judged in relation to the policies contained within these documents that concern nature conservation.

6.3. National Policy

National Planning Policy Framework (July 2021)

6.3.1. Guidance on national policy for biodiversity and geological conservation is provided by the NPPF, published on 20 July 2021. The document replaces the NPPF published in February 2019. It is noted that the NPPF continues to refer to further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system provided by Circular 06/05 (DEFRA / ODPM, 2005) accompanying the now-defunct Planning Policy Statement 9 (PPS9).

6.3.2. The key element of the NPPF is that there should be "a presumption in favour of sustainable development" (paragraph 11). It is important to note that this presumption "does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site" (paragraph 182). 'Habitats site' has the same meaning as the term 'European site' as used in the Habitats Regulations 2017.

6.3.3. Hence the direction of Government policy is clear; that is, the presumption in favour of sustainable development is to apply in circumstances where there is potential for an effect on a European site, if it has been shown that there will be no adverse effect on that designated site as a result of the development in prospect.

6.3.4. A number of policies in the NPPF are comparable to those in PPS9, including reference to minimisation of impacts to biodiversity and provision of net gains to biodiversity where possible (paragraph 174).

6.3.5. The NPPF also considers the strategic approach that Local Authorities should adopt with regard to the protection, maintenance and enhancement of green infrastructure, priority habitats and ecological networks, and the recovery of priority species.

6.3.6. Paragraphs 180 and 181 of the NPPF comprise a number of principles that Local Authorities should apply, including integrating opportunities to incorporate biodiversity in and around developments; provision for refusal of planning applications if significant harm cannot be avoided, mitigated or compensated for; applying the protection given to European sites to potential SPAs, possible SACs, listed or proposed Ramsar sites and sites identified (or required) as compensatory measures for adverse effects on European sites; and the provision for the refusal for developments resulting in the loss or deterioration of 'irreplaceable' habitats – unless there are

'wholly exceptional reasons' (for instance, infrastructure projects where the public benefit would clearly outweigh the loss or deterioration of habitat) and a suitable compensation strategy exists.

6.3.7. National policy therefore implicitly recognises the importance of biodiversity and that with sensitive planning and design, development and conservation of the natural heritage can co-exist and benefits can, in certain circumstances, be obtained.

6.4. Local Policy

South Cambridgeshire Local Plan (Adopted 2018)

6.4.1. The South Cambridgeshire Local Plan was adopted on 27 September 2018 and is the principal development plan document guiding development in South Cambridgeshire. It updates and replaces the South Cambridgeshire Local Development Framework which was adopted between January 2007 and January 2010 and covered the period up to 2016. The Local Plan's policies and proposals cover the period 2011 to 2031. Policies relevant to nature conservation in relation to the site are set out below.

6.4.2. **Policy NH/4: Biodiversity** is concerned with permitting developments where the primary objective is to conserve or enhance biodiversity through maintenance, enhancement, restoration or addition to achieve positive gain through the form and design of development.

6.4.3. **Policy NH/5: Sites of Biodiversity or Geological Importance** is concerned with developments which may have an adverse impact on land within or adjoining a Site of Biodiversity or Geological Importance. Exceptions to this may be made only where the benefits of the development clearly outweigh any adverse impacts.

6.4.4. **Policy NH/6: Green Infrastructure** will aim to conserve and enhance green infrastructure within the district. The policy also states that proposals which cause loss or harm to the green infrastructure network will not be permitted unless the needs for and benefits of the development demonstrably and substantially outweigh any adverse impacts. All new developments are also required to contribute towards the enhancement of the green infrastructure network within the district. These contributions will include the establishment, enhancement and the on-going management costs.

The Greater Cambridge Local Plan

6.4.5. Cambridge City Council and South Cambridgeshire District Council are in the process of producing a joint Local Plan for the area referred to as Greater Cambridge. The site falls within the Greater Cambridge boundaries and therefore this forthcoming Local Plan will be relevant when it is formally adopted.

6.4.6. It is currently in the consultation phase but when it is implemented it will seek to provide more opportunities to protect and enhance biodiversity and open space. Individual developments will require biodiversity net gains.

Natural Cambridgeshire Local Nature Partnership

6.4.7. Cambridge City Council and South Cambridgeshire District Council have declared biodiversity emergencies. Both councils are members of the Natural Cambridgeshire Local Nature Partnership (LNP) which in September 2020 launched its ambitious action plan to double the area of rich wildlife habitats and natural green space within Cambridgeshire and Peterborough. It wants to see all developments contribute to achieving a net gain in biodiversity through new development.

6.4.8. The Partnership has created a "Developing with Nature Toolkit" comprising a list of "10 Things to do for Nature" to help developers demonstrate their commitment to achieving net biodiversity gains. This toolkit is designed to be used from the very beginning of the process with selecting a site for development. This has yet to be formally adopted but it is expected to form future guidance on whether a development has achieved a net gain in biodiversity. This Toolkit would not replace existing planning policies.

Oxford-Cambridge Arc

6.4.9. Cambridgeshire is also part of the Oxford to Cambridge Arc. This is primarily a collaboration to enhance the economic strength and opportunities in these areas but also seeks to improve the natural environment in the Arc.

6.4.10. The Government has already set out its intention for the Arc to embody England's 25 Year Environment Plan. This includes wanting new developments to use intelligent and sensitive design to create or enhance habitats and improve habitat connectivity, in situ and in the surrounding area.

6.5. **Discussion**

6.5.1. It is considered that, with good design and following the recommendations in this report, the development of the site would have the capacity to accord fully with national and local policy and avoid any significant impacts on nearby designated sites for nature conservation.

6.5.2. The potential for protected species to be present has been identified and surveys recommended. The site is dominated by arable fields which are of negligible nature conservation interest. There is good potential for significant Biodiversity Net Gain. Overall, it is considered that the proposals for development would be in line with the planning policies summarised above.

7. SUMMARY AND CONCLUSIONS

7.1. Ecology Solutions was commissioned in October 2020 by the Church Commissioners for England to undertake an ecological assessment of the site.

7.2. The proposals for the site are expected to comprise a residential-led mixed use development, with associated infrastructure, amenity areas and landscape planting.

7.3. The site is situated to the north and south of Cambridge Road (A428), west of the city of Cambridge. It comprises arable land which dominates, together with limited areas of woodland, hedgerows, treelines, semi-improved grassland, ditches and ponds. The complex of North East Farm and Pembroke Farm is central to the site, and considered as part of this assessment.

7.4. The site was subject to an extended Phase 1 habitat survey in November 2020; a desk-based study was also undertaken to inform this assessment.

7.5. **Statutory Sites.** There are no statutory designations of nature conservation value within the site or immediately adjacent to it. The closest statutory designated site for its biodiversity is Papworth Wood Site of Special Scientific Interest (SSSI), which lies approximately 1km north of the site boundary at its closest point, and is separated from the site by residential dwellings and Papworth Business Park. The site is one of the oldest secondary woods in Cambridgeshire. It is now dominated by invasive Small-leaved Elm and represents a woodland type scarce in the British Isles.

7.6. **Non-statutory Sites.** The nearest non-statutory designation is Caxton Moats County Wildlife Site (CWS), which lies approximately 0.2km southeast of the site boundary at its closest point. The site supports twenty-four neutral grassland indicator species, including ten strong indicators. There are a number of further non-statutory sites located in the wider area, but no significant adverse effects are anticipated as a result of the proposals for the site.

7.7. In due course, regard would need to be had for the potential for increased recreational impact on any local designated sites with public access, but it would be expected that the development of the site would incorporate significant areas of new public open space and green infrastructure for new residents.

7.8. **Habitats.** The habitats within the site consist of common and widespread species, although the wet ditches, hedgerows, ponds, semi-mature to mature trees and areas of woodland are of greater interest, largely due to the opportunities they offer wildlife rather than any intrinsic value. It is recommended that these features are retained as part of the proposals wherever possible, and bolstered with native species of local provenance, which would have greater benefit for local wildlife. In addition, where trees are felled sections of wood will be recovered to provide new habitat diversity at the margins of the site. The overwhelming majority consists of arable fields, which are of no nature conservation interest.

7.9. Development of the site will be expected to deliver a Biodiversity Net Gain in line with emerging policy and legislation, which will be a mandatory requirement by the time proposals are brought forward. The minimum requirement is likely to be a 10% gain measured by the Natural England / Defra Metric. A high quality green infrastructure strategy, based on the retention and enhancement of the

existing hedgerows, ponds and watercourses, as well as the establishment of new high quality habitats and opportunities for wildlife, will be required. Given that the majority of the site is currently intensively managed arable, of negligible value, the baseline for net gain calculations is low; nonetheless, good design will be essential to deliver the necessary improvements.

7.10. **Badgers.** Surveys for Badger were undertaken in November 2020. No evidence of Badgers was noted, but further surveys will be required in due course given the dynamic nature of this species.

7.11. **Bats.** The hedgerows throughout the site offer good foraging and dispersal opportunities for bats, with these features offering good connectivity from the site to other areas of interest for bats. Additionally, there are several trees within the site that could potentially support roosting bats. Owing to the potential interest on site it is recommended that further bat surveys be undertaken in due course to ascertain which species may be using the site and which features are of particular interest to bats.

7.12. **Otters.** Preliminary surveys for Otter were undertaken in November 2020. No evidence was noted, but this species has been recorded using watercourses in the vicinity of the site. Updated surveys of suitable habitats will be required to inform any planning application.

7.13. **Water Voles.** Preliminary surveys for Water Voles were undertaken in November 2020. No evidence of was noted, but the species has been recorded using watercourses in the vicinity of the site and the survey was completed at a sub-optimal time of year. Further surveys of suitable habitats in the optimum season will be necessary.

7.14. **Hedgehogs.** No Hedgehogs were recorded during the course of the survey work. Nevertheless, the areas of semi-improved grassland and field margins, hedgerows and areas of woodland present on site provide suitable opportunities for foraging and hibernating Hedgehogs. The retention and enhancement of the boundary features would provide continued opportunities for commuting and foraging Hedgehogs, while new habitats would be beneficial. A series of 'Hedgehog Gateways' should be installed within new fences to facilitate movement through the new development and ensure continued permeability.

7.15. **Birds.** The different habitats found on the site, principally scattered trees, hedgerows, ponds and wooded areas are suitable habitats for nesting and foraging birds. An assemblage of common species was recorded using the site during survey work, though Black Swans were observed within a paddock close to one of the ponds. Specific breeding bird surveys and wintering bird surveys are required to ascertain the ornithological interest of the site and inform the level of mitigation and enhancement measures.

7.16. **Reptiles.** No evidence of reptiles was recorded during the survey work. Habitats with potential to support reptiles are, and restricted to the field margins. A targeted survey of areas of higher quality would be required to establish presence / absence and inform any mitigation strategy, but overall the likelihood of presence is considered to be relatively low.

7.17. **Amphibians.** A preliminary assessment of the ponds has found that the majority are potentially suitable to support Great Crested Newts, while the site also supports several habitats considered to offer suitable terrestrial opportunities.

Moreover, there are several known records in the immediate vicinity of the site. eDNA surveys of the ponds should be undertaken to ascertain the presence of any Great Crested Newt populations.

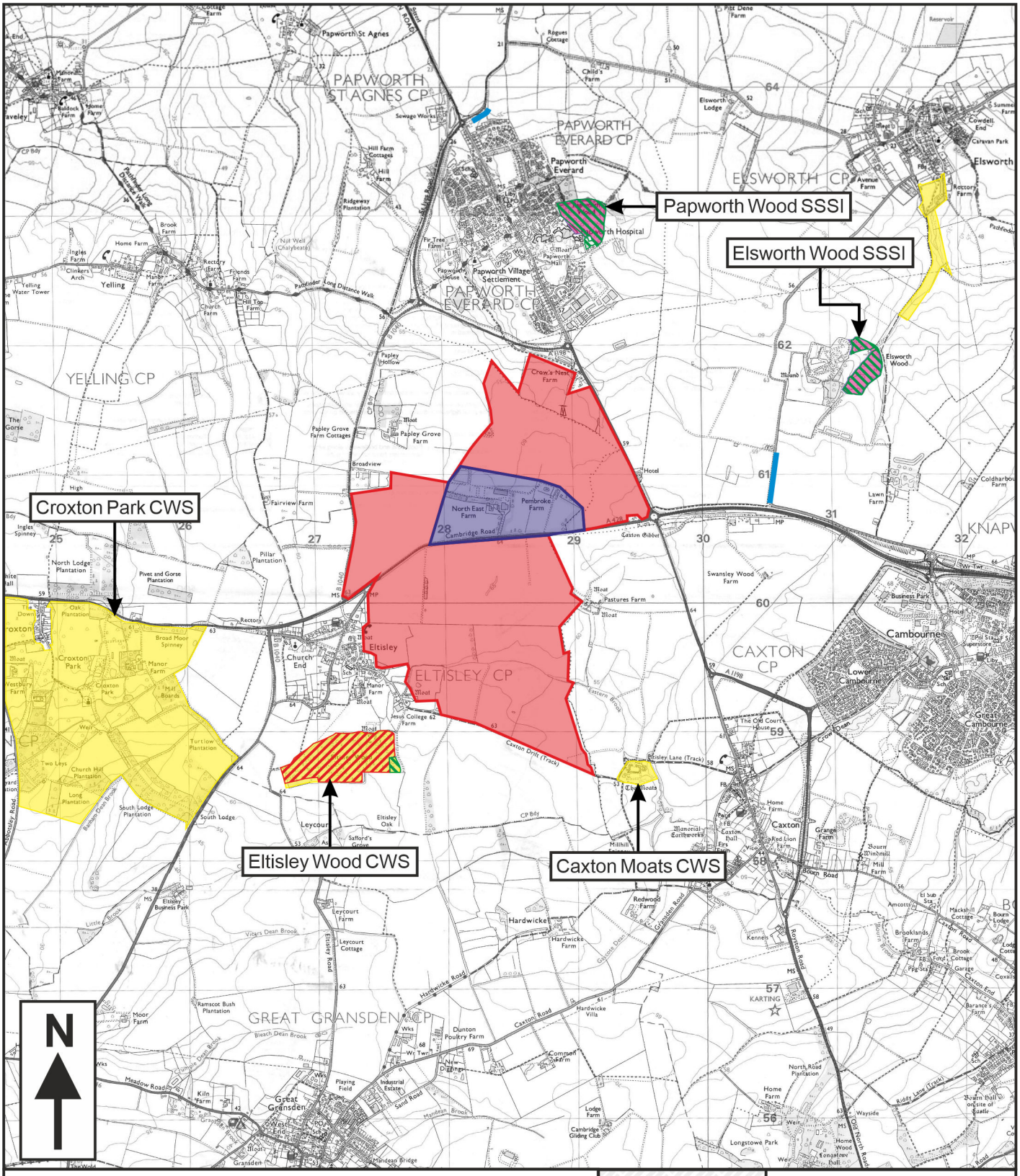
7.18. **Invertebrates.** It is likely that an assemblage of common invertebrate species is present within the site. It is recommended that any new planting be comprised of native species rather than non-native species, as native species are known to support a greater assemblage of invertebrates which should in turn benefit local bat and bird populations. Further enhancements should be provided through the installation of invertebrate boxes on retained trees and within the proposed native species planting.

7.19. In conclusion, on the basis of the current evidence there is no overriding ecological reason why the site could not be developed. The potential for protected species to be present has been identified and surveys recommended. The site is dominated by arable fields which are of negligible nature conservation interest. There is good potential for significant Biodiversity Net Gain. It is considered that, with good design and following the recommendations in this report, the development of the site would have the capacity to accord fully with national and local policy and avoid any significant impacts on nearby designated sites for nature conservation.

PLANS

PLAN ECO1

Site Location and Ecological Designations



KEY:

- SITE LOCATION
- NORTH EAST FARM AND PEMBROKE FARM
- SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
- COUNTY WILDLIFE SITE (CWS)
- ANCIENT REPLANTED WOODLAND
- ANCIENT AND SEMI-NATURAL WOODLAND
- PROTECTED ROAD VERGE

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9451: 'THE KINGSFIELDS' – LAND TO THE WEST OF CAMBOURNE, CAMBRIDGE

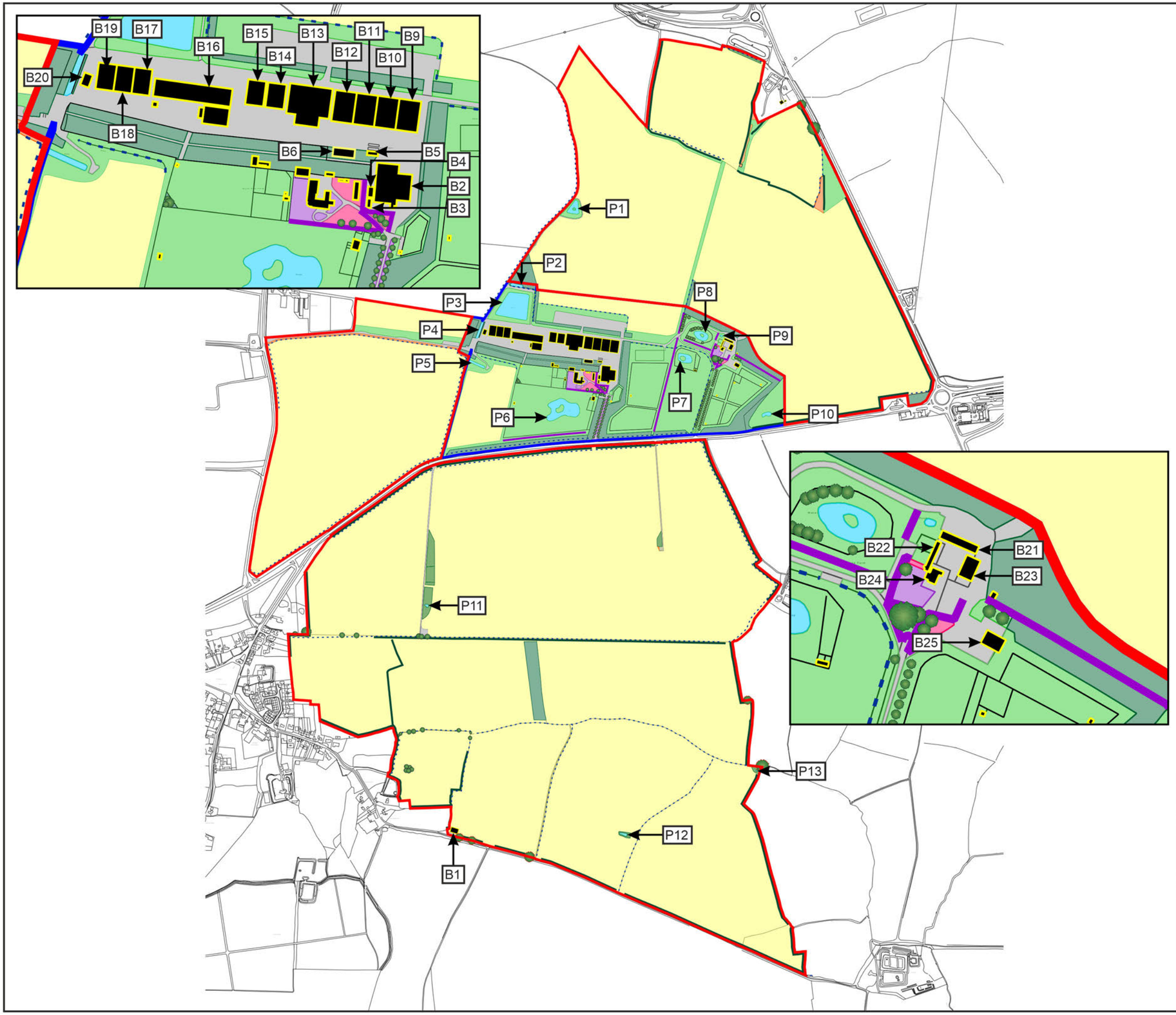
PLAN ECO1: SITE LOCATION AND ECOLOGICAL DESIGNATIONS

Rev: B

Nov 2021

PLAN ECO2

Ecological Features



KEY:

- SITE BOUNDARY
- BUILDING
- ARABLE FIELD
- HARDSTANDING
- BROADLEAVED WOODLAND
- SEMI-IMPROVED GRASSLAND
- AMENITY GRASSLAND
- AMENITY PLANTING
- TALL RUDERAL / SCRUB
- POND
- AMENITY HEDGE
- HEDGEROW
- DRAINAGE DITCH
- TREE
- BAT POTENTIAL TREE

N

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PLAN ECO2: ECOLOGICAL FEATURES

Rev: C

Nov 2021

PHOTOGRAPHS

PHOTOGRAPH 1: Broadleaved woodland within an arable field

PHOTOGRAPH 2: Drainage ditch dissecting an arable field

PHOTOGRAPH 3: Agricultural warehouses within North East Farm

PHOTOGRAPH 4: Woodland adjacent to semi-improved grassland

PHOTOGRAPH 5: Pond P10 surrounded by semi-improved grassland

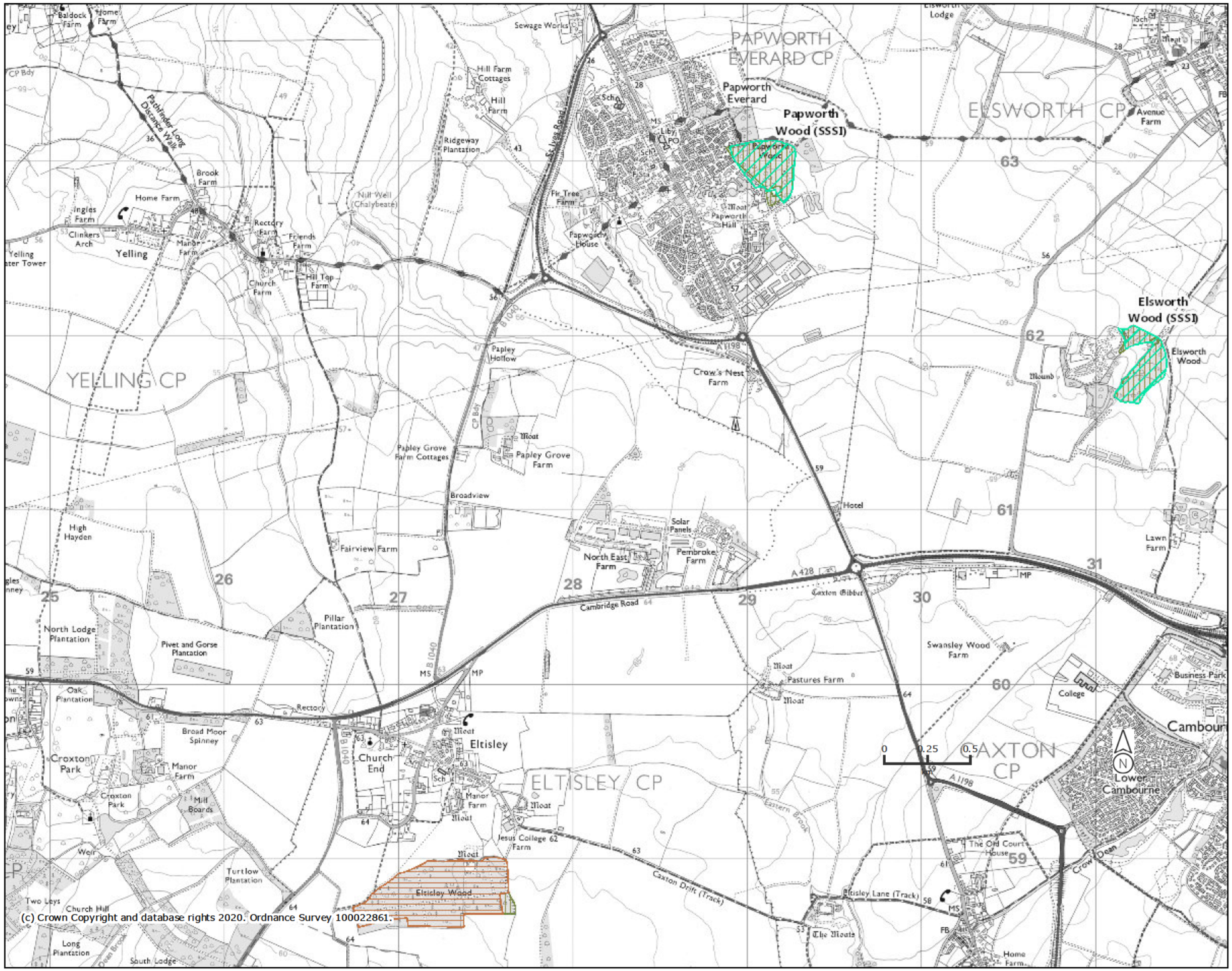
PHOTOGRAPH 6: Drainage ditch and adjacent gappy hedgerow

APPENDICES

APPENDIX 1

Information downloaded from the Multi-Agency Geographic Information for the Countryside (MAGIC) website

9451 MAGIC Sites



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Legend

- National Nature Reserves (England)
- Ramsar Sites (England)
- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)

Ancient Woodland (England)

- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland

Projection = OSGB36
xmin = 522700
ymin = 258400
xmax = 533800
ymax = 263900

0 0.4 0.8
km

Map produced by MAGIC on 23 October, 2020.

9451 MAGIC Great Crested Newts

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