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Station Fields, Foxton, Cambridgeshire

Preliminary Ecological Appraisal

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Client	Axis Land Partnership
Project	P19-706 Works at Station Fields, Foxton
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	Name	**Position**	**Date**
Originated	Lewis Saunders	Ecologist	12 November 2019
Reviewed	Roger Buisson	Associate Director	03 December 2019
Approved for issue to client	Roger Buisson	Associate Director	05 December 2019
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Contents

1 Summary

Report purpose	To present the results of a Preliminary Ecological Appraisal.
Client and commission date	Axis Land Partnerships, 18th October 2019.
Date and methods of survey	Extended Phase 1 habitat survey.
Key findings	The site contains deciduous woodland, ponds and native hedges, all priority habitats under the NERC Act. The site could support populations of great crested newt, common amphibians, and reptiles. The watercourse could support populations of / be used by water vole and otter. Bats are likely to be present and buildings on site provide suitable roost features and suitable foraging habitat is present. Badgers may make use of the Site but are unlikely to be resident. The site may support threatened or Section 41 biodiversity including vascular plants, invertebrates, birds and other mammals.
Potential impacts	Damage / loss of important / valued habitat including deciduous woodland, hedgerows, ponds, scrub, and grassland. Damage / loss of populations or killing of individuals of protected species including reptiles, amphibians, water vole, and bats. Damage / loss of Section 41 or threatened biodiversity.
Measures to avoid and/or reduce impacts	Retention of important habitats wherever possible. Retention of potential amphibian breeding ponds. Mitigation or compensation for loss of valuable habitat or habitat for protected species.
Opportunities for biodiversity enhancement	Development of green infrastructure in association with the corridor of the watercourse in the west of the Site. Development of a green buffer against the railway lines.

Further survey or consultation requirements	eDNA survey of potential GCN ponds. Focused water vole and otter survey of the watercourse. Focused reptile survey of most suitable habitat. Focused badger survey. Update botanical species list during the summer.

2 Introduction

Background to commission

2.1 BSG Ecology was contracted by Axis Land Partnerships on 18 October 2019 to carry out a desk study and extended Phase 1 survey of the proposed site of a new settlement to be called Station Fields, Foxton (henceforth referred to as 'the Site'). This ecology work was undertaken to support the promotion of the scheme into the emerging Local Plan. The local planning authority is South Cambridgeshire District Council.

Site description

2.2 The proposed development Site at Station Fields, Foxton is of approximately 100 hectares. It is located beside the A10 between the villages of Foxton, Shepreth, and Barrington around 11 km south-west of Cambridge and 8.5km north-east of Royston. There are railway stations at both Shepreth and Foxton. It is strongly divided into three by two railway lines which cross the Site - a main line and a mineral line. That division in to three has been used for the purposes of providing an indication of broad locations within this report and are referred to as Foxton South, Foxton North and Foxton East. A sewage works is located within an enclave of the Site.

2.3 The Site sits within a predominantly agricultural landscape. The River Rhee or Cam flows in a shallow valley around 400 m north of the Site and the minor watercourse on the western boundary of the Site is a tributary of this river. The site itself consists of four large arable fields, horse paddocks and small areas of woodland but few hedgerows.

2.4 The underlying solid geology is dominated by Upper Cretaceous Chalk, a narrow continuation of the chalk ridge that runs south-west to north-east across southern England. The overlying soils were deposited by river or ice, are nutrient poor, and described as freely draining lime-rich and loamy. The rolling downland of the region, mostly under cereal production, contains remnant chalk grasslands.

Aims of Study

2.5 The purpose of this study is to:

- Review and summarise the designated sites and biological records returned by the desk study.
- To classify the habitats present and identify any evidence of, or potential for, protected species on the Site and describe them in this report.
- Provide an early indication of potential impacts of the development of the Site.
- Outline the legislative and / or policy protection afforded to any habitats or species of importance likely to be associated with the Site.

3 Methods

Desk study

3.1 A desk study was carried out which included a data search to determine the presence of any protected / notable species records or designated non-statutory sites of conservation value (such as Local Wildlife Sites) within the Site or within a 2 km buffer projected from the boundary of the Site. Cambridgeshire and Peterborough Environmental Records Centre (CPERC) were contacted to supply this information, which was received on 07 November 2019.

3.2 Aerial photographs and mapping (Google Maps and OS Maps, accessed from 13 November 2019 and throughout the project) of the Site and its surroundings were reviewed to identify ponds within 250 m of the Site and assist in the characterisation of habitats within the Site. The MAGIC website (https://magic.defra.gov.uk) that provides geographic information about the natural environment from across Government was consulted for the presence of international statutory designated sites within 5 km, national statutory designated sites and European Protected Licences (EPSL) granted within 2 km of the Site and for previously classified habitats within and adjacent to the Site.

Field survey

3.3 An extended Phase 1 habitat survey of the Site was undertaken on 14 November 2019 by Lewis Saunders Ecologist at BSG Ecology.

3.4 The vegetation and land use types present within the Site were classified with reference to the standard JNCC Phase 1 methodology (JNCC, 2010). A botanical species list was recorded using the ACFOR scale A (abundant), C (common), F (frequent), O (occasional), R (rare) and can be found in Appendix 1.

3.5 The survey was extended to include an assessment of the potential of the habitats present to support protected species. Any signs of, and habitats of use to, protected species were recorded.

Interpretation

3.6 In this report the habitats and any sightings or evidence of protected species found during the Site survey have been described. Habitats have been evaluated for their intrinsic value and for their potential to support protected species.

3.7 A GCN Habitat Suitability Index (referred to as an HSI) has been calculated for each of the ponds present on Site according to a methodology published by Oldham *et al*. (2000). An HSI is a helpful measure of evaluating habitat quality for GCN. It is a numerical index between 0 and 1 where 0 indicates unsuitable habitat and 1 indicates optimal habitat. Its calculation is based on 10 individual suitability indices, all of which are factors thought to affect great crested newt presence.

Limitations to methods

3.8 Desk study records are limited by recorder effort with some areas being very well recorded and other areas being under-recorded. Factors which can affect recorder effort include presence/absence of resident local specialists, and land access. Absence of records cannot be taken as a guarantee of species absence but records indicate an increased likelihood of species presence.

3.9 The field survey was a walkover of a large site spread over one day, therefore a complete inventory of the species and features present on the Site was not possible however the time spent on Site was considered long enough to assess accurately the potential of the Site to support protected species and to evaluate the habitats.

Personnel Involved

3.10 The survey work and reporting was completed by Lewis Saunders, Ecologist at BSG Ecology. Lewis is an experienced botanist and has four years' professional ecology experience. Further details of his experience and qualifications can be found at https://www.bsg-ecology.com/portfolio_page/lewis-saunders-senior-ecologist-cambridge/.

3.11 The report has been technically reviewed by Dr Roger Buisson, Associate Director at BSG Ecology. Roger has over 30 years' professional ecology experience. Further details of his experience and qualifications can be found at https://www.bsg-ecology.com/portfolio_page/roger-buisson-director-of-ecology-cambridge/.

4 Results and Interpretation

Desk Study

Designated sites

4.1 The 2 km desk study area contains a total of three designated SSSI's including one biological SSSI and two Geological Conservation Review sites. In addition there are three County Wildlife Sites (CWS) and two protected road verges (PRV) within 2 km of the survey Site. A map of the designated sites is included as Appendix 3 of this report.

Sites of Special Scientific Interest (SSSI)

- **Barrington Chalk Pit,** TL392515, 97.07 ha, 1.8 km due north of the Site, Multiple barriers to dispersal, This is a 'Geological Conservation Review' site, and is noted as the last remaining exposure of the famous Cretaceous 'Cambridge Greensand'. The site has great stratigraphical importance for studies of the Upper Cretaceous of eastern England.
- **Barrington Pit,** TL383491, 3.76 ha, 1.2 km due north-east of the Site, Multiple barriers to dispersal, This is a 'Geological Conservation Review' Site of national importance for its vertebrate fauna from the Pleistocene Period of the Quaternary. One of the richest and most important fossil mammal localities in the British Isles.
- **L-moor, Shepreth,** TL385474, 7.32 ha, 1.8 km due south-east of the Site, Multiple barriers to dispersal, L-Moor holds floristically diverse and rich grassland communities which have largely developed on calcareous alluvium, and which are scarce in Cambridgeshire and nationally. The site has also been recognised as of high value for its invertebrate life.

County Wildlife Sites (CWS)

- **Hoffer Brook Pollard Willows (North),** TL418493, 3.56 ha, 1.2 km, some habitat connectivity along rail line, Supports at least 5 mature pollard willows in association with other semi-natural features.
- **River Rhee,** TL34, 0.4 km due north of the Site, Some habitat connectivity, Is a major river not grossly modified by pollution or canalisation. Additionally it has areas with concentrations of mature pollard willows.
- **Shepreth RSV**, TL394473, 0.02 ha, 1 km south-west of the Site, multiple barriers to dispersal, Supports a population of vascular plant species which is rare in the county, *Persicaria bistorta*.

Protected Road Verges (PRV)

- **Shepreth Unclassified road (S29),** TL394 473, 1 km south-west of the Site, multiple barriers to dispersal, Neutral/calcareous grassland, presence of 2 local red data book species
- **Mill Road, Fowlmere (S47),** 2 km south of the Site, multiple barriers to dispersal, TL40300 46050 - 41275 46475, 40625 46075 - 41275 46450, Neutral/calcareous grassland.

Ponds and watercourses

4.2 Use of the MAGIC website indicated that there were a total of three ponds within the Site and one minor watercourse. These are clustered in the north-west corner of the Site and two of these are connected with the watercourse. The minor watercourse formed the western boundary of the Site:

4.3 The surrounding landscape within 250 m contained a large lake of 2.5 ha and a smaller lake of 0.5 ha both west of the minor watercourse which formed the eastern boundary of the Site. A single pond was also located east of the watercourse. Following the watercourse to the north of the Site there is third widening into a pond. The River Rhee and a network of drains were also present to the north.

Priority Habitat

4.4 Use of the MAGIC website indicated that there was deciduous woodland within the Site at two points. Deciduous woodland was also scattered in numerous fragments throughout the landscape within a 1 km buffer.

4.5 Floodplain grazing marsh was found along the River Rhee immediately to the north of the Site within a 1 km buffer.

4.6 A traditional orchard was identified north of Barrington village within a 1 km buffer of the survey Site.

Field survey

Arable

4.7 The majority of the survey Site consisted of large arable fields.

4.8 Both Foxton South and Foxton East had been recently cultivated and consisted of bare ground. Foxton North had a recently sown cereal crop growing within it.

4.9 Arable land is a widespread habitat type of little ecological value.

Improved grassland

4.10 There were two blocks of improved grassland located in the west of Foxton North near to the minor watercourse amounting to 8 ha. They were used as horse paddocks associated with the South Cambridgeshire Equestrian Centre which lay outside of the survey Site to the west.

4.11 The grassland was species poor with very few herbs. It was dominated by a combination of perennial rye-grass *Lolium perenne*, cock's-foot *Dactylis glomerata*, and red fescue *Festuca rubra*. There were scattered, rare individuals of dandelion *Taraxacum officnale agg*., common ragwort *Senecio jacobaea*, and hogweed *Heracleum sphondylium*.

4.12 Improved grassland is a widespread habitat type of little ecological value.

Poor semi-improved grassland

4.13 Poor semi-improved grassland was very limited in area when compared to improved grassland. It was found as narrow strips around the edges of tracks and field, and as two slightly larger sections amongst new tree planting and adjacent to a horse paddock in Foxton North.

4.14 Typical species included false oat-grass *Arrhenatherum elatius,* cock's-foot and a few broadleaved species such as dock *Rumex sp.* and yarrow *Achillea millefolium.*

4.15 Poor semi-improved grassland is a widespread habitat type of little ecological value.

Semi-improved grassland

4.16 Semi-improved grassland was also very limited in area. It was found as small patches along the boundary of Foxton South with the A10, at the bases of hedgerows, and adjacent to the two railway lines which cross the Site.

4.17 The characteristic grass species were false oat-grass and cock's-foot. The herbs included yarrow, field scabious *Knautia arvensis*, perforate St-john's-wort *Hypericum perforatum*, black knapweed *Centaurea nigra,* greater knapweed *Centaurea scabiosa,* black horehound *Ballota nigra,* white campion *Silene latifolia,* common mallow *Malva sylvestris,* and ribwort plantain *Plantago lanceolata.*

4.18 Semi-improved grassland can be derived from a variety of species rich grassland types such as calcareous grassland. The semi-improved grasslands, although of limited extent, are of Site value. Field scabious is a plant that is considered Near Threatened.

Deciduous woodland

4.19 Deciduous woodland was found in two principal areas in Foxton South (Browns Spinney - W1) and Foxton North (Un-named W2/3), both adjacent to the minor watercourse and amounting to 1.5 ha in total.

4.20 Browns Spinney (0.8 ha) was located adjacent to the watercourse in Foxton South. The woody species were; Ash *Fraxinus excelsior,* (dominant), sycamore *Acer pseudoplatanus* (abundant), hawthorn *Crateagus monogyna* (frequent), field maple *Acer campestre* (occasional), elder *Sambucus nigra* (occasional), and walnut *Juglands regia* (rare). The ground flora consisted mostly of ivy *Hedera helix* (dominant) which also ascended the trees into the canopy. Other ground flora species included; Nettle *Urtica dioica,* wood sedge *Carex sylvatica* (occasional), remote sedge *Carex remota* (occasional), herb robert *Geranium robertianum*, hedge garlic *Alliaria petiolata,* wood avens *Geum urbanum, and* wood false-brome *Brachypodium sylvaticum* (all rare).

4.21 W2/3 (2.4 ha taken together) in Foxton North was found on both sides of an improved paddock, lay adjacent to the watercourse and contained three ponds. The woodland was bisected by the trackway to an equestrian centre and had an open managed feel. A proportion of the trees were certainly naturally occurring but others were clearly planted. The woody species included ash (abundant), white willow *Salix alba* (abundant), hawthorn *Crateagus monogyna* (frequent), grey willow *Salix cinerea* (occasional), elder , Norway maple *Acer platanoides* (occasional), Lime *Tilia x europaea,* horse-chestnut *Aesculus hippocastanum,* osier *Salix viminalis,* Italian alder *Alnus cordata,* silver birch *Betula pendula,* pedunculate oak *Quercus robur, and* grey alder *Alnus incana* (all rare).

4.22 Browns Spinney to the south certainly represents deciduous woodland priority habitat but that labelled W2/3 to the North doubtfully so because of obvious tree planting and management. Deciduous woodland is a habitat type of high ecological value providing habitat for a wide range of species groups. W2/3 contained some willows with medium potential to support roosting bats. The examples of deciduous woodland on this Site are likely to be of value above that of the Site level - probably of parish / neighbourhood value.

Scattered scrub

4.23 Boundaries within the Site generally supported scattered scrub rather than managed hedgerows. This habitat was noted along the boundary of Foxton South with the A10 and beside each of the railways which crossed the site. Species were a diverse range of woody plants including; blackthorn *Prunus spinosa,* dog-rose *Rosa canina,* field maple, hawthorn, ash, purging buckthorn *Rhamnus cathartica,* walnut, elm *Ulmus agg.,* apple *Malus domestica,* spindle *Eunonymus europaeus,* oak, sycamore, wild privet *Ligustrum vulgare*, and bramble *Rubus fruticosus agg*.

4.24 Diverse scrub can be of high value to a range of different species groups including invertebrates and birds. This habitat type is likely to be of at least Site value.

Hedgerows

4.25 Managed hedgerows were not a feature of the Site however four were encountered and they are described below.

4.26 Hedgerow 1 (H1) - Was as a managed mixed native hedgerow of 160 m at the eastern extend of Foxton South. Species included hawthorn, elm *Ulmus sp*. and sycamore.

4.27 Hedgerow 2 (H2) - Was a managed mixed native hedgerow of 250 m on the northern boundary of Foxton North. Probably of planted origin and included clearly planted standard oaks. Species included; dogwood *Cornus sanguinea,* dog-rose, Sycamore, hazel *Corylus avellana,* and ash.

4.28 Hedgerow 3 (H3) – Was an infrequently managed single species native hedgerow of hawthorn at the south-eastern extremity of Foxton North. 100 m length.

4.29 Hedgerow 4 (H4) – Was an un-managed hedge of pure beech *Fagus sylvatica* which surrounded the sewage works within Foxton North. 288 m length.

4.30 All hedgerows which consist of predominantly UK native species (even if one species only) are considered a priority habitat. Some hedgerows are considered important hedgerows under the Hedgerow Regulations if they meet certain criteria. Although assessment against the hedgerow regulations was outside the scope of this study it is not considered likely that any of the hedges on Site will be considered important hedgerows under the Regulations. All would qualify as priority habitat hedgerows and are of at least Site value.

Watercourse

4.31 As already described a minor watercourse formed the western boundary of the Site - a tributary of the River Rhee/Cam. The water was slowly flowing, sometimes sluggish and silty. Along its length within the Site parts of the course were shaded and other parts open. To the north the watercourse broadened into two ponds at points. The central part supported abundant reed *Phragmites australis.* Adjacent to Browns Spinney it was deeply shaded with hart's tongue fern *Phyllitis scolopendrium*. Other species associated with the watercourse included; reed canary grass *Phalaris arundinacea,* fool's watercress *Apium, nodiflorum,* branched bur-reed *Sparganium erectum,* meadowsweet *Filipendula ulmaria,* bulrush *Typha latifolia,* woody nightshade *Solanum dulcamara,* yellow flag-iris *Iris pseudacorus,* willows, and poplars.

4.32 The watercourse is likely to be an integral part of the local ecological network providing good habitat connectivity, and to be an important feature for a wide range of species groups, therefor it is of at least parish / neighbourhood value.

Standard trees

4.33 Mature scattered oaks were found around the boundaries of Foxton East adjoining the road. On the verge next to hedgerow 1, lime *Tilia x europaea* and Norway maple had been planted. Recent planting of a range of tree species had taken place along the trackway which bisected Foxton North.

4.34 Oak is a valuable species for a range of species groups therefore the mature trees along the road are likely to be of Site value. They have a low potential to support roosting bats.

Tall ruderal

4.35 Tall ruderal dominated by nettles and docks was found in Foxton South around the margins of Browns spinney and the watercourse.

4.36 Tall ruderal is a widespread and common habitat type of little ecological value.

Buildings

4.37 A total of three buildings were recorded on Site and they are described below along with their potential to support roosting bats.

4.38 Building 1 (B1) - Was located in the extreme east of Foxton South adjacent to the main railway close to its junction with the mineral line. It was constructed from concrete blocks, had wooden beams on a central floor and slate tiles on the roof. It was derelict with the window openings fully open but the roof and first floor still intact. It had high potential for roosting bats.

4.39 Building 2 (B2) - Was located in the extreme north of Site associated with the Equestrian Centre. It was an agricultural building of metal sheeting and concrete construction. It had medium potential to support roosting bats.

4.40 Building 3 (B3) - Was also located in the extreme north of the Site associated with the Equestrian Centre. It was an open shelter of metal sheeting. It had very low potential to support bats.

Protected Species

Lower Plants

4.41 A UK Section 41 fungus species is known from Shepreth L Moor, big-blue pinkgill *Entoloma bloxamii*.

4.42 As a species of long established grassland big-blue pinkgill is unlikely to be present on the Site and will not be considered further in this PEA.

Higher Plants

4.43 A large number of plant species (more than 40) afforded Red List, Section 41, or Cambridgeshire and Peterborough Additional Species of Interest status have been recorded from the 2 km data search area around the survey site. Many of these are declining species of calcareous habitats. A large proportion of the records originate from nearby designated sites such as Shepreth L Moor and Barrington Pits however there are also scattered records for species such as field scabious, hoary plantain *Plantago media*, and dwarf spurge *Euphorbia exigua* throughout the surrounding non-designated landscape. There are two records for more than 300 flowering spikes of Nationally Scarce species monkshood *Aconitum napellus subsp. napellus* recorded from the bank of the minor watercourse which forms part of the Site boundary of Foxton North and Foxton South (TL397488, & TL399486, both June 1992). There is also a record for Nationally Scarce, Red data book vulnerable Slender Tare *Vicia parviflora* (1991, TL408488) from Foxton East described as 'waste ground north of the railway. In large quantity.'

4.44 A small population of Red Data Book Near Threatened field scabious was found from the southern periphery of Foxton South by the A10 during the field survey.

4.45 It is noted that significant species records for monkshood and slender tare have been found from potentially within the Site and that there are a large number of records of other species afforded a conservation status from within the surrounding landscape. Given this evidence, the habitats present on Site, and the fact that the current survey was carried out outside of the optimal botanical survey season further botanical conservation interest from within the Site cannot be ruled out.

White-clawed crayfish

4.46 The data search returned four records for white-clawed freshwater crayfish *Austropotamobius pallipes* located from the River Rhee/ Shep at Barrington and the Guilden Brook at Meldreth.

4.47 Crayfish prefer stony substrates and the watercourse on Site had a muddy base. Additionally the records are all more than 10 years old. It is very unlikely crayfish occur on Site and will not be considered further in this PEA.

Other Invertebrates

4.48 The 2 km data search around the survey Site produced records for more than 40 different invertebrates afforded Red List, Section 41, or Cambridgeshire and Peterborough Additional Species of Interest status. This included a total of six beetles, small heath *Coenonympha pamphilus* butterfly, 36 moths, one orthopteran, one true bug, and one true fly.

4.49 The Site includes a range of habitats including woodland, scrub, grassland, and water, which means that it has the potential to support invertebrates of conservation interest.

Reptiles

4.50 Two of the six native British reptiles have been recorded from the area. A total of six records of common lizard *Zootoca vivipara* with five from the last 10 years almost exclusively from Shepreth L moor SSSI and nearby areas. A total of five records of grass snake *Natrix natrix* were returned with two records within the last 10 years, again mostly from Shepreth L Moor and surrounding areas but also from the River Rhee at Barrington.

4.51 None of the existing records have an especially high degree of habitat connectivity with the survey Site. The localised nature of the records would suggest that reptiles are not especially widespread or common in the surrounding landscape. Some suitable habitat for reptiles does exist on Site. Areas near the small watercourse support semi-natural woodlands and tussocky grasslands furthermore grass snake is often associated with ponds and watercourses. Railway lines are known to provide suitable habitat for reptiles and to provide corridors for dispersal. Given these factors it is possible that reptiles are present on the Site and they should be given further consideration within this PEA.

Great crested newt

4.52 A total of 12 records of great crested newt *Triturus cristatus* (referred to as GCN) were returned for the study area and five of these were from within the last 10 years. The majority of the records were located in the Shepreth area, especially Docwra's Meadow. There were also two recent records from the Barrington Pit SSSI.

4.53 The existing records do not have a high degree of proximity or connectivity with the survey Site but do indicate that great crested newts are present in the surrounding area. As mentioned under the habitats section three ponds (P1-3) were located in deciduous woodland in the north-western extent of the Site and their suitability for GCN has been evaluated by the calculation of HSI scores displayed in Table 1 below. The terrestrial habitat here and along the corridor formed by the minor watercourse was suitable for GCN however the fact that two of the ponds were connected to the watercourse could increase the likelihood of predatory fish presence. Given these factors it is possible that GCN are present on Site and they should be given further consideration within this report.

Table 1: HSI scores and ponds suitability for GCN.

Pond reference	HSI score	Suitability
Pond 1	0.69	Average
Pond 2	0.67	Average
Pond 3	0.72	Good

Other amphibians

4.54 A total of two recent records of common frog *Rana temporaria* were returned from Foxton and Shepreth respectively and none from within the Site boundary.

4.55 Despite the lack of records from within the Site presence of common amphibians such as frogs is considered likely.

Birds

4.56 A total of 74 species of Red and Amber listed birds have been recorded from the 2 km data search area including species of farmland bird such as grey partridge *Perdix perdix*, turtle dove *Streptopelia turtur*, tree sparrow *Passer montanus*, yellowhammer *Emberiza citrinella* and corn bunting *Emberiza calandra*.

4.57 The Site has habitat which could support a wide variety of bird species but especially those of farmland.

Bats

4.58 A total of 32 records for bats *Chiroptera* were returned from the study area including from Foxton, Shepreth and Barrington but not from within the Site itself showing this group to be widespread in the surrounding landscape. The species recorded included a large number of generalised *Chiroptera* records but also records for brown long-eared bat *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus,* Daubenton's bat *Myotis daubentonii*, noctule bat *Nyctalus noctula,* serotine *Eptesicus serotinus,* and soprano pipistrelle *Pipistrellus pygmaeus.*

4.59 The fact that bats have been frequently recorded from the surrounding landscape indicates that they could be present on Site. Furthermore the Site contains habitat suitable for bats in the form of derelict buildings of high bat potential, agricultural buildings of low and medium bat potential, and trees of medium bat potential. There were also habitats suitable for foraging (woodlands, scrub, ponds and a watercourse) and linear features to provide commuting routes (railway line, watercourses and boundary features). Bats will need to be considered further within this PEA.

Badger

4.60 A total of 72 records for European badger *Meles meles* were returned by the data search but the majority of these were not localised by more than 10 km square precision making it not possible to know if they lay within the Site. A total of 10 records, all from within the last 10 years, were given to 100 m within the Site and these were mostly located to the south-west of the Site between Shepreth and Fowlmere with one record (TL402479, 10/01/2012) located close to the south-west corner of Site and described as 'Activity near otter survey site'.

4.61 No evidence of badgers was found during the Site survey. Despite the lack of evidence from the Site survey the records search indicates the presence of badger within the immediate surroundings. Badgers will need further consideration within this PEA.

Otter

4.62 A total of 31 records for otter *Lutra lutra* were returned for the study area with the majority of these being from within the last 10 years. The otter records are widespread throughout the area but were mainly centred around minor watercourses associated with the village of Shepreth and also on the River Rhee towards Barrington.

4.63 No evidence of otters was found during the Site survey. Despite the lack of evidence from the Site survey the records search indicates the presence of otter within the immediate surroundings. The watercourse which forms the western boundary of the Site has the potential to attract otters and at the very least could be used as a commuting route between the Shepreth area and the River Rhee. Otter will need further consideration within this PEA.

Water vole

4.64 A total of 13 records for water vole *Arvicola amphibius* were returned for the study area with the majority of these being from within the last 10 years. The majority of the records were located on minor watercourses around Shepreth to the south-west of the survey Site and also around the River Rhee towards Barrington.

4.65 No evidence of water vole was found during the Site survey. Despite the lack of evidence from the Site survey the records search indicates the presence of water vole within the immediate surroundings. The watercourse which forms the western boundary of the Site appears to be suitable for water voles and could support a resident population. Water vole will need further consideration within this PEA.

Other mammals

4.66 The records search for the study area also returned recent records for western European hedgehog (5 records, Section 41, Red Data Book vulnerable, UKBAP), polecat (1 record, HabRegs4, HSD5, Sect.41, UKBAP), and brown hare *Lepus europaeaus* (8 records, Section 41, UKBAP).

4.67 The survey Site contains habitat suitable for the above species and their presence is likely in the case of hedgehog and brown hare and possible in the case of polecat.

Limitations to results and interpretation

4.68 The data held by CPERC will largely be limited to locations that are accessible to natural history recorders such as publicly owned land, rights of way and nature reserves whereas the Site is private farmland with limited access.

4.69 The results of the field survey are limited mainly by the time of year of the Site visit. This was outside of the optimal survey season for taxa groups such as plants and invertebrates.

5 Potential Impacts and Recommendations

5.1 The proposed development at Foxton, Station Fields, is at an early stage in its planning with this Preliminary Ecological Appraisal intended to inform the consideration of the proposal as a site to be included within the emerging Local Plan. Consequently potential impacts can only be outlined at this stage.

Habitats

5.2 Depending on the layout of the final scheme there is the potential for important / valued habitat to be lost or impacted upon including priority habitat deciduous woodlands, hedgerows, and ponds as well as small areas of semi-improved grassland and scattered scrub.

5.3 In the first instance it is recommended that as much valuable habitat as possible is retained on Site. In particular the priority habitat deciduous woodland, ponds, and hedgerows should be retained. It is acknowledged that some valuable habitat such as scrub and semi-improved grassland may be lost and this could be mitigated for on-site or compensated for off-site.

5.4 It is recommended that the corridor along the watercourse including the woodland and ponds is retained, developed and enhanced as part of the green infrastructure of the Site retaining linkages with the wider landscape and buffering the features of interest within the Site.

Species

Vascular plants

5.5 There is the potential for the development of the land to result in the loss of populations of Section 41 or recognised threatened plant species such as field scabious, monkshood and slender tare.

5.6 The habitats most likely to support threatened plant species could be recorded again for vascular plants during the main spring / summer survey season in conjunction with other surveys such as amphibians or water vole. Any threatened plant species found could be considered as part of the overall ecological design of the development, if given planning permission.

Invertebrates

5.7 There is the potential for the development of the land to result in the loss of populations of Section 41 or recognised threatened invertebrate species.

5.8 Invertebrates could be considered as part of the overall ecological design of the proposed development or compensated for in the form of on-site mitigation or off-site compensation.

Amphibians

5.9 Great crested newt and common amphibians could be present on the Site, in particular in the three ponds in Foxton North. It is possible that the proposed development could impact upon populations of amphibians including GCN and common frog. Impacts could include predation by domestic cats, introduction of fish by residents and loss of terrestrial habitat.

5.10 It is recommended in the first instance that an eDNA survey of the three ponds is carried out to determine the presence / likely absence of GCN. Based on the results of the eDNA it will be possible to determine the necessity for further survey and thence any on-site mitigation or off-site compensation.

Reptiles

5.11 There is the potential for populations of reptiles to be impacted upon by the proposed development. Potential impacts include loss of suitable habitat, predation by pets and disturbance by humans.

5.12 It is recommended that a survey for reptiles targeted at the most suitable habitat is carried out to determine the presence / likely absence of this group.

Birds

5.13 It is probable that the proposed development will result in habitat loss for Red or Amber listed birds that use open fields such as grey partridge and skylark.

5.14 Farmland birds could be taken into account in any off-site compensation should the development be given planning permission. Woody habitat could be retained and extended to enhance the Site for woodland birds No clearance of woody vegetation within the breeding bird season March-October to avoid destroying nests.

Bats

5.15 The proposed development is likely to impact upon bats. Based on the survey results it seems highly likely that bats could be using at least one building on Site (Building 1). Any demolition of buildings on Site could potentially destroy roosting places for bats. The future development of the Site would likely introduce lighting effects which would negatively impact upon the usage of any retained habitat features, such as woodland, by bats.

5.16 All the buildings on Site, but especially building 1, should be further investigated for their bat roost potential. At least building 1 is likely to require either a detailed internal inspection (subject to safe access) or regular bat surveys to determine if / the extent to which bats are likely to use it. The effects of the development on the habitat usage by bats should also be investigated.

Badgers

5.17 It is possible that development of the land could impact on the foraging of local badger clans but is unlikely to impact seriously upon the local population. No evidence of badger, not least any setts, was found during the Site survey.

5.18 Further focused badger survey could be carried out to establish the degree or lack off to which local badgers use the Site and any actions required to mitigate for changes to the habitat.

Otter and water voles

5.19 There is the potential for the development of the land to impact upon populations or usage of the watercourse by otter and water vole. Although the watercourse is likely to be left relatively undisturbed potential impacts could include changes of habitat management, predation by pets and disturbance by humans.

5.20 It is recommended that the watercourse is surveyed for evidence of both otter and water vole to establish their presence / likely absence. These species could be taken into account on any on-site mitigation or off-site compensation should the development receive planning permission.

Other mammals

5.21 There is the potential for the development to impact upon populations of Section 41 mammals including hedgehog, polecat and brown hare.

5.22 These species could be taken into account on any on-site mitigation or off-site compensation should the development receive planning permission.

6 Conclusions

6.1 The Site is predominantly arable land which is of low ecological value and there are no designated sites of wildlife value within its boundary. There are some localised habitat features of value including semi-natural deciduous woodland, ponds, watercourses, hedgerows and scrub.

6.2 Priority habitat woodlands, hedges, ponds and watercourse should be retained. The watercourse and associated habitats could be retained and enhanced and a valuable contribution to the green infrastructure of the Site, providing linkages with the wider landscape.

6.3 On-site mitigation could take the form of vegetation buffering the effects of the railway lines which cross the Site.

6.4 Further surveys are recommended for GCN, reptiles, otters, water voles, badgers and bats.

6.5 The potential loss of threatened biodiversity within the vascular plants, invertebrates, birds and other mammals could be mitigated or compensated for on or off site.

7 References

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8 Figures

(overleaf)

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BSG ecology

OFFICE: Cambridge
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JOB REF: P19-706

PROJECT TITLE

STATION FIELDS, FOXTON

DRAWING TITLE

Figure 1: Phase 1 Habitat Plan

DATE: 05/12/2019 CHECKED: LS SCALE: 1:5,000

DRAWN: COH APPROVED: RB VERSION: 1.3

LEGEND

- Survey boundary
- Scattered scrub
- Broadleaved tree
- Species-poor intact hedge
- Running water
- Fence
- A — Arable
- Bare ground
- Broadleaved semi-natural woodland
- Building
- I — Improved grassland
- SI — Poor semi-improved grassland
- Scattered scrub
- SI — Semi-improved grassland
- Standing water
- Tall ruderal

9 Photographs

Photo 1: Arable land in Foxton South.

Photo 2: Arable land in Foxton North

Photo 3: Improved grassland in Foxton North

Photo 4: Semi-improved grassland in Foxton South on boundary with A10.

Photo 5: Browns Spinney (W1), Foxton South

Photo 6: W2/3, Foxton North

	
Photo 1: W2/3, Foxton North	**Photo 2: Semi-improved grassland and scrub on railway line, Foxton South**
	
Photo 3: Building 2, Foxton North, Medium bat potential.	**Photo 4: Building 3, Foxton North, Low bat potential.**
	
Photo 5: Building 1, Foxton South, high bat potential, external view.	**Photo 6: Building 1, Foxton South, high bat potential, internal view.**

10 Appendices

Appendix 1: Species List

Scientific Name	English name	ACFOR	Status
Acer campestre	Field maple	C	
Acer platanoides	Norway maple	F	
Acer pseudoplatanus	Sycamore	A	
Achillea millefolium	Yarrow	A	
Aesculus hippocastanum	Horse-chestnut	F	
Agrimonia eupatorium	Common agrimony	O	
Agrostis stolonifera	Creeping bent-grass	O	
Alliaria petiolata	Hedge garlic	F	
Alnus glutinosa	Alder	R	
Angelica sylvestris	Angelica	R	
Anthriscus sylvestris	Cow parsley	A	
Apium nodiflorum	Fool's watercress	O	
Arctium lappa	Greater burdock	O	
Arctium minus	Lesser burdock	O	
Armoracia rusticana	Horseradish	R	
Arrhenatherum elatius	False oat-grass	C	
Artemisia vulgaris	Mugwort	C	
Atropa belladonna	Deadly nightshade	R	
Ballota nigra	Black horehound	R	
Brachypodium sylvaticum	Wood false-brome	F	
Calamogrostis epigejos	Wood small-reed	R	
Carex acutiformis	Lesser pond-sedge	R	
Carex pendula	Pendulous sedge	R	
Carex remota	Remote sedge	R	
Carex sylvatica	Wood sedge	R	
Centaurea nigra	Black knapweed	O	
Centaurea scabiosa	Greater knapweed	R	
Cirsium arvense	Creeping thistle	C	
Cirisum vulgare	Spear thistle	C	
Conium maculatum	Hemlock	O	

Scientific Name	English name	ACFOR	Status
Convolvulus arvensis	Field bindweed	O	
Corylus avellana	Hazel	O	
Crataegus monogyna	Hawthorn	C	
Crepis capillaris	Smooth hawk's-bit	R	
Dactylis glomerata	Cock's-foot	A	
Dipsacus fullonum	Teasel	F	
Epilobium hirsutum	Great willowherb	F	
Equisetum arvense	Field horsetail	R	
Eunonymus europaeus	Spindle	R	
Fagus sylvatica	Beech	R	
Festuca rubra	Red fescue	A	
Filipendula ulmaria	Meadowsweet	O	
Galium aparine	Cleavers	F	
Geranium dissectum	Cut-leaved crane's-bill	O	
Geum urbanum	Wood avens	O	
Glechoma hederacea	Ground ivy	F	
Glyceria maxima	Reed sweet-grass	R	
Hedera helix	Ivy	A	
Heracleum sphondylium	Hogweed	F	
Holcus lanatus	Yorkshire fog	F	
Hypericum perforatum	Perforate St John's-wort	O	
Hypericum terapterum	Square-stalked St John's-wort	R	
Iris pseudacorus	Yellow flag-iris	O	
Knautia arvensis	Field scabious	R	NT
Lactuca virosa	Great lettuce	R	
Lamium album	White deadnettle	F	
Lapsana communis	Nipplewort	O	
Ligustrum vulgaris	Wild privet	C	
Lolium perenne	Perennial rye-grass	F	
Malav sylvestris	Common mallow	F	
Medicago arabica	Spotted medick	R	
Phalaris arundinacea	Reed canary-grass	R	
Phragmites australis	Reed	F	

Scientific Name	English name	ACFOR	Status
Phyllitis scolopendrium	Hart's-tongue fern	R	
Picris echioides	Bristly ox-tongue	O	
Pinus sylvestris	Scot's pine	O	
Plantago lanceolata	Ribwort plantain	F	
Plantago major	Greater plantain	F	
Potentilla reptans	Creeping cinquefoil	F	
Prunus avium	Wild cherry	O	
Prunus domestica	Wild plum	R	
Quercus robur	Pedunculate oak	C	
Ranunclus repens	Creeping buttercup	F	
Reseda luteola	Weld	R	
Rhamnus cathartica	Purging buckthorn	R	
Ribes rubrum	Red currant	R	
Rorippa nasturtium-aquatica	Watercress	R	
Rosa canina	Dog-rose	C	
Rubus ceasius	Dewberry	F	
Rubus fruticosus	Bramble	A	
Rubus idaeus	Raspberry	R	
Rumex acetosa	Common sorrel	R	
Rumex crispus	Curled dock	O	
Rumex sanguineus	Wood dock	R	
Salix alba	White willow	F	
Salix caprea	Goat willow	F	
Salix cinerea	Grey willow	F	
Salix viminalis	Osier	F	
Sambucus nigra	Elder	C	
Saponaria officinalis	Soapwort	R	
Senecio erucifolius	Hoary ragwort	R	
Senecio jacobaea	Common ragwort	F	
Senecio vulgaris	Groundsel	R	
Silene dioica	White campion	F	
Sinapis arvensis	Charlock	R	
Sisymbrium officinale	Hedge mustard	R	

Scientific Name	English name	ACFOR	Status
Solanum dulcamara	Woody nightshade	O	
Solanum nigrum	Black nightshade	R	
Sonchus oleraceus	Smooth sow-thistle	R	
Sorbus aria	Common whitebeam	R	
Sparganium erectum	Branched bur-reed	R	
Stellaria media	Chickweed	R	
Symphytum officinale	Comfrey	R	
Taraxacum officinale agg.	Dandelion	F	
Tilia X europaea	Lime	R	
Tripleurospermum inodorum	Scentless mayweed	R	
Typha latifolia	Bulrush	R	
Ulmus agg.	Elm	O	
Urtica dioica	Nettle	A	
Verbascum thapsus	Great mullein	R	
Veronica persica	Common field-speedwell	R	
Viola arvensis	Field pansy	R	

Appendix 2: Pond great crested newt HSI.

POND 1- TL39654911	
Suitability Index	**Score**
Map location	1.00
Surface area	0.94
Desiccation rate	0.90
Water quality	0.67
Shade	0.60
Waterfowl	1.00
Fish population	0.33
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.32
Mean HSI Score	**0.69**
Pond suitability	**Average**

POND 2-TL39704904	
Suitability Index	**Score**
Map location	1.00
Surface area	1.00
Desiccation rate	0.90
Water quality	0.67
Shade	0.22
Waterfowl	1.00
Fish population	0.67
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.32
Mean HSI Score	**0.67**
Pond suitability	**Average**

POND 3-TL39684880	
Suitability Index	**Score**
Map location	1.00
Surface area	0.85
Desiccation rate	0.90
Water quality	0.67
Shade	1.00
Waterfowl	1.00
Fish population	0.33
Number of ponds within 1 km	1.00
Terrestrial habitat	0.67
Macrophyte cover (%)	0.32
Mean HSI Score	**0.72**
Pond suitability	**Good**

Appendix 3: Designated sites map

Designated Sites Map

for BSG Ecology

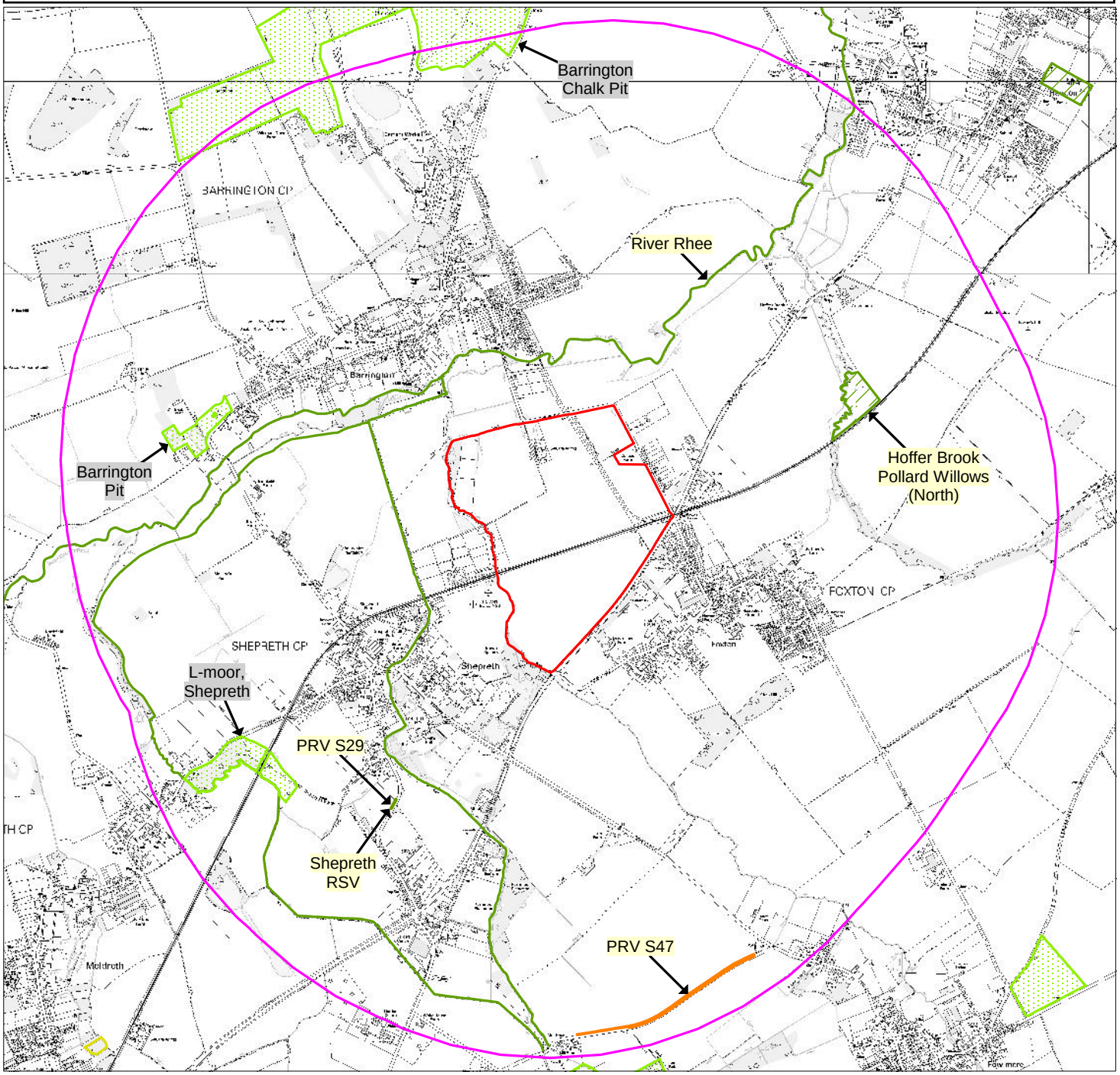
Foxton

07/11/2019

1:30,000

CPERC
The Manor House
Broad Street
Cambourne
Cambridgeshire
CB23 6DH

CPERC
CAMBRIDGESHIRE & PETERBOROUGH
ENVIRONMENTAL RECORDS CENTRE



Search Area

Site of Interest

SSSI

LNR

County Wildlife Site

Protected Road Verge (PRV)

N
W
E
S

Appendix 4: Summaries of Relevant Policy, Legislation and Other Instruments

This section briefly summarises the legislation, policy and related issues that are relevant to the main text of the report. The following text does not constitute legal or planning advice.

National Planning Policy Framework (England)

10.1 The Government revised the National Planning Policy Framework (NPPF) on 19 February 2019. Text excerpts from the NPPF are shown where they may be relevant to planning applications and biodiversity including protected sites, habitats and species.

10.2 The Government sets out the three objectives for sustainable development (economy, social and environmental) at paragraphs 8-10 to be delivered through the plan preparation and implementation level and 'are not criteria against which every decision can or should be judged.' At paragraph 8c) the planning system's environmental objective refers to 'protecting and enhancing our natural, built and historic environment' and to 'helping to improve biodiversity'

10.3 In conserving and enhancing the natural environment, the NPPF (Paragraph 170) states that 'planning policies and decisions should contribute to and enhance the natural and local environment' by:

- Protecting and enhancing...sites of biodiversity value... '(in a manner commensurate with their statutory status or identified quality in the development plan)'.
- Recognising the wider benefits from natural capital and ecosystem services including trees and woodland.
- Minimising impacts on and providing net gains in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.
- Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.

10.4 In respect of protected sites, at paragraph 171, the NPPF requires local planning authorities to distinguish, at the plan level, '…between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value...take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.'

10.5 Paragraph 174 refers to how plans should aim to protect and enhance biodiversity. Plans should: 'identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity [a footnote refers to ODPM Circular 06/2005 for further guidance in respect of statutory obligations for biodiversity in the planning system], wildlife corridors and stepping stones that connect them and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation;' and to 'promote the conservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.'

10.6 Paragraph 175 advises that, when determining planning applications, '…local planning authorities should apply the following principles:

a. if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b. development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments) should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c. development resulting in the loss or deterioration of irreplaceable habitats, (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d. development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.'

10.7 In paragraph 176, the following should be given the same protection as habitats sites[1]:

i. potential Special Protection Areas and possible Special Areas of Conservation

ii. listed or proposed Ramsar sites; and

iii. sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.'

10.8 In paragraph 177 the NPPF refers back to sustainable development in relation to appropriate assessment and states: 'the presumption in favour of sustainable development 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'.

10.9 In paragraph 178, the NPPF refers to planning policies and decisions taking account of ground conditions and risks arising from land instability and contamination at sites. In relation to risks associated with land remediation account is to be taken of 'potential impacts on the natural environment' that arise from land remediation.

10.10 In paragraph 180 the NPPF states that planning policies and decisions should ensure that development is appropriate to the location and take into account likely effects (including cumulative) on the natural environment and , in doing so, they 'should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

Government Circular ODPM 06/2005 Biodiversity and Geological Conservation (England only)

10.11 Paragraph 98 of Government Circular 06/2005 advises that "the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat. Local authorities should consult Natural England before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species' protection provisions affecting the site concerned..."

10.12 Paragraph 99 of Government Circular 06/2005[2] advises that "it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed

[1] Habitats sites are defined in the glossary as 'Any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 (as amended) for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites.'
[2] *ODPM Circular 06/2005. Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich.

development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted".

Standing Advice (GOV.UK - England only)

10.13 The GOV.UK website provides information regarding protected species and sites in relation to development proposals: 'Local planning authorities should take advice from Natural England or the Environment Agency about planning applications for developments that may affect protected species.' GOV.UK advises that 'some species have standing advice which you can use to help with planning decisions. For others you should contact Natural England or the Environment Agency for an individual response.'

10.14 The standing advice (originally from Natural England and now held and updated on GOV.UK[3]) provides advice to planners on deciding if there is a 'reasonable likelihood' of protected species being present. It also provides advice on survey and mitigation requirements.

10.15 When determining an application for development that is covered by standing advice, in accordance with guidance in Government Circular 06/2005, Local planning authorities are required to take the standing advice into account. In paragraph 82 of the aforementioned Circular, it is stated that: 'The standing advice will be a material consideration in the determination of the planning application in the same way as any advice received from a statutory consultee…it is up to the planning authority to decide the weight to be attached to the standing advice, in the same way as it would decide the weight to be attached to a response from a statutory consultee.'

Natural Environment and Rural Communities (NERC) Act 2006 – Habitats and species of principal importance (England)

10.16 The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act require the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England as required by the Act. In accordance with the Act the Secretary of State keeps this list under review and will publish a revised list if necessary, in consultation with Natural England.

10.17 The S41 list is used to guide decision-makers such as public bodies, including local authorities and utilities companies, in implementing their duty under Section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions, including development control and planning. This is commonly referred to as the 'Biodiversity Duty.'

10.18 Guidance for public authorities on implementing the Biodiversity Duty[4] has been published by Defra. One of the key messages in this document is that 'conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them.' In England the administration of the planning system and licensing schemes are highlighted as having a 'profound influence on biodiversity conservation.' Local authorities are required to take measures to "promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species. The guidance states that 'the duty aims to raise the profile and visibility of biodiversity, clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making.'

10.19 In 2007, the UK Biodiversity Action Plan (BAP) Partnership published an updated list of priority UK species and habitats covering terrestrial, freshwater and marine biodiversity to focus conservation action for rarer species and habitats in the UK. The UK Post-2010 Biodiversity Framework[5], which

[3] https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals#standing-advice-for-protected-species
[4] Defra, 2007. *Guidance for Public Authorities on Implementing The Biodiversity Duty*. (http://www.defra.gov.uk/publications/files/pb12585-pa-guid-english-070516.pdf)
[5] JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. *UK Post-2010 Biodiversity Framework*. July 2012. (http://jncc.defra.gov.uk/page-6189)

covers the period from 2011 to 2020, now succeeds the UK BAP. The UK priority list contained 1150 species and 65 habitats requiring special protection and has been used as a reference to draw up the lists of species and habitats of principal importance in England.

10.20 In England, there are 56 habitats of principal importance and 943 species of principal importance on the S41 list. These are all the habitats and species found in England that were identified as requiring action in the UK BAP and which continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

European protected species (Animals)

10.21 The Conservation of Habitats and Species Regulations 2017 (as amended) consolidates various amendments that have been made to the original (1994) Regulations which transposed the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.

10.22 "European protected species" (EPS) of animal are those which are shown on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these pieces of legislation make it an offence to:

a. Intentionally or deliberately capture, injure or kill any wild animal included amongst these species

b. Possess or control any live or dead specimens or any part of, or anything derived from a these species

c. deliberately disturb wild animals of any such species

d. deliberately take or destroy the eggs of such an animal, or

e. intentionally, deliberately or recklessly damage or destroy a breeding site or resting place of such an animal, or obstruct access to such a place

10.23 For the purposes of paragraph (c), disturbance of animals includes in particular any disturbance which is likely—

a. to impair their ability—

   i. to survive, to breed or reproduce, or to rear or nurture their young, or

   ii. in the case of animals of a hibernating or migratory species, to hibernate or migrate; or

b. to affect significantly the local distribution or abundance of the species to which they belong.

10.24 Although the law provides strict protection to these species, it also allows this protection to be set aside (derogated) through the issuing of licences. The licences in England are currently determined by Natural England (NE) for development works and by Natural Resources Wales in Wales. In accordance with the requirements of the Regulations (2017, as amended), a licence can only be issued where the following requirements are satisfied:

a. The proposal is necessary 'to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment'

b. 'There is no satisfactory alternative'

c. The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Definition of breeding sites and resting places

10.25 Guidance for all European Protected Species of animal, including bats and great crested newt, regarding the definition of breeding and of breeding and resting places is provided by The

European Council (EC) which has prepared specific guidance in respect of the interpretation of various Articles of the EC Habitats Directive.[6] Section II.3.4.b) provides definitions and examples of both breeding and resting places at paragraphs 57 and 59 respectively. This guidance states that 'The provision in Article 12(1)(d) [of the EC Habitats Directive] should therefore be understood as aiming to safeguard the ecological functionality of breeding sites and resting places.' Further the guidance states: 'It thus follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are not being used, but where there is a reasonably high probability that the species concerned will return to these sites and places. If for example a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can re-use it in winter. On the other hand, if a certain cave is used only occasionally for breeding or resting purposes, it is very likely that the site does not qualify as a breeding site or resting place.'

European protected species (Plants)

10.26 The Conservation of Habitats and Species Regulations 2017 (as amended) consolidates various amendments that have been made to the original (1994) Regulations which transposed the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.

10.27 "European protected species" (EPS) of plant are those which are present on Schedule 5 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 46 of those Regulations.

10.28 Regulation 47 makes it an offence to deliberately pick, collect, cut, uproot or destroy a wild plant of an EPS. It also makes it an offence to have in possession or control any live or dead plant or part of plant which has been taken in the wild and which is an EPS (or listed in Annexe II(b) or IV(b) of the Habitats Directive).

Competent authorities

10.29 Under Regulation 7 of the Conservation of Habitats and Species Regulations 2017 (as amended) a "competent authority" includes "any Minister of the Crown…, government department, statutory undertaker, public body of any description or person holding a public office.

10.30 In accordance with Regulation 9, "a competent authority must exercise their functions which are relevant to nature conservation, including marine conservation, so as to secure compliance with the requirements of the [Habitats and Birds] Directives. This means for instance that when considering development proposals a competent authority should consider whether EPS or European Protected Sites are to be affected by those works and, if so, must show that they have given consideration as to whether derogation requirements can be met.

Birds

10.31 All nesting birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to disturb them whilst they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.

10.32 The Conservation of Habitats and Species Regulations 2017 (as amended) places duties on competent authorities (including Local Authorities and National Park Authorities) in relation to wild bird habitat. These provisions relate back to Articles 1, 2 and 3 of the EC Directive on the conservation of wild birds (2009/147/EC, 'Birds Directive'[7]) (Regulation 10 (3)) requires that the

[6] Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. (February 2007), EC.
[7] 2009/147/EC Birds Directive (30 November 2009. European Parliament and the Council of the European Union.

objective is the 'preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat, as appropriate, having regard to the requirements of Article 2 of the new Wild Birds Directive…' Regulation 10 (7) states: 'In considering which measures may be appropriate for the purpose of security or contributing to the objective in [Regulation 10 (3)] Paragraph 3, appropriate account must be taken of economic and recreational requirements'.

10.33 In relation to the duties placed on competent authorities under the 2017 Regulations, Regulation 10 (8) states: 'So far as lies within their powers, a competent authority in exercising any function [including in relation to town and country planning] in or in relation to the United Kingdom must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds (except habitats beyond the outer limits of the area to which the new Wild Birds Directive applies).'

Badger

10.34 Badger is protected under the Protection of Badgers Act 1992. It is not permitted to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so; or to intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it. A badger sett is defined in the legislation as "a structure or place, which displays signs indicating current use by a badger".

10.35 ODPM Circular 06/2005[8] provides further guidance on statutory obligations towards badger within the planning system. Of particular note is paragraph 124, which states that "The likelihood of disturbing a badger sett, or adversely affecting badgers' foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties amongst badger populations, are capable of being material considerations in planning decisions."

10.36 Natural England provides Standing Advice[9], which is capable of being a material consideration in planning decisions. Natural England recommends mitigation to avoid impacts on badger setts, which includes maintaining or creating new foraging areas and maintaining or creating access (commuting routes) between setts and foraging/watering areas.

Reptiles

10.37 All native reptile species receive legal protection in Great Britain under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Viviparous lizard, slow-worm, grass snake and adder are protected against killing, injuring and unlicensed trade only. Sand lizard and smooth snake receive additional protection as "European Protected species" under the provisions of the Conservation of Habitats and Species Regulations 2017 (as amended) and are fully protected under the Wildlife and Countryside Act 1981 (as amended).

10.38 All six native species of reptile are included as 'species of principal importance' for the purpose of conserving biodiversity under Section 41 (England) of the NERC Act 2006 and Section 7 of the Environment (Wales) Act 2016.

10.39 Current Natural England Guidelines for Developers[10] states that 'where it is predictable that reptiles are likely to be killed or injured by activities such as site clearance, this could legally constitute intentional killing or injuring.' Further the guidance states: 'Normally prohibited activities may not be illegal if 'the act was the incidental result of a lawful operation and could not reasonably have been avoided'. Natural England 'would expect reasonable avoidance to include measures such as altering development layouts to avoid key areas, as well as capture and exclusion of reptiles.'

[8] *ODPM Circular 06/2005. Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich.
[9] http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/specieslinks.aspx

[10] English Nature, 2004. *Reptiles: guidelines for developers.* English Nature, Peterborough. https://webarchive.nationalarchives.gov.uk/20150303064706/http://publications.naturalengland.org.uk/publication/76006

10.40 The Natural England Guidelines for Developers state that 'planning must incorporate two aims where reptiles are present:

- To protect reptiles from any harm that might arise during development work;
- To ensure that sufficient quality, quantity and connectivity of habitat is provided to accommodate the reptile population, either on-site or at an alternative site, with no net loss of local reptile conservation status.'

Water vole

10.41 Water vole is protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to kill, injure or take any water vole, damage, destroy or obstruct access to any place of shelter or protection that the animals are using, or disturb voles while they are using such a place. Water vole is listed as a Species of Principal Importance under the provisions of the NERC Act 2006 in England and under the provisions of the Environment (Wales) Act 2016.

White-clawed crayfish

10.42 The white-clawed crayfish is scheduled under the Wildlife and Countryside Act 1981 (as amended), listed under the EC Habitats Directive (Annexe II and V) and is on the IUCN Red Data List for endangered and threatened species. It is also a Species of Principal Importance under the provisions of the NERC Act 2006 and the provisions of the Environment (Wales) Act 2016.

10.43 Under the Wildlife and Countryside Act 1981 (as amended) it is illegal to take or sell white-clawed crayfish. Whilst it is not an offence under the Act to disturb or kill white-clawed crayfish or to damage or destroy their habitat, both Natural England and the Environment Agency recommend that anyone carrying out any form of management or development work on suitable watercourses take into account the conservation of this species.

10.44 Signal crayfish and several other invasive non-native crayfish species are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Strictly speaking, this makes it an offence to return to the wild any signal crayfish, even if inadvertently captured. Any signal crayfish or other non-native crayfish captured should be humanely destroyed (once their identification has been confirmed by a suitably qualified and experienced ecologist).

Wild mammals in general

10.45 The Wild Mammals (Protection) Act 1996 (as amended) makes provision for the protection of wild mammals from certain cruel acts, making it an offence for any person to intentionally cause suffering to any wild mammal. In the context of development sites, for example, this may apply to rabbits in their burrows.

Invasive non-native species

10.46 An invasive non-native species is any non-native animal or plant that has the ability to spread causing damage to the environment.

10.47 Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to release, or to allow to escape into the wild, any animal which is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state or is listed under Schedule 9 of the Act.

10.48 It is an offence to plant or otherwise cause to grow in the wild invasive non-native plants listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Hedgerows

10.49 Article 10 of the Habitats Directive[11] requires that 'Member States shall endeavour…to encourage the management of features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure…or their function as stepping stones…are essential for the migration, dispersal and genetic exchange of wild species'. Examples given in the Directive include traditional field boundary systems (such as hedgerows).

10.50 The aim of the Hedgerow Regulations 1997[12], according to guidance produced by the Department of the Environment[13], is "to protect important hedgerows in the countryside by controlling their removal through a system of notification. In summary, the guidance states that the system is concerned with the removal of hedgerows, either in whole or in part, and covers any act which results in the destruction of a hedgerow. The procedure in the Regulations is triggered only when land managers or utility operators want to remove a hedgerow. The system is in favour of protecting and retaining 'important' hedgerows.

10.51 The Hedgerow Regulations set out criteria that must be used by the local planning authority in determining which hedgerows are 'important'. The criteria relate to the value of hedgerows from an archaeological, historical, wildlife and landscape perspective.

Japanese knotweed

10.52 It is an offence to plant or cause the spread of Japanese knotweed in the wild under the Wildlife and Countryside Act 1981 (as amended). All waste containing Japanese knotweed comes under the control of Part II of the Environmental Protection Act 1990.

10.53 The Environment Agency has produced "The Knotweed Code of Practice", which provides guidance on how to manage Japanese knotweed legally on development sites[14]. This document provides ecological information on Japanese knotweed, details of how to prevent its spread, how to manage Japanese knotweed and information on disposal. Natural Resources Wales refers to Environment Agency guidance in respect of landowners responsibilities in Wales and to the Wildlife and Countryside Act 1981 (as amended).

[11] Council Directive 92/43/EEC of 2i May 1992 on the conservation of natural habitats and of wild fauna and flora.
[12] Statutory Instrument 1997 No. 1160 – The Hedgerow Regulations 1997. HMSO: London
[13] The Hedgerow Regulations 1997: a guide to the law and good practice, HMSO: London
[14] *Managing Japanese knotweed on development sites: the knotweed code of practice* (2006). Environment Agency. https://www.gov.uk/government/publications/japanese-knotweed-managing-on-development-sites. See also 2013 Code of Practice update.