



SANDERLING WAY, IWADE

Preliminary Ecological Appraisal

Date of Report: August 2017

Report Expiry date: August 2018



Preliminary Ecological Appraisal

Client: BDB Design

Reference: J006378

Company Registration Number: 372 4176
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Issue:	Date:	Written by:	Reviewed by:	Amended by:	Approved by:
One	11 August 2017	JP/AH	SK	AH	SK

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NON-TECHNICAL SUMMARY

Site name, location, grid reference and size	Land at off Sanderling Way at Iwade, TQ 89864 68110, 3.4ha
Scope and purpose of works	Preliminary Ecological Appraisal desktop study To accompany and inform a planning application.
Dates of site visits and names of surveyors	25 July 2017 – Lee Brady MCIEEM
Overview	The site is divided up into seven habitats: A3.1 – Broadleaved parkland/scattered trees B2.2 – Neutral grassland – semi-improved B4 – Improved grassland G1 – Standing water G2 – Running water J1.4 – Introduced shrub J2.3.2 – Hedge with trees – species-poor The site supports opportunities for the following notable habitats/species: Bats Great crested newts Small mammals Nesting birds Reptiles The site consists of a large field, which has been divided into five sections for grazing. These sections are identified as Fields A–E within this report. All the fields support a short sward and therefore provide limited opportunities for wildlife. Scrub and trees border most of these sections. A stream runs along the northern boundary of the site and a hedge is present along the western edge. The stream provides opportunities for water vole due to its slow-flowing nature and grass banks. There are three ponds on site (labelled Ponds 1–3 throughout this report); Ponds 1 and 2 are located along the northern boundary and Pond 3 is located to the south-west of the site. These ponds are known to support a good population of great crested newts. A mature pedunculate oak tree, located within the north-eastern corner of Field E, exhibits a large crack through the main trunk. This was assessed as providing Moderate opportunities for roosting bats. During the survey, the scrub areas were identified as providing opportunities for reptiles and an adult slow worm as well as a dead lizard were recorded under a plastic sheet just off site near Pond 3.

Action required for planning and/or legal compliance	Retention of hedgerows and trees on site, where possible. Where not possible, a further hedgerow survey may be required to identify whether the hedgerow is protected under UK BAP. The stream along the northern boundary, as well as the ponds on site, should be retained with an 8m buffer to protect them from the development. Vegetation clearance should avoid nesting bird season (survey season: March to September) where possible. Where not possible, a pre-works nesting bird check will be required. Vegetation clearance should also avoid reptile hibernation season (November to February), and should be completed using hand tools in a directional clearance method, so any reptiles present can move out of the way. A great crested newt survey (survey season: mid-March to mid-June). A reptile presence/absence survey (survey season: April to September). A Precautionary Method of Working to include small mammals and badgers.
Ecological enhancement (Site ecological enhancement is required under current planning policy)	Ecological input should be considered within the landscaping scheme, including enhancing the hedgerows on site with native hedgerow species. Retention of ponds and surrounding green corridors.

Seasonal Constraints and Potential Risk to Programme

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Additional Considerations
Nesting bird check													If active nests are recorded, no works can be undertaken within these areas until chicks have fledged (usually 3–4 weeks).
Great crested newt surveys													Four surveys will be required to identify whether newts are present. If newts are found, an additional two visits will be required to identify the population's size.
Reptile surveys													Eight visits will be made to the site, the first to lay mats within suitable habitats. The mats then need to be left for two weeks before the further seven survey visits.

Note: The timings of the nesting bird season and hibernation periods are indicative only (subject to local climatic conditions).

-  – Optimal Survey Season
 – Sub-Optimal Survey Season

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1 INTRODUCTION

1.1 In July 2017, Ecosulis was commissioned by BDB Design to undertake a Preliminary Ecological Appraisal (PEA) of land at Sanderling Way, Iwade.

1.2 The purpose of the survey is to inform a planning application. The proposals include the development of the site for residential housing and associated infrastructure.

1.3 This report has been written in accordance with British Standard BS42020:2013. Survey methodologies follow JNCC 2010, CIEEM 2016 and Ratcliffe 1977 (Annex 1 gives full methodology). Plant names follow the nomenclature of Stace (2010).

Objectives of Study

1.4 The objectives of this study are: to provide information on the existing ecological conditions at the site; to identify potential constraints and opportunities that ecology may pose to the development plans; and to identify further ecological studies that may be required to ensure that ecology is fully considered within the proposals.

General Site Description

1.5 The site is located north of Sanderling Way to the north of the town of Iwade in Kent. It comprises five fields (Fields A–E) of varying sizes. There are three ponds (Ponds 1–3) on site, one of which is thought to be a permanent year-round pond (Pond 2).

1.6 Field A is located in the south-west of the site and is roughly triangular in shape. Field B is the largest field and borders Field A with a defunct hedge on its south-western edge. Field C is located to the east of Field B and is not bordered by any hedgerows on its eastern or western sides. Field D is a small rectangular field to the north-east of Field C and immediately east of Pond 1. A stream is located to the north of Field D. Field E lies to the east of Field C and is the field furthest to the east of the site. An intact hedge borders all the fields at their northern boundary and Field B on its western boundary (Figure 1).

1.7 Residential housing exists immediately south of the site along Sanderling Way. An area of parkland fields exists as Raspberry Hill Park to the north of the site. An area of allotments is located to the west of Field A.

2 BASELINE ECOLOGICAL CONDITIONS: SITE AND HABITAT DESCRIPTIONS

Component Habitats

- 2.1 Species lists are provided in Annex 2. The location and extent of habitats are shown on Figures 1 and 2.

A3.1 – Broadleaved Parkland/Scattered Trees

- 2.2 Scattered trees are present across the site, mostly around the boundaries. Species include oak, ash and plum trees.

B2.2 – Neutral Grassland – Semi-Improved

- 2.3 Fields A, B, C and E are dominated by grasses and are either mown or grazed by horses.
- 2.4 Field A did not contain grazing animals at the time of the survey and supports a range of other flora including buttercups, umbellifers, ragwort and nettles, as well as shrubby trees such as crab apple, plum, hawthorn, field maple and elder. There are also some non-native shrubs along the southern boundary of Field A that have likely escaped from gardens.
- 2.5 Field B is grazed by horses. Other than grasses, there are some shrubby trees including hawthorn, plum and crack willow.
- 2.6 Field C is grazed by a pony and also contains bramble.
- 2.7 Field E is also grazed by a pony and contains shrubby plum and blackthorn trees.

B4 – Improved Grassland

- 2.8 To the north-east of the site, east of Pond 1, there is an area of mown grassland (Field D). The land appears disturbed and drains into Pond 1. The flora is dominated by grasses with ruderal plants including creeping thistle, bristly ox-tongue, nettles and brambles. There are some blackthorn and plum trees and a single mature pedunculate oak.

G1 – Standing Water

- 2.9 Ponds 1 and 3 are likely to be ephemeral as they have a low water level and are possibly eutrophic. Pond 1's flora is dominated by common reed and cattail with brambles around the shoreline. Pond 3's flora contains invasive New Zealand Pygmyweed, curly leaved pondweed and water plantain, to a lesser extent.
- 2.10 Pond 2 is likely a year-round feature with good water quality. It is heavily shaded and the flora is dominated by minor and trisulca duckweed, watercress, water starwort, Potamogeton species and water mint. Crack willow exists to a lesser extent.

G2 – Running Water

- 2.11 A narrow stream flows east to west in the north of the site. Near Pond 1, the stream is relatively narrow within steep banks (<1m width) and shallow (<0.15m depth). The stream flow in this area is slow to moderate. Immediately east of Pond 2, the stream starts to widen (~1.5m width), appears slow-flowing and is heavily vegetated with water plants. Within this there is limited shading.

J1.4 – Introduced Shrub

- 2.12 Some non-native garden shrubs exist on the southern boundary of the site next to the residential gardens.

J2.3.2 – Hedge with Trees – Species-Poor

- 2.13 The hedgerows bounding the fields contain a variety of native shrubby trees including plum, crab apple, hawthorn, blackthorn, crack willow, field maple and elder. They are subject to minimal management and are bushy.

Adjacent Habitats

- 2.14 The site is located on the northern edge of the town of Iwade in Kent. The town borders the site on the southern edge with grassland fields along all the other boundaries. Connecting habitat, including hedgerows and woodland, is limited as the surrounding area consists of open fields with no boundaries. The Swale river and SSSI are located around 2km to the north and the River Medway is located just under 1km to the north-west.

Habitat Valuation Assessment

- 2.15 A habitat valuation assessment of the habitats present on site is included below and detailed in Annex 3. This is based on the Defra metric and provides an indication of the habitat value present on the site.

Habitats	Area (ha)	Habitat Value
Total existing area on site	3.4	22.7
Linear Features	Length (km)	Linear Habitat Value
Total existing length on site	0.34	5.48

FIGURE 1

FIGURE 2



Key



Site Boundary



A3.1 Broadleaved parkland/scattered trees



G2 Running water



J2.3.2 Hedge with trees - species poor



J2.4 Fence



A2.2 Scrub - scattered



B2.2 Neutral grassland - semi-improved



B4 Improved grassland

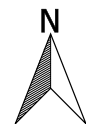


G1 Standing water

Tree PEA for Bats



Moderate Suitability



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August 2017

Figure 2

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3 GROUND LEVEL TREE ASSESSMENT FOR BATS

3.1 Table 1 below includes details of the Ground Level Tree Assessment. A photograph of the tree is included within Annex 7.

Table 1: Ground Level Tree Assessment, 25 July 2017

Tree Number	Description	Suitability for Roosting Bats	Evidence for Bats Recorded
T1	A mature oak tree with a split trunk and a large number of cracks, fissures and gaps within the bark.	Moderate	None

3.2 The tree is located within the north-eastern corner of the site. It is surrounded by other trees, a stream, scrub and grassland. It is not subject to any light spill and is mostly undisturbed. The location of the tree increases the likelihood that it could be used by roosting bats.

Feature	Desk Study	Relevance to the Site	Action Required for Planning / Legal Compliance (Annex 4 details legislation and planning policy)
Statutory Sites			
Statutory designations on site	There are no designations within the site boundary	NA	NA
Statutory designations within 2km	<u>Medway Estuary & Marshes (RAMSAR and SSSI)</u> Located 1km north-west of site the estuary, includes a complex of mudflats, saltmarsh, and grazing marsh. This habitat supports wintering wildfowl species including shelduck, brent geese and ringed plover. <u>The Swale (RAMSAR, SPA, NNR and SSSI)</u> The Swale is a strip of sea separating North Kent from the Isle of Sheppey. The Swale supports eel grass, Ray's knotgrass and glassworts. It is home to uncommon migrant butterflies and moths as well as a large number of migrant and wintering birds.	The site does not include any large areas of wetland habitat and is therefore unlikely to support the same species as either of the RAMSAR and SSSI sites. The site is also a small, disturbed area and therefore is highly unlikely to support any related species.	Due to the presence of the SPA within 5km of the site, there is potential for the proposed development to indirectly affect The Swale designation from increased disturbance. A Habitat Regulations Assessment may, therefore, be required for the site as it is within 5km of The Swale SPA.
Statutory designations within 2.1km–5km	<u>Elmley (NNR)</u> Elmley is a nature reserve located 3km east of the site. It includes vast areas of grassland, streams and lake	The site does not include any large areas of wetland habitat and is therefore unlikely to support the same species as either of the RAMSAR and SSSI sites.	No further surveys required.

Feature	Desk Study	Relevance to the Site	Action Required for Planning / Legal Compliance (Annex 4 details legislation and planning policy)
	habitat and supports large number of waterfowl species.		
Non-Statutory Sites			
Non-statutory designations on site	There are no non-statutory sites within the site boundary	N/A	N/A
Non-statutory designations within 2km	There are no non-statutory sites within 2km of the site with regards to bats	N/A	N/A
Key to abbreviations SPA – Special Protection Area SSSI – Site of Special Scientific Interest NNR – National Nature Reserve			

Species / Species Groups	Nearest Record and Number of Records (last five years only)	Evidence of / Suitability for	Action Required for Planning / Legal Compliance (Annex 4 details legislation and planning policy)
Flora	There are several records of notable flora within the local area including divided sedge, sea barley, tubular water-dropwort and slender hare's ear, all of which were recorded within the last five years.	The grazed improved grassland habitat on site supports a short to medium sward and does not offer opportunities for notable or protected species. Hedgerows are likely to be UK BAP species as they include over 80% of UK hedgerow species. New Zealand pygmyweed was recorded within Pond 3 and therefore will need to be controlled to prevent its spread. This species is listed upon Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to cause it to grow in the wild.	Trees will be retained where possible and protected with suitable root protection zones. Where not possible, compensatory habitat will be incorporated within the scheme to include native tree species. Hedgerows should be retained where possible. Where not possible, a hedgerow survey will be required to assess whether it is protected under the Hedgerow Regulations 1997. An invasive species control strategy will be required due to the presence of New Zealand pygmyweed, to ensure that this plant is not caused to grow and spread in the wild. This is likely to include control measures for any machinery or vehicles working close to the ponds, and a long-term management plan for its removal.
Badger	There are no records of badger within 5km of the site in the past five years.	No evidence of badgers has been recorded on site. Scrub habitat on site provides some opportunities for foraging badgers. However, sett building opportunities are limited due to the lack of bank habitats. Commuting habitat is limited due to the open surroundings of the site and a lack of hedgerow or woodland habitat.	No evidence of badgers was recorded on site. However, an update check should be undertaken prior to works commencing to check for any new sett excavations. Deep excavations will be covered at the end of the working day, or include a means of escape for badgers (wooden plank or ladder), and open pipework larger than 150mm outside diameter should be blanked off at the end of each working day to prevent any foraging badgers from becoming trapped.

Species / Species Groups	Nearest Record and Number of Records (last five years only)	Evidence of / Suitability for	Action Required for Planning / Legal Compliance (Annex 4 details legislation and planning policy)
			To enhance foraging opportunities on the site for badgers, consideration should be given to incorporating fruit and nut-bearing species into the landscape plans for the site.
Bats	There are several records of bats within 5km on of the site, including pipistrelles, Myotis, brown long-eared and Noctule. These records are located 4.9km south west of the site within farmland and open fields. Only one roost was recorded near the site; 0.2km south east	A mature oak tree on the site was assessed as providing Moderate opportunities for roosting bats. A split in the bark is present as well as various cracks and flaking bark. The site supports limited commuting opportunities for bats due to the limited hedgerow habitat and the lack of unmanaged grassland. The ponds and trees support some opportunities for foraging bats. However, the connectivity within surrounding habitat is very limited. Light levels on the site are very low with minimal light spill from adjacent houses, providing a good dark space for bats. It is possible low numbers of common bat species may utilise the site for commuting and foraging, due to the minimal opportunities on site.	Due to the limited opportunities on site for bats, no further surveys are required. (This is dependent on the results of the data search.) A tree assessed as having Moderate suitability to support roosting bats will be retained within the scheme. If this is not possible, further surveys will be required to identify whether it is utilised by bats, and compensatory opportunities may need to be provided. Enhancements to the site for bats should consider enhancement and management of hedgerows on site to improve foraging and commuting opportunities. A sensitive lighting scheme will be required, to include retaining the boundaries as dark features to keep light levels minimal over the site.
Water vole	A large number of water vole have been recorded within the surrounding watercourses,	A stream borders the northern boundary of the site. Near Pond 1 the stream is relatively narrow	The stream and ponds on site should be retained where possible within the scheme. In addition, a 5m buffer should

Species / Species Groups	Nearest Record and Number of Records (last five years only)	Evidence of / Suitability for	Action Required for Planning / Legal Compliance (Annex 4 details legislation and planning policy)
	including courses which connect with the stream to the north of site. The most recent record was in 2013 and was 0.3km north east of the site.	within steep banks (<1m width) and shallow (<0.15m depth). The stream flow in this area is slow to moderate. As such, it provides suitable opportunities for water vole. This area is, however, shaded, which reduces opportunities. However, immediately east of Pond 2 the stream starts to widen (~1.5m width), appears slow-flowing and is heavily vegetated with water plants, and has much less shading. Three ponds are also present on site, the two near the northern boundary close to the stream. They provide some opportunities for water voles in conjunction with other habitats, as the banks are steep and contain grassland habitat.	be incorporated to protect any water vole opportunities on site. An ecological management plan for the site should be implemented to ensure that these areas are managed for nature conservation in the long term. If this is not possible, a further water vole survey may be required to assess whether water vole are present on site. Two visits will be required when water vole are active (between April and September). Surveys should be spread out to cover spring/early summer and late summer and be at least two months apart.
Dormice	There are no records of dormouse within the local area within the past five years.	The site is unlikely to support dormice as hedgerows are defunct and lack suitable species including hazel. The connectivity on site to surrounding habitat is also very limited, with no connecting hedgerows or woodland, further reducing the likelihood that dormice are present.	Due to the lack of opportunities on site, and the isolated nature of the hedgerow, no further surveys are required.
Other small mammals	There is one record of hedgehog within the local area within the last five years, recorded in 2015. A	Opportunities for other small mammals on site are limited. However, small areas of longer	Due to the presence of suitable habitat including grassland, it is likely small mammals are present. As a result, works

Species / Species Groups	Nearest Record and Number of Records (last five years only)	Evidence of / Suitability for	Action Required for Planning / Legal Compliance (Annex 4 details legislation and planning policy)
	brown hare was also recorded in 2016	grassland and scrub may provide refuge and foraging opportunities for some species including hedgehogs. Rabbit burrows were recorded on site, especially in Field D.	within the area are to proceed under a Precautionary Method of Working (PMW) which includes consideration to hedgehogs. This should include sensitive timings of works including vegetation clearance to avoid hibernation season (generally November to February).
Birds	There are a large number of records of notable bird species within the local area, these include grey plover, curlew, dunlin, little tern, linnet and siskin. The majority of these were recorded in and around The Swale and Medway Estuary	Common species of bird including jackdaw, rook, house sparrow, magpie, herring gull, woodpigeon, domestic pigeon, starling and goldfinches were observed on site. Hedgerows and trees on site provide suitable opportunities for nesting birds, in combination with adjacent habitats. The site supports little to no field margins, therefore limiting opportunities for breeding birds. The field is subject to regular management, therefore provides no suitable opportunities for ground-nesting birds or overwintering birds.	If possible, the hedgerow and trees should be retained and enhanced with additional native planting. If any trees are to be removed to facilitate the development, these works should avoid the bird nesting season wherever possible (generally March to September). Where this is not possible, a pre-works check for nesting birds must be undertaken. If trees are removed, new nesting opportunities will be created for birds as part of the proposals. It is also recommended that ecological input be provided into the landscaping scheme to ensure alternative foraging.
Reptiles	There are several records of slow-worm, common lizard and grass snake within the local area in the past five years, as recently as 2015.	A female slow worm and a dead lizard were observed just off the site near Pond 3 under a plastic sheet. Scrub and longer grass habitats present on the borders of the site provide some refuge opportunities for reptiles. The majority of the grassland across the	Proposals for the site are likely to result in the loss of the majority of grassland and scrub habitats on site. As a result, it is recommended that a reptile presence/absence survey is undertaken to ascertain the presence of target species such as slow worm and grass snake on site. This survey can only be undertaken

Species / Species Groups	Nearest Record and Number of Records (last five years only)	Evidence of / Suitability for	Action Required for Planning / Legal Compliance (Annex 4 details legislation and planning policy)
		rest of the site is grazed, however still supports tussocky grassland and therefore provides some shelter and foraging opportunities. Although the site is grazed it is likely reptiles will still utilise the site due to the opportunities present.	when reptiles are active between March and October. If reptiles are recorded on site, it is recommended that a suitable mitigation strategy is implemented on the site. Ecological input is to be provided into the site masterplan and landscaping scheme, to ensure suitable green corridors are provided to enable reptiles to disperse through the site post-development.
Amphibians	There are a large number of records of great crested newts within the area including records from 2016	Great crested newts have been recorded in all ponds previously. The ponds continue to provide suitable opportunities for great crested newts in combination with ponds located within 500m of the site. Marsh frog was also possibly observed in Ponds 2 and 3. Marsh frog is a non-native invasive species. Grassland, scrub and hedgerow habitat on site provides opportunities for amphibians within their terrestrial phase, as well as providing connective habitat between the ponds.	A Habitat Suitability Index assessment of ponds within 500m of the site will be required to further assess opportunities for great crested newts in the area. Further surveys may then be required depending on the results of the survey, as well as the results of the data search. These surveys will need to be undertaken when newts are within the ponds, between March and June. To enhance the post-development site for amphibians, it is recommended that consideration is given to creating longer grassland margins at the edges of the site.
Invertebrates	There are several records of invertebrate species including, cinnabar moths recorded as recently as 2016.	Grassland on site provides some suitability for common species of invertebrates. However, due to the size of the site and the limited flowering plants and habitat	Due to the size of the site and the extent of suitable habitat, it is unlikely notable species of invertebrates will be present. No further action will be required.

Species/ Species Groups	Nearest Record and Number of Records (last five years only)	Evidence of/Suitability for	Action Required for Planning/Legal Compliance (Annex 4 details legislation and planning policy)
		diversity it is unlikely notable species will be present. The ponds on site provide suitability for common species of aquatic invertebrates.	
Key to abbreviations PMW – Precautionary Method of Working			

6 CONCLUSION

- 6.1 The purpose of this report is to accompany and inform a planning application. The site is dominated by neutral and improved grassland, with the large field split into sections and currently used for grazing. Scrub and longer grassland habitats are present along the outer boundaries of the site, with a hedgerow bordering the western boundary and a stream bordering the northern boundary. Three ponds are also present.
- 6.2 The grassland and hedgerow habitats provide some opportunities for species including badgers and small mammals. As such, these habitats should be retained where possible but where not possible, works should continue under a Precautionary Method of Working. This document should include the covering of deep excavations at the end of the working day, or include a means of escape for badgers (wooden plank or ladder), and open pipework larger than 150mm outside diameter should be blanked off at the end of each working day to prevent any foraging badgers from becoming trapped. It will also include the sensitive timings of works including vegetation clearance to avoid hibernation season (generally November to February).
- 6.3 Native hedgerows on site should be retained with an appropriate buffer. They should be maintained as dark corridors for wildlife and a sensitive lighting scheme should be implemented across the site. If native hedgerows are to be removed in the plans, further hedgerow surveys will be required to assess whether the hedgerow is included under the UK BAP protection. If possible, trees should be retained, but if any trees are to be removed to facilitate the development, these works should avoid the bird nesting season wherever possible (generally March to September). Where not possible, a pre-clearance check for nesting birds should be undertaken by an Ecological Clerk of Works.
- 6.4 There is one mature oak tree on site which was assessed as having Moderate suitability for roosting bats. This tree should be retained as part of the development plans. If this is not possible, however, further surveys will be required.
- 6.5 Grassland habitats on site have suitability to support common reptile species. As such, a reptile presence/absence survey should be undertaken (survey season April to October).
- 6.6 The ponds on site provide opportunities for amphibians and are known to support a population of great crested newts. There are some terrestrial opportunities for great crested newts on site in conjunction with adjacent habitats and the pond present within 500m of the site should also be assessed for its suitability to support great crested newts.

Ecological enhancements should be considered within the landscape plans, where possible. Trees and hedgerows should be maintained with a suitable buffer, and enhanced using native species. The ponds and the stream should also be retained with a suitable buffer to protect them from the development. Green corridors should

be maintained between the ponds to allow great crested newts and reptiles to utilise the site. The stream and hedgerows will be kept dark with light spill directed away, to maintain a dark corridor for bats.

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Annex 1: PRELIMINARY ECOLOGICAL APPRAISAL METHODOLOGY

Preliminary Ecological Appraisal and Web-based Desktop Study

Preliminary Ecological Appraisal

Survey undertaken according to Joint Nature Conservation Committee (JNCC) (2010) Handbook for Phase I Habitat Survey – a Technique for Environmental Audit. JNCC Peterborough.

The site, as defined by the client, is systematically walked and all habitats present along with their dominant flora are recorded and mapped. Where appropriate, target notes are used to highlight potential features of interest, such as provisional signs of protected or notable species, or habitat features of note. The survey considers the suitability of the habitats on site and within the accessible surroundings to support such species. Habitats are mapped using standard colour codes allowing rapid visual assessment of the extent and distribution of different habitat types.

Limitations of the Preliminary Ecological Appraisal:

The survey will not record any plants or animals that may appear at other times of the year and were therefore not evident at the time of visit. Some species that might use the site or be apparent at other times of year, or only in certain years, would not have been detected.

Web-based Desktop Study

The Bing Maps website was accessed for aerial views of the site and used as a visual aid to help put the site into context with its surroundings and to identify any potential features of interest in the surrounding land.

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

Limitations of desktop study:

The desktop study can only provide information on species already recorded and cannot be taken to represent a complete overview of all species present within the search area.

References:

Bing Maps website accessed at <http://www.bing.com/maps/>

MAGIC website accessed at www.magic.gov.uk

Annex 2: SPECIES LIST (SPECIES RECORDED ON SITE)

Nomenclature according to Stace, C. (2010) New Flora of the British Isles 3rd Edition. Cambridge University Press.

Flora	
Common name	Scientific name
Grass species	Poaceae sp.
Buttercup species	Ranunculus sp.
Ragwort	Jacobaea vulgaris
Common nettle	Urtica dioica
Crab apple	Malus sylvestris
Plum	Prunus sp.
Hawthorn	Crataegus monogyna
Field maple	Acer campestre
Elder	Sambucus nigra
Crack willow	Salix fragilis
Bramble	Rubus fruticosus
Creeping thistle	Cirsium arvense
Blackthorn	Prunus spinose
Ox-tongue	Helminthotheca echioides
Oak	Quercus rober
Phragmites species	Phragmites sp.
Typha species	Typha sp.
Watercress	Nasturtium officinale
Water-starwort	Callitriche sp.
Water mint	Mentha aquatica
Potamogeton species	Potamogeton
Duckweed	Lemnoideae sp.
Water plantain	Alisma sp.
Crassula	Crassula helmsii

Annex 3: HABITAT VALUATION ASSESSMENT CALCULATIONS

Table 1: Baseline Conditions - Habitats

Existing habitats on site		Habitat distinctiveness		Habitat condition		Habitat Value Assessment	
code	Phase 1 habitat description	Distinctiveness	Score	Condition	Score	Habitat area (ha)	Existing value
A3.1	Woodland: Broad-leaved parkland / Scattered trees	High	6	Moderate	2	0	0
A2.2	Woodland: Scattered scrub	Medium	4	Moderate	2	0.60	4.80
B2.2	Grassland: Semi-improved neutral grassland	Medium	4	Moderate	2	2.10	16.80
B4	Grassland: Improved grassland	Low	2	Poor	1	0.50	1.00
G2	Wetland: Standing Water	High	6	Good	3	0.10	1.8
Total							22.4

Table 2: Baseline Conditions – Linear Habitats

Existing habitats on site		Linear distinctiveness		Linear condition		Habitat Value Assessment	
code	Phase 1 habitat description	Distinctiveness	Score	Condition	Score	Length (km)	Existing value
G2	Ditches: Running water	High	6	Good	3	0.18	3.24
J2.3.2	Hedges: Native species rich hedge with trees	Very High	8	Moderate	2	0.14	2.24
Total							5.48

Annex 4: LEGISLATION AND NATIONAL PLANNING POLICY**Bats**

All British species of bat and their places of breeding and shelter are protected under the Wildlife & Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010 (as amended) from deliberate capture, injury and killing; intentional or reckless disturbance; intentional or reckless obstruction of access to any structure or place which any such animal uses for shelter or protection; and deliberate damage or destruction of a breeding site or resting place. This includes buildings and trees and applies throughout the year whether bats are present or not at the time of survey or work being carried out.

Although foraging areas and commuting routes are not afforded direct legal protection, the effects of development proposals on these are a material consideration in planning (NPPF and TAN5) and should be considered when assessing the impact of the proposal on the maintenance of favourable conservation status of bat species.

As protected species, bats are covered by NPPF, which states that the presence of a protected species is a material consideration when considering a planning application.

All bat species (except *Pipistrellus pipistrellus*) are listed on both the Habitats Directive 1992 (transposed by The Conservation of Habitats and Species Regulations 2010 (as amended)) and The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The principal aims of the Convention are to ensure conservation and protection of wild plant and animal species and their natural habitats, to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species). The Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.

There are 18 species of bat found in the UK (17 species are known to breed here) and all are included in the UK BAP. Seven species are listed as priority species; priority species are those that have been identified as being most threatened and in need of conservation. It should be noted that the identification of these seven bat species as priority species does not extend throughout Britain (seven are priority species in England and three are priority species in Wales).

Of the seven species identified as priority species, five also have specific SAPs, which aim to further encourage and help population numbers.

Abbreviations: BAP – Biodiversity Action Plan; SAP – Species Action Plan; NPPF – National Planning Policy Framework; TAN – Technical Advice Note.

Badgers

Badgers and their setts are protected under the Protection of Badgers Act 1992, which makes it illegal to kill, injure or take badgers or to interfere with a badger sett in any way. The Act defines a sett as 'any structure or place which displays signs indicating current use by a badger'.

As a protected species the badger is covered by NPPF, which states that the presence of a protected species is a material consideration when considering a planning application.

Badgers are included in the UK BAP. They are not listed as a priority species and are not afforded any specific SAP.

Abbreviations: BAP – Biodiversity Action Plan; SAP – Species Action Plan; NPPF – National Planning Policy Framework.

Water Voles

The water vole is fully protected under the Wildlife & Countryside Act 1981 (as amended). This protection makes it an offence to intentionally kill, injure or take (capture) a water vole; possess or control a live or dead water vole, or any part of a water vole; intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or disturb water voles while they are using such a place; sell, offer for sale or advertise for live or dead water voles.

As a protected species the water vole is covered by NPPF, which states that the presence of a protected species is a material consideration when considering a planning application.

The water vole is included in the UK BAP. They are listed as priority species in England and Wales and are subject to a SAP.

Abbreviations: NPPF – National Planning Policy Framework; BAP – Biodiversity Action Plan; SAP – Species Action Plan.

Birds

In Britain all wild birds are granted legal protection under the Wildlife & Countryside Act 1981 (as amended). This legislation protects birds, their eggs, dependant young, and nests while being built or whilst in use.

Schedule 1 Bird Species

Schedule 1(1) of the Wildlife & Countryside Act 1981 (as amended) affords full protection to certain bird species. It is an offence to intentionally or recklessly disturb at or near an active nest of species on this list.

Reptiles

All British reptiles are partially protected under the Wildlife & Countryside Act 1981 (as amended), under which it is an offence to intentionally kill or injure a reptile.

Sand lizard and smooth snake and their breeding and resting places are fully protected by both the Wildlife & Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010 (as amended). It is an offence to deliberately capture, injure or kill them or damage, destroy or obstruct their resting or breeding places. It is also an offence to disturb sand lizard or smooth snake in their resting or breeding places. This applies throughout the year whether sand lizard or smooth snake are present or not at the time of survey or work being carried out. As protected species all British reptiles are covered by NPPF, which states that the presence of a protected species is a material consideration when considering a planning application.

All six species of British reptiles are included in the UK BAP. All six of these species are included as priority species in England, though not necessarily throughout the UK. Just one of the six species, the sand lizard, is subject to a SAP.

Abbreviations: NPPF – National Planning Policy Framework; BAP – Biodiversity Action Plan; SAP – Species Action Plan.

Amphibians

There is no special protection afforded to the four commoner species of amphibian; common frog, smooth (or common) newt, palmate newt and common toad.

The natterjack toad and great crested newt and their breeding and resting places are fully protected by both the Wildlife & Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010 (as amended). It is an offence to deliberately capture, injure or kill them or damage, destroy or obstruct their resting or breeding places. It is also an offence to disturb natterjack toad and great crested newt in their resting or breeding places. This applies throughout the year whether natterjack toad or great crested newt are present or not at the time of survey or work being carried out.

Four species of amphibian are included on the UK BAP: great crested newt, pool frog, natterjack toad and common toad. All are priority species but just three are subject to SAPs.

Abbreviations: BAP – Biodiversity Action Plan; SAP – Species Action Plan.

Great Crested Newt

The great crested newt is protected under the Wildlife & Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010 (as amended) from deliberate capture, injury and killing, intentional or reckless disturbance, intentional or reckless obstruction of access to any structure or place which any such animal uses for shelter or protection, and deliberate damage or

destruction of a breeding site or resting place. This applies throughout the year whether great crested newts are present or not at the time of survey or work being carried out.

As a protected species, the great crested newt is covered by the National Planning Policy Framework (NPPF), which states that the presence of a protected species is a material consideration when considering a planning application.

The great crested newt is listed as a priority species in the UK BAP and has a SAP.

Abbreviations: NPPF – National Planning Policy Framework; BAP – Biodiversity Action Plan; SAP – Species Action Plan.

UK BAP Habitats and Species (extracted from
<http://jncc.defra.gov.uk/page-5155>)

The UK BAP is the UK Government's response to the CBD. The Convention called for the development and enforcement of national strategies and associated action plans to identify, conserve and protect existing biological diversity, and to enhance it wherever possible. The UK BAP describes the biological resources of the UK and provides detailed plans for conservation of these resources, at national and devolved levels. Action plans for the most threatened species and habitats have been set out to aid recovery, and reporting rounds show how the UK BAP has contributed to the UK's progress towards the significant reduction of biodiversity loss called for by the CBD.

UK BAP priority species and habitats are those that have been identified as being the most threatened and requiring conservation action under the UK BAP. The UK BAP priority list now contains 1,149 species, and 65 habitats.

UK BAP habitats and species are a material consideration in respect to planning issues. All public bodies have a biodiversity duty under the Natural Environment and Rural Communities Act 2006 and Countryside and Rights of Way Act 2000 to raise the profile of biodiversity in England and Wales, so that the conservation of biodiversity becomes properly embedded in all relevant policies and decisions made by public authorities.

Abbreviations: CBD – Convention on Biological Diversity; BAP – Biodiversity Action Plan;

National Planning Policy References

Reference should be made to the following documents:

England

Department for Communities and Local Government (2012) National Planning Policy Framework Department for Communities and Local Government

ODPM (2005) Circular 06/05: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact within the Planning System TSO

Annex 5: OVERALL SITE EVALUATION – RATCLIFFE CRITERIA (1977)

Ratcliffe, D. (1977) A Nature Conservation Review. Volume 1. CUP.

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

These criteria provide a useful basis against which to evaluate the intrinsic ecological quality of a site, but in an urban area it is also important to consider the value of an area to the local people (GLC 1985). Thus the appeal of a site, its educational and amenity value, as well as its accessibility as a wildlife area, need to be included in the evaluation.

Survey results are assessed and evaluated using these criteria as a guide. They are:

Size

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

Diversity

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

Naturalness

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

Fragility

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

Typicalness

Sites/habitats that are unusual within the wider ecological unit are may be of value, similarly sites/habitats that are typical and commonplace within a field of ecological variation may also be of value.

Recorded History

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

Permanence

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

Lack of Modification

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

Rarity

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

Position in an Ecological Unit

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

Potential Value

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

Intrinsic Appeal

While science may view all creatures as equal, pragmatism dictates that in nature conservation it is realistic to give more weight to the more popular appeal of some species, groups or habitats than others.

Annex 6: DEFINING ECOLOGICAL VALUES FOR COMPONENT HABITATS – CIEEM (2016)

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

Level of Ecological Value	Examples of Criteria
International	) An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, Ramsar site, Biogenetic Reserve)) A sustainable area of a habitat listed in Annex I of the Habitats Directive, or smaller areas of such habitat that are essential to maintain the viability of a larger whole) A sustainable population of an internationally important species, e.g. a UK Red Data Book species, species listed under categories 1 or 2 of the UK BAP, or listed under Annex IV of the Habitats Directive) Sites supporting a breeding population of internationally important species or supplying a critical element of their habitat requirements
National	) A nationally designated site (SSSI, ASSI, NNR, MNR) or a discrete area that meets the selection criteria for national designation (e.g. SSSI selection guidelines)) A sustainable area of a priority habitat identified in the UK BAP, or smaller areas of such habitat that are essential to maintain the viability of a larger whole) A sustainable population of a nationally important species or a site supporting such a species, i.e. a species listed on Schedules 5 and 8 of the W&CA (as amended) which is a UK Red Data Book species that is not listed as being of unfavourable conservation status in Europe, of uncertain conservation status or of global concern in the UK BAP) A non-Red Data Book species that is listed as occurring in 15 or fewer 10km squares in the UK (categories 1 and 2 of the UK BAP). Also sites supporting a breeding population of such a species or supplying a critical element of their habitat requirements
Regional	) Sustainable areas of key habitat identified in the relevant Regional BAP or smaller areas of such habitat that are essential to maintain the viability of a larger whole) Sustainable areas of key habitat identified as being of Regional Value in the appropriate Natural Areas profile) A population of a species listed as being nationally scarce (i.e. occurring in 16 - 100 10km squares in the UK, or in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation. Sites supporting a breeding population of such a species or supplying a critical element of their habitat requirements) Sites, which exceed the County-level designations but fall short of SSSI selection guidelines, where these occur
County/ Metropolitan	) Semi-natural ancient woodland greater than 0.25 ha

Level of Ecological Value	Examples of Criteria
	) County/Metropolitan sites and other sites which meet the ecological selection criteria for designation) A sustainable area of habitat identified in a county BAP) A population of a species that is listed in a county/metropolitan 'red data book' or BAP on account of its regional rarity or localisation. Also sites supporting a breeding population of such a species or supplying a critical element of their habitat requirements
District	) Semi-natural ancient woodland smaller than 0.25 ha) Sustainable areas of habitat identified in a sub-county (district/borough) BAP or in the relevant Natural Area profile) Sites/features that are scarce within the district/borough or which appreciably enrich the district/borough habitat resource) A diverse and/or ecologically valuable hedgerow network) A population of a species that is listed in a district/borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation. Also sites supporting a breeding population of such a species or supplying a critical element of their requirements
Local	) Areas of habitat considered to appreciably enrich the habitat resource within the context of the Parish or local neighbourhood, e.g. isolated species-rich hedgerows
Site	) Small patches of poor semi-improved grassland, amenity grassland not used by badgers
Negligible	) Areas of little current or potential ecological value

Annex 7: SITE PHOTOGRAPHS

Preliminary Ecological Assessment for Bats – Trees

Tree 1

