

The Lake Lothing (Lowestoft) Third Crossing Order 201[*]



Lake Lothing
**THIRD
CROSSING**

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Appendix 11A

Preliminary Ecological Appraisal



Suffolk County Council

PRELIMINARY ECOLOGICAL APPRAISAL





Suffolk County **Council**

PRELIMINARY ECOLOGICAL APPRAISAL

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EXECUTIVE SUMMARY

WSP was commissioned by Suffolk County Council (SCC) hereinafter “the Applicant”, to undertake a Preliminary Ecological Appraisal (PEA) at Lake Lothing, Lowestoft, Suffolk where a third crossing of the lake is proposed.

As part of the PEA, a Phase 1 Habitat survey was undertaken in October 2017 on the terrestrial areas associated with the Scheme. The survey was carried out from both publicly accessible land and private properties. Habitats recorded within survey area comprise mixed woodland, species poor improved amenity grassland, running water, continuous and scattered scrub and bare ground. The habitats are of low ecological value.

The survey area provides suitable habitat for the following protected and/or notable species: bats, birds and reptiles. Further survey work and consultation with the local authority and Natural England has been undertaken in order to determine the likely impact of the Scheme on these species/groups of species.

Certain species, habitats and nature conservation sites receive legislative protection. Specific recommendations based upon the nature of the proposed works and compliance with this legislation are referenced within this PEA and include further surveys and mitigation, compensation and enhancement measures.

1 BACKGROUND

1.1 PROJECT BACKGROUND

- 1.1.1. The scheme involves the construction, operation and maintenance of a new bascule bridge highway crossing linking the areas north and south of Lake Lothing in Lowestoft, hereafter referred to as the Lake Lothing Third Crossing ("the Scheme").
- 1.1.2. The Scheme would provide a new single-carriageway road crossing of Lake Lothing, consisting of a multi-span bridge with associated approach roads, and would comprise:
- an opening bascule bridge over the Port of Lowestoft, in Lake Lothing;
 - on the north side of Lake Lothing, a bridge over Network Rail's East Suffolk Line, and a reinforced earth embankment joining that bridge, via a new roundabout junction, to the C970 Peto Way, between Rotterdam Road and Barnards Way; and
 - on the south side of Lake Lothing, a bridge over the northern end of Riverside Road including the existing access to commercial property (Nexen Lift Trucks) and a reinforced earth embankment (following the alignment of Riverside Road) joining this bridge to a new roundabout junction with the B1531 Waveney Drive.
- 1.1.3. The Scheme would be approximately 1 kilometre long and would be able to accommodate all types of vehicular traffic as well as non-motorised users, such as cyclists and pedestrians.
- 1.1.4. The opening bascule bridge design would allow large vessels to continue to use the Port of Lowestoft.
- 1.1.5. A new control tower building would be located immediately to the south of Lake Lothing, on the west side of the new highway crossing, to facilitate the operation of the opening section of the new bascule bridge.
- 1.1.6. The Scheme would also entail:
- the following changes to the existing highway network:
 - the closure of Durban Road to vehicular traffic at its junction with Waveney Drive;
 - the closure of Canning Road at its junction with Riverside Road, and the construction of a replacement road between Riverside Road and Canning Road to the west of the Registry Office; and
 - a new access road from Waveney Drive west of Riverside Road, to provide access to property at Riverside Business Park;
 - improvements to Kimberley Road at its junction with Kirkley Run; and
 - part-signalisation of the junction of the B1531 Victoria Road / B1531 Waveney Drive with Kirkley Run;
 - the provision of a pontoon for use by recreational vessels, located to the east of the new highway crossing, within the Inner Harbour of Lake Lothing; and
 - works to facilitate the construction, operation and maintenance of the Scheme, including the installation of road drainage systems; landscaping and lighting; accommodation works for accesses to premises; the diversion and installation of utility services; and temporary construction sites and access routes.
- 1.1.7. The works required for the delivery of the Scheme are set out in Schedule 1 to the draft DCO (application document reference 3.1), where they are referred to as "the authorised development", with their key component parts being allocated reference numbers, which correspond to the layout of the numbered works as shown on the Works Plans (application document reference 2.4). The General Arrangement Plans (application document reference 2.2) illustrate the key features of the Scheme.

1.1.8. Figure 1 provides a diagrammatic representation of the Scheme:

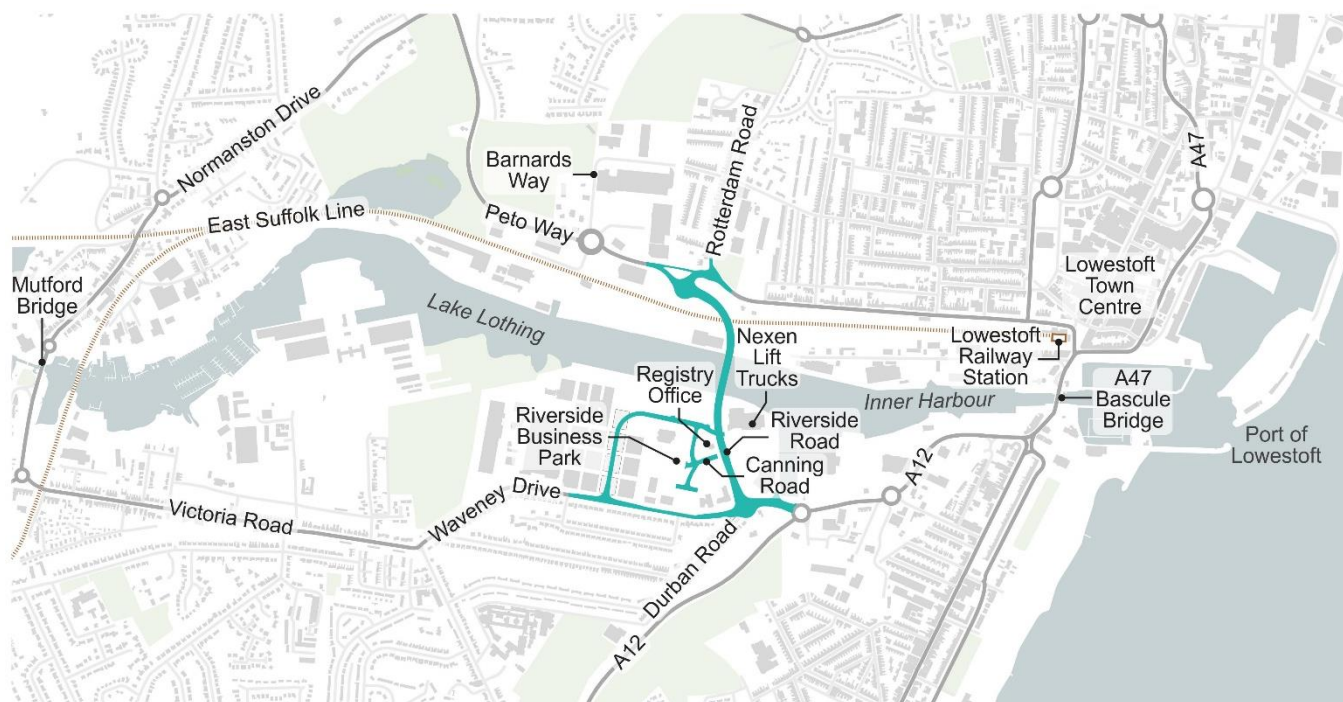


Figure 1: Location of the Scheme in Lowestoft

1.1.9. A full description of the Scheme is contained in Chapter 5 of the Environmental Statement (ES).

1.2 ECOLOGICAL BACKGROUND AND SURVEY AREA

1.2.1. Lake Lothing is situated in the centre of Lowestoft, Suffolk (grid reference TM540927). The land surrounding the lake is urbanised, with both residential and industrial land use. Lake Lothing is classed as a salt water lake and lies east of the Broads National Park, opening into the North Sea at its eastern end. The Survey Area (hereafter referred to as such in this document) comprises all land within and adjacent to the Scheme and includes sufficient land, based upon professional judgement to identify what habitats could be impacted by the Scheme. The Survey Area is approximately 58 hectares in size and is shown on Figure 1 to this PEA. This area includes Lake Lothing, currently used industrial buildings, disused industrial buildings, a railway line, roads and residential houses.

1.3 SCOPE OF REPORT

1.3.1. The Applicant commissioned WSP (Mouchel was incorporated into WSP from 01/07/2017) to complete a Preliminary Ecological Appraisal (PEA) of the Survey Area in 2017. The brief was:

- to provide baseline ecological information about the Survey Area with particular reference to whether legally protected and/or notable sites, species or habitats are present or likely to be present;
- to provide recommendations to enable compliance with relevant nature conservation legislation and planning policy;
- if necessary, to identify the need for avoidance, mitigation, compensation or enhancement measures and/or further ecological surveys; and
- To inform an assessment of significance within an ES.

1.3.2. This report provides an update to a 2015 report, focussing on the preliminary design and Order limits of the Scheme for which development consent is sought. This 2015 report was included within the scoping report and the Preliminary Environmental Information Report (PEIR) that accompanied the Section 42 consultation for the Scheme.

1.4 RELEVANT LEGISLATION AND POLICY

1.4.1. This PEA has been compiled with reference to the following relevant nature conservation legislation, planning policy and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in England. The context and applicability of each item is explained as appropriate in the relevant sections of the report and additional details are presented in Appendix A.

- National Policy Statement for National Networks;
- The Conservation of Habitats and Species Regulations 2017 as amended (the “Habitats Regulations”);
- The Wildlife and Countryside Act 1981 (as amended) (WCA);
- Countryside Rights of Way Act 2000;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- The Protection of Badgers Act 1992;
- The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012);
- Biodiversity 2020: A strategy for England’s wildlife and ecosystem services (DEFRA, 2011);
- UK Biodiversity Action Plan (UKBAP)¹;
- The National Planning Policy Framework (NPPF) 2012 (DCLG, 2012); and
- The Suffolk Planning Biodiversity Action Plan (2012).

¹ The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant.

2 METHODS

2.1 OVERVIEW

- 2.1.1. This appraisal has been prepared with reference to current good practice guidance published by the Chartered Institute for Ecology and Environmental Management (CIEEM, 2013 and 2015), and Joint Nature Conservation Committee (JNCC, 2010); and guidance contained in the British Standard - Code of Practice for Biodiversity and Development BS42020:2013 (British Standards Institute (2013)).
- 2.1.2. This PEA is based on the following data sources:
- an ecological desk study;
 - a habitat survey; and
 - a protected/notable species assessment.

2.2 DESK STUDY

- 2.2.1. The ecological desk study was undertaken in October 2017 to review existing ecological baseline information available in the public domain and to obtain information held by relevant third parties. For the purpose of the desk study exercise, records were collated within various distances from the Scheme. This approach is consistent with current good practice guidance published by the CIEEM, 2013 and 2015. To provide the baseline data for the ecological desk study, the following information was requested from Suffolk Biodiversity Information Service:
- Records of legally protected and notable species within 2 km of the order limits;
 - Bat records within 5 km of the order limits; and
 - Records of non-statutory sites designated for nature conservation value within 2km of the order limits.
- 2.2.2. Freely downloadable datasets (available from Natural England) were consulted for information regarding the presence of statutory designated habitats² within 2km of the order limits. This search was extended to 10km for Natura 2000 sites (Special Areas of Conservation (SAC) and Special Protection Areas (SPA)) of European importance and internationally designated Ramsar sites.
- 2.2.3. Freely downloadable datasets (available from Natural England) were consulted for information regarding Habitats of Principal Importance (HPI)³ within 1km and woodland listed on the Ancient Woodland Inventory⁴.
- 2.2.4. In addition, open source 1:25,000 Ordnance Survey mapping was used to identify any mapped water bodies and watercourses within 500m of the order limits.
- 2.2.5. The findings of the desk study have been incorporated within Section 3 and Appendix B of this report.

2.3 HABITAT SURVEY

- 2.3.1. A Phase 1 habitat survey of the Survey Area was carried out on the 27-29 September 2017 in overcast, dry and calm weather conditions. The survey covered the entire Survey Area including boundary features; an approximate area of 58ha around the Order limits.
- 2.3.2. Habitats were described and mapped following the standard Phase 1 habitat survey methodology (JNCC, 2010). Phase 1 habitat survey is a standard technique for classifying and mapping British habitats. The dominant plant species are recorded and habitats are classified according to their vegetation types. Where appropriate consideration was given to whether habitats qualify, or could qualify, as a Habitat of Principal

² Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR).

³ Mapped locations of HPI are usually not available, but HPI aligns in the most part with UKBAP habitats. Inventories of UKBAP habitat have been prepared by a variety of organisations and at a national (Natural England priority habitat inventory) and local scale (e.g. by local records centres). In some instances these are primarily based on aerial photograph analysis rather than field survey.

⁴ The ancient woodland inventory in England lists areas over two hectares in size which have been continuously wooded since at least 1600. The ancient woodland inventory in Scotland lists areas which are currently wooded and have been continuously wooded since at least 1750.

Importance following habitat descriptions published by the Joint Nature Conservation Committee (JNCC, 2008).

- 2.3.3. A list of plant species was compiled (Appendix C), with relative plant species abundance estimated using the DAFOR scale⁵. The scientific names for plant species follow those in the New Flora of the British Isles (Stace, 2010) and are also listed in Appendix C.
- 2.3.4. Habitats were marked on a paper base map and were subsequently digitised using a Geographical Information System (GIS). The smallest area to be mapped was 0.02ha which was selected as a suitable scale to sample the range of different vegetation types present.
- 2.3.5. Target notes were made to provide information on specific features of ecological interest (e.g. a badger *Meles meles* sett) or habitat features too small to be mapped. These are included in Appendix D.
- 2.3.6. Any invasive plant species listed on Schedule 9 of the WCA 1981 (as amended) which were evident during the Phase 1 habitat survey were also target noted. Detailed mapping of such species; or a full survey of the Survey Area for all invasive plant species is beyond the scope of this commission.
- 2.3.7. Data collected as part of this Phase 1 Habitat survey is suitable for use in retrospective biodiversity unit calculations, if required.

2.4 PROTECTED SPECIES ASSESSMENT

- 2.4.1. The potential for the Survey Area to support legally protected and notable species was assessed using the desk study results combined with field observations during the habitat survey. The assessment of habitat suitability for protected and notable species was based on professional experience and judgement. This was supplemented by standard sources of guidance on habitat suitability assessment for key faunal groups including: birds (Gilbert et al, 1998 and Bibby et al, 2000), great crested newt (Gent and Gibson, 2003 and English Nature, 2001); reptiles (Froglife, 1999 and Gent and Gibson, 2003); bats (Collins, 2016 and Mitchell-Jones, 2004) and badger (Harris et al, 1991 and Roper, 2010).

2.5 PRELIMINARY EVALUATION

- 2.5.1. A preliminary evaluation of all ecological features within the Survey Area was undertaken with reference to guidance issued by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2016). In evaluating the relative importance of ecological features, the following factors were considered; nature conservation designations, species/habitat rarity, naturalness, fragility, connectivity to other habitats and relevant nature conservation aims and objectives for a given area as contained in national and local biodiversity action plans and planning policies.

2.6 NOTES AND LIMITATIONS

- 2.6.1. The following specific limitations apply to this assessment:
 - Ecological survey data is typically valid for two years unless otherwise specified, for example if conditions are likely to change more quickly due to ecological processes or anticipated changes in management’;
 - Records held by local biological record centres and local recording groups are generally collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording coverage; and
 - The extended Phase 1 habitat map (Figure 1 of this PEA) has been reproduced from field notes and plans. Whilst this provides a sufficient level of detail to fulfil the requirements of a PEA, the maps are not intended to provide exact locations of key habitats.

⁵ The DAFOR scale has been used to estimate the frequency and cover of the different plant species as follows: Dominant (D) - >75% cover, Abundant (A) – 51-75% cover, Frequent (F) – 26-50% cover, Occasional (O) – 11-25% cover, Rare (R) – 1-10% cover., The term ‘Locally’ (L) is also used where the frequency and distribution of a species are patchy and ‘Edge’ (E) is also used where a species only occurs on the edge of a habitat type.

3 RESULTS

3.1 DESIGNATED SITES STATUTORY SITES

3.1.1. There are no statutory nature conservation sites within 2km of the Survey Area.

NON-STATUTORY SITES

3.1.2. The desk study identified 12 non-statutory nature conservation sites within 2km of the centre of the Survey Area (see Table 1).

Table 1 – Non-statutory designated sites

Site Name	Designation	Size (ha)	Distance and orientation from Site	Description
Kirkley Ham	CWS	3.1	360m south	The site contains areas of reedbed and willow trees, with sections of open water. The north of the site contains neutral and acidic grassland with scattered scrub.
Brooke Yachts and Jen-Weld Mosaic	CWS	6.97	630m west	This semi-natural site has an open mosaic of scrub and grassland habitats on previously developed land. The site supports reptiles and birds.
Great Eastern Linear Park	CWS	4.88	880m north west	This disused railway line supports dense scrub, woodland and rough grassland. Open areas with standing water are also present.
Leathes Ham	CWS and Local Nature Reserve	6.03	1km north west	The site comprises a large area of open water with extensive reedbeds surrounded by damp woodland, scrub and rough grassland. The range of habitats supports a diversity of birds.
Harbour Kittiwake Colony	CWS	6.57	1.2km east	A colony of kittiwakes is present on the north pier extension, with over 200 nests counted in 1991.
Rustyback Fern Site	CWS	0.08	1.3km west	This site supports one of only two populations of rustyback fern <i>Asplenium ceterach</i> in Suffolk, with a population of approximately eight plants.
St. Margaret's Churchyard	CWS	3.18	1.4km north	An area of unimproved grassland with a variety of management regimes within the site supporting a diverse range of plants.
Ness Point	CWS	0.87	1.5km north east	An area of artificial sea defences that provide the most important habitat for purple sandpipers in East Anglia.

Site Name	Designation	Size (ha)	Distance and orientation from Site	Description
Oulton Road Pond and Meadow	CWS	0.54	1.6km north west	This site contains a small natural pond surrounded by emergent vegetation and scrub. Mature oak and hawthorn are also present.
Hall Road Ham	CWS	6.28	1.8km west	A mosaic of wetland habitats including wet woodland, wet grassland, scrub and fenland.
Pakefield Park	CWS	5.84	1.8km south	An area of both dry acidic grassland and wet grassland is bordered by scrub and woodland with mature oak.
Bonds Meadow	CWS	6.02	1.9km north west	This area contains a diverse range of habitats ranging from wet alder carr and fen to higher areas of dry grassland and scrub, supporting a range of bird and plant species.

OTHER HABITATS OF CONSERVATION IMPORTANCE

- 3.1.3. There are no other habitats of conservation importance within the Survey Area or the land adjacent.

3.2 HABITAT SURVEY

OVERVIEW

- 3.2.1. The Survey Area is situated within the urban centre of Lowestoft. Habitats within the Survey Area include buildings, bare ground (including both active roads and pavements as well as disused areas of concrete), open water with Lake Lothing and areas of both continuous and scattered scrub, mixed woodland as well as exotic scrub and improved amenity grassland.
- 3.2.2. The following account summarises the findings of the Phase 1 habitat survey. Nine Phase 1 habitat types were identified in the Survey Area. They are mapped on Figure 1 to this PEA and are listed in Table 2 along with areas in hectares. A description of the dominant and notable species, the composition and management of each habitat is provided below and an indicative species list is provided in [Appendix C]. Target notes are provided in Appendix D. Alpha-numeric codes used in this section refer to the JNCC Phase 1 habitat survey classification (JNCC, 2010). The order of the habitat descriptions below reflects their ordering in the Phase 1 habitat survey manual and does not reflect habitat importance.

Table 2 – Phase 1 Habitat Areas

Phase 1 Habitat	Area (ha)	% of Survey Area
Amenity Grassland	2.09	3.59
Bare Ground	29.24	50.10
Building	9.93	17.03
Introduced Scrub	0.43	0.73
Mixed Woodland	0.01	0.02
Scattered Scrub	0.77	1.32
Scrub	2.92	5.01
Unimproved Neutral Grassland	1.66	2.85
Water	11.29	19.35
TOTAL	58.34	100

MIXED WOODLAND - PLANTATION – A1.3.2

- 3.2.3. A short line of ornamental mixed woodland has been planted to the north of land parcel L20.

SCRUB – DENSE/CONTINUOUS – A2.1

- 3.2.4. Areas of dense/continuous scrub are scattered throughout the Survey Area, including along the railway sidings, in areas of ex-industrial land use and surrounding local council offices.
- 3.2.5. There are also trees surrounding land parcel L15, as part of the scrub habitat. The trees here range in age from 15-25 years and include pedunculated oak *Quercus robur*, hawthorn *Craegus monogyna*, holly *Ilex aquifolium*, blackthorn *Prunus spinose*, sycamore *Acer pseudoplatanus*, cherry *Prunus avium*, willow spp. *Salix* spp. and cherry laurel *Prunus laurocerasus*.
- 3.2.6. Along the railway siding, the vegetation in close proximity to the track is actively kept short for safety. Surrounding the more open sections, there are areas with gorse, bramble and hawthorn scrub.

SCRUB – SCATTERED – A2.2

- 3.2.7. Two areas of scattered scrub are found within the Survey Area. One is part of the eastern boundary of a large abandoned industrial complex to the south of Lake Lothing and the other is associated with the railway sidings to the north of the lake.

OPEN WATER – STANDING WATER – G1

- 3.2.8. At the centre of the Survey Area is Lake Lothing, a salt water lake that opens into the North Sea at its eastern end. The lake banks are heavily modified, with vertical concrete and wood maintaining the channel shape.

CULTIVATED/DISTURBED LAND – AMENITY GRASSLAND – J1.2

- 3.2.9. Amenity grassland occurs across the Survey Area, most of which is managed and kept to a short level as either road verge or on roundabouts. A public recreational area is found in the north of the Survey Area and this grassland is also managed and kept to a short level.

CULTIVATED/DISTURBED LAND – INTRODUCED SCRUB – J1.4

- 3.2.10. Two locations with introduced scrub are found within the Survey Area. To the south of Lake Lothing, the road verges along Canning Road have been planted with a variety of introduced scrub species. The verges around a North Quay Retail Park have also been planted with introduced scrub to the north of the lake.

CULTIVATED/DISTURBED LAND – BUILDINGS – J3.6

- 3.2.11. A variety of buildings are found within the Survey Area, including modern offices and shops, disused ex-industry buildings now in disrepair and several residential houses.

CULTIVATED/DISTURBED LAND – BARE GROUND – J4

- 3.2.12. Much of the Survey Area is covered by bare ground, in the form of pavements, roads and car parks or in old areas of concrete associated with unused industrial areas.

3.3 PROTECTED AND NOTABLE SPECIES

- 3.3.1. The suitability of the Survey Area to support legally protected species and notable species has been assessed using the results of the desk study and observations made during survey of habitats within and immediately surrounding the Survey Area. A summary of desk study information is included within Appendix B. Desk study records have only been considered below if they are recent (from the last 10 years) and/or if they relate to species that may be supported by habitats at the Survey Area. Habitats present within the Survey Area are suitable for the following species; further consideration is given below to the likelihood for these species to be present within the Survey Area:

- Bats;
- Badger;
- Birds;
- Reptiles; and
- Fish.

- 3.3.2. The Survey Area does not provide suitable habitat for other protected or notable species. Other species, beyond those listed above, are not considered further in this PEA.

BATS

- 3.3.3. The data from the records centre included four records of bats. Three were simply listed as 'bats' with two records from 2014 and one from 2000. The final record was for a *Myotis* bat, also from 2000. All records are for individual bats, and there are no records of roosts. All records were located within 2km of the Scheme.
- 3.3.4. There are numerous residential and commercial properties within the Survey Area. A full assessment of these structures was undertaken as part of the Lake Lothing Third Crossing: Interim Bat Report (WSP, 2017). No evidence of roosting bats was found during these surveys and bat activity was low in general, with individual bats typically recorded.
- 3.3.5. Trees across the Survey Area were assessed for their suitability to support bats. All trees were assessed as having low or negligible suitability to support roosting bats due to their size, maturity and lack of roosting features.

BADGER

- 3.3.6. The data search returned no results of badgers within 2km of the Scheme.
- 3.3.7. A single hole was observed at TM 54384 92899. Closer inspection determined that the hole was in use by foxes *Vulpes vulpes*.

OTTER

- 3.3.8. The data search returned one record for European otter *Lutra lutra*, approximately 1.4km from the Scheme.
- 3.3.9. There are no areas of suitable habitat for otter within the Survey Area and it is therefore unlikely that the Survey Area is used by otter.

WATER VOLE

- 3.3.10. The data search returned five records of water vole *Arvicola amphibius* all from Kirkley. The closest record was 1.2km from the Scheme.

- 3.3.11. There are no areas of suitable habitat for water vole within the Survey Area and it is considered unlikely that the Survey Area is used by water vole.

BIRDS

- 3.3.12. A large number of bird records were returned from the data search, including several Schedule 1 species, which are listed in Appendix B. As these records are confidential, further location data is not available.
- 3.3.13. The numerous areas of scrub vegetation and trees present across the Survey Area are suitable to support nesting birds. Furthermore, a disused industrial area south of Lake Lothing comprised of abandoned warehouses currently supports nesting pigeons and also provides suitable habitat for other nesting birds, such as gulls.
- 3.3.14. The areas of bare ground and disused buildings provide suitable habitat for black redstart.

REPTILES

- 3.3.15. The data search returned seven records of reptile species: five of common lizard, one of grass snake and one of adder. The common lizard were recorded in Kirkley Ham, Brooke Yachts and Jeld Wen in 2007, Kirkley Ham and Lowestoft in 2004 and Gunton in 2000. The grass snake was recorded in Oulton Broad in 2002 and the adder from Gunton in 2000.
- 3.3.16. There are several areas of scrub across the Survey Area that have the potential to support reptiles.

AMPHIBIANS

- 3.3.17. The data search returned 24 records of amphibians, including two of great crested newt *Triturus cristatus*. Both records are approximately 2km from the Scheme.
- 3.3.18. A review of OS mapping found no ponds within 500m of the Scheme. There is no habitat to support amphibians within the Survey Area.

FISH

- 3.3.19. Records of European eel *Anguilla anguilla* exist, with the closest record approximately 1.4km from the Scheme.

NON-NATIVE INVASIVE PLANT SPECIES

- 3.3.20. The data search returned records for several species listed on Schedule 9, including wakame *Undaria pinnatifida*, montbretia *Crocasmia pottsii x aurea*, three-cornered garlic *Allium triquetrum*, New Zealand pigmyweed *Crassula helmsii*, Virginia-creeper *Parthenocissus quinquefolia*, wall cotoneaster *Cotoneaster horizontalis*, Japanese rose *Rosa rugosa*, yellow archangel *Lamiastrum galeobdolon* subsp. *Argentatum*, Indian balsam *Impatiens glandulifera* and Japanese knotweed *Fallopia japonica*.
- 3.3.21. Three stands of Japanese Knotweed were found within the Survey Area at TM53770 93019, TM53976 92398 and TM53906 92409. A single stand of Japanese rose was found at TM538929.

4 DISCUSSION AND RECOMMENDATIONS

- 4.1.1. This section considers the potential for effects on designated sites, legally protected species, notable species and notable habitats as a consequence of the Scheme. Where further surveys or detailed assessment of likely effects are required in order to design suitable mitigation this is identified.

4.2 STATUTORY DESIGNATED SITES

- 4.2.1. The Broads National Park is within 2km of the Scheme. However, no negative impact is envisaged on this designated site because of the distance between the National Park and the Scheme.

4.3 NON-STATUTORY DESIGNATED SITES

- 4.3.1. CWS are sites designated according to selection criteria. Suffolk County Council, Suffolk Biological Records Centre (SBRC), Suffolk Wildlife Trust and Natural England meet to determine which sites should be designated as CWS.
- 4.3.2. Twelve CWS are located within 2km of the Scheme, with the closest being approximately 360m to the south. However, due to the defined footprint of the Scheme, no negative impacts are envisaged on any of these CWS at this PEA stage and therefore these have not been presented or assessed further in this document.

4.4 HABITATS

- 4.4.1. The habitats within the Survey Area are all common and widespread and as such, do not receive any legal or policy protection.
- 4.4.2. The Scheme will require the felling of a small number of trees to accommodate the new road layout. A suitably experienced ecologist should be consulted prior to the felling of trees to ensure that the age can be assessed. This habitat may also be of value to faunal groups such as bats and/or birds and any losses may result in an adverse impact on these species.
- 4.4.3. The Scheme will result in the small scale loss of improved grassland and scrub habitats. Both habitats are of low nature conservation interest, and so no negative impacts are anticipated as a result. However, these habitats may be of value to faunal groups such as birds and reptiles and losses may result in an adverse impact on these species.
- 4.4.4. The Scheme will result in the demolition of a small number of buildings. This habitat may be of value to faunal groups such as bats and/or birds and any losses may result in an adverse impact on these species.

4.5 PROTECTED AND NOTABLE SPECIES

- 4.5.1. The results of the desk study, Phase 1 habitat Survey and protected species assessment highlighted the potential presence of several protected species or species of conservation concern within the Survey Area. These include bats, birds and reptiles. The legal protection afforded to these species is outlined below and, where appropriate, the requirement for further survey and/ or mitigation measures is identified.
- 4.5.2. Surveys have already been carried out for those species where further work has been recommended. The results are included in the Environmental Statement Chapter.

BATS

- 4.5.3. All species of bats recorded within the UK are protected from killing, injury and disturbance⁶ and their roosts protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural England for certain purposes.

⁶ Disturbance is defined within the Habitats Regulations as that which is likely to impair a species ability to survive, breed or reproduce, hibernate or migrate or to significantly affect the local distribution or abundance of the species.

- 4.5.4. Certain species of bats, including the Bechstein's bat, greater and lesser horseshoe bats, noctule bat, brown long eared bat and soprano pipistrelle bat are also listed as Species of Principal Importance (SPI) for the conservation of biodiversity in England in accordance with Section 41 of the NERC 2006. Section 40 obliges public bodies to have regard for the conservation of biodiversity (including SPI) when discharging their duties (including determining planning applications).
- 4.5.5. The Scheme may result in the loss of bat roosts, should they be present within buildings that may be demolished or within trees which may be felled to facilitate the works. Further survey work has therefore been undertaken to determine if roosting bats are present within the Survey Area. Further information is provided in Table 3.
- 4.5.6. The Scheme may also result in the disturbance of foraging and commuting bats, which may rely on habitats within the Order limits. Recommended ecological avoidance, mitigation and compensation requirements to avoid an impact on foraging and commuting bats are described in Section 5.7.

BIRDS

- 4.5.7. Under the amendments to the Habitat Regulations (16th August 2012) Reg 9A(2) & (3) state that local authorities 'must take such steps in the exercise of their functions as they consider appropriate to contribute to...the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the UK including by means of the upkeep, management and creation of such habitat...'. The legislation continues to state that economic and recreation requirements must be taken into consideration in considering which measures are appropriate.
- 4.5.8. Under the Wildlife and Countryside Act 1981 (as amended) all wild birds are protected from killing and injury, and their nests and eggs protected from taking, damage and destruction whilst in use. Additional protection is extended to species listed under Schedule 1 of the Act, meaning it is also an offence to disturb these species at or near the nest, or whilst they have dependent young.
- 4.5.9. The Scheme may result in the loss of nesting and foraging habitat used by birds. Further information is provided in Table 3.
- 4.5.10. The removal of vegetation may also result in the disturbance of nesting birds, if undertaken during the nesting season. Recommended avoidance measures to avoid an impact upon nesting birds are described in the ES.

REPTILES

- 4.5.11. Native widespread reptile species (common or viviparous lizard *Lacerta vivipara*, adder *Viper berus*, grass snake *Natrix natrix* and slow worm *Anguis fragilis*) are partially protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This includes protection from killing and injury.
- 4.5.12. All reptile species are also listed as SPI in accordance with Section 41 of the NERC Act 2006. Public bodies have an obligation under Section 40 to have regard for these species when carrying out their functions. Reptile surveys were undertaken in appropriate habitats across the Survey Area. Further information is provided in Table 4.

FISH

- 4.5.13. European eel is listed as SPI in accordance with Section 41 of the NERC Act 2006. Public bodies have an obligation under Section 40 to have regard for this species when carrying out their functions.
- 4.5.14. The Scheme is likely to require works to be undertaken to, or within, the river channel. The works may result in the disturbance of fish species within the river. The Local Authority was consulted for further information of the status of fish within the local area and it was determined that further surveys would be beneficial in assessing the likely impact of the Scheme on these species. Further information is provided in Table 3.

FURTHER SURVEY REQUIREMENTS

- 4.5.15. Likely ecological constraints for which further surveys were undertaken to ensure legal and planning policy compliance are listed in Table 4.1.

Table 3 - Key Ecological Constraints and Further Survey Requirements

Ecological Receptor	Potential Constraints	Further Surveys Requirements
Bats	Demolition of structures B1-B9 may result in the damage/destruction of a bat roost.	Bat roost and activity surveys undertaken in 2016 and 2017. Information presented in Appendix 11B to the ES
Birds	Removal of vegetation/demolition of structures may result in disturbance/destruction of nesting birds	Wintering birds (Appendix 11D) and black redstart surveys were undertaken at an appropriate time of year.
Reptiles	Removal of vegetation may result in the disturbance/death of common reptiles	Reptile surveys were undertaken in 2016 and 2017. Information is presented in Appendix 11F to the ES.
Fish	The Scheme will require works within the river. This may result in disturbance to fish populations that may be present.	Fish trawl surveys were undertaken in April 2018 and are reported separately in Appendix 11G to the ES.

4.6 PRELIMINARY AVOIDANCE, MITIGATION AND COMPENSATION MEASURES

- 4.6.1. Due to this updated PEA accompanying the application for the Scheme, it has been informed by suitably progressed design and therefore does not make recommendations for design development. To comply with relevant legislation and planning policy, avoidance, mitigation and compensation measures are provided within Chapter 11 of the Environmental Statement.

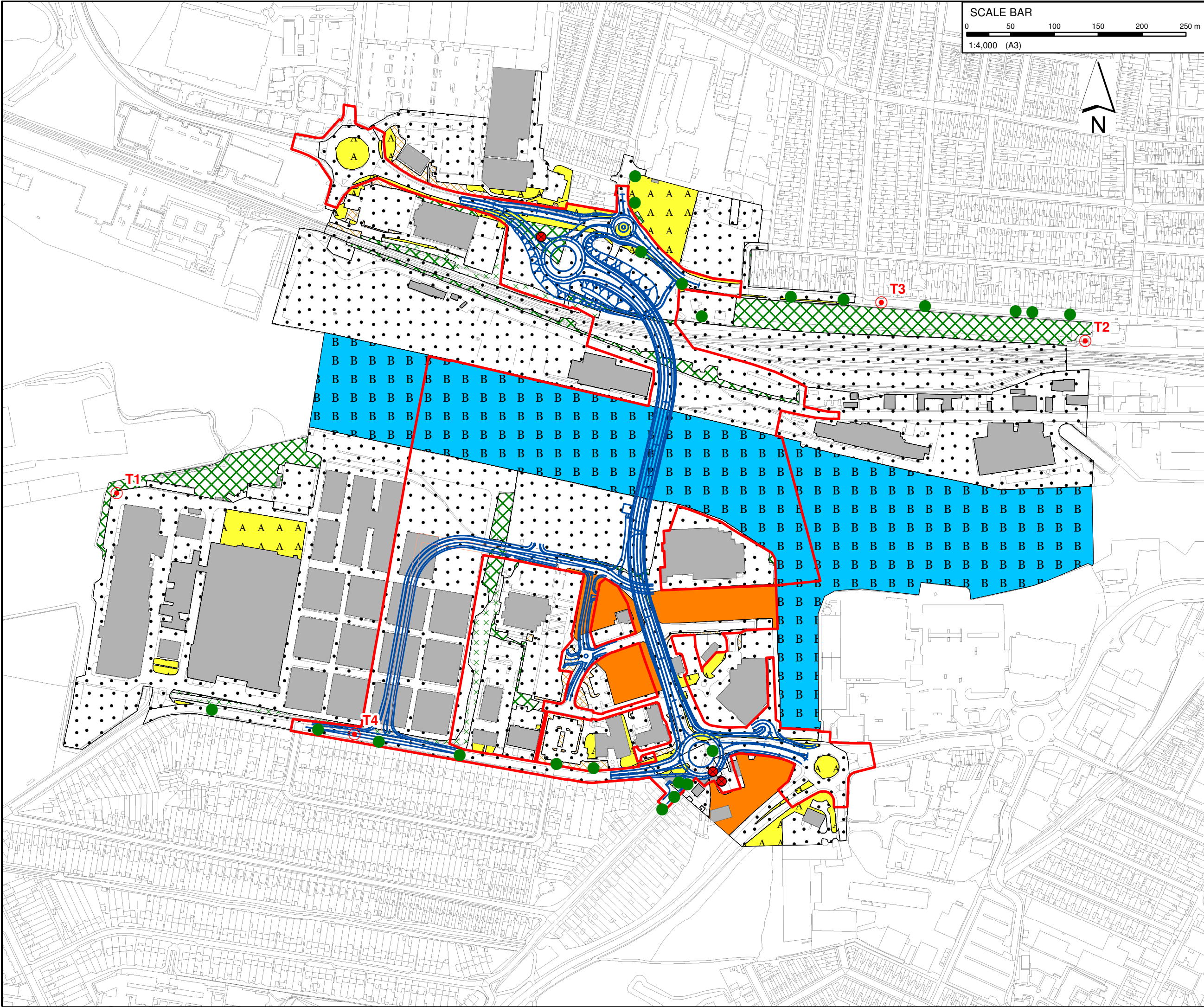
5 CONCLUSIONS

- 5.1.1. The following habitats are present with the Survey Area: mixed woodland, continuous and scattered scrub, running water, bare ground and buildings. These habitats are suitable for the following species/groups of species: bats, birds, reptiles and fish.

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FIGURES



KEY

- The Scheme (illustrative)
- Order Limits
- A1.3.2 - Mixed Woodland - Plantation
- A2.1 - Scrub - Dense/Continuous
- A2.2 - Scrub - Scattered
- J1.2 - Cultivated/Disturbed Land - Amenity Grassland
- J1.4 - Introduced Shrub
- B2.1 - Unimproved Neutral Grassland
- J3.6 - Buildings
- J4 - Bare Ground
- G2.6 - Water
- Target Note
- A3.1 - Broadleaved Planted Tree
- Japanese Knotweed

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REVISION	DRAWN	CHECKED	APPROVED	DATE
DESCRIPTION				

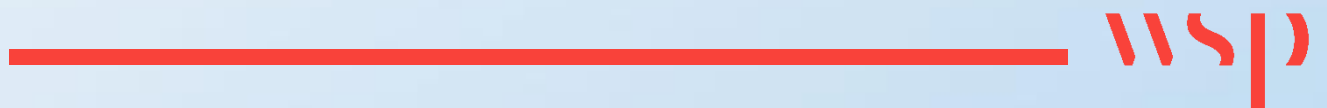


Habitats Map
Figure 1

DRAWING STATUS				
For DCO Sumbission				
DRAWN	CHECKED	APPROVED	AUTHORISED	SUITABILITY
IW	BB	HR	JB	S4
SCALE @ A3 SIZE		DATE	REVISION	
1:4,000		18/06/2018	P00	
DRAWING NUMBER				
Project		Originator	Volume	
1069948-WSP-EBD-LL-SK-LE-0001				
Location	Type	Role	Number	

Appendix A

RELEVANT LEGISLATION AND POLICY



ENGLAND & WALES LEGISLATION AND POLICY CONTEXT

This report has been compiled with reference to relevant wildlife legislation, planning policy and the UK Biodiversity Framework. An overview and context of relevant legislation is provided, with the relevant protection each species groups or species receives summarised in Table 1.

National Policy Statement for National Networks

Paragraph 5.25 of the National Policy Statement for National Networks states that as a general principle development should avoid significant harm to biodiversity interests. In order to enable the Applicant to ensure that this can be achieved it needs to have an understanding of what biodiversity interests exist which could be affected by the Scheme. This PEA describes the process of obtaining that understanding⁷.

The Wildlife and Countryside Act 1981, (as amended) (WCA)

Protected birds, animals and plants are listed under Schedules 1, 5, 8 and 9 respectively of the WCA, a description of these Schedules and their meaning is provided below.

Under the WCA (England and Wales) all birds, their nests and eggs (with exception of species listed under Schedule 2) are protected by the WCA. It is an offence to:

- Intentionally kill, injure, or take any wild bird,
- take or destroy an egg of any wild bird.
- damage or destroy the nest of any wild bird (whilst being built, or in use). Under the WCA the clearance of vegetation within the survey area boundary, or immediately adjacent to the survey area during the bird nesting season could result in an offence occurring by the disruption or destruction of nest sites. The bird breeding season can be taken to occur between March - August inclusive, although is subject to variations based on species, geographical and seasonal factors.

Schedule 1

Birds listed under Schedule 1 of the WCA⁷ are afforded additional protection with regard to intentional or reckless disturbance whilst nest-building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Schedule 5

Species listed in Schedule 5 can either be fully protected or be partially protected under Section 9, which makes it unlawful to intentionally:

Part 1: kill, injure or take;

Part 2: possess or control (live or dead animal, part or derivative);

Part 4 (a): damage or destruct any structure used for shelter or protection;

Part 4 (b): disturb them in a place of shelter or protection;

Part 4 (c): obstruct access to place of shelter or protection;

Part 5 (a): sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative);

Part 5 (b): advertise for buying or selling.

⁷ To view the current list of Schedule 1 listed birds visit: <http://www.legislation.gov.uk/ukpga/1981/69/schedule/1> [Accessed 06.11.2017].

Schedule 8

The Act makes it an offence (subject to exceptions) to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants.

Schedule 9

Invasive species listed under Schedule 9 are prohibited from release into the wild and the Act prohibits planting or “causing to grow” in the wild of any plant species listed in Schedule 9. It should be noted that certain bird species listed on Schedule 1 of the WCA are also listed on Schedule 9 to prevent release of non-native and captive individuals, this includes barn owl, red kite, goshawk and corncrake.

Countryside Rights of Way Act 2000 (CRoW Act)

The CRoW Act has amended the WCA in England and Wales strengthening the protection afforded to Sites of Special Scientific Interest (SSSI) and the legal protection for threatened species. It adds the word ‘reckless’ to the wording of the offences listed under Section 9(4) of the WCA. This alteration makes it an offence to recklessly commit an offence, where previously an offence had to be intentional to result in a breach of legislation.

Natural Environment and Rural Communities (NERC) Act 2006

Species and Habitats of Principal Importance in England and Wales are listed under Section 41 and Section 42 respectively of the NERC Act. The Section 41 and 42 lists detail species that are of principal importance for the conservation of biodiversity in England and Wales, and should be used to guide decision-makers such as local and regional authorities when implementing their duty to have regard for the conservation of biodiversity in the exercise of their normal functions – as required under Section 40 of the NERC Act 2006.

The Protection of Badgers Act (1992)

It is an offence to wilfully take, kill, injure, possess or ill-treat a badger. Under the Act their setts are protected against intentional or reckless interference. Sett interference includes damaging or destroying a sett, obstructing access to any part of the sett, or disturbance of a badger whilst it is occupying a sett. The Act defines a badger sett as ‘any structure or place, which displays signs indicating the current use by a badger’ and Natural England (NE) takes this definition to include seasonally used setts that are not occupied but that show sign of recent use by badgers (Natural England, 2009⁸).

If impacts to badgers or their setts are unavoidable then authorised sett disturbance requires a licence.

The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012)

This Framework lists the UK’s most threatened species and habitats and sets out targets and objectives for their management and recovery. The UK Biodiversity Action Plan (BAP) process is delivered nationally, regionally and locally and should be used as a guide for decision-makers to have regards for the targets set by the framework and the goals they aim to achieve. The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant (UK Post-2010 Biodiversity Framework, 2012⁹).

The Conservation of Habitats and Species Regulations 2010 (as amended)

The EC Habitats Directive and EC Birds Directive is transposed into UK law via the Conservation of Habitats and Species Regulations 2010 (as amended), referred to as the Habitats Regulations. All species listed under Annex IV of the Habitats Directive require strict protection and are known as European Protected Species (EPS).

⁸ Natural England, June 2009, Protection of Badgers Act 1992 (as amended), Guidance on ‘Current Use’ in the definition of a Badger Sett WMLG17, Natural England, Peterborough.

⁹ JNCC and Defra (on behalf of the Four Countries’ Biodiversity Group), July 2012, UK Post-2010 Biodiversity Framework, Available from: http://jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf [Accessed 06.11.2017].

Under Regulation 41 of the Habitats Regulations it is unlawful to:

Deliberately kill, capture or disturb;

Deliberately take or destroy the eggs of; and

Damage or destroy the breeding site/resting place of any species protected under this legislation.

If the Ecologist determines that impacts to an EPS are unavoidable then the works may need to be carried out under a site specific mitigation licence from Natural England (NE) or Natural Resources Wales (NRW). Low Impact Class licences are also available in both England and Wales for bats and great crested newts. This enables Registered Low Impact Consultants to undertake certain low impact activities reducing the EPS application paperwork and process length.

Certain EPS are also listed under Annex II of the Habitats Directive and are afforded protection by the establishment of core areas of habitat known as Special Areas of Conservation. This means these species are a relevant consideration in a Habitats Regulations Assessment (HRA).

The Birds Directive seeks to maintain populations of all wild bird species across their natural range (Article 2). All bird species listed under Annex I¹⁰ of the Birds Directive are rare or vulnerable and afforded protection by the classification of Special Protection Areas (SPAs), these are also designated under all regularly occurring migratory species, with regard to the protection of wetlands of international importance (Article 4). This means these bird species and communities are a relevant consideration in HRA.

¹⁰ To view birds listed under Annex I visit:
http://ec.europa.eu/environment/nature/conservation/wildbirds/threatened/index_en.htm [accessed: 06.11.2017]

Table A:1: Key Species and National Wildlife Legislation, Policy and Biodiversity Framework Applicable in England & Wales

Species	Legislation, Planning Policy and UK Biodiversity Framework							
	Wildlife and Countryside Act 1981 (as amended), (WCA)				The Conservation of /Habitats and Species Regulations 2010 (as amended) (Habitats Regulations) - Regulation 41	Natural Environment and Rural Communities (NERC) Act 2006 / The Environment(Wales) Act (2016)	The Protection of Badgers Act 1992	The UK Post-2010 Biodiversity Framework 2011-2020 (JNCC and DEFRA, 2012)
	Schedule1	Schedule 5	Schedule 8	Schedule 9	European Protected Species (Annex IV of the EC Habitats Directive),			
Badger							<input type="checkbox"/>	
Bats		<input type="checkbox"/> ¹¹ (part)			<input type="checkbox"/> ¹²	<input type="checkbox"/> ¹³		<input type="checkbox"/> ¹⁴
Hazel Dormouse		<input type="checkbox"/> 5(part)			<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

¹¹ These species are partially protected under section 9(4)(b), (4)(c) and (5).

¹² Only Barbastelle (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), greater horseshoe bat (*Rhinolophus ferrumequinum*) and lesser horseshoe bat (*Rhinolophus hipposideros*) are listed on Annex II of the Habitats Directive.

¹³ Greater horseshoe bat, lesser horseshoe bat, Bechstein's bat, noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*) and barbastelle are listed as Species of Principal Importance in England with the addition of common pipistrelle (*Pipistrellus pipistrellus*) in Wales listed under

Section 7 of the Environment (Wales) Act (2016) <http://www.legislation.gov.uk/ukpga/2006/16/contents>.

¹⁴ Barbastelle bat, Bechstein's bat, noctule, soprano pipistrelle, brown long-eared bat, greater horseshoe bat, lesser horseshoe bat are listed as UK BAP species of bat.

Species	Legislation, Planning Policy and UK Biodiversity Framework							
	Wildlife and Countryside Act 1981 (as amended), (WCA)				The Conservation of /Habitats and Species Regulations 2010 (as amended) (Habitats Regulations) - Regulation 41	Natural Environment and Rural Communities (NERC) Act 2006 / The Environment(Wales) Act (2016)	The Protection of Badgers Act 1992	The UK Post-2010 Biodiversity Framework 2011-2020 (JNCC and DEFRA, 2012)
	Schedule 1	Schedule 5	Schedule 8	Schedule 9	European Protected Species (Annex IV of the EC Habitats Directive),			
Otter		<input type="checkbox"/> 5(part)			<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Water vole		<input type="checkbox"/> 15(full)				<input type="checkbox"/>		<input type="checkbox"/>
Birds	<input type="checkbox"/>			<input type="checkbox"/> 16		<input type="checkbox"/> 17		<input type="checkbox"/> 18

¹⁵ Class Licences are available to Registered Consultants to intentionally disturb, damage or destroy water vole burrows or to displace water voles from their burrows in relation to a development proposal where the licensed action provides a conservation benefit for water voles. Certain displacement operations may be carried out under a Class licence by a registered person in England, however in Wales all displacement operations must be carried out under a site specific licence.

¹⁶ To view plants and animals listed on Schedule 9 Part 1 visit <http://www.legislation.gov.uk/ukpga/1981/69/schedule/9> [accessed 6 April 2017]

¹⁷ There are 49 species of birds listed as Species of Principal Importance in England in Section 41 of the NERC Act 2006 and 51 species in Wales under Section 7 of the Environment (Wales) Act (2016) <http://www.legislation.gov.uk/ukpga/2006/16/contents>.

¹⁸ To view the current list of UK BAP priority birds visit: <http://jncc.defra.gov.uk/page-5163> [Accessed 06.11.2017].

Species	Legislation, Planning Policy and UK Biodiversity Framework							
	Wildlife and Countryside Act 1981 (as amended), (WCA)				The Conservation of /Habitats and Species Regulations 2010 (as amended) (Habitats Regulations) - Regulation 41	Natural Environment and Rural Communities (NERC) Act 2006 / The Environment(Wales) Act (2016)	The Protection of Badgers Act 1992	The UK Post-2010 Biodiversity Framework 2011-2020 (JNCC and DEFRA, 2012)
	Schedule1	Schedule 5	Schedule 8	Schedule 9	European Protected Species (Annex IV of the EC Habitats Directive),			
Reptiles		<input type="checkbox"/> ¹⁹ (part) <input type="checkbox"/>		<input type="checkbox"/> ⁹	<input type="checkbox"/> ²⁰	<input type="checkbox"/> ²¹		<input type="checkbox"/> ²²
Amphibians		<input type="checkbox"/> ²³ (part)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> ²⁷		

¹⁹ The four common reptile species, Adder (*Vipera berus*), Grass snake (*Natrix natrix*), Common lizard (*Zootoca vivipara*) and Slow worm (*Anguis fragilis*) are offered partial protection under section 9(5). The rarer UK reptile species (Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*)) are partially protected under section 9(4)(b) and (c) and (5).

²⁰ Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*) are the only reptiles to be designated as European Protected Species.

²¹ All 6 reptile species are listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 5 species, excluding smooth snake, listed under Section 7 of the Environment (Wales) Act (2016) <http://www.legislation.gov.uk/ukpga/2006/16/contents>.

²² To view the current list of UK BAP priority herptile species visit: <http://jncc.defra.gov.uk/page-5166> [Accessed 06.11.2017].

²³ The four common reptile species, Adder (*Vipera berus*), Grass snake (*Natrix natrix*), Common lizard (*Zootoca vivipara*) and Slow worm (*Anguis fragilis*) are offered partial protection under section 9(5). The rarer UK reptile species (Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*)) are partially protected under section 9(4)(b) and (c) and (5).

²⁷ Great crested newt, Natterjack toad and Common toad are listed as Species of Principal Importance in England in Section 41 of the NERC Act 2006 and under Section 7 of the Environment (Wales) Act (2016) <http://www.legislation.gov.uk/ukpga/2006/16/contents>.

Species	Legislation, Planning Policy and UK Biodiversity Framework							
	Wildlife and Countryside Act 1981 (as amended), (WCA)				The Conservation of /Habitats and Species Regulations 2010 (as amended) (Habitats Regulations) - Regulation 41	Natural Environment and Rural Communities (NERC) Act 2006 / The Environment(Wales) Act (2016)	The Protection of Badgers Act 1992	The UK Post-2010 Biodiversity Framework 2011-2020 (JNCC and DEFRA, 2012)
	Schedule1	Schedule 5	Schedule 8	Schedule 9	European Protected Species (Annex IV of the EC Habitats Directive),			
				24	25 26			
White-clawed Crayfish		<input type="checkbox"/> 28(partial)			<input type="checkbox"/> 29	<input type="checkbox"/>		<input type="checkbox"/>

²⁴ Common frog (*Rana temporaria*), Common toad (*Bufo bufo*), Smooth newt (*Lissotriton vulgaris*) and Palmate newt (*Lissotriton helveticus*) are offered partial protection under section 9(5). Great crested newt (*Triturus cristatus*) and Natterjack toad (*Epidalea calamita*) are offered partial protection under section 9(4)(b) and (c) and (5). Pool frog (*Pelophylax lessonae*) is offered partial protection under section 9(4)(b) and (c)(1) only and with respect to England only.

²⁵ Great crested newt, Natterjack toad and Pool frog are the only amphibians to be designated European Protected Species.

²⁶ Great crested newt is the only amphibian listed on Annex II of the Habitats Directive.

²⁸ Under the Wildlife and Countryside Act it is illegal to take or sell white clawed crayfish under the WCA. A licence is required to survey (hand net or trap) for the species. To undertake work within WCC inhabited rivers a Class Licence may be issued by the relevant authority to move WCC away from harm prior to works. Although WCC are not protected from killing or injury Natural England state in their Class licence that due to declining numbers all efforts should be made to conserve the species.

²⁹ White clawed crayfish are listed under Annex II and V of the Habitats Directive.

Species	Legislation, Planning Policy and UK Biodiversity Framework							
	Wildlife and Countryside Act 1981 (as amended), (WCA)				The Conservation of /Habitats and Species Regulations 2010 (as amended) (Habitats Regulations) - Regulation 41	Natural Environment and Rural Communities (NERC) Act 2006 / The Environment(Wales) Act (2016)	The Protection of Badgers Act 1992	The UK Post-2010 Biodiversity Framework 2011-2020 (JNCC and DEFRA, 2012)
	Schedule1	Schedule 5	Schedule 8	Schedule 9	European Protected Species (Annex IV of the EC Habitats Directive),			
Invertebrates		<input type="checkbox"/> ³⁰ (full/part)		<input type="checkbox"/>	<input type="checkbox"/> ^{31, 32}	<input type="checkbox"/> ³³		<input type="checkbox"/> ³⁴

³⁰ To view the current list of invertebrates that are protected under this Act either in part or full visit: <http://www.legislation.gov.uk/ukpga/1981/69/schedule/5> [Accessed 06.11.2017].

³¹ The Large blue butterfly (*Maculinea arion*), Fisher's estuarine moth (*Gortyna borelii lunata*) and Lesser whirlpool ram's-horn snail (*Anisus vorticulus*) are the only invertebrates to be designated European Protected Species.

³² There are currently twelve invertebrates listed in Annex II of the Habitats Directive; White-clawed crayfish (*Austropotamobius pallipes*), Southern damselfly (**Coenagrion mercuriale**), Marsh fritillary butterfly (**Eurodryas aurinia**), Violet click beetle (**Limoniscus violaceus**), Stag beetle (**Lucanus cervus**), Freshwater pearl mussel (**Margaritifera margaritifera**), Narrow-mouthed whorl snail (**Vertigo angustior**), Round-mouthed whorl snail (**Vertigo genesii**), Geyer's whorl snail (**Vertigo geyeri**), Desmoulin's whorl snail (**Vertigo moulinsiana**), Lesser whirlpool ram's-horn snail (*Anisus vorticulus*) and Fisher's estuarine moth (*Gortyna borelii lunata*).

³³ There are currently 379 invertebrate species (not including marine species) listed as Species of Principal Importance in England http://www.google.co.uk/url?sa=t&rct=i&q=&esrc=s&source=web&cd=4&ved=0ahUKEwivvu7J9trSAhXiCsAKHX4TBGcQFggvMAM&url=http%3A%2F%2Fpublications.naturalengland.org.uk%2Ffile%2F6518755878240256&usq=AFQjCNEpiUWYuOqhVcfSDvi_3iK2TJytfQ and 188 species in Wales http://www.eryri-npa.gov.uk/_data/assets/pdf_file/0003/486156/SpeciesList.pdf listed under Section 41 of the NERC Act 2006 and listed under Section 7 of the of the Environment (Wales) Act 2016. [Accessed 06.11.2017]

³⁴ To view the current list of UK BAP priority invertebrates visit: <http://jncc.defra.gov.uk/page-5169> [Accessed 06.11.2017].

Species	Legislation, Planning Policy and UK Biodiversity Framework							
	Wildlife and Countryside Act 1981 (as amended), (WCA)				The Conservation of /Habitats and Species Regulations 2010 (as amended) (Habitats Regulations) - Regulation 41	Natural Environment and Rural Communities (NERC) Act 2006 / The Environment(Wales) Act (2016)	The Protection of Badgers Act 1992	The UK Post-2010 Biodiversity Framework 2011-2020 (JNCC and DEFRA, 2012)
	Schedule1	Schedule 5	Schedule 8	Schedule 9	European Protected Species (Annex IV of the EC Habitats Directive),			
Fish		<input type="checkbox"/> ³⁵ (full/part)		<input type="checkbox"/> ⁹	<input type="checkbox"/> ^{36 37}	<input type="checkbox"/> ³⁸		<input type="checkbox"/> ³⁹

³⁵ To view the current list of fish either part or fully protected under the Act visit: <http://www.legislation.gov.uk/ukpga/1981/69/schedule/5> [Accessed 06.11.2017].

³⁶ Sturgeon (*Acipenser sturio*) is the only fish to be designated a European Protected Species.

³⁷ There are eight fish species listed on Annex II of the Habitats Directive. To view the current list visit: <http://jncc.defra.gov.uk/page-1523> [Accessed 06.11.2017].

³⁸ There are 35 species of fish listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 10 species in Wales listed under Section 7 of the Environment (Wales) Act 2016.

³⁹ To view the current list of UK BAP priority fish visit: <http://jncc.defra.gov.uk/page-5164> [Accessed 06.11.2017].

Species	Legislation, Planning Policy and UK Biodiversity Framework							
	Wildlife and Countryside Act 1981 (as amended), (WCA)				The Conservation of /Habitats and Species Regulations 2010 (as amended) (Habitats Regulations) - Regulation 41	Natural Environment and Rural Communities (NERC) Act 2006 / The Environment(Wales) Act (2016)	The Protection of Badgers Act 1992	The UK Post-2010 Biodiversity Framework 2011-2020 (JNCC and DEFRA, 2012)
	Schedule1	Schedule 5	Schedule 8	Schedule 9	European Protected Species (Annex IV of the EC Habitats Directive),			
Plants			<input type="checkbox"/> ⁴⁰	<input type="checkbox"/> ⁹	<input type="checkbox"/> ^{41, 42}	<input type="checkbox"/> ⁴³		<input type="checkbox"/> ⁴⁴

⁴⁰ To view the current list of Schedule 8 listed plants visit: <http://www.legislation.gov.uk/ukpga/1981/69/schedule/8> [Accessed 06.11.2017].

⁴¹ There are nine plant species designated as European Protected Species. To view the current list visit: <http://www.legislation.gov.uk/ukpga/2010/490/schedule/5/made> [Accessed 06.11.2017].

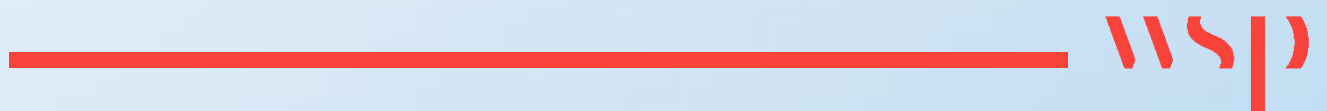
⁴² To view the current list of plant species on Annex II of the Habitats Directive visit: <http://jncc.defra.gov.uk/page-1523> [Accessed 06.11.2017].

⁴³ There are currently 152 vascular plants listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 77 species in Wales listed under Section 7 of the Environment (Wales) Act 2016.³¹ To view the current list of UK BAP priority plants visit: <http://jncc.defra.gov.uk/page-5171> and <http://jncc.defra.gov.uk/page-5168> [Accessed 06.11.2017].

⁴⁴ To view the current list of UK BAP priority plants visit: <http://jncc.defra.gov.uk/page-5171> and <http://jncc.defra.gov.uk/page-5168> [Accessed 06.11.2017].

Appendix B

SUMMARY OF ECOLOGICAL DESK STUDY



Site Name	Designation	Size (ha)	Distance and orientation from Site	Description
Kirkley Ham	Country Wildlife Site	3.1	360m south	The site contains areas of reedbed and willow trees, with sections of open water. The north of the site contains neutral and acidic grassland with scattered scrub.
Brooke Yachts and Jen-Weld Mosaic	Country Wildlife Site	6.97	630m west	This semi-natural site has an open mosaic of scrub and grassland habitats on previously developed land. The site supports reptiles and birds.
Great Eastern Linear Park	Country Wildlife Site	4.88	880m north west	This disused railway line supports dense scrub, woodland and rough grassland. Open areas with standing water are also present.
Leathe's Ham	Country Wildlife Site and Local Nature Reserve	6.03	1km north west	The site comprises a large area of open water with extensive reedbeds surrounded by damp woodland, scrub and rough grassland. The range of habitats supports a diversity of birds.
Harbour Kittiwake Colony	Country Wildlife Site	6.57	1.2km east	A colony of kittiwakes is found on the north pier extension, with over 200 nests counted in 1991.
Rustyback Fern Site	Country Wildlife Site	0.08	1.3km west	This site supports one of only two populations of rustyback fern in Suffolk, with a population of approximately eight plants.
St. Margaret's Churchyard	Country Wildlife Site	3.18	1.4km north	An area of unimproved grassland with a variety of management regimes within the site supporting a diverse range of plants.
Ness Point	County Wildlife Site	0.87	1.5km north east	An area of artificial sea defences that provide the most important habitat for purple sandpipers in East Anglia.
Oulton Road Pond and Meadow	Country Wildlife Site	0.54	1.6km north west	This site contains a small natural pond surrounded by emergent vegetation and scrub. Mature oak and hawthorn are also present.

Site Name	Designation	Size (ha)	Distance and orientation from Site	Description
Hall Road Ham	Country Wildlife Site	6.28	1.8km west	A mosaic of wetland habitats including wet woodland, wet grassland, scrub and fenland.
Pakefield Park	Country Wildlife Site	5.84	1.8km south	An area of both dry acidic grassland and wet grassland is bordered by scrub and woodland with mature oak.
Bonds Meadow	Country Wildlife Site	6.02	1.9km north west	This area contains a diverse range of habitats ranging from wet alder carr and fen to higher areas of dry grassland and scrub. This diversity gives rise to a range of bird and plant species.

Table 4 - Protected and notable species (excluding birds) for which records have been identified within 2km

Species common name	Species Latin name	No. of records	Distance and orientation from Site	Legal / Conservation Status ⁴⁵
Great crested newt	<i>Triturus cristatus</i>	2		Bern2, HabRegs2, HSD2p, HSD4, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
European eel	<i>Anguilla anguilla</i>	2		OSPAR, RLGLB.CR, Sect.41, UKBAP
Common lizard	<i>Zootoca vivipara</i>	5		Bern3, Sect.41, UKBAP, WCA5/9.5a
Grass Snake	<i>Natrix natrix</i>	1		Bern3, Sect.41, UKBAP
Adder	<i>Vipera berus</i>	1		Bern3, Sect.41, UKBAP, WCA5/9.5a
Bat species	<i>Chiroptera</i> spp.	4		Bern2, Bern3, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD2p, HSD4, RLGLB.NT, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a

⁴⁵ Bern2 = Bern Convention Appendix 2 (1982), Bern3 = Bern Convention Appendix 3 (1982) HabRegs2 = The Conservation of Habitats and Species Regulations 2010 (Schedule 2), HSD2p = Habitats Directive Annex 2 – priority species, HSD4 = Habitats Directive Annex 4, Sect.41 = Natural Environment and Rural Communities Act 2006 – Species of Principle Importance in England, UKBAP = UK Biodiversity Action Plan Priority Species, WCA5/9.4b = Wildlife and Countryside Act 1981 (Schedule 5, Section 9.4b), WCA5/9.4c = Wildlife and Countryside Act 1981 (Schedule 5, Section 9.4c), WCA5/9.5a = Wildlife and Countryside Act 1981 (Schedule 5, Section 9.5a), OSPAR = OSPAR convention, RLGLB.CR = IUCN (2001) - Critically Endangered, CMS_A2 = Convention on Migratory Species, Appendix 2, CMS_EUROBATS-A1 = Convention on Migratory Species, EUROBATS – Annex 1, RLGLB.NT = IUCN (2001) - Near Threatened, CITESA = EC CITES Annex A.

Species common name	Species Latin name	No. of records	Distance and orientation from Site	Legal / Conservation Status ⁴⁵
European otter	<i>Lutra lutra</i>	1		Bern2, CITESA, HabRegs2, HSD2p, HSD4, RLGLB.NT, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
European water vole	<i>Arvicola amphibious</i>	5		Sect.41, UKBAP, WCA5/9.4.a, WCA5/9.4b, WCA5/9.4c

Table 5 - Protected and notable birds for which records have been identified within 2km

Species common name	Species Latin name	No. of records	Legal / Conservation Status ⁴⁶
Avocet	<i>Recurvirostra avosetta</i>	6	BD1, Bern2, CMS_A2, CMS_AEWA-A2, WCA1i
Bittern	<i>Botaurus stellaris</i>	2	BD1, Bern2, CMS_AEWA-A2, Sect.41, UKBAP, WCA1i
Bluethroat	<i>Luscinia svecica</i>	1	BD1, Bern2, WCA1i
Brambling	<i>Fringilla montifringilla</i>	16	WCA1i
Lapland bunting	<i>Calcarius lapponicus</i>	3	BAmb, Bern2, WCA1i
Snow bunting	<i>Plectrophenax nivalis</i>	10	BAmb, Bern2, WCA1i
Common crossbill	<i>Loxia curvirostra</i>	8	Bern2, WCA1i
Red-throated diver	<i>Gavia stellata</i>	14	BD1, Bern2, CMS_A2, CMS_AEWA-A2, WCA1i
Black-throated diver	<i>Gavia arctica</i>	11	BAmb, BD1, Bern2, CMS_AEWA-A2, UKBAP, WCA1i
Great northern diver	<i>Gavia immer</i>	7	BAmb, BD1, Bern2, CMS_AEWA-A2, WCA1i
Long-tailed duck	<i>Clangula hyemalis</i>	2	BD2.2, BRed, CMS_A2, CMS_AEWA-A2, RLGLB.VU, WCA1i

⁴⁶ BD1 = Birds Directive Annex 1 (2009), Bern2 = Bern Convention Appendix 2 (1982), CMS_A1 = Convention on Migratory Species, Appendix 1 (1985), CMS_A2 = Convention on Migratory Species, Appendix 2 (1985), Convention on Migratory Species, CMS_AEWA-A2 = African-Eurasian Waterbirds Agreement – Annex II (1999), Wildlife and Countryside Act 1981 (Schedule 1 Part 1), Sect.41 = Natural Environment and Rural Communities Act 2006 – Species of Principle Importance in England (Section 41), UKBAP = UK Biodiversity Action Plan Priority Species, BAmb = Bird Population Status – Amber, Bred = Bird Population Status – Red, RLGLB.VU = IUCN (2001) – Vulnerable, RLGLB.NT = IUCN (2001) – Near Threatened, RLGLB.EN = IUCN (2001) – Endangered, CITESA = EC CITES Annex A, OSPAR = OSPAR Convention (1992).

Species common name	Species Latin name	No. of records	Legal / Conservation Status ⁴⁶
White-tailed eagle	<i>Haliaeetus albicilla</i>	2	BD1, BRed, CITESA, CMS_A1, CMS_A2, WCA1i
Fieldfare	<i>Turdus pilaris</i>	10	BD2.2, BRed, WCA1i
Firecrest	<i>Regulus ignicapilla</i>	16	Bern2, WCA1i
Garganey	<i>Anas querquedula</i>	1	BAmb, BD2.1, CITESA, CMS_A2, CMS_AEWA-A2, WCA1i
Black-tailed godwit	<i>Limosa limosa</i>	7	BD2.2, CMS_A2, CMS_AEWA-A2, RLGLB.NT, UKBAP, WCA1i
Goshawk	<i>Accipiter gentilis</i>	1	CITESA, CMS_A2, WCA1i
Black-necked grebe	<i>Podiceps nigricollis</i>	6	BAmb, Bern2, CMS_AEWA-A2, WCA1i
Slavonian grebe	<i>Podiceps auritus</i>	6	BD1, Bern2, BRed, CMS_A2, CMS_AEWA-A2, WCA1i
Greenshank	<i>Tringa nebularia</i>	7	BAmb, BD2.2, CMS_A2, CMS_AEWA-A2, WCA1i
Little gull	<i>Hydrocoloeus minutus</i>	9	BD1, Bern2, CMS_AEWA-A2, WCA1i
Mediterranean gull	<i>Larus melanocephalus</i>	18	BAmb, BD1, Bern2, CMS_A2, CMS_AEWA-A2, WCA1i
Hen harrier	<i>Circus cyaneus</i>	5	BD1, CITESA, CMS_A2, Sect.41, WCA1i
Marsh harrier	<i>Circus aeruginosus</i>	11	BD1, CITESA, CMS_A2, WCA1i
Hobby	<i>Falco subbuteo</i>	18	Bern2, CITESA, CMS_A2, WCA1i
Hoopoe	<i>Upupa epops</i>	3	Bern2, WCA1i
Kingfisher	<i>Alcedo atthis</i>	15	BD1, Bern2, WCA1i
Red kite	<i>Milvus milvus</i>	8	BD1, CITESA, CMS_A2, RLGLB.NT, WCA1i

Species common name	Species Latin name	No. of records	Legal / Conservation Status ⁴⁶
Osprey	<i>Pandion haliaetus</i>	3	BAmb, BD1, CITESA, CMS_A2, WCA1i
Barn owl	<i>Tyto alba</i>	6	Bern2, CITESA, WCA1i
Leach's petrol	<i>Oceanodroma leucorhoa</i>	1	BAmb, BD1, Bern2, WCA1i
Little-ringed plover	<i>Charadrius dubius</i>	4	Bern2, CMS_A2, CMS_AEWA-A2, WCA1i
Black redstart	<i>Phoenicurus ochruros</i>	20	Bern2, BRed, WCA1i
Redwing	<i>Turdus iliacus</i>	15	BD2.2, BRed, WCA1i
Ruff	<i>Calidris pugnax</i>	2	BD1, BD2.2, CMS_A2, CMS_AEWA-A2, WCA1i
Green sandpiper	<i>Tringa ochropus</i>	8	BAmb, Bern2, CMS_A2, CMS_AEWA-A2, WCA1i
Purple sandpiper	<i>Calidris maritima</i>	10	BAmb, Bern2, CMS_A2, CMS_AEWA-A2, WCA1i
Scaup	<i>Aythya marila</i>	11	BD2.2, BRed, CMS_A2, CMS_AEWA-A2, Sect.41, UKBAP, WCA1i
Common scoter	<i>Melanitta nigra</i>	11	BD2.2, BRed, CMS_A2, CMS_AEWA-A2, Sect.41, UKBAP, WCA1i
Velvet scoter	<i>Melanitta fusca</i>	4	BD2.2, BRed, CMS_A2, CMS_AEWA-A2, RLGLB.EN, WCA1i
Serin	<i>Serinus serinus</i>	1	Bern2, WCA1i
Red-backed shrike	<i>Lanius collurio</i>	2	BD1, Bern2, BRed, UKBAP, WCA1i
Spoonbill	<i>Platalea leucorodia</i>	5	BAmb, BD1, Bern2, CITESA, CMS_A2, CMS_AEWA-A2, WCA1i
Stone curlew	<i>Burhinus oedicephalus</i>	1	BD1, Bern2, CMS_A2, Sect.41, UKBAP, WCA1i

Species common name	Species Latin name	No. of records	Legal / Conservation Status ⁴⁶
Bewick's swan	<i>Cygnus columbianus</i>	16	BAmb, BD1, Bern2, CMS_A2, CMS_AEWA-A2, UKBAP, WCA1i
Whooper swan	<i>Cygnus cygnus</i>	5	BD1, Bern2, CMS_A2, CMS_AEWA-A2, WCA1i
Black tern	<i>Chlidonias niger</i>	4	BD1, Bern2, CMS_AEWA-A2, WCA1i
Little tern	<i>Sternula albifrons</i>	5	BAmb, BD1, Bern2, CMS_A2, CMS_AEWA-A2, WCA1i
Roseate tern	<i>Sterna dougallii</i>	5	BD1, Bern2, BRed, CMS_A2, CMS_AEWA-A2, OSPAR, Sect.41, UKBAP, WCA1i
Bearded tit	<i>Panurus biarmicus</i>	1	Bern2, WCA1i
Cetti's warbler	<i>Cettia cetti</i>	9	WCA1i
Dartford warbler	<i>Sylvia undata</i>	4	BD1, RLGLB.NT, WCA1i
Whimbrel	<i>Numenius phaeopus</i>	11	BD2.2, BRed, CMS_A2, CMS_AEWA-A2, WCA1i
Woodlark	<i>Lullula arborea</i>	2	BD1, Sect.41, UKBAP, WCA1i
Wryneck	<i>Jynx torquilla</i>	3	Bern2, UKBAP, WCA1i

Appendix C

PLANT SPECIES RECORDED

wsp

Common name	Latin name	Frequency (DAFOR) ⁴⁷ within each habitat parcel																		
		L1	L3	L6	L10	L11	L13/14	L15	L16	L17	L19	L20	L21	L22	L23	L25	L33/35	L34	L37	L38/45
Alexanders	<i>Smyrniololus atrum</i>														R					
Annual meadow grass	<i>Poa annua</i>							D												
Ash	<i>Fraxinus excelsior</i>										O									
Autumn hawkbit	<i>Leontodon autumnalis</i>			R														O		
Barley spp.	<i>Hordeum</i> spp.																		R	
Bird's-foot trefoil	<i>Lotus corniculatus</i>			R	O			O				O								
Biting stonecrop	<i>Sedum acre</i>											O								
Black medick	<i>Medicago lupulina</i>			R	R			R												
Black poplar hybrid	<i>Poplar x canadensis</i>											R								
Bramble	<i>Rubus fruticosus</i> agg.		F	F	O		F	F	O		O	F			A	F		A	R	A

⁴⁷ D = Dominant; A = Abundant, F = Frequent, O = Occasional, R = Rare

		Frequency (DAFOR) ⁴⁷ within each habitat parcel																
Bristly oxtongue	<i>Helminthotheca echinoides</i>		O		O		O					O					O	R
Broad-leaved dock	<i>Rumex obtusifolius</i>		F		F		F	O									F	
Buck's horn plantain	<i>Plantago coronopus</i>				O			O			O		F			O		
Buddleia	<i>Buddleja davidii</i>			R			F										O	
Campion spp.	<i>Silene</i> spp.			R											R			
Canadian fleabane	<i>Conyza canadensis</i>	O	F	O	A		F	F			F	A		F		F		
Cat's ear	<i>Hypochaeris radicata</i>			R			O					R					R	
Clover spp.	<i>Trifolium</i> spp.	A		R				F	A			O	A			F	O	
Cock's foot	<i>Dactylis glomerata</i>		A	A				A			F	O			A			D
Common honeysuckle	<i>Lonicera periclymenum</i>										R							
Common knapweed	<i>Centaurea nigra</i>										O						O	
Common mallow	<i>Malva sylvestris</i>		F		O		O		F	F				F		O		
Common mouse-ear	<i>Cerastium fontanum</i>						R	F										
Common nettle	<i>Urtica dioica</i>						A		A	A		F			A			

		Frequency (DAFOR) ⁴⁷ within each habitat parcel																	
Common poppy	<i>Papaver rhoeas</i>						R												
Common reed	<i>Phragmites australis</i>		O																
Common stork's-bill	<i>Erodium cicutarium</i>						R	F											
Cotoneaster spp.	<i>Cotoneaster</i> spp.										R								
Cow parsley	<i>Anthriscus sylvestris</i>		F																O
Creeping buttercup	<i>Ranunculus repens</i>							O											
Creeping Cinquefoil	<i>Potentilla reptans</i>				F			O	F			F							
Creeping thistle	<i>Cirsium arvense</i>		A	R	O		F	A	O			F			A				
Daisy	<i>Bellis perennis</i>	F			O							F				F	O	F	
Dandelion	<i>Taraxacum officinale</i>	F			O			F	F			F				F		F	
Dog rose	<i>Rosa canina</i>				O							O					O		O
Evening primrose	<i>Oenothera biennis</i>		R	R			R					R							R
False oat grass	<i>Arrhenatherum elatius</i>		A	F				A			F	F							
Fennel	<i>Foeniculum vulgare</i>		O					R				R				O		O	
Gorse	<i>Ulex europaeus</i>		O	A	O						F	F					F		

		Frequency (DAFOR) ⁴⁷ within each habitat parcel																	
Great mullein	<i>Verbascum thapsus</i>										R								
Hare's foot clover	<i>Trifolium arvense</i>		R				R	R			R				R				
Hawthorn	<i>Crataegus monogyna</i>									D	O			D			F		
Hedge bindweed	<i>Calystegia sepium</i>							A	A										O
Hedge crane's-bill	<i>Geranium pyrenaicum</i>				F		O	F								F	F		
Hedge mustard	<i>Sisymbrium officinale</i>										R			O			O		
Herb-robert	<i>Geranium robertianum</i>						O				O	O					F		
Hoary plantain	<i>Plantago media</i>				O			O	A		O					O			
Hogweed	<i>Hieracium sphondylium</i>								O	O	O	O			F		R	F	F
Ivy	<i>Hedera helix</i>																O		
Japanese knotweed	<i>Fallopia japonica</i>										F								F
Lucerne	<i>Medicago sativa</i>			R															
Mayweed spp.	<i>Tripleurospermum</i> spp.				R		R												
Meadow buttercup	<i>Ranunculus acris</i>																		F
Mugwort	<i>Artemisia vulgaris</i>	R	O	R			O				O			O					F

		Frequency (DAFOR) ⁴⁷ within each habitat parcel																	
Ox-eye daisy	<i>Leucanthemum vulgare</i>										O								
Pampas grass	<i>Cortaderia selloana</i>		R	R				R											
Pedunculate oak	<i>Quercus robur</i>									R			F						
Perennial rye-grass	<i>Lolium perenne</i>				F								D						
Pink sorrel	<i>Oxalis articulata</i>												R						
Purple toadflax	<i>Linaria purpurea</i>										O								
Ragwort	<i>Senecio jacobaea</i>		F	F	O			O	O		A	O			F				O
Red clover	<i>Trifolium pratense</i>		F	F	O														
Red dead-nettle	<i>Lamium purpureum</i>								R	R									
Ribwort Plantain	<i>Plantago lanceolata</i>		F	F	F		F	F			O	F		F		O		F	O
Rosebay willowherb	<i>Chamerion angustifolium</i>		F				F	R			F			A					
Rough hawkbit	<i>Leontodon hispidus</i>	R		R	O			O											
Scarlet pimpernel	<i>Anagallis arvensis</i>				R			R											
Scots pine	<i>Pinus sylvestris</i>								R			R							
Self-heal	<i>Prunella vulgaris</i>							R											

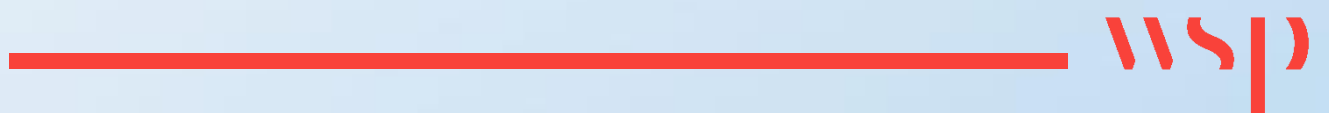
		Frequency (DAFOR) ⁴⁷ within each habitat parcel																	
Smooth sow-thistle	<i>Sonchus oleraceus</i>					R													
Snowberry	<i>Symphoricarpos albus</i>										R								R
Sorrel	<i>Rumex acetosa</i>				R						R								
Speedwell spp.	<i>Veronica</i> spp.						O												
Spotted ladythumb	<i>Persicaria maculosa</i>						R												
Spotted medick	<i>Medicago Arabica</i>																		
Springy turf-moss	<i>Rhytidiadelphus squarrosus</i>											F							
St. John's wort spp.	<i>Hypericum</i> spp.			R	R		R	R										R	
Surge spp.	<i>Euphorbia</i> spp.			R	R						R								
Sycamore	<i>Acer pseudoplatanus</i>			R	R									F					
Tansy	<i>Tanacetum vulgare</i>						O				F							O	
Thick-leaved stonecrop	<i>Sedum dasyphyllum</i>										R								
Toadflax	<i>Linaria vulgaris</i>						R				F								
Weld	<i>Reseda luteola</i>				R			R											
White stonecrop	<i>Sedum album</i>		R	R	R		O	R			O								



		Frequency (DAFOR) ⁴⁷ within each habitat parcel																		
Wild carrot	<i>Daucus carota</i>		F	F	F		O	F			O	A				F				F
Wild radish	<i>Raphanus raphanistrum</i>		O	O	O		O	O	F	F	O	F		F		O	R	O	R	F
Willow spp.	<i>Salix</i> spp.		R																	
Yarrow	<i>Achillea millefolium</i>	A	F		F		F	F	A		O	A	F	F			A		F	

Appendix D

TARGET NOTES



Target Note 1 – Street containing properties with features suitable for roosting bats.

Target Note 2 – Street containing properties with features suitable for roosting bats.

Target Note 3 – Common lizard sighting.

Target Note 4 – Mammal hole, identified as fox hole.



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