

Land East of Keynsham

Ecological Assessment

A Report on behalf of Mactaggart and Mickel Homes Ltd

November 2013

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SUMMARY

The site comprises a series of poor semi-improved grassland and arable fields to the south of the A4 with cattle-grazed improved grassland to the north of the A4. Additional habitats include an area of poor semi-improved grassland /tall ruderal/scattered scrub mosaic, a field of fallow ground and an area of Sycamore and Ash broadleaved woodland to the south of the site. In addition, there are several small copses of Willow and broadleaved semi-natural woodland associated with wet and dry streams/ditches/drains south of the A4. To the north is a green lane leading from World's End Lane, partially lined on either side with mature oak. Scattered and occasionally dense thorn scrub is present across the site, mainly along hedge and fence lines, but also within less intensively managed field parcels.

Site and internal field boundaries are defined by a network of managed hedges and unmanaged hedges and trees, some adjacent to wet and dry drains/ditches/streams, with occasional dry stone walls and fences. Adjacent to Manor Road Community Woodland Local Nature Reserve, broadleaved woodland edge forms the site boundaries. Mature hedge and field trees and a handful of ponds/pools are scattered across the site.

Habitat descriptions

To the south of the A4, managed fields of poor semi-improved grassland occur in the northern half of the site. These are dominated by coarse grasses such as Cock's-Foot, Meadow Grasses and Bents with occasional Red Fescue and Meadow Foxtail. Herbs occur throughout these fields and include frequent Dandelion, Meadow and Creeping Buttercups and Sorrel. Near streams/ditches/drains, Hemlock Water Dropwort, Great Willowherb and Meadowsweet are frequent while Cow Parsley is locally abundant near woodland and hedges. The hedgerows in these fields tend to be managed by regularly flailing with only the occasional hedge tree present.

The southern half of the site south of the A4 comprises arable fields with a winter sown crop, bordered internally with a network of unmanaged hedgerows with trees. Manor Wood LNR forms the western site boundary to these fields with the largest contiguous area of semi-natural habitats on the site, broadleaved woodland and poor semi-improved grassland /tall ruderal/scattered scrub mosaic, creating the southern site boundary.

To the north of the A4, cattle grazed fields of improved grassland are present. These are dominated by coarse grasses including Perennial Rye with few herbs other than abundant White Clover. Internal field hedgerows are generally overgrown, now more rows of trees, with mature hedge trees. The Bath – Bristol railway line forms the northern site boundary while the A4 forms the southern site boundary.

Tall ruderals, often occurring in field corners, near farm yards and along hedge lines, include abundant Nettle, frequent Curled Dock, Broadleaved Dock and Creeping Thistle with Hogweed, Spear Thistle and Teasel occurring occasionally.

Scattered and dense scrub are dominated by Hawthorn and Blackthorn with occasional Elder and Willow near water.

The hedgerows are generally dominated by thorn species, mainly Hawthorn, Blackthorn and Bramble with occasional Wild Rose. English Elm, some as deadwood, and Ivy are frequent in many hedges. Near watercourses, Crack Willow and other willow species occur frequently as scrub and mature trees. Other woody hedge species occurring occasionally include Elder, Spindle, Hazel and Wild Privet. Ash and Oak occur mainly as standards within hedges. Ground flora species include Cow Parsley, Lords and Ladies, Hedge Woundwort, Lesser Celandine, Cleavers and Common Nettle.

Mature hedge and field trees, mainly Oak, Ash and Crack Willow, some veteran, are present on the site both sides of the A4. Of particular note is a Public Right of Way leading from the World's End Lane to a footbridge crossing the railway which is lined with mature (some veteran) Oak with occasional Ash, Field Maple and a Poplar. An adjacent hedge contains three mature Oak. There are also several mature hedge trees in the broadleaved woodland edge, mainly Ash, Oak, Crack Willow and Field Maple, forming the boundary between the site and Manor Wood LNR as well as mature field/hedge trees in the arable fields.

Copses and strips of broadleaved semi-natural woodland are found across the site. To the south of the A4, canopy species include Ash and Sycamore with an understorey of Hawthorn, Elder, English Elm, Holly, Ivy, Hornbeam, and Bramble. Ground flora includes several woodland species such as Ramsons, Dog's Mercury, Lords and Ladies with Bluebell occurring within one woodland area only. Near watercourses, Crack Willow and other willow species are abundant. North of the A4, Oak replaces Sycamore as the dominant canopy species.

Several wet and dry ditches/drains/streams feature on the site to the south of the A4. These tend to flow south to north and east to west to eventually meet and pass under the A4 in the northwest corner near the Keynsham roundabout. The streams/ditches/drains tend to be shallow (0.1-0.3m deep) and about 1m wide, with shallow, occasionally steep, banks. Bankside vegetation includes Meadowsweet, Reed Canary-grass, Comfrey, Hemlock Water Dropwort, Great Willowherb, Figwort, Curled Dock and Cow Parsley. Where water is present, the substrate is silty with occasional stones and aquatic vegetation tends to be absent but occasionally Fool's Watercress occurs with Water Mint occurring rarely.

Four ponds were present within the site (two of which were dry at the time of the survey). A dew pond was recorded adjacent to the site boundary at the end of the green lane/World's End Lane, just outside the site boundary opposite Downfield Farm¹. Other standing water on site includes a farm lagoon with open water and occasional Bulrush surrounded by dense scrub lies next to Glenavon Farm and a small pool at the junction of two streams/drains/ditches at the northwest corner of the site.

An open-sided shell of a small agricultural building with corrugated sheet roof located adjacent to the A4, is the only building on site.

Saproxyllic niches such as deadwood and rot holes were found scattered across the site as mature hedge and field trees and within copses. These are patchily distributed, and generally very localised, across the site.

Areas within the site considered to be of potential ecological sensitivity are those with more natural, less intensively managed habitats such as:

- broadleaved woodland (specifically area to south of the site);
- unmanaged hedges (with and without trees);
- mature field and hedge trees;
- woodland edge (adjacent to the Manor Road Community Woodland LNR);
- the green lane (Public By-Way) leading from World's End Lane and associated double line of mature Oak;
- dense scrub and grassland/scrub/ruderal mosaic with protected species potential;

¹ There are also likely to be other ponds within 500m which, on the basis that access is provided, should also be subject to a Habitat Suitability Index.

- running water (streams/drains/ditches); and
- standing water (ponds/pools).

Site and internal field boundaries are defined by a network of managed hedges and unmanaged hedges and trees, some adjacent to wet and dry drains/ditches/streams, with occasional dry stone walls and fences. Adjacent to Manor Road Community Woodland Local Nature Reserve, broadleaved woodland edge forms the site boundaries.

Mature hedge and field trees, mainly oak, ash and crack willow, some veteran, are present on the site both sides of the A4. Two ponds, one of which is dry at present, were found on site with a further one immediately adjacent to the site boundary within Manor Road Community Woodland Local Nature Reserve {which borders the south-western side of the site}. An open-sided shell of a small agricultural building with corrugated sheet roof located adjacent to the A4, is the only building on site.

Areas within the site considered to be of potential ecological sensitivity are those with more natural, less intensively managed habitats such as broadleaved woodland, unmanaged hedges (with and without trees), mature field and hedge trees, woodland edge (adjacent to the Manor Road Community Woodland LNR), the green lane leading from World's End Lane, dense scrub, grassland/scrub/ruderal mosaic, running water (streams/drains/ditches) and standing water (ponds).

These have higher intrinsic ecological value and contribute to the biodiversity of the site as well as having potential to support a range of protected species as nesting, resting, breeding, foraging and commuting habitat.

Habitats/ features identified were considered potentially suitable for amphibians (Great Crested Newts), bats, farmland and cavity nesting birds (including Barn Owl), reptiles, Brown Hare and Dormice. Evidence of extensive Badger activity including latrines and an active 'main' sett was recorded in broadleaved woodland to the south of the site.

In order to support an outline planning application, the following Phase II Surveys are recommended:

- Amphibians. Great Crested Newts (GCNs)* (see note below);
- Bats (foraging and roosting);

- Barn Owls;
- Dormouse;
- Farmland Birds;
- Brown Hare;
- Reptiles;
- Badgers; and
- Hedgerow Surveys.

*** All ponds within the site boundary were surveyed during 2013 and no GCNs were recorded.**

Mitigation and Enhancements

On the basis that a positive and integrated approach is taken to the biodiversity such that the development is well informed, it is currently considered that the site has the capacity to accommodate the extent of development proposed (as per the extent of development proposed in the submission document to the Proposed Changes to the BANES Core Strategy) without unacceptable ecological impacts.

Furthermore there are considered to be substantial opportunities for biodiversity enhancements as part of a green infrastructure strategy.

1.0 INTRODUCTION

Nicholas Pearson Associates (NPA) was commissioned by Mactaggart & Mickel Homes Ltd to undertake a Preliminary Ecological Assessment, including an Extended Phase I Habitat Survey of Land between Saltford and Keynsham, Bath and North East Somerset hereafter referred to as the 'site' (see Figure 1 for location of the site). The size of the site is approximately 100 hectares (centred on OS Grid Reference ST 670677) and comprises a series of poor semi-improved grassland and arable fields to the south of the A4 with cattle-grazed improved grassland to the north of the A4. This Preliminary Ecological Assessment has been undertaken to inform potential residential development proposals.

This report provides a description of broad habitat types present across the site and a discussion of ecologically sensitive areas within the Site. Potential ecological constraints relating to legally protected or notable habitats or species are highlighted in broad terms. No impact assessment of any potential development is provided, and no mitigation proposals are discussed. This will be included in any subsequent reports, as might be required, following decisions on the extent of any development.

2.0 METHODOLOGY

2.1 Desk Study

A desk study exercise was carried out in April 2013 whereby Bristol Environmental Records Centre (BRERC) was contacted for records of protected and notable flora and fauna within a 3 km zone of the site. The area of search was extended to 4km for bat species. Locations of statutory and non-statutory sites within 3 km of the site were requested from BRERC. Sites with statutory national or international designations typically include Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar Sites and Local Nature Reserves (LNRs).

An internet based search of the following websites was undertaken:

- National Biodiversity Network Gateway: www.nbn.org.uk;
- Ordnance Survey: www.getamap.ordnancesurveyleisure.co.uk;
- Biodiversity Action Reporting System: www.ukbars.defra.gov.uk;

- Magic: <http://magic.defra.gov.uk>;

2.2 Field Survey

A walk over of the site was undertaken by two experienced ecologist on the following dates 26th April; 29 April; 1st May and 3 May 2013 to gain an overview of the habitats present. Habitats and obvious features within the Site likely to be of value to protected, rare or otherwise notable species were mapped following the Joint Nature Conservation Committee's Phase I Habitat Survey Method (2010) as amended by the Institute of Environmental Assessment (IEA 1995). With regards to hedgerows, it was not possible to survey each individual field boundary within the timescale given and as such the methodology was modified to enable full coverage of the site. This involved a visual assessment of hedgerows to assess their character (i.e. managed or unmanaged, with or without standards) rather than diversity of woody species as the methodology would normally prescribe.

3.0 RESULTS

3.1 Desk Study

Full details of the Desk study data is not available in this report but can made available on request. A summary of all of the information received is provided below.

Statutory Designated Sites

There are no statutory designated sites within the site. Table I below shows the statutory designated sites within 3 km of the site were identified within the site boundary.

Table 1: Statutory Designated Sites within 3 km of the Site

Site Name/ Designation	Description	Distance from Site
Stidham Farm SSSI	This site contains Pleistocene terrace-gravels of the River Avon. Two metres of sandy gravels are recorded, consisting of limestone clasts mainly, but also with Millstone Grit, Pennant Sandstone, flint and chert clasts. The site is of considerable importance for studies relating to the possible glaciation of the area, and of the terrace stratigraphy, particularly as it is one of only two accessible terrace deposits in this part of the Avon valley	500m north-east
Cleeve Wood SSSI	The wood is derived from the calcareous Ash-Wych Elm (southern variant) type but has been planted with non-native species. Large population of Bath Asparagus. Ash, Pedunculate oak, with non-native spp eg Beech, Sycamore, Horse Chestnut. Shrub layer: Field Maple, Hawthorn, Elder, Hazel, Wych Elm. Ivy, Bluebell, Stinking Iris, Dog's Mercury.	2 km to the north
Bickely Wood SSSI	An extensive exposure of Carboniferous Downend Group strata in the Bristol Coalfield. Cross-bedded sandstones are predominant in the section, but there are some shale bands with fossil plants and bivalves, which indicate a late Westphalian C age.	3 km to the north-west

The nearest is Stidham farm SSSI which is connected to old railway lines that run as a point of geological interest from the SSSI south east of the site. Broad Mead Field is a small area of marshy grassland which lies approximately 600m to the north of the site. The River Chew and associated land runs north to south approximately 500m to the west of the site. Folly Wood, Saltford runs 1km south east of the site.

Non-statutory Sites

There are no non-statutory designated sites within the site boundary but Manor Road Local Nature Reserve is adjacent to the site. There are 24 Sites of Nature Conservation Interest (SNCI) within 3km of the site boundary, with 7 SNCI sites within 1km of the site.

There are also 5 ancient woodlands present within the 3km buffer zone; Folly wood is the closest located 1km to the south east of the site. Tennants wood (south east) is approximately 1.5km from the site with Keystone Park Wood, Cleeve Wood and Bickley Wood present around the 3km buffer.

There are two non-statutory sites present within 3km of the site. The other LNR and Avon Wildlife Trust Site (AWT), Willsbridge Valley, is located approximately 2.5km north of the site. There are no non-statutory sites present on site.

Protected Species

Records of legally protected or otherwise notable species of flora and fauna within the Study Area and up to 0.5km from the boundary were provided by BRERC. A summary of the legally protected species which have been recorded within the Study Area is provided in the table below.

Table 2: Relevant Desk Study records within 3km (4km for bats) of the Site

Records and source	Location	Protection/Status
Amphibians	There are no records of Great Crested Newts <i>Triturus cristatus</i> within the site; there is 1 record within the 3km buffer zone located at Willsbridge Valley Reserve approximately 2.5km north of site. There were 7 records of Common Frog <i>Rana temporaria</i> and four records of Common Toad <i>Bufo bufo</i> on site.	Great Crested Newts are a European Protected Species and are fully protected under the Conservation of Habitats and Species Regulations 2010 (as amended) and the Wildlife and Countryside Act 1981.
Badgers	8 records of Badger <i>Meles meles</i> were noted within 1km of the site, including two latrines sited near the River Avon.	Badgers and their setts are protected by the Badgers Act 1973. Badger Act 1991. Protection of Badgers Act 1992 and Schedule 7 of the Wildlife and Countryside Act 1981 as amended.
Bats	There is a record of a Common Pipistrelle <i>Pipistrellus pipistrellus sensu stricto</i> roost on the southern boundary of the site, with a Soprano Pipistrelle <i>Pipistrellus pygmaeus</i> roost nearby in Manor Road Community Woodland, approximately 200-300m from the site boundary. Within 1km of the site there have been 4 field records of Common Pipistrelle <i>P. pipistrellus sensu stricto</i> (within 500m west/north west of the site), 4 field records of Soprano Pipistrelle <i>P. pygmaeus</i> (within 500m west/north west of the site), one record of Leisler's Bat <i>Nyctalus leisleri</i> (500m west).	All bat species are fully protected under the Conservation of Habitats and Species Regulations 2010 (as amended) and the Wildlife and Countryside Act 1981, as amended.

Records and source	Location	Protection/Status
Birds	<p>There are records of Schedule 1 birds within 3km of the site. These include: Peregrine <i>Falco peregrinus</i>, Hobby <i>Falco subbuteo</i>, Redwing <i>Turdus iliacus</i>, Brambling <i>Fringilla montifringilla</i>, Fieldfare <i>Turdus pilaris</i>, Kingfisher <i>Alcedo atthis</i> and Treecreeper <i>Certhia familiaris</i>.</p> <p>There are no records of Barn Owl within the site or within the 3km buffer.</p>	All breeding birds are protected under current UK legislation through the Wildlife and Countryside Act 1981 as amended Schedule 1 Species of the Wildlife and Countryside Act 1981. Red and Ambers lists, Birds of Conservation Concern 2009.
Dormouse	There are no records of Dormouse <i>Muscardinus avellanarius</i> on site or within 3km of the site.	The species is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as amended and listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended)
Hedgehog	There are 16 records of Hedgehog <i>Erinaceus europaeus</i> in 3km of the site; all records have been located in residential gardens approximately 1km to the north west of the site.	The species is protected under schedule 6 of the Wildlife and Countryside Act 1981, as amended.
Other Mammals	There are no records of other mammals present on site. Records of Brown Hare <i>Lepus europaeus</i> are located 2.5km south west of the site at Elm Farm, Burnett.	Brown Hare is listed as a priority species on UK and LBAP.
Otter	There are no records of Otter <i>Lutra lutra</i> on the site; however one record was located within 500m of the south east boundary. There are also four records 2.5km northwest of the site and four records present 2.5km south east of the site along the River Avon.	Fully protected under the Conservation of Habitats and Species Regulations 2010 (as amended) and the Wildlife and Countryside Act 1981, as amended.
Reptile	There were no records of reptiles on site. There was one record of Grass Snake <i>Natrix natrix</i> to the north east of the site and 8 records of Slow Worms <i>Anguis fragilis</i> within residential gardens down Handel Road, south west of the site within 1 km of the site.	Common Reptiles are protected against injury and killing under the under the Wildlife and Countryside Act, 1981.

3.2 Field Survey

The results of the field survey are indicated on Figure 1, with associated target notes provided in Appendix I. Plant species recorded during the survey have been listed in Appendix II with nomenclature for vascular plants following Stace (1997).

Habitats

To the south of the A4, managed fields of poor semi-improved grassland occur in the northern half of the site. These are dominated by coarse grasses such as Cock's-Foot, Meadow Grasses and Bents with occasional Red Fescue and Meadow Foxtail. Herbs occur throughout these fields and include frequent Dandelion, Meadow and Creeping Buttercups and Sorrel. Near streams/ditches/drains, Hemlock Water Dropwort, Great Willowherb and Meadowsweet are frequent while Cow Parsley is locally abundant near woodland and hedges. The hedgerows in these fields tend to be managed by regularly flailing with only the occasional hedge tree present.

The southern half of the site south of the A4 comprises arable fields with a winter sown crop, bordered internally with a network of unmanaged hedgerows with trees. Manor Wood LNR forms the western site boundary to these fields with the largest contiguous area of semi-natural habitats on the site, broadleaved woodland and poor semi-improved grassland /tall ruderal/scattered scrub mosaic, creating the southern site boundary.

To the north of the A4, cattle grazed fields of improved grassland are present. These are dominated by coarse grasses including Perennial Rye with few herbs other than abundant White Clover. Internal field hedgerows are generally overgrown, now more rows of trees, with mature hedge trees. The Bath – Bristol railway line forms the northern site boundary while the A4 forms the southern site boundary.

Several wet and dry ditches/drains/streams feature on the site to the south of the A4. These tend to flow south to north and east to west to eventually meet and pass under the A4 in the northwest corner near the Keynsham roundabout. The streams/ditches/drains tend to be shallow (0.1-0.3m deep) and about 1m wide, with shallow, occasionally steep, banks. Bankside vegetation includes Meadowsweet, Reed Canary-grass, Comfrey, Hemlock Water Dropwort, Great Willowherb, Figwort, Curled Dock and Cow Parsley. Where water is

present, the substrate is silty with occasional stones and aquatic vegetation tends to be absent but occasionally Fool's Watercress occurs with Water Mint occurring rarely.

Four ponds were present within the site (two of which were dry at the time of the survey). A dew pond was recorded adjacent to the site boundary at the end of the green lane/World's End Lane, just outside the site boundary opposite Downfield Farm². Other standing water on site includes a farm lagoon with open water and occasional Bulrush surrounded by dense scrub lies next to Glenavon Farm and a small pool at the junction of two streams/drains/ditches at the northwest corner of the site.

The hedgerows are generally dominated by thorn species, mainly Hawthorn, Blackthorn and Bramble with occasional Wild Rose. English Elm, some as deadwood, and Ivy are frequent in many hedges. Near watercourses, Crack Willow and other willow species occur frequently as scrub and mature trees. Other woody hedge species occurring occasionally include Elder, Spindle, Hazel and Wild Privet. Ash and Oak occur mainly as standards within hedges. Ground flora species include Cow Parsley, Lords and Ladies, Hedge Woundwort, Lesser Celandine, Cleavers and Common Nettle.

Mature hedge and field trees, mainly Oak, Ash and Crack Willow, some veteran, are present on the site both sides of the A4. Of particular note is a Public Right of Way leading from the World's End Lane to a footbridge crossing the railway which is lined with mature (some veteran) Oak with occasional Ash, Field Maple and a Poplar. An adjacent hedge contains three mature Oak. There are also several mature hedge trees in the broadleaved woodland edge, mainly Ash, Oak, Crack Willow and Field Maple, forming the boundary between the site and Manor Wood LNR as well as mature field/hedge trees in the arable fields.

Copses and strips of broadleaved semi-natural woodland are found across the site. To the south of the A4, canopy species include Ash and Sycamore with an understorey of Hawthorn, Elder, English Elm, Holly, Ivy, Hornbeam, and Bramble. Ground flora includes several woodland species such as Ramsons, Dog's Mercury, Lords and Ladies with Bluebell occurring within one woodland area only. Near watercourses, Crack Willow and other willow species are abundant. North of the A4, Oak replaces Sycamore as the dominant canopy species.

² There are also likely to be other ponds within 500m which, on the basis that access is provided, should also be subject to a Habitat Suitability Index.

Protected and Notable Species of Fauna

The Site provides suitable habitat for a range of protected and notable species of fauna. Information on the habitats collected during the Extended Phase I Survey, as well as desk study records have been used to inform the following summary table.

Table 3: Protected Species: Potential to be present on Site and Location of Suitable Habitat

Species/ Group	Potential to be present on Site and location of suitable habitat
Bats	Potential optimal foraging and commuting routes were identified throughout the site on both sides of the A4 particularly surrounding woodland bordering the Manor Road LNR and towards the south of sites. Many mature and veteran trees were classified as having a medium to high potential to support roosting bats throughout the site particularly towards the centre of the site but also to the northeast of World End Lane. A Soprano Pipistrelle roost nearby in Manor Road Community Woodland, approximately 200-300m from the site boundary was retrieved during the desk study. One derelict building was identified on-site which has the potential to support roosting bats.
Dormice	No records were retrieved from the desk study although habitat potentially suitable was recorded throughout the network of managed and unmanaged hedgerows.
Great Crested Newts	No GCN records were retrieved from BRERC but there were four ponds recorded on-site, two of which were dry at the time of the survey. Additional ponds were identified within the Manor Road LNR woodland and within 500m of the site. Good quality terrestrial habitat in the form of hedgerows, tussocky grassland, scrub, woodland and potential hibernacula were also present within the site.
Reptiles	There were no records of reptiles on site but the site offered optimal potential habitat for common reptiles (Grass Snake and Slow-worm and Common Lizard particular to the centre and south of the site where there is a considerable network of rubble stone walls and associated scrub and rough grassland.
Badgers	A large Badger sett (likely to be a main sett) was identified in broadleaved woodland to the south of the site. Foraging habitat is recorded throughout.
Birds	The site provides habitat suitable for a range of birds typical of farmland. The diversity of habitats including uncultivated margins and network of hedgerows and the ditches and ely low intensity of management indicates that the site could support diverse assemblage of birds. Mature and veteran trees incorporating woodpecker holes were recorded in a number of trees. Larger cavities potentially suitable for cavity nesting birds such as Barn Owl, Kestrel and Green Woodpecker were also present throughout.
Brown Hare	No records for Brown Hare were retrieved during the desk study but suitable farmland habitat throughout would suggest that the site supports this species .

4.0 CONCLUSIONS

The Site has been found to support habitats of nature conservation interest including hedgerows, mature and veteran trees, ponds and broadleaved woodland. The quality of these habitats varies and requires further survey to fully determine their value. The Site also has the potential to support a number of protected and notable species including bats (foraging, commuting and roosting), farmland and cavity dwelling birds, GCNs, Dormice, common reptiles and Brown Hare.

Mature hedge and field trees, mainly Oak, Ash and Crack Willow, some veteran, are present on the site both sides of the A4. Of particular note is a Public Right of Way leading from the World's End Lane to a footbridge crossing the railway which is lined with mature (some veteran) Oak with occasional Ash, Field Maple and a Poplar. An adjacent hedge contains three mature Oak. There are also several mature hedge trees in the broadleaved woodland edge, mainly Ash, Oak, Crack Willow and Field Maple, forming the boundary between the site and Manor Wood LNR as well as mature field/hedge trees in the arable fields.

Areas within the site considered to be of potential ecological sensitivity are those with more natural, less intensively managed habitats such as broadleaved woodland, unmanaged hedges (with and without trees), mature field and hedge trees, woodland edge (adjacent to the Manor Road Community Woodland LNR), the green lane leading from World's End Lane, dense scrub, grassland/scrub/ruderal mosaic, running water (streams/drains/ditches) and standing water (4 ponds within the site boundary).

These have higher intrinsic ecological value and contribute to the biodiversity of the site as well as having potential to support a range of protected species as nesting, resting, breeding, foraging and commuting habitat.

Areas within the site considered to be of potential ecological sensitivity are those with more natural, less intensively managed habitats such as:

- broadleaved woodland (specifically area to south of the site);
- unmanaged hedges (with and without trees);
- mature field and hedge trees;
- woodland edge (adjacent to the Manor Road Community Woodland LNR);

- the green lane (Public By-Way) leading from World's End Lane and associated double line of mature Oak;
- dense scrub and grassland/scrub/ruderal mosaic with protected species potential;
- running water (streams/drains/ditches); and
- standing water (ponds/pools).

5.0 MITIGATION AND ENHANCEMENTS

On the basis that a positive and integrated approach is taken to the biodiversity such that the development is well informed, it is currently considered that the site has the capacity to accommodate the extent of development proposed (as per the extent of development proposed in the submission document to the Proposed Changes to the BANES Core Strategy) without unacceptable ecological impacts.

Furthermore there are considered to be substantial opportunities for biodiversity enhancements as part of a green infrastructure strategy.

Such opportunities would focus on providing enhanced woodland, grassland and wetland habitats and reinforcing corridors for a wide range of species.

Proposals would target Biodiversity Action Plans, B&NES Green Infrastructure Strategy as well as building upon the existing Manor Road Community Woodland and associated management aims.

APPENDIX I: PHASE I SURVEY TARGET NOTES

Target Note	Description	Sensitivity
1	Managed roadside hedgerow (2-2.5m high) with Hawthorn <i>Crataegus monogyna</i> , Blackthorn <i>Prunus spinosa</i> and English Elm <i>Ulmus procera</i> . Ground flora dominated by Ivy <i>Hedera helix</i> , with frequent Cow Parsley <i>Anthriscus sylvestris</i> , Common Nettle <i>Urtica dioica</i> , Lords and Ladies <i>Arum maculatum</i> , Cleavers <i>Galium aparine</i> , and Bramble <i>Rubus fruticosus</i> agg.	Low
2	Chain link fence on concrete posts with occasional scattered scrub comprising Bramble, Blackthorn and Dog Rose <i>Rosa canina</i> and a small Apple <i>Malus</i> sp. tree with Ivy (low bat potential).	Low
3	A stream flowing south to north, under the A4, along a retaining stone/concrete wall of the adjoining property. The stream is shallow (circa 0.1-0.3m depth, 1-1.5m wide) with a steady flow and rocky/silty substrate. Near the A4, the banks are steep and vegetated with scattered Hawthorn, Blackthorn, Willow <i>Salix</i> sp. and Elder <i>Sambucus nigra</i> scrub and tall ruderals such as frequent Nettle, Great Willowherb <i>Epilobium hirsutum</i> and occasional Teasel <i>Dipsacus fullonum</i> . Dense Bramble overshades the stream in places. Away from the road, bankside species include frequent Hemlock Water Dropwort <i>Oenanthe crocata</i> , Lesser Celandine <i>Ranunculus ficaria</i> , occasional Meadowsweet <i>Filipendula ulmaria</i> , Figwort <i>Scrophularia</i> sp., Comfrey <i>Symphytum</i> sp. and Rush <i>Juncus</i> sp. with occasional Fool's Watercress <i>Apium nodiflorum</i> as the only aquatic vegetation. Off-site, adjacent to the stream, is an area of dense Bramble scrub with abundant Nettle.	Medium
4	Short section of managed hedge (1-1.5 high) with dominant Hawthorn and Bramble and a limited understory comprising Cow Parsley, Nettle, Lords and Ladies, Cleavers and Ivy.	Low
5	Managed fields of poor semi-improved grassland dominated by coarse grasses such as Cock's-Foot <i>Dactylis glomerata</i> , Meadow Grasses <i>Poa</i> spp., with occasional Red Fescue <i>Festuca rubra</i> with herbs including abundant Dandelion <i>Taraxacum officinale</i> agg., frequent Silverweed <i>Potentilla anserina</i> , Creeping Cinquefoil <i>Potentilla reptans</i> , Meadow Buttercup <i>Ranunculus acris</i> , and occasional Cow Parsley, Curled Dock <i>Rumex crispus</i> , Creeping Thistle <i>Cirsium arvense</i> , Ribwort Plantain <i>Plantago lanceolata</i> , Dove's-Foot Cranesbill <i>Geranium molle</i> , Yarrow <i>Achillea millefolium</i> and Hogweed <i>Heracleum sphondylium</i> .	Low
6	Managed hedge (1m high) containing Blackthorn, Hawthorn, Elder, Field Rose <i>Rosa arvensis</i> , and Ivy, adjacent to a stream running south – north which joins another stream flowing east to west to create a small pool at the junction. The pool is overshadowed by Bramble, the hedge and occasional Willow scrub with Rush on the banks. A second defunct hedge (1 m high) section lies adjacent to the south-north drain. Adjacent to the hedge sections are Bramble thickets and patches of Nettle and Great Willowherb.	Medium
7	Area of Broadleaved Woodland through which a small stream flows from south to north. Mature trees include Ash <i>Fraxinus excelsior</i> and Crack Willow <i>Salix fragilis</i> with a shrub understory of Elder, Hawthorn, Wild Privet <i>Ligustrum vulgare</i> , Spindle <i>Euonymus europaeus</i> , Field Maple <i>Acer campestre</i> , Hazel <i>Corylus avellana</i> , Cherry <i>Prunus</i> sp. and Bramble. Ground flora comprises dominant Ivy, Curled Dock, Lords and Ladies, Hedge Woundwort <i>Stachys sylvatica</i> , Cleavers with abundant Cow Parsley at the edges. Several mature trees with medium – low bat potential.	Medium
8	A managed hedge (1-1.5m high) with standard trees, some mature and with signs of decay, on the eastern side of the stream. Hedge species are dominated by Hawthorn and Blackthorn with occasional Field Rose, Ivy, Oak <i>Quercus</i> sp., Ash, Spindle, Elder and a ground flora of dominant Ivy, and occasional Lords and Ladies, Hedge Woundwort and Cleavers. Meadowsweet, Curled Dock and Nettle occur frequent adjacent to the hedge. At its southern end, near the ditch and stream, hedge ground flora include abundant Nettle, Lesser Celandine, locally frequent Meadowsweet, frequent Cleavers, Lords and Ladies, Cow Parsley and occasional Curled Dock.	Medium

Target Note	Description	Sensitivity
9	Field of poor semi-improved grassland with species similar to TN5, but also including occasional Meadow Foxtail <i>Alopecurus pratensis</i> , Sorrel <i>Rumex acetosa</i> , Field Woodrush <i>Luzula campestris</i> , and Cut Leaved Geranium <i>Geranium dissectum</i> , Rush and rarely occurring Cuckoo-flower <i>Cardamine pratensis</i> .	Low
10	Bund covered in tall ruderals at the edge of the managed hedge and stream (TN11) with frequent Hemlock Water Dropwort, Nettle, Teasel and Great Willowherb.	Low
11	Stream with a managed hedge (1-1.5m high) with occasional young Ash and Willow as standard trees adjacent. Dominant woody species include Hawthorn, Elder and Blackthorn with an understory of Ivy, Cleavers and Arum. Stream banks are shallow on the southern side and steep adjacent to the hedge (north side). Bankside vegetation includes abundant Meadowsweet, locally frequent Reed Canary-grass <i>Phalaris arundinacea</i> , occasional Comfrey, Hemlock Water Dropwort, Great Willowherb, Figwort, Curled Dock and Cow Parsley. Aquatic vegetation includes Water Mint <i>Mentha aquatica</i> and Fool's Watercress.	Medium
12	Field of poor semi-improved grassland as TN5 but with proportionately fewer herbs and with a strip of Tall Ruderals including frequent Nettle, Creeping Thistle, Curled Dock and Cleavers adjacent to hedges.	Low
13	Gappy, partly managed/partly defunct hedge (1-1.5m high) south of the stream flowing east to west. Hawthorn and Blackthorn dominant with a ground flora of Lords and Ladies, Meadowsweet, Reed, Curled Dock and Bramble. Occasional young Ash, Hawthorn and Willow standards in hedge.	Low - Medium
14	Poor semi-improved grassland as at TN12 with frequent False Oat Grass <i>Arrhenatherum elatius</i> and occasional Bush Vetch <i>Vicia sepium</i> and Colt's Foot <i>Tussilago farfara</i> .	Low
15	Off-site but adjacent, a tall overgrown hedge (4-5m high), now trees, including Hawthorn, Blackthorn, Sycamore <i>Acer Pseudoplatanus</i> and Ivy. Hedge/tree line with foraging/commuting potential.	Medium
16	Poor semi-improved grassland as at TN14 with abundant Sorrel, Creeping Bent, Meadow Grasses, Meadow Buttercup and Creeping Buttercup.	Low
17	Managed roadside hedge (1.5-2m high) with dominant Blackthorn and occasional dead English Elm, Spindle, Hawthorn and a single Ash standard (low bat potential). A mature Oak (medium-high bat potential) is present in the northwest field corner.	Medium
18	Part managed/part overgrown hedge and trees (2-5m high) with Blackthorn, Hawthorn, Elder. Similar hedge and ground flora to TN4 and TN8.	Low - Medium
19	Off-site, overgrown hedge and trees (4-5m high) with two mature trees, one Oak and one Ash, both with medium bat roosting potential. Scattered thorn scrub including Blackthorn, Ivy, Hawthorn. Hedge/tree line with foraging/commuting potential.	Medium
20	Short row of Mature Ash, some with Ivy, and an Open Barn with a corrugated cement fibre roof on concrete frame, missing walls and covered in Ivy. Bramble, Elder and English Elm (some dead) below the Ash. Ground flora of dominant Ivy, frequent Ground Ivy <i>Glechoma hederacea</i> , Cow Parsley, Nettle and occasional Lords and Ladies and Dandelion.	Low
21	Managed hedge (1.5-2m high) with 2 Ash standards (medium bat potential) and a copse of Ash trees with English Elm/Willow scrub at the southern hedge junction.	Low-Medium
22	Post and wire fence at roadside (A4) with occasional scattered English Elm (some dead)/Ash/Bramble scrub.	Low
23	Managed hedge (1.5-2m) with dominant Hawthorn, abundant Blackthorn and English Elm with occasional Ivy and Elder. Two mature trees including a hollow pollarded Oak with Ivy (medium bat potential) and a staghead Oak with abundant lifting bark and splits (high bat potential). Also a mature Willow (low-medium bat potential) at the southern hedge junction. Understorey of frequent Nettle, Ivy and Cleavers with occasional Curled Dock and Lords and Ladies.	Medium - High

Target Note	Description	Sensitivity
24	Managed hedge (1-1.5m) either side of a flowing ditch. Hawthorn and Blackthorn are dominant with frequent English Elm and a patch of Willow/Hawthorn scrub. Ditch heavily shaded by hedge with bankside vegetation comprising hedge flora including abundant Nettle, frequent Cow Parsley, Great Willowherb, Lords and Ladies, False Oat Grass and occasional Hogweed, Cleavers and Curled Dock.	Medium
25	A patch of Willow/Ash/Elder/Ivy scrub at a hedge junction with a bund covered in tall ruderals.	Low
26	Managed hedge (1.5-2m) dominated by Blackthorn and Hawthorn with several pollarded mature Crack Willow. Dead roe deer <i>Capreolus capreolus</i> in ditch.	Medium
27	Narrow, linear field with strip (about 5m wide and 4-5m high) dense thorn scrub comprising dominant Blackthorn, frequent Hawthorn, Wild Rose, dead English Elm and Bramble along the northern boundary. Breeding bird potential. Southern boundary comprises a wet ditch with pollarded mature Crack Willow (about 8m high). In between, patches of Nettle, Broadleaved Dock, Curled Dock, Hogweed and Teasel in tussocky, unmanaged poor semi-improved grassland. Reptile potential (slow worm and grass snake) at southern edge of dense scrub/grassland interface.	Medium-High
28	Arable field with winter-sown crop and an uncultivated field margin (2-4m wide) of improved grassland in places. Skylark <i>Alauda arvensis</i> present. Improved grassland dominated by Rye Grass <i>Lolium spp.</i> , White Clover <i>Trifolium repens</i> , Greater Plantain <i>Plantago major</i> , False Oat Grass, Creeping Bent and Meadow Grasses.	Medium
29	Overgrown hedge (2-4m high) with trees including a mature Oak and an Ash (both medium bat potential). Woody hedge species include English Elm (some as deadwood), Blackthorn and Hawthorn. Ground flora include dominant Ivy, abundant Nettle and False Oat Grass, frequent Cow Parsley, and occasional Cleavers, Teasel and Spear Thistle <i>Cirsium vulgare</i> . An uncultivated margin of Blackthorn and Bramble scrub lies adjacent to the hedge with a strip of Improved Grassland as in TN28 buffering the arable crop. In combination with the hedge, creates a 7-8m wide vegetated corridor of high quality for nesting, foraging and commuting.	Medium - High
30a	Unmanaged and overgrown hedge with trees including dominant English Elm (some dead), Blackthorn and Hawthorn and occasional Ivy, Field Rose, Elder, Ash and Bramble. Understorey species include occasional Dog's Mercury <i>Mercurialis perennis</i> , Lords and Ladies, Cleavers, False Oat Grass and Hedge Woundwort. Hedge/tree line with foraging/commuting potential.	Medium
30b	Field of improved grassland with a high proportion of ruderal species including abundant Creeping Bent, Cock's Foot, Red Fescue, White Clover, Creeping Buttercup, and Dandelion, frequent Broadleaved Dock and Lesser Celandine, and occasional Hogweed and Teasel.	Low
31	Unmanaged roadside hedge (1.5- 4m high) of dominant Blackthorn with occasional English Elm (some dead), Willow, Ash, Bramble and Spindle.	Low - Medium
32	Strip of scattered thorn scrub, tussocky grassland and tall ruderals including Bramble, Hawthorn, Blackthorn, Elder, Cow Parsley, Teasel and Red Dead Nettle <i>Lamium purpureum</i> adjacent to site boundary and residential area.	Low
33	Open stand of about 20 mature Oak and Ash, several of which are diseased, plus an understorey of scattered Hawthorn and Field Rose. Ground flora comprise coarse grasses with abundant Nettle, Burdock <i>Arctium sp.</i> , Broadleaved Dock and Lesser Celandine with frequent Cow Parsley. Several trees have medium – high bat potential due to woodpecker holes and decay/disease.	Medium
34	Unmanaged and overgrown roadside hedge of unmanaged English Elm, Blackthorn, and Hawthorn with occasional Ash and Bramble. Understorey similar to TN20.	Low
35	Collapsed dry stone wall, scattered scrub and a post and wire fence. Some of the wall is Ivy covered while scrub species include Bramble, Hawthorn and Ash. Dense strip of Blackthorn scrub at its eastern end. Adjacent to an off-site field of tussocky grassland and tall ruderals with reptile potential. Wall suitable as hibernacula/summer refuge.	Medium

Target Note	Description	Sensitivity
36a	Dry stone wall along a defunct hedge/scattered scrub of Hawthorn, Elder, Bramble, Field Rose, Ivy and a post and wire fence. Adjacent to an arable field with the northeast corner filled with a patch of tall ruderals dominated by Nettle with occasional Spear Thistle.	Low - Medium
36b	Arable field with several mature/veteran/ancient field and hedge trees including Oaks, Ash and a Horse Chestnut <i>Aesculus hippocastanum</i> . Several have features such as broken off tops, diseased/decaying canopies, rot in trunks which are suitable for roosting bats – medium to high roost potential.	Medium - High
37	Mosaic of poor semi-improved grassland/tall ruderals/scattered scrub. Grassland dominated by coarse grasses including Cock's Foot, False Oat Grass, Creeping Bent with abundant Creeping Buttercup. Scrub species include Willow, Bramble (in dense thickets), Sycamore and Hawthorn. Tall ruderals are abundant Nettle, Cleavers, Creeping Thistle and frequent Teasel. Reptile and breeding bird potential. Several badger paths found in vegetation.	Medium
38	Strip of Broadleaved Woodland with canopy species of Ash and Sycamore and an understorey of Hawthorn, Elder, English Elm, Holly <i>Ilex aquifolium</i> , Ivy, Hornbeam <i>Carpinus betulus</i> , and Bramble. Ground flora includes several woodland species such as abundant Ramsons <i>Allium ursinum</i> , locally frequent Dog's Mercury, frequent Lords and Ladies as well as occasional Snowdrop <i>Galanthus sp.</i> , Cleavers, Germander Speedwell <i>Veronica chamaedrys</i> , Lesser Celandine, Burdock, and Hedge Woundwort. Shallow wet/damp/dry ditch inside woodland strip.	High
39	Extensive and active badger sett at edge of woodland with paths leading into dense bramble scrub, bedding outside several entrances.	Medium
40	Broadleaved Woodland comprising abundant Sycamore with occasional Ash. Understorey of Elder, Elm, Hawthorn and Snowberry <i>Symphoricarpos sp.</i> Woodland ground flora includes abundant Dog's Mercury, locally frequent Bluebell <i>Hyacinthoides non-scripta</i> , and occasional Lords and Ladies as well as abundant Lesser Celandine, frequent Cleavers, Nettle, Cow Parsley. Several dry ditches cross the woodland. A rookery is present near the western boundary.	High
41	Dry ditch and dry stone wall/bank adjacent to an unmanaged hedge and trees with Sycamore, Hawthorn, Elder, Blackthorn, Maple Acer sp., and snowberry. Ground flora comprises abundant Nettle, Bramble, Cleavers, Cock's Foot, Cow Parsley and Hogweed.	Medium
42a	Fallow field of poor semi-improved grassland with a high proportion of tall ruderals including abundant Nettle and Great Willowherb, frequent Burdock and Teasel. Dominant grasses are Cock's Foot and Creeping Bent.	Low
42b	Dry ditch with scattered English Elm, Elder, Ash and Bramble scrub.	Low
43	Within an arable field, an island with a mature Ash (low bat potential) surrounded by Snowberry with occasional Hawthorn and Elder. Many slabs of stone make up the ground covering.	Low
44	Triangular parcel of land with a dry ditch and tall ruderal vegetation dominated by Nettle with occasional Lords and Ladies and scattered Ash and English Elm.	Low
45	Overgrown species-rich hedge, now a row of trees, comprising frequent Blackthorn and English Elm with occasional Hawthorn, Wayfaring Tree <i>Viburnum lantana</i> , Elder, Ivy, Ash, Dogwood, Cherry, Bramble and Sycamore. Ground flora including abundant Ivy and Nettle and frequent Cow Parsley, Cleavers and Lords and Ladies. Good potential as commuting/foraging route. Adjacent to Manor Wood Local Nature Reserve (LNR) which has several mature Willow and Ash adjacent to the site boundary.	Medium - High
46	Small triangular area of poor semi-improved grassland and tall ruderals in corner of arable field.	Low

Target Note	Description	Sensitivity
47	Pond circa 4m x 6m, shallow (0.1-0.15m depth), overshadowed by mature Willow. Empties into a stream flowing north inside the woodland LNR. Rarely occurring Floating Sweet-grass <i>Glyceria fluitans</i> in water, otherwise no aquatic vegetation and a high proportion of dead and decaying leaves. Amphibian potential due to surrounding high quality terrestrial habitat provided by Manor Wood LNR.	Medium
48	Area of poor semi-improved grassland and tall ruderals in corner of arable field adjacent to Manor Wood LNR and the overgrown hedge and trees at TN49. Great Willowherb, Curled Dock and Creeping Thistle are frequent - abundant with occasional Broadleaved Dock, Burdock and Teasel as well as the usual grasses Cock's Foot, Creeping Bent and Meadow Grasses.	Low
49	Overgrown hedge, now a row of trees, with dominant Blackthorn, frequent English Elm, Ivy, Hawthorn and occasional Ash. Ground flora include dominant Ivy and occasional Curled Dock, Lords and Ladies, Ground Ivy and Garlic Mustard <i>Alliaria petiolata</i> . Good foraging/commuting potential.	Medium - High
50	Internal field boundary partially comprising a dry stone wall, dry ditch and wet ditch with Reed Canary-grass, Bramble, Great Willowherb and Willow/Bramble Scrub as bankside vegetation. Water flow is steady/slow with a silty substrate with stones. Banks are shallow with a low profile. Occasional Fool's Watercress comprises the aquatic vegetation. Several mature Ash and two mature Oak with medium-high bat potential occur along the field boundary.	Medium - High
51	Line of scattered Hawthorn, Ivy, Elder, Blackthorn and Willow scrub on the site side of a chainlink boundary fence. Possibly a defunct hedge.	Low
52	Open ditch flowing south to north and culverted at its northern end at a managed hedge (1 – 1.5m high) The ditch is about 1m wide with a steady flow and silty substrate. Fools Watercress is frequent while Water Forget-Me-Not <i>Myosotis sp.</i> occurs occasionally. The banks are circa 0.3-0.6m high with a steep and a shallow bank. Bankside species include abundant Nettle, frequent Hemlock Water Dropwort, Water Forget-Me-Not, Meadowsweet, Bramble, Reed Sweet-grass and occasional Lesser Celandine, Cleavers, Broadleaved and Curled Docks and Hogweed.	Medium
53	Defunct hedge section, now scattered Hawthorn/Blackthorn scrub, partially along the eastern side of the ditch at TN52.	Low
54	Pond circa 8m x 8m, heavily shaded by mature Crack Willow and Hawthorn/Willow scrub. Water appears to be about 0.1-0.2m depth with a silty substrate which could be deeper. Water turbid with little aquatic vegetation, mainly at the margins. A pollarded Ash with ivy and decaying boughs (medium bat potential) is present at the edge of the copse.	Medium
55	Ditch and stream (as at TN52) overshadowed by wide (4m) managed hedge and Bramble scrub. Hawthorn is dominant with other woody hedge species including Blackthorn, Spindle, Elder, and an understory of Ivy, Cleavers, Lords and Ladies and Cow Parsley.	Medium
56	Creating the southern boundary, a copse of broadleaved woodland with a canopy of mature Crack Willow and Ash and a stream flowing along the eastern side. Shrub species include Hazel, Wild Privet, Field Maple, English Elm, Hawthorn, Elder and Spindle. Ground flora includes abundant Ivy, Frequent Nettle, Lesser Celandine, Cow Parsley, Arum and Bramble with occasional Garlic Mustard, Herb Robert <i>Geranium robertianum</i> and Wood Meadow Grass <i>Poa nemoralis</i> . Also noticeable is a substantial amount of deadwood, including a fallen mature Crack Willow, and brush. Hedge/tree line with foraging/commuting potential.	High
57	A path through a double row of multi-stem Hazel and English Elm with a row of mature Field Maple and Ash on the site side – both set on raised hedge banks. The shrub layer comprises frequent Elder and Spindle with occasional Wild Privet, Ivy, Hawthorn and Blackthorn. Ground flora as TN56 and with some deadwood. Piles of garden cuttings and debris at the estate end of the lane.	High

Target Note	Description	Sensitivity
58	Overgrown hedge and trees with a standard mature Ash. Woody species include Ivy, Spindle, Elder, Field Rose with a ground flora of dominant Ivy and occasional Lords and Ladies, Cleavers, Cow Parsley. A 1-4m field margin of dominant Cow Parsley buffers the hedge from the field of poor semi-improved grassland. Grassland species include Cock's Foot, Red Fescue, Meadow Foxtail, Creeping Bent, Dandelion, Cow Parsley, Curled Dock, Broadleaved Dock, Lesser Celandine, Nettle with Meadowsweet near the stream (TN55).	Medium
59a	Strip of mature Crack Willow with occasional mature Ash and Field Maple overshadowing a stream (shallow profile, about 1m wide and 0.1m deep with a silt and stone substrate, lacking aquatic vegetation) along southern boundary adjacent to Manor Wood LNR. The southern end of the poor semi-improved grassland field includes species as TN5/9/12/14 as well as occasional Sweet Vernal Grass <i>Anthoxanthum odoratum</i> . Hedge/tree line with foraging/commuting potential.	Medium
59b	The southern end of the eastern internal field hedge includes two pollarded Ash with deadwood (saproxylic potential).	Medium
60a	Unmanaged hedge and trees buffering broadleaved woodland with two mature Oak (nesting Rooks and bat potential), Ash and Field Maple. Blackthorn and Hawthorn dominate with occasional English Elm, Ivy and Elder. Buffers Manor Wood LNR. Hedge/tree line with foraging/commuting potential.	Medium-High
60b	Southern end of the poor semi-improved field includes an area of damp grassland with frequent Rush and occasional Cuckoo-flower.	Low
61	Shallow open field drain flowing north from southern boundary woodland. About 10m from southern boundary, the water drops into a hole in the ground and then flows north to join the stream at TN24.	Medium
62a	Unmanaged roadside hedge and trees, now a row of trees (4-5m high), along a post and wire fence. Woody species include Hawthorn, Elder, Ash, Ivy, English Elm (some dead). The understory is dominated by Nettle, Bramble and brash with locally frequent Ground Ivy and Cow Parsley and occasional Garlic Mustard, Creeping Thistle, Lords and Ladies and Broadleaved Dock. Field margin (2-3m wide) of dominant Nettle and Broadleaved Dock with occasional Burdock and Cock's Foot.	Low-Medium
62b	Field of grazed improved grassland with Rye grasses <i>Lolium spp.</i> , Meadow grasses and Bents. Herbs are limited and include abundant White Clover, Dandelion and Creeping Buttercup with frequent Creeping Thistle and Broadleaved Dock and occasional daisy <i>Bellis perennis</i> .	Low
62c	Tall ruderal covered bund adjacent to farm yard with dominant Nettle, occasional Hawthorn and Elder scrub, and Hogweed and Cow Parsley.	Low
63	Boundary wall of stacked railway sleepers adjacent to farm yard with a small area of dense Bramble in the north corner.	Low
64	Unmanaged hedge and trees (4-5m high) with abundant Hawthorn, frequent English Elm (some dead), Bramble, occasional Blackthorn, Field Rose and Dog Rose and Field Maple standards. Part of the hedge base is heavily used by stock and so is open, degraded with much bare ground. Where ground flora is present, Wood Meadow Grass, Ground Elder <i>Aegopodium podagraria</i> , Ground Ivy, Garlic Mustard and Germander Speedwell are frequent with occasional Nettle, Lords and Ladies, Cow Parsley, Spear Thistle and Curled and Broadleaved Dock. Hedge/tree line with foraging/commuting potential.	Medium
65	Managed Hawthorn hedge (2m high) with standard trees (3 Hawthorn and 2 Lime <i>Tilia sp.</i>) along a chainlink and post fence.	Medium
66	Pile of broken concrete slabs adjacent to the hedge at TN64. Covered in Bramble and Nettle – hibernaculum potential.	-
67	Row of young Blackthorn along a post and wire stock fence – remain from area of recently cleared scrub on railway embankment. Ruderal species along the fence line include Nettle, Cow Parsley, Bramble, Herb Bennet <i>Geum urbanum</i> , Creeping Buttercup, Curled Dock, Cleavers, and Spear Thistle.	Low

Target Note	Description	Sensitivity
68	Adjacent to the site boundary, a shallow dry ditch with Reed <i>Phragmites australis</i> at the top of the railway embankment.	Low
69	Public Right of Way running south to north to cross the railway via a footbridge. On the east side of the PRow, a dry ditch and a hedge bank with a line of Hawthorn/Elder scrub, two mature Oak and a deadwood stump. Where open, the ground flora is dominated by Nettle with occasional Comfrey. On the west side, a line of mature Oak with some deadwood (see TN70), a mature Poplar <i>Populus sp.</i> , a mature Field Maple and Hawthorn/Elder scrub. Ground flora include abundant Nettle, Garlic Mustard, Lords and Ladies, Cow Parsley and Ground Ivy. Hedge/tree line with foraging/commuting potential.	Medium - High
70	Track with farm gates lined with mature and possibly veteran/ancient Oaks, several with medium - high bat roost potential due to ivy, splits, lifting bark, broken boughs. Also of potential commuting/foraging value.	High
71 (pond 5)	Dry pond adjacent to the PRow (TN69). Surrounded by a ruderal covered bund with dominant Nettle, coarse grasses, abundant Cleavers, Hogweed, Creeping Thistle and dense Bramble scrub. No water is present in the pond which is vegetated with scattered Willow/Ash scrub, coarse grasses and Hard Rush <i>Juncus inflexus</i> .	Low
72	Overgrown unmanaged hedge and trees (4-5m high) with three mature Oak, some with Ivy. Woody hedge species include abundant Blackthorn, Elder, Hawthorn and Bramble with a hedge base degraded by stock (cattle). Good foraging/commuting potential.	Medium-High
73	Public By-Way lined on either side with a species-rich hedge and tree line including frequent Elder, Hawthorn, Blackthorn, English Elm, Dog Rose, Hazel, Ash, Wild Apple <i>Malus sylvestris</i> with mature Oak and an Ash (Ivy covered). Ground flora include abundant Nettle, frequent Lords and Ladies, and other species as TN64. Hedge/tree line with foraging/commuting potential.	High
74	Farm lagoon with open water and occasional Bulrush <i>Typha latifolia</i> . Surrounded on three and half sides by dense Bramble and thorn scrub.	Low
75	Dew pond on the edge of World End Lane - just outside the site boundary opposite Downfield Farm.	Medium -

APPENDIX II: PLANT SPECIES RECORDED IN FIELD SURVEY

Common Name	Scientific Name
Ash	<i>Fraxinus excelsior</i>
Blackthorn	<i>Prunus spinosa</i>
Bluebell	<i>Hyacinthoides non-scripta</i>
Bramble	<i>Rubus fruticosus</i> agg.
Broad-leaved Dock	<i>Rumex obtusifolius</i>
Bulrush	<i>Typha latifolia</i>
Burdock	<i>Arctium</i> sp.
Bush Vetch	<i>Vicia sepium</i>
Cherry	<i>Prunus</i> sp.
Cleavers	<i>Galium aparine</i>
Cock's-foot	<i>Dactylis glomerata</i>
Comfrey	<i>Symphytum</i> sp.
Common Ivy	<i>Hedera helix</i> ssp. <i>helix</i>
Common Nettle	<i>Urtica dioica</i>
Common Reed	<i>Phragmites australis</i>
Common Sorrel	<i>Rumex acetosa</i>
Cow Parsley	<i>Anthriscus sylvestris</i>
Crack Willow	<i>Salix fragilis</i>
Creeping Bent	<i>Agrostis stolonifera</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>
Creeping Thistle	<i>Cirsium arvense</i>
Cuckoo-flower	<i>Cardamine pratensis</i>
Curled Dock	<i>Rumex crispus</i>
Cut-leaved Crane's-bill	<i>Geranium dissectum</i>
Dandelion	<i>Taraxacum officinale</i> agg.
Dog Rose	<i>Rosa canina</i> agg.
Dog Rose	<i>Rosa canina</i>
Dog's Mercury	<i>Mercurialis perennis</i>
Dogwood	<i>Cornus sanguinea</i>
Dove's-Foot Cranesbill	<i>Geranium molle</i>
Elder	<i>Sambucus nigra</i>
English Elm	<i>Ulmus procera</i>
False Oat-grass	<i>Arrhenatherum elatius</i>
Field Maple	<i>Acer campestre</i>
Field Woodrush	<i>Luzula campestris</i>
Figwort	<i>Scrophularia</i> sp.
Floating Sweet-grass	<i>Glyceria fluitans</i>
Fool's Watercress	<i>Apium nodiflorum</i>
Garlic Mustard	<i>Alliaria petiolata</i>
Germander Speedwell	<i>Veronica chamaedrys</i>
Goat Willow	<i>Salix caprea</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Greater Plantain	<i>Plantago major</i>
Ground Elder	<i>Aegopodium podagraria</i>
Ground-ivy	<i>Glechoma hederacea</i>
Hard Rush	<i>Juncus inflexus</i>

Common Name	Scientific Name
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge Woundwort	<i>Stachys sylvatica</i>
Hemlock Water-dropwort	<i>Oenanthe crocata</i>
Herb Bennet	<i>Geum urbanum</i>
Herb-robert	<i>Geranium robertianum</i>
Hogweed	<i>Heracleum sphondylium</i>
Holly	<i>Ilex aquifolium</i>
Horse-chestnut	<i>Aesculus hippocastanum</i>
Ivy	<i>Hedera helix</i>
Lesser Celandine	<i>Ranunculus ficaria</i>
Lime	<i>Tilia sp.</i>
Lords-and-ladies	<i>Arum maculatum</i>
Maple	<i>Acer sp.</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Meadow Foxtail	<i>Alopecurus pratensis</i>
Meadow-grasses	<i>Poa spp.</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Pedunculate Oak	<i>Quercus robur</i>
Poplar	<i>Populus sp.</i>
Ramsons	<i>Allium ursinum</i>
Red Fescue	<i>Festuca rubra agg.</i>
Reed Canary-grass	<i>Phalaris arundinacea</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rye-grass	<i>Lolium spp.</i>
Silverweed	<i>Potentilla anserina</i>
Snowberry	<i>Symphoricarpos sp.</i>
Snowdrop	<i>Galanthus nivalis</i>
Spear Thistle	<i>Cirsium vulgare</i>
Spindle	<i>Euonymus europeus</i>
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
Sycamore	<i>Acer pseudoplatanus</i>
Water Mint	<i>Mentha aquatica</i>
Wayfaring-tree	<i>Viburnum lantana</i>
White Clover	<i>Trifolium repens</i>
Wild Apple	<i>Malus sylvestris</i>
Wild Privet	<i>Ligustrum vulgare</i>
Wild Teasel	<i>Dipsacus fullonum</i>
Wood Meadow Grass	<i>Poa nemoralis</i>
Yarrow	<i>Achillea millefolium</i>

APPENDIX III: LOCAL BAP HABITATS AND SPECIES

The UK is signed up to the Biodiversity Convention and has prepared a Biodiversity Action Plan to help conserve Priority Species and Habitats. Local Biodiversity Action Plans are encouraged to help achieve the conservation of local priorities. "WILDthings" is the name given to the Bath and North East Somerset area Local Biodiversity Action Plan which was launched in 2000. The area is also covered by Avon Local Biodiversity Action Plan and details of both are provided below.

WILDthings Biodiversity Action Plan

WILDthings action is targeted at species and habitats of greatest conservation value, delivering both national and local conservation targets.

In autumn 2003 an audit of all rare species and habitats within the Bath & North East Somerset area was carried out by the Species and Habitats group. This information was considered necessary to help promote targeted protection and monitoring of rare habitats and species within the area. More information is available on the WILDthings website (www.wildthingsbap.org.uk).

The audit resulted in a full list of priority rare species and habitats and this was published in 2004 as the 'Long list'. The list includes 11 habitats and over 450 species and forms a framework for action across the area. From this Long List, a Short List of 11 priority species and 5 priority habitats was produced.

B&NES specific, 3 year action plans are being produced for all of the 'Short list' species and habitats. This short list provides a focus and manageable priorities for the immediate future. The list has been agreed with the Species and Habitats Working Group and concentrates on achieving Action Plans for these species and habitats. It does not preclude action on other species on the Long List when opportunities arise.

Species and habitats on the Short List are:

- **Species**
 - All bats
 - Bath asparagus
 - Bee-fly

Blue Carpenter Bee
Chalkhill Blue Butterfly
Dormouse
Great Crested Newt
Red Hemp-nettle
Skylark
Wolverine
White-clawed Crayfish

- **Habitats**

Ancient and/or Species-rich Hedgerows
Broadleaf Woodlands
Post-industrial Sites
Species-rich Arable Farmland
Species-rich Grassland

Avon Biodiversity Action Plan

The Avon Biodiversity Partnership was formed in 2000 with the setting up of the steering group. It has developed since then to encompass a wide range of statutory and non-statutory bodies. The Partnership's vision for Avon is as follows:

A landscape rich in wildlife, where species and habitats are part of healthy, functioning ecosystems that are well-managed and valued by everyone; where conservation of biodiversity is integrated with social, cultural and economic activities.

The Avon Biodiversity Partnership will:

- Champion and promote local biodiversity and its distinctiveness;
- Implement actions in order to achieve the objectives and meet the targets outlined in the Avon Biodiversity Action Plan;
- Facilitate communication and sharing of best-practice and skills;
- Seek opportunities for joint projects where possible;
- Monitor biodiversity and biodiversity action; and
- Report back annually on its achievements.

Some of the most relevant species and habitats listed within the Avon BAP are listed below:

- **Species**

- All bats
- Water Vole
- Dormouse
- Great Crested Newt
- White-clawed Crayfish
- Bullhead
- Otter
- Kingfisher
- Barn Owl
- Slow Worm
- Grass Snake
- Common Lizard
- Common Toad
- Common Frog
- Palmate Newt
- Smooth Newt
- Badger

- **Habitats**

- Hedgerows
- Woodlands
- Wood pasture and parkland
- Standing open water
- Watercourses and floodplain
- Arable Farmland
- Species-rich Grassland

APPENDIX IV: SUMMARY OF LEGAL PROTECTION OF BRITISH ANIMALS AND PLANTS

This is a general summary only. The original legislation should be consulted and utilised for any formal purposes.

EC Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive)

Directives are legally binding European Union (EU) laws but they must be transposed into the national law of EU Member States to become 'effective'. Directives allow the national authorities to decide on the method and form with which they transpose the Directives. Member States have also to ensure that the objectives of the Directive are met in practice (practical implementation), in other words they are obliged to enforce as well as implement Directives. The Habitats Directive is the principle EU legal instrument for biodiversity conservation. Any EU citizen has the right to lay a written complaint before the Commission concerning the adoption by any Member State of measures or practices contrary to the environmental legislation of the Community.

The Directive states that:

Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV in their natural range, prohibiting:

- *all forms of deliberate capture, injury or killing of specimens of these species in the wild;*
- *deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration;*
- *deliberate destruction or taking of eggs from the wild;*
- *deterioration or destruction of breeding sites or resting places.*

The Directive also states that each Member State is to designate Special Areas of Conservation (SAC) sites which host natural habitat types listed in Annex I of the Directive and which host species listed in Annex II (which includes four species of British bats) of the Directive.

The Conservation (Natural Habitats, &c.) Regulations 1994 (“Habitats Regulations”) as amended

The Habitats Regulations implement the provisions of the EC Habitats Directive for the purposes of British law.

For all species listed on Schedule 2 of the Conservation Regulations (Annex IV of the Habitats Directive), this makes it an offence:

- to deliberately capture, injure or kill a wild animal of a European protected species;
- to deliberately disturb any such animal in such a way as to be likely significantly to affect the ability of any significant group of that species to survive, breed, or rear or nurture their young, or the local distribution or abundance of that species;
- to deliberately take or destroy the eggs of such an animal; or
- to damage or destroy a breeding site or resting place of such an animal.

Any activity that would result in a contravention of the above legislation would require a licence to avoid committing an offence. Natural England has powers to grant a licence for the following purposes:

- Regulation 44(2)(e) - preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;
- Regulation 44(2)(f) - preventing the spread of disease; or
- Regulation 44(2)(g) - preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber or any other form of property or to fisheries.

In addition, Natural England can only issue a Habitat Regulations licence if it is satisfied that the activity meets one of the above purposes and is also satisfied of the following;

- Regulation 44(3)(a) - that there is no satisfactory alternative, and
- Regulation 44(3)(b) - that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Under the **Wildlife and Countryside Act 1981 (W&CA) (as amended)**, it is a further offence to intentionally or recklessly disturb (including low levels of disturbance) any animal included in Schedule 5 whilst it is occupying a structure or place which it uses for the purposes of shelter or protection, or to obstruct access to such a place.

Bats

All species of British bat are fully protected under Schedule 5 of the W&CA 1981 (as amended) and Schedule 2 of the Conservation (Natural Habitats & c.) Regulations 1994, with protection further extended by the Countryside and Rights of Way Act 2000. Four of the sixteen species of bat (Greater Horseshoe *Rhinolophus ferrumequinum* Lesser Horseshoe *Rhinolophus hipposideros*, Barbastelle *Barbastella barbastellus* and Bechstein's *Myotis bechsteinii*) resident in the UK are given further protection through the designation of cSACs (Special Areas of Conservation) due to their inclusion on Annex II of the Habitats Directive. All four of these species in addition to the 'Pipistrelle' (comprising of both the Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus*) are also listed as priority species on the UK Biodiversity Action Plan (BAP).

Birds

All wild birds are protected under Section 1 of the W&CA 1981 (as amended), and the Countryside and Rights of Way Act 2000 extended to this protection. This makes it an offence to intentionally kill or injure any wild bird or to damage or destroy any active bird's nests or its eggs. Further protection is given to bird species listed under Schedule 1 of the W&CA, which further protects these species from intentional or reckless disturbance whilst nesting, or disturbance of the dependent young of that species.

Badgers

Badgers are protected under the Protection of Badgers Act 1992. This makes it an offence to kill, injure or take a badger or attempt to do so, to intentionally or recklessly damage, destroy or obstruct access to a badger sett, or to disturb a badger whilst it is occupying a sett.

Dormice

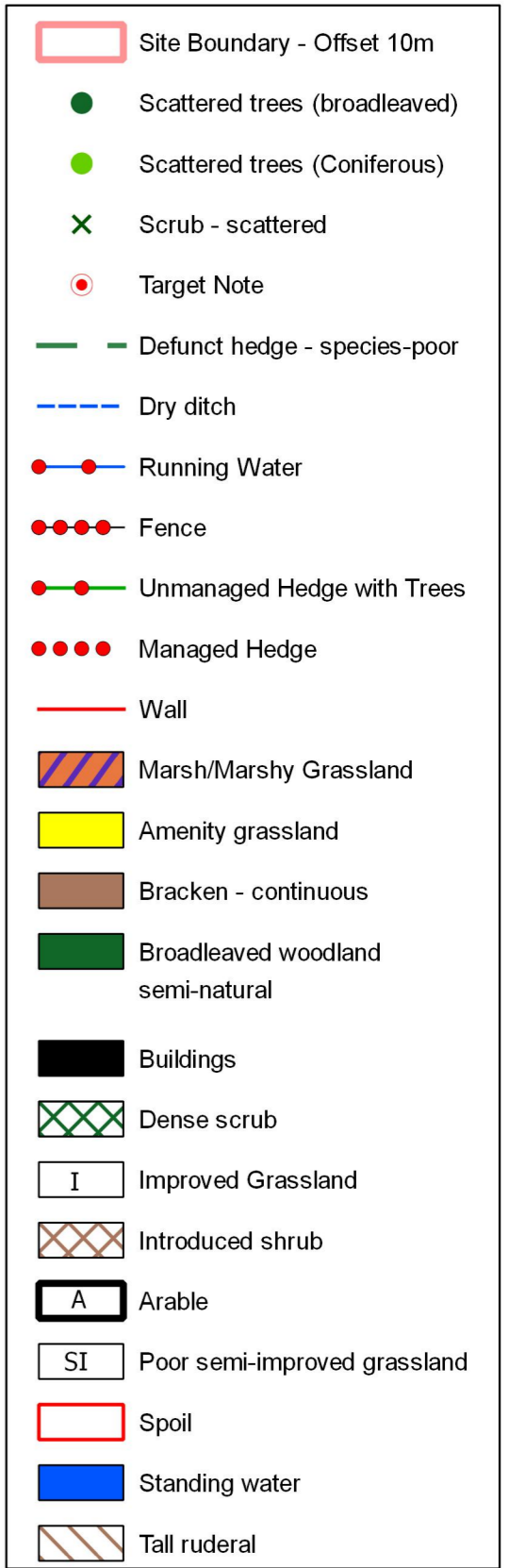
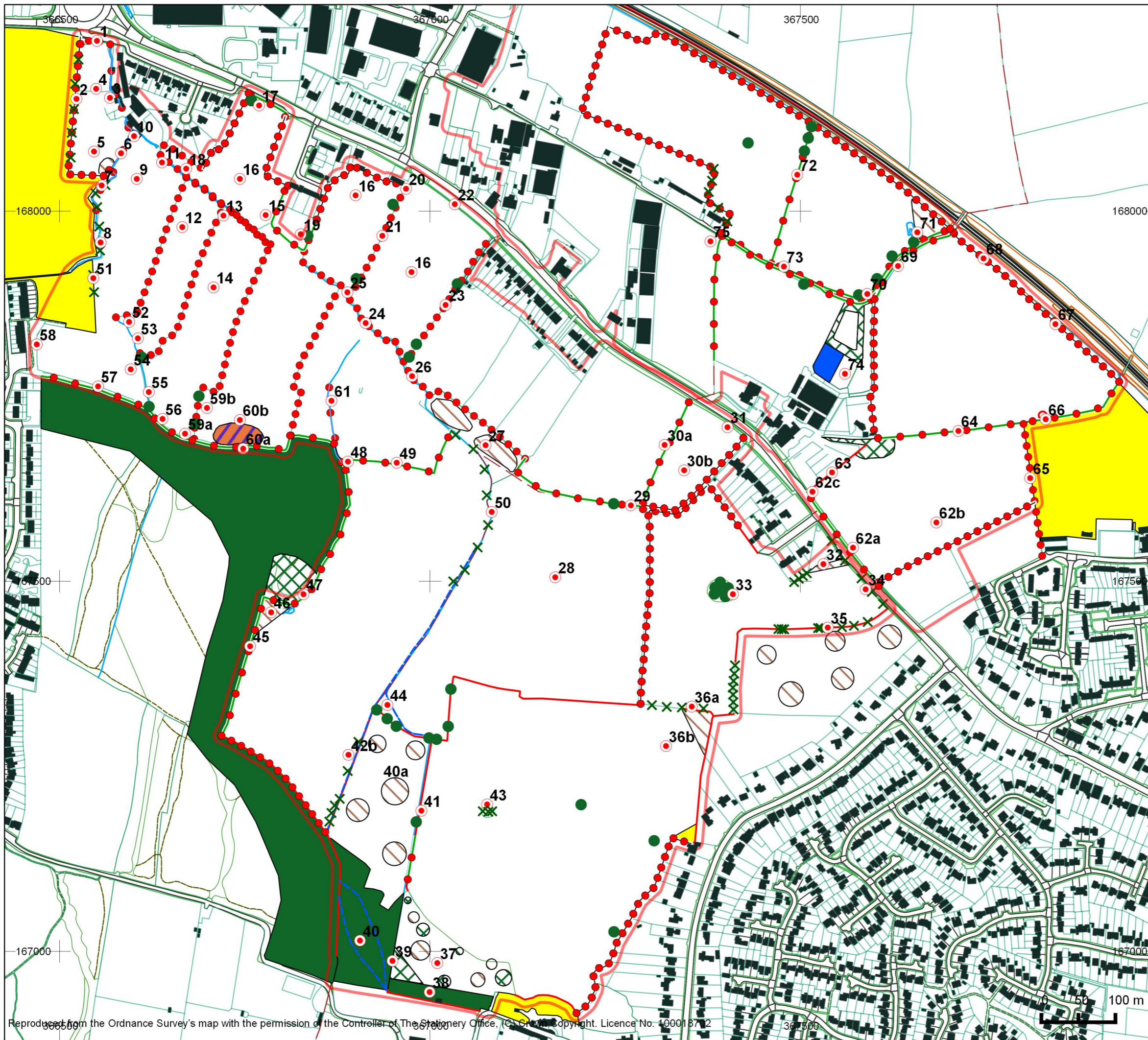
Dormice and their resting places are fully protected under Schedule 5 of the W&CA 1981 (as amended) and Schedule 2 of the Conservation (Natural Habitats & c.) Regulations 1994. It is illegal to intentionally or deliberately capture or kill, or intentionally injure dormice, deliberately disturb dormice or intentionally or recklessly disturb them in a place used for shelter or protection, damage or destroy a breeding Site or resting place, or intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection.

Great Crested Newts

Great Crested Newts and their resting places are fully protected under Schedule 5 of the W&CA 1981 (as amended) and Schedule 2 of the Conservation (Natural Habitats & c.) Regulations 1994, with protection further extended by the Countryside and Rights of Way Act 2000. Good assemblages of other common amphibian species e.g. Common Frog and Smooth Newt can also merit special conservation effort. Taken together it is illegal to intentionally or deliberately capture or kill, or intentionally injure Great Crested Newts, deliberately disturb Great Crested Newts or intentionally or recklessly disturb them in a place used for shelter or protection, damage or destroy a breeding Site or resting place, or intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection.

Reptiles

All common reptiles (Common Lizard *Lacerta vivipara*, Grass snake *Natrix natrix*, Slow-worm *Anguis fragilis* and Adder *Vipera berus*) receive partial protection under Schedule 5 (part 9 (1)) of the W&CA 1981 (as amended). This legislation protects these species from intentional killing or injury.



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Land East of Keynsham

Figure - Extended Phase 1 Habitat Survey

October 2013 10644 MAM

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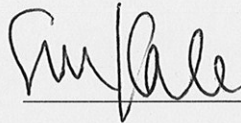


Senior Ecologist

7.11.2013

Checked by:

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Managing Director

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