

Charnwood Borough Council

Phase 1 Vegetation and Habitat
Surveys

Stage 1

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Surveys

Stage 1

August 2008

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Appendix 1	Hedgerow Survey Forms
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1. INTRODUCTION & BRIEF

White Young Green Environmental (WYGE) was commissioned by Charnwood Borough Council (CBC) to undertake extended phase one surveys of seven Potential Areas for Growth in proximity to urban areas within the Borough of Charnwood. This survey will form part of the evidence base for the Local Development Framework and be used to inform the decisions about the future development of the Borough. These are detailed in Table 1 below:

Table 1: Potential Areas for Growth

Potential Areas for Growth	
Location	Approximate Area* (ha)
East of Thurmaston / North of Hamilton	549
North of Birstall	207
South of Anstey / North of Glenfield	192
West of Shepshed	276
West of Loughborough	185
North of Loughborough	231
South of Loughborough	329
East of Loughborough (Near Cotes)	572
East of Loughborough (Wymeswold Airfield)	462
Total	3003

* All values taken from data supplied by Charnwood Borough Council with the exception of land east of Loughborough, which has been estimated by WYGE.

It should be noted that in some of the original survey areas, the boundaries crossed the centre of large arable fields. With agreement from CBC, the survey areas have been extended to the nearest definable field boundaries which have resulted in a slight increase in the survey areas.

2. EXISTING INFORMATION

2.1 Aerial Photography

The entire Borough of Charnwood was mapped from the air during August and September 2006. This information has been used to map the locations of obvious features such as arable fields, hedgerows, blocks of woodland, water courses etc and was also used to identify areas of interest such as ponds and areas of grassland that were not obviously agriculturally improved. This information was incorporated onto the field survey map sheets prior to the surveys taking place and this process resulted in increased efficiency in mapping in the field. It should be noted that some temporary habitat types e.g. set aside have changed locations since the aerial photography took place and a very few hedgerows had been removed since the aerial photography took place.

2.2 Designated Sites

Charnwood has completed the upgrading of the old County, District and Parish Level Sites and assessed them against the new, stricter criteria for Local Wildlife Sites (LWS). There is thus extensive information on designated sites within the Borough. Charnwood has been extensively surveyed between 1999 and 2005 inclusive and just over 4% of the Borough has been designated under LWS criteria.

Sites already qualifying as Sites of Special Scientific Interest were not designated as LWS. Designated habitats comprise ancient woodland, species-rich hedgerows, unimproved and semi-improved grassland (acidic, neutral, calcareous and wet grassland being represented), ponds and four of the major water courses traversing the Borough. The latter comprise the River Soar, River Wreake, the Black Brook and Rothley Brook. Other water courses remain to be surveyed and include the Grace Dieu Brook (only part of which is within Charnwood), Queniborough Brook, Barkby Brook and Melton Brook. Of these undesignated water courses, all except Grace Dieu Brook have been excluded from the proposed Areas for Growth although they occur in close proximity to the survey boundaries (i.e. within 0.5km in

some cases). Grace Dieu Brook forms part of the northern boundary to the West of Shepshed map although only a short length of this brook (approximately 2km) lies within Charnwood Borough, the remainder being in North West Leicestershire.

In accordance with the LWS criteria, sites are deemed necessary for re-survey after a set period of time, ten years for hedgerows, woodlands, water courses and veteran trees and five years for grassland sites. This re-surveying is necessary due to the speed of habitat change that can affect especially grassland sites through inappropriate management regimes or by neglect. Some of the grassland LWS have survey data that is more than five years old and is therefore out of date although it is considered unlikely that any of these sites exist within or directly adjacent to any of the Potential Areas for Growth boundaries.

Some LWS have other designations e.g. Mucklin Wood LWS is also registered ancient woodland. For reasons of clarity, those sites that have multiple designations have been shown as LWS on their relevant maps as it is not possible to portray multiple designations for individual sites.

2.3 Veteran Trees

The majority of the Borough has also been surveyed for veteran trees although the recording in some parishes is recognized to be incomplete whilst a few parishes (e.g. Wymeswold) have yet to be surveyed. There are thus likely to be un-recorded veteran trees within some of the Potential Areas for Growth, especially to the east of Loughborough.

Generally, individual veteran trees have not been designated as LWS except where they contribute to habitats that meet the LWS criteria for additional reasons (e.g. along water courses or within species-rich hedgerows). The location of these veteran trees has been plotted to eight-figure grid references; paper maps of veteran trees also exist on a parish by parish basis.

3. FIELD SURVEY METHODOLOGIES

3.1 Survey Boundaries

The survey boundaries for the seven Potential Areas for Growth were provided by CBC and largely comprise agricultural land in proximity to the Principal Major Urban Area of Leicester and the Sub-Regional Centre of Loughborough and Shepshed.

Land within the flood plain of river systems and other more minor water courses has been largely excluded from these Potential Areas for Growth, as also have existing designated sites (LWS, SSSI) and Parish Level Sites that do not meet the stricter criteria for LWS designation. However, some of these Parish Level Sites are of local importance for wildlife and may contain locally notable species.

Veteran trees, including some that meet the LWS criteria (but which have not been designated – see section 2.3 above) are located within the Potential Areas for Growth. Previously unrecorded veteran trees were found during the extended phase one surveys and the locations of these have been target noted. The field survey forms of these additional trees can be found in Appendix 2.

3.2 Extended Phase 1 Vegetation and Habitat Survey

All of the Potential Areas for Growth were surveyed in accordance with the standard published Phase 1 Survey methodology (JNCC, 2003) to individual field level, recording all boundary types and identifying habitats and features of substantive biodiversity and nature conservation value, especially UK priority habitats. In accordance with the published methodology, the survey did not record all plant species, but sufficient to allow habitat type to be confirmed and to identify areas and features of substantive value.

The survey comprised an 'Extended Phase 1 Survey' through the recording of evidence of protected and/or notable species of flora and fauna and recording of habitats suitable for such species. Groups considered included higher and lower plants, mammals, birds, amphibians, reptiles and invertebrates and the survey recorded evidence of species and/or habitats likely to support populations or assemblages of substantive biodiversity and nature conservation value, particularly priority species.

The extended survey also identified significant habitat features which may act as wildlife corridors or stepping stones within the wider landscape and particularly those which may support priority species.

The survey identified significant habitats, species and other features which are priority habitats or species or which may act to support or function as habitats, wildlife corridors or stepping stones within the wider landscape and particularly those which may support priority species. Where necessary these features were target-noted to indicate accurate location and included:

- Supplementary information on sites, features and species of interest, particularly priority habitats and species;
- Information on sites too small to map and where habitat types are complex or doubtful (e.g. transitional and mixed habitats);
- Information on sites requiring further survey to assess conservation interest.

Habitats and features to be target noted were agreed with the Charnwood BC ecologist prior to the surveys commencing and comprise species-rich hedgerows, veteran trees (see sections below), semi-improved grassland containing indicator species of less improved swards and other habitats or features likely to support protected and other notable species (see below).

3.3 Hedgerows

The survey included a detailed survey of species-rich/ancient hedgerows. A species-rich hedgerow is defined in the UK Biodiversity Action Plan as having 5 or more native woody species on average in a 30 metre length.

As required by the specification, the survey methodology for species-rich hedgerows was in accordance with Defra (2007) 'Hedgerow Survey Handbook': A Standard Procedure for Local Surveys in the UK'. This was applied to all species-rich hedgerows and included production of survey data sheets for inclusion within the Stage 1 report (see Appendix 1. for further information).

All of the species-rich hedgerows (as defined by DEFRA) have been labelled H1 etc on their respective phase 1 and constraints maps.

Some hedgerows were recorded that were species-rich over their entire lengths but had no more than 4 native woody species in any given 30m sample section. These hedgerows were target noted and native woody species present were recorded although no further recording took place.

All other (species-poor) hedgerows were recorded to Phase 1 level only with target notes of notable features (e.g. standard trees) and dominant species recorded but no detailed survey undertaken.

3.4 Veteran Trees

Locations of veteran trees have been mapped and their locations plotted to eight-figure grid references. Veteran trees are defined by Defra as those which 'are or look old relative to others of the same species' and by Natural England as "a tree that is of interest biologically, culturally or aesthetically because of its age, size or condition'. The LWS selection criteria for mature trees were used to determine which trees fall within this category.

Characteristics included: very large girth; hollow or hollowing trunk; and a large quantity of dead wood in the canopy. Records of veteran trees included consideration of the following features:

- Girth large for the tree species concerned (i.e. more than 3.77m measured at 1.3m above ground level for the majority of tree species; [pedunculate oak, beech, sweet chestnut, willow and lime species] and more than 3m for ash, elm and poplar species).
- Major trunk cavities or progressive hollowing
- Large quantity of dead wood in the canopy
- Naturally forming water pools
- Decay holes
- Physical damage to trunk
- Bark loss
- Sap runs
- Crevices in the bark, under branches, or on the root plate sheltered from direct rainfall
- Fungal fruiting bodies (e.g. from heart rotting species)
- High number of interdependent wildlife species
- Epiphytic plants

3.5 Other Notable Habitats & Features

Habitats and features assessed as likely to support protected or otherwise notable species were recorded and target noted. These species included bats, badger, water vole, white-clawed crayfish and great-crested newt. A range of notable bird species were also recorded and included species listed on the RSPB Red List and Section 74 of the WCA (as amended).

Vascular plants listed in the Leicestershire Rare Plant Register (2007 update) were also recorded as also were other plant species with restricted distributions in the County.

Please note that information relating to sensitive species, including target notes, have been removed from this report.

Specific surveys for all of these species were outside the scope of this survey but evidence of these species was recorded where found.

Any notable habitats or features that were too small to map accurately were target noted.

3.6 Survey Limitations

The surveys were conducted during August and September 2007 at the end of the plant growing season, so some of the early flowering species (especially woodland species) could have been missed, however, assessment of woodland quality (ancient or secondary) could be made from the suite of plant species that were present. The compilation of full species-lists for each habitat was outside the scope of this survey.

As the scope of the survey was restricted to the individual survey areas and their immediate environs, the comparison with the surrounding landscape is of necessity somewhat restricted and can only provide an indication of comparative habitat quality.

4. EAST OF THURMASTON / NORTH OF HAMILTON

See Figures 1.1a, 1.1b, 1.1c, 2.1a, 2.1b and 2.1c

4.1 Overview & Summary Data

Intensively managed agricultural land dominates the landscape within this survey area, which is predominantly arable with scattered fields of improved or semi-improved grassland. Three fields are now used by a tree nursery to the west of Barkby Road, south of Queniborough. A few fields on the eastern fringe of Syston were in the process of being developed at the time of the survey and a new section of road has been constructed in this area, linking Syston with Queniborough Road.

Semi-improved grassland within the survey area was generally dominated by coarse grasses with ruderal herbs although the area encompassing the ruins of the medieval settlement at the southern end of the survey area (adjacent but outside the survey boundary) had a limited range of herbs associated with less improved swards.

The vast majority of the hedgerows are intensively managed (either regularly trimmed or flailed) and some, especially those bordering large arable fields have become gappy and defunct. The hedgerows bordering the active railway line and a few alongside the minor roads were tall and bushy. Only two species-rich hedgerows were found within this survey area, another two sections of hedgerow did not quite meet the DEFRA criteria for a species-rich hedgerow (these last two have been target noted).

Plantation woodland forms the majority of the woodland within this survey area, large blocks are located to the south of Barkby Lane in the village of Barkby (on the eastern boundary of the survey area) and a further two blocks east of Hamilton Lane. A linear shelterbelt is located at the extreme southern end of the survey area on both sides of Hamilton Lane. Large mature gardens situated between Barkby Lane and Barkby Thorpe Lane also have a high proportion of mature trees although this area could not be accessed.

Semi-natural woodland is restricted to small isolated pockets adjacent to Barkby Brook and Melton Brook with a further small copse of wet woodland surrounding a pond between King Street and Queen Street to the south of Barkby Thorpe village.

There are several standing water bodies within and adjacent to the survey area, all of these have been target noted. A flood storage lagoon has been constructed adjacent to recent development on the eastern fringe of Syston, this area has not been target noted but is described in the general habitat description section below.

Melton Brook and Barkby Brook cross the survey area and are obvious wildlife corridors in a predominantly arable landscape.

4.2 General Habitat Description

Plantation Woodland

The large area of plantation woodland to the south of Barkby village comprises both mixed and broad-leaved woodland, the mixed woodland being composed of relatively young fir (*Abies*) and spruce (*Picea*) trees with sycamore (*Acer pseudoplatanus*) and sapling wych elm (*Ulmus glabra*) along the boundaries. The ground flora in this area was extremely species-poor, being limited to small stands of stinging nettles (*Urtica dioica*).

The broad-leaved woodland in this area was dominated by mature pedunculate oak (*Quercus robur*) trees (two of which were assessed as having either high or moderate bat roost potential – see target notes TN8 and TN12). The shrub layer was composed of sapling pedunculate oak and sycamore, blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*) and hawthorn (*Crataegus monogyna*). The ground flora was composed of typical secondary woodland species and included red campion (*Silene dioica*), wood avens (*Geum urbanum*), stinging nettle, ground ivy (*Glechoma hederacea*) and bramble (*Rubus fruticosus* agg.).

The trees in the large gardens south of Barkby Lane included mature horse chestnut, cedar-of-Lebanon (*Cedrus libani*), common lime (*Tilia x europaea*), sycamore and other maple species and beech (*Fagus sylvatica*). A wide variety of garden shrubs was also present and included cherry-laurel (*Prunus laurocerasus*), firethorn (*Pyracantha coccinea*) and various cotoneaster species (*Cotoneaster* spp.) amongst others.

The plantation mixed woodland east of Hamilton Lane was dominated by mature sycamore, Scot's-pine (*Pinus sylvestris*) and European larch (*Larix decidua*) with a shrub layer dominated by hawthorn and elder with some field maple (*Acer campestre*) around the wood edges. The ground flora was species-poor (especially under the conifers) and was dominated by stinging nettles with some red campion.

The block of plantation broad-leaved woodland was dominated by mature pedunculate oak with a similar ground flora to the woodland described above. Both woods are used for game rearing, the larger, mixed woodland being outside (but immediately adjacent to) the survey boundary.

A small rectangular block of plantation mixed woodland located adjacent to the railway line was composed of silver birch (*Betula pendula*), fir species, ash (*Fraxinus excelsior*) and blackthorn with a species-poor ground flora dominated by stinging nettles.

The linear shelterbelt woodland at the southern end of the survey area was present on both sides of Hamilton Lane adjacent to the southern boundary of the survey area and was dominated by mature pedunculate oak and ash with a sparse shrub layer of hawthorn and elder. The ground flora was considered typical of secondary woodland and included bramble, hedge-garlic (*Alliaria petiolata*), false-brome (*Brachypodium sylvaticum*) and wood avens. No evidence of protected species was found in the sections directly adjoining the survey area, these sections of woodland being heavily used by people for informal recreation.

New woodland has been planted adjacent to an existing copse of mature pedunculate oak trees on the west side of Barkby Thorpe Road, to the south of Barkby Thorpe village. This new planting was approximately 0.5m in height at the time of the survey and included pedunculate oak and field maple beside other species.

Two small pockets of plantation woodland occur in close proximity to each other at the southern end of the survey area to the west of Hamilton Lane. The larger of these two blocks is mixed woodland composed of Scots pine, crack willow (*Salix fragilis*) and sycamore with a dense shrub layer comprising cherry-laurel, sapling sycamore and elder. The ground flora was dominated by stinging nettles. Birds recorded during the survey included song thrush and goldcrest and there is potential for protected species to occur. This wood has been target noted for this reason – see target note TN34.

The smaller block of woodland is more open in character and is dominated by sycamore with some ash. The ground flora is likewise species-poor, dominated by stinging nettles.

Very small blocks of plantation woodland occur outside but adjacent to the boundary in the south west corner of the survey area. Trees recorded included ash, aspen (*Populus tremula*), alder and blackthorn.

Three former arable fields at the northern end of the survey area now form part of a commercial tree nursery, located to the west of Barkby Road near the southern outskirts of Queniborough. These have been intensively planted with young trees, mainly native species such as oak, ash, field maple and wild cherry (*Prunus avium*). As these trees are in effect a commercial crop, they have been mapped as arable, not plantation woodland.

A small field adjacent to Barkby Brook to the south of the village of Barkby has been turned over to growing willow, probably for biofuel. This area has also been mapped as arable land.

Semi-natural Woodland

Very little semi-natural woodland exists within the survey boundaries in this area and is restricted to small isolated pockets.

A small stand located between the active railway line and an industrial estate (in the north west corner of the survey area) was dominated by wych elm, some of which were dead. Hawthorn and elder was locally present, the ground flora being dominated by stinging nettles.

A block of wet woodland encompassing a pond is located between King Street and Queen Street to the south of Barkby Thorpe village. This woodland is dominated by mature crack willow and ash, with some alder, pedunculate oak, blackthorn, hawthorn and elder. The ground flora is species-poor and dominated by stinging nettles. Other species recorded included red campion (*Silene dioica*), ground-ivy, wood avens and false brome.

Small copses of wet woodland occur within meanders of both Melton Brook and Barkby Brook although these areas are all outside the survey boundaries. Crack willows appear to be dominant in all areas, with ash and white willow (*Salix alba*) also present, elder bushes forming the shrub layer. The ground flora in all areas is species-poor, as is typical for wet woodland, dominated by dense stands of stinging nettles.

Scrub

There are no substantial areas of scrub within the survey area although small pockets occur in field corners and also in the north-west corner of the survey area, where Barkby Lane adjoins the railway line and as an isolated block in the centre of a field. Hawthorn dominated these areas with some blackthorn and elder. The ground flora in these areas is species-poor and typical of secondary woodland.

Improved Grassland

The improved grassland within the survey area is dominated by perennial rye-grass (*Lolium perenne*) and crested dog's-tail (*Cynosurus cristatus*) with few herbs dominated by white clover (*Trifolium repens*). Ruderal species were evident in most of these fields and included wormwood (*Artemisia absinthum*) besides common ragwort (*Senecio jacobaea*), broad-leaved dock (*Rumex obtusifolius*), stinging nettles and thistle species (*Cirsium* spp.). The majority of these fields were grazed by cattle at the time of the survey although some of the large fields at the southern end of the survey area had been recently cut for silage at the time of the survey.

Semi-improved Grassland

All of the semi-improved grassland within the survey area was of a rank nature, dominated by such coarse grasses as false oat-grass (*Arrhenatherum elatius*) and cock's-foot (*Dactylis glomerata*) with largely ruderal herbs such as broad-leaved dock, common ragwort, thistles and stinging nettle.

One small area within an improved grassland field on a west-facing bank was composed of fine-leaved grass species, dominated by red fescue (*Festuca rubra*). This area had a small population of mouse-eared hawkweed (*Pilosella officinarum*) and lesser trefoil (*Trifolium dubium*). This area is too small to map accurately and has been target noted – see target note TN4.

The grassland on the former medieval settlement outside and adjacent to the survey boundary at the southern end of the survey area was largely dominated by false oat-grass, cock's-foot and meadow foxtail (*Alopecurus pratensis*) but contained a limited number of species associated with less improved swards. These included hairy sedge (*Carex hirta*), meadow buttercup (*Ranunculus acris*), red clover (*Trifolium pratense*) and common sorrel (*Rumex acetosa*).

Wetland – Running Water

Melton Brook flows through the southern half of the survey area, in a westerly direction towards Hamilton. This brook is approximately 1.5m in width on average, widening to almost 2m at meanders. The banks vary in height from being low and of shallow gradient up to 1m in height with localised areas of low earth cliffs. The substrate is largely composed of earth and stones with small stretches of gravel substrate and exposed tree roots. The sections of Melton Brook adjacent to the survey boundaries have extensive cover of mature trees and shrubs including crack willow, white willow, ash and pedunculate oak. Shrubs are dominated by hawthorn and blackthorn with some elder. The brook is heavily shaded throughout with only limited marginal vegetation. Only small sections of this brook were considered to provide suitable habitat for water voles due to the short lengths of suitable bank, however the brook does provide suitable habitat for other Leicestershire Red Data Book/protected species.

Barkby Brook forms part of the north east boundary to the survey area to the south and west of the village of Barkby, flowing in a westerly direction. The easternmost part of the brook flows through dense plantation woodland which could not be accessed. It then flows alongside Main Street where there are areas of artificial stone bank, the brook being approximately 1.5m in width flowing over a substrate composed of mud and stones. There is extensive marginal vegetation in this area, dominated by reed sweet-grass (*Glyceria maxima*) and stinging nettle with some comfrey (*Symphytum officinale*), bulrush (*Typha latifolia*), angelica (*Angelica sylvestris*) and butterbur (*Petasites hybridus*). Species growing within the brook include branched bur-reed (*Sparganium erectum*), great hairy willowherb (*Epilobium hirsutum*) and brooklime (*Veronica beccabunga*). Trees growing beside the brook include mature pollard crack willows adjacent to Main Street with sapling ash and hawthorn, plus a mature black poplar hybrid (*Populus x canadensis*) on the south bank.

Barkby Brook then turns northwards where there is another section of artificial stone bank before flowing underneath Main Street. On the north side of the road, the brook flows through improved grassland with mature trees and shrubs composed of white and crack willows, ash and hawthorn. This section of the brook is heavily shaded and marginal vegetation is very limited. The banks are vertical and composed of earth with some stones, providing potential habitat for some Leicestershire Red Data Book/protected species.

Barkby Brook forms the western boundary to the section of survey area to the east of Syston, where the brook width is approximately 4m with shallow earth banks approximately 0.5m in height. There was a slow flow at the time of the survey over a substrate composed of silt and stones, with frequent submerged tree roots. This section of the brook was heavily shaded by overhanging trees, dominated by ash and crack willow with some sycamore. Marginal vegetation was practically absent and, together with the shallow nature of the brook banks, this section was considered to provide sub-optimal habitat for some Leicestershire Red Data Book/protected species. The entire section of Barkby Brook within and adjacent to the survey area provides suitable habitat for other Leicestershire Red Data Book/protected species.

A small stream flowed alongside hedgerows between Queniborough Road and Barkby Brook, the eastern part having a moderate flow over a substrate composed of mud and stones. The channel was approximately 2m in width with vertical earth banks up to 1m in height. Marginal vegetation was dominated by reed sweet-grass and stinging nettle. The stream was extensively shaded by hedgerow shrubs and mature willow trees.

Wetland – Standing Water

A flood storage lagoon has been recently created adjacent to new housing on the eastern fringe of Syston. This lagoon has moderately sloping banks that have been sown with grasses and locally planted with young trees and shrubs. Some marginal vegetation has been recently planted although this formed a sparse cover at the time of the survey, species including hard rush (*Juncus inflexus*) and bulrush. Creeping bent (*Agrostis stolonifera*) has colonised large parts of the shoreline and there is a small stand of common reed (*Phragmites australis*) at the eastern end. A juvenile grey heron was foraging here at the time of the survey. Despite the recent creation, this flood lagoon has the potential for breeding amphibians and will become more attractive to them as the vegetation becomes established.

A further 7 standing water bodies were located within the surveyed area and these have been target noted. All of these ponds also provide suitable breeding habitat for amphibians.

A small ornamental pond is located within amenity grassland adjacent to a house near the northern boundary of the surveyed area – see target note TN1. This area could not be accessed but was partly visible from a public footpath crossing the

adjacent arable field. There were some adjacent hawthorn bushes and the pond appeared to have been planted with ornamental aquatic and marginal species.

A small pond between arable fields is located adjacent to a public footpath 1 field to the north of Barkby Thorpe Lane – see target note TN9. This pond is approximately 5m across and estimated to be 0.5m in depth at the time of the survey. It is extensively surrounded by mature hawthorn scrub, which casts a deep shade over the majority of the pond. No aquatic flora was noted. A species-poor hedgerow forms the northern boundary to the pond.

The flood water lake (TN11) had formed in the corner of an improved grassland field and was estimated to be 0.5m in depth in the centre. This lake had very shallow muddy banks with no discernable aquatic vegetation and had a large flock of roosting black-headed gulls at the time of the survey.

A small pond adjacent to a species-poor hedgerow was located approximately 250m to the west of Queen Street surrounded by arable fields – see target note TN16. This pond was estimated to be 0.5m in depth in the centre and had steep earth banks approximately 0.5m in height. There was a fringe of marginal vegetation on the west bank dominated by small sweet-grass (*Glyceria declinata*) and great hairy willowherb, with an extensive cover of common duckweed (*Lemna minor*). The east bank and parts of the north bank were shaded by tall hawthorn bushes.

Another small pond was located adjacent to recently planted trees on the west side of Barkby Thorpe Road – see target note TN17. This pond had steep earth banks up to 0.5m, in height and was extensively shaded by hawthorn bushes on the east bank. Water depth was estimated at 0.5m in the centre, no aquatic vegetation was visible at the time of the survey.

A large pond located within woodland is situated between Queen Street and King Street to the south of Barkby Thorpe – see target note TN20. The woodland has already been described above, the trees casting deep shade over the majority of the pond, where there was some submerged dead wood and deep leaf litter. Aquatic vegetation included bulrush and great hairy willowherb and there was an extensive cover of common duckweed.

A very small pond was located within an improved grassland field to the north of Hamilton Lane – see target note TN22. This pond was approximately 1m square

and was surrounded by a fringe of tall ruderal vegetation comprising broad-leaved dock and thistles.

A wet ditch was located adjacent to the species-rich hedgerow to the east of Queen Street south of Barkby Thorpe – see target note TN21 and hedgerow description below.

Cultivated Land

The majority of the arable land within the survey boundary was intensively managed with a marginal flora composed of common and widespread species. Small areas adjacent to hedgerows and woodlands had been planted with maize as game cover.

Tall Herb / Tall Ruderal

This habitat was scattered across the entire survey area but was generally too small in extent to map accurately. Tall ruderal vegetation was extensively present on both sides of the active railway line, composed of thistles, stinging nettle, common ragwort, rosebay willowherb (*Chamerion angustifolium*) and mugwort (*Artemisia vulgaris*).

Species-rich Hedgerows

Two hedgerows were identified that met the DEFRA definition of a species-rich hedgerow and these have been labelled H1 and H2 on Figures 1.1a and 1.1b. Of these hedgerows, only H2 probably meets the LWS criteria for species assemblage and associated features – see section 4.7.1.

Hedgerow H1 comprised a short length of hedgerow alongside a public footpath between arable fields. This hedgerow was approximately 2m in height and 1.5m in width, being unmanaged at the time of the survey. The central 30m section was sampled, yielding a total of five native woody species comprising elder, wych elm suckers, dog rose (*Rosa canina*), hawthorn and two (presumably planted) young pedunculate oak trees. No further woody species were recorded along the length of this hedgerow. Bramble formed approximately 5% of the sample section. High nutrient input from the arable land was reflected in the approximate 90% cover of stinging nettles and 60 – 70% cover of cleavers (*Galium aparine*) within the hedgerow.

Hedgerow H2 was located alongside a small stream to the west of Queniborough Road. It was approximately 2m in height and up to 3m in width, being unmanaged at the time of the survey. The central 30m section was sampled, yielding five native woody species comprising ash, elder, wych elm, dog rose and hawthorn. Other native woody species recorded elsewhere along this hedgerow comprised crack willow, pedunculate oak and field rose (*Rosa arvensis*). Climbing species recorded included bramble and bittersweet (*Solanum dulcamara*). Goldfinch, robin and common darter dragonfly were recorded along this hedgerow during the survey.

A further two hedgerows were recorded that appeared to be species-rich but had no more than four native species in their central 30m sample sections – these have been target noted.

The first of these sections has been target noted TN21 and is located to the east of Queen Street to the south west of Barkby Thorpe village. This hedgerow was approximately 2m in height and 1.5m in width, dominated by hawthorn. Other species recorded along its length comprised dogwood (*Cornus sanguinea*), elder, field maple and dog rose with some sapling ash trees, a total of six native woody species overall. Two 30m sections were sampled along the length of this hedgerow and no more than four native species were recorded in either.

The second of these hedgerows is located approximately equidistant between Hamilton Road and the Hamilton suburb of Leicester between arable fields – see target note TN32. This hedgerow was approximately 2m in height and 1.5m in width, being unmanaged at the time of the survey. Hawthorn was dominant, other native woody species comprising crab apple (*Malus sylvestris*), elder, ash, blackthorn, dog rose and field maple – a total of seven native woody species. The central 30m section was sampled, yielding a maximum of four native woody species. Four yellowhammers and a song thrush were recorded from this hedgerow during the survey.

Species-poor Hedgerows

The remainder of the hedgerows within the survey area were species-poor, being dominated by hawthorn, although some were dominated by blackthorn and a very few had young wych elm as the dominant species. Common associated species included elder, ash, pedunculate oak, sycamore and dog rose. The majority of these hedgerows were intensively managed being approximately 1.5m in height and regularly trimmed or flailed. The ground flora of these hedgerows was dominated by stinging nettles, with false oat-grass (*Arrhenatherum elatius*),

common couch (*Elytrigia repens*) and scentless mayweed (*Tripleurospermum inodorum*) as constants.

Defunct Species-poor Hedgerows

A high proportion of the hedgerows in the central and northern parts of the survey area had become gappy and defunct although what remained was still intensively managed, being regularly trimmed or flailed. Hawthorn was almost exclusively the dominant species.

Trees

Many hedgerows included mature trees, many of which were assessed as being of high or moderate bat roost potential (these trees have been target noted – see section 4.4).

Trees planted around houses and other buildings included lines of Leyland cypress (*x Cupressocyparis leylandii*), various cultivars of domesticated apple (*Malus domestica*), horse chestnut and walnut (*Juglans regia*).

Invasive Species

No invasive species were recorded within the survey area.

4.2.1 Notable Habitats and Features

The overwhelming majority of the survey area was composed of intensively managed agricultural land of relatively low ecological value, Notable habitats and features recorded were two water courses (Melton and Barkby Brooks), species-rich hedgerows, veteran trees and field ponds.

Habitats that are likely to support protected species were also recorded and these included trees assessed as having high or moderate bat roost potential, ponds with potential for breeding amphibians (including great-crested newt) and woodland areas likely to have protected species. These have been target noted and are illustrated on Figure 1.1. Target notes are provided in Section 4.4 below.

4.2.2 Summary Data Table

Habitat/Feature	Extent	% of Area
Woodland & Scrub		
Broad-leaved Semi-natural Woodland	3.61ha	0.66%
Broad-leaved Plantation Broadleaf Woodland	12.38ha.	2.26%
Coniferous Plantation Woodland	0.4995ha.	0.09%
Mixed Plantation Woodland	1.9247ha	0.35%
Dense Scrub	1.618ha.	0.29%
Grassland		
Poor Semi-improved Grassland	29.4287ha.	5.368%
Amenity Grassland	1.8638ha	0.34%
Improved Grassland	83.4155ha.	15.22%
Wetland & Watercourses		
Running Water	6,288m	n/a
Standing Water	0.4558ha.	0.083%
Other		
Arable	412.927ha.	75.33%
Boundaries		
Intact, Native Species-rich Hedge	205m	% of total hedgerow = 0.40
Intact, Species-poor Hedge	49,165m	% of total hedgerow = 94.11
Defunct, Species-poor Hedge	2,870m	% of total hedgerow = 5.49
Dry Ditch	1,379m	n/a

4.3 **Designated Sites**

There are no designated sites within the survey area.

There are seven Local Wildlife Sites within 1km of the survey area boundaries:

Syston Marsh (W 6212/1) is located approximately 0.75km to the west of the northern end of the surveyed area. This site comprises 2.3ha of mixed grassland, swamp and sedge beds plus a 70m length of species-rich hedgerow. This site has also been designated under community criteria in addition to the above important habitat types.

Syston Marsh Extension (W 6212/3) is located approximately 0.78km to the west of the northern end of the survey area, in proximity to the above site. The extension comprises 2.5ha, of which 0.8ha is wet woodland, 0.3ha of swamps and fens (of which 0.2ha is sedge bed and 0.1ha of reed bed), 1ha of mixed species-rich grassland and a mature tree that meets the LWS criteria in its own right. Leicestershire Red Data Book species are also present.

Crane's Hole (W 6212/2) is located approximately 0.63km to the west of the northern end of the survey area and comprises a pond 0.1ha in extent that contains Leicestershire Red Data Book species.

Mere Lane Field (W 6411/1) is located approximately 0.73km to the east of the northern end of the survey area, south of Queniborough. This site comprises 0.8ha of species-rich mesotrophic grassland.

There are three other field ponds outside the survey area that have been designated as LWS due to their populations of Red Data Book species, one pond being north of Barkby Holt Lane (Ref. W6509/2) at SK 656099 and two ponds south of the lane (Ref. W6509/3 and Ref. W 6509/4) located at SK 657093 and SK 657096 respectively. All three of these ponds are approximately 1km to the east of the survey boundaries.

4.4 Target Notes

Target Note	Location (OSGR)	Description
TN1	SK 635121	An ornamental pond in a garden with potential for breeding amphibians.
TN2	SK 636113	A mature pedunculate oak tree with loose bark on a dead limb – assessed as moderate bat roost potential.
TN3	SK 637113	A mature ash stump approximately 3m in height with holes, assessed as moderate bat roost potential.

TN4	SK 638113	A small population of mouse-ear hawkweed and lesser trefoil on a west-facing bank within an improved grassland field.
TN5	SK 639110	A mature ash tree with a large crack in a major limb – assessed as moderate bat roost potential.
TN6	SK 634104	A mature ash tree with a broken hollow limb – assessed as moderate bat roost potential.
TN7	SK 619104	A mature ash tree with a large hole – assessed as moderate to high bat roost potential.
TN8	SK 634097	A mature oak tree with dead limbs and cracks – assessed as high bat roost potential.
TN9	SK 632096	A small field pond, suitable for breeding amphibians although shaded to some extent by surrounding hawthorns.
TN10	SK 633096	A mature dead ash tree assessed as high bat roost potential.
TN11	SK 630094	Two mature dead trees beside a flood water lake – both assessed as moderate to high bat roost potential. The lake had a muddy substrate and appeared devoid of marginal vegetation at the time of the survey.
TN12	SK 634094	A mature oak tree with dead limbs – assessed as moderate bat roost potential.
TN13	SK 629094	A mature dead ash tree – assessed as high bat roost potential.
TN14	SK 629091	A mature ash tree with old woodpecker nest holes – assessed as moderate bat roost potential.
TN15	SK 624087	A mature ash tree with hollow trunk – assessed as moderate to high bat roost potential.
TN16	SK 629089	A small pond with marginal vegetation, suitable for breeding amphibians.
TN17	SK 630086	A small pond with adjacent scrub and young trees, suitable for breeding

		amphibians.
TN18	SK 626086	A mature oak tree – assessed as moderate bat roost potential.
TN19	SK 626084	A mature oak tree with areas of loose bark – assessed as moderate bat roost potential.
TN20	SK 634089	A pond with aquatic vegetation within woodland and suitable for breeding amphibians.
TN21	SK 632087	A hedgerow with 5 native woody species along its length but a maximum of 4 in any given 30m section. An adjacent wet ditch was also present
TN22	SK 637082	A small pond within an improved grass field, with potential for breeding amphibians.
TN23	SK 640083	A mature oak tree that had been struck by lightning with loose bark – assessed as moderate bat roost potential.
TN24	SK 644083	A mature dead tree in an arable field outside the survey boundary. Assessed as high bat roost potential.
TN25	SK 641083	A mature oak tree with cracks in dead limbs – assessed as moderate bat roost potential.
TN26	SK 636081	A mature oak tree assessed as moderate bat roost potential. Tree 1 on Barkby Thorpe parish veteran tree register.
TN27	SK 649081	A mature pollarded ash tree with a dense covering of ivy – assessed as moderate bat roost potential.
TN28	SK 641079	A mature oak tree with loose bark on dead limbs – assessed as moderate bat roost potential.
TN29	SK 641078	A mature oak tree with loose bark on dead limbs – assessed as moderate bat roost potential.
TN30	SK 640078	A mature oak tree with dead major limbs assessed as moderate bat roost potential.

TN31	SK 638073	A mature ash tree with dead limbs and loose bark – assessed as moderate bat roost potential.
TN32	SK 640071	A hedgerow with 7 native woody species along its length although there were no more than 4 species in any given 30m section.
TN33	SK 6304 0818	A mature ash tree with trunk girth of 3.30m – Tree 2 on Barkby Thorpe parish veteran tree register.
TN34	SK 642073	Plantation mixed woodland with potential to support protected species. Song thrush was recorded here during the survey.

4.5 Priority Habitats

Habitats which are considered to qualify within the category of priority habitats as defined by the UK BAP and also currently listed as Habitats of Principal Importance under s74 of the Countryside and Rights of Way Act 2000 in the East of Thurmaston / North of Hamilton survey area comprised:

Two sections of **Species-rich Hedgerow** included a section south of Barkby Thorpe Lane (H1) and another section with adjacent stream located between Barkby Brook and Queniborough Road (H2). Of these two hedgerows, only H2 is considered at all likely to meet the LWS criteria (see section 4.7.1).

Another two sections of hedgerow were assessed as being species-rich over their entire lengths (TN21 and TN32) although their 30m sample sections yielded only four native woody species. These two hedgerows may nevertheless meet the LWS criteria on associated features (see section 4.7.1 below).

The small blocks of **Wet Woodland** in proximity to Melton Brook and Barkby Brook.

None of the grassland within or adjacent to the survey area was considered to fall within the definition of Lowland Meadow due to species-poor assemblages.

Habitat/Feature	Extent	% of Area
Ancient/Species-rich Hedgerow	205m	0.4% of total hedgerows

Habitat/Feature	Extent	% of Area
Wet Woodland	3.61ha	0.66%

Revised UK BAP List

The revised list of UK BAP Priority Habitats widens the scope for some habitat types and additional habitat types within the surveyed area include the following:

All of the eight field **Ponds**; it is considered that these ponds may qualify as priority habitat as defined by the UK BAP, due to the possible presence of scarce or notable species.

The scope for **Hedgerows** has been widened and now includes all hedgerows with 80% or more cover of native tree/shrub species. This would include the majority of the hedgerows within the survey area.

The increased scope for **Rivers** has not been defined at the time of writing although this type is likely to include all natural or near natural running waters. This would include both Melton and Barkby Brooks.

4.6 Wildlife Corridors

The landscape within this survey area has become fragmented to some extent, largely due to the removal of hedgerows in the past creating larger fields and the intensive management regimes to which the majority of the remaining hedgerows are subjected. There are thus few possibilities for woodland animals (especially bats) to move across the survey area.

Feature	Location (OSGR)	Extent	Description & Function
Melton Brook	SK 626082 to SK 641076	1.5km	A moderately flowing brook over a largely muddy substrate with short sections of gravel substrate and vertical earth banks providing habitat for Leicestershire Red Data Book/protected species and allowing interchange of animals between various small water courses within

			the wider landscape. Some sections of the brook are lined with mature trees and small blocks of wet woodland, likely to provide foraging and commuting routes for bats in particular.
Barkby Brook	SK 633107 to SK 635097	1.5km	A moderately flowing brook over a substrate composed of mud and stones with some areas of gravel and steep earth banks providing suitable habitat for Leicestershire Red Data Book/protected species (although some short sections were sub-optimal), allowing interchange of animals between a network of small water courses within the wider landscape. The brook is bordered by mature trees and shrubs, providing foraging and commuting routes for bats and habitats for other fauna including bird and terrestrial invertebrate assemblages.
Hedgerow TN21	SK 630084 to SK 635087	0.25km	A species-rich hedgerow with adjacent wet ditch connecting the pond and surrounding woodland indirectly with Melton Brook providing foraging and commuting routes for bats and habitats for other fauna including bird and terrestrial invertebrate assemblages.
Hedgerows north of Hamilton Lane	SK 640076 to SK 644086	0.5km	These hedgerows connect two areas of mature plantation woodland indirectly with Melton Brook, linking trees with bat roost potential with foraging areas along Melton Brook.
Hedgerow H2 and adjacent	SK637105 to SK 634106	0.35km	These hedgerows with adjacent stream link areas of plantation woodland and

Hedgerows with stream			water bodies within Barkby Hall Estate with Barkby Brook, allowing the interchange of animals, particularly water vole and bats besides other fauna groups including birds and both terrestrial and aquatic invertebrates.
Southern Boundary Hedgerow	SK 638069 to SK 645068	0.75km	This hedgerow connects an area of mature shelterbelt woodland adjacent to Hamilton Lane with small areas of plantation woodland on the eastern outskirts of Hamilton.
Hedgerows Adjacent to the railway Line	SK 621110 to SK 620093	1.5km	These hedgerows are largely tall and bushy, providing good quality foraging and commuting corridors for bats, linking potential pipistrelle roosts in suburban houses to the north and south of the survey boundaries. These hedgerows are also of importance as dispersal corridors for birds and terrestrial invertebrates.

4.7 Recommendations for Further Investigation

A number of areas were identified that merit further botanical survey work and these are detailed under Potential Wildlife Sites below.

All of the road verges within the survey area were species-poor and dominated by coarse grass species although some taller herbs e.g. black knapweed (*Centaurea nigra*) were very locally present.

A patch of dense scrub on the southern boundary of the survey area (target note TN34) provides potential habitat for protected species. A protected species survey of this area is recommended.

The areas of mature plantation woodland east of Hamilton Lane were surveyed in 2004 when no evidence of protected species was found. However it is considered possible that protected species could have colonised these woodlands in the intervening years. The plantation woodland immediately south of Barkby Village also has the potential to support protected species. Protected species surveys of these areas are recommended.

All of the ponds within the survey area have the potential to support breeding amphibians (including great-crested newts). Further amphibian survey work is recommended in all ponds, especially as species have been previously been recorded within 1km of the eastern survey area boundary near the village of Beeby.

4.7.1 Potential Wildlife Sites

Areas which are considered to merit further investigation with regard to Local Wildlife Site criteria are:

- Melton Brook and Barkby Brook both contain sections of gravel substrate, riffle and pool systems and areas of moss-covered boulders. Both sections of these brooks within the survey area probably meet the LWS criteria for Streams and Rivers (order <4).
- One of the two sections of species-rich hedgerow (H2) probably meets the LWS criteria on average number of native woody species and associated features. Hedgerow H1 is considered unlikely to meet the LWS criteria as it only had five native woody species along its length and it is coincidental that there happened to be five species within the central 30m sample section.
- In addition, two further hedgerows (TN21 and TN32) were identified as being species-rich over their entire lengths but no more than four native woody species were recorded from the central 30m sample section. These hedgerows could conceivably meet the LWS criteria and further 30m sections should be surveyed and assessed.
- All eight of the field ponds within or directly adjoining the survey area could support breeding populations of great-crested newts. If they are proved to be present, these ponds would then meet the LWS criteria (presence of Red Data Book species).

- No additional veteran trees were identified that had not previously been recorded and documented.
- Three areas of wet woodland were identified although all of these are considered to be below the size threshold for LWS designation. All three of these woodland areas are outside but immediately adjacent to the survey boundary.

4.7.2 Wildlife Corridor Management

Protected species surveys of both Melton Brook and Barkby Brook may inform future management priorities.

4.8 **Summary of Key Ecological Resources**

There are no designated Local Wildlife Sites within the survey boundary although there is a total of seven LWS within 1km of the survey area boundaries: Syston Marsh, Syston Marsh Extension, Crane's Hole and Mere Lane Field plus another three field ponds within 1km of the eastern boundary (and outside the survey area). These three ponds have been designated LWS due to their populations of Red Data Book species.

There are no other designated sites within 1km of the surveyed area.

A further five locations were identified within the surveyed area that may meet the LWS criteria including both Melton and Barkby Brooks and three sections of species-rich hedgerow (H2 and hedgerows TN21 and TN32). Hedgerow H1 is considered unlikely to meet the LWS criteria due to the relatively low total of native woody species along its length.

All of the ponds within the survey area may also meet the LWS criteria should they be proved to support breeding populations of amphibians (including great-crested newt).

The designation of these sites as LWS (assuming they meet the criteria) would contribute to and enhance the wildlife value of the landscape. Sympathetic management of these sites would also allow movement of species between sites and beyond the surveyed area.

4.9 Comparison with Surrounding Landscape

The survey area was considered to be typical of the surrounding landscape, i.e. large agricultural fields (both arable and pasture) with either no field boundaries or species-poor, intensively managed hedgerows. Woodland is generally scarce in this area, being restricted to small blocks of plantation woodland less than 200 years old and with species-poor ground floras. Melton and Barkby Brooks provide some wildlife interest and are of importance as wildlife corridors allowing movement of animals that would otherwise involve them crossing unsuitable, intensively managed habitat. The ponds within 1km of the survey boundary probably support breeding populations of Leicestershire Red Data Book/protected species and those ponds within the survey area also have the potential to do so.

5. NORTH OF BIRSTALL

See Figures 1.2 and 2.2

5.1 Overview & Summary Data

This study area was dominated by intensively managed agricultural land although part of Rothley Golf Course is within the survey boundary, dominated by amenity grassland. All of the remaining grassland within the survey area was either species-poor semi-improved grassland with ruderal herbs or had been sown in strips around the perimeters of arable fields as part of game rearing operations.

Rothley Brook formed part of the northern boundary of the survey area, the entire brook having been designated a LWS in 2006. Five ponds were located either within or immediately adjacent to the survey area and these have been target noted.

The majority of the hedgerows within the survey area were species-poor and intensively managed (either regularly trimmed or flailed) although the hedgerows bordering the golf course, the western boundary hedgerow and those along a green lane immediately to the west of the sewage works were tall and bushy.

Two sections of ancient species-rich hedgerows were identified during the survey and these have been labelled H1 and H2 on Figure 1.2.

There are several areas of plantation woodland including a substantial strip which crosses the centre of the survey area (Broadnook Spinney). There were also several avenues of planted trees on the golf course in addition to small blocks of

plantation woodland. Semi-natural woodland was restricted to the Rothley Brook corridor, which was lined with mature trees.

Several veteran trees have been previously recorded prior to the survey, the majority of these being located in the vicinity of Rothley Golf Course.

The development of the Leicester North service station and associated infrastructure on the A6 / A46 roundabout took place after the survey work had been completed and does not appear on the plans for this reason.

5.2 General Habitat Description

Plantation Woodland

Broadnook Spinney comprises the largest area of plantation woodland within the survey area and comprises a long-established mature plantation dominated by ash with some pedunculate oak, wych elm, sycamore and field maple. The shrub layer is dominated by hawthorn with some elder and small amounts of yew (*Taxus baccata*) and holly (*Ilex aquifolium*). The ground flora is dominated by brambles and stinging nettles with dense trailing mats of ivy. Other ground flora species included false brome, herb-Robert (*Geranium robertianum*), red campion, wood dock (*Rumex sanguineus*) and hedge woundwort (*Stachys sylvatica*). A small patch of bluebells (*Hyacinthoides non-scripta*) was present in the centre of the plantation, measuring approximately 5m square.

Black Hovel Spinney is another block of plantation broad-leaved woodland dominated by mature oak and ash with a ground flora considered typical of secondary woodland composed of the same suite of species in Broadnook Spinney.

Other blocks of plantation broad-leaved woodland were present to the south of Rothley Golf Course and these had a similar species composition to the two above named woods.

An “L-shaped” block of woodland immediately to the south of the public footpath crossing the golf course was dominated by mature oak and ash with some wych elm, hawthorn and field maple. A single sapling smooth-leaved elm (*Ulmus carpiniifolius*) was located at the western end of the woodland adjacent to the track. The ground flora was composed of bramble, ivy, stinging nettle, wood avens, red

campion and false brome. A buzzard was present in this woodland during the survey.

Plantation woodland on the golf course included small blocks and lines of silver birch, ash, pedunculate oak, wild cherry, horse chestnut, sycamore and rowan (*Sorbus aucuparia*).

Newly planted broad-leaved woodland was located in rough grassland along the field edges on both sides of hedgerow H2 on the southern boundary of the survey area. These were approximately 0.5 to 1m in height and were still in their protective tubes. Species included field maple, hawthorn, ash and dog rose.

Established plantation woodland was also present along the eastern survey boundary, to the east of a green lane separating an arable field from the Severn Trent Water sewage treatment works. Tree species recorded included black poplar hybrids, white poplar, common lime, sycamore and field maple. A block of Scots-pine was present at the extreme southern end of the lane, with some sycamore intermixed. The denser part of this woodland was considered to be a potential location for protected species; several rabbit holes were present along the western edge near the track. This area of woodland has been target noted (TN19 on figure 1.2).

A small field between the A6 and Loughborough Road had been recently planted with Norway spruce (*Picea abies*).

Semi-natural Woodland

The only semi-natural woodland within the survey area comprised a line of mature ash and alder trees alongside Rothley Brook.

Scrub

There was a large area of dense scrub immediately to the north of some allotments to the west of Loughborough Road. This scrub formed a mosaic with tall ruderal and coarse semi-improved grassland, the areas that were not scrub were too small to map accurately. The scrub was dominated by hawthorn and goat willow with some blackthorn, wych elm and crab apple. The ground flora underneath this scrub was dominated by stinging nettles.

Small patches of scrub were present adjacent to the A6 north of the roundabout and in a band along the central reservation of this road opposite and to the north of

Woodcock Farm. Species included planted blackthorn, dog rose and guelder rose (*Viburnum opulus*).

Improved Grassland

It was considered that all of the grassland within the survey area was semi-improved as there was a wider diversity of herbs than is generally present in improved grassland (see below).

Semi-improved Grassland

The larger fields of semi-improved grassland within the survey boundaries were either grazed by cattle or horses or else were cut for silage. Perennial rye-grass, crested dog's-tail, false oat-grass and Yorkshire-fog (*Holcus lanatus*) were the dominant species. Herbs included red clover (*Trifolium pratense*), beaked hawk's-beard (*Crepis capillaris*), common vetch (*Vicia sativa*) and smooth tare (*Vicia tetrasperma*). Species occasionally recorded in some fields included tufted vetch (*Vicia cracca*), common sorrel (*Rumex acetosa*) and tall fescue (*Festuca arundinacea*).

Several fields had strips of grassland along their respective hedgerows and this is considered to be part of game rearing operations. Some of these strips had had young trees planted within them. The grassland was rank and dominated by such coarse species as false oat-grass and cock's-foot with some tufted hair-grass (*Deschampsia caespitosa*) in wetter areas. Herbs comprised mainly ruderal species such as common ragwort, thistles and docks.

The grassland forming part of the mosaic of dense scrub adjacent to the allotments was of a similar nature but also included large bindweed (*Calystegia sylvatica*).

The road verges of the A46 and A6 also comprised semi-improved grassland although the species assemblages contained a higher proportion of finer leaved grasses such as common bent (*Agrostis capillaris*) and red fescue. Herb species recorded included common vetch, tufted vetch, yarrow (*Achillea millefolium*), red clover, bird's-foot trefoil (*Lotus corniculatus*) and bristly ox-tongue (*Picris echioides*). A small amount of the garden escape broad-leaved everlasting pea (*Lathyrus latifolius*) was also recorded.

Amenity Grassland

Rothley Golf Course was largely composed of sown amenity grassland dominated by various cultivated fescue varieties. Herbs comprised typical lawn species such as daisy (*Bellis perennis*) and various dandelion species (*Taraxacum* spp.). The majority of this grassland is frequently mown.

Wetland – Running Water

Rothley Brook was the only running water within the survey area. This brook is approximately 4m in width and has a moderate to fast flow over substrates composed of mud, fine gravel and stones. The banks are vertical and vary in height up to 1m providing potential habitat for water voles. There are abundant submerged tree roots in places which, together with rocks provide refugia for white-clawed crayfish.

Wetland – Standing Water

There were five ponds within the survey area, all of these have been target noted – see section 5.4 and Figure 1.2. All of the ponds except TN20 were considered to provide suitable habitat for breeding amphibians, including great-crested newts.

Pond TN15 is a shallow artificial pond within the sewage treatment works, being approximately 5m square and estimated at 0.10m in depth in the centre. The earth banks were of moderate gradient and approximately 0.10m in height. The banks were largely devoid of vegetation for a band approximately 2m in width, with abundant stinging nettles beyond. No aquatic macrophytes were visible and there was a deep layer of leaf litter. This pond was surrounded by plantation woodland which cast a shade over the pond.

Pond TN16 is located opposite the above pond to the west of the green lane. This pond was surrounded by mature crack willows and was of a similar size to the above pond. However, the banks were of a shallow nature (approx 0.10m) with a very low water level (approximately 0.05m at the time of the survey). Stinging nettles dominated the pond, which is probably only seasonally wet. Dead branches and leaf litter were present in and around the pond.

Pond TN18 is an artificial pond created to attract wildfowl for shooting, located within Broadnook Spinney. It is approximately 30m in length and 15m in width, water depth being approximately 1m in the centre. The banks were composed of

earth and were almost vertical, up to 1m in height. Some burrows were seen around the banks during the survey although these were considered to have been made by brown rats. The banks were largely devoid of vegetation due to the trampling actions of the mallard ducks, a large flock of over 100 birds being present at the time of the survey. The water was of a cloudy nature and no aquatic macrophytes were visible. A willow tit was recorded in the surrounding scrub during the survey.

Pond TN20 was a small depression with concrete base and banks designed to take surface run-off from the A6 within a small traffic island near a garden nursery. This area was dry at the time of the survey and was surrounded by dense bramble. This pond is considered to be dry for long periods and only to hold water for a short time after heavy rain.

Pond TN21 was a small field pond at the eastern end of Broadnook Spinney. This pond was approximately 5m square, with shallow earth banks up to 0.2m in height. There were extensive muddy margins with a sparse flora of brooklime and celery-leaved buttercup (*Ranunculus sceleratus*). Dead branches and leaf litter was present in and around this pond.

There was a wet ditch adjacent to a species-poor hedgerow leading westwards from the northern end of the green lane on the east side of the A6. This ditch was approximately 1m in width with vertical earth banks, it had been recently cleared out prior to the survey and no marginal vegetation was present. The water depth at the bottom of the slope (on the green lane side) was estimated at 0.2m.

Cultivated Land

The majority of the arable land within the survey boundary was intensively managed with a marginal flora composed of common and widespread species. Small areas adjacent to hedgerows and woodlands had been planted as game cover, dominated by maize (*Zea mays*).

Tall Herb / Tall Ruderal

These habitats were present throughout the survey area but were generally too small to map accurately. These areas were generally in field corners, on road verges and around a manure heap. There was also some tall ruderal forming a mosaic with dense scrub and small patches of grassland north of the allotments. Stinging nettles dominated in all these areas, other species recorded included

mugwort, broad-leaved dock, spear thistle (*Cirsium vulgare*), creeping thistle, common ragwort and prickly lettuce (*Lactuca virosa*).

Species-rich Hedgerows

Two species-rich hedgerows were identified during the survey: H1 forming the southern boundary hedgerow to a bridleway crossing Rothley Golf Course and H2, forming part of the western boundary of the survey area to the south of the bridleway. Both hedgerows potentially meet the LWS criteria (see section 5.7.1 below).

Hedgerow H1 is approximately 3m in height on average (not including trees) and up to 2m in width. It had been trimmed on the track side but was unmanaged on the southern side. The central 30m section was sampled, yielding six native woody species, comprising blackthorn, wych elm, hawthorn, holly, field maple and pedunculate oak. Two further native species recorded outside this sample section comprised elder and crab apple, giving a total of eight native woody species along the length of the hedgerow. Two tree species had been planted: sycamore and common lime. This hedgerow contained some mature trees (mainly pedunculate oaks) although these were not considered to meet the criteria for veteran trees.

Climbers included bramble and ivy. Ground flora species were considered typical of secondary woodland and included red campion, hedge woundwort and stinging nettle.

Hedgerow H2 has been trimmed to approximately 2.5m in height and was up to 2m in width. The central 30m section was sampled, yielding five native woody species, comprising crab apple, blackthorn, dog rose, hawthorn and hazel (*Corylus avellana*). Other native woody species recorded outside the sample section comprised pedunculate oak, ash and field maple. This hedgerow included a mature ash tree with bat roost potential (see target note TN14). Bramble, black bryony (*Tamus communis*) and white bryony (*Brionia dioica*) comprised the climbing species recorded. Both reed bunting and yellowhammer were recorded in this hedgerow during the survey.

Species-poor Hedgerows

All of the remaining hedgerows within the survey area were assessed as being species-poor, dominated by hawthorn with some dominated by blackthorn. The hedgerow forming the western boundary to the green lane was dominated by wych

elm suckers. Common associated species included wild plum (*Prunus domestica*), dog rose, elder, ash and pedunculate oak. The majority of these hedgerows had been trimmed to approximately 1.5 to 2m in height although those to the south of Broadnook Spinney were generally much taller, up to 5m in height.

Defunct Species-poor Hedgerows

Only a short section of defunct hedgerow was recorded, approximately 50m of the western hedgerow forming the green lane. Hawthorn was the principal species.

A section of hedgerow on the east side of the junction between the A6 and A46 had been removed prior to the survey, evidence to suggest a recent fire was found at the time of the survey.

Trees

Many hedgerows included mature trees, many of which were assessed as being of high or moderate bat roost potential (these trees have been target noted – see section 5.4).

Trees planted around houses, the farm and the garden nursery included Leyland cypress (x *Cupressocyparis leylandii*), a Eucalyptus tree (*Eucalyptus* sp.) and various cultivars of wild cherry (*Prunus avium* vars.).

Ruined Building

A small ruined building was located adjacent to a species-poor hedgerow near the south west corner of the survey area. This comprised a “shell” of old brick walls, the roof having fallen in some considerable time prior to the survey. It was considered to be of negligible value to bats or nesting birds.

Invasive Species

No invasive species were recorded within the survey area.

5.2.1 Notable Habitats and Features

The overwhelming majority of the survey area was composed of intensively managed agricultural land and mown amenity grassland of relatively low ecological value, Notable habitats and features recorded were the Rothley Brook (already a LWS), two sections of species-rich hedgerow, veteran trees and field ponds.

The plantation woodland areas meet the definition of a Priority Habitat and they are all of substantive nature conservation value including many mature trees, and both standing and fallen dead wood.

Habitats that are likely to support protected species were also recorded and these included trees assessed as having high or moderate bat roost potential, ponds with potential for breeding amphibians (including great-crested newt) and woodland areas likely to support protected species. These have been target noted and are illustrated on Figure 1.2. Target notes are provided in Section 5.3 below.

5.2.2 Summary Data Table

Habitat/Feature	Extent	% of Area
Woodland & Scrub		
Broad-leaved Semi-natural Woodland	0.2748ha.	0.13%
Broad-leaved Plantation Broadleaf Woodland	18.5457ha.	8.95%
Coniferous Plantation Woodland	0.6163ha.	0.3%
Dense Scrub	5.58ha.	2.69%
Grassland		
Amenity Grassland	3.04ha.	1.47%
Poor Semi-improved Grassland	44.68ha.	21.58%
Wetland & Watercourses		
Running Water	212m (in survey area)	n/a
Standing Water	0.20ha.	0.096%
Other		
Arable	133.40ha.	64.44%
Tall Ruderal	0.78ha	0.37%
Boundaries		
Intact, Native Species-rich Hedge	986m	% of total hedgerow = 4.915

Habitat/Feature	Extent	% of Area
Intact, Species-poor Hedge	18987m	% of total hedgerow = 94.65
Defunct, Species-poor Hedge	87m	% of total hedgerow = 0.433
Dry Ditch	91m	n/a

5.3 Designated Sites

There is only one designated site within the survey boundaries:

Site	Location (OSGR)	Extent	Description	% of Area
Rothley Brook (S.2.8)	SK 581121 (central)	0.5km	The brook contains riffle and pool systems, sections of eroding earth cliffs and moss-covered boulders. Mature trees line the brook banks in places within the surveyed area. Red Data Book species have also been recorded.	N/A

A further five existing LWS occur within 1km of the survey area boundaries:

The River Soar (Ref. S. 2.7) has been designated an LWS under the large river (order >3) criteria. The section within 1km of the eastern survey area boundary was designated due to the assemblage of marginal vegetation along the banks.

The River Wreake ((Ref. S.4.7) has been designated an LWS under the large river (order >3) criteria, covering a total length of 11.57km within the Borough of Charnwood. A total of sixteen mature trees are also present within the LWS, these meeting the criteria in their own right. Leicestershire Red Data Book species were also recorded from the main river and adjacent ox-bow lakes. The westernmost section of the River Wreake LWS extends to within 0.52km of the eastern boundary of the North of Birstall survey area.

A section of the **Great Central Railway** (Thurcaston to Birstall – Ref. W 5810/1) meets the primary LWS criteria for mixed grassland and early successional habitat due to plant species assemblages and includes an area of native scrub that meets

the secondary criteria and contributes to the habitat mosaic within the site. A section of this railway line approaches to within 200m of the western boundary of the survey area.

Wanlip Meadows (Ref. W 6010/1) is located approximately 1km to the south east of the southern survey area boundary and meets the primary criteria for wet grassland, covering 8ha and a total 210m length of ancient species-rich hedgerows.

Watermead Country Park (Ref. W 6010/2) is located approximately 1km to the south east of the southern survey boundary. This is a large and complex site that meets the primary criteria for wet and mixed grassland, standing water bodies, reedbeds and stands of sedges, emergent vegetation, floating rafts of aquatic vegetation and mature trees. This site also contains a notable assemblage of wintering waterfowl of County importance and has breeding populations of Red Data Book species.

5.4 Target Notes

Target Note	Location (OSGR)	Description
TN1	SK 581121	A dying mature oak tree, assessed as of moderate bat roost potential.
TN2	SK 583122	A mature oak tree assessed as of high bat roost potential due to several holes and cracks in dead limbs.
TN3	SK 585121	A mature ash with old woodpecker nest holes, assessed as of high bat roost potential.
TN4	SK 586121	A mature dead oak tree assessed as of moderate bat roost potential.
TN5	SK 582120	Two veteran oak trees.
TN6	SK 580118	A clump of seven veteran trees in close proximity, trees 92 to 98 on Rothley Parish veteran tree register.
TN9	SK 579118	A veteran ash tree with trunk girth of 3m.
TN11	SK 576115	A mature and decaying ash tree with several old woodpecker nest holes, cracks and loose bark – assessed as of high bat roost potential.

TN12	SK 583114	A mature ash tree with dead major limbs – assessed as of moderate bat roost potential.
TN14	SK 576113	A mature ash tree with hollow trunk and major limbs plus other holes and cracks, assessed as of high bat roost potential.
TN15	SK 597114	A small pond within the sewage treatment works suitable for breeding amphibians.
TN16	SK 597113	A small seasonal pond surrounded by mature crack willows (dry at the time of the survey).
TN18	SK 586115	An artificial pond created for wildfowl with potential for breeding amphibians.
TN19	SK 594117	Dense plantation woodland with potential for protected species.
TN20	SK 591116	A small seasonal pond taking run-off from the A6, providing potential breeding habitat for amphibians.
TN21	SK 588120	A small pond on the edge of Broadnook Spinney with muddy margins and sparse flora providing potential breeding habitat for amphibians.

5.5 Priority Habitats

Habitats which are considered to qualify within the category of priority habitats as defined by the UK BAP and also currently listed as Habitats of Principal Importance under s74 of the Countryside and Rights of Way Act 2000 in the North of Birstall survey area comprised:

Two sections of **Species-rich Hedgerow** included a section forming the southern boundary to a bridleway crossing Rothley Golf Course (H1) and a hedgerow forming part of the western boundary to the south of the bridleway (H2). Both these hedgerows are considered likely to meet the LWS criteria (see section 5.7.1).

All of the plantations within the survey boundaries meet the definition of **Lowland Mixed Deciduous Woodland** in the category of more than 20% broad-leaved species.

None of the grassland within or adjacent to the survey area was considered to fall within the definition of Lowland Meadow due to species-poor assemblages.

Habitat/Feature	Extent	% of Area
Ancient/Species-rich Hedgerow	986m	4.915% of total hedgerow
Lowland Mixed Deciduous Woodland	0.27ha	0.094%

Revised UK BAP List

The revised list of UK BAP Priority Habitats widens the scope for some habitat types and additional habitat types within the surveyed area include the following:

All of the field **Ponds**, it is considered that these ponds may qualify as priority habitat as defined by the UK BAP, due to the possible presence of scarce or notable species (especially great-crested newt).

The scope for **Hedgerows** has been widened and now includes all hedgerows with 80% or more cover of native tree/shrub species. This would include the majority of the hedgerows within the survey area.

The increased scope for **Rivers** has not been defined at the time of writing although this type is likely to include all natural or near natural running waters. This would include Rothley Brook.

5.6 Wildlife Corridors

Rothley Brook LWS forms an obvious wildlife corridor along the northern boundary of the survey area, connecting the River Soar LWS with a network of smaller water courses in North West Leicestershire. This is especially important for several Leicestershire Red Data Book/protected species, the corridor providing suitable habitat for these species. The Rothley Brook corridor is extensively wooded, providing good quality bat foraging and commuting routes besides being of importance to birds and invertebrates.

The hedgerows bordering the bridleway across the golf course (including H1, a species-rich hedgerow) also provide sheltered and good quality bat foraging and commuting routes although some parts of these hedgerows have become fragmented to a lesser extent. These hedgerows link areas of plantation woodland

(including veteran trees) around the golf course with other plantation woodland areas and the species-rich western boundary hedgerow (H2).

This western boundary hedgerow (H2) connects Broadnook Spinney with a network of other tall and bushy hedgerows within and adjacent to the survey area, connecting a network of good quality bat foraging and commuting routes across the entire survey area.

Broadnook Spinney also forms an obvious wildlife corridor crossing the centre of the survey area from west to east. This corridor connects a cluster of mature trees at the eastern end with the hedgerow H2 and plays an important role in connecting the network of tall and bushy hedgerows to the south, of particular importance for bats.

The green lane extending between the A6 and the A46 also provides good quality bat foraging and commuting routes and links the plantation woodland within the sewage works with other hedgerows bordering these two roads. However, its value as a wildlife corridor is compromised by several gaps in the hedgerows, especially at the northern end. The fact that this corridor is truncated by the two roads also limits its value to many species, especially bats and terrestrial mammals. This corridor links with the woodland and scrub areas at the northern end of Watermead Country Park although it is bisected by the A46, which limits its value for terrestrial animals.

All of these hedgerow and woodland corridors are considered likely to be of importance for birds, amphibians and terrestrial invertebrates, forming valuable dispersal corridors for these groups.

Feature	Location (OSGR)	Extent	Description & Function
Rothley Brook	SK 579121 to SK 585125	0.75km	A moderately flowing brook with riffle and pool systems and sections of gravel substrate and vertical earth banks providing habitat several Leicestershire Red Data Book/protected species and allowing interchange of animals between the River Soar LWS and various small water courses within the wider landscape. Some sections of the brook are

			lined with mature trees likely to provide foraging and commuting routes for bats in particular, besides other fauna groups including birds and both terrestrial and aquatic invertebrates.
Bridleway Hedgerows (including Hedgerow H1)	SK 571117 to SK 581122	0.6km	A double hedgerow, including a species-rich section, connecting the pond and surrounding areas of mature trees and plantation woodland with tall bushy hedgerows both inside and beyond the survey boundaries. Mature trees with potential for roosting bats are also present, the hedgerows providing foraging and commuting routes for bats and habitats for other fauna including bird and terrestrial invertebrate assemblages.
Western Boundary Hedgerow (including hedgerow H2)	SK 571117 to SK 582106	1.25km	These hedgerows connect a network of tall bushy hedgerows with Broadnook Spinney, the bridleway hedgerows and others within the wider landscape.
Broadnook Spinney and Hedgerow to West	SK 581110 to SK 589120	2.4km	This is a linear plantation woodland that crosses the majority of the survey area from east to west. It links other areas of plantation woodland with a network of hedgerows and is considered to be of considerable importance for bats. It also connects two ponds and is of value as a dispersal corridor for both birds and amphibians as well as invertebrates. These hedgerows with adjacent streams link areas of plantation woodland and water bodies within the wider

			landscape, allowing the interchange of animals, particularly water vole and bats.
Green Lane West of Sewage Works	SK 592118 to SK 598111	0.75km	The green lane is composed of a hedgerow and plantation woodland edge, rather fragmented at its northern end. It is considered to be of importance for bats and other species, linking potential foraging areas for them.

5.7 Recommendations for Further Investigation

Two species-rich hedgerows (H1 and H2) were identified that merit further botanical survey work and these are detailed under Potential Wildlife Sites below.

Protected species surveys are recommended for all of the plantation woodland areas within or bordering the survey area– see target note section 5.4.

All of the ponds within the survey area have the potential to support breeding amphibians (including great-crested newts). Further amphibian survey work is recommended in all ponds, especially as they are all linked to good quality terrestrial habitat.

5.7.1 Potential Wildlife Sites

Areas which are considered to merit further investigation with regard to Local Wildlife Site criteria are:

- Both sections of species-rich hedgerow (H1 and H2) probably meet the LWS criteria on average number of native woody species and associated features. Further sampling of additional 30m sample sections would confirm their probable LWS status.
- All of the field ponds within or directly adjoining the survey area could support breeding populations of great-crested newts. If they are proved to be present, these ponds would then meet the LWS criteria (presence of Red Data Book species).

- No additional veteran trees were identified that had not previously been recorded and documented.
- The areas of plantation woodland within the survey area were surveyed by the author in 2004 and still do not meet the criteria required for LWS designation despite a small amount of native bluebell in Broadnook Spinney which was not found during any previous survey work.

5.7.2 Wildlife Corridor Management

Species surveys of Rothley Brook may inform future management priorities.

A protected species survey of Broadnook Spinney and the woodland along the green lane near the sewage works would confirm the importance of these areas.

5.8 **Summary of Key Ecological Resources**

Rothley Brook is the only designated Local Wildlife Site within the survey boundary, although there are five designated LWS within 1km of the survey boundaries: a section of the River Soar LWS, a section of the River Wreake LWS, a section of the Great Central Railway (Thurcaston to Birstall), Watermead Country Park and Wanlip Meadows.

There are no other designated sites within 1km of the surveyed area.

Two sections of species-rich hedgerow were identified that probably meet the LWS criteria due to their assemblage of native woody species and associated features.

All of the ponds within the survey area may also meet the LWS criteria should they be proved to support breeding populations of amphibians (including great-crested newt).

The designation of these sites as LWS (assuming they meet the criteria) would contribute to and enhance the wildlife value of the landscape. Sympathetic management of these sites would also allow movement of species between sites and beyond the surveyed area.

5.9 **Comparison with Surrounding Landscape**

The surrounding landscape is predominantly arable with the Rothley Brook, River Soar and associated wetlands within Watermead Country Park and adjacent gravel pits as prominent and notable wildlife features. The plantation woodland within the

survey area (including Broadnook Spinney, Black Hovel Spinney and the woodland associated with the sewage works and Rothley Golf Course) are also notable wildlife features in an immediately surrounding landscape where woodland is scarce. Larger blocks of semi-natural and plantation woodland are present further afield, approximately 2km away from the northern survey area boundary.

6. SOUTH OF ANSTEY / NORTH OF GLENFIELD

See Figures 1.3a, 1.3b, 2.3a and 2.3b

6.1 Overview & Summary Data

The survey area comprises intensively managed agricultural land (both arable and permanent pasture), with small amounts of amenity grassland (Figures 1.3a and 1.3b). The majority of the grassland was either improved or semi-improved, the latter being generally at the most species-poor end of the spectrum and of coarse nature. There was however a small field adjacent to the A46 that appeared to be herb-rich (see section 6.7.1 – Potential Local Wildlife Sites).

There are also areas of plantation woodland including mature woodland in large gardens in both the northern and southern boundaries of the survey area and recently planted woodland alongside the A46 and adjacent minor roads. Semi-natural woodland appeared to be restricted to small pockets adjacent to the southern boundary hedgerows.

Veteran and/or ancient trees have previously been recorded within the survey boundaries and two new veteran trees were recorded during the survey. These are mainly associated with hedgerows (not necessarily species-rich) although there was a cluster of veteran trees to the south of Gynsill Lane. Mature trees were also present along the Rothley Brook corridor although none of these met the LWS criteria for veteran or ancient trees.

The majority of the hedgerows were species-poor and intensively managed although four sections were identified that were species-rich (H1 to H4). These have been highlighted on the Plan (3.1) and all four probably meet the criteria for designation as LWS (see section 6.7.1).

6.2 General Habitat Description

Plantation Woodland

As previously stated, plantation woodland formed the vast majority of the woodland within the survey boundaries. The largest areas within the boundaries were associated with two large areas of private gardens at the northern and southern ends of the surveyed area and comprised mature trees with understoreys of introduced shrubs such as Rhododendron (*Rhododendron ponticum* and various cultivars), snowberry and firethorn. Tree species identified included pedunculate oak, ash, black poplar hybrids (*Populus x canadensis*), aspen, various maple species (*Acer* spp.), silver birch, common lime (*Tilia x europaea*), horse chestnut, Lombardy poplar and European larch. Due to their locations, the ground flora could not be assessed but was considered to be species-poor and to contain a high proportion of cultivated species. As access into these areas was not possible, it is considered that some potential veteran trees could have been present.

A linear belt of plantation woodland adjoined Gorse Hill, along the eastern boundary of the surveyed area. This woodland was dominated by pedunculate oak and ash with some field maple. The shrub layer was dominated by hawthorn and blackthorn. The ground flora was dominated by dog's-mercury (*Mercurialis perennis*) although no other ancient woodland indicators were found. Other ground flora species recorded comprised wood avens, wood false-brome and hairy brome (*Bromus ramosus*).

Recently planted woodland (i.e. within the last 10 years) was present as linear blocks adjacent to the A46, A5630 (Anstey Lane) and Gynsill Lane at the eastern end of the surveyed area. Species recorded included rowan, silver birch, alder, field maple, dogwood, goat willow (*Salix caprea*) and Scots pine. These trees were generally less than 5m in height with narrow trunk girths of approximately 0.5m. As these woodland areas were so young, the ground flora in all areas was composed of grasses, dominated by Yorkshire-fog. Herbs largely comprised ruderal species such as common ragwort.

Semi-natural Woodland

There were four small blocks of semi-natural woodland, one block adjacent to Rothley Brook to the north of the A46 and three to the south of the A46 in proximity to hedgerow H4 (see Figures 1.3a & b).

The woodland block to the north of the A46 was dominated by white willow and alder with a ground flora dominated by stinging nettles.

To the south of the A46, the woodland block within the surveyed area was located adjacent to a spring line and was dominated by mature crack willows, two of which qualified as veteran trees – see target note TN33. The ground underneath the trees was composed of wet mud and had become extensively poached by cattle. The ground flora included small sweet-grass, great hairy willowherb and pale persicaria (*Persicaria lapathifolium*).

The western of the two small woodland blocks adjacent to hedgerow H4 was composed largely of mature crack willows, with a similar ground flora to that described above. The easternmost block was dominated by ash and white willow with a shrub layer composed of hawthorn and elder with some bramble and dog rose. A small stream flowed northwards through this woodland and crossed the grass field to the north.

The semi-natural woodland along Rothley Brook was of a linear nature and did not form blocks. This has been described under the designated sites section 6.3.

Dense Scrub

Small blocks of dense scrub were scattered across the survey area and were mainly located in field corners adjacent to hedgerows. These areas were dominated by mature blackthorn and hawthorn with ground flora dominated by ruderal species.

Improved Grassland

The improved grassland within the surveyed area was dominated by perennial rye-grass and crested dog's-tail, herbs being dominated by white clover, creeping thistle, spear thistle and stinging nettle. All of these fields were intensively grazed by cattle at the time of the survey.

Semi-improved Grassland

The majority of the grassland within the surveyed area was dominated by false oat-grass and Yorkshire-fog with abundant perennial rye-grass, timothy and rough meadow-grass (*Poa trivialis*). Herbs largely comprised ruderal species and included spear thistle, creeping thistle, stinging nettle, common ragwort, broad-leaved dock and hogweed (*Heracleum sphondylium*). Non ruderal species included hairy-tare,

common vetch and yarrow. Tufted hair-grass was locally present in many of the fields where water collects and these areas had extensive creeping buttercup and stands of hairy sedge and hard rush.

Several fields that had been grassland at the time of the aerial photographs have since been sown with maize. These fields are located between Groby Road and Rothley Brook.

A small field adjacent to Rothley Brook was herb-rich with a tall sward (see target note TN11). This field was dominated by false oat-grass and meadow foxtail with abundant great burnet (*Sanguisorba officinalis*) and meadowsweet (*Filipendula ulmaria*) with meadow buttercup and at least two species of rush (*Juncus*). This field was being grazed by horses at the time of the survey and probably meets the LWS selection criteria (see section 6.7.1).

A small length of semi-improved grassland verge on the south side of the A46 is located between blocks of young plantation woodland and is dominated by false oat-grass and Yorkshire-fog with frequent crested dog's-tail and red fescue. Herbs recorded included strawberry clover (*Trifolium fragiferum*), black medick, yarrow, beaked hawk's-beard, common centaury (*Centaureum erythraea*) and a small amount of black knapweed. Some salt-tolerant plants were present in close proximity to the carriageway and included common orache (*Atriplex patula*) and sand-spurrey (*Spergularia rubra*).

Wetland – Running Water

Rothley Brook is the only significant area of wetland within the surveyed area and has been described under the designated sites section 6.3.

A spring line extended from the western end of hedgerow H4 and the water flowed northwards towards Rothley Brook, flowing through culverts underneath Gynsill Lane and the A46. This water course was approximately 1m in width with a low flow at the time of the survey, approximately 0.1m in depth, water quality appearing to be good. The banks were composed of earth but were low (approx 0.2m in height) and of extremely shallow gradient. There were extensive patches of fool's water-cress (*Apium nodiflorum*) with lesser water-parsnip (*Berula erecta*) at the northern end.

A small stream flowed northwards from the eastern end of hedgerow H4, crossing the grassland and flowing alongside a species-poor hedgerow towards the A46.

The section within the grassland was approximately 1m in width with shallow mud and earth banks up to 0.5m in height. There was a low flow at the time of the survey, water quality appearing to be good. There was a short line of blackthorn bushes at the southern end of the stream. Marginal vegetation was dominated by fool's water-cress. Other species recorded comprised reed canary-grass (*Phalaris arundinacea*), creeping bent, small sweet-grass, hard rush, brooklime, creeping buttercup and great hairy willowherb.

Wetland – Standing Water

A small seasonal pond was located adjacent to a veteran ash tree (see target note TN18) although this was dry at the time of the survey.

Cultivated Land

The majority of the arable land within the survey boundary was intensively managed with a marginal flora composed of common and widespread species.

A large field to the south of Groby Road, at the western end of the surveyed area had been recently planted with young conifers. These were approximately 0.5m in height at the time of the survey. This field had a fairly diverse flora of arable margin plants composed of common and widespread species. Bird species foraging in this field included three grey partridges, yellowhammer and skylark (see target note TN14).

Tall Herb / Tall Ruderal

There were several areas of tall ruderal vegetation within the survey boundaries, most being located in field corners and are too small to map. There were however two large areas of ruderal vegetation to the south of the A46, including a field of tall ruderal and species-poor grassland mosaic adjacent to the south side of Anstey Lane. This field was dominated by creeping thistle and broad-leaved dock with only small patches of grassland.

The other significant area of tall ruderal comprised an overgrown garden to the south of Gynsill Lane. This area was dominated by rosebay willowherb and stinging nettle with scattered young blackthorn and elder bushes. Other species recorded here included male fern (*Dryopteris felix-mas*) and large bindweed. Bullfinches were recorded in this area – see target note TN22.

Species-rich Hedgerows

A total of four hedgerows were identified as being species-rich and/or ancient and these are shown as hedgerows H1 to H4 on Plan 1.3. They are also considered to meet the LWS criteria on species richness and associated features.

Hedgerow H1 was located adjacent to a track in the north-west corner of the surveyed area and was approximately 1.8m in height, having been trimmed prior to the survey, blackthorn being dominant along the entire hedgerow. The central 30m section was sampled, yielding a total of 6 native woody species, comprising blackthorn, ash, dogwood, wych elm, hawthorn and holly. No additional species were recorded outside this sample section. Small amounts of bramble and ivy comprised the climbing species. The ground flora included upright hedge-parsley (*Torilis japonica*).

Hedgerow H2 was located on the north side of Groby Road to the west of the cemetery and was approximately 2m in height at the time of the survey. The central 30m section was sampled, yielding 7 native woody species comprising ash, blackthorn, wych elm, dog rose, hawthorn, hazel and field maple. A further four species were recorded outside this 30m section, comprising pedunculate oak, elder, dogwood and goat willow, giving a total 11 native woody species along its length. Climbing species included bramble, hedge bindweed and ivy.

Hedgerow H3 was located on the south side of Groby Road, opposite hedgerow H2 but the species-rich section was more extensive. This hedgerow was approximately 1.5m in height and there were a few gaps, including one where a traffic incident had occurred. The central 30m section was sampled, yielding 7 native woody species, comprising ash, blackthorn, dogwood, elder, wild privet (*Ligustrum vulgare*), hawthorn and pedunculate oak. A further two species were recorded outside the 30m sample section and comprised dog rose and wild plum, giving a total of 9 native species overall. Climbing species included bramble, ivy and black bryony.

Hedgerow H4 was located along the southern boundary of the surveyed area and is probably an ancient parish boundary hedge. It was tall and bushy, being approximately 6m in height at the time of the survey. The central 30m section was sampled, yielding 6 native woody species comprising ash, blackthorn, elder, dog rose, hawthorn and pedunculate oak. A further 5 native species were recorded outside the 30m sample section, comprising field maple, crack willow, field rose, crab apple and hazel giving a total of 11 native species along its length. A hybrid

hawthorn (*Crataegus x media*) was also recorded in small quantity. Climbing species recorded included bramble, ivy, white bryony and black bryony.

A further section of hedgerow (TN3) had six native species along its length although there was a maximum of only four native species in any given 30m sample section.

Species-poor Hedgerows

The overwhelming majority of the hedgerows within the survey boundaries were species-poor, most being trimmed to approximately 1.5m in height although others had been allowed to grow tall and bushy. These species-poor hedgerows were dominated by hawthorn, although some had blackthorn as the dominant species and a very few had wych elm suckers as the dominant species. Common associated species within these hedgerows included elder, dog rose, field rose, ash and pedunculate oak.

Defunct Species-poor Hedgerows

Some of the arable fields in the northern half of the surveyed area were bordered by defunct hedgerows, composed largely of scattered lengths of hawthorn bushes. There was also a defunct hedgerow within a large field of poor semi-improved grassland to the south of the A46, close to the southern boundary of the survey area. This was also composed of a fragmented line of tall hawthorn bushes but included two mature ash trees.

Trees

A total of 26 veteran or ancient trees have previously been recorded from Anstey parish within the surveyed area (these have been target noted – see section 6.4 below). Two veteran trees that had not previously been recorded were located during the survey, these being within or adjacent to permanent pasture fields to the south of Gynsill Lane (see target notes TN17 and TN23).

Other

Two broad-leaved helleborine plants (*Epipactis helleborine*) were recorded in a wooded front garden on the west side of Bradgate Road (see target note TN1). This location is outside but in close proximity to the survey boundary.

6.2.1 Notable Habitats and Features

The majority of the surveyed area comprised intensively managed agricultural land of relatively low ecological value. Notable habitats and features recorded were: species-rich hedgerows; veteran / ancient trees; small blocks of wet woodland; a water course and a small field of lowland herb-rich meadow.

Habitats that are likely to support protected species were also recorded and these included trees assessed as having high to moderate potential for roosting bats and woodland and scrub areas with potential for protected species. In addition, arable land with potential to support breeding populations of farmland birds of conservation concern (particularly those listed in Section 74 of the WCA) was also recorded where such bird species were seen. These have been target noted and are illustrated on Figure 1.6. Target notes are provided in Section 6.4 below.

6.2.2 Summary Data Table

Habitat/Feature	Extent	% of Area
Woodland & Scrub		
Broad-leaved Semi-natural Wet Woodland	2.29ha.	1.19%
Broad-leaved Plantation Woodland	5.42ha.	2.82%
Mixed Plantation Woodland	0.76ha.	0.4%
Dense Scrub	1.17ha.	0.6%
Grassland		
Herb-rich Neutral Grassland	0.71ha	0.37%
Poor Semi-improved Grassland	43.32ha	22.56%
Amenity Grassland	5.39ha	2.8%
Improved Grassland	16.88ha.	8.79%
Wetland & Watercourses		
Running Water (Rothley Brook)	1084m	n/a
Running Water (Stream and Spring Line)	583m	n/a
Standing Water	0.0075ha.	0.0039%

Habitat/Feature	Extent	% of Area
Other		
Arable	111.46ha.	58.05%
Tall Ruderal/Poor Grassland Mosaic	3.64ha	1.90%
Tall Ruderal	1.27ha	0.66%
Boundaries		
Intact, Native Species-rich Hedge	1236m	% of total hedgerow = 0.93
Intact, Species-poor Hedge	132,413m	% of total hedgerow = 98.54
Defunct, Species-poor Hedge	720m	% of total hedgerow = 0.53
Dry Ditch	522m	n/a

6.3 Designated Sites

There are two Sites of Special Scientific Interest within 1km of the surveyed area:

Sheet Hedges Wood SSSI is located approximately 0.5km to the west of the surveyed area boundary.

Bradgate Park and Cropston Reservoir SSSI incorporates these two separate units:

Bradgate Park SSSI is located approximately 1km to the north west of the surveyed area. Cropston Reservoir SSSI is located approximately 1km to the north of the surveyed area.

All SSSIs support populations of species listed in the Leicestershire and Rutland Red Data Book.

Within the survey area, only Rothley Brook has been designated an LWS.

Site	Location (OSGR)	Extent	Description	% of Area
Rothley Brook (S.2.8)	SK 540066 to SK 551081	1.75km	The brook meets the primary criteria for Rivers and Streams (order <4) as it contains riffle and pool systems,	N/A

			sections of eroding earth cliffs and moss-covered boulders. Mature trees line the brook banks in places within the surveyed area. Red Data Book species have also been recorded.	
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6.4 Target Notes

Target Note	Location (OSGR)	Description
TN1	SK 540090	Two plants of broad-leaved helleborine in a front garden.
TN2	SK 539083	A mature oak tree with moderate bat roost potential.
TN3	SK 536086 to SK 540084	A species-rich hedgerow with a total of 7 woody species along its length but no more than 4 species in the central 30m sample section.
TN4	SK 5419 0846	A mature oak tree of moderate bat roost potential with dead limbs and flaking bark. This tree has a trunk girth of 3.3m and is listed as Tree 8 on Anstey Veteran Tree Register.
TN5	SK 542084	A mature oak tree with moderate bat roost potential.
TN6	SK 544084	A mature oak tree assessed as moderate bat roost potential with areas of flaking bark.
TN7	SK 544082	A mature oak tree assessed as being of moderate bat roost potential with areas of flaking bark.
TN8	SK 544086	A mature dead ash tree assessed as high bat roost potential with large areas of loose bark.
TN9	SK 537076	A water shrew foraging along the brook.
TN10	SK 546079	A dead tree with a moderate bat roost potential due to a dense covering of ivy. This tree has a trunk girth of 3.6m and is listed as Tree 3 on Anstey Veteran Tree

		Register.
TN11	SK 545077	A small field of herb-rich semi-improved grassland with abundant great burnet, meadowsweet and meadow buttercup. This field is grazed by horses.
TN12	SK 544077	A mature ash tree of high bat roost potential due to woodpecker holes in dead limbs.
TN13	SK 545077	A mature ash tree of high bat roost potential due to cracks in dead limbs and ivy covering.
TN14	SK 543078	Yellowhammer, skylark and grey partridge foraging in the former arable field.
TN15	SK 547073	A mature oak tree with dead limbs and flaking bark, assessed as of moderate bat roost potential. The trunk girth was 3.8m and this tree is listed as Tree 1 on Anstey Veteran Tree Register.
TN16	SK 5498 0753	A veteran hollow, fire-damaged oak tree with a trunk girth of 6.91m. This tree is listed as Tree 29 on Anstey Veteran Tree Register but has decreased in trunk width due to decay.
TN17	SK 5509 0757	A veteran oak tree with a trunk girth of 4.44m assessed as being of high bat roost potential. Also used by breeding little owls. This tree is listed as Tree 28 on the Anstey Veteran Tree Register but has increased in girth since it was last surveyed
TN18	SK 5517 0757	A veteran ash tree with a trunk girth of 5.06m, with holes and loose bark – assessed as of moderate bat roost potential. Adjacent to a small dried-out pond. Tree 25 on Anstey Veteran Tree Register but has increased in girth since last surveyed.
TN19	SK 5517 0757	A dead mature pedunculate oak tree with large holes and loose bark – assessed as of high bat roost potential. The trunk girth is 4.3m and is listed as Tree 27 on Anstey Veteran Tree Register.
TN21	SK 550076	A small patch of Australian swamp stonecrop (<i>Crassula helmsii</i>) on a mud

		bank at the northern end of the stream.
TN22	SK 551074	A family party of bullfinches in an overgrown garden.
TN23	SK 554077	A veteran oak tree with a trunk girth of 6.10m. Trunk hollow and some dead branches – assessed as being of high to moderate bat roost potential.
TN24	SK 551076	A large area of dense scrub with potential for species.
TN25	SK 5422 0886	A mature cedar-of-Lebanon with trunk girth of 3.5m (Tree 12 on Anstey Veteran Tree Register).
TN26	SK 5421 0883	A mature pedunculate oak with a trunk girth of 5.5m (Tree 11 on Anstey Veteran Tree Register).
TN27	SK 5423 0883	A mature red maple with a trunk girth of 3m (Tree 13 on Anstey Veteran Tree Register).
TN28	SK 5379 0870	A mature pedunculate oak tree with a trunk girth of 4.5m (Tree 10 on Anstey Veteran Tree Register).
TN29	SK 5387 0854	A dead stump with a girth of 3.3m (Tree 9 on Anstey Veteran Tree Register).
TN30	SK 5412 0833	A mature pedunculate oak tree with a trunk girth of 4m. This is listed as Tree 6 on Anstey Veteran Tree Register.
TN31	SK 5400 0822	A mature pedunculate oak tree with a trunk girth of 4.1m. This is listed as Tree 5 on the Anstey Veteran Tree Register.
TN32	SK 5402 0821	A mature pedunculate oak tree with a trunk girth of 3.3m. This is listed as Tree 7 on the Anstey Veteran Tree Register.
TN33	SK 5510 0744	A block of crack willow woodland containing two veteran willow trees, Tree 30 on the Anstey Veteran Tree Register has a trunk girth of 4.43m. whilst Tree 34 could not be measured.
TN34	SK 5519 0767	A mature common lime tree with a trunk girth of 3m. This is listed as Tree 26 on the Anstey Veteran Tree Register.

TN35	SK 5570 0799	A mature pedunculate oak tree with a trunk girth of 3.6m. Tree 35 on Anstey Veteran Tree Register.
TN36	SK 5566 0798	A mature pedunculate oak tree with a trunk girth of 3.10m, Tree 36 on Anstey Veteran Tree Register.
TN37	SK 555081	An area of dense scrub and trees with potential for protected species

6.5 Priority Habitats

Habitats which are considered to qualify within the category of priority habitats as defined by the UK BAP and also currently listed as Habitats of Principal Importance under s74 of the Countryside and Rights of Way Act 2000 in the Anstey survey area comprised:

Four sections of **Species-rich Hedgerow** included two parallel sections on Groby Road (H2 and H3), one section adjacent to a trackway south of Anstey High Leys Farm (H1) and what is probably a parish boundary hedgerow along the southern boundary of the survey area (H4).

Another section of hedgerow was assessed as being species-rich over its entire length (TN3) in proximity to hedgerow H1 although the central 30m sample section yielded only four native woody species.

Three small blocks of **Wet Woodland** in proximity to the southern boundary (two of these blocks being immediately outside the survey boundary).

One small field of **Lowland Meadow** located between Rothley Brook and the A46, which contained a suite of plant species suggesting that it is semi-improved but herb-rich (see target note TN11).

Habitat/Feature	Extent	% of Area
Ancient/Species-rich Hedgerow	1236m	0.93% of total hedgerows
Wet Woodland	2.29ha	1.19%
Lowland Meadow	0.71ha.	0.37%

Revised UK BAP List

The revised list of UK BAP Priority Habitats widens the scope for some habitat types and additional habitat types within the Anstey surveyed area include the following:

A small seasonally wet **Pond** (TN18), although it is considered that this pond is unlikely to qualify as a priority habitat as defined by the UK BAP, due to a lack of scarce or notable species or high habitat types within the waterbody.

The scope for **Hedgerows** has been widened and now includes all hedgerows with 80% or more cover of native tree/shrub species. This would include the majority of the hedgerows within the survey area.

The increased scope for **Rivers** has not been defined at the time of writing although this type is likely to include all natural or near natural running waters. This would include Rothley Brook.

6.6 Wildlife Corridors

Feature	Location (OSGR)	Extent	Description & Function
Rothley Brook LWS	SK 540066 to SK 551081	1.75km	A brook with moderate to fast flow, riffle and pool systems, gravel substrate and eroding vertical earth banks, providing habitat for several Leicestershire Red Data Book/protected species. The brook connects the River Soar LWS with other, smaller water courses outside Charnwood to the south west, allowing interchange of animals between these sites. The brook is bounded by mature trees, providing foraging and commuting routes for bats and habitats for other fauna including bird and terrestrial mammal assemblages.
Southern Boundary Hedgerow H4 and Hedgerow to East	SK 553073 to SK 557077	2.25km	A species-rich hedgerow along the southern boundary of the survey area, connecting blocks of semi-natural wet woodland, plantation woodland and areas of dense scrub. This is a tall and bushy hedgerow, likely to be of high value as a bat foraging and commuting route.

Other Hedgerows South of the A46	N/A	c.2km	There is a network of tall but species-poor hedgerows with veteran trees, to the north of and connected to hedgerow H4, which are considered to be of some value as bat foraging and commuting routes.
Hedgerows Between Bradgate Road and Rothley Brook	N/A	c.3km	There is a network of hedgerows with mature trees and lines of planted trees connecting areas of plantation woodland and trees with potential bat roosts with potential foraging areas along the Rothley Brook.

6.7 Recommendations for Further Investigation

A number of areas were identified that merit further botanical survey work and these are detailed under Potential Wildlife Sites below.

All of the road verges within the survey area were species-poor and dominated by coarse grass species although some taller herbs e.g. black knapweed were very locally present.

A patch of dense scrub on the southern boundary of the survey area (target note TN24) provides potential habitat for protected species. A protected species survey of this area is recommended.

6.7.1 Potential Wildlife Sites

Areas which are considered to merit further investigation with regard to Local Wildlife Site criteria are:

- A small field of herb-rich grassland between Rothley Brook and the A46 (TN11) contained an assemblage of plant species associated with less improved swards from the Neutral and Wet Grassland lists of the LWS criteria, including abundant great burnet.
- A total of four species-rich hedgerows were identified, one adjacent to a farm track south of Anstey High Leys Farm, two parallel hedgerows at the western end of Groby Road and the fourth along the southern boundary of the survey area. These have been labelled H1 to H4 on Figure 1.3. All of these hedgerows probably meet the LWS selection criteria on average

number of native woody species and associated features. At least two further 30m sections of each hedgerow should be sampled per hedgerow to give average numbers of native woody species and these should be assessed against the LWS criteria.

- In addition, one further hedgerow was identified as being species-rich over its entire length but no more than four native woody species were recorded from the central 30m sample section – see target note TN3. This hedgerow could conceivably meet the LWS criteria and further 30m sections should be surveyed and assessed.
- Two additional veteran trees were identified that had not previously been recorded and documented (TN17 and TN23).
- Three areas of wet woodland were identified although all of these are considered to be below the size threshold for LWS designation. Two of these woodland areas are outside but immediately adjacent to the survey boundary.

6.7.2 Wildlife Corridor Management

Surveys of Rothley Brook may inform future management priorities. There is a record of a Leicestershire Red Data Book/protected species from the connecting brook to the south of Thornton Reservoir dating from 2001 (approximately 6km to the north west of the surveyed area but connected by suitable habitat).

6.8 **Summary of Key Ecological Resources**

There are two SSSIs within 1km of the surveyed area: **Sheet Hedges Wood** and **Bradgate Park / Cropston Reservoir SSSI**.

Rothley Brook is a designated Local Wildlife Site, a substantial section of this is located within the surveyed area and this contains a range of physical features of substantive wildlife value including sections of gravel substrate, riffle and pool systems, eroding earth cliffs and mature trees.

There are no other designated sites within 1km of the surveyed area.

A further six locations were identified within the surveyed area that may meet the LWS criteria including a field of herb-rich grassland adjacent to Rothley Brook and five sections of species-rich hedgerows. The designation of these sites as LWS

(assuming they meet the criteria) would contribute to and enhance the wildlife value of the landscape and the designation of the meadow would also enhance the integrity of Rothley Brook LWS. Sympathetic management of these sites would also allow movement of species between sites and beyond the surveyed area.

6.9 Comparison with Surrounding Landscape

The area within the survey boundaries was predominantly agricultural land comprising both arable and permanent pasture, the relatively small size of the fields and tall hedgerows are typical of the landscape on the fringe of Charnwood Forest although there is significantly less herb-rich grassland within the surveyed area than is present within the Forest. The woodland within the surveyed area was largely plantation and is of considerably less wildlife value than the nearest large block of woodland, which comprises Sheet Hedges Wood SSSI (containing populations of a county Red Data Book species and this is also listed on the local BAP). Rothley Brook is an obviously important wildlife feature in a landscape largely lacking in major water courses.

7. WEST OF SHEPSHED

See Figures 1.4 and 2.4

7.1 Overview & Summary Data

The majority of the surveyed area comprises intensively cultivated arable land with small pockets of semi-improved grassland. Two sections of road verge have diverse floral communities, one of which has been designated as a LWS (see below).

The Black Brook traverses the surveyed area and flows from south-west to north-east and the entire section within the surveyed area has been designated as a LWS (see below). Grace Dieu Brook forms the northern boundary to the surveyed area and also forms the northern boundary of Charnwood Borough with land to the north in North West Leicestershire.

Semi-natural woodland occurs along both the Black Brook and Grace Dieu Brook and also along a tributary of the Black Brook to the east of Tickow Lane at the southern end of the surveyed area. Secondary woodland has developed alongside a section of dismantled railway along the southern fringe of the study area.

Small blocks of plantation woodland occur on the western boundary (but outside the surveyed area) and also in close proximity to farms and houses.

The majority of the hedgerows were species-poor and intensively managed although three sections of species-rich hedgerow were found bordering Tickow Lane.

7.2 General Habitat Description

Semi-natural Woodland

Grace Dieu Brook has adjacent linear sections of mature semi-natural woodland, especially to the west of Hallamford Road. These sections are dominated by alder (*Alnus glutinosa*) and crack willow (*Salix fragilis*) with some white willow (*Salix alba*).

There is also extensive linear semi-natural woodland adjacent to the Black Brook along the majority of its length within the surveyed area. Trees comprise alder, crack willow, ash (*Fraxinus excelsior*) and pedunculate oak (*Quercus robur*) and include mature specimens that qualify as Veteran Trees under the LWS criteria.

A small block of wet semi-natural woodland is located adjacent to a tributary of the Black Brook to the east of Tickow Lane, extending to the west side of the lane also (see target note TN25). This woodland is composed of mature crack willow, white willow, alder and ash. The shrub layer is dominated by goat willow (*Salix caprea*). The ground flora is species-poor as is typical for this habitat, dominated by ivy and stinging nettles. Great hairy willowherb and hedge bindweed were also recorded.

Another much smaller block is located along the same tributary to the south (TN30) and is also dominated by willow trees with a ground flora dominated by stinging nettles.

An area of woodland alongside the dismantled railway along the southern fringe of the sturdy area was dominated by mature ash and pedunculate oak trees with a ground flora containing species typical of secondary woodland.

Plantation Mixed Woodland

Plantation Woodland is present in a small square block outside the western boundary of the surveyed area. This woodland is composed of Scots pine, pedunculate oak and sycamore which had been planted in rows and was still of

relative young age. The shrub layer was very sparse and composed of scattered elder and sycamore saplings.

The ground flora was species-poor and composed of scattered stands of stinging nettles and bramble with large areas of bare ground and leaf litter.

Scrub

A patch of dense scrub is located at the western end of Carr Lane, dominated by hawthorn and elder with extensive fringes of stinging nettles (see target note TN5).

A small patch of scrub adjacent to properties to the west of Hallamford Road was composed of blackthorn and wych elm, the latter including young dead trees with dense coverings of ivy.

A block of scrub was located on the east side of the footpath leading north from Tickow Lane towards the Black Brook. This had formed alongside a tall hedgerow and was composed largely of mature blackthorn.

Semi-improved Neutral Grassland

A large field bounded by Oakley Road, the Black Brook and Grace Dieu Brook in the north eastern corner of the surveyed area was dominated by meadow foxtail, Yorkshire-fog and Cock's-foot with some tufted hair-grass and reed canary-grass. This field was becoming rank through lack of management and is likely to be seasonally flooded. Species recorded that are indicative of less improved swards comprised common fleabane (*Pulicaria dysenterica*), angelica, hairy sedge and hard rush. Other herb species recorded included common ragwort and thistle species (*Cirsium*).

This field was surrounded by wet ditches, up to 1.5m in width and containing angelica, bulrush and small stands of stunted common reed (*Phragmites australis*). The field may meet the LWS criteria for Wet Grassland – see target note TN1 on Figure 1.4 and section 7.7.1 below.

Two fields on the west side of Hallamford Lane (see target note TN3) were intensively horse-grazed at the time of the survey and were dominated by perennial rye-grass and crested dog's-tail. Herb species present included meadow buttercup, black knapweed, yarrow and self-heal (*Prunella vulgaris*).

A section of Carr Lane Verges has previously been designated as a LWS (see section 7.2.2). Outside this designated area, the verges had become rank and dominated by false oat-grass and cock's-foot with few herbs although scattered stands of black knapweed and agrimony (*Agrimonia eupatorium*) were present both to the east and west of the LWS section – see target note TN7.

The entire eastern verge of Hallamford Road between Grace Dieu Brook and the Black Brook was dominated by false oat-grass, rough meadow-grass (*Poa trivialis*) and cock's-foot but contained stands of black knapweed, meadow vetchling and bird's-foot trefoil – see target note TN2 on Figure 1.4.

Poor Semi-improved Grassland

This habitat comprised the remainder of the grassland within the surveyed area and included a horse paddock to the north of Carr Lane at the eastern end, adjacent to the two fields (target note TN3). This field was intensively horse-grazed with a very short sward, dominated by perennial rye-grass, with stands of creeping thistle, creeping buttercup and broad-leaved dock.

Small areas adjacent to Grace Dieu Brook (and tributary) and the Black Brook had been left out of cultivation (probably due to regular flooding). All these areas were tall and becoming rank, dominated by false oat-grass and cock's-foot with ruderal herbs including common ragwort, broad-leaved dock, creeping thistle and stinging nettle.

Outside the designated sites and otherwise target-noted areas, the remainder of the roadside verges were also species-poor and dominated by coarse grasses with largely ruderal herbs including mugwort, docks and thistles.

Amenity Grassland

The grassland surrounding Harborough Farm was composed of typical garden lawn species.

Wetland – Running Water

The Black Brook: The majority of the Black Brook has been designated a LWS (apart from a canalised section within Loughborough) including the section within the surveyed area. This section meets the LWS criteria for streams and rivers (order <4) as it contains riffle and pool systems, sections of gravel substrate and

moss-covered bedrock. It also contains mature trees and has recent records of Leicestershire Red Data Book species.

Grace Dieu Brook: This brook formed the northern boundary to the surveyed area and was extensively fringed with mature trees (see woodland section above). The banks were steep to vertical, up to 1m in height and composed of earth. There was a moderate flow (with some sections of fast flow). Riffle and pool sections were also present. The substrate varied along its length and included stretches of gravel and small stones as well as mud. Sections of moss-covered stones could be seen at various points along the brook. Marginal aquatic flora was scattered although Himalayan balsam (*Impatiens glandulifera*) dominated long reaches in the central section.

Wetland – Standing Water

A small pond is located within a plantation mixed woodland immediately outside the surveyed area on the western fringe (see target note TN4). The water depth was estimated at 1m in the centre. This pond had earth banks of moderate gradient and was surrounded by stinging nettles. The margins of this pond were heavily shaded by overhanging trees, although the central section remained unshaded. Aquatic vegetation recorded comprised floating sweet-grass (*Glyceria fluitans*) and broad-leaved pondweed (*Potamogeton natans*). Extensive algal blooms were also present and are probably indicative of nutrient enrichment from surrounding arable land.

Cultivated Land

All of the arable land within and adjoining the surveyed area appeared to be intensively cultivated for arable use at the time of the survey. Arable margin floral species comprised common and widespread species such as scentless mayweed (*Tripleurospermum inodorum*), knotgrass (*Polygonum aviculare*), scarlet pimpernel (*Anagallis arvensis*) and germander speedwell (*Veronica chamaedrys*). Black-grass (*Alopecurus myosuroides*), wild oat (*Avena fatua*) and Italian rye-grass (*Lolium multiflorum*) were present in most field margins.

Species-rich Hedgerows

Three sections of species-rich hedgerow were identified; all on Tickow Lane. These have been numbered H1 to H3 on Figure 1.4.

Hedgerow H1 is located on the north side of Tickow Lane between the junction with Anson Road and the footpath leading to the Black Brook. This hedgerow was approximately 2m in height and up to 3m in width. A central 30m section was sampled and yielded a total of seven native woody species. Within this section, field maple appeared dominant with small amounts of hawthorn, pedunculate oak, hazel, ash, wych elm and field rose. Other woody species recorded along the length of this hedgerow but outside the 30m sampled section comprised blackthorn, elder, dog rose and holly. Climbing species recorded included bramble, ivy, honeysuckle (*Lonicera periclymenum*), black bryony and hedge bindweed. The ground flora was dominated by stinging nettles.

Hedgerow H2 is located on the south side of Tickow Lane between the junction with Anson Road and the footpath leading to the Black Brook. This hedgerow was approximately 2m in height and up to 2.5m in width. A central 30m section was sampled and yielded five native woody species. Within this section, blackthorn was dominant with pedunculate oak, hazel, holly and dog rose also recorded. Other woody species recorded outside the 30m sampled section comprised hawthorn, elder, ash and field maple. Bramble formed approximately 5% of the hedgerow. Ground flora species recorded included cock's-foot, bracken (*Pteridium aquilinum*) and lords-and-ladies (*Arum maculatum*).

Hedgerow H3 is located on the south side of Tickow Lane and adjoins hedgerow H2 to the west, extending up to the block of woodland. This hedgerow was approximately 2m in height and up to 2.5m in width. A central 30m section was sampled, yielding six native woody species. Blackthorn was dominant, other species comprising elder, hawthorn, hazel, holly and pedunculate oak, the latter comprising mainly young trees. Bramble formed approximately 5% of the hedgerow, other climbing species comprising black bryony and cleavers. Goat willow was recorded outside the 30m sampled section. Stinging nettles were the only ground flora species recorded.

A further two sections of hedgerow had totals of six and eight native woody species along their respective lengths (see target notes TN22 and TN23) although on both hedgerows there were maxima of only four native species per 30m sample sections.

Species-poor Hedgerow

The remaining hedgerows within the surveyed area were species-poor; the vast majority of these were dominated by hawthorn although some were dominated by

wych elm suckers. Commonly recorded associated species comprised dog rose, ash and pedunculate oak. The height of these hedgerows varied depending on management regimes and ranged from hedgerows approximately 1.5m in height which had been extensively trimmed or flailed, to hedgerows up to 5m in height that had been allowed to grow tall and bushy.

Defunct Species-poor Hedgerows

The large arable field in the centre of the site had had the central hedgerow removed in the past and other hedgerows surrounding this field were defunct, being composed of a few scattered hawthorn bushes.

Trees

Trees had been planted on both east and west verges of Hallamford Road, these being still of relatively young age. Species recorded comprised Scots pine, pedunculate oak, field maple, ash, white willow, horse chestnut and hawthorn.

The hedgerows within the surveyed area contained many mature trees including some that meet the LWS criteria. A total of 13 mature trees were assessed as having either high or moderate bat roost potential due to old woodpecker nest holes, holes and cracks in damaged limbs, dense coverings of ivy or areas of loose bark (see target note section 7.4).

Mature willow trees were also present along a small tributary of the Black Brook, connecting Brook Spinney with the wet woodland areas near Tickow Lane (TN25 and TN30). White willow and alder were the dominant species.

Invasive Species

Japanese knotweed (*Fallopia japonica*) was found in one locality on the north side of Tickow Lane, to the west of the footpath leading to the Black Brook. This comprised three separate stands measuring approximately 5m x 3m, 10m x 3m and 5m x 3m respectively (see target note TN18).

A further small stand was found on the west side of the green lane leading down to the Black Brook (see target note TN31). This stand may be connected by underground rhizomes to the larger stands on the road side.

7.2.1 Notable Habitats and Features

The majority of the surveyed area comprised intensively managed agricultural land of relatively low ecological value. Notable habitats and features recorded were: species-rich hedgerows; veteran trees; areas of semi-natural woodland; water courses and semi-improved grassland (including road verges).

Habitats that are likely to support protected species were also recorded and these included trees assessed as having high or moderate potential for roosting bats, wetlands suitable for breeding amphibians (including great-crested newt) and woodland and scrub areas likely to have protected species. These have been target noted and are illustrated on Figure 1.4. Target notes are provided in Section 7.4 below.

7.2.2 Summary Data Table

Habitat/Feature	Extent	% of Area
Woodland & Scrub		
Wet Semi-natural Woodland	0.69ha.	0.25%
Broad-leaved Semi-natural Woodland	5.3ha.	1.92%
Mixed Plantation Woodland	0.7684ha.	0.28%
Dense Scrub	0.4670ha.	0.17%
Grassland		
Lowland Meadow (fields)	7.23ha.	2.62%
Lowland Meadow (road verges)	0.38ha	0.11%
Poor Semi-improved Grassland	2.7403ha.	0.99%
Wetland & Watercourses		
Running Water	6123 m	n/a
Standing Water	0.0966ha.	0.03%
Other		
Arable	258.6332ha.	95.73%
Boundaries		

Habitat/Feature	Extent	% of Area
Intact, Native Species-rich Hedge	751m	% of total hedgerow = 3.39
Intact, Species-poor Hedge	21362m	% of total hedgerow = 96.61
Wet Ditch	357m	n/a

7.3 Designated Sites

There are two SSSIs within 1km of the surveyed area: **Shepshed Cutting** is located approximately 0.25km to the south west of the surveyed area whilst **Oakley Wood** is located approximately 0.5km to the north east.

Two designated LWS areas exist within the survey area: **Harborough Pit Farm Roadside Verges** and the **Black Brook** -these are detailed in the table below:

Site	Location (OSGR)	Extent	Description	% of Area
Harborough Pit Farm Road Verges (W 4620/1)	SK 464206 to SK 465206	0.788km	These verges contain floral communities typical of less improved neutral grassland and including black knapweed, lady's bedstraw and agrimony.	N/A
Black Brook (S.1.6)	SK 465195 to SK 480206	2.154km	The entire section within the surveyed area was designated due to physical features such as riffle and pool systems, gravel substrate sections and areas of moss-covered rocks. One Red Data Book species was found within the surveyed area in March 2006 during LWS surveys (see target note TN29), with another record outside and approximately 1.5km to the east of the surveyed area. There are recent records of other Leicestershire Red Data Book species I, downstream of and to the east of the surveyed	N/A

			section of brook.	
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A further five designated sites occur either directly adjacent to the site or are located within 1km, brief details of these are given below: The LWS reference numbers are given in brackets.

Blackbrook Hill Farm & Brook Spinney (W4518/1) comprises a mosaic of habitat types including 2.6ha of ancient woodland, 1ha of acidic and mixed grassland and 545m of streams and rivers that meet the primary LWS selection criteria. Adding to these habitats are 1ha of scrub, 3.7ha of woodland and rocks and built structures that meet the secondary LWS selection criteria. The site also meets the community criteria for LWS selection. Brook Spinney directly adjoins the surveyed area to the west.

Hookhill Wood ((W 4519/1) is located within 1km to the west of the surveyed area and comprises 8.9ha of ancient woodland.

White Horse Wood (W 4618/1) is located approximately 0.5km to the south of the surveyed area and comprises 9.3ha of ancient woodland.

Black Brook Meadow 1 (W4720/1) is located approximately 1km to the south east of the surveyed area and comprises 1.1ha of mesotrophic and mixed grassland, 0.7ha of wet woodland and 373m of streams and rivers.

Black Brook Meadow 2 (W 4619/1) is located approximately 0.25km to the west of the southern boundary of the surveyed area and comprises 1ha of mesotrophic and mixed grassland and an approximate 200m of the adjacent Black Brook.

7.4 Target Notes

Target Note	Location (OSGR)	Description
TN1	SK 477207	A field of wet grassland with surrounding ditches. Flora species recorded include common fleabane, angelica, hairy sedge and various rush species. Röesel's bush-cricket also present.
TN2	SK 470210 to SK 474202	East verge of Hallamford Road comprising rank unmanaged grassland with black knapweed, meadow vetchling, fleabane, meadowsweet, meadow crane's-bill and

Target Note	Location (OSGR)	Description
		bird's-foot trefoil.
TN3	SK 473204	Two fields of intensively horse-grazed grassland. Flora includes black knapweed and meadow buttercup.
TN4	SK 457199	Pond situated within a block of plantation woodland, suitable for great-crested newt. Aquatic flora includes floating sweet-grass and broad-leaved pondweed.
TN5	SK 464206	A block of dense blackthorn scrub with potential for protected species.
TN6	SK 469211	A dead mature alder tree with holes in dead limbs, assessed as high bat roost potential.
TN7	SK 463206 and SK 466209	Agrimony on both verges of Carr Lane (in two separate localities).
TN8	SK 470204	Juvenile hedgehog on road verge.
TN9	SK 457203	Mature pedunculate oak tree with high bat roost potential.
TN10	SK 457199	Mature pedunculate oak tree with high bat roost potential.
TN11	SK 459199	Two mature pedunculate oak trees, both with high bat roost potential.
TN12	SK 464196	Mature ash tree with moderate bat roost potential.
TN13	SK 468198	Mature pedunculate oak with moderate bat roost potential.
TN14	SK 463196	Mature ash tree with moderate bat roost potential.
TN15	SK 467195	Dead mature ash tree with moderate bat roost potential.
TN16	SK 465195	Mature pedunculate oak with moderate bat roost potential.
TN17	SK 4667 1938	A mature ash tree with trunk girth of 3.71m (Tree 12 on Shepshed Veteran Tree Register).
TN18	SK 466193	Three patches of Japanese knotweed on north verge of Tickow Lane.

Target Note	Location (OSGR)	Description
TN19	SK 465190	A single plant of apple mint (<i>Mentha x villosa</i>) on verge of green lane.
TN20	SK 469209	Two dead ash trees, both of moderate bat roost potential.
TN21	SK 460211 to SK 478207	The entire section of Grace Dieu Brook within the surveyed area may qualify as a LWS as it contains riffle and pool systems, gravel substrate sections and areas of moss-covered rocks.
TN22	SK 458199 to SK463 195	A section of hedgerow with a total of six native woody species along its length but no more than four per 30m section. Hawthorn and blackthorn were dominant, elder, dog rose, pedunculate oak and ash were also recorded.
TN23	SK 469192 to SK465195	A section of hedgerow with a total of eight native woody species along its length but no more than four per 30m section. Hawthorn was dominant; other species comprised holly, hazel, elder, dog rose, blackthorn, dogwood and ash. Marsh tit was also recorded.
TN24	SK 467191	A mature ash tree with cracks in loose bark, moderate bat roost potential.
TN25	SK 466193	Wet, willow-dominated woodland including mature trees.
TN26	SK 467194 to SK470195	Species-rich hedgerow H1 on north side of Tickow Lane with 7 native woody species in the central 30m sample section.
TN27	SK 467193 to SK469194	Species-rich hedgerow H2 on the south side of Tickow Lane, with 5 native woody species in the central 30m sample section
TN28	SK 466193 to SK 467193	Species-rich hedgerow H3 on the south side of Tickow Lane, with 6 native woody species in the central 30m sample section.
TN30	SK 466189	A small block of wet willow-dominated woodland containing mature trees.
TN31	SK 466194	A small patch of Japanese knotweed on the green lane measuring approximately 1m square.

7.5 Priority Habitats

Habitats which are considered to qualify within the category of priority habitats as defined by the UK BAP and also currently listed as Habitats of Principal Importance under s74 of the Countryside and Rights of Way Act 2000) in the West of Shepshed survey area comprised:

- Three sections of **Species-rich Hedgerow** on Tickow Lane, plus a further two sections of species-rich hedgerow north of Tickow Lane;
- **Lowland Mixed Deciduous Woodland** adjacent to the Black Brook (although this is not ancient). This category includes woodland where more than 20% of the cover is from broadleaved and/or yew trees;
- **Wet Woodland** adjacent to Tickow Lane with another smaller block to the south. Both woodland areas are located adjacent to a small tributary of the Black Brook;
- **Lowland Meadow** including two small fields of horse-grazed pasture located to the south of buildings between Carr Lane (TN3), a field by Oakley Road (TN1) and road verges on Carr Lane (TN7) and Hallamford Road (TN2), though all are considered to be semi-improved rather than unimproved.

Priority Habitat/Feature	Extent	% of Area
Ancient/Species-rich Hedgerows	751m	3.39% of total hedgerows
Wet Woodland	0.69ha	0.25%
Lowland Mixed Deciduous Woodland	6.07ha.	2.2%
Lowland Meadow (fields)	7.23ha.	2.62%
Lowland Meadow (road verges)	0.38ha.	0.11%

Revised UK BAP List

The revised list of UKBAP Priority Habitats widens the scope for some habitat types and adds new habitat types. Within the West of Shepshed Area, this includes the following:

- A small **Pond** (TN4, Figure 7.1) though this may not qualify as a priority habitat as defined by the UKBAP, due to lack of scarce or notable species or high quality habitat types within the waterbody.
- The scope for **Hedgerows** has been widened so that the Hedgerow priority habitat type UK BAP now includes all hedgerows with 80% or more cover of any native tree/shrub species. This would include the majority of hedgerows within the study area.
- The scope for **Rivers** has also been increased and though definitions have not been finalised, this type is likely to include all natural and near-natural running waters. This would include the Black Brook and the Grace Dieu Brook.

7.6 Wildlife Corridors

Five wildlife corridors were identified within the surveyed area and these are detailed in the table below:

Feature	Location (OSGR)	Extent	Description & Function
Grace Dieu Brook	SK 460211 to SK 478207	2km	A fast-flowing brook with steep earth banks and gravel substrate providing potential habitat for several Leicestershire Red Data Book/ protected species, allowing interchange of animals between the watercourses west of the surveyed area and The Black Brook and ultimately with the River Soar (both are designated LWS). Some sections of the brook are also lined with mature trees and woodland, likely to provide foraging and commuting routes for bats in particular.
Black Brook	SK 465195 to SK 480206	2.154km	A brook with moderate to fast flow, riffle and pool systems, gravel substrate and eroding vertical banks, providing habitat for several Leicestershire Red Data Book/protected species. The brook connects Black Brook Reservoir SSSI with the River Soar LWS, allowing interchange of animals between these two sites. The brook is bounded by linear woodland, providing foraging and commuting routes for bats and habitats for

Feature	Location (OSGR)	Extent	Description & Function
			other fauna including bird and terrestrial invertebrate assemblages.
Carr Lane Verges (including Harborough Pit Farm Roadside Verges LWS)	SK 463206 to SK467205	1km	A small section of these verges (both north and south sides) have been designated an LWS (Harborough Pit Farm Roadside Verges) due to an assemblage of plant species typical of unimproved neutral grassland. The remainder of the grassland along these verges is composed largely of coarse grass species although there are small patches where agrimony and black knapweed have persisted, both to the east and west of the LWS. These verges connect the verge of Hallamford Lane with other road verges to the west of the surveyed area, allowing interchange of species, particularly small mammals, butterflies and other invertebrates. The verges may also provide habitat connectivity to the Black Brook.
Hallamford Road – East Verge	SK 470210 to SK 474202	1km	This verge is composed largely of coarse grasses although some species associated with less improved swards persist, these including black knapweed, and meadow vetchling. This verge also connects the Black Brook LWS with Grace Dieu Brook. The adjacent hedgerows are intensively managed and are therefore unlikely to be of high value as bat foraging or commuting routes.
South-West Boundary Hedgerows	SK 468199 to Sk465195	0.75km	There is a fragmented corridor composed of tall, species-rich hedgerows connecting the plantation woodland on the western site boundary with the Black Brook and the species-rich hedgerows on Tickow Lane (TN22 and 23) and the wet woodland adjacent to Tickow Lane (TN25).
Mature trees along tributary of	SK 465186 to SK 466189	0.25km	A line of mature white willow and alder trees connecting the secondary woodland alongside the

Feature	Location (OSGR)	Extent	Description & Function
the Black Brook			dismantled railway line with the wet woodland blocks to the north (TN30).

7.7 Recommendations for Further Investigation

A number of areas were identified that merit further botanical survey work and these are detailed under Potential Local Wildlife Sites below.

Other areas of grassland identified from aerial photographs were found to be rank and species-poor, being dominated by coarse grasses with few (largely ruderal) herb species. These occupied former arable land in proximity to water courses that had been taken out of cultivation due to flooding.

A patch of dense scrub, with adjacent tall ruderal vegetation to the north of Harborough Pit Farm Roadside Verges LWS provides potential habitat for protected species. A survey of this area is recommended.

A small pond within plantation mixed woodland outside the survey area (but immediately adjacent to the western boundary) has the potential to support breeding amphibians (including the possibility of great-crested newt). Further amphibian survey work is recommended, especially as this pond is surrounded by suitable terrestrial habitat and is connected to the wider landscape by dispersal corridors along hedgerows.

7.7.1 Potential Local Wildlife Sites

Areas which are considered to merit further investigation with regard to Local Wildlife Site Criteria are:

- Grace Dieu Brook (see target note TN21) has sections of gravel substrate, moss-covered rocks and riffle and pool systems, all of which are qualifying features for LWS.
- Hallamford Road East Verge (see target note TN2) contains an assemblage of plant species associated with less improved swards. A total of five plant species from the Neutral and Wet Grassland lists of the LWS selection criteria

were identified during the survey and other such species are considered likely to be present.

- A field between Oakley Road and Grace Dieu Brook (see target note TN1) contains an assemblage of plant species associated with less improved swards. A total of four plant species from the Wet Grassland list of the LWS selection criteria were recorded during the survey and other such species may also be present.
- Two small fields between the eastern end of Carr Lane and the property to the north (see target note TN3) were grazed by horses at the time of the survey although there were two plant species present from the Neutral Grassland list of the LWS selection criteria. Further investigation of these fields could reveal more such species (which are likely to be in vegetative states due to the intensity of grazing pressure and therefore would not have been readily visible during this survey).
- An area of wet willow-dominated woodland adjacent to Tickow Lane (TN25) may also meet the LWS criteria assuming it exceeds the size threshold.
- A further block of wet woodland to the south of the above block is probably below the size threshold for LWS designation (see Figure 2.4).
- A total of three species-rich hedgerows were identified adjacent to Tickow Lane, each having one central 30m section sampled. These hedgerows have been labelled H1 to H3 on Figure 1.4 (see also target notes TN26 to TN28 in section 7.3). All of these hedgerows probably meet the LWS selection criteria on average number of native woody species and associated features. At least two further 30m sections of each hedgerow should be sampled to give average number of native woody species per hedgerow and these should be assessed against the LWS criteria.
- In addition, a further two sections of hedgerow were identified as being species-rich over their entire lengths but had no more than 4 native woody species recorded in the central 30m sample sections – see target notes TN22 and TN23 on Figure 1.4. These sites are considered unlikely to qualify as LWS but are still of considerable wildlife value due to their structure and presence of mature trees and their function as a wildlife corridor, linking woodland along the Black Brook LWS with the plantation woodland to the north west. Five trees

within or in proximity to this corridor were assessed as having high or moderate bat roost potential.

- No additional veteran trees were identified within the surveyed area above those previously recorded and documented.

7.7.2 Wildlife Corridor Management

- Phase 2 botanical recording is recommended for the entire Hallamford Road East Verge between Grace Dieu Brook and the Black Brook.
- Further botanical recording is also recommended for sections of Carr Lane Verge adjoining the LWS section to ascertain whether this section could be extended in both east and west directions.
- Surveys along both Grace Dieu Brook and the Black Brook may inform future management priorities, especially as there is a recent record of a protected species off the eastern boundary of the surveyed area. This species is also suspected of being present in Blackbrook Reservoir SSSI (approximately 1.5km to the south of the surveyed area).

7.8 **Summary of Key Ecological Resources**

There are two SSSIs within 1km of the surveyed area comprising Shepshed Cutting and Oakley Wood. There are also five other LWS designated sites within 1km of the surveyed area: Blackbrook Hill Farm & Brook Spinney, Hookhill Wood, White Horse Wood and Black Brook Meadows 1 and 2 (two separate sites).

There are two designated Local Wildlife Sites within the surveyed area: Harborough Pit Farm Roadside Verges on Carr Lane comprising two verges supporting assemblages of plant species indicative of less improved swards.

The Black Brook contains a range of physical features of substantive wildlife value including sections of gravel substrate, eroding vertical banks, riffle and pool systems and mature trees.

A further 9 locations were identified within the surveyed area that may meet the LWS criteria including Grace Dieu Brook, Hallamford Road East Verge, two areas of potentially herb-rich grassland and three sections of species-rich hedgerows along Tickow Lane. The designation of these sites as LWS (assuming they meet the criteria) would contribute to and enhance the integrity of the designated sites

within the surveyed area and sympathetic management of these sites would also allow movement of species between sites within and beyond the surveyed area as species respond to climate change.

7.9 Comparison with Surrounding Landscape

The land within the surveyed area is considered typical of the wider landscape i.e. large arable fields with few hedgerows. In this context, the species-rich hedgerows identified in this survey assume a greater importance in an area largely devoid of species-rich hedgerows and where large scale hedgerow removal has taken place in the past.

Likewise, species-rich grassland is a scarce resource in the wider landscape surrounding the surveyed area and the wet grassland between the Grace Dieu Brook and the Black Brook (TN1) is likely to be of considerable wildlife importance, as also are the roadside verges at Harborough Pit Farm (including the LWS) and along Hallamford Road (TN2).

Both the Grace Dieu Brook and the Black Brook are also of substantive wildlife value as both are known to support breeding populations of Red Data Book species and have suitable habitat for other protected and otherwise notable species.

8. WEST OF LOUGHBOROUGH

See Figures 1.5 and 2.5

8.1 Overview & Summary Data

The majority of the surveyed area comprises intensively cultivated arable land with a small field of herb-rich neutral grassland with surrounding hedgerows (designated as an LWS).

The Black Brook forms the northern boundary to the surveyed area, the entire section within the surveyed area has been designated as a LWS (see below).

There are large areas of plantation broad-leaved woodland within and adjacent to the survey boundary, the central block, together with the adjacent lake have been designated an LWS. Semi-natural woodland is restricted to small blocks within the Black Brook LWS corridor.

The majority of the hedgerows were species-poor and intensively managed although three sections of species-rich hedgerow adjacent to Butthole Lane were

designated LWS in 2005. A further two sections of species-rich hedgerow were identified during the survey (H1 and H2).

The hedgerows contain mature trees including some with moderate or high bat roost potential. Two existing veteran trees are located within the survey boundary and a new veteran tree was recorded during the survey.

8.2 General Habitat Description

Semi-natural Woodland

This habitat is scarce within the survey area, being restricted to the Black Brook LWS corridor. These woodland areas were dominated by crack willow, and alder with some white willow. The ground flora was species-poor, as is typical with this habitat and dominated by stinging nettles.

Plantation Woodland

The Garendon Estate is particularly well endowed with plantation woodland, the large central section with adjacent lake was designated an LWS in 2005. The large block of woodland to the west of the lake was within the survey boundary and comprised secondary plantation woodland that meets the secondary LWS criteria due to its size. Both native and non-native trees are represented including pedunculate oak, ash, field maple, beech and at least two different hybrid black poplars. The ground flora is considered typical of secondary woodland.

Bailey's Plantation is located outside but adjacent to the north east corner of the survey area and is dominated by mature pedunculate oak, common lime and wych elm with a large amount of sycamore. Small amounts of mature beech, Scots pine, alder and a black poplar hybrid were occasionally recorded. The shrub layer was dominated by holly with some sapling field maple. The ground flora included patches of dog's-mercury and native bluebell scattered throughout the wood. Other ground flora species recorded were typical of secondary woodland, including red campion, wood dock, herb-Robert and hedge woundwort.

Home Covert is located outside but directly adjacent to the southern boundary of the survey area and is dominated by a mixture of sycamore and European larch with some ash and wych elm. The shrub layer was composed of rhododendron, snowberry (*Symphoricarpos albus*) and elder. The ground flora was dominated by

stinging nettles but was of a patchy nature being largely non-existent under the larches.

Venus Wood is located within the arable field to the east of Home Covert and is dominated by mature pedunculate oak with frequent ash and a cypress species (*Cupressus* sp.). Small amounts of European larch and crab apple were also noted. The ground flora is species-poor dominated by stinging nettles with large areas of bare ground. This wood is used for game rearing.

Other areas of woodland had been planted as shelterbelts along trackways, mainly comprising mature trees with ground flora typical of secondary woodland. Species recorded included pedunculate oak, horse chestnut, black poplar hybrids, common lime, Scots pine, copper beech (*Fagus sylvatica* var. *purpurea*), sycamore, apple (*Malus* sp), wild cherry and alder. The majority of these areas had a ground flora dominated by stinging nettles and other ruderal vegetation although a small patch of dog's-mercury was located at the western end of the shelterbelt opposite Home Covert. Some of the larger areas of woodland were used for game rearing.

An area of plantation woodland had been recently planted on the east verge of the M1 motorway on the western fringe of the survey boundary. This was dominated by pedunculate oak and sycamore on species-poor coarse grassland with patches of stinging nettles and bramble.

Dense Scrub

There were no appreciable amounts of scrub within this survey area although it was locally present along the eastern M1 embankment and a small patch adjacent to a house immediately to the west of the Hermitage Estate LWS woodland. This scrub was dominated by blackthorn and hawthorn.

Herb-rich Neutral Grassland

A field of herb-rich neutral grassland was designated an LWS in 2005 as part of the Hermitage Estate. This field has an assemblage of herb species characteristic of less improved swards including agrimony and meadow buttercup and was grazed by horses at the time of the survey. The southern species-rich hedgerow is also included within the LWS boundary, although the other hedgerows around this field were species-poor, dominated by hawthorn.

Poor Semi-improved Grassland

A large field to the west of Bailey's Plantation was composed of rather coarse species-poor grassland, dominated by meadow foxtail and cock's-foot. There were occasional wet flushes within this grassland where small stands of hairy sedge, tufted hair-grass, creeping bent and both hard rush and soft rush were locally present. Other herbs comprised ruderal species such as broad leaved and curled docks.

Tall Ruderal

This habitat was most extensive along the eastern motorway embankment and was dominated by stinging nettle and bramble.

Other areas of tall ruderal were present in field corners in the north-west corner of the survey area. These areas were dominated by rosebay willowherb and stinging nettle.

Wetland & Watercourses

The majority of the Black Brook has been designated a LWS (apart from a canalised section within Loughborough) including the section forming the northern boundary of the surveyed area. This section meets the LWS criteria for streams and rivers (order <4) as it contains riffle and pool systems, sections of gravel substrate and moss-covered bedrock. It also contains mature trees and has recent records of Leicestershire Red Data Book species.

No field ponds were recorded during the survey, however Hermitage Lake within the LWS is outside and approximately 50m to the east of the surveyed area.

Cultivated Land

All of the arable land within and adjoining the surveyed area appeared to be intensively cultivated for arable use at the time of the survey. Blocks of maize had been planted in various places within the survey area as a game cover for released pheasants.

Species-rich Hedgerows

One section of existing LWS species-rich hedgerow is located along part of the southern boundary of Butthole Lane and this has been described in the Designated Sites section.

An additional two species-rich hedgerows were identified that had not been previously recorded during LWS surveys in 2005; these sections are labelled H1 and H2 on Figure 1.5.

Hedgerow H1 is located along the eastern boundary of the track leading to the sewage works. This hedgerow has been allowed to grow tall and bushy, approximately 4.5m in height and up to 4m in width at the base. The central 30m section was sampled, yielding six native woody species comprising: blackthorn, dogwood, elder, field rose, hawthorn and field maple. Additional woody species recorded outside the sample section comprised pedunculate oak, white willow and goat willow. Climbers recorded included black bryony and bramble.

Hedgerow H2 is located on the north side of the track to the east of the LWS grassland. This hedgerow was approximately 2m in height and up to 2m in width, being unmanaged at the time of the survey. The central 30m section was sampled, yielding seven native woody species comprising: ash, dogwood, elder, wych elm, dog rose, hawthorn and field maple. Blackthorn was recorded outside the sample section. Climbing species were represented by bramble and bittersweet. The ground flora included dog's-mercury but was dominated by stinging nettles and great hairy willowherb. A blackcap was recorded in this hedgerow.

Species-poor Hedgerows

The remaining hedgerows within the surveyed area were species-poor; the vast majority of these were dominated by hawthorn although some were dominated by wych elm suckers. Commonly recorded associated species comprised dog rose, ash and pedunculate oak. The height of these hedgerows varied depending on management regimes and ranged from hedgerows approximately 1.5m in height which had been extensively trimmed or flailed, to hedgerows up to 4m in height that had been allowed to grow tall and bushy.

Planted Trees

Apart from the lines of shelterbelt woodland already described, a line of trees had been recently planted along the south side of a surfaced track leading east from Home Covert. A veteran oak tree was also present at the eastern end of this strip with a trunk girth of 5.21m, which meets the LWS criteria (see target note TN10). Two veteran trees have been previously recorded and these have been target noted although the veteran elder was not seen during the present survey – see target note section 8.4.

Invasive Species

No invasive species were found within or adjacent to the survey area.

8.2.1 Notable Habitats and Features

The majority of the surveyed area comprised intensively managed agricultural land of relatively low ecological value. Notable habitats and features recorded were: species-rich hedgerows; veteran trees; an area of herb-rich neutral grassland (an existing LWS) and a water course (the Black Brook) with associated wet woodland.

Two areas of notable habitat are located adjacent to but outside the survey area, both being existing Local Wildlife Sites: Stonebow Washlands is an area of herb-rich neutral grassland, whilst the Hermitage Lake has a large reedbed and area of adjacent mature wet woodland.

Habitats that are likely to support protected species were also recorded and these included trees assessed as having high or moderate potential for roosting bats and woodland areas likely to support protected species. These have been target noted and are illustrated on Figure 1.5. Target notes are provided in Section 8.4 below.

8.2.2 Summary Data Table

Habitat/Feature	Extent	% of Area
Woodland & Scrub		
Wet Willow-dominated Woodland	1.7ha	0.91%
Broad-leaved Semi-natural Woodland	7.24ha.	3.89%
Broad-leaved Plantation	13.61ha.	7.26%

Habitat/Feature	Extent	% of Area
Woodland		
Mixed Plantation Woodland	8.7ha.	4.67%
Dense Scrub	0.08ha.	0.04%
Grassland		
Herb-rich Neutral Grassland	2.15ha.	1.15%
Improved Grassland	3.8ha.	2.04%
Poor Semi-improved Grassland	3.8ha.	3.20%
Wetland & Watercourses		
Running Water	2044m	n/a
Standing Water	1026	0.05%
Other		
Arable	142.24ha.	76.46%
Tall Ruderal	0.61ha.	0.33%
Boundaries		
Intact, Native Species-rich Hedge	1436m	% of total hedgerow = 23.72
Intact, Species-poor Hedge	4533m	% of total hedgerow = 74.86
Defunct, Species-poor Hedge	86m	% of total hedgerow = 1.42
Dry Ditch	246m	n/a

8.3 Designated Sites

Designations

Oakley Wood SSSI is located within 0.25km of the western survey boundary.

There are two designated Local Wildlife Sites within the surveyed area:

Site	Location (OSGR)	Extent (ha/km)	Description	% of Area
Hermitage Estate	SK 497199 (centre	9.4ha	This complex site comprises	5.05%

(Ref. W 4920/1)	point)	475m of hedgerows	1.7ha of wet willow dominated woodland (the lake and reedbed are outside the survey area). An area of herb-rich mesotrophic grassland exists to the north of the woodland. A total of 475m of hedgerows are included within this site, adjacent to Butthole Lane. The large area of plantation woodland meets the secondary criteria due to its size (5.2ha).	7.8% of total hedgerows
Black Brook (including section west of Bailey's Plantation (Ref. S 1.6)	SK 487208 to SK 502205	8.013m (+ 491m west of Bailey's Plantation)	This site meets the criteria for streams and rivers (order <4) due to a range of physical features including riffle and pool systems. There are 33 mature trees along its length and Red Data Book species are also present.	N/A

Another three Local Wildlife Sites are located within 1km of the surveyed area:

Stonebow Washlands (W 5020/1) comprises 6.9ha of herb-rich mixed grassland with a mature tree and three ponds, all of which are important for breeding amphibians. This site also includes 627m of the Black Brook, which was designated separately from the remainder. This LWS is adjacent to the eastern boundary of the surveyed area.

Booth Wood (W 5019/1) comprises 4.2ha of woodland that was designated under community criteria and is located approximately 1km to the east of the survey area boundary.

Gorse Covert (W5120/1) comprises 3.5ha of woodland that contains Red Data Book species and is located approximately 0.8km to the east of the survey area boundary.

8.4 Target Notes

Target Note	Location (OSGR)	Description
TN1	SK 4960 2089	A veteran pedunculate oak tree with trunk girth of 3.86m (Tree 1 on Hathern Veteran Tree Register).
TN3	SK 491206	A mature pedunculate oak tree with dead major limbs – assessed as of moderate bat roost potential.
TN4	SK 497206	A dead mature tree with areas of loose bark – assessed as of moderate bat roost potential.
TN5	SK 4995 2042	A mature elder tree with trunk girth of 4.6m listed on the Loughborough Veteran Tree Register as Tree 99.
TN6	SK 491196	A mature pedunculate oak tree with major dead limbs – assessed as of moderate bat roost potential.
TN7	SK 493196	A mature pedunculate oak tree with one major dead limb – assessed as of moderate bat roost potential.
TN8	SK 493193	A mature horse chestnut tree with loose bark – assessed as of moderate bat roost potential.
TN10	SK 4977 1934	A veteran pedunculate oak tree with trunk girth of 5.21m. Assessed as of moderate bat roost potential due to areas of loose bark on dead upper

Target Note	Location (OSGR)	Description
		limbs.

8.5 Priority Habitats

Habitats which are considered to qualify within the category of priority habitats as defined by the revised UK BAP list and also currently listed as Habitats of Principal Importance (under s74 of the Countryside and Rights of Way Act 2000) in the West of Loughborough survey area comprised:

- Three sections of **Species-rich Hedgerow** on and adjacent to Butthole Lane, of which one is an existing LWS. Another section of species-rich hedgerow forms part of the Hermitage Grassland LWS.
- **Lowland Mixed Deciduous Woodland** includes all of the plantation woodland within the survey area (although none of this is ancient). This category includes woodland where more than 20% of the cover is from broadleaved and/or yew trees.
- **Wet Woodland** adjacent to the Black Brook LWS and also forming part of the Hermitage Estate LWS. .
- **Lowland Meadow** includes the herb-rich neutral grassland forming part of the Hermitage Estate LWS though this is considered to be semi-improved rather than unimproved.

The mesotrophic lake and reedbed within the Hermitage Estate LWS lies outside the survey area boundary and is therefore not included.

Priority Habitat/Feature	Extent	% of Area
Ancient/Species-rich Hedgerows	1436m	23.72% of total hedgerows
Wet Woodland	1.7ha	0.91%
Lowland Mixed Deciduous Woodland	29.55ha.	15.82%
Lowland Meadow (fields)	2.15ha.	1.15%

Revised UK BAP List

The revised list of UKBAP Priority Habitats widens the scope for some habitat types and adds new habitat types. Within the West of Loughborough Area, this includes the following:

- The scope for **Hedgerows** has been widened so that the Hedgerow priority habitat type UK BAP now includes all hedgerows with 80% or more cover of any native tree/shrub species. This would include the majority of hedgerows within the study area.
- The scope for **Rivers** has also been increased and though definitions have not been finalised, this type is likely to include all natural and near-natural running waters. This would include the Black Brook.

8.6 Wildlife Corridors

Four wildlife corridors were identified within the surveyed area and these are detailed in the table below:

Feature	Location (OSGR)	Extent	Description & Function
The Black Brook	SK 487208 to SK 502205	2km	A brook with moderate to fast flow, riffle and pool systems, gravel substrate and eroding vertical banks, providing habitat for several Red Data Book. The brook connects Black Brook Reservoir SSSI with the River Soar LWS, allowing interchange of animals between these two sites. The brook is bounded by linear woodland, providing foraging and commuting routes for bats and habitats for other fauna including bird and terrestrial invertebrate assemblages.
Butthole Lane Hedgerows	SK 489201 to SK 493201	0.25km	These hedgerows provide a link between plantation woodland and potential bat foraging habitat. However, the fragmentary nature of part of these hedgerows and the intensive management would limit their value to bats in particular.
Species-rich	SK 491202 to	0.5km	This hedgerow is tall and bushy, providing a good quality bat

Feature	Location (OSGR)	Extent	Description & Function
Hedgerow H1	SK 492208		foraging and commuting route, linking the Butthole Lane hedgerows with the Black Brook LWS. This hedgerow is also of value to birds, small mammals and terrestrial invertebrates.
Plantation Woodland and Hedgerows on the Hermitage Estate	SK 493196 to SK 499200,	0.8km	The woodland on this estate forms a network of interlinked corridors traversing the survey area and is of importance as sheltered bat foraging and commuting routes, connecting potential bat roosts with foraging habitat along the Black Brook and in the wider landscape.
	SK490194 to SK 498199,	1.2km	
	SK 504205 to SK 501201 to SK 504209	1km	

8.7 Recommendations for Further Investigation

Two sections of species-rich hedgerows were identified that merit further botanical survey work and these are detailed under Potential Wildlife Sites below.

One large area of grassland immediately to the south of the Black Brook and west of Bailey's Plantation (that was identified from aerial photographs) was found to be rank and species-poor, being dominated by coarse grasses with few (largely ruderal) herb species.

The Hermitage Estate was extensively surveyed by the author in 2004, when a large proportion was designated a LWS. None of the non-designated areas met the criteria for LWS designation in 2004 and this is still the case in 2007.

8.7.1 Potential Wildlife Sites

Areas which are considered to merit further investigation with regard to Local Wildlife Site Criteria are:

- Two species-rich hedgerows were identified; one leading north from Butthole Lane towards the Black Brook LWS and another small section on the north side of Butthole Lane, each having one central 30m section sampled. These hedgerows have been labelled H1 and H2 on Figure 1.5. Both of these hedgerows probably meet the LWS selection criteria on average number of

native woody species and associated features. Further sampling of additional 30m sections in both hedgerows would confirm their probable LWS status.

- One additional veteran tree was identified within the surveyed area above which had not been previously recorded and documented (see target note TN10).

8.7.2 Wildlife Corridor Management

- Water vole and white-clawed crayfish surveys along the Black Brook may inform future management priorities, especially as the habitat appeared suitable for both species.

8.8 **Summary of Key Ecological Resources**

Oakley Wood SSSI is located approximately 0.25km to the north-west of the survey boundary. This wood contains notable ancient woodland ground flora assemblage and has a Leicestershire and Rutland Red Data Book species recorded from this site.

The survey area contains two designated Local Wildlife Sites: The Hermitage Estate (which contains wet woodland, a field of herb-rich neutral grassland, plantation woodland and a species-rich hedgerow located along Butthole Lane). The lake and reedbed (which form part of the LWS designation), are outside the survey boundary.

The Black Brook LWS contains a range of physical features of substantive wildlife value including sections of gravel substrate, eroding vertical banks, riffle and pool systems and mature trees.

Stonebow Washlands LWS adjoins the eastern survey area boundary and also includes a section of the Black Brook (which was designated separately from the remainder).

A further two LWS occur within 1km of the survey area boundaries, comprising: Booth Wood and Gorse Covert.

A further two sections of species-rich hedgerow were identified within the surveyed area that probably meet the LWS criteria (hedgerows H1 and H2). The designation of these sites as LWS (assuming they meet the criteria) would contribute to and enhance the integrity of the existing LWS within the survey area, including the Black

Brook. Sympathetic management of these sites would also allow movement of species between sites within and beyond the surveyed area as species respond to climate change.

8.9 Comparison with Surrounding Landscape

This survey area is dominated by the Hermitage Estate which, like much of the surrounding landscape is composed largely of arable land. However, the plantation and semi-natural broad-leaved woodland within the survey area is likely to be of local importance as it comprises the majority of the woodland within the M1 and A512 sector and provides habitat for several protected species. The species-rich hedgerows are also considered likely to be of at least local importance in a landscape dominated by species-poor hedgerows and where hedgerow removal is likely to have taken place (including land in North West Leicestershire).

The herb-rich grassland assumes a greater importance in a landscape where the overwhelming majority of the grassland has been agriculturally improved or else has been ploughed.

The adjacent lake within the LWS, though artificial is nevertheless of considerable wildlife value as it contains a reedbed (a scarce habitat in the county generally) and is also considered likely to support a range of scarce invertebrates. The lake may be of local importance for breeding and wintering birds.

9. NORTH OF LOUGHBOROUGH

See Figures 1.6 and 2.6

9.1 Overview & Summary Data

The majority of the surveyed area comprises intensively cultivated arable land with some semi-improved and improved grassland.

The Black Brook forms the southern boundary to the surveyed area, the entire section of the brook within the surveyed area has been designated as a LWS (see below).

Hathern Drive forms linear plantation broad-leaved woodland along the eastern survey boundary. Semi-natural woodland is restricted to small blocks within the Black Brook LWS corridor.

The majority of the hedgerows were species-poor and intensively managed although four sections of species-rich hedgerow were identified during the survey, the majority of these being located on the east side of Oakley Wood SSSI, forming the borough boundary between Charnwood and North West Leicestershire.

The hedgerows contain mature trees including some with moderate or high bat roost potential. One existing veteran tree was located within the survey boundary although this does not meet the LWS criteria. No additional veteran trees were recorded during the survey.

9.2 General Habitat Description

Semi-natural Woodland

This habitat was restricted to small pockets of wet woodland adjacent to the Black Brook LWS within the survey area, these being dominated by mature alder and crack willow with abundant white willow. These woodlands are included within the riparian zone of the Black Brook LWS and contribute significantly to the integrity of the LWS. The ground flora was species-poor as is typical for this habitat and was dominated by dense stinging nettles.

Plantation Woodland

The largest area of plantation woodland within (and adjoining) the survey area was that along Hathern Drive on the eastern boundary of the survey area. This was dominated by mature ash and wych elm with common lime and planted large-leaved lime (*Tilia platyphyllos*). Wild cherry was locally present and an area at the northern end (adjacent to the A6) was dominated by black poplar hybrids. The shrub layer included hazel, hawthorn, elder and snowberry with stands of brambles. The ground flora was considered typical of secondary woodland but included localised stands of dog's-mercury.

A small block of plantation woodland on the eastern fringe of the survey area and adjacent to Hathern village was dominated by ash and sycamore with some wild plum and elder. The ground flora was dominated by stinging nettles.

New woodland has been planted on the south verge of Whatton Road along the northern boundary of the survey area, being approximately 2m in height at the time of the survey. Species recorded included ash, hazel and field maple. The ground flora was still dominated by grasses with occasional common ragwort.

Dense Scrub

There were no appreciable amounts of scrub within the survey area although there was a block of hawthorn and blackthorn, occupying what may have formerly been a garden adjacent to the eastern boundary of the survey area.

There were also two small clumps of blackthorn on the south side of Shepshed Road and in a field corner to the south of Whatton Road.

Poor Semi-improved Grassland

There were three fields of this habitat to the south of some allotments on the western fringe of Hathern village; these included a long, narrow field located at SK497215 where the grassland occurred as a mosaic with tall ruderal vegetation. As the habitat was essentially the same in all three fields, they are described together here. These grasslands differed only in the amount of ruderal species present.

All were becoming rank through lack of management and were dominated by such coarse grasses as false oat-grass, Yorkshire-fog, cock's-foot and perennial ryegrass. Common bent was locally present in all three fields. Herbs recorded included red clover, white clover, bristly ox-tongue (*Picris echioides*), black medick, common ragwort and lesser stitchwort (*Stellaria graminea*). The long, narrow field had several patches of tall ruderal vegetation dominated by stinging nettles and creeping thistle.

These grasslands had formed on clay and there were numerous wheel ruts and other depressions where water collects in winter. These areas had a distinctive flora dominated by creeping buttercup and stands of hard rush with marsh fox-tail (*Alopecurus geniculatus*) and creeping bent locally present. Röesel's bush-crickets were frequent in all three fields.

A similar grassland type occurred in two fields in the south east corner of the survey area on the north bank of the Black Brook LWS, these fields being grazed by horses at the time of the survey with a very short sward.

This habitat also occurred along both verges of Shepshed Road along its entire length within the survey area. They were similarly dominated by false oat-grass and cock's-foot with a largely ruderal herb flora including broad-leaved and curled docks, common ragwort, stinging nettle, creeping thistle and ribwort plantain.

Hedgerow crane's-bill (*Geranium pyrenaicum*) was locally present. Röesel's bush-crickets were frequent all along the verges.

Improved Grassland

The improved grassland fields within the survey area were all intensively grazed by livestock at the time of the survey. These fields were dominated by perennial ryegrass with abundant white clover and few other herb species.

A sown clover ley was also present along the northern edge of an arable field to the north of Shepshed Road – this is classified as arable on the plan.

Tall Ruderal

There was a triangular patch of tall ruderal vegetation in the south east corner of the survey area adjacent to the Black Brook LWS. This area was dominated by creeping thistle with spear thistle and stinging nettle and had been fenced off from the adjacent grassland.

Wetland & Watercourses

The majority of The Black Brook has been designated a LWS (apart from a canalised section within Loughborough) including the section forming the southern boundary of the surveyed area. This section meets the LWS criteria for streams and rivers (order <4) as it contains riffle and pool systems, sections of gravel substrate and moss-covered bedrock. It also contains mature trees and has recent records of Leicestershire Red Data Book species.

A wet ditch extended along a species-poor hedgerow to the south of Shepshed Road south eastwards to the woodland at Hathern Drive. This ditch was approximately 1m in width with vertical earth banks up to 0.5m in height. Water depth varied up to 0.2m although some sections were almost dry. Stinging nettle and common couch grass dominated the marginal vegetation.

No field ponds were recorded within the survey area, however the lake within the Hermitage LWS is approximately 0.5km to the south of the survey area. This site has been described in the Designated Sites section.

Cultivated Land

All of the arable land within and adjoining the surveyed area appeared to be intensively cultivated for arable use at the time of the survey.

Species-rich Hedgerows

Four sections of species-rich hedgerow were identified and these have been labelled H1 to H4 on Figure 1.6.

Hedgerow H1 is located along part of the southern boundary of Whatton Road in the north west corner of the survey area. This hedgerow was approximately 2.5m in height and up to 2.5m in width at the base, being unmanaged at the time of the survey. The central 30m section was sampled, yielding six native woody species comprising: blackthorn, elder, wild privet, hawthorn, field maple and pedunculate oak. Ash was the only other species to be recorded outside the sample section. Climbers were represented by bramble, ivy, black bryony and field bindweed.

Hedgerow H2 is located on the western boundary of the survey area to the south of hedgerow H1, beyond a short section of garden hedgerow. This hedgerow was approximately 3m in height and up to 2m in width, being unmanaged at the time of the survey. The central 30m section was sampled, yielding five native woody species comprising elder, hawthorn, holly, field maple and pedunculate oak. Two native woody species were recorded outside the sample section: ash and dog rose, with a small amount of sycamore. Bramble, white bryony and ivy represented the climbing species. Ground flora included foxglove (*Digitalis purpurea*) and ground-ivy.

Hedgerow H3 formed part of the western boundary of the survey area and coincides with the borough boundary between Charnwood and North West Leicestershire. This hedgerow was approximately 3m in height and up to 2m in width at the base, being unmanaged at the time of the survey. The central 30m section was sampled, yielding six native woody species comprising ash, silver birch, elder, crab apple, hawthorn and field maple. Dog rose, wych elm and hazel were recorded outside the sample section. Bramble, ivy, bittersweet and black bryony represented the climbing species. Bullfinch and little owl were recorded in this hedgerow during the survey.

Hedgerow H4 also formed part of the western boundary of the survey area and had almost certainly been originally derived from the adjacent Oakley Wood SSSI. This

hedgerow was approximately 3m in height and up to 2.5m in width at the base, with an adjacent dry ditch. There was however a gap of approximately 12m at the southern end. Parts of this hedgerow had been laid in the past. The central 30m section was sampled, yielding six native woody species comprising: ash, wild plum, dog rose, hawthorn, hazel and field maple. An additional five native species were recorded outside the sample section, comprising pedunculate oak, field rose, blackthorn, silver birch and elder, the latter in small quantity. Climbers were represented by bramble, black bryony and honeysuckle (*Lonicera periclymenum*). Ground flora species recorded included angelica, male fern, ground ivy and false brome. Fauna included vapourer moth and robin.

Species-poor Hedgerows

The remaining hedgerows within the surveyed area were species-poor; the vast majority of these were dominated by hawthorn although some were dominated by wych elm suckers. Commonly recorded associated species comprised dog rose, blackthorn, ash and pedunculate oak. The height of these hedgerows varied depending on management regimes and ranged from hedgerows approximately 1.5m in height which had been extensively trimmed or flailed, to hedgerows up to 4m in height that had been allowed to grow tall and bushy.

Trees

The hedgerows contained several mature trees, although none of these met the LWS criteria. One existing veteran tree was recorded to the east of the farm buildings (TN8 and Tree 2 on the Hathern veteran tree register) although its trunk girth of 3.36m does not qualify it for LWS status. However, it was considered of moderate potential for roosting bats. Other trees considered to be of high or moderate bat roost potential have been target noted – see section 9.4.

Invasive Species

No invasive species were found within or adjacent to the survey area.

9.2.1 Notable Habitats and Features

The majority of the surveyed area comprised intensively managed agricultural land of relatively low ecological value. Notable habitats and features recorded were: species-rich hedgerows, mature plantation broad-leaved woodland (Hathern Drive) and a water course (the Black Brook LWS) with associated wet woodland.

Two areas of notable habitat are located within 1km of the survey area, both being existing Local Wildlife Sites: Stonebow Washlands is an area of herb-rich neutral grassland, whilst Hermitage Lake has a large reedbed and area of adjacent mature wet woodland.

Habitats that are likely to support protected species were also recorded and these included trees assessed as having high or moderate potential for roosting bats and woodland areas likely to have protected species. These have been target noted and are illustrated on Figure 1.6. Target notes are provided in Section 9.4 below. No areas of standing water were recorded within the survey area.

9.2.2 Summary Data Table

Habitat/Feature	Extent	% of Area
Woodland & Scrub		
Broad-leaved Wet Semi-natural Woodland	0.40ha.	0.17%
Broad-leaved Plantation Woodland	5.29ha.	2.29%
Mixed Plantation Woodland	0.15ha.	0.065%
Dense Scrub	0.40ha.	0.17%
Grassland		
Amenity Grassland	0.078ha.	0.033%
Improved Grassland	56.50ha.	24.46%
Poor Semi-improved Grassland	21.52ha.	9.31%
Wetland & Watercourses		
Running Water	907m	n/a
Other		
Arable	145.66ha.	63.05%
Tall Ruderal	1.12ha.	0.48%
Boundaries		
Intact, Native Species-rich Hedge	1133m	% of total hedgerow = 5.25

Habitat/Feature	Extent	% of Area
Intact, Species-poor Hedge	20,266m	% of total hedgerow = 93.97
Defunct, Species-poor Hedge	168m	% of total hedgerow = 0.78

9.3 Designated Sites

Statutorily Designated Sites

Oakley Wood SSSI is located on the west boundary of the survey in the borough of North West Leicestershire. This woodland covers approximately 49ha and represents a unique example in Leicestershire of the transition from mixed oak wood on free-draining acid soil to ash-hazel woodland characteristic of the heavy clays of eastern central England.

This wood is most probably of ancient origin although its former composition may have been different to that which exists today. At the northern and southern extremities, the site is dominated by mature pedunculate oak with sessile oak (*Quercus petraea*), ash and silver birch with a shrub layer dominated by hazel. Bluebell dominates the ground flora in these areas.

The centre of the site is dominated by ash-hazel woodland where there is a diverse ground flora including species characteristic of ancient woodland such as wood anemone (*Anemone nemorosa*) and yellow archangel (*Lamiasastrum galeobdolon*). A Leicestershire Red Data Book species is present, that is found in only one other locality in the county.

Non-statutorily Designated Sites

The Black Brook LWS forms the southern boundary to the survey area and is summarised below:

Site	Location (OSGR)	Extent (ha/km)	Description	% of Area
Black Brook (S. 1.6)	SK 487209 to SK 499207	8.013m	This site meets the criteria for streams and rivers (order <4) due to a range of physical features including riffle and pool	N/A

			<p>systems. There are 33 mature trees along its length and Red Data Book species are also present.</p>	
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There are a further two designated sites within 1km of the surveyed area: The Hermitage Estate and Stonebow Washlands which are approximately 0.25km to the south and east respectively.

Hermitage Estate (Ref. W 4920/1) is a complex site totalling 10.5ha. Of this total area, there is 1.7ha of wet willow dominated woodland with adjacent 1.1ha lake containing a reedbed. An area of herb-rich mesotrophic grassland exists to the north of the woodland. A total of 475m of hedgerows are included within this site, the majority being adjacent to Butthole Lane. The large area of plantation woodland meets the secondary criteria due to its size (5.2ha).

Stonebow Washlands (Ref. W 5020/1) comprises 6.9ha of herb-rich mixed grassland with a mature tree and three ponds (all of which are important for breeding amphibians) and 627m of the Black Brook which was designated an LWS separately from the remainder and prior to the 2006 survey.

In addition, **Piper Wood** is located approximately 1km to the west of the western boundary of the survey area. This wood retains its original designation as a County Level Site as it has not yet been re-assessed against the LWS criteria. This woodland is listed on the Natural England Ancient Woodland Register although large sections have been altered through felling and replanting in the past. The northern section of this wood was used as a storage compound during the construction of the M1 and this area caught fire, spreading into the remainder of the wood and causing substantial damage to the ground flora. The existing ground flora is considered typical of secondary woodland although areas of bluebells are still present within the wood and small pockets of other relic ancient woodland flora remain along the perimeter wood banks. Piper Wood supports a breeding population of a county Red Data Book species.

9.4 Target Notes

Target Note	Location (OSGR)	Description
TN1	SK 486225	A mature ash tree with cracks and holes in damaged upper limbs – assessed as of moderate bat roost potential.
TN2	SK 486224	A mature ash tree with holes and cracks in the trunk – assessed as of moderate bat roost potential. A little owl was seen in this tree during the survey.
TN8	SK 4969 2114	A mature oak tree with trunk girth of 3.36m, and with loose bark on dead limbs – assessed as of moderate bat roost potential (Tree T2 on Hathern veteran tree register).
TN9	SK 499209	A mature, hollow pedunculate oak tree stump of moderate bat roost potential.

9.5 Priority Habitats

Habitats which are considered to qualify within the category of priority habitats as defined by the UK BAP and also currently listed as Habitats of Principal Importance under s74 of the Countryside and Rights of Way Act 2000) in the North Loughborough survey area comprised:

- Four sections of **Species-rich Hedgerow** adjacent to Oakley Wood SSSI and its environs, all four of these forming the borough boundary between Charnwood and North West Leicestershire.
- **Lowland Mixed Deciduous Woodland** includes the plantation woodland of Hathern Drive (although none of this is ancient). This category includes woodland where more than 20% of the cover is from broadleaved and/or yew trees.
- **Wet Woodland** adjacent to the Black Brook LWS.

Priority Habitat/Feature	Extent	% of Area
Ancient/Species-rich Hedgerows	1133m	5.25% of total hedgerows
Wet Woodland	0.4ha.	0.17%

Priority Habitat/Feature	Extent	% of Area
Lowland Mixed Deciduous Woodland	5.29ha.	2.29%

Revised UK BAP List

The revised list of UKBAP Priority Habitats widens the scope for some habitat types and adds new habitat types. Within the North of Loughborough Area, this includes the following:

- The scope for **Hedgerows** has been widened so that the Hedgerow priority habitat type UK BAP now includes all hedgerows with 80% or more cover of any native tree/shrub species. This would include the majority of hedgerows within the study area.
- The scope for **Rivers** has also been increased and though definitions have not been finalised, this type is likely to include all natural and near-natural running waters. This would include the Black Brook.

9.6 Wildlife Corridors

Four wildlife corridors were identified within the surveyed area and these are detailed in the table below:

Feature	Location (OSGR)	Extent	Description & Function
The Black Brook	SK 487208 to SK 499207	1.25km	A brook with moderate to fast flow, riffle and pool systems, gravel substrate and eroding vertical banks, providing habitat for several Red Data Book / protected species. The brook connects Black Brook Reservoir SSSI with the River Soar LWS, allowing interchange of animals between these two sites. The brook is bounded by linear woodland, providing foraging and commuting routes for bats and habitats for other fauna including bird and terrestrial invertebrate assemblages.
Hathern Drive and	SK 499207 to	1km	This linear woodland provides good quality bat foraging and

Feature	Location (OSGR)	Extent	Description & Function
adjacent Woodland	SK 505216		commuting routes and connects potential bat roosts in Hathern village with potential foraging areas along the Black Brook LWS. This woodland also provides a dispersal corridor for protected species population within and adjacent to the survey area and is of importance for birds, small mammals and invertebrates.
Species-rich Hedgerows H2 to H4	SK 489227 to SK 489214	1km	These tall and bushy hedgerows (with a slight degree of fragmentation) form an important sheltered bat foraging and commuting route, connecting Oakley Wood SSSI with potential roost sites in the village of Long Whatton.
Hedgerows along Whatton Road	SK 489227 to SK 498227	0.75km	These hedgerows are tall and bushy, providing a good quality bat foraging and commuting route, linking potential bat roosts in Long Whatton with potential foraging habitat. This corridor also links indirectly (via the above corridor) with Oakley Wood SSSI. These hedgerows are also of value to birds, small mammals and terrestrial invertebrates.

9.7 Recommendations for Further Investigation

Four sections of species-rich hedgerows were identified that merit further botanical survey work and these are detailed under Potential Wildlife Sites below.

The grassland areas within the survey area were either agriculturally improved or else where rank and species-poor, being dominated by coarse grasses with few (largely ruderal) herb species.

The woodland along Hathern Drive was surveyed by the author in 2004, when it was found not to meet the LWS criteria and this is still the case.

9.7.1 Potential Wildlife Sites

Areas which are considered to merit further investigation with regard to Local Wildlife Site Criteria are:

- Four species-rich hedgerows were identified; three sections along the borough boundary to the east and north of Oakley Wood SSSI and the fourth on the south verge of Whatton Road in the north west corner of the survey area.. These hedgerows have been labelled H1 and H4 on Figure 1.6. All of these hedgerows probably meet the LWS selection criteria on average number of native woody species and associated features. Further sampling of additional 30m sections in these hedgerows would confirm their probable LWS status.

9.7.2 Wildlife Corridor Management

- Water vole and white-clawed crayfish surveys along the Black Brook may inform future management priorities, especially as the habitat appeared suitable for both species.
- Protected species surveys of the Hathern Drive woodland corridor would confirm the importance of this woodland for such species.

9.8 **Summary of Key Ecological Resources**

Oakley Wood SSSI is located immediately adjacent to the western boundary of the survey area. This wood contains an important ground flora containing many species associated with ancient woodland, including one species listed in the Leicestershire and Rutland Rare Plant Register.

There is one designated Local Wildlife Site within the survey area:

The Black Brook LWS forms the southern boundary and has been designated due to a range of physical features of substantive wildlife value including sections of gravel substrate, eroding vertical banks, riffle and pool systems and mature trees.

The Hermitage Estate LWS is located within 1km to the south of the survey boundary and contains wet woodland, a lake with reedbed, a field of herb-rich neutral grassland, plantation woodland and species-rich hedgerows (mostly along Butthole Lane).

Stonebow Washlands LWS is also located within 1km of the survey area and comprises herb-rich mesotrophic grassland. This area also includes a section of the Black Brook (which was designated separately from the remainder).

The survey area was predominantly intensively managed agricultural land of relatively low biological value. The majority of the interconnecting hedgerows are subject to an intensive management regime, which limits their value to wildlife.

Hathern Drive woodland is of considerable importance for wildlife and is of particular value to bats. It is also an important wildlife corridor.

The designation of the species-rich hedgerows adjoining Oakley Wood SSSI would significantly enhance the integrity of this site and would contribute to and enhance the wildlife value of the landscape. Continued sympathetic management of these sites would also allow movement of species between sites and beyond the surveyed area.

Piper Wood is located approximately 1km to the west of the survey boundary in North West Leicestershire. This wood has not yet been re-assessed against the new LWS criteria and retains its original designation as a County Level Site. Despite having suffered fire damage in the past, this wood contains a relic ancient woodland flora and is also surrounded by prominent wood banks. This wood contains a number of mature dead trees around the periphery at least and these may be of importance for roosting bats.

9.9 Comparison with Surrounding Landscape

The predominantly arable landscape is typical of the wider landscape, including that of the adjoining North West Leicestershire. The plantation woodland within the survey area is part of the Garendon Estate and is of local importance although this is overshadowed by the two large blocks of woodland comprising Oakley Wood and Piper Wood, the former of which is an SSSI of county importance.

As with the West of Loughborough survey area, the species-rich hedgerows assume a greater importance in a landscape where intensively managed species-poor hedgerows predominate and where hedgerow removal has taken place in the past. The Black Brook and associated woodland is of substantive nature conservation value as a wildlife corridor and in providing habitat for protected and red data book species.

10. SOUTH OF LOUGHBOROUGH

See Figures 1.7a, 1.7b, 2.7a, and 2.7b

10.1 Overview & Summary Data

This survey area is dominated by intensively managed agricultural land, predominantly arable with some improved and semi-improved grassland and areas of amenity grassland (public open space, playing fields and a golf course). There are scattered blocks of plantation woodland with only small areas of semi-natural woodland. There are also three large blocks of dense scrub and other smaller areas scattered across the survey area. The majority of the hedgerows within the survey area are species-poor and intensively managed although six sections of species-rich hedgerow were identified. The hedgerows contain many mature trees although only two veteran trees were present, neither of them meeting the criteria for LWS designation.

The Wood Brook crosses the north west corner of the survey area and another, unnamed brook flows through Pignut Spinney Marsh LWS. An artificial balancing pond is present outside but adjacent to the survey boundary plus a further seven field ponds were located within the survey area although at least some of these are seasonally dry. A blue-brick bridge crossing the railway line near Woodthorpe village contains a strong population of a Leicestershire Red Data Book species (see target note TN2).

10.2 General Habitat Description

Plantation Broad-leaved Woodland

Two large blocks of plantation broad-leaved woodland are located adjacent to houses in the land between the A6 and Epinal Way (A6004). These areas being dominated by mature ash and sycamore with some pedunculate oak. The shrub layer is dominated by blackthorn and holly. The ground flora was species-poor consisting largely of grasses and ruderals considered typical of secondary woodland.

The large block of plantation woodland to the west of Bramcote Road is of relatively young age, composed of ash, silver birch, white poplar, pedunculate oak, wild cherry, sycamore, beech and field maple. The shrub layer is composed of hawthorn, holly and hazel. Brambles were frequent, the ground flora being

composed of typical secondary woodland species including wood avens, stinging nettle and mats of trailing ivy.

This habitat was also present around the Woodbrook Vale High School playing fields and immediately to the west surrounding a field of species-poor grassland. These woodland areas contained ash, silver birch, sycamore, common lime, field maple and blackthorn and were of relative young age. A pair of bullfinches was seen here in suitable breeding habitat (see target note TN15).

Scattered planted trees were present on the golf course in the north-west corner of the survey area, comprising silver birch, pedunculate oak (including a mature specimen), rowan, ash and various cherry cultivars. Lombardy poplars were present around the perimeter.

Plantation Mixed Woodland

A large block of mature plantation mixed woodland is associated with a house to the south of Epinal Way and east of the railway line. This woodland contains common lime, cedar-of-Lebanon (*Cedrus libani*), horse chestnut and black poplar hybrids. The shrub layer is dominated by garden shrubs.

Semi-natural Woodland

Two small areas of semi-natural woodland were located within the survey area: a small block to the south of Epinal Way and east of the railway line was composed of mature ash and white willow with a species-poor ground flora dominated by stinging nettles.

Another, larger block of semi-natural woodland extended southwards from the southern boundary of the survey area, a small fraction of this woodland being actually within the survey boundary. This was dominated by mature ash and crack willow with a shrub layer composed of hawthorn and elder. The ground flora was likewise dominated by stinging nettles. A little owl was heard calling from this woodland during the survey.

Dense Scrub

A block of dense scrub near the northern boundary of the survey area to the east of the A6 was dominated by mature blackthorn; no ground flora was visible at the time of the survey.

Another block of scrub to the east of the track leading to the Outwoods, on the southern side of a large playing field was dominated by elder and young crack willow with stinging nettles dominating the ground flora.

A block of dense scrub to the south west of Woodbrook Vale High School was surrounded by poor semi-improved grassland. The scrub was dominated by goat willow with some hawthorn, young wych elm, field maple and blackthorn. Bramble was frequent and there were also stands of rosebay willowherb.

Other, smaller blocks of dense scrub were present in field corners and were dominated by blackthorn.

Herb-rich Neutral and Wet Grassland

Pignut Spinney Marsh LWS comprises herb-rich grassland with many species associated with wet grassland. Grasses recorded during the survey comprised sweet vernal-grass (*Anthoxanthum odoratum*), tufted hair-grass, Yorkshire-fog, Timothy and common bent. There were also stands of various sedges and rushes.

Herbs present included ragged robin (*Lychnis flos-cuculi*), meadow vetchling, great burnet, meadowsweet, black knapweed, marsh thistle and greater bird's-foot trefoil.

Amenity Grassland

The amenity grassland areas within the survey area comprised part of a golf course (adjacent to Outwoods Edge Primary School), two areas of public open space adjacent to Pignut Spinney Marsh, another small area of public open space north west of Woodthorpe village (near target note TN1) and three areas of playing fields. All of these areas were composed of typical lawn species and are regularly mown.

Improved Grassland

The majority of the improved grassland within the survey area was located in the area bounded by the railway line, the A6 and Epinal Way (A6004). These fields were dominated by perennial rye-grass with white clover and were grazed by livestock at the time of the survey.

Semi-improved Grassland

The semi-improved grassland at the northern end of the survey area immediately to the south of Charnwood Water Marsh LWS and east of the A6 was becoming rank

and dominated by coarse grasses such as false oat-grass and cock's-foot. Herbs present were largely ruderal species such as creeping thistle, common ragwort, broad-leaved dock and stinging nettle.

Three fields to the south and west of Bramcote Road (Figure 1.7b) were grazed by horses at the time of the survey and had very short swards dominated by perennial rye-grass, false oat-grass and Yorkshire-fog. Timothy and creeping bent were locally frequent. Small amounts of black knapweed and red clover were present although no other species associated with less improved swards were noted. Other herb species recorded included white clover, hogweed, common vetch, hairy tare, broad-leaved dock, common ragwort and stinging nettle.

A small area of semi-improved grassland surrounded a triangular area of goat willow scrub immediately to the west of the playing fields and immediately south of the belt of plantation woodland on Figure 1.7b (to the north of target note TN18 and east of TN15). This grassland was becoming rank through lack of management and was dominated by Yorkshire-fog, perennial rye-grass and creeping bent with small amounts of common bent. Great hairy willowherb and creeping thistle were locally frequent. Some small depressions had been dug at the western end and these had filled with water at the time of the survey. A small clump of Japanese rose (*Rosa rugosa*) had either been planted or had arisen from bird droppings.

Semi-improved grassland was also present on the embankments of the railway line, dominated by such coarse species as false oat-grass and cock's-foot with a largely ruderal herb flora including common ragwort and creeping thistle.

Wetland – Running Water

The north-west corner of the survey area was crossed by the Wood Brook, with another un-named brook flowing through Pignut Spinney Marsh LWS.

The section of Wood Brook within and immediately adjacent to the survey area was approximately 2m in width with vertical earth banks up to 1m in height and composed of a mixture of earth and stones. There was a moderate to fast flow over a stony substrate. The majority of the brook within the survey area was heavily shaded by adjacent trees comprising mature alder, white willow and pedunculate oak. Stinging nettles dominated the marginal vegetation.

The brook flowing through Pignut Spinney Marsh LWS was approximately 1.5m in width with low earth banks up to 0.5m in height and of moderate gradient. The

water flow was moderate at the time of the survey over a gravel substrate. Stinging nettle and great hairy willowherb were frequent along the banks, with a small amount of floating sweet-grass (*Glyceria fluitans*) within the channel.

Wetland – Standing Water

All of the eight ponds and other standing water bodies within the survey area have been target noted (see section 10.4 below). All of these ponds have potential for breeding amphibians, including the possibility of great-crested newt.

The largest waterbody within the survey area was the artificial balancing pond outside the survey area immediately to the south of Epinal Way (see target note TN19). This pond had moderate earth banks up to 0.5m in height; the water depth was estimated at 1m in the centre. There was an extensive fringe of marginal vegetation, at least some of which has probably been planted. Species recorded comprised purple loosestrife (*Lythrum salicaria*), marsh marigold (*Caltha palustris*), yellow-flag (*Iris pseudacorus*), reed sweet-grass, greater pond-sedge, reed canary-grass and soft rush. Willow bushes had been planted around the pond and in a clump on the west bank.

Pond TN3 is located adjacent to a hedgerow on the northern boundary of an arable field and is surrounded by scrub; goat willow, hawthorn and field maple. This pond had moderate earth banks up to 0.5m in height with a water depth estimated at 0.5m in the centre. Fool's water-cress, common duckweed and reed canary-grass were recorded during the survey.

Pond TN4 is located within an arable field close to the railway line and is surrounded by wych elm and elder scrub. The banks were low, up to 0.1m and of shallow gradient composed of earth and mud. This pond was dry at the time of the survey with wet mud in the centre.

Pond TN5 is located within dense wych elm scrub and is heavily shaded, no aquatic vegetation being visible at the time of the survey. The banks were of moderate gradient up to 0.5m in height and were extensively covered in stinging nettles.

Pond TN11 is located within an arable field and is surrounded by ash and pedunculate oak trees and blackthorn scrub. This pond had moderate earth banks up to 0.5m in height and was heavily shaded. No aquatic vegetation was visible at the time of the survey.

Pond TN12 is located adjacent to mature plantation woodland on the edge of an arable field and was surrounded by young willow scrub and elder. The banks were low, up to 0.5m in height and composed of mud. The water depth was estimated at 0.2m at the time of the survey. A small amount of floating sweet-grass was present.

Pond TN14 is located within a large arable field and is surrounded by crack willow and ash trees. The banks were low, up to 0.2m in height and composed of mud. This pond was dry at the time of the survey.

Pond TN18 is located adjacent to a species-poor hedgerow and is surrounded by a fringe of bramble and stinging nettles with some great hairy willowherb. The banks were of shallow gradient, up to 0.2m in height and composed of mud. There was a low water level at the time of the survey, estimated at 0.2m in the centre, no aquatic vegetation was visible.

There was an adjacent wet ditch on the north side of hedgerow H1, approximately 1.5m in width with earth banks of moderate gradient up to 0.5m in height. Water level was estimated at 0.2m at the time of the survey. Stinging nettles dominated the marginal vegetation although great hairy willowherb, angelica and the aquatic form of bittersweet were also present.

Cultivated Land

Intensively managed arable land dominated the survey area, the fields having all been harvested or ploughed at the time of the survey. Some of the fields had marginal grass strips dominated by perennial rye-grass although the majority of these were too narrow to map accurately.

Tall Ruderal

A patch of tall ruderal adjacent to a garden near the northern boundary of the survey area (east of the A6) was composed of a mixture of coarse grasses, broad-leaved docks and creeping thistle.

A large area of tall ruderal was located immediately to the south of the large playing field east of the lane leading to the Outwoods. This area was dominated by stinging nettles with some creeping thistle and hogweed.

Another area of tall ruderal in the centre of an arable field close to the western boundary of the survey area and north of the Outwoods was dominated by broad-leaved dock and creeping thistle.

A triangular field of tall ruderal vegetation adjoined the southern boundary of the survey area on Figure 1.7b and was presumably arable land that has been left fallow. Broad-leaved dock and creeping thistle dominated with some lesser burdock (*Arctium minus*).

Species-rich Hedgerows

A total of six species-rich hedgerows were identified during the survey and these have been labelled H1 to H6 on Figure 1.7. All of these hedgerows probably meet the criteria for LWS designation on species assemblage and associated habitats – see section 10.7.1.

Hedgerow H1 is located along the south side of a rough track (and public footpath) leading eastwards to the Grand Union Canal and River Soar in the north east corner of the survey area. It was approximately 4m in height and up to 2.5m in width on average, having been trimmed prior to the survey. The central 30m section was sampled, yielding five native woody species comprising: ash, blackthorn, crack willow, hawthorn and field maple. Native woody species recorded outside the sample section comprised crab apple, dog rose and elder, giving a total of eight locally native species overall. Bramble and ivy were the only climbing species noted. An adjacent wet ditch on the northern side of this hedgerow has been described under the section on standing water.

Hedgerow H2 was located on the west side of a rough track leading to Pocket Gate Farm. This hedgerow was approximately 3m in height and up to 2m in width, having been trimmed prior to the survey. The central 30m section was sampled, yielding five native woody species comprising; ash, wych elm, dog rose, crab apple and hawthorn. A further four native woody species were recorded outside the sample section; blackthorn, pedunculate oak, field maple and field rose, giving a total of nine native woody species.

Hedgerow H3 extended southwards from the southern end of the track leading to Pocket Gate Farm. This hedgerow was approximately 1.5m in height and up to 1.5m in width, having been trimmed prior to the survey. The central 30m section was sampled, yielding five native woody species comprising blackthorn, elder, hawthorn, holly and pedunculate oak. A further three species, ash, dog rose and crack willow were recorded outside the sample section, giving a total of eight native woody species. Bramble was the only climbing species noted. There was an adjacent dry ditch.

Hedgerow H4 is located on the east side of the track leading to Pocket Gate Farm at the northern end of the track. This hedgerow was approximately 3m in height and up to 3m in width at the base. It had been trimmed prior to the survey. The central 30m section was sampled, yielding eight native woody species comprising ash, blackthorn, elder, dog rose, crab apple, hawthorn, holly and pedunculate oak. A further two native species were recorded outside the sample section comprising wild plum and field maple giving a total of ten native woody species. Bramble and ivy represented the climbing species, whilst the ground flora was dominated by stinging nettles with some hedge woundwort.

Hedgerow H5 is located on the east side of the track leading to the Outwoods and was approximately 2m in height and up to 1.5m in width, having been trimmed prior to the survey. The central 30m section was sampled, yielding six native woody species comprising ash, blackthorn, wych elm, hawthorn, field maple and pedunculate oak. A further three native species were recorded outside the sample section; field rose, dog rose and crack willow plus a small amount of sycamore. This gave a total of nine native woody species along the length of this hedgerow. Climbing species included bramble, black bryony and bittersweet. There was a central wet ditch with an extensive fringe of great hairy willowherb. Green woodpecker and linnets were recorded in this hedgerow during the survey.

Hedgerow H6 is located adjacent to a public footpath leading westwards towards the Outwoods from a rough track. This hedgerow was approximately 1.5m in height and up to 1.5m in width having been trimmed prior to the survey. The central 30m section was sampled yielding eight native woody species; blackthorn, elder, wych elm, dog rose, field rose, crack willow, field maple and pedunculate oak. Ash and holly were recorded outside the sample section, giving a total of ten native woody species. Bramble appeared to be the only climbing species noted. There was an internal dry ditch with moderate earth banks up to 0.5m in height.

A further section of hedgerow on the south side of a track leading to Mucklin Wood was assessed as species-rich although there were no more than four native woody species in any given 30m section (see target note TN6). This hedgerow was approximately 1.5m in height, having been trimmed prior to the survey. Species recorded comprised hawthorn, hazel, wych elm, field maple, dog rose and pedunculate oak giving a total of six native woody species.

Species-poor Hedgerows

.All of the remaining hedgerows within or adjoining the survey area were species-poor, dominated by hawthorn although some were dominated by blackthorn and a very few had wych elm suckers as the dominant species. Commonly associated species included elder, ash, pedunculate oak and dog rose. The majority of these hedgerows had been subjected to an intensive management regime involving regular trimming or flailing.

Defunct Species-poor Hedgerows

There were few defunct hedgerows within this survey area, the majority of them separating arable fields. What remained of these hedgerows was still subject to an intensive management regime involving regular trimming and/or flailing.

Trees

The hedgerows contained many mature trees, all those of moderate or high bat roost potential have been target noted (see section 10.4 below). Two veteran trees were located that have been previously recorded (see target notes TN9 and TN10). These comprised a pedunculate oak tree and crack willow respectively, neither having trunk girths large enough to qualify under the LWS criteria. No other veteran trees were recorded during the survey.

Trees planted around buildings, houses and in gardens comprised small orchards of domestic apples, Leyland cypress, Scots pine and black poplar hybrids.

Mature pedunculate oak trees were present within the improved grassland fields between the A6 and Epinal Way (A6004).

A line of young willow trees, including osier (*Salix viminalis*) had been planted along the southern fringe of Woodbrook Vale High School playing fields. Other trees around the school buildings included Leyland cypress and other exotic conifers.

Individual planted trees within the amenity grassland south of Pignut Spinney Marsh (including those trees adjacent to the brook) included crack willow, ash, common lime and beech.

Brick Bridges

Two blue-brick bridges taking minor roads over the railway line, both having strong populations of various fern species. Both bridges have been target noted, TN2 has approximately 100 plants of a Leicestershire Red Data Book fern species restricted to five localities in the county. Other fern species recorded on this bridge comprised wall-rue (*Asplenium ruta-muraria*), black spleenwort (*Asplenium adiantum-nigrum*), hart's-tongue (*Phyllitis scolopendrium*) and maidenhair spleenwort (*Asplenium trichomanes* ssp. *quadrialeans*).

The bridge TN20 has a strong population of wall-rue with some black spleenwort and maidenhair spleenwort.

10.2.1 Notable Habitats and Features

The majority of the surveyed area comprised intensively managed agricultural land of relatively low ecological value. Notable habitats and features recorded were: species-rich hedgerows; veteran / ancient trees; plantation woodland, a water course and a small field of lowland wet grassland meadow (herb-rich).

Habitats that are likely to support protected species were also recorded and these included trees assessed as having high or moderate bat roost potential and ponds with potential for breeding amphibians (including great-crested newt). These have been target noted and are illustrated on Figure 1.7. Target notes are provided in Section 10.4 below.

10.2.2 Summary Data Table

Habitat/Feature	Extent	% of Area
Woodland & Scrub		
Semi-natural Broad-leaved Woodland	11.5956ha.	3.52%
Plantation Broad-leaved Woodland	9.3975ha.	2.86%
Plantation Mixed Woodland	0.638ha.	0.19%
Dense Scrub	1.53ha.	0.465%
Grassland		
Herb-rich Wet Grassland (Pignut Spinney Marsh LWS)	2ha	0.61%

Habitat/Feature	Extent	% of Area
Amenity Grassland	22.4072ha.	6.81%
Improved Grassland	2.8675ha.	0.87%
Semi-improved Neutral Grassland	10.73ha.	3.26%
Wetland & Watercourses		
Running Water	941m	n/a
Standing Water	15.923ha.	4.84%
Other		
Arable	245.56ha.	74.64%
Tall Ruderal	6.499ha.	1.97%
Boundaries		
Intact, Native Species-rich Hedge	1963m	% of total hedgerow = 6.82
Intact, Species-poor Hedge	26,275m	% of total hedgerow = 91.33
Defunct, Species-poor Hedge	531m	% of total hedgerow = 1.85
Dry Ditch	122m	n/a

10.3 Designated Sites

Statutorily Designated Site

The Outwoods forms part of the Beacon Hill, Hangingstone and Outwoods SSSI, the Outwoods being located outside and adjacent to the south west corner of the survey boundary. Although much altered by recent planting, this site maintains a diverse ground flora including many species characteristic of ancient woodland including a large population of bluebells. Two Leicestershire Red Data Book plants have been recorded from the wood, both being still present in 2007. The wood is also of importance for breeding birds, which formerly included redstart. A pond in proximity to this wood supports a breeding population of a Leicestershire Red Data Book species that has only three known breeding sites within the county.

The rock outcrops within the wood contain complex impression fossils including an ovoid medusoid jellyfish and an arthropod-like species.

Non- Statutorily Designated Sites

There is one designated Local Wildlife Site within the survey area boundaries:

Site	Location (OSGR)	Extent (ha/km)	Description	% of Area
Pignut Spinney Marsh (Ref. W 5217/1)	SK 524176	2ha of grassland plus 220m of stream	Mesotrophic and mixed herb-rich grassland and stream. County Red Data Book species are present and the site is also of importance to the local community.	0.61%

There are another thirteen Local Wildlife Sites within 1km of the survey boundaries:

Mucklin Wood (Ref. W 5316/1) is located adjacent to the south west corner of the survey area and comprises 10ha of ancient woodland.

Charnwood Water Wood (Ref. W 5418/1), **Charnwood Water Marsh** (Ref. W 5418/2) and **Charnwood Water** (Ref. W 5418/3) form a complex of adjacent sites immediately to the north of the northern survey area boundary. These sites comprise approximately 3ha of wet woodland (total over two sites), 2ha of mixed herb-rich grassland (with field pond) and approximately 8ha of standing water. Charnwood Water is of local importance for its assemblage of breeding amphibians and the site complex is used by the local community for recreation.

Nanpantan Reservoir (Ref. W 5017/1) is located approximately 1km to the west of the survey area and comprises an artificial reservoir containing populations of Leicestershire Red Data Book species. This reservoir is also of considerable importance for foraging bats.

Loughborough Moors (Ref, W 5518/1) is located approximately 1km to the north of the northern survey area boundary and comprises several adjacent fields of herb-rich mesotrophic and mixed grassland covering approximately 11ha. Veteran trees are also present in the surrounding hedgerows.

Buck Hill Knoll (W 5016/1) is located approximately 0.85km to the west of the survey area boundary and comprises 1.2ha of semi-natural broad-leaved woodland with native bluebells.

Buck Hill (W5016/2) is located approximately 0.93km to the west of the western survey area boundary and comprises 22.2ha, containing 12.7ha of acidic grassland, 0.3ha of mixed and acidic grassland, 6.9ha of woodland and 2.3ha of native scrub plus one field pond. Also included within this LWS is 1,085m of the Wood Brook.

Burleigh Wood (W 5017/4) is located approximately 0.47km to the west of the survey boundary and comprises 8.5ha of ancient woodland where Red Data Book species have been recorded. This woodland was also designated under community criteria.

Holywell Wood (W 5018/2 and W 5018/6) is located approximately 0.91km to the west of the survey area boundary and comprises 6.7ha of ancient woodland.

The Hedgerow at North End of Mile Lane (W 5217/2) is located within 35m of the eastern survey area boundary and comprises 60m of species-rich hedgerow.

Farley Way Lake ((W 5516/2) is located approximately 0.6km to the east of the survey area boundary and comprises a 1.1ha water body with an important species assemblage.

Tom Long's Meadow Extension (W 5516/5) is located approximately 0.69km to the east of the survey area boundary. The total area covers 1.4ha, comprising 0.6ha of wet woodland, 0.7ha of wet grassland and a sedge bed of 0.1ha.

Leicestershire Red Data Book Species Adjacent to the Survey Area

A strong but fluctuating population of a Leicestershire Red Data Book plant species occurs in two locations along a rough track leading to the River Soar, approximately 1km to the east of the survey area boundary. This is the only extant population in the county of this species and was still present in May 2007. The largest population occurs to the east of the Grand Union Canal, approximately 1.2km to the east of the survey boundary.

10.4 Target Notes

Target Note	Location (OSGR)	Description
TN1	SK 540176	A mature pedunculate oak tree with dead hollow limbs – assessed as high to moderate bat roost potential.
TN2	SK 547172	A blue-brick bridge over the railway line, supporting a large population of a Leicestershire Red Data Book species with 5 sites in the county.
TN3	SK 543172	A small pond adjacent to a hedgerow and surrounded by scrub with potential for breeding amphibians.
TN4	SK 546170	A seasonal pond within a large arable field, surrounded by scrub and dry at the time of the survey.
TN5	SK 542171	A small pond adjacent to a hedgerow and heavily shaded by surrounding scrub. It has potential for breeding amphibians.
TN6	SK 538167	A section of hedgerow containing six native woody species but no more than four species in any given 30m section.
TN7	SK 540165	A mature pedunculate oak tree with dead major limbs – assessed as of moderate bat roost potential.
TN8	SK 516176	A mature pedunculate oak tree with a dense cover of ivy – assessed as of moderate bat roost potential.
TN9	SK 5225 1768	A mature pedunculate oak tree listed as tree 111 on the Loughborough Parish Veteran Tree Register. Its trunk girth falls below that required for LWS designation.
TN10	SK 5176 1730	A mature crack willow tree listed as tree 130 on the Loughborough Parish Veteran Tree Register. Its trunk girth falls below that required for LWS designation.
TN11	SK 521169	A pond within an arable field and surrounded by scrub, with potential for breeding amphibians.
TN12	SK 522168	A small pond with aquatic vegetation and potential for breeding amphibians.

TN13	SK 520167	A mature pedunculate oak tree with damaged major limbs – assessed as of moderate bat roost potential.
TN14	SK 520167	A seasonal pond surrounded by scrub which was dry at the time of the survey and within an arable field.
TN15	SK 527169	A pair of bullfinches seen in suitable breeding habitat
TN16	SK 526167	A mature, ivy-covered dead tree assessed as of moderate bat roost potential.
TN17	SK 522165	A mature pedunculate oak tree with dead major limbs – assessed as of moderate bat roost potential.
TN18	SK 530166	A small field pond adjacent to a hedgerow, fringed by tall ruderal vegetation, with potential for breeding amphibians
TN19	SK 543177	An artificial balancing pond with aquatic and marginal vegetation, with potential for breeding amphibians.
TN20	SK 546178	A blue-brick bridge taking a minor road over the railway. This bridge has a population of wall rue, maidenhair spleenwort and black spleenwort ferns.

10.5 Priority Habitats

Habitats which are considered to qualify within the category of priority habitats as defined by the UK BAP and also currently listed as Habitats of Principal Importance under s74 of the Countryside and Rights of Way Act 2000 in the South of Loughborough survey area comprised:

- Six sections of **Species-rich Hedgerow**, including three sections on or adjacent to a rough track leading to Pocket Gate Farm.
- **Lowland Mixed Deciduous Woodland**; including all of the plantation woodland (although none of this is ancient). This category includes woodland where more than 20% of the cover is from broadleaved and/or yew trees.
- **Lowland Meadow** comprises Pignut Spinney Marsh LWS although this is considered to be semi-improved rather than unimproved.

None of the road verge grassland within or adjacent to the survey area was considered to fall within the definition of Lowland Meadow due to species-poor assemblages.

Habitat/Feature	Extent	% of Area
Ancient/Species-rich Hedgerow	1963m	6.82% of total hedgerows
Lowland Mixed Deciduous Woodland	20.993ha	6.38%
Lowland Meadow	2ha	0.61%

Revised UK BAP List

The revised list of UK BAP Priority Habitats widens the scope for some habitat types and additional habitat types within the surveyed area include the following:

All of the field **Ponds**, it is considered that these ponds may qualify as priority habitat as defined by the UK BAP, due to the possible presence of scarce or notable species (especially great-crested newt).

The scope for **Hedgerows** has been widened and now includes all hedgerows with 80% or more cover of native tree/shrub species. This would include the majority of the hedgerows within the survey area.

The increased scope for **Rivers** has not been defined at the time of writing although this type is likely to include all natural or near natural running waters. This would include the Wood Brook and possibly the un-named brook flowing through Pignut Spinney Marsh LWS.

10.6 Wildlife Corridors

The Wood Brook forms an obvious wildlife corridor close to the northern boundary of the survey area, although its value to aquatic wildlife (including water vole) is limited by the fact that the eastern part of the brook is culverted under large sections of Loughborough to the east of the survey boundary. The fringing mature trees provide sheltered foraging and commuting routes for bats and are also of importance for birds and invertebrates.

The un-named water course flowing through Pignut Spinney Marsh LWS also provides a corridor of suitable habitat for aquatic species although it does not connect with the Wood Brook and also flows into a culvert underneath a large section of suburban development at the southern fringe of Loughborough. There are only small sections of bank that appeared suitable for water voles.

The hedgerows bordering the lane leading to Pocket Gate Farm connect potential bat roosting areas in houses on the outskirts of Loughborough with potential foraging habitat around the plantation woodland and also link indirectly with the Outwoods SSSI. However, the value of these hedgerows for bats is limited by the intensive management regimes to which some are subjected.

The hedgerows bordering the lane leading to the Outwoods SSSI also connects areas of houses on the outskirts of Loughborough with potential foraging habitat along the Wood Brook and the Outwoods SSSI. However, the majority of the hedgerows forming this corridor are intensively managed limiting their value to bats.

Hedgerow H3 links with tall bushy hedgerows leading north eastwards towards areas of plantation broad-leaved woodland via an intervening hedgerow and connects areas of suitable bat foraging habitat with potential roost sites in houses immediately to the north of the survey boundary.

The rough grassland and tall ruderal vegetation along the railway embankments provide good quality habitat for invertebrates and small mammals. This area provides breeding and foraging habitat for ground-nesting birds, potentially including species of conservation concern.

The hedgerows along the lane south of Woodthorpe village connects potential bat roosting sites in buildings in Woodthorpe with potential foraging habitat in Mucklin Wood LWS although the intense management regime of these hedgerows would limit their value to bats. These hedgerows also connect two ponds with potential for breeding amphibians and act as dispersal corridors for amphibians connecting with areas of terrestrial and potential hibernation habitat.

The tall bushy hedgerows along the eastern fringe of the large playing field and along the northern edge of the survey area connects indirectly with Pignut Spinney Marsh LWS, linking this foraging area with potential roost sites in adjacent houses.

Feature	Location (OSGR)	Extent	Description & Function
Wood Brook	SK 511173 to SK 517175	0.6km	A moderately flowing brook with sections of vertical earth banks and areas of marginal vegetation providing habitat for water vole although there is no continuous connection with other water courses above ground, which would limit its value for water voles. The adjacent trees provide sheltered foraging and commuting route for bats in particular, besides other fauna groups including birds and invertebrates.
Un-named Brook flowing through Pignut Spinney Marsh LWS	SK 520159 to SK 525174	1.5km	A moderately flowing brook with low earth banks providing marginally suitable habitat for water voles although this brook has no above-ground connections with any other water course, which limits its value as a wildlife corridor to the north of the survey area.
Pocket Gate Farm Lane Hedgerows	SK 520156 to SK 523178	2.25km	These hedgerows connect potential bat roosting sites with potential foraging habitat however the intensive management of these hedgerows limits their value for bats as foraging and commuting routes.
Outwoods Lane Hedgerows	SK 517166 to SK 516176	1.2km	These hedgerows connect potential bat roosting areas in residential buildings with foraging habitat although the majority of these hedgerows are intensively managed limiting their value to bats.
Hedgerow H3 and Adjacent Bushy Hedgerows	SK 523158 to SK 520164	0.5km	These tall and bushy hedgerows link areas of plantation woodland with potential bat roosts.
Railway Embankments	SK 549163 to SK 545183	2km	The rough grassland and ruderal vegetation provides good quality habitat for small mammals and invertebrates and also provides habitat for ground-nesting birds.

Hedgerows South of Woodthorpe Village	SK 537166 to SK 543173	1km	These hedgerows connects potential bat roosting sites in buildings in Woodthorpe with potential foraging habitat in Mucklin Wood LWS although the intense management regime of some of these hedgerows would limit their value to bats. These hedgerows also connect two ponds with potential for breeding amphibians and act as dispersal corridors connecting with areas of terrestrial and potential hibernation habitat.
Eastern Fringe Playing Field Hedgerows	SK 525165 to SK 529170	0.75km	The tall bushy hedgerows along the eastern fringe of the large playing field and along the northern edge of the survey area connects indirectly with Pignut Spinney Marsh LWS, linking this foraging area with potential roost sites in adjacent houses.

10.7 Recommendations for Further Investigation

Six sections of species-rich hedgerows (H1 and H6) were identified that merit further botanical survey work and these are detailed under Potential Local Wildlife Sites below. A further section of species-rich hedgerow (TN6) may also meet the LWS criteria on species-assemblage and associated features, further 30m samples of this hedgerow are recommended.

Pignut Spinney Marsh is already an LWS and no further survey work is considered necessary in this area.

It is considered possible that Wood Brook may meet the LWS criteria and this is also detailed under Potential Local Wildlife Sites below.

Water vole surveys of the section of the Wood Brook within the survey area are recommended as it provides suitable habitat.

Protected species surveys are recommended for all of the plantation woodland areas within or bordering the survey area.

All of the ponds within the survey area have the potential to support breeding amphibians (including great-crested newts). Further amphibian survey work is

recommended in all ponds, especially those that are linked to good quality terrestrial habitat.

10.7.1 Potential Wildlife Sites

Areas which are considered to merit further investigation with regard to Local Wildlife Site criteria are as follows:

- All of the six sections of species-rich hedgerow probably meet the LWS criteria on average number of native woody species and associated features. Further sampling of additional 30m sample sections would confirm their probable LWS status.
- The additional section of species-rich hedgerow (TN6) may also meet the LWS criteria on associated features and species-assemblage and further 30m sample sections are recommended.
- The Wood Brook may meet the LWS criteria for streams and rivers (order <4) on physical features.
- All of the field ponds within or directly adjoining the survey area could support breeding populations of great-crested newts. If they are proved to be present, these ponds would then meet the LWS criteria (presence of Red Data Book species).

10.7.2 Wildlife Corridor Management

Water vole surveys of the Wood Brook within and adjacent to the survey area may inform future management priorities.

A protected species survey of the plantation woodland areas may also inform future management priorities.

10.8 Summary of Key Ecological Resources

The Outwoods forms part of an SSSI complex which also includes Beacon Hill and Hangingstone. This woodland is located adjacent to the western boundary of the survey area.

The survey area contains one designated site; Pignut Spinney Marsh LWS. Four Local Wildlife Sites are located immediately adjacent to the survey area boundaries

comprising Mucklin Wood, Charnwood Water Wood, Charnwood Water Marsh and Charnwood Water. Another nine Local Wildlife Sites are located within 1km of the survey boundaries comprising Loughborough Moors, Buck Hill Knoll, Buck Hill, Burleigh Wood, Holywell Wood, a Hedgerow at North End of Mile Lane, Farley Way Lake, Tom Long's Meadow Extension and Nanpantan Reservoir.

There are no other designated sites within 1km of the surveyed area.

Six sections of species-rich hedgerow were identified that probably meet the LWS criteria, plus another target noted section that may also meet the LWS criteria due to their assemblage of native woody species and associated features

The Wood Brook may also meet the LWS criteria on physical features.

All of the ponds within the survey area may also meet the LWS criteria should they be proved to support breeding populations of amphibians (including great-crested newt).

The designation of these sites as LWS (assuming they meet the criteria) would contribute to and enhance the wildlife value of the landscape. Sympathetic management of these sites would also allow movement of species between sites and beyond the surveyed area.

Six mature trees were identified that are either of moderate or high bat roost potential. Two veteran trees were located that have been previously recorded although they do not meet the LWS criteria.

Two blue-brick bridges crossing the railway line support large populations of ferns, one bridge having a large population of a Red Data Book species.

10.9 Comparison with Surrounding Landscape

The predominantly arable landscape within the survey area is of noticeably poorer quality than the surrounding landscape where there are several Local Wildlife Sites, six of which either directly adjoin the site or are located within 1km. These comprise wetland, woodland and herb-rich grassland. Other local wildlife sites are present within 2km in the River Soar valley and these support a diverse range of herbs associated with less improved swards and include county rare species.

The ponds within and adjacent to the survey area have the potential to be of local importance for breeding amphibians, including the possibility of great-crested newts and may also have important assemblages of the more common species.

The woodland within the survey area is of poorer quality than those present outside and adjacent to the survey area, being of relatively recent planting and with species-poor ground flora present.

The blue brick bridge TN2 is of county importance as it supports a large colony of a Red Data Book species at one of only five known sites in Leicestershire.

11. EAST OF LOUGHBOROUGH (NEAR COTES)

See Figures 1.8 and 2.8

11.1 Overview & Summary Data

Intensively managed arable land dominates this survey area, with small areas of improved grassland near the southern boundary. The natural burial ground is predominantly herb-rich semi-improved grassland with scattered scrub.

There are also large blocks of plantation woodland (both broad-leaved and mixed), with the central section of Fishpond Spinney having mature pedunculate oak trees. Semi-natural woodland was only present in one small area, adjacent to Burton Brook.

The majority of the hedgerows within this survey area were species-poor, with a high proportion of defunct hedgerows, mostly north of Loughborough Road (A60). Five sections of species-rich hedgerow were identified during the survey.

Four water courses traverse the survey area; Fishpond Spinney Brook, Burton Brook, Walton Brook and another un-named water course near Nottingham Road.

11.2 General Habitat Description

Plantation Broad-leaved Woodland

Fishpond Spinney is a linear plantation woodland with a brook running through it (hereafter called Fishpond Spinney Brook although it is not so named on maps). This woodland has an area of mature pedunculate oak trees in the central section east of the farm buildings and on the north side of the brook, where there were also mature crack willows and alder. The shrub layer was rather scattered, composed

largely of goat willow. This area also includes a wetland area of a former fish pond (described under wetland section below). The remainder of the plantation was composed of mature black poplar hybrids with some ash and sapling sycamore. The ground flora in these parts was typical of secondary woodland and included ivy, ground-ivy, wood avens and foxglove.

The remaining large blocks of plantation woodland comprised Mere Hill Spinney, Big Ling Spinney, Rigget's Spinney and Moat Hill Spinney. Mere Hill Spinney was dominated by mature ash and pedunculate oak with a ground flora poor in species composition and dominated by plant species considered characteristic of secondary woodland such as red campion, ground ivy, wood avens and bramble. Ruderal species such as stinging nettles and cow parsley were abundant to locally dominant.

Big Ling Spinney has three areas of planted shelterbelt woodland connected to it, the spinney itself being dominated by pedunculate oak (which included mature specimens although these had trunk girths estimated as being less than those required for LWS designation). The interior of this area of woodland appeared to contain younger trees than those around the periphery, with a limited shrub layer composed of hawthorn. The ground flora of this wood was dominated by stinging nettles with some red campion, wood meadow-grass (*Poa nemoralis*), wood avens and other species that are considered typical of secondary woodland. The shelterbelt woodland areas were obviously of more recent planting than the spinney itself, these containing an even mixture of ash and pedunculate oak with some hawthorn and field maple. Little ground flora was evident in these areas beyond scattered clumps of ruderal species typical of disturbed ground.

Moat Hill Spinney and Rigget's Spinney had significant proportions of Scots pine and are detailed under the Plantation Mixed Woodland section below.

A block of plantation woodland immediately to the east of Stanford Lane on the south bank of Fishpool Spinney Brook was dominated by mature black poplar hybrids with a sparse shrub layer composed of elder and hawthorn. The ground flora was dominated by dense stands of stinging nettles. Blackcap, robin and wren were heard singing from this wood during the survey.

There were several shelterbelt woodlands planted along field boundaries and these were dominated by pedunculate oak and ash with occasional field maple, sycamore and wych elm. Blocks of plantation woodland in the vicinity of Bandalls Farm were

dominated by mature black poplar hybrids, with ground flora dominated by grasses and stinging nettles.

A small square of plantation woodland is located on the bend of Bandalls Lane to the north of Walton Brook. This area was dominated by ash and white poplar with frequent Scots pine, field maple and wych elm. The shrub layer was dominated by blackthorn. Ground flora comprised typical secondary woodland species such as stinging nettle (which was dominant), hedge-garlic, red campion, ground ivy and false brome. This woodland contained a pond (see wetland section and target note TN11).

Plantation Mixed Woodland

Rigget's Spinney comprises a rectangular block of plantation mixed woodland located outside but immediately adjacent to the northern boundary of the survey area. This was dominated by pedunculate oak and ash with frequent Scots pine, and a very poor ground flora particularly under the pine trees where a deep layer of needles was present. Scattered clumps of such ground flora species as red campion, wood meadow-grass, ground ivy and cow parsley were evident where broad-leaved trees dominated.

Moat Hill Spinney lies within the survey boundary in the extreme north west corner. It is dominated by mature ash and pedunculate oak with frequent Scots pine. There is a sparse shrub layer composed of hawthorn and elder with small amounts of holly and sapling field maple. There are extensive rabbit warrens within this wood, particularly on the north side adjacent to the public footpath. The ground flora is considered typical of secondary woodland, red campion, ground ivy, cow parsley, stinging nettle, rough meadow-grass (*Poa trivialis*) and wild arum (*Arum maculatum*) were recorded during the survey.

A block of plantation mixed woodland to the south of the B676 was dominated by pedunculate oak and Scots pine with some ash, field maple and hawthorn. The ground flora was dominated by stinging nettles.

The larger areas of mature plantation mixed woodland surrounding Prestwold Hall were outside the survey boundary to the east. This area was dominated by pedunculate oak, yew, ash and holly with an understorey of Rhododendron. Birds recorded in this woodland included buzzard and nuthatch.

Semi-natural Woodland

The only semi-natural woodland within the survey area was restricted to a small square of wet woodland dominated by mature crack willows on the south side of Burton Brook and adjacent to Cotes Road. There were three mature pedunculate oak trees around the small pond (see target note TN15). The ground flora was species-poor as is typical of this habitat, dominated by bramble and stinging nettle.

Scrub

The only appreciable amount of scrub within the survey area was within the grassland of the natural burial ground (see herb-rich grassland below) and a small section dominated by blackthorn to the west of Cotes Road, opposite the junction with the B676.

Arable

The majority of the arable fields were under cultivation although small areas around the margins contained game cover strips, these being too small to map accurately. One field immediately to the south of Manor Lodge Farm had been left fallow at the time of the survey and was dominated by thistles (*Cirsium* spp) and broad-leaved dock, with some bristly ox-tongue (*Picris echioides*). A mixed flock of greenfinches, linnets and goldfinches were foraging in this field at the time of the survey.

Improved Grassland

The majority of the improved grassland within the survey area was located along the southern boundary with the majority in the south east corner between Walton Brook and Nottingham Road. There were also small fields of this habitat adjacent to the farm buildings south of Bandalls Lane.

All of these fields were dominated by perennial rye-grass and crested dog's-tail with few herbs, dominated by white clover. These fields were grazed by either cattle or horses at the time of the survey.

Semi-improved Grassland

This habitat was restricted to road verges within the survey area, with particularly wide verges around the junction of Bandalls Lane and Cotes Road and also along the west verge of Nottingham Road in the vicinity of Manor Lodge Farm.

The verges around Bandalls Lane junction were tall and becoming rank, dominated by coarse grasses such as false oat-grass, cock's-foot and rough meadow-grass. Small amounts of tall fescue (*Festuca arundinacea*) were also present and there were small stands of hairy sedge (*Carex hirta*). Herbs included meadow buttercup, red clover, yarrow, tansy (*Tanacetum vulgare*) and red campion. Ruderal species were also present in small amounts; species recorded comprising stinging nettle, curled dock, cow parsley and hogweed.

The western verge of Nottingham Road was also dominated by false oat-grass with some areas of finer-leaved species dominated by red fescue. Herbs present included small scattered clumps of black knapweed, comfrey (*Symphytum officinale*), hedgerow crane's-bill (*Geranium pyrenaicum*) and a small stand of meadowsweet at the extreme southern end.

Several Röesel's bush-crickets were seen or heard along both grass verges and also around grassy field margins throughout the survey area. This is a relatively new species in Leicestershire, being first recorded in 2004 but is now well established over a large area of the county.

Herb-rich Grassland

The natural burial ground included large areas of herb-rich neutral grassland amongst scattered scrub and young recently planted trees. The species assemblage included several species associated with less improved swards and would probably qualify for LWS status (see section 10.7.1). False oat-grass, Yorkshire-fog and red fescue were the dominant grasses, with areas of tufted hair-grass at the bottom of the slope. Herbs present from List F of the LWS selection criteria comprised ox-eye daisy (*Leucanthemum vulgare*), black knapweed, lady's bedstraw (*Galium verum*), bird's-foot trefoil, red clover, autumn hawkbit (*Leontodon autumnalis*) and common sorrel. Other species recorded included wild mignonette (*Reseda lutea*), meadow crane's-bill (*Geranium pratense*), wild carrot (*Daucus carota*), perforate St. John's-wort (*Hypericum perforatum*) and black medick. Butterfly species recorded in the grassland included small skipper and small copper.

Ruderal species were beginning to invade this grassland and comprised small amounts of creeping thistle, common ragwort and stinging nettle. Scattered scrub on the site was dominated by hawthorn with some sapling crack willow and bramble stands. Planted trees on the site were all saplings, ash, guelder rose, field maple and alder were recorded during the survey.

Wetland – Running Water

The survey area was crossed by three named brooks: Fishpond Spinney Brook, Burton Brook and Walton Brook, with a smaller un-named brook flowing southwards parallel with Nottingham Road close to the eastern boundary of the survey area.

Fishpond Spinney Brook flows westwards across the northern half of the survey area, and enters the River Soar LWS just outside the western boundary. This brook was approximately 2m in width and has a moderate flow over a muddy substrate, with steep earth banks up to 1m in height. The eastern part of the brook had an adjacent line of planted trees and species-poor hedgerows for two fields distance before entering Fishpond Spinney. The flow rate slowed on entering the wood and flows through the former fishponds before flowing under Cotes Road and into the River Soar. Marginal vegetation was poor in diversity outside the fishpond area, being dominated by stinging nettles. (The section of former fishponds is described under standing water below).

Burton Brook also flows in a westerly direction and also enters the River Soar to the west of the western survey boundary. A public footpath runs adjacent to all but the easternmost section of this brook. The eastern section of this brook is of open character with tall ruderal vegetation and very few small adjacent bushes of goat willow and hawthorn. The remainder is bordered by a species-rich hedgerow (H1), which includes many old pollards of white willow and crack willow, casting some degree of shade over large sections of the brook.

The brook was approximately 1.5m in width and the banks were steep to vertical throughout the surveyed area, varying in height up to 1m, being composed of earth and stones and providing suitable habitat for water voles. There was a moderate flow over a muddy substrate with occasional small rocks. Marginal vegetation was species-poor with stands of great hairy willowherb in the open eastern section. Species recorded in the remainder of the brook included scattered water figwort (*Scrophularia auriculata*) and stinging nettles. The adjacent hedgerow is described under species-rich hedgerows below.

Walton Brook formed the southern boundary to the survey area, flowing westwards into Burton Brook and ultimately the River Soar to the west of the survey boundary. Walton Brook was approximately 1.5m in width with moderate flow over a substrate composed of small stones and gravel (although there were some muddy sections).

The earth banks were almost vertical throughout and were up to 1m in height providing potential burrowing habitat for water voles.

The flow was sluggish at the western end of the survey area, where the banks were extensively lined by stinging nettles and a small amount of fool's water-cress. Common duckweed was also locally present. The majority of this brook within the survey area was heavily shaded by overhanging trees, which included ash, alder, white willow and crack willow.

The small un-named brook flowed southwards from the airfield, parallel to Nottingham Road, entering a culvert beneath the B676, possibly entering Burton Brook although the section between this brook and the road could not be seen and was probably underground. This brook was approximately 1m in width with vertical earth banks up to 1m in height providing suitable habitat for water voles. The substrate was composed of mud and small stones. Marginal vegetation appeared to be restricted to dense stands of great hairy willowherb, which possibly indicates nutrient run-off from the adjacent arable fields.

Wetland – Standing Water

All of the five standing water bodies within the survey area have been target noted (see section 11.4 below). All of these ponds have potential for breeding amphibians, including the possibility of great-crested newt.

The largest waterbody within the survey area was the former fishpond located within Fishponds Spinney (TN17). This area comprised small areas of open water amongst dense marginal vegetation, the water being estimated at 1.5m in the centre. The banks were steep, up to 2m in height and composed of earth and puddled clay. Marginal and aquatic vegetation comprised dense stands of greater pond-sedge (*Carex riparia*) and bulrush with smaller stands of meadowsweet. Water figwort and water-cress (*Rorripa nasturtium-aquatica*) were also recorded.

A seasonal pond was located within an arable field in the south west corner of the survey area (see target note TN4). This pond was surrounded by a narrow fringe of hawthorn scrub and was dry at the time of the survey. The banks were of moderate gradient, up to 0.5m in height and with a dense cover of stinging nettles.

A small field pond was located amongst scrub and trees immediately to the west of Nottingham Road on the eastern boundary of the survey area – see target note TN9. This pond had shallow earth banks up to 0.5m in height, water depth being

estimated at 0.3m in the centre. The substrate was composed of deep mud and leaf litter with some fallen branches. The scrub comprised hawthorn, blackthorn and elder with a dead ash stump in the south west corner. Marginal vegetation comprised stinging nettles, a small amount of Himalayan balsam (*Impatiens glandulifera*) and non-flowering yellow iris. There was also a small amount of common duckweed in the un-shaded section.

Another small pond was located within a small block of plantation woodland on the bend of Bandalls lane near the southern boundary of the survey area (see target note TN11). The banks were of shallow gradient, up to approximately 0.2m in height. The substrate was composed of mud and leaf litter with some fallen branches, the water level being very low (approx. 0.1m) at the time of the survey. This pond was heavily shaded by the tree canopy, marginal vegetation being rather sparse and restricted to small stands of stinging nettles and hedge-garlic.

A small pond was located within a small block of semi-natural woodland at the western end of Burton Brook and adjacent to Cotes Road – see target note TN15. This pond had shallow earth banks up to 0.5m in height and of moderate gradient, composed of earth and mud. Water depth was estimated at 0.4m at the time of the survey, with deep mud and leaf litter as substrate. This pond was heavily shaded by overhanging trees, which restricted the aquatic vegetation somewhat although a small amount of common duckweed was present. The banks had an extensive cover of stinging nettles.

Cultivated Land

Intensively managed arable land dominated the survey area, the fields having all been harvested or ploughed at the time of the survey. Some of the fields had marginal grass strips dominated by perennial rye-grass although the majority of these were too narrow to map accurately.

Tall Herb / Tall Ruderal

Scattered pockets of tall ruderal vegetation occurred throughout the survey area but were generally too small to map accurately or else have been described elsewhere under other habitats e.g. along the brooks.

Part of the yard of a small industrial building at the western edge of the survey area has become overgrown with a dense stand of stinging nettles.

Species-rich Hedgerows

A total of five species-rich hedgerows were identified during the survey and these have been labelled H1 to H5 on Figure 1.8. All of these hedgerows probably meet the criteria for LWS designation on species assemblage and associated habitats – see section 11.7.1.

Hedgerow H1 extended along the majority of Burton Brook, being approximately 3m in height on average (not including trees) and 2m in width. This hedgerow was unmanaged at the time of the survey although some of the willows had been previously pollarded. The central 30m section was sampled yielding a total of nine native woody species comprising: ash, blackthorn, elder, wych elm, dog rose, crack willow, hawthorn, field maple and pedunculate oak. Other native woody species recorded outside the 30m sample section comprised white willow, goat willow and osier willow. Sycamore was locally present and a few white poplars had been planted at the eastern end. Bramble and ivy were the only climbing species noted.

Associated fauna included a range of dragonflies comprising southern hawkler, migrant hawkler, brown hawkler and common darter.

Hedgerow H2 comprised a short section of approximately 50m at the western end of Bandalls Lane near the junction with Cotes Road, on the southern side. This hedgerow was approximately 2m in height and was currently unmanaged although it had previously been trimmed on the road side (north). The central 30m section was sampled, yielding six native woody species: ash, wych elm, wild privet, dog rose, hawthorn and field maple. Other native woody species recorded outside the sample section comprised blackthorn and elder. The remainder of this hedgerow had become dominated by vigorous wych elm suckers; the species-rich section could have been longer in the past. Bramble, white bryony and ivy were the only climbing species noted.

Hedgerow H3 is located on the north side of Bandalls Lane starting at SK 5679 2011 and extending eastwards to the area of woodland on the field boundary. It was approximately 2m in height and 2.5m in width, being unmanaged at the time of the survey although it had previously been trimmed on the road side (south). The central 30m section was sampled, yielding seven native woody species: ash, elder, English elm suckers (*Ulmus procera*), wild privet, dog rose, hawthorn and field maple. Native woody species outside the sample section comprised blackthorn and Midland hawthorn (*Crataegus laevigata*). Bramble and field bindweed were the only climbing species noted.

Hedgerow H4 is located on the south side of Bandalls Lane, opposite hedgerow H3 and extending from the brook westwards to the track leading to a farm house. This hedgerow was approximately 2.5m in height and 2m in width, being unmanaged at the time of the survey although it had been previously trimmed on the road side (north). The central 30m section was sampled, yielding six native woody species comprising: ash, blackthorn, wych elm, dog rose, hawthorn and hazel. Native woody species recorded outside the sample section comprised field rose, elder, field maple and wild plum. Bramble and ivy were the only climbing species noted. A blackcap was recorded during the survey.

Hedgerow H5 was located on the west side of Nottingham Road to the south of the track leading to Manor Lodge Farm. There was an external dry ditch on the road side. This hedgerow was tall and bushy, being approximately 3.5m in height, not including trees and up to 2.5m in width. The central 30m section was sampled, yielding six native woody species comprising ash, blackthorn, elder, wych elm, wild privet and hawthorn. Other native woody species recorded outside the sample section comprised field maple, wild plum, pedunculate oak and crack willow. Climbing species included bramble, ivy, hedge bindweed, black bryony and white bryony.

Species-poor Hedgerows

All of the remaining hedgerows within or adjoining the survey area were species-poor, dominated by hawthorn. Commonly associated species included elder, blackthorn, ash, pedunculate oak and dog rose. The majority of these hedgerows had been subjected to an intensive management regime involving regular trimming or flailing.

Defunct Species-poor Hedgerows

A high proportion of the hedgerows bordering the arable fields adjacent to the A60 had become defunct with large gaps. These were dominated by hawthorn with some elder and dog rose. What remained of these hedgerows was still intensively managed being regularly trimmed or flailed. The landowner is in the process of planting up these gappy hedgerows with native species as part of a stewardship scheme.

Trees

The hedgerows within the survey area contained many mature trees; with a cluster of four meeting the LWS criteria for veteran trees to the west of a large house on the north side of Bandalls Lane (see target notes TN5 to TN8). Another veteran tree potentially meeting the LWS criteria was located in a hedgerow within arable fields but could not be accessed for safety reasons. Anecdotal evidence from the landowner suggests that this tree has a trunk girth in excess of 4m (see target note TN1).

Trees planted around buildings, houses etc comprised sycamore, horse chestnut, cultivated cherry trees, Leyland cypress and various fir species (*Abies* sp.).

11.2.1 Notable Habitats and Features

The majority of the surveyed area comprised intensively managed agricultural land of relatively low ecological value. Notable habitats and features recorded were: species-rich hedgerows; veteran / ancient trees; small blocks of wet woodland; water courses and a small field of lowland meadow (probably herb-rich).

Habitats that are likely to support protected species were also recorded and these included trees assessed as having high or moderate bat roost potential and ponds with potential for breeding amphibians (including great-crested newt). These have been target noted and are illustrated on Figure 1.8. Target notes are provided in Section 11.4 below.

11.2.2 Summary Data Table

Habitat/Feature	Extent	% of Area
Woodland & Scrub		
Broad-leaved Wet Semi-natural Woodland	0.46ha.	0.08%
Broad-leaved Plantation Broadleaf Woodland	24.37ha.	4.26%
Mixed Plantation Woodland	13.70ha.	2.4%
Dense Scrub	0.18ha.	0.03%
Grassland		
Herb-rich Neutral Grassland	3.28ha.	0.57%

Habitat/Feature	Extent	% of Area
Improved Grassland	44.87ha.	7.84%
Poor Semi-improved Grassland	6.2ha.	1.08%
Wetland & Watercourses		
Running Water	10930m	n/a
Standing Water	0.146ha.	0.025%
Other		
Arable	477.12ha.	83.41%
Tall Ruderal	2.165ha.	0.38%
Boundaries		
Intact, Native Species-rich Hedge	1134m	% of total hedgerow = 3.99
Intact, Species-poor Hedge	26,526m	% of total hedgerow = 93.48
Defunct, Species-poor Hedge	717m	% of total hedgerow = 2.53
Dry Ditch	588m	n/a

11.3 Designated Sites

There are no designated sites within the survey area boundaries; however there are two SSSIs (Cotes Grassland and Loughborough Meadows) and six Local Wildlife Sites within 1km:

Statutorily Designated Sites

Cotes Grassland SSSI covers the area of former settlement and has been designated due to populations of Leicestershire Red Data Book plants. A small population of another Red Data Book species has not been recorded since 1992. This SSSI is located approximately 100m to the west of the western survey area boundary, north of the A60.

Loughborough Meadows SSSI is located approximately 1km to the north west of the surveyed area and supports important assemblages of scarce plant species including several listed in the Leicestershire and Rutland Rare Plant Register.

Non-statutorily Protected Sites

The entire **River Soar** within Charnwood has been designated an LWS (Ref. S.2.7) and this includes the section that approaches within 200m to the west of the survey boundary. This section meets the primary criteria for large rivers (order >3) due to a range of physical features, including backwaters, stands of sedges, mature trees and populations of Red Data Book species.

Cotes Grassland North of the SSSI section (Ref. W 5520/1) has been designated an LWS due to populations of Leicestershire Red Data Book species and veteran trees. Some of the walls of the former settlement meet the criteria for early successional habitat. This LWS is located approximately 100m to the west of the western survey area boundary, to the west of Stanford Lane.

Borrow Pit Field LWS (Ref. W 5618/5) is located approximately 0.5km to the south west of the southern survey area boundary. It was designated due to its population of a Leicestershire Red Data Book species forming part of an extended population in several fields in this area but has only recently been recorded from this area in the county.

Elms Farm Field LWS (Ref. W 5618/7) is located approximately 1km to the south of the southern boundary of the survey area. This site comprises herb-rich mesotrophic grassland with a stand of sedges, a total of nine mature trees and a field pond.

Fields N.W of Ryecroft Farm LWS (Ref. W 5619/1) is located approximately 0.5km to the west of the western survey boundary and comprises herb-rich mesotrophic and mixed grassland.

Fishpond Plantation LWS (Ref. W 5820/1) is located approximately 0.25km to the east of the eastern survey boundary and comprises plantation woodland with a large population of native bluebells. It has also been designated under community criteria.

11.4 Target Notes

Target Note	Location (OSGR)	Description
TN1	SK 5584214	A dead tree assessed as high bat roost potential due to hollows in trunk and in dead limbs. This tree could not be accessed for safety reasons but probably has a trunk girth in excess of 4m. A

		seasonal pond has formed in the crater caused by the partly upturned root plate.
TN2	SK 557209	Two dead ash trees with dense coverings of ivy – assessed as high bat roost potential.
TN3	SK 559209	A mature oak tree of moderate bat roost potential due to old woodpecker nest hole.
TN4	SK 558207	A small seasonal pond surrounded by mature hawthorn scrub.
TN5	SK 5698 2087	A veteran pedunculate oak tree with trunk girth of approx. 4.5m (Tree T11).
TN6	SK 5704 2091	A veteran pedunculate oak tree with trunk girth of approx. 5m (Tree 8).
TN7	SK 5704 2089	A veteran pedunculate oak tree with trunk girth of 5.0m, of moderate bat roost potential due to dense ivy.
TN8	SK 5705 2091	A veteran pedunculate oak tree with trunk girth of 4.90m, of moderate bat roost potential due to dense ivy and cracks in dead limbs.
TN9	SK 578208	A field pond surrounded by scrub, providing potential breeding habitat for amphibians.
TN10	SK 574204	A mature pedunculate oak tree of moderate bat roost potential due to major dead limbs.
TN11	SK 570201	A small pond within woodland, providing potential breeding habitat for amphibians.
TN12	SK 574199	Two mature ash trees of moderate bat roost potential due to holes and cracks in dead limbs.
TN13	SK 575198	A mature pedunculate oak tree of moderate bat roost potential due to dead and damaged major limbs.
TN14	SK 572217	A mature pedunculate oak tree of moderate bat roost potential due to major dead limbs with areas of loose bark.
TN15	SK 561203	A small pond within woodland, providing potential breeding habitat for amphibians.
TN16	SK 576198	A mature pedunculate oak tree of moderate bat roost potential due to a deep crack in a

		major limb.
TN17	SK 557213	A former fish pond, now largely overgrown with reed sweet-grass but still of value to breeding amphibians.

11.5 Priority Habitats

Habitats which are considered to qualify within the category of priority habitats as defined by the UK BAP and also currently listed as Habitats of Principal Importance under s74 of the Countryside and Rights of Way Act 2000 in the East of Loughborough (Near Cotes) survey area comprised:

- Five sections of **Species-rich Hedgerow**, including three sections on Bandalls Lane, an extensive section along Burton Brook and another section on the west side of Nottingham Road.
- **Lowland Mixed Deciduous Woodland**; including all of the plantation woodland (although none of this is ancient). This category includes woodland where more than 20% of the cover is from broadleaved and/or yew trees.
- **Wet Woodland** adjacent to Burton Brook although this area is very small.
- **Lowland Meadow** comprises the natural burial ground although this is considered to be semi-improved rather than unimproved.

None of the road verge grassland within or adjacent to the survey area was considered to fall within the definition of Lowland Meadow due to species-poor assemblages.

Habitat/Feature	Extent	% of Area
Ancient/Species-rich Hedgerow	1134m	3.99% of all hedgerows
Lowland Mixed Deciduous Woodland	38.07ha.	6.66%
Wet Woodland	0.46ha.	0.08%
Lowland Meadow	3.28ha.	0.57%

Revised UK BAP List

The revised list of UK BAP Priority Habitats widens the scope for some habitat types and additional habitat types within the surveyed area include the following:

All of the field **Ponds**, it is considered that these ponds may qualify as priority habitat as defined by the UK BAP, due to the possible presence of scarce or notable species (especially great-crested newt).

The scope for **Hedgerows** has been widened and now includes all hedgerows with 80% or more cover of native tree/shrub species. This would include the majority of the hedgerows within the survey area.

The increased scope for **Rivers** has not been defined at the time of writing although this type is likely to include all natural or near natural running waters. This would include Walton Brook, Burton Brook and Fishpond Spinney Brook but not the un-named brook.

11.6 Wildlife Corridors

Fishpond Spinney (and Brook) forms an obvious wildlife corridor close to the northern boundary of the survey area, connecting the River Soar LWS with a network of smaller water courses to the east of the survey area. This is especially important for water vole, the corridor providing suitable habitat for this species. The plantation woodland and Brook corridor is extensively wooded, providing good quality bat foraging and commuting routes besides being of importance to birds and invertebrates.

Burton Brook and Walton Brook also form obvious wildlife corridors traversing the survey area from west to east, both brooks providing suitable habitat for water voles, allowing potential interchange of animals between each of these sites and the River Soar LWS to the west. The wooded nature of these brooks provide sheltered and good quality bat foraging and commuting routes between potential roosting areas in the mature woodland and buildings around Prestwold Hall with foraging habitat within the River Soar corridor, although this is limited by the fact that the easternmost part of Burton Brook has a very sparse cover of woody vegetation. This corridor includes the species-rich tall hedgerow H1, which is also of importance for birds.

The un-named brook flowing parallel with Nottingham Road provides good quality habitat for water voles although its function as a dispersal corridor for this species is

compromised by the fact that this brook flows into a culvert to the south of the B676 and there is no visible above ground connection with Burton Brook.

The hedgerows bordering the B676 and Bandalls Lane (the latter including the species-rich hedgerows H2 to H4) also connects potential bat roosts around Prestwold Hall with foraging areas in the River Soar corridor.

The tall hedgerows along the western verge of Nottingham Road (including the species-rich H5) form one of the few effective wildlife corridors that runs north to south within this survey area as the remaining potential corridors have become heavily fragmented due to hedgerow removal in the past and intensive management of the remaining hedgerows. This Nottingham Road corridor links potential bat roosting areas around Prestwold Hall with potential foraging areas along Walton Brook, forming good quality bat foraging habitat in itself. These tall hedgerows are also of value to birds and terrestrial woodland mammals.

The hedgerows bordering the A60 and the B676 are of less value as wildlife corridors due to their intensive management and for this reason, are considered to be of less value as bat foraging and commuting routes as the aforementioned sites, however the hedgerows along the B676 include two trees with bat roost potential.

Feature	Location (OSGR)	Extent	Description & Function
Fishpond Spinney and Brook	SK 553211 to SK 571226	1.5km	A moderately flowing brook with sections of vertical earth banks and areas of extensive marginal vegetation around the former fish pond providing habitat for water vole and allowing interchange of animals between this brook and the River Soar LWS. The western section of the brook is lined with mature trees likely to provide foraging and commuting routes for bats in particular, besides other fauna groups including birds and both terrestrial and aquatic invertebrates.
Burton Brook	SK 561213 to SK 576211	1.5km	A moderately flowing brook with earth banks providing suitable habitat for water voles, connecting with the River Soar LWS. The adjacent tall and bushy hedgerow

			provides foraging and commuting routes for bats and habitats for other fauna including bird and terrestrial invertebrate assemblages.
Walton Brook	SK 552201 to SK 582199	2.5km	This is a moderately flowing brook with earth banks providing suitable habitat for water voles and providing a link between the River Soar LWS and the section of Walton Brook to the east of the survey area. The wooded nature of the majority of this brook also makes it an important sheltered bat foraging and commuting corridor linking the plantation woodland around Prestwold Hall (indirectly via the Nottingham Road hedgerows) with the River Soar LWS. There are also mature trees with bat roost potential in proximity to this brook (see target notes TN12 and TN13).
Un-named Brook	SK 574212 to SK 574217	0.6km	This brook has steep earth banks providing suitable habitat for water voles, although its function as a wildlife corridor for this species is compromised by the fact that it enters a culvert at the southern end and there does not appear to be an above ground connection with Burton Brook.
Nottingham Road Western Hedgerow	SK 583199 to SK 578208	0.75km	This tall and bushy hedgerow forms the most important corridor that runs north to south within the survey area. It provides a good quality bat foraging and commuting route, linking the mature woodland and potential bat roosts around Prestwold Hall with potential foraging areas along Walton Brook and ultimately with the River Soar LWS.
Bandalls Lane Hedgerows	SK 559205 to SK 570200	1.2km	The hedgerows on both sides of Bandalls Lane (including species-rich sections H2 to H4) are of value to birds and of some value as bat foraging and commuting routes, linking potential foraging areas for both.

Hedgerows Bordering the A60	SK 556208 to SK 572223	1.75km	These hedgerows link potential bat roosting habitat within Prestwold village with foraging areas in the grassland around Cotes SSSI although the intensive management of these hedgerows make them of less value to bats than if they were allowed to grow tall and bushy.
Hedgerows Bordering the B676	SK 558206 to SK 575212	1.6km	These hedgerows provide a similar function to those bordering the A60 although their intensive management limits their value to bats. These hedgerows do however contain veteran trees that meet the LWS criteria and that have at least moderate potential as bat roosts.

11.7 Recommendations for Further Investigation

Five sections of species-rich hedgerows (H1 to H5) were identified that merit further botanical survey work and these are detailed under Potential Local Wildlife Sites below.

It is considered possible that Walton Brook, Burton Brook and Fishpond Spinney Brook also meet the LWS criteria and these are also detailed under Potential Local Wildlife Sites below.

The semi-improved neutral grassland within the natural burial ground also merits further botanical survey work as it probably meets the LWS criteria.

Water vole surveys of all the water courses within the survey area are recommended as they all provide suitable habitat.

Protected species surveys are recommended for all of the plantation woodland areas within or bordering the survey area.

All of the ponds within the survey area have the potential to support breeding amphibians (including great-crested newts). Further amphibian survey work is recommended in all ponds, especially those that are linked to good quality terrestrial habitat.

11.7.1 Potential Wildlife Sites

Areas which are considered to merit further investigation with regard to Local Wildlife Site criteria are:

- All of the sections of species-rich hedgerow (H1 to H5) probably meet the LWS criteria on average number of native woody species and associated features. Further sampling of additional 30m sample sections would confirm their probable LWS status;
- All of the field ponds within or directly adjoining the survey area could support breeding populations of great-crested newts. If they are proved to be present, these ponds would then meet the LWS criteria (presence of Red Data Book species);
- Four veteran trees were identified that meet the LWS criteria and which had not previously been recorded and documented. (A fifth tree could not be accessed for safety reasons but also probably meets the LWS criteria).
- Further botanical survey work of the grassland within the natural burial ground is recommended as seven species from the mesotrophic grassland list of the LWS criteria were identified during the survey.
- All of the areas of plantation woodland within the survey area were surveyed by the author in 2004 and still do not meet the criteria required for LWS designation.
- The area of wet woodland at the western end of Burton Brook is probably below the size threshold for LWS designation.

11.7.2 Wildlife Corridor Management

Water vole surveys of the water courses within the survey area may inform future management priorities.

A protected species survey of Fishpond Spinney may also inform future management priorities.

11.8 Summary of Key Ecological Resources

There are no designated sites within the survey boundary, although there are two SSSIs within 1km comprising Cotes Grassland and Loughborough Meadow. Six designated LWS occur within 1km of the survey boundaries: a section of the River Soar LWS, Cotes Grassland (north of SSSI), Fishpond Plantation, Borrow Pit Field, Elms Farm Field and Fields N.W. of Ryecroft Farm.

There are no other designated sites within 1km of the surveyed area.

Five sections of species-rich hedgerow were identified that probably meet the LWS criteria due to their assemblage of native woody species and associated features.

The grassland within the natural burial ground contains seven herb species from the mesotrophic grassland list of the LWS criteria and other species from this list could also be present.

All of the ponds within the survey area may also meet the LWS criteria should they be proved to support breeding populations of amphibians (including great-crested newt).

The designation of these sites as LWS (assuming they meet the criteria) would contribute to and enhance the wildlife value of the landscape. Sympathetic management of these sites would also allow movement of species between sites and beyond the surveyed area.

11.9 Comparison with Surrounding Landscape

The largely arable nature of the survey area is reflected in the wider landscape with very little semi-natural grassland now remaining. The herb-rich neutral grassland within the natural burial ground therefore assumes a greater importance. The species-rich hedgerows also assume a greater importance due to the largely species-poor nature of the remaining hedgerows within and adjacent to the survey area and also given the fact that large-scale hedgerow removal has taken place in this area in the past.

The woodland within the survey area is largely of relatively recent planting although a section of Fishpond Spinney contains some large oak trees. This area also contains a small amount of marsh although it is getting heavily overgrown. These areas are therefore presently of purely local importance and are considered to be of lesser wildlife value than the more mature woodland within the Prestwold Hall

estate. Management of the plantation woodland and marsh to enhance these habitats would give them a higher conservation status than exists currently.

The water courses are of local wildlife value as corridors in a landscape where water courses are dominated by the River Soar valley.

12. EAST OF LOUGHBOROUGH (WYMESWOLD AIRFIELD)

See Figures 1.9 and 2.9

12.1 Overview & Summary Data

This area is dominated by intensively managed arable land (which includes the airfield) with some improved and semi-improved grassland. The road verges along the B676 (Melton Road) were herb-rich and their plant assemblages included a Leicestershire Red Data Book species.

Plantation woodland was most evident around the airfield although the largest areas were outside the survey boundary. There were also blocks to the south of Wymeswold village and within a large arable field to the south of Ridgewold Farm (the latter being coniferous and used for game rearing).

The majority of the hedgerows within this survey area were species-poor, although six sections of species-rich hedgerow were identified (H1 to H6), one of these (H3) being outside but adjacent to the survey area and containing a Leicestershire Red Data Book species.

The hedgerows contained many mature trees, including several of moderate or high bat roost potential. A total of four veteran trees (meeting the LWS criteria) were recorded within the survey area that had not previously been recorded; two additional ones in Prestwold parish and two in Wymeswold parish.

Waterbodies within the survey area comprised six ponds (some of which are seasonal) and a length of wet ditch with marginal vegetation.

12.2 General Habitat Description

Plantation Broad-leaved Woodland

There were several blocks and shelterbelts of plantation broad-leaved woodland surrounding the airfield and these were dominated by ash, pedunculate oak and hawthorn with some sycamore. These woodland areas were of even-age, semi-mature and the ground flora was dominated by stinging nettles.

Mature plantation woodland occurred in a band surrounding the former officer's mess to the south of the industrial estate at the eastern end of the airfield. This was dominated by mature black poplar hybrids with a ground flora of stinging nettles and other ruderal species.

There were two small areas of recently planted broad-leaved woodland on poor semi-improved grassland to the south of Wymeswold village. These trees were approximately 2m in height; species identified included alder, ash, pedunculate oak, hazel and hawthorn. The ground flora was composed of coarse grasses such as cock's-foot and false oat-grass with some tufted hair-grass. Herbs were largely ruderal species such as common ragwort and creeping thistle. Birds recorded in this area included yellowhammer and reed bunting, both could have bred in the rough grassland.

Plantation Mixed Woodland

A large block of mixed woodland was located to the west of Burton Lane, to the north of a small industrial estate adjacent to the airfield. This woodland was dominated by ash and Scots pine with pedunculate oak, field maple and hawthorn. The ground flora was species-poor and dominated by stinging nettles.

Another block of mixed woodland was located to the south of a large garden and tennis courts along the northern boundary of the survey area, south of Wymeswold village. This was dominated by silver birch and ash with frequent Scots pine. The trees were of relative young age and there was a species-poor ground flora composed of typical secondary woodland species such as red campion, wood avens, ground ivy and false-brome. There were also several grassy glades in the centre of the wood.

A small block of plantation mixed woodland was located to the north of Cliff House Farm. This was of relative young age and composed of sycamore, ash and Scots pine.

The large areas of mature plantation mixed woodland around Prestwold Hall were outside the survey area boundary. These contained a wide variety of both native and exotic trees including pedunculate oak, common lime, silver birch, ash, black poplar hybrids, yew, various pine and fir species and giant redwood (*Sequoia metasequoia*). The shrub layer was dominated by rhododendron and cherry-laurel with some snowberry and other exotic shrub species.

Plantation Coniferous Woodland

A large block of young plantation coniferous woodland to the east of Burton Lane was dominated by Douglas fir (*Pseudotsuga menziesii*) with the ground flora restricted to a wide ride in the centre, dominated by coarse grasses and stinging nettles. This wood is used for game rearing with a pheasant pen at the western end. A public footpath crosses this wood in the centre from north to south.

Semi-natural Woodland

The semi-natural woodland within the survey area was restricted to a small area of ash and wych elm woodland on the northern bank of a wet ditch to the east of the above mentioned coniferous woodland. This is located at SK 604222 and has two hedgerow connections to the north and south.

Dense Scrub

The dense scrub in the centre of the former officer's mess area (at the eastern end of the airfield) was dominated by hawthorn and dog rose with a ground flora consisting of coarse grasses and ruderal species including common ragwort, broad-leaved dock and hogweed.

A block of dense scrub to the south of Cliff House Farm was dominated by blackthorn and hawthorn with a ground flora of stinging nettles.

A small area of dense scrub at the eastern end of the plantation woodland (at the eastern end of the airfield) was dominated by hawthorn with stinging nettles.

Improved Grassland

The improved grassland within the survey area was dominated by perennial ryegrass and crested dog's-tail with sown white clover. All of these fields were intensively grazed by either sheep or cattle at the time of the survey.

Semi-improved Grassland

This habitat was dominated by false oat-grass and cock's-foot with largely ruderal herbs including curled dock, broad-leaved dock, creeping thistle and stinging nettle. Some of these fields were grazed by sheep at the time of the survey.

The verges adjacent to Burton Lane were becoming rank, dominated by coarse grasses such as false oat-grass, cock's-foot and rough meadow-grass. Small amounts of black knapweed and agrimony were also present. Other herbs largely comprised ruderal species, including cow-parsley, hogweed and curled dock.

Herb-rich Neutral Grassland

The north verge of the B676 (Melton Road) between the entrance track to the works eastwards to the point opposite a derelict barn was particularly species-rich. This verge was approximately 8m in width at the western end, narrowing to less than 2m at the eastern end. The grassland was dominated by false oat-grass and cock's-foot with Yorkshire-fog and some tufted hair-grass and small areas where red fescue was locally dominant. There were ten species from the combined grassland lists of the LWS criteria comprising stands of false fox-sedge (*Carex otrubae*) and hairy sedge, hard rush, black knapweed, lady's-bedstraw, meadow vetchling, red clover, agrimony and meadow buttercup. A small population of a Leicestershire Red Data Book plant was identified at the eastern end opposite the footpath entrance to the field (see target note TN14). This species is listed in the Leicestershire Rare Plant Register (2007 edition).

The verge on the south side of Melton Road was outside the survey boundary but appeared to be herb-rich with a similar assemblage to the north side but was not surveyed in any detail. It was approximately 5.5ha in area.

Amenity Grassland

A playing field at the northern end of Burton Lane was composed of typical lawn species and is regularly mown.

Wetland – Standing Water

All of the standing water bodies within the survey area have been target noted (see section 12.4 below). All six of these ponds have potential for breeding amphibians, including the possibility of great-crested newt.

Pond TN3 was composed of wet mud at the time of the survey, which did have a covering of common duckweed. The banks were shallow, composed of mud and cattle-poached to some extent. There was also some adjacent hawthorn scrub.

Pond TN7 was dry at the time of the survey but is considered to be seasonally wet. The banks were of shallow gradient and composed of earth. It was located in the centre of an arable field and was surrounded by scrub (elder, crack willow and field maple).

Pond TN8 was also dry at the time of the survey but is also considered to be seasonally wet, with similar shallow earth banks to TN7. It was surrounded by scrub, composed of hawthorn, blackthorn and elder, with an adjacent species-poor hedgerow to the south.

Pond TN16 was located in an arable field, with a fringe of hawthorn scrub. The banks were of moderate gradient and composed of earth. Water depth was estimated at 0.5m in the centre and there was a fringe of bulrush, stinging nettle and great hairy willowherb around the banks.

Pond TN19 was located adjacent to a species-poor hedgerow and wet ditch on the southern boundary of an arable field. The banks were of moderate gradient and composed of earth. Water depth was estimated at 0.5m in the centre. There was a fringe of tall grasses and a covering of common duckweed.

Pond TN23 was located adjacent to a species-poor hedgerow on the southern boundary of an arable field and was surrounded by tall hawthorn scrub. There was a very low level of water at the time of the survey, estimated at 0.05m. There was a fringe of great hairy willowherb all around the pond.

A wet ditch (standing water) extended from a point west of Burton Lane, crossing the lane through a culvert) eastwards to just beyond pond TN19 – see target note TN27. It was approximately 1m in width throughout, the section on the west side of Burton Lane having vertical earth banks up to 1m in height although this section was dry at the time of the survey with marginal great hairy willowherb. The remainder of the banks varied in height up to 0.5m although parts of the eastern end (especially the section adjacent to the improved grassland field) had become poached by livestock. Static water was present in scattered pools along the eastern section of the ditch, marginal vegetation comprising false fox-sedge and fool's water-cress. Scattered mature white willows and sections of species-poor hedgerow adjoined the eastern section of the ditch.

Another section of wet ditch extended from the eastern boundary of the airfield eastwards (also under Burton Lane through a culvert) and along the northern boundary of the conifer plantation to beyond the eastern boundary of the survey area. This ditch was 1m in width with steep earth banks up to 1m in height. Scattered small pools of water were present at intervals along its entire length at the time of the survey, estimated at 0.1m in depth. Stinging nettles and great hairy willowherb formed extensive fringes to this ditch throughout.

Cultivated Land

Intensively managed arable land dominated the survey area, the fields having all been harvested or ploughed at the time of the survey. One notable arable margin plant was found during the survey: round-leaved fluellen (*Kickxia spuria*). This species has undergone a national decline over the last 25 years and is recorded from approximately 15 localities in the county since 1988, with a cluster of records in the Wymeswold area – see target note TN15. Other, more common arable margin plants recorded included knot-grass (*Polygonum aviculare*), common field-speedwell (*Veronica persica*) and scentless mayweed.

A derelict barn south of the equestrian centre was assessed as being of moderate potential for roosting bats - see target note TN22

Another derelict barn at the southern end of the survey area was not thought to be suitable for either bats or barn owls.

Tall Herb / Tall Ruderal

Scattered pockets of tall ruderal vegetation occurred throughout the survey area but were generally too small to map accurately. A former arable field to the east of Cliff House Farm was dominated by creeping thistle and stinging nettle.

Species-rich Hedgerows

A total of six species-rich hedgerows were identified during the survey and these have been labelled H1 to H6 on Figure 1.9. All of these hedgerows probably meet the criteria for LWS designation on species assemblage and associated habitats – see section 12.7.1.

Hedgerow H1 is located on the north side of the B676 (Melton Road) between the tracks leading to The Cliff and Cliff House Farm. This hedgerow was 2m in height and 1.5m in width. The central 30m section was sampled, yielding eight native

woody species comprising ash, blackthorn, purging buckthorn (*Rhamnus cathartica*), elder, dog rose, goat willow, hawthorn and field maple. Other native woody species recorded outside the sample section comprised wych elm and Midland hawthorn. Bramble, black bryony and bittersweet represented the climbing species. This hedgerow had been trimmed prior to the survey.

Hedgerow H2 is located on the east verge of Burton Lane, to the north of the track leading to Ridgewold Farm. It was approximately 2m in height and 2m in width, having been trimmed prior to the survey. The central 30m section was sampled, yielding five native woody species comprising ash, blackthorn, dogwood (*Cornus sanguinea*), field rose and field maple. Native woody species recorded outside the sample section comprised pedunculate oak, purging buckthorn and dog rose. Climbing species recorded included bramble and black bryony.

Hedgerow H3 is located outside the survey boundary but adjoins hedgerow H1 to the west. It is located on the north side of the B676 (Melton Road) and extends between Burton Lane and the track leading to The Cliff. This hedgerow was approximately 1.8m in height and 2m in width, having been trimmed prior to the survey. The central 30m section was sampled, yielding six native woody species comprising: blackthorn, English elm, hawthorn, field maple, Midland hawthorn and a Leicestershire Red Data Book plant, with nine previous records in the county since 1988. Species recorded outside the sample section comprised dog rose, purging buckthorn, ash, dogwood and elder. A further, 10m section of a Leicestershire Red Data Book plant species was found at the western end of the hedgerow (see target note TN12).

Hedgerow H4 is located on the north side of the B676 between hedgerows H1 and H5. This hedgerow was approximately 2m in height and 1.5m in width, having been trimmed prior to the survey. The central 30m section was sampled, yielding six native species comprising: ash, wych elm, wild privet, Midland hawthorn, hawthorn and field maple. Native woody species recorded outside the sample section comprised wild plum, field rose, crab apple and elder. There was an adjacent dry ditch that had become choked with great hairy willowherb, stinging nettle and common couch grass (*Elytrigia repens*). Climbing species included bramble, hedge bindweed and black bryony.

Hedgerow H5 is located on the north side of the B676 to the east of Valley Farm. This hedgerow was approximately 2m in height and 2m in width, having been heavily flailed prior to the survey. The central 30m section was sampled, yielding

five native woody species comprising: ash, blackthorn, dogwood, Midland hawthorn and hawthorn. No other species were recorded outside the sample section. Bramble appeared to be the only climbing species noted. An internal dry ditch was present. A large flock of over 100 house sparrows were recorded during the survey.

Hedgerow H6 is located on the west side of Burton Lane extending northwards from the road leading into the industrial estate. This hedgerow was tall and bushy, being approximately 4m in both height and width. The central 30m section was sampled, yielding eight native woody species comprising: ash, blackthorn, elder, dog rose, common gorse (*Ulex europaeus*), hawthorn, field maple and pedunculate oak. Other native woody species recorded outside the sample section comprised field rose, wild plum, wych elm and a hybrid hawthorn (*Crataegus x macrocarpa*). Climbing species included bramble, ivy, black bryony and honeysuckle.

A further two hedgerows were also identified as species-rich although their respective central 30m sample sections yielded no more than four native woody species. These two hedgerows have been target noted (TN17 and TN20).

Hedgerow TN17 is approximately 2m in height with a total of five native woody species along its length comprising hawthorn, elder, ash, blackthorn and wych elm. This section of hedgerow had several large gaps however.

Hedgerow TN20 is approximately 1.5m in height and is regularly trimmed. There are six native woody species along its length comprising hawthorn, ash, field maple, wych elm, Midland hawthorn and dog rose. There is an adjacent dry ditch. Reed bunting was recorded in this hedgerow during the survey and had probably bred in the rough grass and young plantation woodland immediately to the west.

Species-poor Hedgerows

.All of the remaining hedgerows within or adjoining the survey area were species-poor, dominated by hawthorn. Commonly associated species included elder, blackthorn, ash, pedunculate oak and dog rose. The majority of these hedgerows had been subjected to an intensive management regime involving regular trimming or flailing.

Defunct Species-poor Hedgerows

Some of the hedgerows bordering the semi-improved grassland fields had become defunct and were little more than lines of tall, leggy hawthorns with gaps beneath allowing the free movement of sheep between the fields.

Trees

Trees had been planted around two of the margins of the playing field at the northern end of Burton Lane. These comprised silver birch, Norway maple (*Acer platanoides*), common lime, grey alder (*Alnus incana*) and white poplar.

A line of Leyland cypress had been planted along the northern side of the track leading into the industrial estate and had also been planted around a house on the opposite side of the road.

Lombardy poplars had been planted along the eastern side of Burton Lane at the southern end of the survey boundary. Other trees planted around the works and farm buildings to the east included sycamore and domesticated apple trees.

The hedgerows within and adjoining the survey area contained several mature trees, many of which were assessed as being of moderate or high bat roost potential – all these have been target noted (See target note section 12.4).

Four veteran trees were found that meet the LWS criteria; a pedunculate oak and ash in hedgerows along the southern boundary of the airfield (TN5 and TN6) respectively and two white willows in an improved grassland field to the south west of Wymeswold village (TN1 and TN2).

12.2.1 Notable Habitats and Features

The majority of the surveyed area comprised intensively managed agricultural land of relatively low ecological value. Notable habitats and features recorded were: species-rich hedgerows; veteran / ancient trees; small blocks of wet woodland; a water course and two sections of herb-rich lowland meadow (roadside verges) on both north and south sides of the B676. The verge on the south side of this road is located outside, but immediately adjacent to the survey boundary.

Habitats that are likely to support protected species were also recorded and these included trees and a building assessed as having high or moderate bat roost potential and ponds with potential for breeding amphibians (including great-crested

newt). These have been target noted and are illustrated on Figure 1.9. Target notes are provided in Section 12.4 below.

12.2.2 Summary Data Table

Habitat/Feature	Extent	% of Area
Woodland & Scrub		
Broad-leaved Semi-natural Woodland	0.054ha.	0.011%
Broad-leaved Plantation Woodland	12.34ha.	2.66%
Mixed Plantation Woodland	22.48ha.	4.86%
Dense Scrub	1.83ha.	0.39%
Grassland		
Herb-rich Neutral Grassland (road verge)	0.94ha.	0.2%
Improved Grassland	79.36ha.	17.14%
Poor Semi-improved Grassland	6.97ha.	1.5%
Amenity Grassland	3.32ha.	0.71%
Wetland & Watercourses		
Running Water	326m	n/a
Standing Water	0.04ha.	0.008%
Other		
Arable	333.656ha.	72.1%
Tall Ruderal	1.86ha.	0.4%
Boundaries		
Intact, Native Species-rich Hedge	3178m	% of total hedgerow = 11.25
Intact, Species-poor Hedge	24,555m	% of total hedgerow = 86.95
Defunct, Species-poor Hedge	508m	% of total hedgerow = 1.8
Wet Ditch	3158m	n/a

12.3 Designated Sites

There are no statutorily designated sites within the survey area boundaries; however there are twelve Local Wildlife Sites within 1km of the survey boundaries:

Wymeswold Lane (W 5921/1) is located on the boundary of the survey area and comprises herb-rich mesotrophic grassland on the west verge of Wymeswold Lane.

The Barley Close (W 5921/2) is located adjacent to the south of the southern boundary of the survey area and comprises a small field of herb-rich mesotrophic grassland.

Fields off Rempstone Road (W 5923/1) is located approximately 0.8km to the north west of the survey area and comprises two fields of herb-rich mesotrophic grassland and a field pond.

Field off Rempstone Road (W 5923/2) is located approximately 1km to the north west of the survey area and comprises a single field of herb-rich neutral grassland with a field pond.

Field West of Wymeswold Meadows (W 6023/1) is located approximately 100m to the north of the eastern end of the survey area and comprises mesotrophic and mixed herb-rich grassland and 245m of streams and rivers.

The River Mantle in Wymeswold (W 6023/2) is located approximately 100m to the north of the north east corner of the survey boundary and comprises 450m of streams and rivers with Red Data Book species.

Wayside (W 6024/1) is located approximately 1km to the north of the north east corner of the survey boundary and comprises a field of herb-rich mesotrophic grassland with a field pond.

Harrow Farm (Ref. W 6122/2) is located approximately 250m to the east of the survey boundary and comprises several large fields of herb-rich mesotrophic and mixed grassland with 1km of streams and rivers, several field ponds with Red Data Book species and two veteran trees.

Narrow Lane Field (W 6122/2) is located approximately 0.6km to the east of the eastern survey boundary and comprises 2.24ha of herb-rich mixed grassland with a field pond.

Wymeswold Meadows (W 6123/1) is located approximately 0.25km to the east of the eastern survey boundary and comprises fields of herb-rich mesotrophic grassland and 480m of streams and rivers (River Mantle) supporting populations of a Leicestershire Red Data Book species. These meadows are also a Leicestershire and Rutland Wildlife Trust Reserve.

Fishpond Plantation (W5820/1) is located approximately 0.5km to the south of the surveyed area and has been designated for its large population of bluebells as well as under community criteria.

Hedgerow near the Old Sewage Works (W 5923/5) is located approximately 0.29km away from the survey area and comprises a 197m section of species-rich hedgerow.

12.4 Target Notes

Target Note	Location (OSGR)	Description
TN1	SK 5976 2308	A veteran white willow tree with trunk girth of 5.16m, meeting the LWS criteria (Tree 1 in Wymeswold Parish). This tree has fallen and re-sprouted.
TN2	SK 5975 2306	A veteran white willow tree with trunk girth of 4.33m, meeting the LWS criteria (Tree 2 in Wymeswold Parish). This tree has extensive insect boring on trunk and major limbs.
TN3	SK 597231	A seasonal pond surrounded by hawthorn scrub, dry at the time of the survey but with a covering of common duckweed on wet mud.
TN5	SK 5762 2195	A veteran pedunculate oak tree with trunk girth of 4.19m, meeting the LWS criteria (Tree 7 in Prestwold Parish). A juvenile cuckoo was seen in the tree during the survey.
TN6	SK 5790 2191	A veteran ash tree with trunk girth of 4.03m, meeting the LWS criteria (Tree 6 in Prestwold Parish). This tree was assessed as of high bat roost potential due to hollows in trunk and major dead limbs. There was also extensive hollows beneath the root system and fallen dead wood beneath the tree.

TN7	SK 594218	A seasonal pond, dry at the time of the survey and surrounded by scrub and a dead crack willow tree.
TN8	SK 590214	Another seasonal pond, dry at the time of the survey and surrounded by scrub.
TN9	SK 595222	A mature ash tree with dense covering of ivy – assessed as moderate bat roost potential.
TN10	SK 595221	A mature ash tree with cracks in the trunk – assessed as moderate bat roost potential.
TN11	SK 595219	A mature ash tree with holes and cracks in the trunk – assessed as moderate bat roost potential.
TN12	SK 596214 & SK 598214	Two 10m sections of a Red Data Book species-rich hedgerow on the north side of Melton Road (outside but adjacent to survey area). This species is listed in the Leicestershire Red Data Book, having been previously recorded from 9 sites in the county since 1988.
TN13	SK 597226	A mature pedunculate oak tree with dead limbs – assessed as moderate bat roost potential.
TN14	SK 6036 2144	A small population of a Leicestershire Red Data Book species on the north species-rich verge of the B676 (Melton Road). This plant is listed in the Leicestershire Red Data Book having been previously recorded from 8 sites in the county since 1988.
TN15	SK 6048 2216	A small population of round-leaved fluellen in an arable field beside the footpath. This plant has a restricted distribution in Leicestershire, having been recorded from approx. 15 localities in the county since 1988, with a cluster of records from the Wymeswold area. Brown hare and weasel were seen nearby during the survey.
TN16	SK 605224	A small pond surrounded by hawthorn scrub. The water depth was estimated at 0.5m and there was a fringe of bulrush.
TN17	SK 604226	A section of species-rich hedgerow with five native woody species along its length but no more than four in any given 30m section.

TN18	SK 605228	A mature hollow ash tree assessed as moderate bat roost potential.
TN19	SK 609225	A field pond with adjacent scrub and a fringe of tall grasses. The water depth was estimated at 0.5m with a covering of common duckweed. There was an adjacent wet ditch to the south with marginal vegetation (TN27).
TN20	SK 606221	A section of species-rich hedgerow with six native woody species along its length but no more than four in any given 30m section. A reed bunting was seen here during the survey.
TN21	SK 607216	A mature, dying pedunculate oak tree with cracks in dead limbs – assessed as of moderate to high bat roost potential.
TN22	SK 609219	A derelict barn of moderate bat roost potential.
TN23	SK 610226	A seasonal field pond surrounded by hawthorn scrub and with a very low water level (approx 0.05m) at the time of the survey.
TN24	SK 613229	A mature ash tree with dead limbs – assessed as of moderate bat roost potential.
TN25	SK 619225	A mature ash tree with dead major limbs – assessed as of moderate to high bat roost potential.
TN26	SK 619224	A hollow mature ash tree with dead and hollow major limbs – assessed as of high bat roost potential (this is outside but adjacent to the survey area).
TN27	SK 604223	A wet ditch with marginal vegetation including fool's water-cress and false fox-sedge. The section west of Burton Lane was dry at the time of the survey but is probably seasonally wet.

12.5 Priority Habitats

Habitats which are considered to qualify within the category of priority habitats as defined by the UK BAP and also currently listed as Habitats of Principal Importance

under s74 of the Countryside and Rights of Way Act 2000 in the East of Loughborough (Wymeswold Airfield) survey area comprised:

- Six sections of **Species-rich Hedgerow**, including four sections on the north side of the B676 (Melton Road) and two sections on Burton Lane. A further two sections were species-rich in overall species diversity but had no more than four native species in their respective sample sections.
- **Lowland Mixed Deciduous Woodland**; including all of the plantation woodland (although none of this is ancient). This category includes woodland where more than 20% of the cover is from broadleaved and/or yew trees.
- **Lowland Meadow** comprises the north and probably the south verges of the B676 between the entrance to the works and the eastern end of the survey area. The south verge is outside but adjacent to the survey boundary and was not surveyed so it does not appear in the total area for this habitat in the tables below.

Habitats that are likely to support protected species were also recorded and these included trees and a building assessed as having high or moderate bat roost potential and ponds with potential for breeding amphibians (including great-crested newt). These have been target noted and are illustrated on Figure 1.9. Target notes are provided in Section 12.4.

Habitat/Feature	Extent	% of Area
Ancient/Species-rich Hedgerow	3178m	11.25% of total hedgerows
Lowland Mixed Deciduous Woodland	34.93ha.	7.53%
Lowland Meadow (roadside verge)	0.94ha.	0.2%

Revised UK BAP List

The revised list of UK BAP Priority Habitats widens the scope for some habitat types and additional habitat types within the surveyed area include the following:

All of the field **Ponds**, it is considered that these ponds may qualify as priority habitat as defined by the UK BAP, due to the possible presence of scarce or notable species (especially great-crested newt).

The scope for **Hedgerows** has been widened and now includes all hedgerows with 80% or more cover of native tree/shrub species. This would include the majority of the hedgerows within the survey area.

12.6 **Wildlife Corridors**

The hedgerows bordering the B676 (Melton Road) include four of the six species-rich hedgerows and these provide connection with other hedgerows outside the survey boundaries, being of some importance for birds and terrestrial invertebrates. However, the intensive management of some of these hedgerows on the northern side of the road limit their value as sheltered foraging and commuting corridors for bats. The hedgerows on the south side of the road (outside the survey boundary) have been allowed to grow tall and bushy and provide better quality bat habitat than those on the northern side at the time of the survey. The adjacent species-rich grassland verges also provide foraging and dispersal corridors for terrestrial invertebrates and small mammals.

The tall hedgerows along Burton Lane includes two of the species-rich hedgerows and provide good quality bat foraging and commuting routes, linking trees with bat roost potential with potential foraging habitat, including areas of mature plantation woodland. This is also the only effective wildlife corridor that runs north to south within this survey area as the remaining potential corridors in this direction have become heavily fragmented due to hedgerow removal in the past and intensive management of the remaining hedgerows. These tall hedgerows are also of value to birds and terrestrial woodland mammals.

The plantation shelterbelt woodland along the northern fringe of the airfield also provides good quality bat foraging and commuting routes along the northern edge of the survey area and links potential bat roosts in buildings in Wymeswold village with potential foraging habitat.

The hedgerows along the southern boundary of the airfield contain two veteran trees, one of which was assessed as high bat roost potential (TN6) and the hedgerows and plantation woodland edges are linked with potential bat foraging areas in mature woodland and also indirectly with the tall hedgerows on Burton Lane.

The wet ditch to the north of Ridgewold Farm provides a dispersal corridor for wetland species, although the seasonal nature of the water levels severely limits its value for many species, including water voles. The wet ditch along the northern fringe of the coniferous woodland (and eastern part of the airfield) is also probably only seasonally wet, which also limits its value for water voles.

Feature	Location (OSGR)	Extent	Description & Function
B676 Melton Road Hedgerows and Verges	SK 595214 to SK 605219	1km	Sections of species-rich but intensively managed hedgerows on the north side of the road, of limited value to bats. The taller hedgerows on the south side provide better quality bat foraging and commuting routes. The grass verges are species-rich and provide dispersal corridors for small mammals and terrestrial invertebrates.
Burton Lane Hedgerows	SK 595221 to SK 599233	1km	Two parallel hedgerows, including two species-rich sections, provide good quality bat foraging and commuting routes, linking trees with bat roost potential with potential foraging habitat, including areas of mature plantation woodland. This is also the only effective wildlife corridor that runs north to south within this survey area.
Northern Section of Wet Ditch	SK 596229 to SK 608225	0.75km	Both sections of wet ditch are only seasonally wet, which limits their value for aquatic species, including water voles. The hedgerows bordering both ditches have become fragmented, which also limits their value as wildlife corridors.
Southern Section of Wet Ditch	SK 596230 to SK 610217	1.5km	
Plantation Shelterbelt Woodland on the North Side of the Airfield	SK 577226 to SK 599233	2.25km	These sections of plantation woodland provide good quality bat foraging and commuting routes and link potential bat roosts in buildings in Wymeswold with foraging habitat.

Hedgerows and Shelterbelt Woodland on the South Side of the Airfield	SK 576219 to SK 593218	1.25km	The hedgerows along the southern boundary of the airfield contain two veteran trees, one of which was assessed as high bat roost potential (TN6) and the hedgerows and plantation woodland edges are linked with potential bat foraging areas in mature woodland and also indirectly with the tall hedgerows on Burton Lane.
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12.7 Recommendations for Further Investigation

Six sections of species-rich hedgerows (H1 to H6) were identified that merit further botanical survey work. In addition, a further two sections of hedgerow were considered to be species-rich (TN17 and TN20) although their central 30m sample sections yielded no more than four native woody species. These are detailed under Potential Local Wildlife Sites below.

The semi-improved neutral grassland verges on both sides of the B676 (Melton Road) also merit further botanical survey work as both probably meets the LWS criteria.

As both wet ditches were dry at the time of the survey, and are considered to be only seasonally wet, water vole surveys are not considered necessary as they provide at best sub-optimal habitat.

Protected species surveys are recommended for all of the plantation woodland areas within or bordering the survey area.

All of the ponds within the survey area have the potential to support breeding amphibians (including great-crested newts). Further amphibian survey work is recommended in all ponds, especially those that are linked to good quality terrestrial habitat by hedgerows or ditches.

12.7.1 Potential Local Wildlife Sites

Areas which are considered to merit further investigation with regard to Local Wildlife Site criteria are:

- All of the sections of species-rich hedgerow probably meet the LWS criteria on average number of native woody species and associated features. Further sampling of additional 30m sample sections would confirm their probable LWS status.
- The two hedgerows (TN17 and TN20) may also meet the LWS criteria on associated features and further sampling of additional 30m sections is recommended.
- The area of herb-rich neutral grassland verge along the north side of the B676 (plus also the opposite south verge outside the survey area).
- All of the field ponds within or directly adjoining the survey area could support breeding populations of great-crested newts. If they are proved to be present, these ponds would then meet the LWS criteria (presence of Red Data Book species).
- Four veteran trees were identified that meet the LWS criteria and which had not previously been recorded and documented.
- All of the areas of plantation woodland within the survey area were surveyed by the author in 2004 and still do not meet the criteria required for LWS designation.

12.7.2 Wildlife Corridor Management

Protected species surveys of the plantation woodland and dense scrub surrounding the airfield may inform future management priorities.

12.8 **Summary of Key Ecological Resources**

There are no designated sites within the survey boundary; although there are eleven designated LWS within 1km of the survey boundaries (see section 12.3).

There are no other designated sites within 1km of the surveyed area.

Six sections of species-rich hedgerow were identified that probably meet the LWS criteria due to their assemblage of native woody species and associated features; one of these hedgerows contains a Leicestershire Red Data Book species. A further two species-rich hedgerow sections may also meet the LWS criteria.

The grassland on the north verge bordering the B676 (Melton Road) contains ten species from the combined grassland lists of the LWS criteria and other species from this list could also be present. A small population of a Leicestershire Red Data Book species was present.

One of the arable fields contains a small population of round-leaved fluellen, which has a restricted distribution in the county.

Four veteran trees that meet the LWS criteria were identified during the survey.

All of the ponds within the survey area may also meet the LWS criteria should they be proved to support breeding populations of amphibians (including great-crested newt).

The designation of these sites as LWS (assuming they meet the criteria) would contribute to and enhance the wildlife value of the landscape. Sympathetic management of these sites would also allow movement of species between sites and beyond the surveyed area.

Additional mature trees within the survey area were assessed as having high or moderate bat roost potential but did not meet the LWS criteria.

12.9 Comparison with Surrounding Landscape

This survey area is predominantly arable as is the majority of the surrounding landscape although there are small areas of herb-rich grassland to the north of the survey area. The arable fields in the Wymeswold area have several historical records of scarce arable margin plants, especially round-leaved fluellen which has persisted in this area for at least 25 years and probably much longer. This plant is scarce in the county but does not yet merit inclusion in the Red Data Book.

Due to the intensive nature of the land management in the overwhelming majority of the wider landscape, the herb-rich neutral grassland along the verges of the B676 assume a greater importance than perhaps they would otherwise, both having the potential to be designated as LWS on species assemblage. The northern verge is arguably more important than the south as it supports a small population of a county Red Data Book species. However, the southern verge was not surveyed in any detail and this species could conceivably be present.

The majority of the hedgerows in the wider landscape are subject to intensive management or else have become fragmented. With this in mind, the remaining

species-rich hedgerows within the survey area are of primary importance, especially H3 as it contains a large population of a county Red Data Book species.

Neither of the wet ditches are considered to be of considerable wildlife value as both are probably seasonally dry. The field ponds may support important populations of breeding amphibians.

The blocks of plantation woodland are of some importance as wildlife corridors but are of relatively recent planting and are considered to be of lesser value than the more mature plantation woodland within the Prestwold Hall estate.

13 NON-TECHNICAL SUMMARY

The nine surveyed areas can be compared one with another by reference to “indicator values”. These comprise the number of statutorily designated sites and Local Wildlife Sites within or in close proximity to the survey boundaries, the percentage area (when compared to the total surveyed area) of potential Local Wildlife Sites, the percentage of priority habitats (including species-rich hedgerows), percentage of semi-natural habitat within the surveyed areas, the number of veteran trees (meeting the LWS criteria), the number of trees of at least moderate bat roost potential and the presence of invasive plant species. The number of Leicestershire Red Data Book species, Local Biodiversity Action Plan and legally protected species found in each area are also included. This information is given in the tables overleaf:

The semi-natural habitats do not include improved or semi-improved grassland or any areas of woodland that have been substantially altered by felling and replanting with alien species. These aliens include species such as beech which, although native in Britain, are not considered native in Leicestershire.

East of Thurmaston / North of Hamilton

This survey area has the least amount of species-rich hedgerows within the survey boundaries and is the area that has the largest amount of intensively managed arable land in comparison to the total area surveyed. It also has the least amount of habitats that potentially meet the LWS criteria, requiring further survey (two sections of hedgerow and eight field ponds, most of which are very small). No semi-natural lowland meadow was found within this area. However, this survey area does have the highest number of mature trees of at least moderate bat roost potential.

Only one protected or otherwise notable species was found within the surveyed area.

No designated sites are present within the survey boundaries although there are seven Local Wildlife Sites within 1km.

North of Birstall

This area has 966m of species-rich hedgerows, five field ponds and a small amount of wet woodland; however this woodland is split between more than one site, each individual section being probably too small in themselves to meet the LWS designation threshold. No semi-natural lowland meadow was present.

One protected species was found within the survey boundaries.

One Local Wildlife Site is present within the survey area boundary and a further five are located within 1km.

South of Anstey / North of Glenfield

This survey area has the fourth-longest total of species-rich hedgerows that may meet the LWS criteria and the largest total area of wet woodland but only a small amount of lowland meadow. This area had the highest number of veteran trees (meeting the LWS criteria) of all the areas surveyed and the second highest number of trees with at least moderate bat roost potential.

Two protected or otherwise notable species were recorded within the survey area. There was a small amount of one invasive species (Australian swamp stonecrop) although this was restricted to a small pond.

Two statutorily protected sites are located within 1km of the site and one Local Wildlife Site is present within the survey area boundary.

West of Shepshed

This survey area has the second shortest total length of species-rich hedgerow possibly meeting the LWS criteria although this does total 751m. This area has the largest total amount of lowland meadow (species-rich) of all of the survey areas and includes both fields and sections of road verges. Some of the road verges have however already been designated LWS.

This area has only one veteran tree meeting the LWS criteria and thirteen mature trees of at least moderate bat roost potential. Only one field pond was recorded within the survey area, which may meet the LWS criteria. The Grace Dieu Brook traverses the surveyed area and probably also meets the LWS criteria.

A total of at least six protected or otherwise notable species were recorded within the survey area.

Several clumps of Japanese knotweed were also recorded although all of these were in a very small area, adjacent to one another.

Two statutorily protected sites are located within 1km and five Local Wildlife Sites were also present within 1km. This survey area also contains two LWS.

West of Loughborough

This area has the third longest total length of species-rich hedgerows of all the surveyed areas, amounting to 1436m. This area also has the third-largest amount of lowland mixed deciduous woodland, but only a small amount of wet woodland.

The majority of the LWS qualifying habitats within this area have already been designated, although 961m of species-rich hedgerows remain to be surveyed and designated. The 2.15ha of lowland species-rich meadow has already been designated. Only three veteran trees were recorded that meet the LWS criteria, with six trees of at least moderate bat roost potential.

Two protected or otherwise notable species were recorded within the survey area.

No invasive species were recorded from this survey area.

There is one statutorily protected site within 1km and there are three Local Wildlife Sites within 1km. This site contains two Local Wildlife Sites, one being the Hermitage Estate.

North of Loughborough

This area has 1133m of species-rich hedgerows and 5.29ha of lowland mixed deciduous woodland, both fairly average totals when compared to the other surveyed areas. Only a very small amount of wet woodland was present. The lengths of species-rich hedgerows are the only features in this survey area that need surveying against the LWS criteria. There is one veteran tree meeting the

LSW criteria and a further four mature trees with at least moderate bat roost potential.

Four protected or otherwise notable species have been recorded within this survey area, three of them in a very small area.

No invasive species were recorded from this survey area.

There is one adjacent statutorily protected site and two Local Wildlife Sites within 1km. No designated sites are present within the surveyed area although one LWS forms the boundary of part of the surveyed area.

South of Loughborough

This surveyed area has the second longest length of species-rich hedgerows, totalling 1936m and also has the fourth largest amount of lowland mixed deciduous woodland of approximately 21ha. This area contains 2ha of lowland meadow although all of this has already been designated an LWS.

Features requiring further survey against the LWS criteria comprise the above mentioned hedgerows, eight field ponds and the Wood Brook.

There are two veteran trees meeting the LWS criteria and a further six mature trees of at least moderate bat roost potential.

Two notable or Red Data Book species were recorded from within this survey area.

No invasive species were recorded within the survey boundaries.

There is one adjacent statutorily protected site and a total of thirteen Local Wildlife Sites within 1km of the survey boundaries. One Local Wildlife Site is present within the survey area.

East of Loughborough (near Cotes)

For a predominantly arable landscape, this area has a long length of species-rich hedgerows, amounting to 1134m. This site has the highest amount of lowland mixed deciduous woodland totalling 38.07ha although only a small amount of wet woodland is present (0.46ha).

Features requiring further survey against the LWS criteria comprise the above mentioned hedgerows, 3.28ha of lowland meadow (including the natural Burial Ground) and five field ponds, some of which may be only seasonal.

This survey area has not previously been surveyed systematically for veteran trees and the five recorded are all new records. A further twelve mature trees were recorded that were considered to be at least of moderate bat roost potential.

One protected species was recorded in close proximity to the survey boundaries.

No invasive species were recorded within this survey area.

There are two adjacent statutorily protected sites within 1km of the surveyed area and six Local Wildlife Sites within 1km. No designated sites are present within the survey area.

East of Loughborough (Wymeswold Airfield)

This area had the largest length of species-rich hedgerows (3178m) of all of the surveyed areas, with the majority being alongside the B676 on the southern boundaries of the surveyed area.

This area has the second largest amount of lowland mixed deciduous woodland of all the surveyed areas totalling approximately 35ha. Habitats in this area that require surveying against the LWS criteria comprise the above mentioned hedgerows, six field ponds and a total of 0.94ha of herb-rich road verge, containing a Red Data Book species.

As with the survey area near Cotes, this part of Charnwood Borough has not been systematically surveyed for veteran trees and the four recorded were all new records. A further ten trees and one other structure were identified as having at least moderate bat roost potential.

Despite being predominantly arable, this survey area contains five protected, red Data Book or otherwise notable species and another two of these adjacent to the surveyed area rather than being within it.

There are no statutorily protected sites within 1km although there are twelve Local Wildlife Sites within 1km of the surveyed area. There are no designated sites within the surveyed area.

Indicator Values for the Surveyed Areas				
	No. of statutorily designated sites within 1km	No. of Local Wildlife Sites within and adjacent to the surveyed area	Area of priority habitats within the surveyed area	Potential Local Wildlife Sites
East of Thurmaston/ North of Hamilton	None	None within survey area Seven within 1km	205m species-rich hedgerows 3.61ha wet woodland	205m of species-rich hedgerows Eight field ponds Melton Brook & Barkby Brook
North of Birstall	None	One LWS within surveyed area Five LWS within 1km	966m species-rich hedgerow 0.27ha lowland mixed deciduous woodland	966m species-rich hedgerows Five field ponds
South of Anstey / North of Glenfield	Two within 1km	One within surveyed area None adjacent	1236m species-rich hedgerows 2.29ha wet woodland 0.71ha lowland meadow	1236m species-rich hedgerow 0.71ha lowland meadow
West of Shepshed	Two within 1km	Two within surveyed area Five within 1km	751m species-rich hedgerow 0.69ha wet woodland 6.07ha lowland mixed deciduous woodland 7.23ha lowland meadow (fields) 0.38ha: lowland meadow (road verges)	751m species-rich hedgerow 7.23ha lowland meadow (fields) 0.38ha lowland meadow (verges) Grace Dieu Brook

Indicator Values for the Surveyed Areas				
	No. of statutorily designated sites within 1km	No. of Local Wildlife Sites within and adjacent to the surveyed area	Area of priority habitats within the surveyed area	Potential Local Wildlife Sites
West of Loughborough	One within 1km	Two within survey area Three within 1km	1436m species-rich hedgerows 1.7ha wet woodland 29.55ha lowland mixed deciduous woodland 2.15ha lowland meadow (fields)	961m species-rich hedgerows
North of Loughborough	One adjacent	One adjacent to surveyed area Two within 1km One Ancient Woodland within 1km	1133m species-rich hedgerows 0.4ha wet woodland 5.29ha lowland mixed deciduous woodland	1133m species-rich hedgerow
South of Loughborough	One adjacent	One within surveyed area Thirteen within 1km	1963m species-rich hedgerows 20.993ha lowland mixed deciduous woodland 2ha lowland meadow (already designated LWS)	1963m species-rich hedgerow Wood Brook Eight field ponds

Indicator Values for the Surveyed Areas				
	No. of statutorily designated sites within 1km	No. of Local Wildlife Sites within and adjacent to the surveyed area	Area of priority habitats within the surveyed area	Potential Local Wildlife Sites
East of Loughborough (near Cotes)	Two adjacent	None within surveyed area Six within 1km	1134m species-rich hedgerow 0.46ha wet woodland 38.07ha lowland mixed deciduous woodland 3.28ha lowland meadow	1134m species-rich hedgerow 3.28ha lowland meadow Five field ponds
East of Loughborough (Wymeswold Airfield)	None	None within surveyed area Twelve within 1km	3178m species-rich hedgerow 34.93ha lowland mixed deciduous woodland 0.94ha lowland meadow (road verge)	3178m species-rich hedgerow 0.94ha lowland meadow (road verge) Six field ponds

	Percentage of semi-natural habitats (compared to total area surveyed)	No. of veteran trees (meeting LWS criteria)	No. of trees of at least moderate bat roost potential	No. of Red Data Book, LBAP and protected species	Invasive species present
East of Thurmaston/ North of Hamilton	6.401% plus 6,288m running water and 205m of species-rich hedgerows	1	24	One	No
North of Birstall	24.866% plus 212m of running water and 986m of species-rich hedgerow	8	7	One	No
South of Anstey / North of Glenfield	27.284% plus 1667m of running water and 1236m of species-rich hedgerow	21	14	Two	Yes – Australian swamp stonecrop (<i>Crassula helmsii</i>)
West of Shepshed	6.09% plus 6123m of running water and 751m of species-rich hedgerow	1	13	Six	Yes – Japanese knotweed (<i>Fallopia japonica</i>)
West of Loughborough	9.57% plus 2044m of running water and 1436m of species-rich hedgerow	3	6	Two	No
North of Loughborough	10.13% plus 907m of running water and 1133m of species-rich hedgerow	1	4	Four	No
South of Loughborough	14.665% plus 941m of running water and 1963m of species-rich hedgerow	2	6	Two	No
East of Loughborough (near Cotes)	2.165% plus 10930m of running water and 1134m of species-rich hedgerow	5	12	One	No

	Percentage of semi-natural habitats (compared to total area surveyed)	No. of veteran trees (meeting LWS criteria)	No. of trees of at least moderate bat roost potential	No. of Red Data Book, LBAP and protected species	Invasive species present
East of Loughborough (Wymeswold Airfield)	2.509% plus 326m of running water and 3178m of species-rich hedgerow	4	10 trees, 1 barn	Seven	No

Percentage Values for Semi-natural Habitats

All obviously artificial habitats e.g. arable, amenity and improved grassland have been excluded from these tables, as also has plantation woodland (whether broad-leaved, mixed or coniferous) as these contain a high percentage of non-native species in each of the surveyed areas.

Hedgerows and running water totals have been calculated separately and are also excluded as they have their own tables elsewhere in the document.

East of Thurmaston / North of Hamilton		
Broad-leaved semi-natural woodland	3.61ha	0.66%
Dense scrub	1.618ha	0.29%
Poor semi-improved grassland	29.4287ha	5.368%
Standing water	0.4558ha	0.083%
		Total = 6.401%

North of Birstall		
Broad-leaved semi-natural woodland	0.2748ha	0.13%
Dense scrub	5.58ha	2.69%
Poor semi-improved grassland	44.68ha	21.58%
Standing water	0.20ha	0.096%
Tall ruderal	0.78ha	0.37%
		Total = 24.866%

South of Anstey / North of Glenfield		
Broad-leaved semi-natural wet woodland	2.29ha	1.19%
Dense scrub	1.17ha	0.6%
Herb-rich neutral grassland	0.71ha	0.37%
Species-poor semi-improved grassland	43.32ha	22.56%
Standing water	0.0075ha	0.0039%
Tall ruderal / poor grassland mosaic	3.64ha	1.90%
Tall ruderal	1.27ha	0.66%
		Total = 27.284%

West of Shepshed		
Wet Broad-leaved semi-natural woodland	0.69ha	0.25%
Broad-leaved semi-natural woodland	5.3ha	1.92%
Dense scrub	0.4670ha	0.17%
Herb-rich neutral grassland – fields	7.23ha	2.62%
Herb-rich neutral grassland – verges	0.3ha	0.11%
Poor semi-improved grassland	2.7403ha	0.99%
Standing water	0.0966ha	0.03%
		Total = 6.09%

West of Loughborough		
Wet willow woodland	1.7ha	0.91%
Broad-leaved semi-natural woodland	7.24ha	3.89%
Dense scrub	0.08ha	0.04%
Herb-rich neutral grassland	2.15ha	1.15%
Poor semi-improved grassland	3.8ha	3.20%
Standing water	0.1026ha	0.05%
Tall ruderal	0.61ha	0.33%
		Total = 9.57%

North of Loughborough		
Wet Broad-leaved semi-natural woodland	0.40ha	0.17%
Dense scrub	0.40ha	0.17%
Poor semi-improved grassland	21.52ha	9.31%
Tall ruderal	1.12ha	0.48%
		Total = 10.13%

South of Loughborough		
Broad-leaved semi-natural woodland	11.5956ha	3.52%
Dense scrub	1.53ha	0.465%
Herb-rich wet grassland	2ha	0.61%
Semi-improved neutral grassland	10.73ha	3.26%
Tall ruderal	6.499ha	1.97%
Standing water	15.923ha	4.84%
		Total = 14.665%

East of Loughborough (nr Cotes)		
Broad-leaved wet semi-natural woodland	0.46ha	0.08%
Dense scrub	0.18ha	0.03%
Herb-rich neutral grassland	3.28ha	0.57%
Poor semi-improved grassland	6.2ha	1.08%
Standing water	0.146ha	0.025%
Tall ruderal	2.165ha	0.38%
		Total = 2.165%

East of Loughborough (Wymeswold Airfield)		
Broad-leaved semi-natural woodland	0.054ha	0.011%
Dense scrub	1.83ha	0.39%
Herb-rich neutral grassland	0.94ha	0.2%
Poor semi-improved grassland	6.97ha	1.5%
Standing water	0.04ha	0.008%
Tall ruderal	1.86ha	0.4%
		Total = 2.509%

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