



# Hinckley & Bosworth Borough Council

## Extended Phase 1 Habitat Survey



06 February 2012

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Hinckley & Bosworth  
Borough Council


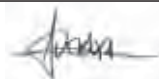
*A Borough to be proud of*

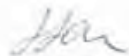




Document Control

Project: Extended Phase 1 Habitat Survey  
Client: Hinckley & Bosworth Borough Council  
Job Number: A072619  
File Origin: O:\Ecology\Projects A072000 on\A072619 Hinckley & Bosworth\  
Working

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Issue	Date	Status
1	13 <sup>th</sup> Jan 2012	Draft
2	18 <sup>th</sup> Jan 2012	Final Draft
3	30 <sup>th</sup> Jan 2012	Final Issue
4	7 <sup>th</sup> Feb 2012	Print

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## Executive Summary

Hinckley & Bosworth Borough Council required an Extended Phase 1 Habitat Survey and Biodiversity Study to inform the preparation of the Site Allocations and Generic Development Control Policies Development Plan Document.

The purpose of the study is to evaluate sites with the potential to accommodate development within the Borough up to 2026. Extended Phase 1 Habitat Surveys and a desk based study were completed to identify the significance and value of habitats and areas of biodiversity interest within the identified sites.

The Study will identify the significance of the habitats and species within these sites and make recommendations as to;

- The level of protection that should be afforded to them in seeking land for future development and/or;
- The mitigation required to ensure that significant habitats and species are satisfactorily conserved developed as part of any development proposals.

A background to conservation legislation is provided in Chapter 2, with methodologies for the desk study and field survey provided in Chapters 3 and 4.

An overview of the Borough of Hinckley & Bosworth is provided in Chapter 5, including existing designated and non-designated sites, while habitats recorded during the current survey are described in Chapter 7.

The Borough has seven Sites of Special Scientific Interest (SSSI), two Local Nature Reserves and numerous Local Wildlife Sites identified and designated by the Borough Council and Leicestershire County Council.

Each settlement is examined in Chapter 6, and key wildlife sites, species records and notable habitats noted. Results are then provided for individual preferred and alternative options sites in Appendix C. Only three sites were found to have significant ecological constraints. These are described further in Chapter 8.

Key wildlife corridors are identified through the Borough, as are sites that may qualify for Local Wildlife Site status in Chapter 8, and recommendations for further survey, mitigation and enhancement made in Chapter 9.

The principal output of the project is three sets of maps (Appendix A) covering each of the sites and showing the following information:

- Existing information regarding protected species and designated sites;
- The results of the Extended Phase 1 Habitat Survey, including target notes where required (target note descriptions are in Appendix B);
- Areas that may have potential to qualify as Local Wildlife Sites, and key wildlife corridors across the landscape. An indicative indication of ecological value of each preferred and alternative site is also illustrated.





## Glossary

BAP	Biodiversity Action Plan
DPD	Development Plan Document (Part of the LDF process)
GIS	Geographical Information System
HBBC	Hinckley & Bosworth Borough Council
LBAP	Local Biodiversity Action Plan
LDF	Local Development Framework
LRERC	Leicester and Rutland Environmental Records Centre
LNR	Local Nature Reserve
LRWT	Leicestershire and Rutland Wildlife Trust
LWS	Local Wildlife Site
NERC	Natural Environment and Rural Communities Act (2006)
MAGIC	Multi-Agency Geographic Information for the Countryside
NBN	National Biodiversity Network
NNR	National Nature Reserve
NPAC	National Parks and Access to the Countryside Act (1949)
NPPF	National Planning Policy Framework
PDA	Potential Development Area
RPR	Rare Plant Register
RSPB	Royal Society for the Protection of Birds
SHLAA	Strategic Housing Land Availability Assessment
SSSI	Site of Special Scientific Interest
SUE	Sustainable Urban Extension
UKBAP	UK Biodiversity Action Plan



## 1.0 Introduction

### 1.1 Background

- 1.1.1 WYG Environment (WYG) was commissioned by Hinckley & Bosworth Borough Council to complete an Extended Phase 1 Habitat Survey and Biodiversity Study to inform the preparation of the Site Allocations and Generic Development Control Policies Development Plan Document. The findings of the study will be used to address the requirements of the National Planning Policy Framework based on existing guidance from Planning Policy Statement 9 (PPS9) to identify important habitats and areas of biodiversity within potential allocation sites within the Borough.
- 1.1.2 Local governments have a duty to consider biodiversity under the Natural Environment and Rural Communities Act (NERC Act, 2006), and to have regard to the safeguard of species protected under the Wildlife and Countryside Act 1981, the Conservation of Habitats and Species Regulations 2010 and other species-specific legislation.
- 1.1.3 Although the National Planning Policy Framework is currently evolving, Planning Policy Statement 9 (PPS9) Biodiversity and Geological Conservation and the accompanying Government circulars (ODPM Circular 06/2005, DEFRA Circular 01/2005) and Good Practice Guide still provide the main driver for local planning authorities to consider biological and geological diversity. They include requirements for development to deliver biodiversity enhancements as well as reducing, avoiding and compensating for adverse effects. They recommend that local authorities should maintain networks of natural habitats through protection from development, and the enhancement and repair of existing features. The Extended Phase 1 Habitat Survey will help ensure that important species can be taken into account at all stages in the planning process but specifically through land allocations for future development.

### 1.2 The Borough

- 1.2.1 The Borough of Hinckley & Bosworth is located in south west Leicestershire, and is largely rural with an area of approximately 297 square kilometres and a population of approximately 103,800. The majority of the population live in the main urban areas of Hinckley, Burbage, Barwell and Earl Shilton in the south-west of the Borough. The remainder of the Borough is mainly rural in character with larger settlements, Groby and Ratby, located in the north east of the Borough on the fringe of the Principal Urban Area (PUA) of Leicester. Other larger settlements include Markfield, Barlestone, Newbold Verdon, Desford, Bagworth & Thornton, Market Bosworth and Stoke Golding and these, along with Groby and Ratby, are defined as Key Rural Centres through the Adopted Core Strategy (December 2009).
- 1.2.2 An overview map of the Borough and the survey areas are provided in Figure 1.



1.2.3 The Borough has seven Sites of Special Scientific Interest (SSSI), two Local Nature Reserves and numerous Local Wildlife Sites identified and designated by the Borough Council and Leicestershire County Council. The Borough also has popular natural attractions such as Burbage Common and Woodland, the National Forest, part of Charnwood Forest (shared with Charnwood and North-West Leicestershire), Thornton Reservoir and the Ashby Canal.

### 1.3 Purpose of the Study

1.3.1 The purpose of the study is to evaluate sites with the potential to accommodate development within the Borough up to 2026. The study involved an Extended Phase 1 Habitat Survey and desk based study to identify the significance and value of habitats and areas of biodiversity interest within the identified sites.

1.3.2 The Study focused on those areas identified as preferred options and alternative options in the Preferred Options Site Allocations & Generic Development Control Policies Development Plan Document (February 2009) for their habitat and biodiversity value. The Study will identify the significance of the habitats and species within these sites and make recommendations as to;

- The level of protection that should be afforded to them in seeking land for future development and/or
- The mitigation required to ensure that significant habitats and species are satisfactorily conserved as part of any development proposals.

1.3.3 The Extended Phase 1 Habitat Survey will provide important evidence which will (amongst other things) inform Local Development Framework (LDF) policy, allocations for development, the Strategic Housing Land Availability Assessment (SHLAA) and criteria for assessing the sustainability of future development proposals. It will also provide up to date and comprehensive information to inform development control decisions and identify mitigation measures.

1.3.4 The study will provide detailed information of the biodiversity resource, including the geographical extent and condition of habitats on the selected sites. This is essential if action for biodiversity is to be planned effectively and for progress on sustainable development to be monitored.

1.3.5 In accordance with PPS9 the study needs to be an integral consideration of planning policies and decisions if it is to contribute to long-term sustainability.

### 1.4 Objectives

1.4.1 The objectives of the study are;

- To provide sufficient information to enable consistent and sustainable decisions to be made with respect to protecting biodiversity and geological conservation and to ensure that the Council have the necessary information on habitats to meet their obligations under PPS9.





- To provide the Council with a clear and robust evidence document to inform decision making on the allocation of land for development and the associated Sustainability Appraisal in addition to feeding into the SHLAA.
- To provide an up to date source of biodiversity information to assist in the determination of planning applications.
- To identify potential mitigation measures required as part of new development to ensure habitats and biodiversity are maintained or enhanced.
- To set a baseline and monitoring framework for further surveying and/or monitoring of species and habitats to establish whether the policies of the Local Development Framework successfully contribute to improvements in the quality and quantity of habitats.

## 1.5 Outputs

- 1.5.1 The Preferred and Alternative Option sites have been grouped by settlement. Figure 1: Overview Map, in Appendix A identifies where the main settlements are.
- 1.5.2 The characteristic habitats of each settlement will be briefly discussed, and then information will be provided in a table format regarding the findings of the Extended Phase 1 Habitat Survey and desk based study for each of the individual sites.
- 1.5.3 The principal output is a set of three maps covering each of the sites and showing the following information:
- Figure Xa: Existing information regarding protected species and designated sites by settlement;
  - Figure Xb: The results of the Extended Phase 1 Habitat Survey of preferred and alternative options sites, including target notes where required;
  - Figure Xc: Areas that may have potential to qualify as Local Wildlife Sites, and key wildlife corridors within and around settlements. Preferred and alternative options sites are also colour coded on this plan as to whether they are considered to be likely to be of relatively low, moderate or higher ecological value.
- 1.5.4 The definitions for these classifications are as follows:
- Green: Site appears to be of relatively low ecological value. Further surveys may still be required to inform mitigation, e.g. for great crested newts, bats or badgers, but there are not considered to be any significant ecological constraints to development of the site.
  - Amber: There may be ecological constraints on site such as an adjacent river corridor, or area of woodland that we would recommend be retained within the final development. However, it is likely that further surveys and ecological input



to the detailed site proposals could potentially allow development over at least some of the site.

- Red: Significant ecological constraints present within or adjacent to the site. Detailed mitigation and compensation / enhancement measures likely to be required to allow development on these sites.

1.5.5 Information is also summarised in the following tables :

- Appendix C: Tables summarising the species and habitats found on each site, recommendations for further survey and enhancement and an indicative assessment of the site as being of low, moderate or higher ecological value (as illustrated on Figures Xc).
- Table 2: An overview summary of each settlement.
- Table 3: Features identified during the study that may have potential to qualify as Local Wildlife Sites.
- Appendix B: Target notes. These provide the descriptions to accompany target notes identified on the Phase 1 maps (Figures Xb). They are used to identify features noted during the field surveys such as evidence of protected species or invasive species.

1.5.6 The maps and tables will provide a comprehensive and robust assessment of the extent, nature and condition of habitats and any implications for land use planning.



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2.1.1 An overview of conservation legislation is provided in Appendix E.

### 2.2 International Legislation

#### Habitats Directive

2.2.1 The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, or the 'Habitats Directive', is a European Union directive adopted in 1992 in response to the Bern Convention. Its aims are to protect approximately 220 habitats and 1,000 species listed in its several Annexes.

2.2.2 In the UK, the Habitats Directive is transposed into national law via the Conservation of Habitats and Species Regulations 2010 in England, Scotland and Wales, and via the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland.

#### The Conservation of Habitats and Species Regulations 2010

2.2.3 This is the main piece of legislation which transposes the Habitats Directive into national law. The Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I or II of the Habitats Directive respectively) to the European Commission. These sites, if ratified by the European Commission, are then designated as Special Protection Areas (SPAs) within six years.

2.2.4 The Regulations also make it an offence to deliberately capture, kill, disturb or trade in the animals listed in Schedule 2, or pick, uproot, destroy, or trade in the plants listed in Schedule 5 (see Table B1, Appendix E).

2.2.5 The 2010 Regulations consolidate and update the Conservation (Natural Habitats, &c.) Regulations 1994 (the 1994 Regulations) and any amendments. It also contains new provisions to implement aspects of the Marine and Coastal Access Act 2009 (the "Marine Act"), giving powers to the Marine and Coastal Access Act and Marine Enforcement Officers.

### 2.3 National Legislation and Guidance

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

2.3.1 The primary legislation covering endangered or threatened species in England which sets out the framework for the designation and protection of Sites of Special Scientific Interest (SSSIs). Seven SSSI sites occur within Hinckley & Bosworth Borough.

#### The Countryside and Rights of Way (CROW) Act 2000

2.3.2 The CROW Act affords a greater level of protection to Sites of Special Scientific Interest (SSSIs), provides better management arrangements for Areas of Outstanding Natural Beauty (AONBs) and strengthens wildlife enforcement



legislation (although there are no AONBs in Hinckley & Bosworth Borough). Section 74(2) of the Act requires the Secretary of State to list those habitats and species of principal importance for the conservation of biodiversity in England, in accordance within the United Nations Convention of Biological Diversity 1992.

#### The Natural Environment and Rural Communities (NERC) Act 2006

2.3.3 The NERC Act is designed to help achieve a rich and diverse natural environment and thriving rural communities through modernised and simplified arrangements for delivering government policy. Elements of the act most relevant to the current assessment include (i) extension of the CRoW Act (2000) biodiversity duty to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity and (ii) modification of the CRoW Act so that species listed under section 74 are now listed under section 41 of the NERC Act 2006. The habitats and species are therefore important for priority setting within the revised UK Biodiversity Action Plan (BAP) and future revisions of the Leicester, Leicestershire & Rutland BAPs.

2.3.4 Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of habitats and species which are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local authorities, in implementing their duty under Section 40 of the Natural Environment and rural Communities (NERC) Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 habitats of principal importance and 1,150 species of principal importance.

#### Protection of Badgers Act 1992 (PBA 1992)

2.3.5 The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act. This legislation protects both the badger itself and setts in current use

2.3.6 The 1992 Act defines a badger sett as: “any structure or place which displays signs indicating current use by a badger”

#### The Hedgerow Regulations 1997

2.3.7 The Hedgerow Regulations 1997 were made under Section 97 of the Environment Act 1995 and came into force in 1997. They introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.

## 2.4 National Planning Policy

### National Planning Policy Framework (Draft, 2011)



2.4.1 The draft National Planning Policy Framework was published on 25 July 2011 for consultation. This is a key part of the Government's proposed reforms to make the planning system less complex and more accessible, and to promote sustainable growth. The consultation period has now closed, and responses are being considered.

2.4.2 For the purposes of this study, we have used the guidance provided in the existing Planning Policy Statement 9, the provisions of which are likely to be replicated in the National Planning Policy Framework.

#### Planning Policy Statement 9: Biodiversity and Geological Conservation (2005)

2.4.3 Planning Policy Statement 9: Biodiversity and Geological Conservation (2005 – PPS9) is a document produced by the UK government to advise Local Planning Authorities on policies concerning the protection of biodiversity and geological conservation through the planning system.

2.4.4 Paragraph 14 of the document states that 'Development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design'. When considering proposals, local planning authorities should maximise such opportunities in and around developments, using planning obligations where appropriate.'

#### Biodiversity Action Plan (BAP)

2.4.5 The UK Biodiversity Action Plan (UKBAP – UK Steering Group, 1995; UK Biodiversity Group, 1998 - 2000) lists and prioritises habitats and species and sets national targets to be achieved. The intent of the UKBAP, however, is much broader than the protection and enhancement of less common species, and is meant to embrace the wider countryside as a whole.

2.4.6 The UKBAP has recently undergone a review (Biodiversity Reporting and Information Group, June 2007) resulting in the identification of 391 'Priority' Species Action Plans (SAPs), 45 'Priority' Habitat Action Plans and 162 Local Biodiversity Action Plans.

2.4.7 Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.

#### 2.5 Regional Strategies and Local Plans

2.5.1 Existing Regional Strategies and Local Plans of relevance to the current assessment include:

- Hinckley & Bosworth Local Plan (2001)
- Site Allocations DPD issues and options (2007)
- Preferred Options Site Allocations & Generic Development Control Policies Development Plan Document (2009)





- The Adopted Core Strategy (2009)
- East Midlands Regional Plan (2009).

2.5.2 The existing Biodiversity Assessment (2009) provides a baseline of the biodiversity and nature conservation interest of the Borough.

## 2.6 Other Strategies and Initiatives

2.6.1 Other initiatives, plans, priorities and guidance for nature conservation at a national and local level that have informed the assessment include:

- The UK BAP (first published in 1994 and list of priority species and habitats revised in 2007)
- Leicester, Leicestershire and Rutland BAP (2002)
- UK Birds of Conservation Concern (RSPB et al, 2002)
- The Leicestershire and Rutland Rare Plant Register (2007)



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#### 3.1 Existing Information

- 3.1.1 A large amount of information was produced in 2009 as part of the Biodiversity Assessment for Hinckley & Bosworth Borough. The information available in the 2009 report has been incorporated into this Extended Phase 1 Habitat Survey, where appropriate.
- 3.1.2 Consultation with Hinckley & Bosworth Borough Council, and Leicestershire County Council Ecologists has been ongoing throughout the study.

#### 3.2 Records Search

- 3.2.1 Information was gathered from Leicestershire and Rutland Environmental Records Centre (LRERC) regarding the presence of nature conservation designations and protected and notable species in the wider area.
- 3.2.2 In addition, a search for designations was made of Natural England's interactive, web-based MAGIC (Multi Agency Geographic Information for the Countryside) database, and species records were obtained from the National Biodiversity Network website (NBN Gateway).

#### 3.2.3 The data search covers:

- Statutory nature conservation designations, such as National Nature Reserves and Sites of Special Scientific Interest;
- Non-statutory nature conservation designations, such as Wildlife Sites;
- Protected species, such as badgers, great crested newts and bats; and
- Notable species, such as those listed in the local Biodiversity Action Plan.

3.2.4 Given the large amount of data returned from the data search, the data was filtered to highlight all records under 10 years old as records older than this are now out of date and may no longer be relevant. Accuracy of species records is usually to within 100 metres, so records have been displayed as occupying a 100 metre square. The protected species layer must be considered CONFIDENTIAL and not for dissemination to the public as the information it contains relates to potentially persecuted species.

3.2.5 A number of otter records are displayed on the protected species layer, however these are considered to apply to routine monitoring sites rather than actual records, so they have been largely excluded from the analysis.

#### 3.3 Desk-based GIS Study

3.3.1 A GIS analysis of the Preferred and Alternative Options sites was completed, initially based on aerial photographs supplied by Hinckley & Bosworth Borough Council. This analysis provided draft Phase 1 habitat maps of the specified areas.



- 3.3.2 Much of Leicestershire was photographed during 2006 by BlueSky International Ltd, funded by many of the Local Authorities. Hinckley & Bosworth Borough Council supplied WYG Environment with copies of these photographs. 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 features 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. These draft maps were then taken to site for ground-truthing to confirm the habitat types and to provide additional information regarding protected species evidence found during site visits.
- 3.3.3 Where good views were not possible into a site, or where a site was not accessed, this information was used to provide habitat maps (Figures Xb) for the site.

### 3.4 GIS Analysis

- 3.4.1 Base maps and aerial photographs provided by the Borough Council were incorporated with biological records obtained from the Leicestershire and Rutland Environmental Records Centre. Other information sources used include data gathered to inform previous local plans, and the Local Biodiversity Action Plan (BAP), together with the consultant ecologists' local knowledge. All GIS analysis was undertaken using ArcGIS 9.3.



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### 4.1 Survey areas

- 4.1.1 A number of Preferred and Alternative Option sites were identified by Hinckley & Bosworth Borough Council for survey. A brief overview of the survey area is provided in Figure 1. These sites were accessed wherever possible from publically accessible footpaths and roads. Where this was not possible, access was requested from the landowner.
- 4.1.2 Where existing survey information was already available from recent Extended Phase 1 Surveys this information was used to inform the current study.
- 4.1.3 A previous extended phase one habitat survey was carried out for a Sustainable Urban Extension at Earl Shilton by Ecology Solutions consultancy between May and September 2010, which also included specific surveys for a range of protected and otherwise notable faunal species. Permission has been granted to utilise this data which has been added to the GIS map in Figure 9b – South, Appendix A.
- 4.1.4 An extended phase one habitat survey has been carried out at the Barwell Sustainable Urban Extension site by another consultancy, which is to be submitted to the Council shortly and, as such these areas are excluded from this study.
- 4.1.5 Preferred and alternative options sites in Twycross and Sheepy Magna had recently been surveyed by Leicestershire County Council Ecologists, and as such, their existing survey information was used to provide details regarding these sites.
- 4.1.6 Where habitats were determined through previous studies, or through aerial interpretation alone, target notes are not provided.

### 4.2 Extended Phase 1 Vegetation and Habitat Survey Methodology

- 4.2.1 The survey was undertaken in line with the nationally recognised methodology set out in the Institute of Ecology and Environmental Management's guidance on survey methodology, and the Department for Communities and Local Government 'Planning for Biodiversity and Geological Conservation: A Guide to Good Practice' (ODPM, 2006). Surveys were also in accordance with the standard published Phase 1 Survey methodology (Joint Nature Conservation Committee, 2010). Resolution was to individual field level, recording all boundary types and identifying habitats and features of substantive biodiversity and nature conservation value, especially UK priority habitats. The vegetation and habitat types within the site were noted during the walkover survey in accordance with the categories specified for a Phase 1 Vegetation and Habitat Survey (Joint Nature Conservation Committee, 2010). Dominant plant species were recorded for each habitat present, and 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.



4.2.2 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 vascular plants, mosses and liverworts, 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.

4.2.3 The extended survey also 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.

4.2.4 Habitats and features to be target noted comprise species-rich hedgerows, veteran trees (see sections below), invasive species and other habitats or features likely to support protected and other notable species (see below).

#### Hedgerows

4.2.5 The survey included the recording of locations 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 any given 30 metre length.

4.2.6 These hedgerows were not assessed against The Hedgerows Regulations (1997) as this was not part of the brief. Woody species were recorded along the lengths of all hedgerows considered to be species-rich and the numbers of such species were counted both in the hedgerow as a whole and in a single random 30-metre section. For the purposes of this survey, and as defined by Defra (2007), woody species do not include climbers such as bramble (*Rubus*) species but do include roses (*Rosa*); also non-native woody species such as sycamore (*Acer pseudoplatanus*) do not count within this assessment.

4.2.7 To be considered as a potential Local Wildlife Site, the hedgerow must be at least 1.3m (4ft) high and continuous with breaks only at gateways (or equivalent) and be at least 30 years old. At least 6 locally native woody species per 30m averaged out over the length of the hedge or five locally native woody species as above but with the addition of at least two associated habitat features. Such features include a ditch or stream on one or both sides for at least half the hedgerow length, a bank or stone wall supporting the hedgerow on one or both sides for at least half the





hedgerow length, standard trees or pollards of at least 15cm trunk girth with an average of at least two per 100m of hedgerow, dead wood or old-laid sections along at least 10% of the hedgerow length or a parallel hedgerow within 15m.

#### Veteran Trees

4.2.8 Locations of veteran trees have been mapped where identified although no further survey work has been carried out other than to list the species. 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 Local Wildlife Site selection criteria for mature trees were used to determine which trees were likely to fall within this category.

4.2.9 Mature and veteran trees are a priority habitat within the Leicester, Leicestershire & Rutland Biodiversity Action Plan. They are an important habitat resource for hole-nesting birds, roosting bats, fungi, lichens and saproxylic insects. Concentrations of mature trees are particularly valuable. The Local Wildlife Site selection criteria for mature trees were used to determine which trees were likely to fall within this category.

4.2.10 These criteria include evidence of heart-rot, in the form of visible rot hollows or bracket fungi or dead branches. Characteristics included: very large girth, measured at 1.3m above ground level although the qualifying girth varies between tree species. A minimum girth of 3.77m would be required for native oak trees, beech, sweet chestnut, horse chestnut, all limes, poplars and willow species; whereas a minimum of 3m would be required for ash and elm species. Designated trees may be living, dead or even fallen. Stumps should be at least 2m high.

#### Invasive species

4.2.11 Invasive plant species were recorded, and mainly comprised Japanese knotweed (*Fallopia japonica*) although giant hogweed (*Heracleum mantegazzianum*) was also occasionally recorded.

#### 4.3 Protected and Notable Species

4.3.1 The site was inspected for evidence of and its potential to support protected or notable species, especially those listed under the Conservation of Habitats and Species Regulations 2010, the Wildlife & Countryside Act 1981 (as amended), including those given extra protection under the Natural Environment and Rural Communities (NERC) Act 2006 and Countryside & Rights of Way (CROW) Act 2000, and listed on the UK and local Biodiversity Action Plans.

4.3.2 Various habitats are more likely to support specific protected species, as outlined in the table below.

Table 1: Species typically found in key habitats.



Habitat	Species potentially present
Arable fields	Farmland birds, plants of arable margins, brown hare are also likely to present but have not been recorded by LERC within, or close to the Assessment Areas. Allotments may support reptiles, birds, amphibians, invertebrates
Grassland	Notable plants, reptiles, amphibians and invertebrates, particularly butterflies and moths
Tall ruderal	Invertebrates, reptiles, amphibians, nesting birds.
Hedgerows	Bats, badgers, birds, reptiles, amphibians, invertebrates
Woodland	Bats, badgers, birds, invertebrates, fungi
Scrub	Badgers, invertebrates, reptiles, birds, harvest mice
Rivers and brooks	Otters, water vole, birds, white clawed crayfish, bullhead, brook lamprey, aquatic invertebrates
Ponds	Great crested newts, birds, water vole, red data book aquatic beetles and other aquatic invertebrates

4.3.3 The following species in particular were considered:

#### Great Crested Newts

4.3.4 The sites were appraised for their suitability to support great-crested newts. The assessment was based on guidance outlined in the Joint Nature Conservation Committees' published Herpetofauna Workers' Manual (Joint Nature Conservation Committee, 2003) and the Great Crested Newt Conservation Handbook (Langton, Beckett & Foster, 2001). A thorough search for ponds was not completed, however, where they were recorded on maps, or visible from public rights of way they were recorded.

#### Reptiles

4.3.5 The assessment of reptile suitability was based on guidance outlined in the Joint Nature Conservation Committees' published Herpetofauna Workers' Manual (Joint Nature Conservation Committee, 2003).

#### Bats

4.3.6 Buildings and trees within the boundary were appraised for their suitability to support breeding, resting and hibernating bats using survey methods based on those outlined in the Bat Conservation Trust's Bat Surveys: Good Practice Guidelines (2007) and English Nature's Bat Mitigation Guidelines (2004). These assessments took place from public rights of way using binoculars.

#### Badgers



4.3.7 Where access was possible, the sites were surveyed for evidence of badger setts or other badger activity such as paths, latrines or signs of foraging. Methodologies used and any setts recorded were classified according to published criteria (Harris, Cresswell & Jefferies, 1989).

#### Otters

4.3.8 Accessible sections of water courses were assessed for their suitability to support otters. This assessment was based on guidance outlined in Chanin, P. (2003) Monitoring the otter.

#### Water Voles

4.3.9 Following methods set out in the Water Vole Conservation Handbook (Strachan & Moorhouse, 2006), an assessment of accessible waterbodies within and adjacent to the sites was undertaken to determine their suitability to support water voles and a search for evidence of activity was undertaken, including droppings, latrines, burrows, footprints and feeding lawns, of any areas considered suitable.

#### Other Species

4.3.10 Sites were appraised for their suitability to support other protected or notable fauna including mammals, birds and invertebrates in accordance with the Guidelines for Baseline Ecological Assessment (Institute of Environmental Assessment, 1995). Evidence of any current or historical presence of such species was recorded.

#### 4.4 Survey Limitations

4.4.1 To determine likely presence or absence of protected species usually requires multiple visits at suitable times of the year. As a result, this survey focuses on assessing the potential of the site to support species of note, which are considered to be of principal importance for the conservation of biodiversity with reference to Planning Policy Statement 9 (PPS 9): Biodiversity & Geological Conservation (Office of the Deputy Prime Minister - ODPM, 2005), especially those given protection under UK or European wildlife legislation.

4.4.2 The results provided in this report do not contain enough ecological information to inform a planning application for a preferred or alternative site. However, they do provide an indication of a site's likely ecological value, and allow a broad assessment of sites and settlements.

4.4.3 This report cannot therefore be considered a comprehensive assessment of the ecological interest of each of the sites. However, it does provide an assessment of the ecological interest present on the day of the visit and highlights areas where further survey work may be recommended. The comprehensiveness of any ecological assessment will be limited by the season in which surveys are undertaken.

4.4.4 The surveys in Hinckley & Bosworth were conducted between August and November 2011 at the end of the plant growing season, so some of the early



flowering species (especially woodland and grassland species) could have been missed, however, where required, an assessment of woodland quality (ancient or secondary) and grassland type could be made from the suite of plant species that were present. Although some of the areas were surveyed in October and early November, this is not considered to represent a constraint to the survey findings, given the habitat types present at the majority of the sites.

- 4.4.5 The survey work was largely restricted to what could be seen from public rights of way apart from occasional instances where landowner agreement was obtained. As such, a detailed search for evidence of protected species was not completed, but an assessment was made of their potential to use the site.
- 4.4.6 Visibility from public rights of way and other open access land was restricted in three of the allocated sites, neither was direct access available at the times that the survey took place. Aerial interpretation only has been completed for these sites. They comprised:
- As475 (Ratby): the small section to the south of the works buildings including a section of Rothley Brook;
  - As270 (Groby): a small area of horse paddock and planted hedgerow;
  - As414 (Markfield): four fields of grassland with hedgerows and scrub.
- 4.4.7 Small sites in densely built up areas were not accessed, as the habitats present, usually comprising buildings and hard standing with ornamental shrubs could be clearly determined from aerial photographs and from the road.
- 4.4.8 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.



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5.1.1 A useful overview of the ecology of Hinckley & Bosworth can be found in the Hinckley & Bosworth Biodiversity Assessment completed by FPCR (Hinckley & Bosworth Borough Council, 2009).

### 5.2 Statutory Sites

5.2.1 There are no internationally designated sites such as Special Areas of Conservation, Special Protection Areas or Ramsar sites within, or close to Hinckley & Bosworth Borough.

5.2.2 However, there are seven nationally designated Sites of Special Scientific Interest in the Borough, and their location, as well as that of SSSIs in adjacent Boroughs is illustrated in Figure 2 (information obtained from the Natural England websites and <http://www.natureonthemap.naturalengland.org.uk/>).

5.2.3 The section of Ashby Canal between Snarestone and Congerstone has been designated as a SSSI. The site supports communities of aquatic and emergent plants that are representative of eutrophic standing water bodies in lowland England. The diversity of aquatic plants and invertebrates makes this one of the most important water bodies of its type in the East Midlands. Nine species of pondweed have been recorded in the Ashby Canal, including nationally uncommon species such as flat-stalked pondweed (*Potamogeton friesii*) and grass-wrack pondweed (*P.compressus*), and nine species of dragonfly including the locally scarce red-eyed damselfly (*Erythroma najas*). The canal also supports diverse water beetle fauna including nationally rare *Haliplus mucronatus*, native freshwater crayfish *Austropotamobius pallipes* and the water shrew *Neomys fodiens*. The Ashby Canal is also a Biodiversity Action Plan (BAP) priority habitat.

5.2.4 Botcheston Bog SSSI contains one of the best remaining areas of unimproved marshy grassland in Leicestershire, including a number of county-rare plants, and is representative of grazed marsh communities on peaty soils. The marsh is supported and supplemented by an adjacent area of wet grassland; and by a number of water courses which flow through and around the site.

5.2.5 Burbage Wood and Aston Firs SSSI is located north of Burbage and the boundary encompasses both the Hinckley & Bosworth Borough and the adjacent Borough of Blaby. The site comprises one of the best remaining examples of ash – oak- maple woodland in Leicestershire and respective of semi natural woodland on clay soil. The site forms part of the larger Burbage Common and Woods Local Nature Reserve which incorporates both the woodland habitat and adjacent grassland habitat supporting diverse wildlife and insect communities. The majority of the grassland located north of the railway line is listed as a BAP priority habitat as a lowland dry acrid grassland.





- 5.2.6 Cliffe Hill Quarry SSSI is situated to the north east of Markfield. The site is primarily designated for its geological value.
- 5.2.7 Newton Burgoland Marshes SSSI is located 1.5km north of Congerstone near the village of Newton Burgoland in the north of the Borough. The site includes some of the best remaining examples of neutral alluvial grassland and marsh in Leicestershire and is representative of such habitat in Central and Eastern England. The species rich grassland comprises a floral community characteristic of marsh and wet grassland in the north and drier drained alluvial soils in the south.
- 5.2.8 Groby Pool and Wood SSSI comprises a complex of habitats and includes fine examples of alder wood, dry and wet grassland, mars, reed swamp and open water. The plant communities are representative of those developed on neutral or slightly acid soils in the north Midlands. Groby Pool is the largest natural expanse of water in Leicestershire which to the north and west grades into wet woodland. The grassland comprises a mix of communities developed on two different soils, a slightly acid loamy clay and siliceous soil. The site also provides habitat for a number of wintering wildfowl, a varied breeding bird community and a diversity of invertebrates.
- 5.2.9 Kendall's Meadow SSSI, located to the north east of Stoke Golding, is a traditionally managed hay meadow with a diverse plant life considered to be the best representative of this grassland type in the English Midlands. Over fifty plant species have been recorded, including quaking grass *Briza media*, saw-wort *Serratula tinctoria* and green-winged orchid *Orchis morio*. Kendall's Meadow habitat is also included as a LBAP priority habitat lowland meadows and purple moor grass and rush pasture.
- 5.2.10 Sheepy Field SSSI is located 1km north of Sheepy Magna village. The site contains some of the best remaining examples of neutral grassland in Leicestershire and is representative of hay meadow plant communities developed on neutral soils in the Midlands. The sward includes a rich assemblage of herbs and grasses typical of a hay meadow and also includes an area of marsh. Sheepy fields is also included as a LBAP priority habitat lowland meadows and purple moor grass and rush pasture.
- 5.2.11 Sheet Hedges Wood SSSI is located north of Groby in Charnwood Borough, but is mentioned due to it's proximity to some of the proposed allocated sites in Groby. The site comprises one of the best remaining examples of ash and alder woodland in Leicestershire and is representative of ancient woodland developed on clay soils in Central and eastern England. The broadleaved woodland ground vegetation is diverse with a range of plants typical of ancient woodland dominated by alder on the wetter soils in the south of the site and bracken (*Pteridium aquilinum*) in the centre.



## Local Nature Reserves

5.2.12 Local Nature Reserves are declared by Local Authorities in consultation with Natural England under Sections 19 and 21 of the National Parks and Access to the Countryside Act (1949). Local Nature Reserves (LNRs) are defined in the National Parks & Access to the Countryside Act (NPAC) as being 'land managed for the purpose of providing . . . special opportunities for the study of . . . the flora and fauna of Great Britain and the physical conditions in which they live, and for the study of geological and physiographical features of special interest in the area; or of preserving flora, fauna, or geological and physiographical features of special interest; or for both of these purposes.' PPS9 states that such sites 'have a fundamental role to play in meeting biodiversity targets, contributing to the quality of life and well being of the community, and in supporting research and education'. The same guidance goes on to explain that 'Criteria-based policies should be established in Local Development Documents against which proposals for any development on, or affecting, such sites will be judged'.

5.2.13 Billa Barra Hill Local Nature Reserve is located in the Parish of Markfield south of the A51. The site was formerly improved pasture but which is now being reverted to acid grassland habitat, and surrounds a small hilltop plantation woodland.

5.2.14 Burbage Common and Woods Local Nature Reserve located on the Blaby / Hinckley border includes Burbage Wood and Aston Firs SSSI. Habitats present include woodland and lowland dry acid grassland.

## 5.3 Non-statutory Sites

5.3.1 The lack of internationally designated sites and relatively low number of nationally designated sites means that those sites of local importance assume increased local significance (Evans, 1989).

5.3.2 It should be noted that PPS9 requires that Local Development Frameworks indicate the location of designated sites, including locally designated sites.

## Local Wildlife Sites

5.3.3 The current system for identifying non-statutory wildlife sites in Leicester, Leicestershire and Rutland is the Local Wildlife Sites system. These are designated locally by the Leicester, Leicestershire and Rutland Local Wildlife Site Panel of local nature conservation experts. The procedure for their designation follows national guidance published by DEFRA in 2006 (Local sites: guidance on their identification, selection and management). Local Wildlife Sites in proximity to surveyed sites are identified on the data search maps for the relevant settlement (Appendix A, Figures Xa). Although there are various different tiers of Local Wildlife Site, as described below, as a precautionary approach, all have been shown on the maps in Appendix A.



- 5.3.4 The description below has been provided by the Leicestershire County Council Ecologist.
- 5.3.5 Sites may only be designated if they meet the criteria set out in the 'Guidelines for the selection of Local Wildlife Sites in Leicester, Leicestershire and Rutland' published by Leicestershire County Council on behalf of the Local Wildlife Site Panel. The criteria are based on local and national Biodiversity Action Plan (BAP) priorities for habitats and species, and have been determined locally by the Panel. The designation is therefore a material consideration in the planning process (see PPS9 paragraphs 4.5,9,10,11 and 16.)
- 5.3.6 The first Local Wildlife Sites were designated in Leicester, Leicestershire and Rutland in 2000.
- 5.3.7 Because it can be demonstrated through survey data why and how a site meets the Local Wildlife Site criteria, the system is transparent and objective and the condition of the sites can readily be monitored.
- 5.3.8 Local Wildlife Sites are (by definition) of County-wide value for wildlife.
- 5.3.9 A weakness of the Local Wildlife Site system in Leicester, Leicestershire and Rutland is that it is not necessarily based on comprehensive survey of an area, and the suite of designated Local Wildlife Sites only represents a portion of sites that have biodiversity value. The proportion of sites of value designated as Local Wildlife Site varies across the overall area of Leicester, Leicestershire and Rutland, but may be as low as 10%.

#### Candidate Local Wildlife Sites

- 5.3.10 Local Wildlife Sites must also have the consent of the landowner before designation, in line with national guidance. This means that some sites that are known to meet the Local Wildlife Site criteria are not designated as Local Wildlife Sites – for example, because the land-owner does not wish it; or because the landowner has not been approached for permission, or is unknown; or because the formal designation is pending. These sites are known as Candidate Local Wildlife Site, and have the same status in planning terms as designated Local Wildlife Sites; the Local Wildlife Site criteria underpin a robust system that stands up to legal challenge, giving a more easily understood basis for site selection that can be readily defended at public inquiries.

#### Potential Local Wildlife Sites

- 5.3.11 These are sites where survey data indicates that it is likely that the site will meet Local Wildlife Site criteria, but for which further survey data is needed to be sure. All Potential Local Wildlife Sites are important in the context of the local BAP, since they all support priority habitats and/or priority species, and are therefore a material consideration in the planning system; paragraphs 11 and 16 in PPS 9 apply to these sites.



## Parish, District and County-level sites

- 5.3.12 Prior to the adoption of the Local Wildlife Site system in Leicester, Leicestershire and Rutland, a different system of non-statutory sites was used. This three-tier system of 'County, District and Parish Level' sites was less transparent than the Local Wildlife Site system, and sites did not need to meet published criteria for designation.
- 5.3.13 A great advantage however of the old 'Parish, District, County' system was that it was largely based on comprehensive surveys of the area, carried out between the years 1979-1991. In many ways therefore it represents a better picture of the overall biodiversity value of an area than the current Local Wildlife Site system. Fewer sites would have been missed.
- 5.3.14 Despite this, it is of course out-of-date, and many of the original sites are known to have been damaged, destroyed or neglected. Conversely, new sites of value will have been discovered (for example on formerly developed land, much of which can be of great value for biodiversity). Other sites may have improved or developed.
- 5.3.15 Some habitats were under-represented in the 'Parish, District, County' system (veteran trees and semi-improved grasslands, for example), possibly reflecting their relative frequency in the landscape compared to the present day. It is known that these two habitats have suffered serious decline in value and extent across lowland Britain in the last 25 years. Plantation woodlands now seem to be over-represented, in the context of a great deal of new woodland planting in our area over the last 25 years. So, although most of the woodland Parish level sites are still present, few meet the Local Wildlife Site criteria.
- 5.3.16 Despite this, the 'Parish, District, County' sites are still the only comprehensive evaluation of sites in Leicestershire and Rutland for biodiversity value, and as many of the sites are still present and meet the Local Wildlife Site criteria, they are an important part of a Site Alert system. It should be noted that many of the County' level sites have subsequently been designated as SSSIs and are therefore of national value. If a site was designated as either a 'Parish, District or County' level site, it should be assumed that it is still of value unless recent surveys demonstrate otherwise.
- 5.3.17 A large number of Parish, District and County sites were provided by LERC. Those listed as defunct, destroyed, former etc have been excluded from this analysis.

## 5.4 Leicestershire Biodiversity Action Plan Habitats

- 5.4.1 Leicestershire BAP habitats of relevance to the Borough include: Semi-natural broadleaved woodland, eutrophic standing water, fast-flowing streams, field margins, floodplain wetland, hedgerows, lowland wood pasture and parkland, mature trees, mesotrophic lakes, neutral grassland, roadside verges, rocks and built structures, springs and flushes, urban habitat and wet woodland.



## 5.5 Wildlife Corridors

- 5.5.1 Green networks were defined by Barker (1997) as ‘natural, or permanently vegetated, physically connected spaces situated in areas otherwise built up or used for intensive agriculture, industrial purposes or other intrusive human activities. They may include land to which there is no general access, such as private gardens and estates.’ Features such as these can be used as corridors to allow species to travel between rural and urban areas. Narrow strips of habitat may be vulnerable to edge effects, and consequently the wider the corridor can be, the better for many species.
- 5.5.2 Retention and enhancement of an integrated complex of wildlife corridors at the local and landscape scale is essential to allow species dispersal, particularly as climate change is already affecting the population and range of many UK species. PPS9 states that ‘networks of natural habitat can link sites of biodiversity importance and provide routes or stepping stones for migration, dispersal and genetic exchange of species in the wider environment. Local authorities should aim to maintain networks by avoiding or repairing the fragmentation and isolation of natural habitats through policies in plans. Such networks should be protected from development, and, where possible, strengthened by or integrated within it’.
- 5.5.3 Consequently, one of the main purposes of this study is to identify habitat features that may function as wildlife corridors through the Borough, and should be conserved and enhanced wherever possible. These corridors will not carry a statutory designation, but will provide an indication of where landscape-scale features of value to wildlife are present in the Borough.

## 5.6 Green Wedges

- 5.6.1 There are two Green Wedges in the Borough, and although of obvious value for biodiversity, these green wedges have not been included in the ecological study, as their primary use is as a planning tool, to maintain separation of urban areas; provide a recreational resource; to act as a green lung for residents of the surrounding settlements and guiding development form.
- 5.6.2 However, their positioning may be partially determined through the presence of aggregations of sites of local (or greater) ecological importance, that have a value greater than the sum of their various parts (Evans, 1989 – Leicestershire County Ecologist).

## 5.7 Veteran Trees

- 5.7.1 Generally, individual veteran trees have not been designated as Local Wildlife Sites except where they contribute to habitats that meet the Local Wildlife Site criteria for additional reasons (e.g. along water courses or within species-rich hedgerows).
- 5.7.2 Previously unrecorded potential veteran trees were found during the extended phase one surveys and the locations of these have been target noted. Such trees





often provide roosting features for bats, habitat for hole-nesting birds, and support numerous invertebrates and occasionally other plant species too.

## 5.8 Protected and Notable Species

- 5.8.1 Protected and notable species records were trawled, with detailed assessment excluding records greater than 10 years old. The protected species layer should be considered CONFIDENTIAL and not for dissemination to the public as the information it contains relates to potentially persecuted species.
- 5.8.2 It should be noted that an absence of records does not mean that a species does not occur; just that it has not yet been recorded in that particular place.

### Great Crested Newts

- 5.8.3 Records for great crested newts are widespread across the Borough, with notable clusters around Hinckley and Groby, and relatively fewer records from around Higham on the Hill, Earl Shilton, Market Bosworth and Nailstone.

### Reptiles

- 5.8.4 Grass snake *Natrix natrix* have been recorded on a number of occasions, largely from Carlton and Market Bosworth.
- 5.8.5 There are only 2 recent records for Adder *Vipera berus* from the Borough.
- 5.8.6 Common lizards *Zootoca vivipara* have only been recorded in Carlton, to the north of Market Bosworth.
- 5.8.7 Slow worm *Anguis fragilis* have been recorded from around Ratby

### Bats

- 5.8.8 There are a large number of bat records from the wider area, although many are not identified to species level. Those species that are listed are:
- Common pipistrelle *Pipistrellus pipistrellus* frequently recorded in the Borough, including a number of roosts.
  - Brown long eared bats *Plecotus auritus* are also well known from across the Borough.
  - Soprano pipistrelle *Pipistrellus pygmaeus* have been occasionally recorded.
  - Whiskered bat *Myotis mystacinus* have only been recorded from Market Bosworth and Hinckley areas.
  - Noctule bats *Nyctalus noctula* have occasionally been recorded.



## Badgers

5.8.9 There are numerous badger *Meles meles* records from the Borough, with clusters of activity around Groby, Ratby, Market Bosworth and Newbold Verdon. It is likely that badgers are widespread throughout the survey area, and these records merely reflect where they have been actively searched for.

## Otter

5.8.10 Although there are a number of otter *Lutra lutra* records across the Borough, these relate to otter monitoring locations, visited by the Environment Agency, rather than actual sightings of otter. The only known records for otter relate to the River Sence and Carlton stream, to the north of Market Bosworth.

## Water Voles

5.8.11 Water voles *Arvicola amphibious* have been recorded from many of the settlements covered in this report, particularly along the River Sence, Ashby Canal and ponds in Barlestone and Burbage.

## White-clawed Crayfish

5.8.12 White-clawed crayfish *Austropotamobius pallipes* have occasionally been recorded in Hinckley & Bosworth, largely along the River Sence and Rothley Brook, and in Markfield Quarry.

## Birds

5.8.13 Many of the birds have been recorded from around Thornton Reservoir and Groby Pool, largely due to the popularity of these sites with bird watchers. Some of the key species noted include:

- Barn owls *Tyto alba*, found across the Borough;
- Kingfishers *Alcedo atthis* have been recorded on numerous occasions, with records largely centred around Groby Pool and Thornton Reservoir;
- Black redstart *Phoenicurus ochruros* have been recorded from only two locations in the Borough;
- Hobby *Falco subbuteo* and marsh harrier *Circus aeruginosus* have been recorded from around Groby Pool and Thornton Reservoir.

## 5.9 Locally Important Species

5.9.1 Locally important species include all of those listed as priority species in the LBAP, all species listed in their respective Red Data Books and the plants listed in the county rare plants register (which was most recently updated in 2007). These have only been considered where they have been noted to occur within the site itself.




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- 6.1.1 An overview plan of location of each settlement within the Borough is provided on Figure 1, in Appendix A.
- 6.1.2 A summary of the characteristics of each settlement is provided below, informed by the field surveys and data search. The settlement descriptions should be read in conjunction with the following information from Appendix A:
- The relevant data search Figure (Figure Xa), which show designated and non-designated sites in the surrounding area, as well as protected and notable species records.
  - The Extended Phase 1 Habitat Map(s) associated with the preferred and alternative options sites in the settlement can be found as Figures Xb. These will be discussed in further detail in Section 7.
  - Key features considered likely to be used as wildlife corridors within and surrounding the settlement as identified during the desk based element of the current study are illustrated in Figures Xc. These maps also show features such as species rich hedgerows or notable grassland that have been identified during the field survey work, and are considered likely to qualify as Local Wildlife Sites.
- 6.1.3 Target notes are shown on some of the Phase 1 plans (Figures Xb), these relate to particular features such as invasive species, or evidence of protected species. The target note sections in the following tables give an indication of the distribution of target note-worthy features within each area. A full description of each target note, including a grid reference is provided in Appendix B. Where no target note section is given in the following tables, it can be assumed that no target note-worthy features were recorded at the time the survey took place.




Table 2: Settlement Descriptions

Settlement	Bagworth (Figure 3)			
Description	<p>The area around Bagworth is characterised by intensively managed arable farmland delimited by managed, species-poor hedgerows with species-rich hedgerows in the minority. Hedgerows forming boundaries with gardens were largely composed of introduced species. The area surrounding the disused railway line at the northern end of Bagworth has become dominated by dense scrub with pioneer communities establishing on the former sidings.</p> 			
Designated Sites	There are no statutory sites of nature conservation interest within or adjacent to this settlement. However, there are a number of Local Wildlife Sites in the surrounding countryside, including woodland and grassland.			
Species Records	Badgers and great crested newts have been recorded from the wider area as have hobby, redwing and fieldfare.			
Wildlife Corridors	Streams leading to Thornton Reservoir and Osbaston form corridors through the landscape with associate woodlands and grasslands, many of which are designated as Local Wildlife Sites. A dismantled railway also runs north south across the area, forming an ideal bat commuting route.			
Target Notes	As2 – TN1, TN1a, TN2, TN3	As5 – TN4	As6 – TN5	As7 – TN6




Settlement	Barlestone / Osbaston Toll Gate (Figure 4)
Description	<p>The area around Barlestone and Osbaston Toll Gate is characterised by intensively managed farmland with both arable and permanent pasture represented, the latter having faint ridge and furrow patterning. The hedgerows are generally species-poor although species-rich hedgerows exist along some of the minor roads and to the south east of Barlestone. There are also small areas of broad-leaved woodland.</p> 
Designated Sites	There are no statutory sites of nature conservation within or adjacent to this settlement. However, there are a number of Local Wildlife Sites including meadows and streams.
Species Records	There are large numbers of badger records from the wider area, and water voles associated with the water courses and fishing ponds. Peregrine falcons have been recorded in the village.
Wildlife Corridors	Rivers and streams form corridors through the wider area.
Target Notes	BARL01 – TN7



Settlement	Barwell (Figure 5)
Description	<p>The area around Barwell is largely urban or sub-urban with open spaces being represented by sports grounds and other amenity grassland. Beyond this, arable, improved and semi-improved grassland predominates, largely delimited by species-poor hedgerows with species-rich hedgerows in the minority.</p> 
Designated Sites	There are no statutory sites of nature conservation within or adjacent to this settlement, and relatively few Local Wildlife Sites.
Species Records	Badgers are known to be present in the more rural parts of the area, and there are a large number of common pipistrelle roosts in Barwell village.
Wildlife Corridors	The Thurlaston Brook and tributaries, with their adjacent grassland woodland provide wildlife corridors to the north of Barwell.
Target Notes	As64 – TN8, TN9





Settlement	Burbage (Figure 6)
Description	<p>The area around Burbage is characterised by permanent pasture, intensively grazed by livestock, mainly cattle. The majority of hedgerows are species-poor and intensively managed although species-rich hedgerows occur along some of the older routes and green lanes. Burbage Wood and Aston Firs represent two of the largest areas of semi-natural woodland in the south of the Borough. This area is bisected by the M69 motorway and an active railway line. Parkland is also represented at Sketchley where mature planted trees stand in grazed pasture.</p> 
Designated Sites	Burbage Wood and Aston Firs (1003526) SSSI and Common and Woods (1009392) LNR are located to the north of Burbage. There are relatively few Local Wildlife Sites in the area. These are largely grasslands that have not been reassessed recently.
Species Records	<p>A largely residential area with numerous bat roost records mainly relating to common pipistrelle. Badgers are recorded in rural areas.</p> <p>Many birds such as barn owl, red kite, hobby, redwing, fieldfare have been recorded, particularly from around Burbage Wood SSSI, as have water vole, great crested newt and adder.</p>
Wildlife Corridors	As a consequence of the largely residential land use, habitat connectivity is mainly comprised of man made features such as the railway line, motorway and hedgerows, as well as Sketchley Brook.

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Target Notes	As117 – TN10	As119 – TN11	As121 – TN12	As134 – TN13, TN14
	As134 – TN15, TN16			




Settlement	Congerstone (Figure 7)	
Description	<p>The area around Congerstone is characterised by permanent pasture with some arable farmland. The River Sence and the Ashby Canal converge north of the settlement and both these water courses provide good quality habitat for aquatic species and bats. This area supports some of the few colonies of mistletoe (<i>Viscum album</i>) in the Borough; a species which has a restricted distribution in Leicestershire as a whole.</p>	
Designated Sites	<p>Section of the Ashby Canal (1001311) between Snarestone and Congerstone have been designated as a SSSI. The Ashby Canal is also a BAP priority habitat.</p> <p>Newton Burgoland Marshes (1001033) SSSI is located 1.5km north of Congerstone near the village of Newton Burgoland in North-West Leicestershire.</p> <p>Local Wildlife Sites in the area include woodlands and species rich grass verges.</p>	
Species Records	<p>There are records of grass snake from the village, with badger setts and bat records known from the wider area.</p>	
Wildlife Corridors	<p>The Ashby Canal (designated as a SSSI) and the River Sence, designated as a Local Wildlife Site, both form important habitat corridors through the landscape.</p>	
Target Notes	As508 – TN17, TN18	As511 – TN19





Settlement	Desford (Figure 8)
Description	<p>The area around Desford is typified by a mixture of largely arable farmland with some permanent pasture. Hedgerows are typically species-poor and intensively managed with species-rich hedgerows in the minority.</p> 
Designated Sites	Botcheston Bog (1003405) SSSI is located 1km north east of Desford. Local Wildlife Sites in the area include grasslands and ponds.
Species Records	Bat roosts are known in the area for brown long eared and Natterer's bats. There are some badger records, and records for fieldfare, redwing, red kite and hobby, as well as native bluebells.
Wildlife Corridors	The Rothley Brook and associated grassland and woodland form corridors through the landscape together with a dismantled railway line.
Target Notes	As202 – TN20



Settlement	Earl Shilton (Figure 9)	
Description	The area around Earl Shilton is typified by large agricultural fields, with arable being in the majority. The hedgerows are mostly species-poor and intensively managed.	
		
Designated Sites	There are no statutory sites of nature conservation interest within or adjacent to this settlement. There are also very few Local Wildlife Sites, excepting some grassland.	
Species Records	Common pipistrelle and brown long eared bat roosts are known from the wider area, and great crested newts have been recorded from the area around the by-pass. Barn owls have also been noted.	
Wildlife Corridors	The Thurlaston Brook and tributaries with their adjacent grassland woodland provide wildlife corridors to the north of Earl Shilton, while other waterways and railway lines provide corridors through the heavily managed agricultural land to the south.	
Target Notes	As217 – TN21	As224 – TN22, TN23







Settlement	Groby (Figure 10)	
Description	<p>Groby is sandwiched between the M1 motorway and the A50 dual carriageway. Martinshaw Wood is large woodland directly adjacent to Groby to the west. Agricultural land is a mixture of permanent pasture and arable although there is a small area of semi-improved grassland which has formed in a flood defence area; otherwise this grassland is restricted to road verges outside of protected sites. Hedgerows are largely species-poor and intensively managed although species-rich hedgerows do occur.</p>	
		
Designated Sites	<p>Groby Pool and Wood (1000094) SSSI is located 0.5km to the north of Groby, and Sheet Hedges Wood SSSI (1001884) is located 1km to the north of the village.</p>	
Species Records	<p>There are many badger and bat records in the wider area including common pipistrelle and brown long eared bats. There are also numerous bird records, largely relating to Groby Pool including species such as barn owl, fieldfare, kingfisher, peregrine falcon, hobby and red kite. Great crested newts and slow worms have also been recorded.</p>	
Wildlife Corridors	<p>Connective features in the wider landscape are largely associated with Groby Pool, Martinshaw Wood and the ancient woodlands to the north of the A50. Local Wildlife Sites include some previously designated grasslands associated with the Brook.</p>	
Target Notes	As611 – TN24, TN25	As620 – TN26






Settlement	Higham on the Hill (Figure 11)
Description	<p>The area around Higham on the Hill is characterised by semi-improved permanent pasture delimited by species-poor hedgerows with a number of wych elm (<i>Ulmus glabra</i>) trees.</p> 
Designated Sites	There are no statutory sites of nature conservation interest within or adjacent to this settlement.
Species Records	A roost of common pipistrelle bats is known from the village, and there are great crested newt records from the wider area. There is a previously locally designated area of grassland with a pond.
Wildlife Corridors	Key wildlife corridors through the area include a dismantled railway cutting, some of which is designated as a Local Wildlife Site, a disused railway and the Ashby Canal.
Target Notes	As285 – TN27




Settlement	Hinckley (Figure 12)		
Description	The area around the large town of Hinckley is characterised by permanent pasture and arable farmland with intensively managed hedgerows although a few species-rich hedgerows exist.		
			
Designated Sites	Burbage Wood and Aston Firs (1003526) SSSI is located to the east of Hinckley. There are very few Local Wildlife Sites in the area, although some of the Ashby Canal is designated at a Parish level.		
Species Records	Adder and badger records exist from the surrounding rural areas, particularly associated with the railway line and golf course. Great crested newts are present in the wider area, and water voles are known from the waterways in Hinckley. A number of bat roosts have been noted including common pipistrelle, Daubenton's, brown long-eared and whiskered bats. Bird records include fieldfare, hobby, red kite, redwing, peregrine falcon and kingfisher.		
Wildlife Corridors	The Ashby Canal forms a corridor through the urban area, with some associated parish level grassland. Other corridor features include the Harrow Brook and railway lines, both active and dismantled.		
Target Notes	HIN05 – TN28	HIN06 – TN29	HIN91 – TN30
	As299 – TN31, TN32, TN33, TN34, TN35, TN36, TN37, TN38		



Settlement	Market Bosworth (Figure 13)
Description	<p>The area around Market Bosworth is characterised by permanent pasture with several areas of mature parkland to the south and east, containing veteran trees of value to bats and invertebrates.</p> 
Designated Sites	Ashby Canal (1001311) SSSI is located to the north east of Market Bosworth. There are a number of grassland, woodland and canal Local Wildlife Sites in the area.
Species Records	Badgers, great crested newts and bats have all been recorded from the wider area. With four bat species recorded around the village (brown-long eared, common pipistrelle, soprano pipistrelle and noctule) including a number of known roosts. Grass snakes and hobbies have also been noted in Market Bosworth.
Wildlife Corridors	Again, the Ashby Canal and disused railways form habitat corridors through the landscape.
Target Notes	As393 – TN39, TN40, TN41, TN42, TN43, TN44
	As399 – TN45, TN46, TN47, TN48, TN49, TN50, TN51




Settlement	Markfield and Field Head (Figure 14)
Description	<p>The area around Markfield is characterised by intensively managed farmland interspersed with semi-natural habitats formed on former quarried land, including acidic grassland and ephemeral communities, both containing county rare plant species. Extensive areas of mature woodland occur to the west of the M1 motorway.</p> <p>The area around Field Head is typified by arable farmland with some permanent pasture; most of the woodland in this area is located north of the A50. Semi-natural acidic grassland and areas of heathland occur within Bradgate Park, approximately 1km to the south east. This area also contains mature and veteran trees and supports notable invertebrates and amphibians.</p> 
Designated Sites	Cliffe Hill Quarry (1003647) SSSI is situated to the north east of Markfield, and Bardon Hill Quarry SSSI is located to the north of the village in Charnwood Borough. Billa Barra Hill LNR is located over 1km north east of Markfield.
Species Records	<p>Badgers have been recorded in many locations around Markfield, and white clawed crayfish and adders have been recorded from the wider area. A number of bat roosts are known from the village, and peregrine falcon and red kite have been recorded close by.</p> <p>Badger, bat, great crested newt and red kite records exist from the wider area around Field Head.</p>
Wildlife	There are few connective features in the wider area around Markfield or




Corridors	Field Head, with the exception of a stream, and so hedgerows are likely to provide locally important connective features.	
Target Notes	MARK03 – TN52	MARK08 – TN53



Settlement	Nailstone (Figure 15)
Description	<p>The area around Nailstone is characterised by intensively managed farmland with both arable and improved grassland represented. Hedgerows are generally species-poor and intensively managed although species-rich hedgerow exist along minor roads.</p> 
Designated Sites	There are no statutory sites of nature conservation interest within or adjacent to this settlement. Local Wildlife Sites in the wider area include grass verges and grass verges.
Species Records	There is a known bat roost in the village, and barn owl has been recorded in the area. There are badger and great crested newt records from the wider area.
Wildlife Corridors	The main wildlife corridor through the area is the Osbaston Stream and associated grasslands.
Target Notes	NAI10 – TN54






Settlement	Newbold Verdon (Figure 16)			
Description	<p>The area around Newbold Verdon is characterised by arable farmland and improved pasture, delimited in the main by intensively managed species-poor hedgerows although there are a significant number of species-rich hedgerows, mostly adjacent to water courses and minor roads. There are several blocks of woodland around this settlement, Newbold Spinney being a typical example of woodland on slightly acidic soils.</p>			
				
Designated Sites	There are no statutory sites of nature conservation interest within or adjacent to this settlement. Local Wildlife Sites in the area are largely comprised of woodland.			
Species Records	A brown long eared bat roost is known from the area, as are common pipistrelles and badgers. Many bird records are associated with Brascote Pits including green sandpiper, wood sandpiper, whimbrel, hobby, redwing, little-ringed plover, kingfisher and peregrine falcon.			
Wildlife Corridors	Connective habitats are formed by the Rothley Brook and other waterways in the area with their associated grassland and wet woodland.			
Target Notes	NEW09 – TN55	NEW10 – TN56	As444 – TN57	As445 – TN58



Settlement	Ratby (Figure 17)	
Description	The area around Ratby is characterised by a mosaic of semi-improved grassland and arable farmland with significant areas of woodland to the north and west, some of which remains in a semi-natural state (broad-leaved) whereas others have been extensively re-planted with conifers to form mixed woodland. Rothley Brook and tributaries provide habitat connectivity for aquatic species and also woodland species as the brook is extensively tree-lined.	
Designated Sites	There are no statutory sites of nature conservation interest within or adjacent to this settlement. Local Wildlife Sites include water courses and woodlands.	
Species Records	Common pipistrelle and brown long eared bat roosts are known from Ratby, while badger, white-clawed crayfish and redwing have been recorded from the wider area.	
Wildlife Corridors	The Rothley Brook and associated water courses provide a network of wildlife corridors through the wider area.	
Target Notes	As488 – TN59	As489 – TN60



Settlement	Sheepy Magna (Figure 18)
Description	<p>The area around Sheepy Magna is characterised by species-poor permanent pasture with the River Sence providing connectivity for aquatic species.</p> 
Designated Sites	Sheepy Field (1001283) SSSI is located 1km north of Sheepy Magna village. Ponds and waterways in the area are locally designated.
Species Records	Protected species records in the area include a number of bat roosts in the village and badger setts in the wider area. There are also records of red kites, fieldfares, redwings and kingfishers from the village.
Wildlife Corridors	The River Sence and associated water courses and woodlands form a key wildlife corridor through the survey area.



Settlement	Stanton-under-Bardon (Figure 19)	
Description	The area around Stanton-under-Bardon is characterised by permanent pasture, some still containing ridge and furrow patterning and some arable land. Hedgerows are largely species-poor although species-rich hedgerows exist along minor roads and alongside water courses.	
Designated Sites	Cliffe Hill Quarry SSSI and Billa Barra Hill LNR are located to the north of Stanton Under Bardon.	
Species Records	There are bat and badger records from the wider area, with redwing and barn owl records relating to the village.	
Wildlife Corridors	Streams and dismantled railways for wildlife corridors through the wider areas.	
Target Notes	As529 – TN61, TN62	As706 – TN63, TN64



Settlement	Stoke Golding (Figure 20)
Description	<p>The area around Stoke Golding is characterised by permanent pasture with some arable. The Ashby Canal forms an obvious wildlife corridor to the west and north of the settlement. This is of particular importance for aquatic species and is also considered an important commuting and foraging habitat for bats.</p> 
Designated Sites	Kendall's Meadow (1003916) SSSI is located to the north east of Stoke Golding. Local Wildlife Sites are limited to the Ashby Canal and road verges.
Species Records	<p>The Ashby Canal runs through the settlement of Stoke Golding, with a large number of historical water vole records along its length, although fewer records have been submitted over the past 10 years.</p> <p>Protected species records in the area include a number of bat roosts (common pipistrelle &amp; undetermined species) and badger setts.</p> <p>There is some semi-improved grassland of parish level importance adjacent to the canal.</p>
Wildlife Corridors	Key wildlife corridors through the area include the canal, and disused railway.



Settlement	Twycross (Figure 21)
Description	<p>The area around Twycross is characterised by a mixture of arable farmland and permanent pasture although there are four large blocks of broad-leaved woodland besides other, smaller plantations. There are also several small water bodies within 1km of the settlement.</p> <p>No photograph is available as this area was surveyed by the County Ecologist.</p>
Designated Sites	There are no statutory sites of nature conservation interest within or adjacent to this settlement.
Species Records	There is only one protected species record for Twycross, comprising a notable bird species from the village.
Wildlife Corridors	A tributary of the River Sence and hedgerows linking the areas of woodland are the key wildlife corridors in this area.





## 7.0 SETTLEMENTS: LOCAL WILDLIFE SITES AND HABITATS

- 7.1.1 An overview plan of location of each settlement within the Borough is provided on Figure 1, in Appendix A.
- 7.1.2 Within each settlement, the location of preferred and alternative sites can be seen on
- The data search Figure (Figure Xa) for that settlement, which shows designated and non-designated sites in the surrounding area, as well as protected and notable species records; and,
  - Figure Xc for that settlement. This Figure illustrates key features considered likely to be used as wildlife corridors within and surrounding the settlement as identified during the desk based element of the current study. These maps also show features such as species rich hedgerows or notable grassland that have been identified during the field survey work, and are considered likely to qualify as Local Wildlife Sites (as described in Table 3). Preferred and alternative sites are also coloured as green, amber or red on this map. This classification behind this colouring is described in paragraph 7.2.6.
- 7.2 Individual site assessment
- 7.2.1 Detailed habitat maps of each survey area are provided as Figure Xb. In some cases where there are widely spread survey areas, a settlement may be broken down into different sections e.g. Hinckley North, Hinckley South and so on.
- 7.2.2 These Extended Phase 1 Habitat maps show the habitats present on the site at the time of survey. A brief overview of the types of habitats commonly found in the Borough is provided below, while a detailed key of the habitat types listed in JNCC (2003) is appended in Appendix D.
- 7.2.3 Target notes are shown on some of the Phase 1 plans (Figures Xb), these relate to particular features such as invasive species, or evidence of protected species. The target note sections in the following tables give an indication of the distribution of target note-worthy features within each area. A full description of each target note, including a grid reference is provided in Appendix B. Where no target note section is given in the following tables, it can be assumed that no target note-worthy features were recorded at the time the survey took place.
- 7.2.4 Descriptions and recommendations for each individual site are provided in the spreadsheet in Appendix C.
- 7.2.5 Using the information obtained during the data search, aerial interpretation and site visit, a preliminary ecological assessment has been completed for each site. This classification is indicative, as sites were largely viewed from public footpaths and detailed species surveys have not been completed to confirm the presence or absence of notable species. Some sites, where access was not possible have been interpreted purely using aerial images.



7.2.6 Each site has been given an indicative classification as either green, amber or red, this colouring is provided in the table in Appendix C, and is illustrated on the settlement maps Xc in Appendix A.

- Green: Site appears to be of relatively low ecological value. Further surveys may still be required to inform mitigation, e.g. for great crested newts, bats or badgers, but there are not considered to be any significant ecological constraints to development of the site.
- Amber: There may be ecological constraints on site such as an adjacent river corridor, or area of woodland that we would recommend be retained within the final development. However, it is likely that further surveys and ecological input to the detailed site proposals could potentially allow development over at least some of the site.
- Red: Significant ecological constraints present within or adjacent to the site. Detailed mitigation and compensation / enhancement measures likely to be required to allow development on these sites.

### 7.3 Overview of Habitats

7.3.1 A brief overview of natural and semi-natural habitats commonly recorded during the surveys is provided below.

#### Arable Land

7.3.2 Arable habitats comprise all of those under regular cultivation of crops, including short term set-aside. Horticultural land, including allotments fall within the definition of arable, as also do strips of sunflowers and other species planted along field boundaries especially for game birds e.g. pheasant and partridges. Typical crops include cereals, kale and maize. Arable margin plants recorded across the borough comprised only common and widespread species.

#### Woodland

7.3.3 Three types of woodland were recorded within the survey areas. Individual trees have been mapped as such.

#### Semi-natural Broad-leaved Woodland

7.3.4 This habitat was identified on the basis of dominant locally native tree and shrub species, which varied slightly between areas, depending on soil types. The majority of the dry semi-natural woodland was dominated by pedunculate oak (*Quercus robur*), other tree species being represented by silver birch (*Betula pendula*) and rowan (*Sorbus aucuparia*) with a shrub layer including hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*) and gorse (*Ulex europaeus*).

#### Plantation Broad-leaved Woodland

7.3.5 This was the most prevalent woodland type within the surveyed areas, much of it being of relatively recent origin including some very young woodland which had



been planted alongside the Earl Shilton by-pass. All woodland where the trees occurred in obvious regimented lines and all those where specimens had been staked or were still in protective tubes was classified as planted woodland irrespective of whether its composition was of locally native species or not. Areas of woodland with less than 10% of coniferous species (by area) were also classified as plantation broad-leaved woodland.

#### Plantation Mixed Woodland

7.3.6 Mixed woodland is defined as having more than 10% coniferous species (by area), European larch (*Larix decidua*) and Scots pine (*Pinus sylvestris*) were the two most frequently encountered species although other, more exotic species were also recorded in amenity situations and in large gardens of nursing homes for example.

#### Scrub

7.3.7 This habitat occurred as either dense continuous or scattered scrub and was dominated by locally native species, mostly hawthorn or blackthorn. Areas of bramble (*Rubus fruticosus* agg.) and goat willow (*Salix caprea*) were also included within this habitat type.

#### Introduced Shrub

7.3.8 This habitat was most prevalent in the urban and sub-urban parts of the survey areas; all of them which have been mapped as this habitat formed substantial blocks of shrubs, linear features of this type have been mapped as species-poor hedgerows. Typical constituents included various cotoneaster species (*Cotoneaster* sp.), firethorn (*Pyracantha coccinea*), Oregon-grape (*Mahonia aquifolium*) and hedge-veronica (*Hebe* sp.). Cultivars of locally native species such as holly (*Ilex aquifolium* vars) fell within the definition of introduced shrub.

#### Hedgerows

7.3.9 The number of hedgerow lengths within a site was determined by the pattern of inter-connecting sections so the section beyond the point where another hedgerow intersected was counted as a different hedgerow, this is in accordance with The Hedgerows Regulations 1997.

7.3.10 A Green Lane is an unsurfaced route (often but not always a public footpath or bridleway) which is delimited on either side by hedgerows.

7.3.11 Hedgerows were defined as either species-rich or species-poor, depending on the number of locally native woody species recorded along the length of the hedgerow. Locally native species are all of those which occur naturally within Hinckley & Bosworth and these were determined from the distribution maps in The Flora of Leicestershire (Primavesi 1988). For example, wayfaring tree (*Viburnum lantana*) is regarded as a native species in Leicestershire and Rutland as a whole although it is not recognised as a native species in Hinckley & Bosworth by Primavesi. The single hedgerow where this species occurred was of relatively young age as



determined by stem diameter and was alongside a section of road where it had almost certainly been planted.

7.3.12 Species-rich hedgerows are defined as those which have 7 or more locally native woody species along their lengths. These were typically distributed alongside watercourses, green lanes, tracks and minor roads, many having a winding, sinuous nature. They also sometimes contained large examples of slow-growing species such as field maple (*Acer campestre*) and some contained potential veteran trees. Species present which were largely absent in species-poor hedgerows included dogwood (*Cornus sanguinea*), hazel (*Corylus avellana*), wild privet (*Ligustrum vulgare*) and eared willow (*Salix aurita*). Alder (*Alnus glutinosa*), crack willow (*Salix fragilis*) and white willow (*Salix alba*) were typical of species-rich hedgerows alongside watercourses.

7.3.13 All those hedgerows with 6 or fewer species were classified as species-poor. The majority of hedgerows within the survey areas were species-poor and appeared to be enclosure act hedgerows dominated by either hawthorn or blackthorn or sometimes a mixture of the two. Other species present tended to be those which are distributed by birds such as elder (*Sambucus nigra*) and roses (*Rosa* sp).

7.3.14 Hedgerows bordering gardens often included several exotic species such as lilac (*Syringa vulgaris*), garden privet (*Ligustrum ovalifolium*) and beech (*Fagus sylvatica*) as well as locally native species. These hedgerows have been classified as species-poor in this report no matter how many species are present; only locally native species count towards determination of a species-rich hedgerow.

7.3.15 Climbing species present included brambles, ivy (*Hedera helix*), black bryony (*Tamus communis*), white bryony (*Bryonia dioica*), bittersweet (*Solanum dulcamara*), hedge bindweed (*Calystegia sepium*) and honeysuckle (*Lonicera periclymenum*).

#### Grassland

7.3.16 Six grassland types were recorded within the surveyed areas:

##### Amenity Grassland

7.3.17 This grassland type was recorded in amenity areas within urban and sub-urban areas and did not differ in composition from the average garden lawn. Such areas were regularly mown and herbs were restricted to daisy (*Bellis perennis*) and dandelions (*Taraxacum* species). The bright green appearance of this grassland indicates some degree of fertiliser input.

##### Improved Grassland

7.3.18 The habitat definition is confined to grassland composed of perennial rye-grass (*Lolium perenne*) and other agricultural grasses and where herbs are restricted to sown species such as white clover (*Trifolium repens*). Such grasslands have



received high inputs of fertilisers and look bright green at a season when more natural grasslands would look brown at a distance.

#### Poor Semi-improved Grassland

7.3.19 This was the most frequently recorded grassland type within the surveyed areas and was typically tall, unmanaged and composed of coarse grasses such as false oat-grass (*Arrhenatherum elatius*), cock's-foot (*Dactylis glomerata*) and common couch-grass (*Elytrigia repens*). Herbs were generally of low diversity and dominated by ruderal species (see below). Non-ruderal species included plantains (*Plantago* sp) and beaked hawk's-beard (*Crepis capillaris*).

#### Semi-improved Neutral Grassland

7.3.20 This grassland type was recorded in areas of horse paddocks which were often intensively grazed with very short sward heights. Ungrazed examples were recorded on road verges and active railway embankments.

7.3.21 Grasses included species such as common bent (*Agrostis capillaris*) which are not usually associated with agricultural "improvement" and were not obviously highly fertilised. Herbs included self-heal (*Prunella vulgaris*) and lesser stitchwort (*Stellaria graminea*) although more species could exist as dwarf non-flowering rosettes in areas of intensive grazing and hence very inconspicuous.

#### Unimproved Neutral Grassland

7.3.22 Examples of this grassland type were found as fragments on road verges and along disused railway lines although a relatively large area was found within a flood defence basin. There was a wide variety of grass species which included some not usually associated with agriculture such as tall fescue (*Festuca arundinacea*) and also included species indicative of more natural swards such as glaucous sedge (*Carex flacca*), black knapweed (*Centaurea nigra*), greater burnet-saxifrage (*Pimpinella major*) and ox-eye daisy (*Leucanthemum vulgare*). In most areas, there was some degree of invasion by scrub.

#### Acidic Grassland

7.3.23 Only one small area of this grassland type was found, set within semi-improved grassland and it occupied an area of very thin soil with a sparse sward. Species recorded included common bent grass, sheep's-sorrel (*Rumex acetosella*), dove's-foot crane's-bill (*Geranium molle*) and greater mullein (*Verbascum thapsus*).

#### Ephemeral Short Perennial Vegetation

7.3.24 This habitat type had formed in areas of disturbed ground and had also colonised areas of former buildings where these had been demolished. Plant species in this community type are typically short-lived and seed prolifically; often there are several generations in any given year. These represent the first stage of colonisation of bare ground. Species frequently recorded included various willowherb species (*Epilobium* spp), smaller dandelion species (*Taraxacum* section



erythrosperma), groundsel (*Senecio vulgaris*) and various mosses and liverworts. Blue fleabane (*Erigeron acer*) was occasionally recorded, this species having a restricted distribution in the county.

#### Tall Ruderal Vegetation

7.3.25 Ruderal communities are typified by species which thrive on a high level of soil nutrients, often in previously disturbed ground. Typical species include stinging nettle (*Urtica dioica*), common ragwort (*Senecio jacobaea*), broad-leaved dock (*Rumex obtusifolius*), creeping thistle (*Cirsium arvense*) and spear thistle (*Cirsium vulgare*).

#### Flush Community

7.3.26 This community was found where natural water springs emerge at the surface although the degree of water flow varied with the topography. Wetland species included creeping buttercup (*Ranunculus repens*), brooklime (*Veronica beccabunga*), fool's water-cress (*Apium nodiflorum*) and creeping bent-grass (*Agrostis stolonifera*).

#### Marginal Vegetation

7.3.27 This habitat type was recorded on the fringes of wetland areas, including both static and flowing water. Typical species included common reed (*Phragmites australis*), bulrush (*Typha latifolia*), reed sweet-grass (*Glyceria maxima*), greater pond-sedge (*Carex riparia*) and hairy sedge (*Carex hirta*). More diverse communities included all the above plus Cyperus (or hop) sedge (*Carex pseudocyperus*), lesser pond-sedge (*Carex acutiformis*), water horsetail (*Equisetum fluviatile*), water dock (*Rumex hydrolapathum*) and great yellow-cress (*Rorripa amphibia*).





## 8.0 5HVXOWV: 1RWDEOH +DELWDWV

### 8.1 Sites with significant ecological interest

8.1.1 Only three of the preferred or alternative options had significant ecological constraints present. Further details are provided for each of these sites below:

8.1.2 Market Bosworth preferred option MBOS02 and the western part of Alternative option As393 cover an area adjacent to the Ashby Canal. This includes a lake previously designated as a District level Local Wildlife Site which may have potential to support aquatic invertebrates and great crested newts. The grassland was formerly considered to be of Parish level importance. There are two species-rich hedgerows on the site.



Plate 1: Sedgemere, Market Bosworth

8.1.3 Ratby alternative option As499 includes Parish level grasslands and a stream with mature trees. There is a species-rich hedgerow and an area of possible unimproved grassland that may qualify as a Local Wildlife Site. The arable field is likely to be relatively un-important for biodiversity, however, any proposals that may impact the grassland, stream or hedgerows are likely to require further surveys.



+LQFN0H\ & %RVZRUIK: ([WHQGHG 3KDVH 1 +DELWDW 6XUYH\



Plate 2: Flood basin, Ratby

8.1.4 Markfield preferred option MARK08 contains semi-improved neutral and acidic grassland that may qualify as a Local Wildlife Site. Further surveys of the grassland would be recommended in the summer to inform any future management or proposals.



Plate 3: Markfield - acidic grassland



## 8.2 Potential Local Wildlife Sites

8.2.1 During the surveys a number of areas were identified that could potentially meet the Leicestershire criteria for Local Wildlife Sites. These are illustrated on Figures Xc in Appendix A, and summarised in the table below.

8.2.2 Some of these sites have previously been designated at the Parish level, but have not been reassessed against the new, stricter, criteria for Local Wildlife Sites.

Table 3: Features potentially qualifying as Local Wildlife Sites

Settlement / Site	Feature	Description	Grid References
Bagworth As8	Species rich hedgerow	On eastern edge of site	SK 4473 0879 to SK 4506 0822
Barlestone As623	6 separate hedgerows	Each containing between 7 and 10 locally native woody species	SK 4300 0518 to SK 4304 0530 SK 4304 0530 to SK 4313 0532 SK 4319 0519 to SK 4326 0515 SK 4326 0515 to SK 4344 0508 SK 4344 0508 to SK 4345 0516 SK 4345 0516 to SK 4354 0517
Barlestone As40	2 separate but contiguous hedgerows	Hedgerows containing 7 locally native woody species.	SK 4307 0532 to SK 4300 0518 SK 4326 0516 to SK 4319 0519
Barlestone BARL02	Species-rich hedgerow	Hedgerow containing 7 locally native woody species	SK 4313 0532 to SK 4307 0532
Barlestone As45	East side of Main Street / Washpit Lane	Hedgerow containing 8 locally native woody species, with semi-improved grassland on the hedge bank.	SK 4296 0580 to SK 4299 0592



Barwell As67	Internal hedgerow	Hedgerow containing 8 locally native woody species, including mature oak trees.	SP 4531 9676 to SP 4521 9690
Burbage As132	Hedgerow on south side of Lychgate Lane	2.5m in height, 7 locally native woody species, dry ditch along entire length plus parallel hedgerow within 15m (not species-rich), ground flora unexceptional	SP 4472 9231 to SP 4502 9234
Burbage As117	Hedgerow on north side of A5 / B4109 intersection	The western extent is delimited by a mature oak tree as there is a newly planted hedgerow to the west of this which is too young to count as Local Wildlife Site. 7 locally native woody species, 2m in height and free-growing, ground flora unexceptional.	SP 4332 9108 to SP 4343 9121
Burbage As119	Species rich hedgerow	Internal hedgerow immediately north of pylon, 1.5m in height and trimmed; has 9 locally native woody species (not including wild plum which is not considered native in Leicestershire). Tree sparrow and mistle thrush recorded.	SP 4344 9130 to SP 4372 9133
Burbage As119	Species rich hedgerow	Hedge along western boundary of track, extending northwards beyond the survey area boundary to the southern end of Bullfurlong Lane in Sketchley. Five separate sections, all with at least 7 locally native woody species, mature trees and a parallel hedgerow within 15m at As121.	SP 4375 9134 to SP 4377 9181
Burbage As121	Hedgerow on eastern side of track south of Bullfurlong Lane.	1.5 – 2.5m in height, 7 locally native woody species, parallel with species-rich hedgerow on west side of track in As119.	SP 4373 9164 to SP 4377 9177



Burbage As134	Hedgerow on north side of green lane (track) leading eastwards from Aston Lane	5 to 6m in height, 7 locally native woody species, parallel hedgerow on south side of green lane, this with one veteran ash tree with bat roost potential and also an old badger sett at the eastern end, not in current use.	SP 4453 9266 to SP 4476 9272
Burbage As138	Hedgerow on west side of footpath	5m in height and free-growing at the time of the survey, 7 locally native woody species	SP 4466 9347 to SP 4468 9365
Congerstone CON01	Hedgerow on south side of Poplar Terrace	A hedgerow containing 7 locally native woody species.	SK 3701 0556 to SK 3707 0553
Congerstone As511	Barton Road North Hedgerow	Hedgerow containing 8 locally native woody species including 4 mature oak trees.	SK 3700 0557 to SK 3709 0570 and beyond the survey area to the north east
Desford AS201	Hedgerow on east side of Peckleton Lane	Contains 8 locally native woody species	SK 4790 0288 to SK 4794 0275
Earl Shilton As217	Thurlaston Brook hedgerow	Hedgerow has 7 locally native woody species	SP 4561 9803 to SP 4592 9828
Groby As620	South hedgerow on Anstey Lane	7 locally native woody species, verge has meadow vetchling, meadow crane's-bill and tall fescue – would merit further botanical survey.	SK 5369 0767 to SK 5400 0794
Groby GRO02	South west boundary hedgerow	7 locally native species plus 1 non-native species, mature trees also present.	SK 5340 0717 to SK 533 0725
Groby GRO02	Grassland	Would merit further survey but intensively horse-grazed so could be richer than meets the eye.	SK 5339 0723 (centre)



Grobby As611	Two contiguous southern boundary hedgerows	Each hedgerow contains 7 locally native woody species.	SK 5314 0632 to SK 5333 0658
Hinckley As299	6 lengths of hedgerow	Each with at least 7 locally native woody species	SP 4062 9539 to SP 4056 9541 SP 4044 9518 to SP 4037 9519 SP 4039 9491 to SP 4052 9513 SP4053 9514 to SP 4082 9502 SP 4037 9488 to SP 4013 9435 SP 3976 9510 to SP 3984 9484
Hinckley As299	Length of Ashby Canal	Semi-improved neutral grassland adjacent to canal may qualify as a Local Wildlife Site.	SP 3989 9429
Hinckley As299	Length of Ashby Canal	Qualifies under Section 9.2 'Large Rivers & Canals' with 5 emergent plant species: Cyperus sedge, greater pond-sedge, reed sweet-grass, bulrush and water dock. Also qualifies under the presence of Red Data Book species being present, as a fresh water vole latrine was noted on site.	Local Wildlife Site qualifying length extends beyond the survey area and probably covers all that is not SSSI standard.
Hinckley HIN91	Hedgerow	3 to 4m in height and free-growing, 8 locally native woody species: Parallel hedgerow within 15m (on north side of green lane – not species rich) and ditch for more than half hedgerow length count as additional features also present. The ground flora was unexceptional.	SP 4369 9555 to SP 4380 9565





Hinckley As303	Hedgerow	4m+ height and free-growing but trimmed on road side. 7 locally native woody species including 1 mature oak tree. Ground flora unexceptional	SP 4390 9510 to SP 4399 9519
Market Bosworth As393 / MKBOS02	Ashby Canal	Qualifies under Section 9.2 'Large Rivers & Canals' with 6 emergent plant species: greater pond-sedge, lesser pond sedge, oval sedge, water dock, bulrush and reed canary-grass. Other non-qualifying species also present.  The qualifying section probably extends beyond the surveyed area to both north and south.	SK 3962 0324 to SK 4009 0303
Market Bosworth As393 / MKBOS02	Semi-improved wet grassland between Ashby Canal, and disused railway line.	Former parish/district/county level site (grade C) merits further investigation as there are several species indicative of less improved swards such as black knapweed.	SK 3918 0297
Market Bosworth As393	Two species-rich hedgerows	One internal and one along southern boundary, both with 10 locally native woody species, and adjacent wet ditches. Internal hedge contains possible veteran oak tree with bat roost potential.	Internal L-shaped hedgerow = SK 3904 0283 – SK 3955 0283 to SK 3958 0300  Southern boundary – SK 3955 0272 to SK 3996 0271
Markfield MARK08	Semi-improved neutral and acidic grassland	Latter especially contains Local Wildlife Site qualifying species, also early successional habitat species in area of thinner soils. This area may also be of value to terrestrial invertebrates.	SK 4835 1060 (centre)



Markfield & Field Head As279	Hedgerow on east side of Ratby Lane	Hedgerow containing 8 locally native woody species	SK 4955 0948 to SK 4963 0962
Markfield & Field Head As279	Hedgerow along North side of green lane (opposite planted woodland)	Hedge containing 9 locally native woody species plus bullace ( <i>Prunus domestica</i> ssp <i>institia</i> ) which does not count towards Local Wildlife Site criteria although it is a notable species in the county.	SK 4955 0948 to SK 4992 0932
Nailstone As422	East road side hedgerow opposite Elmside Farm	Hedge supporting 8 locally native woody species.	SK 4148 0705 to SK 4144 0728
Newbold Verdon As444	East hedgerow of green lane	8 locally native woody species, parallel hedgerow within 15m, provides a sheltered bat foraging/commuting route.	SK 4504 0331 to SK 4493 0348
Newbold Verdon As444 and As443	Hedgerow adjacent to stream	8 locally native woody species in the hedgerow. Stream considered unlikely to qualify.	SK 4456 0329 to SK 4501 0321
Newbold Verdon As443	Eastern boundary hedgerow	9 locally native woody species, including mature trees of around 6m in height. Likely to provide a valuable bat foraging and commuting route.	SK 4495 0319 to SK 4484 0267
Newbold Verdon As445	Hedgerow (north side of Kirby Lane)	Hedgerow containing 7 locally native woody species.	SK 4557 0335 to SK 4573 0343



Newbold Verdon As445	Hedgerow on south side of Kirby Lane (adjacent to survey area)	Hedge contains 12 locally native woody species including 1 Red Data Book species; eared willow ( <i>Salix aurita</i> ) – 5th modern county record.	SK 4573 0340 to SK 4530 0305  Outside but directly adjacent to the survey area, probably extends further west than indicated above
Newbold Verdon NEW01b	Two species-rich hedgerows	Hedgerows containing 7 and 9 locally native woody species respectively; one of which has woodland indicator species in the ground flora.	SK 4527 0346 to SK 4518 0342  SK 4518 0342 to SK 4512 0355
Newbold Verdon As448	Desford Road north hedgerow	Hedgerow containing 9 locally native woody species plus sycamore, ground flora unexceptional.	SK 4530 0385 to SK 4543 0382
Ratby As499	Western boundary hedgerow to green lane	Contains 9 locally native woody species plus 2 non-native species, there is also a wet ditch and mature trees.	SK 5222 0641 to SK 5257 0614
Ratby As499	Flood Basin	Semi-improved Neutral Grassland with habitat indicators of less improved swards such as glaucous sedge, black knapweed, common sorrel, greater burnet-saxifrage – merits further botanical survey (former parish / district / county level site).	SK 5245 0623 (centre)
Ratby As489	Two water courses, along east and south boundaries	Contain physical Local Wildlife Site qualifying features including gravel substrate, exposed tree roots and earth banks, they also provide good quality bat foraging / commuting routes.	SK 5038 0616 to SK 5061 0567  SK 5061 0567 to SK 5094 0564



Ratby As474, As475 and RAT01	Rothley Brook and Tributary	Both have Local Wildlife Site qualifying physical features such as meanders, vertical earth banks (river cliffs), and sections of cobble substrate. Rothley Brook within Charnwood was designated as a Local Wildlife Site in 2005/06.	Rothley Brook – SK 5067 0474 to SK 5172 0515 Tributary – SK 5119 0558 to SK 5151 0513
Barlestone As53	Hedgerow on west side of Bosworth Road	Hedge containing 7 locally native woody species.	SK 4242 0517 to SK 4249 0524
Stanton under Bardon As529	Hedgerow on east side of Main Street at southern end of village	Hedge containing 9 locally native woody species plus sycamore.	SK 4656 1005 to SK 4648 0728

8.2.3 These sites are likely to require further survey to confirm whether or not they would qualify as Local Wildlife Sites. Their qualification would be at the discretion of the Leicester County Council ecologists.

### 8.3 Wildlife Corridors

8.3.1 A number of features considered likely to be of importance to the ecological functionality of the landscape have been recorded during the desk based research, aerial interpretation and field survey. These are illustrated on Figures Xc in Appendix A, and include canals, rivers, brooks, active and disused railways, hedgerows, ponds and grasslands, many of which are likely to qualify as local or UK BAP Habitats under the revised criteria and may also meet requirements for Local Wildlife Site designation.

8.3.2 A broad recommendation is that complex habitats and linear features such as these should be surveyed in detail to inform any future management and enhancement. These landscape scale features should be retained within any development and suitably buffered from direct and indirect impacts (such as increases in lighting or disturbance). Where high ecological value is determined, careful consideration should be used in determining an appropriate level of stand-off for any development.

8.3.3 Retention and enhancement of an integrated complex of wildlife corridors at the local and landscape scale is essential to allow species dispersal, given that climate change is already affecting the population and range of many UK species. PPS9 states that ‘networks of natural habitat can link sites of biodiversity importance and provide routes or stepping stones for migration, dispersal and genetic exchange of



species in the wider environment. Local authorities should aim to maintain networks by avoiding or repairing the fragmentation and isolation of natural habitats through policies in plans. Such networks should be protected from development, and, where possible, strengthened by or integrated within it'.

8.3.4 A mixture of habitats is required crossing the landscape to provide migration routes and foraging areas for wildlife. These are necessary at range of scales and will require differing types of management. Planning comments from Natural England have suggested that green corridors for incorporation within large developments should generally be not less than 500m (0.5km) long and be a minimum of 25m wide consisting of green habitat (i.e. excluding hard surfacing, close mown amenity grass etc), However, any retention and enhancement of features should be considered potentially beneficial to diversity.

#### 8.4 Recommendations for further survey

8.4.1 It is likely that the majority of the preferred and alternative options would require a detailed site survey to inform any future planning application.

8.4.2 Site specific recommendations for further survey are made in Appendix C to inform a detailed planning application for any of the sites where;

- Features suitable to support protected species exist for example:
  - Trees or buildings that could support roosting bats
  - Ponds suitable for great crested newts (either on the site, or close to the site)
  - Woodland and / or hedgerow suitable for birds, badgers, invertebrates
  - Habitat suitable for reptiles
  - Water courses that could support water vole, otter or white-clawed crayfish
- Grassland habitat is present that has potential support notable species, in this instance detailed vegetation surveys are recommended to take place between May and July.

8.4.3 Further surveys may be restricted as to when they can take place during the year. A guide to ecological survey seasons is included in Appendix F.

8.4.4 Further survey is also recommended at any of those sites listed in Table 3 which may qualify as Local Wildlife Sites in Leicestershire.



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### 9.1 Direct and Indirect Impacts on SSSIs

- 9.1.1 As discussed above there are a number of nationally designated SSSIs in Hinckley & Bosworth. Some of the potential development sites, particularly around Burbage have potential to indirectly impact Burbage Wood and Aston Firs SSSI.
- 9.1.2 Any proposed development in the wider area should be assessed to determine any impacts it could have on the SSSI. The main impact is likely to be an increase in visitor pressure, or changes to air quality through local increases in population. The woodland here is currently in unfavourable condition, although it is recovering, and is being actively managed to increase biodiversity (Natural England website)
- 9.1.3 Visitor pressure could potentially be managed through actions such as the incorporation of multifunctional greenspace within the proposed development site to encourage future residents to use those areas within the development site, rather than visiting the SSSI. Information boards can also be provided, or funding could be agreed between the future developers and those responsible for the SSSI to allow developer contributions to the ongoing maintenance of the SSSI through Section 106 Agreement or Community Infrastructure Levy.

### 9.2 Retaining and enhancing hedgerows

- 9.2.1 As well as potentially qualifying as 'important' hedgerows under the hedgerow regulations, or as Local Wildlife Sites, hedgerows also provide important corridors for species such as birds, bats, badgers, hedgehogs through the landscape. It is recommended wherever possible to retain hedgerows within site designs, and where appropriate to enhance them through additional hedgerow planting or improved management.
- 9.2.2 Planting hedgerows within developments helps to provide connectivity with the wider environment. Wherever possible species used should be native species, ideally from local seed stock.

### 9.3 Buffering water courses

- 9.3.1 Where water courses are present on or adjacent to a site, it is recommended that the bank side vegetation is retained intact, and increases in disturbance and human access are avoided. A standard recommended buffer is 8-10m although a larger buffer may be recommended where water courses are particularly important for biodiversity.





## 9.4 Habitat Creation

- 9.4.1 There are many simple and inexpensive measures that can be incorporated into final designs that will benefit local biodiversity. To maximise the habitat potential of development sites in the future it could be recommended that areas of landscaping and ornamental beds around buildings could be planted with native trees, shrubs and wildflowers in preference to purely ornamental species to provide additional feeding and nesting opportunities. A suggested species list appropriate to Hinckley & Bosworth is provided in Appendix G.
- 9.4.2 Ponds and wetland areas always increase habitat diversity and can be incorporated into developments of any size.

## 9.5 Invasive Species

- 9.5.1 The Wildlife and Countryside Act 1981 (as amended) recognises several invasive plant species list in Schedule 9 of the Act (see Appendix E, Table B2).
- 9.5.2 Additionally, under the Environmental Protection Act 1990, soil contaminated with Japanese knotweed and giant hogweed could be classed as controlled waste and must be disposed of safely at an appropriately licensed landfill site.
- 9.5.3 Invasive species should be appropriately controlled prior to any development to ensure they are not spread into the wider environment during any building works or habitat management.

## 9.6 Monitoring

- 9.6.1 Together with Hinckley & Bosworth Borough Biodiversity Assessment (2010), the current study provides a snap-shot of habitats present in the Borough and their condition at the time of the survey.
- 9.6.2 The GIS layers obtained during the desk study and field work has been provided to Hinckley & Bosworth Borough Council and should provide baseline information for comparison with future surveys.



## 10.0 5HIHUHQFHV

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Sue Timms, Leicestershire County Council Ecologist provided significant amounts of information to guide this report.