

**Charnwood Borough Council
Local Plan 2020-36**

Ecological Assessment Report

Ecology Evidence Update

June 2019

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1. Introduction

- 1.1 This ecological assessment report has been prepared by the Senior Ecologist at Charnwood Borough Council (CBC) to provide up to date ecological information in support of the emerging Local Plan for the Borough of Charnwood.
- 1.2 The new Charnwood Local Plan will, amongst other things, allocate land to meet the Borough's need for new homes and places of work. The Plan is being prepared in the context of the National Planning Policy Framework (NPPF) which sets out requirements for the preparation of Local Plans in terms of the evidence which should inform them, and the range of matters that each plan should address.
- 1.3 Information within this report will inform the selection of sites for inclusion within the Local Plan, notably as an input into the Sustainability Appraisal Report. The assessment of sites focuses on those which have been formally submitted to the planning authority through the Strategic Housing Land Availability Assessment (SHLAA).
- 1.4 The ecological assessment undertaken has regard to a number of policy and guidance documents, including the NPPF, the most recent environment white paper and guidance produced by the Chartered Institute of Ecologists and Environmental managers (CIEEM).
- 1.5 The Report has considered previous ecological surveys carried out across the Borough of Charnwood. These surveys include the Borough-wide Phase I Habitat Assessment 2012 produced by consultants, EMEC and the 2008 Species Survey of the Borough produced by consultants WYG. Further explanation of how previous evidence has been used is described in the methodology.

2. Conserving and Enhancing Charnwood's Ecology in a National Context

National Planning Policy Framework

- 2.1 The NPPF sets out the Government's planning policies for England and how these should be applied. It has informed the scope and methodology for this report. The sections of the NPPF which relate to the preparation of plans, conserving and enhancing the natural environment, and to habitats and biodiversity are set out below.
- 2.2 Section 3 of the NPPF refers to preparing and reviewing plans and paragraph 31 states that:

"The preparation and review of all policies should be underpinned by relevant and up-to-date evidence. This should be adequate and

proportionate, focused tightly on supporting and justifying the policies concerned”.

2.3 Paragraph 32 goes on to state that:

“Local plans and spatial development strategies should be informed throughout their preparation by a sustainability appraisal that meets the relevant legal requirements. This should demonstrate how the plan has addressed relevant economic, social and environmental objectives (including opportunities for net gains). Significant adverse impacts on these objectives should be avoided and, wherever possible, alternative options which reduce or eliminate such impacts should be pursued. Where significant adverse impacts are unavoidable, suitable mitigation measures should be proposed (or, where this is not possible, compensatory measures should be considered)”.

2.4 The report provides suitable, up to date evidence which will be an input into the sustainability appraisal that will inform the new Charnwood Local Plan. The methodology used addresses the requirements of paragraph 32 with the assessment of sites taking into account the potential to avoid harm, then to mitigate harm.

2.5 Section 15 of the NPPF relates to conserving and enhancing the natural environment. Paragraph 170 states, amongst other criteria:

“Planning policies and decisions should contribute to and enhance the natural and local environment by (amongst other things):

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; . . .

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures . . .”

2.6 This report provides evidence about the ecological value of potential development sites in Charnwood.

2.7 There is an element of overlap between the protection of biodiversity, its natural capital and ecosystem services. For example, woodland represents natural capital, not least in having timber with a market value. It also supports biodiversity as well as providing other ecosystem services including carbon storage, provisioning, cultural services and

potentially runoff attenuation. Although it is beyond the scope of this assessment to consider ecosystem services as a whole this interpretation of biodiversity as a proxy for a range of other ecosystem goods and services is reflected in the recent central government consultation on biodiversity net gain¹.

2.8 Paragraph 171 of the NPPF informs plan preparation stating that:

“Plans should distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries”.

2.9 Paragraph 174 relates to habitats and biodiversity and states:

“To protect and enhance biodiversity and geodiversity, plans should:

a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and

b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.”

The Lawton Review - “Making Space for Nature”

2.10 The Lawton Review provides the background to recent national policy developments relating to the protection of the natural environment. As such it is important to the understanding of relevant parts of the NPPF and also to DEFRA’s 25 year plan 'A Green Future: Our 25 Year Plan to Improve the Environment' (2018) which sets out government action to help the natural world regain and retain good health. It aims to deliver cleaner air and water in our cities and rural landscapes, protect threatened species and provide richer wildlife habitats.

2.11 The Lawton Review² was published in 2010 and provided a comprehensive overview of the state of nature conservation in the UK. It specifically addressed the questions *“Do England’s wildlife sites*

¹ Defra (December 2018) Net Gain: Consultation Proposals. Retrieved from: https://consult.defra.gov.uk/land-use/netgain/supporting_documents/netgainconsultationdocument.pdf

² Department for Environment, Food and Rural Affairs (2010) Making Space for Nature

comprise a coherent and resilient ecological network? If not what needs to be done?"

2.12 The DEFRA response³ to the Review made specific recommendations for planning authorities to identify and protect ecological networks and designated sites, referencing both the NPPF and the general duty of public authorities to conserve biodiversity under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006.

2.13 Paragraph 174 of the NPPF states local plans should “protect and enhance biodiversity”. This emphasises the importance of protected sites and species and priority habitats and species. However, the inclusion of “local wildlife-rich habitats and wider ecological networks” makes it clear that the requirement to “protect and enhance” is not solely limited to the protected and priority habitats and species.

2.14 The Lawton Review defines the following components of ecological networks which are replicated in DEFRA’s 25 year Plan⁴ and referenced in planning practice guidance⁵:

- **core areas** of high nature conservation value which contain rare or important habitats or ecosystem services. They include protected wildlife sites and other semi-natural areas of high ecological quality;
- **corridors and ‘stepping stones’** enabling species to move between core areas. These can be made up of a number of small sites acting as ‘stepping stones’ or a mosaic of habitats that allows species to move and supports ecosystem functions;
- **restoration areas** where strategies are put in place to create high-value areas (the ‘core areas’ of the future) so that ecological functions and wildlife can be restored;
- **buffer zones** that protect core areas, restoration areas and ‘stepping stones’ from adverse impacts in the wider environment; and
- **sustainable use areas** focused on the sustainable use of natural resources and appropriate economic activities. Together with the maintenance of ecosystem services, they ‘soften’ the wider countryside, making it more permeable and less hostile to wildlife.

2.15 It is clear that the Lawton Review continues to inform central government thinking on biodiversity conservation. The broad conclusion of the Review is that, whilst having a number of strengths, the network of designated sites in the UK is inadequate to conserve

³ Department for Environment Food and Rural Affairs (2011) Government Response *to Making Space for Nature Review*

⁴ <https://www.gov.uk/government/publications/25-year-environment-plan>

⁵ Planning Practice Guidance Paragraph: 009 Reference ID: 8-009-20140306

biodiversity in isolation. Unless a concerted effort is made to improve prospects for biodiversity in the wider countryside then a spiral of continued decline is inevitable, including the decline of protected sites themselves. This has helped to inform the evaluation of undesignated habitat in this assessment, which may or may not represent priority habitat but still has the potential to support protected and notable habitats and species or to provide connectivity within the wider landscape.

- 2.16 Largely the recommendations of the Lawton Review that are relevant to planning are embedded in current planning policy and therefore the review is principally useful in providing context. The exception is a recommendation relating to the enhancement of urban green networks.
- 2.17 Urban greenspace typically does not include significant areas of priority habitat and in the context of Charnwood falls largely outside recognised ecological networks^{6 7}. The importance of urban green networks is not specifically referenced in the NPPF. Protection of urban green space will need to be balanced with the aim of NPPF paragraph 117 which requires strategic policies to prioritise the development of brownfield land. In this assessment sites in urban areas have been assessed in the same way as other sites.

Understanding Significant Ecological Impacts

- 2.18 Significance is an important concept in understanding ecological impact in the context of planning policy. NPPF paragraph 32 states that in preparing Local Plans significant adverse impacts should be avoided. Whilst it may be obvious that the risk of significant ecological harm should be considered when allocating sites for the Local Plan there is no widely accepted definition of what constitutes a “significant” adverse impact.
- 2.19 Guidelines for Ecological Impact Assessment⁸ (EclA) produced by the Chartered Institute of Ecology and Environmental Management (CIEEM) define a significant impact as “simply an effect that is sufficiently important to require assessment” and for the purposes of EclA an effect that “supports or undermines biodiversity conservation objectives for important ecological features”. Significant effects may be further understood in terms of:
- whether they are positive or negative
 - extent
 - magnitude
 - duration
 - frequency and timing

⁶ White Young Green (2008) Charnwood Borough Council Phase 1 Vegetation and Habitat Surveys

⁷ Anon (2015) Charnwood Local Plan 2011 to 2028: CS12

⁸ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland

- reversibility

2.20 Important ecological features include habitats, species and ecosystems (including ecosystem function and process) and should be assessed with reference to the geographical scale at which they are important, i.e. the significance of any given effect depends upon the scale at which it is considered. CIEEM guidelines recommends that the following frame of reference is used but may be adapted to local circumstances:

- International and European
- National
- Regional
- Metropolitan, county, vice county or other local authority wide area
- River Basin District Estuarine System/ Coastal Cell
- Local

2.21 Ecological impacts that could be assessed as relatively minor in their own right may contribute to significant change in combination with the effects of other related development. For this reason the guidance also requires that EclA includes a consideration of cumulative impacts.

The Concept of Ecological Value – The Ratcliffe Criteria

2.22 Avoiding significant adverse impacts on biodiversity requires an understanding of what is valuable for biodiversity. The NPPF emphasises the importance of protected sites, ecological networks, protected habitats and species but does not limit the definition of ecological harm to protected and designated assets. As the Lawton Review makes clear, focussing attention exclusively on protected and designated assets is unlikely to be sufficient to conserve biodiversity in the long term. However the NPPF does not provide a comprehensive framework attributing ecological value, significant or otherwise.

2.23 The Ratcliffe Criteria⁹ are a widely used set of ten criteria for assessing nature conservation value developed in 1977 by Derek Ratcliffe and which are still in use today for the selection of biological SSSIs.

2.24 They are intended to capture the wide range of characteristics that may be considered components of the nature conservation value of a given area of habitat or of a nature reserve. The ten criteria which are positively related to conservation value are:

- Size
- Diversity; of communities and species, and therefore of habitats

⁹ Ratcliffe, D.A. (1977) A Nature Conservation Review, Cambridge University Press

- Naturalness
- Rarity
- Fragility
- Typicality
- Recorded History
- Position in an ecological or geographic unit
- Potential value
- Intrinsic appeal

- 2.25 With the exception of recorded history (which is predominantly associated with higher value designated sites) these criteria are expanded upon in sections 4.6 and 4.17 of the CIEEM EclA guidelines discussed previously.
- 2.26 In this assessment these criteria have informed an understanding of sites and components of sites that are not either designated sites or priority habitats. Such sites are unlikely to be highly diverse, natural, rare or fragile but may be large in size, for example SUE sites dominated by arable land. They may support “typical” habitats such as tall ruderal vegetation or may occupy significant positions in the landscape, such as areas of separation between settlements or adjacent to strategic wildlife corridors.
- 2.27 The concept of potential value is central to identifying opportunities for biodiversity enhancement and habitat restoration areas; and therefore is important to the recording of local ecological networks.
- 2.28 Overall the criteria are considered useful in understanding the general duty to conserve biodiversity under Section 40 of the NERC Act and the requirement within the NPPF to conserve and enhance biodiversity. The criteria contribute to an understanding of biodiversity value which by definition should be maintained or enhanced as a result of biodiversity conservation.
- 2.29 The NPPF introduces an additional category of biodiversity value not included in the Ratcliffe Criteria. Paragraph 175c states that “development resulting in the loss or deterioration of *irreplaceable* habitats” should be refused without both an exceptional reason and a suitable compensation strategy. This concept is not defined but examples given in the NPPF and online government guidance¹⁰ included ancient woodland, veteran trees and limestone pavement.
- 2.30 Irreplaceability is a distinct concept in ecological valuation not included in the Ratcliffe Criteria, although in practice the value of any irreplaceable habitats are represented through other Ratcliffe Criteria including naturalness, rarity, fragility and recorded history and in

¹⁰ <https://www.gov.uk/guidance/natural-environment>

CIEEM criteria by reversibility. In this assessment habitats identified as irreplaceable have been considered to include ancient woodland, rivers and streams.

The Measurement of Ecological Value

- 2.31 NPPF paragraph 174b states that plans should “pursue opportunities for securing measurable net gains for biodiversity”. To measure gain recent government consultation on biodiversity net gain¹¹ proposed the DEFRA metric as a “suitable base metric upon which to set possible mandatory requirements”.
- 2.32 The DEFRA metric was first used in a biodiversity offsetting pilot¹² between 2012 and 2014 across 6 local authority areas. The user interface for the metric is a spreadsheet based Biodiversity Impact Assessment Calculator (BIA). This uses a range of inputs relating to habitat size, type and quality to compare the current biodiversity value of a given site with its projected post development value.
- 2.33 The assessment of SHLAA sites in this report was informed by experience of using BIAs at Charnwood Borough Council. For sites where there was uncertainty about the risk of adverse ecological impact, a preliminary BIA assessment was made. For each site the following were considered:
- the potential for ecologically important features on site to be retained and protected (given the size of the site and the assumptions of the SHLAA methodology¹³);
 - the estimated value of habitat likely to be lost;
 - the potential for retained habitats to be enhanced to compensate for this loss.
- 2.34 This approach provides a means by which sites associated with ecologically sensitive features could be developed whilst also avoiding harm to and enhancing those features. Such an approach has the consequence that sites effectively prioritised for allocation might not necessarily be those with the lowest environmental value. However, it is an approach that is capable of taking into account the potential to enhance ecologically sensitive features to provide net biodiversity gain as a consequence of development.

¹¹ Defra (December 2018) Net Gain: Consultation Proposals. Retrieved from: https://consult.defra.gov.uk/land-use/net-gain/supporting_documents/netgainconsultationdocument.pdf

¹² Retrieved From: <https://www.gov.uk/government/collections/biodiversity-offsetting>

¹³ Anon (2017) Leicester & Leicestershire Housing Market Area housing and Economic Land Availability Assessment: Methodology Paper

- 2.35 Enhancement of existing sites and the habitat around them is consistent with the vision for “rebuilding nature” expounded in the Lawton Review and should form part of any strategic approach to landscape scale ecological restoration.
- 2.36 There is no established means within current local policy to secure strategic ecological enhancement through the planning process outside development sites. Therefore, the approach outlined above is considered to be an effective means of balancing the requirements in NPPF paragraph 171 to “allocate land with the least environmental value” with that to “take a strategic approach to maintaining and enhancing networks of habitats..”.

3. The Natural Character and Ecology of Charnwood

Background to Charnwood

- 3.1 The Borough of Charnwood, although dominated by agricultural and urban land uses has a varied landscape which includes relatively well wooded areas with some upland characteristics, river valleys and agricultural land over rolling hills. The largest concentrations of built development are located along the Soar and Wreake Valleys with other villages and settlements scattered across the Borough.
- 3.2 Notwithstanding localised changes resulting from development and changes in agricultural practice this broad character is considered to be unchanged since the last borough wide habitat assessment in 2011 and no loss or degradation from development of statutory designations, including SSSIs, has been recorded.
- 3.3 The 2011 habitat study represents the most recent ecological assessment of the entire Borough and therefore provides the most comprehensive account of the Borough’s natural character and a baseline against which to evaluate habitat change at a borough wide scale. It also provides a context against which to evaluate the likely impacts of development at any given site as the relative importance of any given habitat type may be partly understood in terms of its abundance across the Borough. This is particularly true for habitats like acid grassland which are relatively rare within the Borough to the extent that the total resource could be significantly depleted by a single development.
- 3.4 A number of other sources are also helpful in understanding the natural character of Charnwood including Natural Character Area Profiles¹⁴, the most recent Charnwood Landscape Character Assessment¹⁵, the

¹⁴ <https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles#ncas-in-east-midlands>

¹⁵ Charnwood Borough Council (2012) Borough of Charnwood Landscape Character Assessment

current county level Biodiversity Action Plan¹⁶ and the most recent borough wide habitat survey.

Ecological Aspects of Charnwood's Landscape Character

- 3.5 The Borough of Charnwood includes parts of five National Character Areas, which are also recognised as distinct areas in the Borough of Charnwood Landscape Character Assessment:
- Trent Valley Washlands (profile number 69)
 - Melbourne Parklands (profile number 70)
 - Charnwood (profile number 73)
 - Leicestershire and Nottinghamshire Wolds (profile number 74)
 - High Leicestershire (profile number 93)
- 3.6 The majority of the western half of the Borough falls within the Charnwood National Character Area which lies within the National Forest and extends west and north into two neighbouring districts, Hinckley & Bosworth and North West Leicestershire. The area, including that within the Borough of Charnwood, is notable for its concentration of ancient woodlands and mature trees. Relative to the rest of the county it has a high proportion of woodland cover. The underlying Precambrian geology has given rise to the distinct area of land characterised by exposures of rugged, rocky outcrops and heathland. This is a relatively rare habitat type both within the county and the rest of the borough. Heathland and associated habitats such as acid grassland are largely concentrated in designated sites and parks, though smaller isolated areas can also be found on private land.
- 3.7 The River Soar with its associated floodplain forms a central corridor that runs from north to south through the Borough and forms part of the catchment of the River Trent. It has the greatest concentration of flood plain wetland in Leicestershire and is designated as a Local Wildlife Site. As are three significant tributaries, the River Wreake, Rothley Brook and Black Brook. Collectively they support a range of wetland and riparian habitats and have been identified as strategic wildlife corridors. The River Soar connects a number of important sites for wildlife conservation including Watermead Park on the northern edge of Leicester, three Wildlife Trust Reserves and two SSSIs to the north east of Loughborough (Loughborough Big Meadow and Cotes Grassland). The Soar Valley is an important transport corridor and also has the highest concentration of urban development in the Borough. There is a risk that further development in and around the River Soar could result in its ecological isolation.
- 3.8 The Leicestershire Wolds lie to the east of the Soar Valley and are characterised by arable and pastoral land uses over rolling hills with small streams along the valley bottoms. This is a relatively

¹⁶ Timms, S. (2016) Space for wildlife: Leicester, Leicestershire and Rutland biodiversity Action Plan

undeveloped part of the Borough but is also less ecologically distinctive than either the River Soar and tributaries or the Charnwood Forest areas. With the exception of a cluster of sites around the village of Wymeswold there are very few LWSs in the area and only one SSSI, Twenty Acre Piece, that has been assessed as being in “unfavourable declining” condition. Woodland cover is low although there is a strong network of native hedgerows and whilst the level of botanical interest in remaining grasslands is generally low there are several areas where ridge and furrow features can still be found indicating some potential for grassland restoration.

- 3.9 The High Leicestershire National Character Area rises eastwards from the village of Queniborough to South Croxton and extends southwards to include the villages of Barkby and Beeby. The area is transected by both the Queniborough Brook and Barkby Brook and in ecological terms is quite similar to the Wolds, being dominated by arable land and with very little woodland cover, other than hedgerows.
- 3.10 The north western corner of the Borough falls with the Melbourne Parklands National Character Area and is identified in the Charnwood Landscape Character Assessment as the Langley Lowlands after Langley Priory which is located near the village of Diseworth in the neighbouring district of North West Leicestershire. The area contains a number of Local Wildlife Sites, including the Black Brook which flows to the River Soar and is considered to be an important wildlife corridor. The Grace Dieu Brook that forms the northern boundary of the Borough may also be of sufficient quality to qualify as a Local Wildlife Site. Otherwise this area is also ecologically sterile being dominated by large arable fields and transected by the M1 motorway.

Leicester, Leicestershire and Rutland Biodiversity Action Plan

- 3.11 The current Biodiversity Action Plan (BAP) provides an overview of wildlife conservation priorities in Leicester, Leicestershire and Rutland and so provides a context for assessing the wildlife interest of Charnwood. 18 of the 19 priority habitats listed in the Action Plan occur within Charnwood. The exception being calcareous grassland that depends on basic rocks such as chalk and limestone which are not found in Charnwood.
- 3.12 The Biodiversity Action Plan lists six “important areas for wildlife” in Leicestershire and Rutland. Three of these are found in Charnwood and occupy a substantial part of the Borough’s total area, the Charnwood Forest, the National Forest and the Soar and Wreake Floodplain. This reflects the fact that SSSIs in Leicestershire are relatively concentrated in the Charnwood Forest and the River Soar Valley.

Charnwood 2011 Borough Wide Phase 1 Habitat Survey

- 3.13 It is apparent from the BAP that the Borough of Charnwood is particularly important for biodiversity within the county of Leicestershire. However this is as much an indication of the extent of ecological degradation within Leicestershire as a whole as it is of the exceptional nature of Charnwood. Consideration of the habitat cover recorded in the 2011 Borough Wide Habitat Survey helps to illustrate this.
- 3.14 High canopy woodland (all semi natural and plantation woodland but not including scrub or trees in parks and gardens) comprises 12.16% of the Borough of Charnwood. This is more than double the figure for Leicestershire as a whole (4.6%) but comparable to the figure for UK (13%) and only slightly higher than the figure for England (10%)¹⁷
- 3.15 The proportion of land covered by SSSIs in Charnwood is 4.38%, representing just over half the figure for England which is 8%¹⁸. Local Wildlife Sites cover 4.57% of Charnwood which is close to the national figure estimated to be at least 5%.¹⁹
- 3.16 At this broad scale the overall ecological condition of Charnwood is comparable to that of England as a whole. The 2011 habitat survey shows that the majority of land in Charnwood has limited ecological value with 80.58% either being within limits to development (29.69%) or intensively farmed land (arable land forming 36.24% and improved grassland 14.65%).
- 3.17 This overall impression provides important context for the evaluation of ecological assets within the Borough. A consideration of the relative abundance of grassland types across the Borough helps to show why.
- 3.18 Table 1 shows grassland type recorded during the 2011 Phase 1 Habitat Survey. No information about habitat condition has been included but the distinctiveness column gives a nominal indication of wildlife conservation value for each habitat type.
- 3.19 The bottom four rows of Table 1 list grassland types have specific LWS selection criteria associated with them. They tend to be more botanically diverse than the other two types and contain a greater proportion of species with restricted distributions. Poor-semi improved grassland can be important for a range of animal species but generally has restricted botanic diversity comprising of common grasses with a low proportion of herb cover. Improved grassland is the result of intensive agricultural management that produces a monoculture of perennial ryegrass (*Lolium perenne*) with negligible herb cover.

¹⁷ <https://www.forestresearch.gov.uk/tools-and-resources/statistics/statistics-by-topic/woodland-statistics/>

¹⁸ Natural England (2012) Natural England Designations Strategy

¹⁹ The Wildlife Trusts (2014) the Status of England's Local Wildlife Sites 2014

Table1: Summary of grassland abundance by type in Charnwood

Grassland Type	Distinctiveness*	Area /ha	% of Total Borough Area
Improved	Low	4087.64	14.65
Poor semi improved	Medium-low	3107.48	11.13
Semi improved - neutral	Medium	339.53	1.21
Unimproved -neutral	High	115.38	0.41
Acid	High	77.29	0.27
Marshy	High	41.77	0.15

**Distinctiveness categories are derived from WCCBIA calculator V19*

- 3.20 Table 1 shows that collectively highly distinctive grasslands cover less than 1% of the land area of Charnwood and semi improved neutral grassland contributes just an additional 1.21%. Many of the sites that contain these habitats are small and isolated and, therefore, vulnerable to decline. This is consistent with the situation for England as a whole where it is estimated that 97% of unimproved grassland was lost between 1932 and 1984²⁰.
- 3.21 This means that within many parts of Charnwood highly distinctive grassland habitats are absent. The most valuable remaining grassland habitats are poor semi improved grasslands which are typically assessed as having low overall conservation value. However, in addition to their present ecological value, poor semi-improved grasslands have the greatest potential for ecological restoration.
- 3.22 It is therefore important when considering individual sites to consider not just high value and highly distinctive ecological features but to consider the relative distinctiveness of habitats in their local context.

Designated Sites in Charnwood

- 3.23 There are no designated sites of international importance within the Borough of Charnwood and impacts upon internationally important sites were not considered for the purpose of individual site assessments. A Habitat Regulations Screening Assessment²¹ conducted in 2016 to inform the new Local Plan identified no potentially significant impacts either the River Mease SAC or Rutland Water SPA/Ramsar site. This assessment is still considered to be valid.
- 3.24 There are 17 SSSIs in Charnwood ranging in size from just over one hectare to nearly 400 hectares and covering over four per cent of the Borough. The standard approach to considering impacts of

²⁰ Fuller, R.M. (1987) *The changing extent and conservation interest of lowland grasslands in England and Wales: a review of grassland surveys 1930–1984*. Biol. Cons. 40, 281–300.

²¹ JBA Consulting (2016) Charnwood Local Plan Habitat Regulations Screening Assessment

development upon SSSIs is to first identify any sites within a given radius of the individual site under assessment, usually a minimum of 2km, or further where SSSI risk zones indicate that this is appropriate. Given that almost the entire Borough lies within a 2km risk zone for one or more SSSIs this approach was not considered appropriate for the purpose of this assessment. Therefore, impacts on SSSIs have only been considered for sites adjacent or in close proximity to SSSIs.

- 3.25 The risk of recreational disturbance was assessed on a case by case basis for sites in close proximity to SSSIs. Risks were identified where it was considered likely that development would lead to a significant increase in casual recreational use (such as regular dog walking and exercise). Factors including size of site and distance from a SSSI were included as well as the level of public access to the relevant SSSI.
- 3.26 The impact on supporting habitat has also been addressed through individual site assessments. Obvious connections with SSSIs or similar/supporting habitat would have been identified in the process of assessing each site.

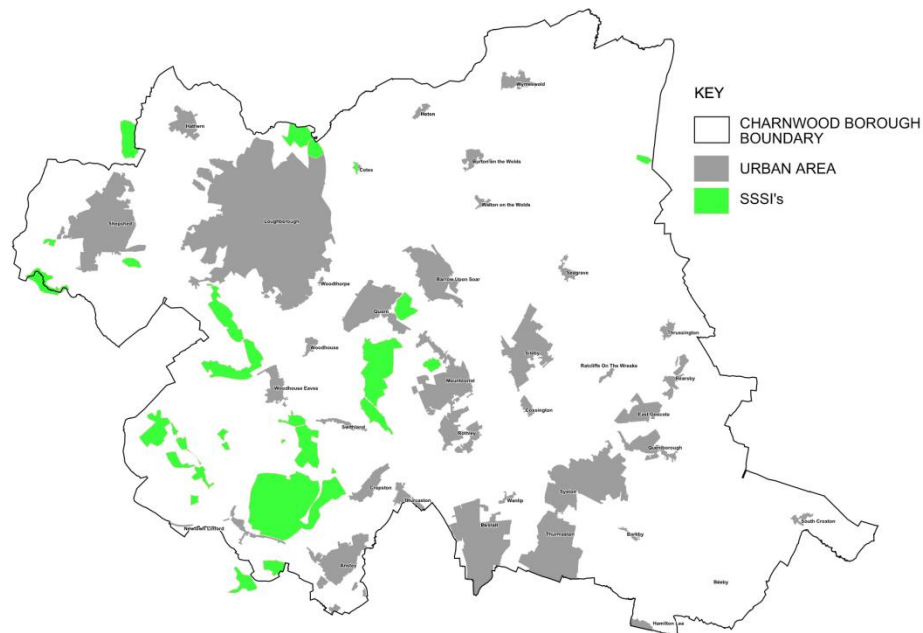


Figure 1: SSSIs in Charnwood Borough

Priority Habitats and Species in Charnwood

- 3.27 The NPPF states that plans should promote the conservation, restoration and enhancement of priority habitats, ecological networks and priority species (paragraph 174). It defines priority habitats and species as those Species and Habitats of Principal Importance included in the England Biodiversity List under section 41 of the Natural Environment and Rural Act 2006 (NERC s41).

3.28 The list of NERC s41 habitats is derived from the now superseded UK Biodiversity Action Plan so is supported by detailed accounts of habitats which facilitate their recognition. For those likely to be encountered in Charnwood (e.g. not coastal or montane habitats) there is a reasonable correspondence with habitat types listed in Local Wildlife Site (LWS) selection criteria. LWS selection criteria therefore provide detailed guidance that, when used to inform local site allocation, should enable the avoidance of harm to priority habitats.

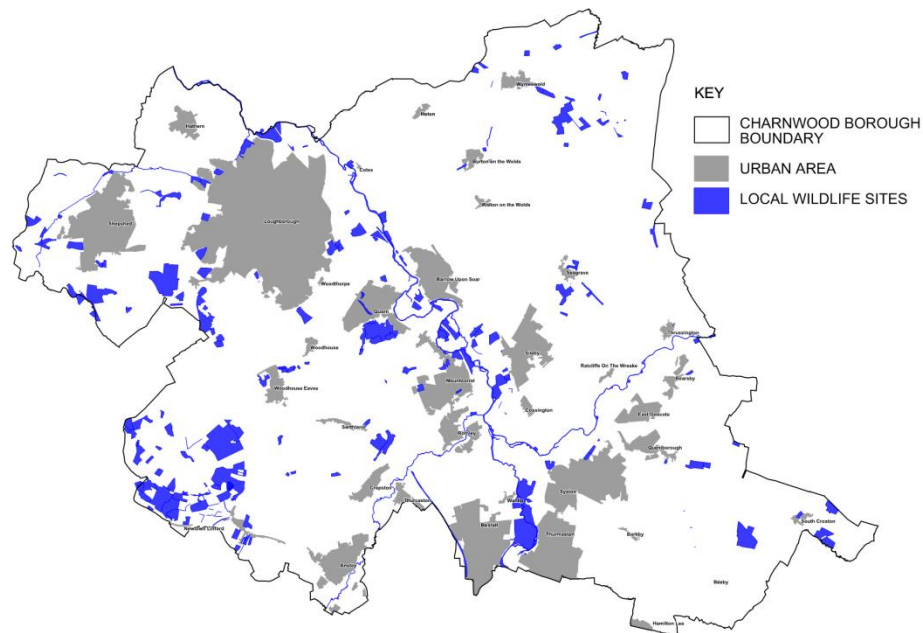


Figure 2: Local Wildlife Sites in Charnwood

3.29 The situation is less clear for species of principal importance. There are 943 species listed under NERC s41. Although a good number would not be expected to occur in Charnwood (for example marine species and the large number of terrestrial species that have highly restricted distributions) it is beyond the scope of this assessment to individually evaluate the potential for development to impact those species that could reasonably be expected to occur in Charnwood.

3.30 A number of priority species are typical of, and to some extent depend upon non-priority habitats, for example: the NERC s41 list includes several widespread and common moth species such as grey dagger (*Acronicta psi*), cinnabar (*Tyria jacobaeae*), white and buff ermine (*Spilosoma lubricipeda* and *S. luteum*) and garden tiger (*Arctia caja*) that occur in Charnwood and which use a range of ubiquitous species such as nettles and docks as larval food plants. It is reasonable to assume that such species will depend to some extent on non-priority habitats where larval food plants are found.

- 3.31 Similarly several NERC S41 vertebrate species (including bat and bird species) benefit from protected species legislation including the Wildlife and Countryside Act and the Habitats Regulations. However, whilst protection makes it an offence to harm individuals and in some circumstances disturb breeding habitat, foraging habitat is not protected. In many situations non priority habitats perform an important role providing foraging habitat for protected species.
- 3.32 Tall ruderal vegetation which first colonise disturbed land provides a good example of a habitat type which, by virtue of its ability to support species that are protected or of Principal Importance, has substantive conservation value. This habitat type forms spontaneously on unmanaged land and being neither fragile, rare nor irreplaceable is commonly characterised as being low value and therefore not worthy of retention. However, it is capable of supporting a range of plant species such as nettles and docks that are locally typical and provide forage for a range of common invertebrates, including several species of Principal Importance that occur throughout Charnwood. These in turn provide forage for protected species, including bats and birds.
- 3.33 Similarly, species poor semi improved grassland is not a priority habitat and it is not usually capable of being designated as an LWS on its own merit. However, this type of grassland can support a range of priority species including common toad (*Bufo bufo*), grass snake (*Natrix helvetica*) and slow worm (*Anguis fragilis*); or provide essential foraging habitat for protected bird species such as barn owl (*Tyto alba*). It is also an example of a habitat type that holds value because of its potential for restoration to species rich grassland.
- 3.34 “Lower value” habitat types such as hawthorn scrub, tall ruderal vegetation and species poor grassland can be particularly valuable when they are encountered as islands in largely urban or intense agricultural landscapes and in some localities may represent the entire resource of semi- natural habitat.
- 3.35 As part of the assessment exercise a site’s potential to support Priority and notable species was considered alongside the value of the habitats in their own right. This did not involve a consultation of local species records but specific knowledge of individual sites was taken into account where it was available.

Local Priorities for Charnwood

- 3.36 The NPPF defines priority species as those listed under section 41 of the NERC Act. However, this should not to be considered an exclusive provision of the NPPF given that a number of protected species that are deemed to be conservation priorities both locally and nationally are not listed in s41.

- 3.37 For example, of the 18 UK bat species, 7 species are listed as species of Principal Importance. In Leicestershire, 13 of the species occur; however, it would make no sense for a Charnwood conservation strategy to include the priority species greater horseshoe bat (*Rhinolophus hipposideros*) that does not occur in Charnwood but not to include barbastelle (*Barbastellus barbastellus*) that is not listed as a priority species but which is rare in Charnwood.
- 3.38 This report includes a series of case studies which have been selected to illustrate various aspects of the site assessment process. Case Study G provides an example of how locally notable species were considered as part of this study.
- 3.39 A further example is the bullhead (*Cottus gobio*) a small bony fish that occurs in several small streams across Leicestershire, including in Charnwood. It is not listed as a priority species and is not protected against harm by conservation legislation. However it is a species for which Special Areas of Conservation (SACs) can be designated. The River Mease SAC, the closest to the Borough of Charnwood, has been designated partly for its population of bullhead and the species is listed in the County red data book for lower vertebrates.
- 3.40 There are a number of other examples of species which may be considered to be local priorities but which are not listed as priority species under NERC s41, for example:
- Of the 47 bird species included in the breeding bird assemblage LWS criteria²² in Leicestershire and Rutland only seven are listed as priority species.
 - LWSs can be designated locally for supporting a breeding population of any one of six listed dragonfly species. The single species listed as a priority species does not occur in Leicestershire and is not included in the LWS list.
 - LWS selection criteria for field margins include a number of arable weeds not listed as priority species
 - Local red data books include several species that are local conservation priorities but which are not listed as priority species. Examples from the county rare plant register occurring in Charnwood but not listed as priority species include bluebell (*Hyacinthoides non-scripta*), grass vetchling (*Lathyrus nissolia*), rough hawksbeard (*Crepis biennis*) and brittle bladder fern (*Cystopteris fragilis*).

4. Methodology

- 4.1 Using the national policy and background information presented above, a methodology was developed to assess the overall extent to which the most recent borough wide habitat survey remains up to date. An

²² SINC guidelines REF

assessment methodology was developed for individual sites taking into account the following factors:

- the risk of adverse impacts on statutory designated sites;
- the risk of impacts on non-statutory designated sites;
- the potential for adverse impacts on protected and priority habitats and species;
- the potential for adverse impacts to local ecological networks; and
- the potential for development on any given site to avoid harm to ecologically sensitive features within or adjacent to the site.

4.2 The study has undertaken a desk top survey, field survey and mapping of sites to enable a site assessment to be made. The study has provided a grade for each site in the Strategic Housing Land Availability Assessment taking account of the ecological value of the site, the potential for mitigation and the ability to secure net gains. The study also explains the use of case studies, which have been included to explain particular parts of the site assessment process.

Desk Top Study

4.3 There were three main purposes to the desk top study:

- to identify and prioritise SHLAA sites for field visits;
- to assess the continued validity of the 2011 borough wide habitat study; and
- to identify a range of ecological constraints that would not ordinarily be apparent from field studies alone.

4.4 In order to prioritise sites for field visits and assess the reliability of the 2011 survey, a digital map showing the most recent borough-wide Phase 1 Habitat Survey (EMEC 2011) was compared with recent aerial images (Google Maps) to establish whether the current habitat type matched that assigned in 2011. Where possible the process was informed by supplementary information obtained from site visits carried out by CBC's Senior Ecological Officer within the last 18 months and ecological assessments submitted to support planning applications. As a consequence individual habitat parcels were assigned to one of the three categories listed below which were then digitally mapped for each parcel:

- habitat type (as determined in 2011) - verified,
- habitat type (as determined in 2011) - changed,
- current habitat type - uncertain

4.5 The study was carried out to include:

- all SHLAA sites;

- habitat extending to a minimum of 1 field compartment around the edge of all settlements; and
 - habitat extending to a minimum of one field compartment around the edge of all SHLAA sites
- 4.6 The desktop evaluation of the 2011 study covered 42.3% of the total Borough area. This represented 60% of the 2011 survey area which, although borough wide, did not include areas within limits to development, a total 8,286.31ha. This is considered to be a sufficiently large sample to assess the continued reliability of the 2011 survey as a whole.

Field Survey Methodology

- 4.7 Field surveys used an extended Phase 1 habitat survey²³ approach which comprised walkover surveys and included:
- Recording of broad habitat types according to Phase 1 Habitat types;
 - Recording of evidence or potential for protected and notable species; and
 - Assessment of sites against Local Wildlife Site (LWS) selection criteria²⁴ where appropriate.
- 4.8 Hedgerow assessments were not included during field surveys because of time constraints and on the basis that:
- The predominant boundary type for green field sites across the borough is native hedgerows; therefore, in most cases, notwithstanding the variation in hedgerow quality, hedgerow assessments would be of limited value in distinguishing available sites from each other.
 - The presence of hedgerows and their wider landscape function in providing habitat connectivity (for species capable of using hedgerows for dispersal) can be assessed using aerial images.
 - It is reasonable to assume that important hedgerows can be retained and buffered on housing schemes; therefore, their presence, whilst clearly a constraint, should not significantly alter the broad assessment of a site's suitability for development.
- 4.9 Following the field surveys a quasi-random sample of 155 SHLAA sites were assessed for differences between habitats recorded in 2011 and the current study. This enabled the assumptions made during the desk top study to be tested and for differences between the 2011 survey and the current study to be characterised. This sampling approach ensured

²³ JNCC (2010) Handbook for Phase 1 habitat survey- a technique for environmental audit

²⁴ Anon (2011) Guidelines for the Selection of Local Wildlife Sites in Leicester, Leicestershire and Rutland: 4th Edition

a large sample size which targeted areas most likely to be affected by development.

Mapping of Sites

- 4.10 In order to identify ecological constraints that might not be apparent from the desk top study and field surveys alone each site was reviewed using digital mapping to assess:
- proximity to ecological sites including both statutory and non-statutory designated sites;
 - connectivity to designated sites; and
 - relationship of the site to strategic wildlife corridors.
- 4.11 The desk top study, field surveys and mapping review have allowed the digital maps to be amended to show changes in habitat type and to record if no change had been identified. Where relevant, target notes were added in accordance with Phase 1 Methodology to indicate particular features of interest, evidence of protected species and to record species lists, especially where these were used to assess sites against LWS criteria or to support fine distinctions between habitat types.
- 4.12 A layer of geo-referenced photographs was added to maps to provide additional information and assist in the interpretation of notes.
- 4.13 For most habitat types the standard Phase 1 colour coding was applied. However for domestic gardens the code for amenity grassland was used to include all parts of domestic gardens, including, for example, shrub beds. Where necessary significant trees, tree groups or tree lines were mapped separately.

Assessment of Sites

- 4.14 Following the completion of field surveys a summary of each assessment was tabulated including:
- Site location details;
 - Survey date or, where appropriate, the other means by which the site assessment was made;
 - An overview of the habitats present, their condition and other features of ecological interest including potential for and evidence of protected or notable species; and
 - An overview of the site's position and potential role in the landscape, including its relationship to protected sites and its ability to support species dispersal.
- 4.15 The assessment was then used to assign one of five grades from A-E to a site as follows:

- A - Site with low to negligible ecological value. Net gain should be achievable via on site enhancements. This category may include brownfield sites with potential for protected species, such as bats, but where maintaining potential depends on development taking place.
- B - Site with limited biodiversity overall, but a balance could be achieved on site following from an objective assessment of impacts.
- C - Site with a risk of loss, but a balance could be achieved by on site measures if the developable area is reduced.
- D - Site contains either a high proportion of priority habitat or botanically diverse habitat; or, contains potential for/evidence of protected species. Unlikely to achieve sufficient on site mitigation to make development acceptable but it may be possible if the developable area is significantly restricted. There may be risks of ecological harm associated with position in landscape. (See case studies C and D).
- E - Sites with significant on site constraints and/or potential to impact statutory designated sites. Development should be avoided altogether.

4.16 Broadly the level of ecological constraint increases with each grade, A indicating the lowest level of constraint and E the highest. However, this is not intended to be a linear scale and there are two exceptions to this rule:

- The development of sites dominated by built development is often constrained by the presence of bats. Whilst this may represent a significant constraint it is one that may be overcome by appropriate mitigation. In some cases development is necessary so that buildings may be maintained and thereby retain the features that make them suitable for bats. Overall it is considered that in most cases the presence of bats is not a constraint that is likely to significantly reduce the quantity of development achievable.
- The use of grades C and D, indicating that development could be acceptable from an ecological perspective if the developable area within the site boundary was reduced, was based on the assumption used in the SHLAA²⁵ methodology and summarised in Table 2:

²⁵ Anon (2017) Leicester & Leicestershire Housing Market Area housing and Economic Land Availability Assessment: Methodology Paper

Table 2: Standard (SHLAA) assumptions relating gross site size to net developable area

Site Size	Gross to Net Development Ratio
Up to 0.4ha	100%
0.4-2ha	82.5%
2-35ha	62.5%
Over 35ha	50%

- 4.17 The SHLAA methodology does not provide set specific guidelines for how land excluded from the net developable area should be used but it is understood to include service roads and community facilities, in addition to soft landscaping and SuDS.
- 4.18 This approach to relating gross to net developable area is not applicable to potential employment sites (prefixed with “PSE”) and, therefore, was not used in assessing employment sites.
- 4.19 The use of grade C does not necessarily indicate that a site is comprised of less valuable habitats than a grade B but simply reflects the view that the developable area would need to be reduced if biodiversity net loss were to be avoided.
- 4.20 Grades C and D were sometimes used for smaller sites with no more than moderate quality habitat but where SHLAA assumptions indicated limited potential to avoid net biodiversity loss by on-site mitigation alone.
- 4.21 This approach to grading helps to identify opportunities for ecological enhancement in two ways:
- For some sites the use of a lower grade indicates an opportunity for strategic ecological enhancement that could be achievable were the developable area reduced below SHLAA methodology assumptions.
 - For other sites the use of a low grade indicates a requirement for off- site compensation in order to avoid biodiversity loss if the SHLAA assumptions about developable area were followed.

Detailed Case Studies

- 4.22 A summary of each site assessment and grading is presented in table form in Appendix 2. This has been complemented by a series of case studies in the form of more detailed narrative site assessments. These are presented in Appendix 1.
- 4.23 The purpose of case studies is to explain a particular process in the assessment of sites, illustrating how the grading system has worked in practice, the range of ecological factors considered during site

assessment, and how an understanding of planning policy and principles of ecological mitigation informed the grading process. The inclusion of a case study does not imply that a site has been assessed in more or less detail.

- 4.24 A summary of the case studies identifying the main illustrative purpose of each is presented in Table 3.

Table 3: Summary of case studies presented in Appendix 1

Case Study	Site(s)	Location	Grade	Illustrative Purpose
A	PSH106	Nanpantan Grange	B/E	Impacts on SSSI opportunities for strategic enhancement.
B	PSH280, PSH321, PSH308, PSH307, PSH177, PSH283	Cotes Road Barrow	A-D	Estimation of Biodiversity Impact in consideration of SHLAA methodology Impact on LWS, cumulative impact, opportunities for enhancement, assessment of impact of a continuous group of sites
C	PSH318	Blossom Farm Sibley	D	Assessment of un-designated wildlife rich habitat, consideration of habitat value in local context, cumulative impact, consideration of enhancement opportunities
D	SH22	Nottingham Road Barrow	D	Consideration of local ecological networks Evaluation of non-priority habitat Importance of urban greenspace
E	SH92 PSH117 PSH124	Roseberry School Brookside Syston Melton Road Syston	A-C	Consideration of impacts on potential bat roosts on brownfield sites
F	PSH168	Main Street Woodhouse Eaves		Impacts on a Local Wildlife Site, use of LWS selection criteria in field

Case Study	Site(s)	Location	Grade	Illustrative Purpose
	PSH443	East of Main St Woodhouse Eaves	D	surveys, ecological connectivity, site assessment constrained by hay cut, ecological networks, strategic enhancement, use of “other” site assessment
G	PSH410	Fishpool Farm Barrow	B	Consideration of notable species, components of ecological networks, irreplaceable habitat, off site mitigation
H	PSH106 PSH149 PSH349 PSH436 PSH438	Nanpantan Grange Moscow Lane Morley Lane Ashby Road Central Ashby Road West	C,D,B/E	Impacts on priority habitat (Acid grassland) strategic enhancement opportunities

Limitations to the Methodology

- 4.25 The use of aerial imagery was only effective in distinguishing a limited range of habitats; largely arable land and woodland; although in the case of woodland it was only possible to distinguish planted from semi-natural stands where aerial images provided obvious evidence of plantation, such as rows or new and even aged stands of woodland.
- 4.26 Grassland could reliably be distinguished as a broad category in most cases but it was not possible to reliably identify the species composition or grassland type. In all cases where there was uncertainty further information was obtained either from information provided to support planning applications or from field visits as described above.
- 4.27 Parish and district level wildlife sites were not systematically included in this assessment. However, sites and immediately adjacent habitats were assessed against LWS criteria and a number of potential wildlife sites were identified during field surveys. On this basis it is considered likely that any significant constraints associated with parish and district level sites would have been identified as a result of field surveys.
- 4.28 In most cases, site surveys were not conducted on sites consented for development as the impacts on ecology of would already have been addressed via the planning process; furthermore, these sites could not be allocated for future development.

- 4.29 Field surveys consisted of a brief walkover of each site and were not intended to provide exhaustive accounts. In the vast majority of cases sufficient information was gathered to enable reliable determinations of habitat type and condition. However, these assessments are not considered to be equivalent to full ecological impact assessments.
- 4.30 Some grassland areas had been cut for hay shortly before the survey. This would have limited the ability to accurately determine grassland type and was recorded in all cases where it was encountered. This was taken into account when awarding of an overall grade for the site; affected sites included PSH147, PSH392 and PSH401.
- 4.31 In a small number of cases surveys were limited by the behaviour of livestock (eg. bucking horses); although it is considered that the determination of broad habitat type was reliable the presence of a limitation was noted.
- 4.32 This report is intended as an assessment of ecological impact and as such is restricted to a consideration of impacts upon habitats, flora and fauna. Wider issues of environmental impact, for example loss of provisioning services, flood storage and other ecosystem services, have not been assessed.
- 4.33 Three sites were identified late in the process and so surveyed outside the optimal survey period (March to September). In each case this survey limitation was recorded in Appendix 2 and taken into account during site grading.

5. Main Results

Continued Validity of the 2011 Borough Wide Habitat Survey

Comparison of Recent Aerial Images with the 2011 Habitat Survey

- 5.1 Habitats recorded in the 2011 survey were checked against current aerial images to assess the continued reliability of the 2011 survey and to prioritise areas for field survey. 53.8% was confirmed to support the same habitat type as in 2011; 41.1% was considered to require further survey work to establish the current habitat type and 5% was considered to have changed.
- 5.2 The vast majority of change recorded could be accounted for by recent urban development with some resulting from changed agricultural practice, such as the conversion of grassland to arable.
- 5.3 Habitats that could be identified and confirmed confidently from aerial images included arable land, buildings and associated gardens plus a range of sites known to CBC including ancient woodland, local wildlife sites, and sites subject to recent planning applications and enquiries.

- 5.4 Grasslands formed 71.9% of the areas that were considered to require resurvey. In these cases the broad habitat type could usually be identified with confidence but more refined distinctions based on species composition could not be determined from aerial images.
- 5.5 The majority of the remaining habitat requiring resurvey was comprised of woodland, scrub, ponds and tall ruderal vegetation. Distinctions between semi natural, plantation woodland and scrub are not always possible from aerial images alone and the other two habitat types can also be indistinct or ephemeral thus requiring a resurvey.
- 5.6 This indicates that the 2011 habitat survey remains reliable in most cases for determining broad habitat types. It also helps to confirm that the broad habitat types at a landscape scale across the Borough are largely unchanged.

Comparison of the 2018 Survey Findings with the 2011 Habitat Survey

- 5.7 Of the 155 SHLAA sites that were assessed to compare habitat types recorded in 2011 and 2018, differences were recorded in 118 of these. In the vast majority of cases these were differences in the detailed habitat type; broad habitat types were unchanged, for example several areas of improved grassland were reassessed as species poor semi improved.
- 5.8 A number of discrepancies were identified between habitat types recorded in 2011 and 2018 field surveys. The majority of these were for grassland habitats, for example:
 - a number of new areas of acid grassland were recorded in 2018 which were recorded as species poor semi improved grassland in 2011 (Case Study P).
 - PSH237 contained field compartments identified as improved grassland in 2011 one of which was found to be sufficiently diverse to meet LWS selection criteria for mesotrophic grassland.
- 5.9 It is considered highly unlikely that any increases in botanic diversity recorded on SHLAA sites between 2011 and 2018 could be explained by improvements in conservation management or spontaneous change because such changes are unusual. Also, it is unlikely that landowners would introduce measures to increase the conservation value of land that they were proposing for development.
- 5.10 Discrepancies between 2011 and 2018 could have arisen from subjective differences in assessment between surveyors. This is particularly likely for habitat such as improved and poor semi improved grassland for which habitat definitions, as set out in the Phase 1

methodology, are not precise. Further potential sources of errors include:

- Surveys conducted following hay cuts or periods of intense grazing preventing accurate determination of grasslands
- Lack of site access preventing a detailed survey (a number of sites were assessed from aerial images alone)
- Surveyor error
- Mapping error

5.11 On this basis the 2018 survey is considered to have increased the level of information available as a conservative view was taken in carrying forward the 2011 findings. In situations of uncertainty field surveys were used to clarify the situation and correct any errors in the 2011 survey.

5.12 The approach taken in this study has enabled a site by site consideration of the likely ecological impacts of development for all the land in the Borough currently available for development. This will help to minimise the risk of biodiversity loss from development.

Field Surveys and Grading of Sites

5.13 A total of 347 sites were included in the assessment of which 272 were graded. The 81 ungraded sites already had planning consent and in some cases building had already commenced or had been completed.

5.14 180 sites were included in field visits with 70 sites assessed using aerial images and google street view. All other unvisited sites were either under construction, were already developed or subject of a recent planning application.

5.15 Of the site assessed using digital images alone all were assigned A or B grades. Ten sites were dominated by arable land and the remainder were dominated by buildings and hardstanding.

Table 4: number of sites in each grade category

Grade awarded	Number of sites
A	45
B	108
C	66
D	37
E	1
Combined grade	16
No Grade	75
TOTAL	348

- 5.16 All 45 sites assigned grade A were dominated either by buildings and/or hardstanding and over half were industrial buildings within existing settlement limits. Other sites included in this category were dominated by agricultural buildings, including modern metal barns, but also older brick agricultural buildings some of which had substantive potential to support bat roosts (Case Study E).
- 5.17 Not all sites dominated by built development were assigned grade A, for example SH76 on Chainbridge Road in Loughborough was assigned Grade B as the Wood Brook runs along the southern boundary, a feature that is likely to require an element of buffering. Despite this being a small site it was not considered a sufficient constraint to warrant a C grade because the site itself is of negligible ecological value and this stretch of Wood Brook is already a highly urbanised, ecologically degraded stream corridor.
- 5.18 Grade B covered a wide range of sites, but no sites that were dominated by priority habitat or that were considered to have potential to meet LWS selection criteria. 72 sites comprised mainly agricultural land and 32 were dominated by buildings, hardstanding or amenity grassland. One site was dominated by semi natural habitats.
- 5.19 Grade C also included some sites with a proportion of built development and habitats with only moderate value. In these cases the grade was assigned because the habitats present were significant in the local context forming habitat islands or contributing to corridors in urban areas otherwise dominated by built development, or providing supporting habitat to designated sites nearby (eg. SH163 and PSH158).
- 5.20 A large number of Grade C sites included areas of grassland and woodland or both. In some cases grasslands classed as species poor semi-improved with low botanic diversity were considered valuable for their complex structure and/or because of their proximity to off-site important ecological features. PSH208 provides a good example of a grade C site with both these features.
- 5.21 The 35 sites assigned a D grade included four of the sites with an LWS within the site boundary. Other sites assigned a D grade included sites adjacent to LWSs, containing habitat with potential to meet LWS criteria and others dominated by moderately valuable habitat types including:
- Sites dominated by rank grassland, hawthorn dominated scrub and tall ruderal habitats which represented locally significant habitat islands (stepping stones) in highly urbanised environments, such as SH22 Nottingham Road Barrow, SH124 Spring Close Shepshed and PSH352 Garendon Road Shepshed.

- Sites where the relative position of higher value features (including designated sites and priority habitat) restrict development. Sites in this category included PSH155 Ingleberry Rd Shepshed where the position of native hedgerows within the site was considered to significantly constrain the potential for development.
 - Sites which contained moderate value habitats but with an unusual species mix such as PSH252 Mucklegate Lane Seagrave.
- 5.22 Only one site received an E grade. PSH379 Seagrave Road, Sileby is a potential LWS almost entirely comprised of semi improved neutral grassland.
- 5.23 15 sites received a split grade usually reflecting an element of difficulty in evaluating the site. This approach was used for some sites where an onsite biodiversity loss was considered to be an inevitable consequence of development but where the scale of loss was small, for example PSH413 Zouch, Hathern. The awarding of a split grade reflected an element of uncertainty about the likely impacts of development that could be resolved by more detailed evaluation. This category included sites where a recent hay cut prevented a more detailed assessment of grassland (see Case Study F).
- 5.24 In the majority of cases these sites were awarded consecutive grades (eg. B/C or C/D). The two exceptions to this were PSH185 Narrow Lane, Wymeswold, a relatively low value site which lies opposite the public entrance to an LRWT nature reserve; PSH106 Nanpantan Grange, a very large site which dominated by arable land but which lies adjacent to the Outwoods, an area of ancient woodland forming part of the Outwoods, Beacon Hill and Hanging Stones SSSI (See Case Study A). In both cases the grade is intended to reflect the differing levels of on and offsite constraints.

Impact on Statutory Designated Sites

- 5.25 This section examines how the assessment process took account of potential impacts on designated sites. It follows the hierarchy of designated sites considering in order: European statutory designations; national statutory designations including SSSIs and LNR; and then local designations (LWS).
- 5.26 There are no SACs, SPAs or Ramsar sites in the Borough of Charnwood.
- 5.27 No SHLAA sites lay within statutory designated sites although one, PSH106, is immediately adjacent to the Outwoods (See Case Study A).

- 5.28 Potential impacts on SSSIs were identified for a total of 18 sites. No further assessment was made for seven sites (PSH141, PSH404, PSH405, PSH141, PSH155, PSH138 and PSH62) because they lay in close proximity to geological SSSIs and whilst these might have substantive nature conservation interest, the designated assets would be unlikely to be impacted by housing development.
- 5.29 Potential impacts on Cotes Grassland and Loughborough Meadows SSSIs were identified from two SHLAA sites, PSH123 and PSH158 graded B and C respectively. The difference in grade is largely due to the difference in size of these two sites and the different levels of constraint upon the capacity to deliver on site mitigation.

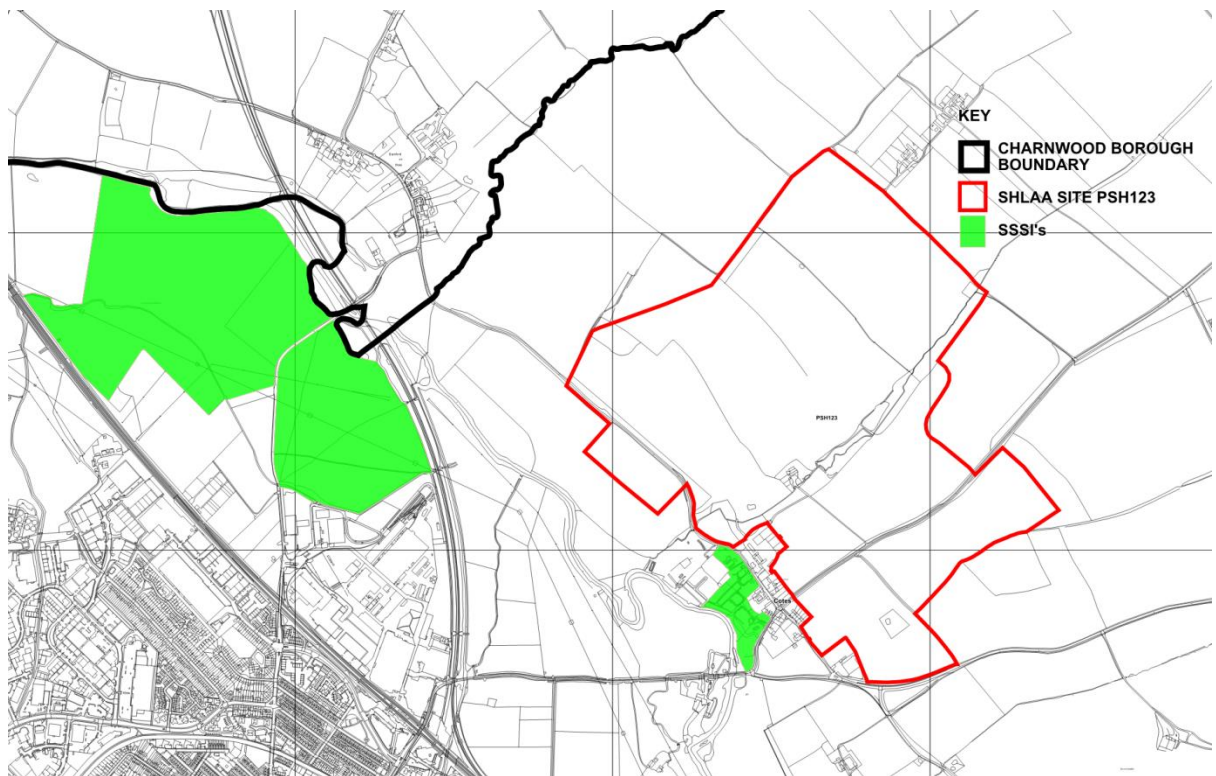


Figure 3: Loughborough Meadows and Cotes Grassland SSSIs

- 5.30 Three sites were considered to be of a sufficient size and proximity to The Outwoods SSSI to have significant potential for adverse impact. PSH106 was awarded a split grade because whilst the site's size and overall lack of high value habitat features made it a suitable candidate for development, its proximity to the Outwoods presents a significant risk of serious harm. A more detailed assessment is presented as a part of Case Study A.
- 5.31 PSH133 and PSH284 were also both considered to present a risk of impact upon the Outwoods. Both are dominated by arable habitat and have sizes that according to the SHLAA methodology indicate a developable area of 62.5%. This is considered likely to allow a reasonable quantity of buffering and compensatory habitat that could

mitigate impacts on the Outwoods. PSH133 was graded C (rather than the B grade assigned to PSH284) because it lies immediately adjacent to an area of ancient woodland and may require additional buffering.

- 5.32 The remaining sites (PSH16, PSH388, PSH387, PSH389, PSH257 and PSH258) were considered to have the potential to impact Bradgate Park SSSI and/or Sheet Hedges Wood SSSI. The risk of harm to Bradgate Park from recreational use is difficult to assess since it attracts visitors from a wide area and has recreational use as its primary function. Nevertheless impacts from increased recreational use could arise from a significant increase in households in the immediate vicinity to the park, as well as other direct impacts resulting from habitat change in the surrounding area.
- 5.33 PSH16 was allocated grade C largely because of on-site features, the retention of which could be sufficient to mitigate any habitat related impacts on Bradgate Park.
- 5.34 PSH258 was graded C, although this was largely because of other high value habitats adjacent to the site and the presence of moderate value habitat on site. In this case mitigation of impacts on these receptors could also mitigate impacts upon Bradgate Park. The remaining four sites were graded B reflecting their size and relatively low value of on-site habitats; although it should be noted that grade B implies that development should only follow a detailed assessment of ecological impacts that would be expected to accompany a planning application.
- 5.35 There are three LNRs in Charnwood, all three are owned and managed by Charnwood Borough Council and are LWSs.
- 5.36 Bishop's Meadow lies to the north west of Loughborough and immediately to the north of PSE408, from which it is separated by the Grand Union Canal. PSE408 is a brownfield site and further development could be possible without impacting the LNR if adequate buffers were provided, thus it was graded B.
- 5.37 Morley Quarry LNR includes an area of broadleaved woodland formed over an old granite quarry and is known to support a significant reptile assemblage. Development in this location would impact the reserve and in particular the reptile assemblage which has been found to also be present within an adjacent application site. There are several additional SHLAA sites in close proximity with habitat connections to Morley Quarry that also support suitable habitat for reptiles. This was a factor considered in the grading of all these sites (eg. PSH138).

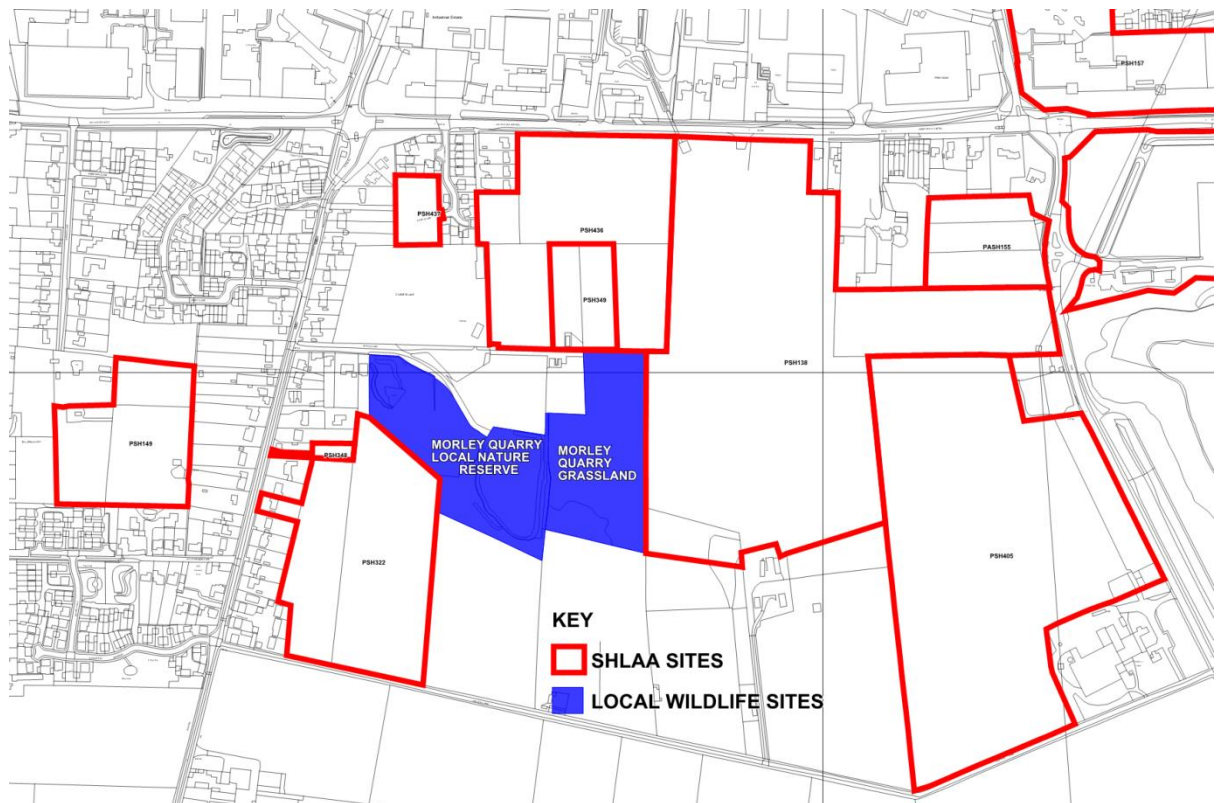


Figure 4: Morley Quarry LWS

5.38 Halstead Pasture LNR is an area of grassland and scrub, including some rock exposure with small areas of acid grassland. It has public access and is periodically grazed by cattle. It lies opposite a consented housing development that is currently under construction (P/13/1008/2 (outline) SHLAA ref PSH104 Halstead Road Mountsorrel). A consequence of this development means Halstead Pasture is now ecologically isolated, being surrounded on four sides by housing development. There is also a risk that increased recreational use of the site may put grazing management at risk should the level of conflict between cattle and members of the public increase. There have been significant areas of open space provided as part of the adjacent housing development that includes retained meadow grassland but it is not clear that the mitigation provided will avoid an adverse impact on the LNR or that the proposed mitigation has in fact been delivered (although it is hoped that this second matter can be resolved through the adoption of the new open space by CBC).

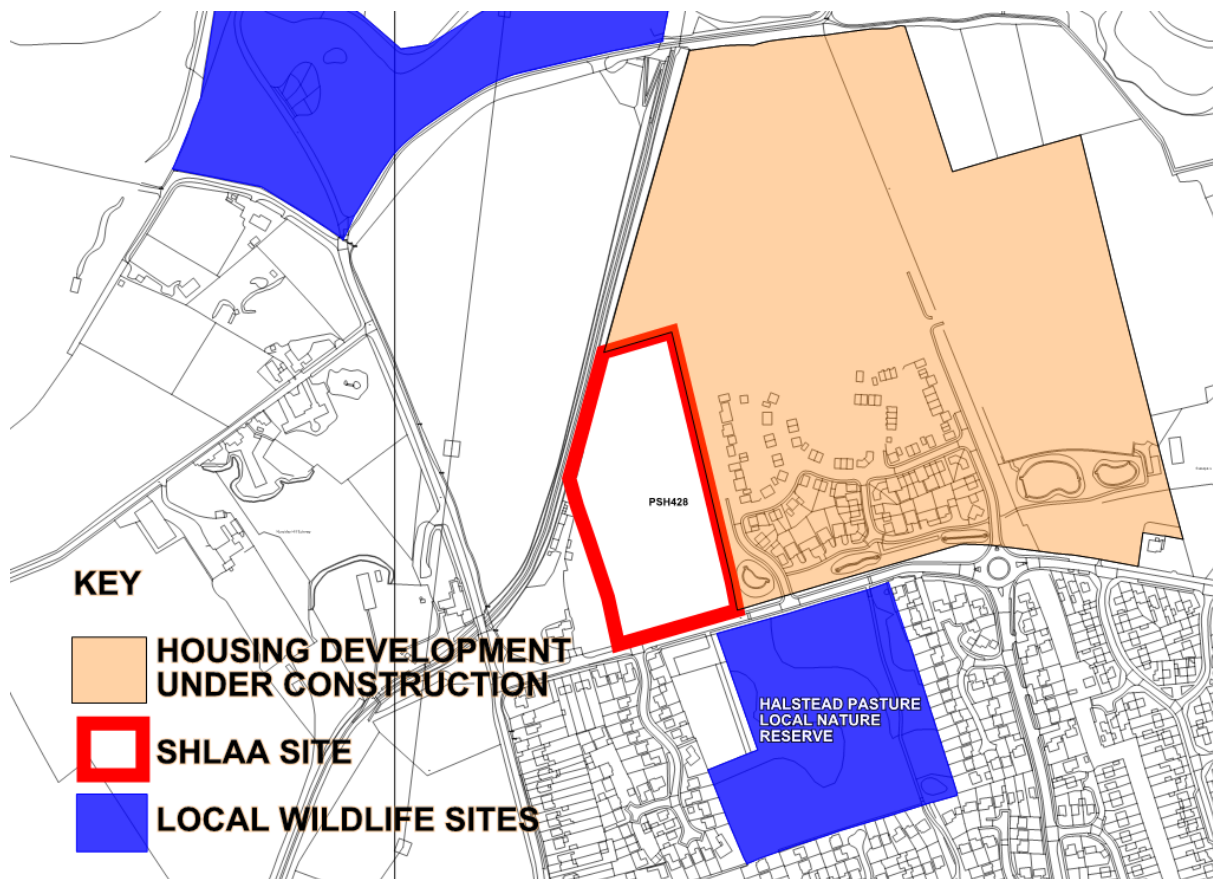


Figure 5: Halstead Pasture Local Wildlife Site

5.39 This understanding has informed the assessment of PSH428 Land off Halstead Road, which lies immediately to the west of PSH104. PSH428 comprises species poor semi improved grassland and, with the exception of Halstead Pasture, is not well connected to other higher conservation grassland. This would typically indicate that, should the site be developed, adequate on site mitigation could be provided by enhancing retained habitat. The site area is approximately 2.4Ha indicating a developable area of 62.5%. However, given the proximity and level of isolation of the LNR this level of development would not be sufficient to provide open space that could accommodate good quality semi-natural habitat. Development would further increase the risk from recreational disturbance to the LNR and so an adverse impact would be inevitable. Development of the site would also remove the opportunity for ecological restoration and strengthening of the local ecological network; therefore, PSH428 was graded D.

Impact on Non-statutory Designated Sites

5.40 A total of 13 sites (4.9% of graded sites) were identified either as containing LWSs or habitats likely to meet LWS criteria; of these one was graded B and two were graded C (see table 5 below). In these cases it has been assumed that all designated habitats should be retained and buffered. Therefore the relatively high grade indicates the

presence of lower value habitats with some potential for mitigation to be delivered on site.

- 5.41 A total of 55 sites (20.7% of graded sites) were identified as being constrained by proximity to a LWS or potential LWS; of these eight also had LWSs within the site boundary (see table 5). This group included sites immediately adjacent to LWSs and several sites adjacent to brook corridors, including Barkby Brook and Sileby Brook, which contain stretches that meet LWS selection criteria for fast flowing streams. With one exception these sites were graded B or lower and 33 sites were graded C or lower. PSH308 Cotes Road Barrow was graded A and sits close to two LWSs site but was dominated by agricultural buildings with negligible ecological value. Its small size (0.3ha) and distance from the LWS (200m) also indicate that an adverse impact on the LWS was unlikely.
- 5.42 Table 5 presents a summary of sites containing either designated or potential LWSs. Case Studies B and F present detailed accounts of the assessment of two groups of sites associated with LWSs.

Table 5: Sites containing LWSs or features which may qualify as such

Site name	Site Location	Onsite LWS/features	Grade
PSH168	112 Main St Woodhouse Eaves	SNG with moderate diversity and a single field compartment of LWS SNG	D
PSH2	West of Gorse Hill Anstey	Dominated by SNG with some areas meeting LWS criteria. R&F features	D
PSH237	Strancliffe Lane	SNG and PSI with some dense scrub. SNG likely to meet LWS criteria	C/D
PSH27	Bull in the Hollow Farm Leicester Rd Loughborough	Arable fields and rank grassland with scattered scrub LWSs: Charnwood water Marsh W5418/2, Charnwood Water Wood W5418/1. Site is adjacent to Charnwood water LWS W5418/3	D
PSH280	Cotes Road, Barrow on Soar	Arable field with PSI. LWS at southern end, Catsick Marsh; W/5618/8	C
PSH287	Queniborough Lodge	Variety of habitats and built development. Small LWS with GCN population in NW corner	B
PSH297	237 Bradgate Rd Anstey	Single residence with potential LWS comprised of unmanaged grassland/scrub/woodland mosaic	C/D
PSH321	Cotes Road Barrow on Soar	PSI with wet grassland LWS at SW end. Railway Fields:	D

		W5618/9	
PSH349	Morley Lane Shepshed	Horse grazed acid grassland with potential to meet LWS criteria	D
PSH379	Adjacent 230 Seagrave Rd Sileby	Single SNG field confirmed to meet LWS criteria	E
PSH404	Tickow Lane Shepshed	Arable with SNG and Grassland LWS- reverting to woodland. Blackbrook Meadow 2; W4619/1	C/D
PSH436	Ashby Road Central Shepshed	Acid grassland with potential to meet LWS criteria	C
PSH443	East of Main St Woodhouse Eaves	Improved grassland and SNG LWS	D

5.43 LWSs (including the three LNRs) represent the most valuable habitats across the Borough outside statutory national designated sites and individually are significant at a county level.

5.44 Forty one sites were identified as presenting a risk to LWSs and a further 10 sites as presenting a risk to potential LWSs; of these 33 were graded C or lower. This means that for the 15.4% of graded sites that present a risk of harm to LWSs that risk cannot easily be avoided by on site mitigation in the majority of cases.

5.45 Not all sites with identified impacts on LWSs were allocated low grades (C-E) as in some cases it was possible that some level of development could take place on those sites without causing harm to the respective LWS. Given the number of sites that present a risk of harm to LWSs and potential LWSs from development a precautionary approach of allocating lower grades to all these sites may not be practical.

6. Other Findings

Identifying Ecological Networks in Charnwood

6.1 NPPF paragraph 174 requires plans to “identify, map and safeguard components of local wildlife rich habitats and wider ecological networks” and to promote the “conservation, restoration and enhancement of...ecological networks”.

6.2 Section 3 of this report provides a broad overview of the Natural Character and Ecology of Charnwood. Components of the local ecological network in Charnwood have been mapped via:

- Records and mapping of SSSIs, LNRs, LWSs, ancient woodland, RIGS sites and TPOs within the borough held and managed by CBC
- Records and mapping of former parish and district level wildlife sites held and managed by CBC, with support from the Leicestershire and Rutland Biological Records Centre (LRBC)
- Records of protected and notable species managed through a data exchange agreement between CBC and LRBC

- Leicestershire and Rutland Wildlife Trust (LRWT) reserves that are not covered by other designations: parts of Cossington Meadows, Lea Meadows and Rocky Plantation
 - Strategic Green Infrastructure identified by CBC Core Strategy policy CS12
 - Engagement in several local wildlife conservation partnerships.
- 6.3 The approach in this Study of identifying and mapping ecological networks is robust and fit for the purpose of informing site selection in the Local Plan. It does not represent an exhaustive account of habitat features that support protected and notable species or facilitate wildlife movement. Cases Studies C and D provide examples of sites that contain features which are not formally recorded as part of the “wider ecological networks” in Charnwood.
- 6.4 It is not practical or achievable to produce and maintain an up to date record of all habitat features contributing to the wider ecological network at a Borough wide scale. However, at an individual planning application level the consideration of impacts from development should be informed by local ecological surveys and should not be restricted to those features identified in this Study.
- 6.5 Whilst the mapping of ecological networks is fit for purpose, additional work to supplement and update the current record should be considered including a review of the condition of LWSs in the Borough; the identification of new LWSs where appropriate; and the identification of further opportunities for ecological enhancement. For example:
- The current assessment has identified a number of sites previously not identified that may qualify as LWSs. (eg. PSH2, PSH237, PSH349, PSH436).
 - At least three potential LWSs have been identified as a result of planning applications in the last three years (P/15/1499/2, P/16/2503/2 and P/17/0741).
 - Additional land outside allocated sites was identified as having habitats that might meet LWS criteria are not already designated (an area of land to the north of PSH239 and south of Leicester Road).
 - The Wolds area is not included as part of any identified ecological network, despite containing a SSSI and several LWSs. Despite these high value sites this part of the Borough, is characterised by arable land and species poor grassland and has very little woodland cover. Therefore, it represents a large area with significant potential for ecological enhancement.
 - Data exchange occurred in early 2018 between Charnwood Borough Council and the neighbouring Rushcliffe Borough Council to consider the potential for a cross boundary initiative to promote brown hare (*Lepus europaeus*) and farmland bird conservation in the Leicestershire and Nottinghamshire Wolds.

Restoring and Enhancing Ecological Networks in Charnwood

- 6.6 NPPF (paragraph 174b) requires plans to “promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.” DEFRA has recently consulted upon proposals to make biodiversity net gain necessary for developments when granting planning permission. The Government has stated that it will use the forthcoming Environment Bill to mandate ‘biodiversity net gain’
- 6.7 The approach to grading potential development sites used in this assessment helps to identify some opportunities for enhancing sensitive ecological features, including priority habitats and components of ecological networks that have been recorded within or in close proximity to potential development sites.
- 6.8 C and D grades identify significant risks of ecological harm but also indicate a means by which such harm could be avoided and strategic enhancement facilitated by reducing the developable area relative to SHLAA methodology assumptions. (See Case Studies A, B and F).
- 6.9 Whilst it is possible to use individual site assessments to identify some opportunities for ecological enhancement these opportunities are limited to the potential development sites only.
- 6.10 A number of sources help to identify strategic opportunities and priorities for ecological enhancement in Charnwood including natural character area assessments, the county biodiversity action plan²⁶ and conservation initiatives such as Living Landscapes²⁷. Many of these opportunities lie outside known potential development sites and it is unlikely that a coherent strategy for ecological restoration could be delivered through enhancements within development site boundaries.

The River Soar and Wreake floodplains are identified by a number of sources as priorities for ecological restoration because:

- The Rivers Soar and Wreake are both LWSs and identified as a component of strategic green infrastructure by CBC’s Core Strategy policy CS12.
- The Soar and Wreake valleys are the focus of the only two active Living Landscape Initiatives in Leicestershire and Rutland
- The Leicestershire and Rutland BAP identifies the Soar and Wreake floodplains as an “Important area for wildlife in Leicestershire and Rutland”

²⁶ Timms, S (2016) *Space for Wildlife: Leicester, Leicestershire and Rutland Biodiversity Action Plan 2016-26* Leicestershire and Rutland Environmental Records Centre

²⁷ <https://www.lrw.org.uk/our-work-for-wildlife/living-landscapes/>

- The Trent Valley and Washlands National Character Area Appraisal (which includes the Soar and Wreake Valleys) includes the following as one of four Statements of Environmental Opportunity: *“SEO 2: Manage and enhance the Trent Valley Washlands’ river and flood plain landscape to combine its essential provision and regulation of water role”*
- 6.11 There are very limited opportunities for development in the Rivers Soar and Wreake floodplains due to their high flood risk so improvements would need to be sought through off site contributions.
- 6.12 On this basis, opportunities for promoting ecological enhancement outside development site boundaries should be given consideration. However, the extent to which the Local Plan should “pursue measurable net gains for biodiversity” will depend upon the precise methods put forward by the Government.
- 6.13 One source which may provide a guide to the level of net gain under the NPPF proposals is the Government’s 25 year environment plan which commits the UK to “providing 500,000 hectares of additional wildlife habitat” outside existing protected areas. The Environment White Paper, which covers England also commits to delivering a 200,000ha increase in priority habitats by 2020.
- 6.14 There is no obvious means by which these figures should be related to Charnwood. It is quite likely that national priorities would dictate where the focus of increase should be. If these included upland or coastal areas the level of increase in Charnwood would be relatively modest. Notwithstanding the uncertainty over the future of environmental stewardship in the agricultural sector it would be reasonable to assume that a proportion of the target would be delivered through farm subsidies.
- 6.15 Table 6 below shows targets for an increase in priority or wildlife rich habitats in Charnwood, based upon Government projections and conservative assumptions regarding the distribution of the target nationally. It is assumed that half of the target will be delivered through farm subsidies and other national priorities will reduce the target by half again. In both cases the proportion to be delivered in Charnwood is based on relative total area.

Table 6: Estimated requirement for increase in priority habitat areas

	Total Area/ km ²	Target/ Ha	Maximum target for Charnwood /Ha: Total area 279km ²	Total if 50% picked up by farm subsidy	Additional 50% reduction assuming uneven distribution of target areas
UK	243 610	500 000	500	250	125
England	130 395	200 000	400	200	100

6.16 Based on this analysis the quantity of ecological enhancement required to be delivered by 2020 via the planning system in Charnwood is between 100 and 500ha of wildlife rich habitat. This provides a basic measure for estimating the extent to which the local plan strategy and land allocation could be capable of realising an adequate quantity of ecological enhancement.

Summary and Conclusions

6.17 To inform the development of the Charnwood Borough Local Plan an ecological assessment was carried out of all known potential development sites in the Borough of Charnwood.

6.18 As part of the exercise the previous borough wide habitat study was evaluated. It was concluded that at a borough wide scale there has been no significant change in the distribution of broad habitat types, although some site level differences were identified.

6.19 The range of ecological constraints to development that was identified included potential impacts on:

- Statutory protected sites
- Non statutory protected sites
- Protected and notable species
- Priority Habitat
- Other habitat features identified as forming part of a local ecological network or having substantive ecological value

6.20 This assessment is considered adequate for the purposes of comparing the level of ecological constraint associated with potential development sites; however, it has not assessed wider environmental values or ecosystem services.

6.21 Potential development sites were individually graded A - E according to their level of ecological constraint. Grading reflected the extent to which ecological constraints were considered to affect the development

potential of sites. Grades C and D indicated that an on-site biodiversity loss can only be avoided if the developable area is reduced.

- 6.22 This approach is an effective way of assessing ecological constraint and identifying opportunities for ecological enhancement, since those parts of sites that are not subject to built development could be available for ecological enhancement.
- 6.23 In considering the character of the local ecological network and the extent to which it has been identified and mapped it was concluded that:
- Local ecological networks have been adequately identified but some components, notably the record of LWSs, need to be updated
 - A wide range of habitat features are capable of contributing to ecological networks but maintaining a comprehensive record of these is impractical. The importance of individual features to local ecological networks should also be assessed as part of planning decisions
 - Important features of local ecological networks, such as the River Soar floodplain, do not contain potential development sites. Therefore, the Local Plan can only play a limited role in the strategic enhancement of local ecological networks
- 6.24 National government targets for new habitat creation were considered in evaluating the requirement for local plans to promote ecological enhancement. It was estimated that between 100 and 500Ha of new wildlife rich habitat should be created in Charnwood by 2020.
- 6.25 It is not clear to what extent the emerging local plan can contribute to the meeting of this target or to what extent previous development within the target period has already contributed to the creation of new wildlife rich habitat.

APPENDIX 1 - Case Studies

CASE STUDY A

PSH106 Nanpantan Grange is large site on the south west edge of Loughborough dominated by arable land with some poor semi improved grassland, a small patch of acid grassland (see case study H) and other features including a pond and a small patch of dense scrub. Wood Brook lies to the north crossing part of the site and forming part of the northern boundary. With a total area in excess of 200ha the developable area under the SHLAA methodology is 50%.

If the onsite habitats are considered separately from the wider context of the site a grade B would be appropriate. However, the site lies immediately adjacent to the Outwoods SSSI. Development in this location would risk a range of direct and indirect adverse ecological impacts on a nationally significant site. Clearly this would be unacceptable and so a grade E should be awarded.

Ultimately this conflict was resolved by considering the potential for an approach in which the eastern part of the site, closest to Loughborough, was developed whilst the western part was landscaped to provide a significant buffer to the Outwoods. Such an approach would not be without risk but has the benefit of realising an opportunity for strategic biodiversity net gain that is unlikely to be deliverable by other means in the foreseeable future.

For this reason PSH106 was awarded a split grade of B/E reflecting the contrast between the relatively low sensitivity of the site *per se*, the high sensitivity of its location and the opportunity to deliver significant net biodiversity gain.

CASE STUDY B

This case study presents the assessment for a continuous group of SHLAA sites to the rear of Cotes Road Barrow on Soar. There are two LWSs within the group; both designated as wetlands and both lying along a railway line at the south western edge of the block.

PSH321 is the largest of the SHLAA sites and contains an LWS within its boundary; Railway Fields W5618/9 is designated for mixed grassland, including wet grassland and swamp. Its location along the edge of the site, adjacent to a railway, indicates that it might be possible to develop the bulk of the site without encroaching on the LWS since the only suitable access point is at the opposite end of the site.

PSH321 occupies approximately 12.8ha and so the SHLAA indicates a net developable area of 62%. The LWS occupies approximately 1.8ha, equivalent to 14% of the gross site area. On this basis it would appear that the site could be developed to its full potential whilst still retaining the LWS. Including a 20m buffer for the LWS and habitat connection to

the neighbouring LWS would increase the area required to around 3.1Ha, approximately 24% of the site area.

Whilst a suitable buffer might include biodiverse SuDS features it should not include space primarily designed for public amenity nor any other incidental space, roads or hardstanding.

The remainder of the site is comprised of species poor semi-improved grassland. This may be considered to provide supporting habitat for the LWS and has ecological value in its own right. Its loss will require mitigation. It is estimated that this would require approximately 4Ha of land, although this could include a buffer for the LWS and SuDS features

An additional complication with this site is that the LWS is a wetland site with a site topography (sloping down towards the LWS) that strongly indicates a role for the site itself in regulating the hydrology of the LWS. Any approach to development should carefully consider how the hydrological conditions in the LWS can be maintained in the face of significant changes to runoff pathways.

Given the above it is considered, once the requirement for road infrastructure and formal recreational space and other infrastructure is taken into account, that developing the full area to its maximum potential (62.5% of the gross area) would be likely to result in a net biodiversity loss and harm to a designated site. This risk could however be avoided if the LWS and a reasonable buffer are deducted from the gross area before the net developable area is recalculated. On this basis the site was allocated a D grade, reflecting both the presence of designated assets and a requirement to significantly reduce the developable area in order to avoid net loss.

PSH280 also includes a LWS at its southern edge; W5618/8 Catsick Marsh designated for its swamp vegetation. The rationale behind the assessment of this site was similar to that for PSH321. The LWS occupies a similar proportion of the site (LWS area 0.4ha, PSH280 area 3.3ha) however the remainder of the site is dominated by arable land which is a less valuable habitat than poor semi improved grassland and is not considered to provide supporting habitat to the LWS. On this basis PSH280 was allocated Grade C.

These two sites both have significant ecological constraints. However, the other sites in this group are less ecologically constrained overall. This presents an interesting problem; if each of the remaining sites (awarded grades A-C) were developed individually a relatively small quantum of development would be provided. Any on site habitat enhancements would be relatively small and isolated from each other. They would not provide any strategic enhancement and it is probable that there would be some adverse impact upon the two LWSs. On the other hand if all six adjacent parcels were considered as a whole it

would be possible to balance the requirement for mitigation across the entire area, taking a strategic approach to ecological mitigation potentially result a net gain and enhancement of the local ecological network (eg. by uniting two previously separate LWSs) whilst achieving a relatively larger quantum of development

CASE STUDY C

PSH318 Blossom Farm, Sileby is an area of neglected orchard and farmland that constitutes a mosaic of rank grassland, tall ruderal vegetation and scrub. This site was only partially surveyed because dense scrub made parts of the site impenetrable. Although degraded by virtue of being overgrown it may represent traditional orchard, a NERCS41 Habitat of Principal Importance. However without significant intervention the area would become lost to dense scrub overtime, although even in this state it would retain significant value for wildlife

The site immediately to the north-west (PSH196 Land to the south west side of Cemetery Road, Sileby) is a former waste processing facility recently granted permission for housing development. The site shares similar characteristics to PSH318 having an extensive area of scrub/ruderal/ grassland mosaic, a proportion of which is proposed to be retained and landscaped.

Rank grassland, tall ruderal vegetation and the type of scrub recorded at these sites do not represent priority habitats. They develop spontaneously on abandoned land and so are not fragile, difficult to recreate nor theoretically irreplaceable; however, once lost such areas are not typically replaced.

The area surrounding PSH318 and PSH196 is dominated by built development and arable land. Therefore, these two sites represent the largest continuous area of scrub/grassland mosaic within at least a 1km radius and of those other patches (as identified in the 2011 Phase 1 Habitat Study) three of the remaining largest areas lie either within or immediately adjacent to potential development sites. On this basis there is a significant risk that the majority of this habitat could be lost locally within a few years. The consented development on the neighbouring site PSH196 has already resulted in considerable habitat loss and any further impact resulting from the development of PSH318 should be considered cumulative.

It would be reasonable to expect that a measure of enhancement could be provided by conservation management and a development proposal that provided for the retention of a proportion of the site as semi natural habitat would result in long term security for the retained areas. However, the success of a mitigation strategy that relied entirely upon enhancement of retained habitat would be significantly limited by the fact that the whole site is already occupied by moderate value habitat making the potential to secure long term measurable enhancement of

retained areas relatively low. On this basis PSH318 was awarded a D grade.

CASE STUDY D

SH22 Nottingham Road, Barrow upon Soar lies on the north eastern edge of the settlement. It is almost entirely surrounded by recent housing development with small domestic gardens backing onto the site on three sides. Fishpool Brook, a small stream runs along its eastern boundary; from an intensely farmed arable landscape to the north and following a narrow wooded corridor through the village to the River Soar, approximately 1km to the south.

The site itself is comprised of a mixture of scrub with standard trees including birch (*Betula*), willow (*Salix caprea*), bramble (*Rubus fruticosus* agg) and a tall herb community dominated by nettles with a total area of approximately 0.5ha.

This site represents a good example of a plant assemblage dominated by common and widespread species that appears to have developed as a result of neglect and natural colonisation. Although the site was so densely vegetated that a complete site survey was not possible it is considered likely that a number of garden escapees are present amongst the native colonisers.

It has a varied structure for such a small site with areas of dense cover and deep shade surrounding a more open sunny glade providing a range of microclimates. The site is also likely benefit from the low disturbance that has resulted from its being immediately surrounded by private gardens.

The habitats present provide nesting and foraging opportunities for a range of common birds, breeding and foraging habitat for a range of common invertebrates, good foraging habitat for bats and potentially suitable habitat for small mammals such as bank vole (*Myodes glareolus*) and woodmouse (*Apodemus sylvatica*).

The site is connected to other parts of the village via the Fishpool Brook corridor and is likely to provide a stepping stone between the village and wider countryside. By virtue of its position in relation to neighbouring private gardens it augments their value, creating a single continuous area of greenspace. Given its location within an area of modern housing it is also likely that this parcel of land represents mitigation for recent development.

On the basis of this assessment it can be said that despite containing no designated features, priority habitat nor direct evidence of the presence of protected species, the site has substantive conservation value that is significant in the local context; such that development would almost inevitably result in a net biodiversity loss.

For a site of this size (approximately 0.5ha) the SHLAA methodology indicates a developable area of 82.5% with only a proportion of the remainder available to provide green infrastructure.

Given that the existing habitat is already of moderate value and that the maximum area of habitat available to be retained and enhanced would be too small to enable the establishment of “good” quality habitat, it is considered impossible to achieve adequate mitigation onsite.

In summary, whilst the development of this site would not be likely to adversely affect any designated assets or local populations of protected species (with the possible exception of bats) it would result in a net biodiversity loss that would be significant at a local scale which could not be mitigated on site. For these reasons this site was given grade “D”.

CASE STUDY E

A number of sites that were dominated by built development were graded A despite having potential to support bat roosts. This can be explained on the basis that in some cases development may be necessary to maintain the continued use of buildings and the bat roosts they support. This case study presents a detailed account of the assessment of selected sites dominated by existing buildings.

Of all the sites with buildings that were assessed for bat roost potential, 34 were considered to have at least low potential. This is the lowest category of potential which, under current best practice guidelines²⁸, would trigger an emergence survey. A number of other sites were assessed as having negligible bat roost potential.

In all cases the assessment of low potential resulted from a brief external inspection that identified one or more potential access points. In all cases it is possible that a full inspection, including an internal survey, would result in a reclassification to either a higher or lower level of potential or would confirm the presence of a bat roost.

Eleven of the 34 sites with at least low potential were graded A. One of these was considered to have at least moderate bat roost potential. SH92 Roseberry School, Loughborough is a Victorian red brick school building. Whilst the site itself is comprised of a number of old buildings with possibly several large roof voids, the surrounding land does not represent good bat foraging or commuting habitat. It is unlikely that the site supports a large maternity roost of any of the rarer British bat species but it could support more than one roost, including maternity roosts, of commoner species including common pipistrelle (*Pipistrellus pipistrellus*) and even brown long eared bat (*Plecotus auritus*). In this

²⁸ Collins J (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). Bat Conservation Trust

case the awarding of an A grade was based on an assumption that given the heritage and aesthetic value of the existing buildings, redevelopment would be likely to make use of the existing buildings and preserve any bat roosts in situ; however, it is also possible that adequate mitigation could be provided as part of a new build.

PSH117 Brookside, Syston was one of seven sites that included buildings with bat potential graded B. This is a brownfield site dominated by early successional habitat containing a single dwelling with moderate bat roost potential. Barkby Brook runs along the northern boundary and represents valuable habitat in its own right and a potential commuting and foraging corridor for the local bat population. It has been assumed that either that the building could be retained in situ or that adequate mitigation could be provided as part of a new build. The grade B reflects the need to mitigate the loss of early successional habitat, buffer the stream corridor and potentially maintain connectivity for bats between the existing dwelling and the stream corridor.

PSH124 Melton Road, Syston is a former ambulance station and contains areas of amenity grassland, a belt of trees along the southern edge and a railway corridor along the eastern boundary. The C grade reflects the need to retain the tree belt and to mitigate the loss of grassland which has become rank as a result of neglect and has some conservation value. The grassland also contains a group of mature trees. The buildings are modern and have flat roofs which are not highly suitable for bats but there is some potential. Maternity roosts and roosts of small numbers of individual bats are sometimes recorded in such buildings and more detailed assessment would be required to rule out their presence. However, it is highly unlikely that the buildings would support a large maternity colony of any of the rarer bat species found in the UK and suitable mitigation could be provided on site if bats were discovered.

CASE STUDY F

The sites PSH168 and PSH443 are located on Main St, Woodhouse Eaves and include two entire LWSs (W5314/3 Field East of Main St and W5314/11 Long Close Fields 3 and 4). A further LWS lies between PSH1168 and PSH443 (W5314/5 Field East of Main Street (2)). Immediately to the east of PSH443 is a fourth LWS (W5314/7 Long Close). A fifth LWS lies immediately adjacent to Long Close; (W5414/6 Lane End Cottage). Together they form a continuous group of 5 LWSs all designated for their mesotrophic grassland (equivalent to semi-improved neutral grassland, SNG).

The five LWSs are mostly horse grazed and are considered likely to still meet LWS selection criteria with the possible exception of W5314/5 Field East of Main Street (2) which appears to have been recently damaged by woodland planting.

At the time of survey all field compartments visited had recently been cut for hay, making a complete botanical assessment impossible. Despite this five indicator species were recorded as a result of a brief walkover in both W5314/3 and Long Close Fields 3 & 4 W5314/11, with an overall total of seven indicator species. The threshold for LWS selection²⁹ is seven species with an abundance rating of “Occasional” or more.

The field immediately to the north of W5314/3, which also forms part of PSH168, was surveyed in August 2017 in connection with a planning application P/17/1701/2 (Land to the Rear of Old Bulls Head). At this time, also as a result of a brief walkover, it was found to contain six species from the LWS selection list for mesotrophic grassland. It is therefore likely that this part of the site also meets LWS selection criteria and is capable of being designated. This field also contained ridge and furrow features.

The field to the north of W5314/3 is comprised of similar habitat to the LWSs, regardless of whether or not it meets LWS selection criteria. The mesotrophic indicator species it contains would be capable of recolonising the nearby LWSs were those species to be temporarily lost, a likely event given the small size of these sites. In this sense the undesignated grassland adjacent to surrounding LWSs represent supporting habitat and were they to be lost to development the long term viability of the LWSs would be seriously compromised, regardless of their on-going management.

PSH168 has an area of just over 3ha, comprising just over 1ha LWS, and just over 1.8ha undesignated grassland with the remainder domestic curtilage and a small paddock.

Assuming that the LWS should be excluded from development altogether, along with a proportion of the remaining grassland then only a small proportion of the total site would be suitable for development. This would only be acceptable and avoid an adverse ecological impact if long term conservation management could be secured over the remainder of the site.

PSH443 has an approximate area of 2.7Ha and, with the exception of the access track, is entirely composed of semi improved neutral grassland. The grassland outside the LWS and closest to the most obvious access point is tightly horse grazed and species poor but capable of being restored. To avoid an adverse ecological impact at this site development should be restricted to land outside the LWS area, once a suitable buffer has been set to both mitigate the loss of undesignated grassland and to protect the LWS. This would leave only a small proportion of the site available to develop.

²⁹ Reference SINC selection guidelines and page no for mesotrophic grassland

For both these SHLAA sites it could be argued that an E grade is most appropriate given that a large proportion of both sites is made up of LWS with the remainder supporting habitat. Ultimately both were graded D as it was felt that the ability to develop part of each site creates some potential to secure long term conservation management and to extend the total area of habitat capable of meeting LWS criteria.

CASE STUDY G

The site PSH410, Land at Fishpool Farm has an approximate area of 8.7ha. It is dominated by poor semi improved grassland with farm and residential buildings. Fishpool Brook runs across the site and along the southern boundary. Fishpool Brook is not designated as a LWS but supports habitats such as gravel substrate and riffle and pool sequences which indicate some potential for designation were a complete assessment to be carried out. Fishpool Brook has substantive nature conservation value and by virtue of its linear nature and connection with the River Soar (a strategic wildlife corridor) it forms part of the local ecological network, although it is not currently mapped as such. In addition, it would be reasonable to classify running surface waters as irreplaceable habitat³⁰ and, according to Planning Practice Guidance³¹ this warrants its inclusion as part of the local ecological networks.

Given the size of the site (indicating a developable area of 62.5% under the SHLAA methodology) and the dominance of lower value habitats, a B grade would be appropriate. This indicates that a suitable balance with respect to ecology can be achieved following a consideration of likely impacts upon the river corridor and hedgerows plus the loss of grassland. A typical approach to mitigation would include the retention and buffering of hedgerows, buffering of the brook corridor and enhancement of retained habitats to avoid a net biodiversity loss. It is considered likely that this could be achieved with a developable area of 62.5%.

An interesting feature of this site is the presence of the locally notable plant rough hawksbeard (*Crepis biennis*). This is scattered across at least one of the grassland field compartments on the opposite side of the site to the brook corridor. Although it is listed as a species of least concern in the national red data list for plants³², it is categorised as rare locally and so is included in the County Rare Plant Register³³. Historically it has been recorded in around 30 locations across Leicestershire and Rutland but its precise current distribution is unknown.

³⁰ NPPF paragraph 175c

³¹ Planning Practice Guidance Paragraph: 009 Reference ID: 8-009-20140306

³² Stroh, P.A. *et al* (2014). *A Vascular Plant Red List for England*. Botanical Society of Britain and Ireland, Bristol.

³³ Jeeves, M. (2011) *The Flora of Leicestershire and Rutland: Checklist and Rare Plant Register*

Given the relative locations within PSH410 of the rough hawksbeard colony, hedgerows and the brook it is considered that retaining the colony in situ and protecting other ecological receptors would not be practically achievable without reducing the net developable area; therefore a grade of C or D would be more appropriate.

The site was allocated a B grade based on the following considerations:

- The mitigation hierarchy prioritises conservation in situ and the avoidance of harm where possible. This reflects the risk associated with other approaches to mitigation, retention in situ combined with appropriate management provides the best chance of retaining this species on site.
- Although rare locally rough hawkweed does not seem to have specialised habitat or management requirements. This view is supported by its presence within intensively managed grassland with otherwise low herbal diversity.
- There are other known sites locally that support this species.
- The previous two points indicate that rough hawkweed is likely to be a good candidate for translocation, either within PSH104 or to other suitable locations locally.

Translocation is never without risk so in this case the allocation of a B grade was made despite the risk of local extinction of a county rarity. At present however the long term future of rough hawkweed is not guaranteed in this location since it remains vulnerable to changes in agricultural practice.

It is further considered that the risk of local extinction could be adequately mitigated by a combination of onsite and offsite translocation. Translocation onsite would facilitate retention of the species onsite within areas retained to buffer hedgerows and Fishpool Brook; whilst offsite, CBC is aware of other potential receptor sites locally. Such an approach might conceivably result in a net gain for this species. This assessment does not confirm that the quantum of development indicated by the SHLAA methodology can be achieved without a net loss of biodiversity, rather that it is unlikely to be necessary to reduce the net developable area below 62.5%.

CASE STUDY H

Lowland acid grassland is a NERC Habitat of Principle Importance that is rare in Leicestershire. The Charnwood Forest area represents a stronghold for the habitat within the County, although it is rare here too particularly outside designated sites. The County Biodiversity Action Plan identifies heath grassland and acid grassland as priorities for new habitat creation; although it considers that restoration sites should be a

minimum size of 1ha and subject to grazing management³⁴. However, the distribution of acid grassland in Charnwood shows that this habitat can be retained in smaller areas and mowing is a suitable management option where grazing is impractical³⁵. A total of 17.61ha was recorded in the 2011 Charnwood Borough Phase1 representing 0.06% of the total area.

This case study presents an overview of the assessment of acid grassland where it was encountered within SHLAA sites.

A total of five sites were found to contain acid grassland during the 2018 field surveys (PSH436, PSH349, PSH149, PSH438 and PSH106). Acid grassland was recorded in one of these locations during the 2011 survey.

A small area of acid grassland was recorded in association with gorse (*Ulex europaeus*) scrub and rock exposure on a low earth mound within PSH106, Nanpantan Grange. This habitat type was also recorded in the same area in 2011 and was recognisable due to a localised abundance of sheep's sorrel (*Rumex acetosella*), an acid indicator. The approximate area was 3,800m². Within a 1km radius of this location four other patches of acid grassland were recorded in 2011. All have areas below 0.7ha and the largest of these appears to be overgrown with bracken (*Pteridium aquilinum*) and to have become degraded.

PSH106 was assigned a grade of B/E. This grade owes more to the balance of habitats on site and its position in relation to the Outwoods SSSI (see case study A). Given the large size of PSH106 Nanpantan Grange and the small size of the acid grassland, the presence of this priority habitat was not considered to be a significant ecological constraint since retaining and buffering this area would be unlikely to restrict the developable area of the site as a whole.

PSH349 Morley Lane lies within the boundary of PSH436 Ashby Road Central on the south side of Shepshed. A number of patches identified as acid grassland in 2011 lie nearby to the south. Their total area is approximately 2.7ha. Two of the patches lie within Morley Quarry LWS, a predominantly woodland site owned and managed by CBC.

PSH436 comprises a single field compartment of improved grassland; an area of rank grassland with tall ruderal vegetation and scattered trees; and, three field compartments of tightly grazed horse paddock that were identified as species poor semi improved grassland in 2011. During the 2018 survey three indicator species of acid grassland were

³⁴ Timms, S (2016) *Space for Wildlife: Leicester, Leicestershire and Rutland Biodiversity Action Plan 2016-26* Leicestershire and Rutland Environmental Records Centre

³⁵ London Biodiversity Partnership (2005) *Acid Grassland Conservation in London*. Retrieved from: http://downloads.gigl.org.uk/website/Acid%20Grassland%20Conservation%20in%20London%20-%20booklet%20_March%202005_.pdf

recorded in various degrees of abundance scattered across the three horse grazed compartments; sheeps sorrel, heath bedstraw (*Galium saxatile*) and common bent (*Agrostis capillaris*). Given the brevity of the survey and the tight grazing (which made a complete botanical inventory more challenging), it is considered likely that these fields meet LWS criteria for acid grassland, which require five indicator species to be present.

PSH436 was graded D as it was considered possible to mitigate the impact of developing within the area of improved grassland by enhancing and securing long term conservation management over the area of acid grassland. PSH439 was graded E since, were this site to be developed separately, it is likely the entire area of acid grassland would be lost and could not easily be replaced by offsite compensation.

PSH149 Moscow Land comprises 3 horse grazed field compartments of species poor semi improved grassland but occasional patches of acid grassland indicators. Sheep's sorrel and sheep's fescue (*Festuca ovina*) were recorded in scattered locations at the tops of slopes, along with mouse eared hawkweed (*Pilosella officinarum*) a species characteristic of dry and free draining grasslands. These were considered to indicate some potential for acid grassland restoration at the site. The site was graded C because the existing onsite habitats were of relatively low value but the plant species recorded in some locations indicated the presence of relict acid grassland with some restoration potential. The total site area was just below 2ha indicating a developable area of 82.5% and it is unlikely mitigation and restoration could be achieved without reducing the developable area.

PSH438 Ashby Road West was recorded as being dominated by improved grassland in 2011. The site includes an area of built development and hardstanding and is adjacent to an area of broad leaved woodland. A complete survey was not possible in 2018 but it was clear that the grassland areas were overgrazed and probably botanically species poor. However, the soil within the grassland areas appeared sandy and free draining with some minor rock present at the northern end of the site. Therefore, it was considered to have some potential for acid grassland restoration at the site and given this, the substantive conservation value of improved grassland, and the need to buffer the woodland edge were development to take place, the site was graded C.

Summary of Case Study H

A comparison of the 2018 study with the 2011 study shows that in 2011 acid grassland was under recorded. This is not highly surprising given that lowland acid grassland in Leicestershire is usually botanically species poor; indicator species are inconspicuous and in some cases hard to identify; and, new records in 2018 were from heavily grazed sites. This last point indicates that acid grassland is vulnerable to

overgrazing and so is a fragile habitat. It is also for practical purposes irreplaceable given that it requires specific soil conditions that are only found within a restricted area in the Borough of Charnwood. Even within parts of the Borough (and indeed the county) where it is relatively common it is confined to small and scattered patches; a distribution type that increases its vulnerability.

On this basis, and considering its status as a habitat of principal importance, it is considered that it should be conserved in situ where it is encountered. Long term conservation for this habitat should seek to increase the total area of habitat and the connectivity between patches. The assessment of PSH149, PSH349 and PSH438 indicates that there may be potential for restoration and these objectives may be realised through development, either by the conservation and restoration of acid grassland within proposed development sites or via the use of off-site compensation.