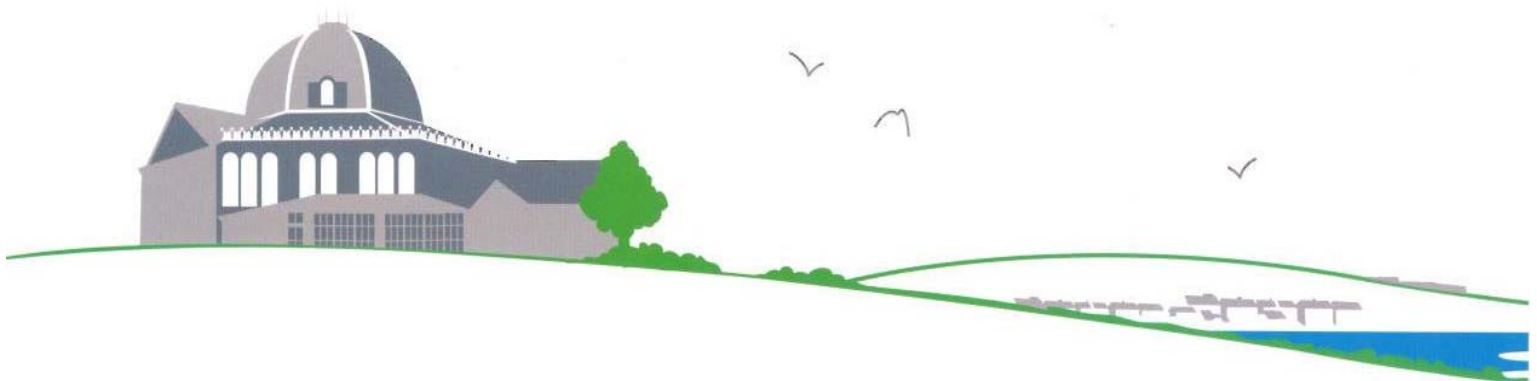




CHATSWORTH SETTLEMENT TRUSTEES  
LAND OFF WORKSOP ROAD, MASTIN MOOR  
CONFIDENTIAL BADGER REPORT



---

## CHATSWORTH SETTLEMENT TRUSTEES

## LAND OFF WORKSOP ROAD, MASTIN MOOR

## CONFIDENTIAL BADGER REPORT

---


Penny Anderson Associates Limited  
'Park Lea'  
60 Park Road  
Buxton  
Derbyshire  
SK17 6SN

Project Manager  
Sarah Ross BSc (Hons), PhD, MCIEEM, CEnv (Associate Director)

Authors  
Sarah Ross  
Caroline Boffey BSc (Hons), MRes, ACIEEM (Ecologist)

October 2020

This project has been undertaken in accordance with PAA policies and procedures on quality assurance.

Signed: 

## CONTENTS

	Page
<b>1. INTRODUCTION .....</b>	<b>1</b>
Background .....	1
Purpose .....	1
Structure of Report .....	1
Other Reports .....	1
Author .....	2
<b>2. CONTEXT .....</b>	<b>3</b>
Applicant .....	3
The Site .....	3
Design Process .....	5
Development Proposal .....	6
Planning Policy .....	7
Planning Assessment .....	9
<b>3. BADGERS, THEIR ECOLOGY AND LEGISLATION .....</b>	<b>10</b>
Background .....	10
Legislation and Best Practice Relating to Badger .....	10
Badger Biology .....	11
<b>4. METHODS .....</b>	<b>13</b>
Badger Surveys .....	13
Survey Limitations .....	13
<b>5. RESULTS .....</b>	<b>15</b>
Desk Study .....	15
Badger Survey .....	15
The Site .....	15
Evidence of Badger .....	15
Setts .....	15
Sett 1 – Active Main Sett .....	15
Sett 2 – Active Subsidiary Sett (NGR: SK457 753) .....	16
Sett 3 – Active Outlier Sett (NGR: SK451 752) .....	16
Latrines, Pathways and Other Signs .....	16
<b>6. EVALUATION .....</b>	<b>17</b>
<b>7. IMPACTS OF DEVELOPMENT AND MITIGATION .....</b>	<b>18</b>
Potential Impacts to Badgers and their Setts .....	18

Recommended Mitigation and Compensation Measures .....	18
Sett Closure and Protection During Construction Phase.....	18
Recommended Mitigation and Compensation Measures for Operational Phase.....	19
<b>8. REFERENCES .....</b>	<b>20</b>
<b>9. ABBREVIATIONS .....</b>	<b>21</b>

## TABLE

1 Badger Sett Records Within 2.5km of the Site .....	15
--	----

## PHOTOGRAPHS

1 View Over Site from South-eastern Corner (adjacent Woodthorpe Road) looking towards Woodthorpe .....	4
2 View Over Site from Bolsover Road (Close to Community Garden) looking towards Woodthorpe .....	4
3 View Over Site from Bolsover Road looking North-west towards Worksop Road) .....	5
4 View Over Site from Near North-eastern Boundary Adjacent to Worksop Road looking towards Bolsover Road and Woodthorpe.....	5

## FIGURES

1 Local Plan Policies Map (extract) .....	8
2 Badger Survey Results	

## APPENDIX

1 Summary of the Legislation Relevant to Badgers and Their Setts	
--	--

# 1. INTRODUCTION

---

## Background

### ***Purpose***

- 1.1 The purpose of this Report is to explain and support an outline planning application for residential development of land at Mastin Moor (Chesterfield) as submitted to Chesterfield Borough Council (CBC) as the local planning authority (LPA) concerned. It outlines the context within which the application is made and provides a detailed assessment of the main ecological considerations, together with a reasoned justification in support of the development.

### ***Structure of Report***

- 1.2 This Report addresses the following:
- Context;
  - The Site and surrounding area;
  - Development proposal;
  - Planning policy considerations;
  - Key benefits;
  - Assessment of ecology (specifically badger (*Meles meles*)); and
  - Summary and conclusion.
- 1.3 The Report concludes that no badger setts would be lost and that with appropriate buffer zones, foraging habitat and habitat connectivity for badgers, there are no ecological reasons why residential development should not be supported on the site.

### ***Other Reports***

- 1.4 The proposal has been informed by a range of technical evidence. As such, the planning application comprises a suite of information which includes:
- Supporting Planning Statement;
  - Design and Access Statement;
  - Landscape and Visual Impact Assessment;
  - Transport Assessment;
  - Flood Risk Assessment;
  - Ecology Surveys (Extended Phase 1 Habitat, Bat, Bird and Badger Surveys);
  - Archaeological Assessment;
  - Geo-Environmental Assessment;
  - Noise and Vibration Assessment;
  - Air Quality Assessment; and
  - Topographical Survey.

## ***Author***

- 1.5 This Report has been prepared by Penny Anderson Associates Ltd (PAA). PAA is a specialist ecological consultancy with extensive experience in ecology survey, evaluation and assessment. Our contact details are as follows:

Penny Anderson Associates Ltd

Park Lea, 60 Park Road, Buxton, Derbyshire, SK17 6SN

T: 01298 27086

Email: [enquiries@pennyanderson.com](mailto:enquiries@pennyanderson.com)

CONFIDENTIAL

## 2. CONTEXT

---

### Applicant

- 2.1 The land subject of this application is owned and managed by Devonshire Property (MM) Limited (DPMML). DPMML is part of the Devonshire Group.
- 2.2 The Devonshire Group, known technically as the Chatsworth Settlement Trustees (CST), owns the land and estates of the Dukedom of Devonshire. Its main estates are in the vicinity of Chatsworth in Derbyshire, and Bolton Abbey in North Yorkshire. It also runs visitor and other businesses on these estates including hotels, retail and catering outlets, forestry, livestock and arable farming. It employs over 600 full time employees. It is committed to quality in all its activities and takes a responsible approach to development; as such, it measures performance in social and environmental as well as financial terms.
- 2.3 Together with the Chatsworth House Trust (registered charity no.1511149), CST's Derbyshire Estate provides over 450 full time equivalent jobs and contributes c.£50m of enabled Gross Value Added to the local economy each year (Source: New Economics Foundation 2014). Its income funds socio-economic facilities (e.g. village shop/post office) and environmental management activities (e.g. architectural conservation) without grant support. CST thereby provides benefits far beyond 'just the estate'.
- 2.4 CST has a range of interests in the Borough of Chesterfield including: agricultural land supporting modern farming; commercial properties supporting local employment; farmsteads supporting smaller-scale rural enterprises; and the majority of the former Staveley Works site (including both the Clocktower Business Centre (leased to CBC and providing flexible term offices and workspaces) and the Devonshire Building (home to a gym and other enterprises)).
- 2.5 Whilst maintaining a long-term perspective, CST manages a diverse range of landholdings to achieve corporate and wider social and environmental objectives. It has thereby identified that the best long-term use for the land subject to this application would be for residential development. This will help deliver its own objective to deliver 1,000 new homes over the next ten years, and also meet the needs and aspirations of the local community and wider Borough, subject to securing a planning permission that is both attractive to the development market and commercially viable.

### The Site

- 2.6 This section provides a summary of key features of the Site. The Site is more fully described within the Design and Access Statement submitted as part of the application.
- 2.7 The Site is located at Mastin Moor, to the south of Worksop Road (A619) to both the east and west of Bolsover Road, with part of the Site extending southwards to Woodthorpe Road. It encompasses some 46.2ha of mainly agricultural land. The overall Site forms a shallow valley sloping from the ridge lines along Worksop Road and Woodthorpe Road towards a watercourse that runs in a westerly direction through the Site. The highest part of the Site is around 119m above ordnance datum (AOD) in the north-east with the lowest part in the south-west at around 56m AOD.
- 2.8 The Site is primarily comprised of undulating arable fields with limited features. The main features of note include:
- An unnamed watercourse which flows in a westerly direction through the Site;
  - Bolsover Road which runs through the Site on a north-south axis;
  - Pumphouse Farm (dwelling and curtilage) which is surrounded by the development proposal but does not form part of it;

- Field boundaries which are a mixture of hedgerows, stone walls and woodland; and
- Isolated trees.

2.9 The main part of the settlement of Mastin Moor is located to the north of the Site, on the northern side of Worksop Road. The settlement of Woodthorpe is located generally to the west of the Site. The Site abuts a limited number of residential properties, as well as the Mastin Moor Community Garden.

**Photo 1 View Over Site from South-eastern Corner (adjacent Woodthorpe Road) looking towards Woodthorpe**



**Photo 2 View Over Site from Bolsover Road (Close to Community Garden) looking towards Woodthorpe**





**Photo 3 View Over Site from Bolsover Road looking North-west towards Worksop Road)**



**Photo 4 View Over Site from Near North-eastern Boundary Adjacent to Worksop Road looking towards Bolsover Road and Woodthorpe**



## Design Process

- 2.10 CST first considered residential development options for its land at Mastin Moor in 2011 when it was identified in the Strategic Housing Land Availability Assessment by Chesterfield Borough Council. This formed part of the evidence base for what was at the time the emerging Local Plan: Core Strategy. CST appointed planning and masterplan specialists to explore these options. Outputs from that process formed part of CST's response to consultation on the Local Plan: Core Strategy.
- 2.11 Following adoption of the Local Plan: Core Strategy in 2013 which confirmed Mastin Moor as a focus for regeneration and growth, CST appointed an expanded team of specialists. Resulting technical surveys and reports contributed to a detailed appreciation of the development opportunity and potential constraints. These informed a masterplan-led approach that fully explored design options. The process had regard to the wider setting of the Site and existing development in the locality.
- 2.12 Draft proposals were subject to extensive consultation with CBC, Derbyshire County Council and Staveley Town Council. Meetings were held with groups representing local residents and interest groups including Friends of Mastin Moor, the Woodthorpe Village Community Group and Mastin Moor Gardens and Allotments (formerly Mastin Moor Allotments Association). The resulting proposals were presented at two community consultation events in July 2016, held at the Eventide Rest Room (Mastin Moor) and the Albert Inn (Woodthorpe), and were available to view at the same time on a website.

- 2.13 An outline planning application for 650 dwellings and other developments was subsequently submitted to CBC (ref. CHE/17/00469/OUT) in June 2017. Contrary to the unequivocal recommendation of the Officer's report, and despite no objections being received from any statutory consultees, the application was refused by the Council's Planning Committee in October 2019. At the time of writing, an appeal against that refusal remains extant.
- 2.14 Feedback received during the course of the determination of the above application has informed the current proposals. The design process that has led to the proposals for which planning permission is now sought is more fully described within the Design and Access Statement.

## **Development Proposal**

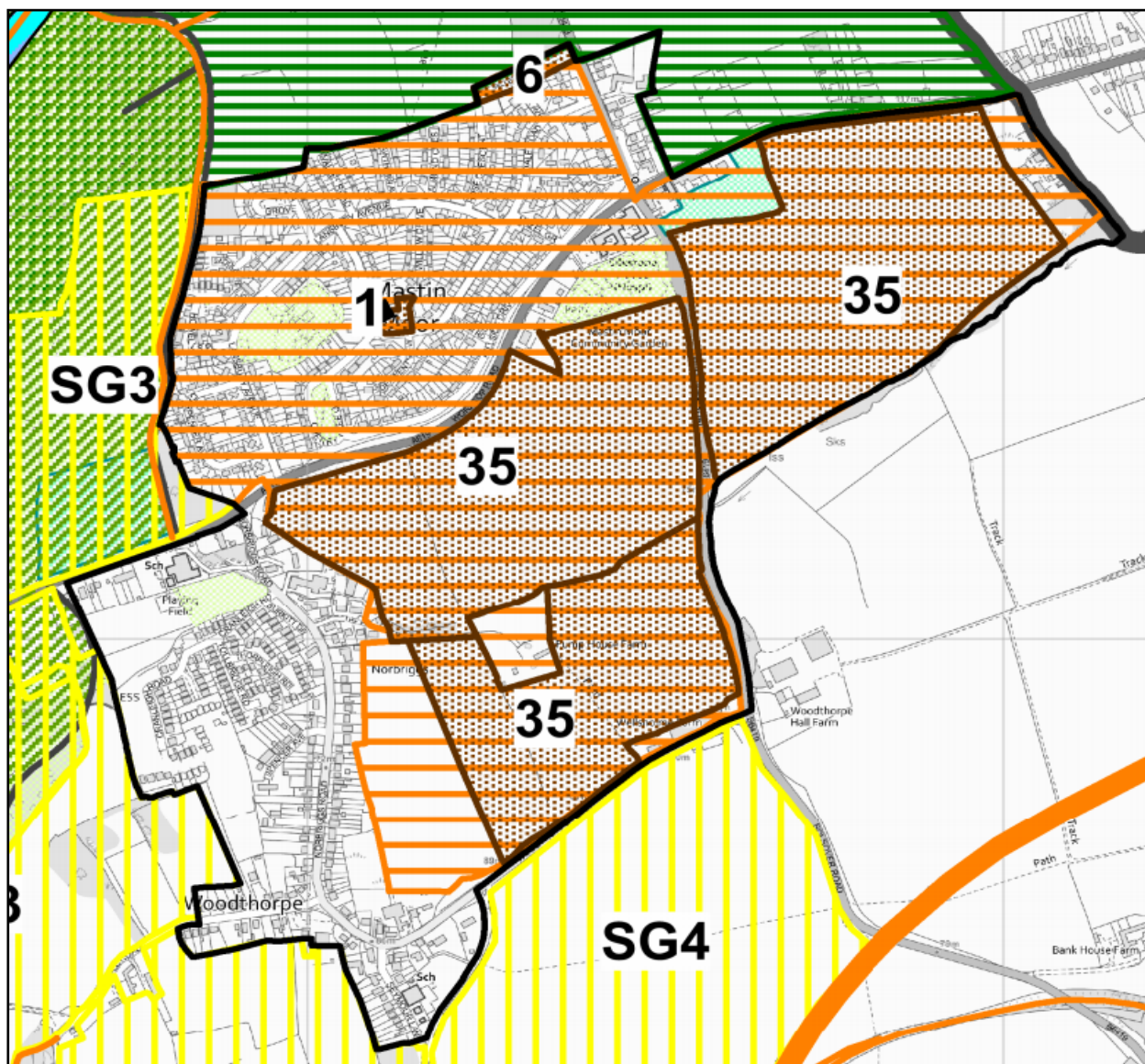
- 2.15 The proposed development seeks outline planning permission for residential development of up to 650 dwellings, a residential care facility with extra care, a Local Centre (including local retail, health facilities, leisure facilities, other local facilities and services and offices), open space, community garden extension, community building, parking and associated infrastructure and earthworks with all matters reserved except access. Details of scale, layout and landscaping are reserved for future consideration.
- 2.16 For illustrative purposes, an indicative layout has been prepared to show how the Site could be developed. Further explanation of the design principles that have been incorporated into the proposals, and how the design has been informed and influenced by the comprehensive suite of technical information and analysis, is set out in the Design and Access Statement.
- 2.17 Key aspects of the proposal include:
- Up to 650 dwellings located on land to the south of Worksop Road (east and west of Bolsover Road) extending to Woodthorpe Road;
  - A residential care facility with extra care;
  - A Local Centre (including local retail, health facilities, leisure facilities, other local facilities and services, offices) located adjacent to Worksop Road;
  - A new signal-controlled junction on Worksop Road providing access to the new Local Centre and residential areas, incorporating pedestrian and cyclist crossing facilities;
  - New priority-controlled junctions on Bolsover Road and Woodthorpe Road;
  - An extension to the Community Garden (approximately doubling its existing size), including provision for a new community building and associated car park;
  - Significant new areas of parkland, play areas and other open space;
  - Retention of existing hedgerows and trees wherever possible;
  - Additional landscape planting and ecological enhancements;
  - New walking and cycling connections;
  - New drainage infrastructure including surface water storage ponds; and
  - Financial contributions to allow the expansion of existing local services including Norbriggs Primary School.
- 2.18 The proposal, therefore, comprises a high quality development scheme designed to:
- address multiple deprivation issues at Mastin Moor;
  - help regenerate the area in line with key related Local Plan policy;
  - respect but integrate with the distinct communities of Woodthorpe and Mastin Moor; and

- acknowledge and address the specific physical challenges and constraints of the site (e.g. topography, drainage).

## Planning Policy

- 2.19 Section 38 (6) of the Planning and Compulsory Purchase Act 2004 requires that the determination of planning applications is undertaken in accordance with the development plan, unless material considerations indicate otherwise. The relevant document for this application is the Chesterfield Local Plan (2020) (the Local Plan).
- 2.20 The Local Plan allocates the site for development by way of Policy CLP3 Flexibility in Delivery of Housing. Table 4 within the Local Plan references the site as H35 (Land South of Worksop Road, and East and West of Bolsover Road, Mastin Moor), having a capacity of 650 dwellings, the extent of which is shown on the Local Plan Policies Map. Policy RP1 Regeneration Priority Areas sets out further specific requirements for any development within site H35.
- 2.21 Other relevant policies of the Local Plan include: CLP1 Spatial Strategy; CLP2 Principles for Location of Development; CLP4 Range of Housing; CLP6 Economic Growth; CLP8 Vitality and Viability of Centres; CLP9 Retail; CLP10 Social Infrastructure; CLP11 Infrastructure Delivery; CLP13 Managing the Water Cycle; CLP14 A Healthy Environment; CLP15 Green Infrastructure; CLP16 Biodiversity; Geodiversity and the Ecological Network; CLP17 Open Space; Play Provision; Sports Facilities and Allotments; CLP20 Design; CLP21 Historic Environment; and CLP22 Influencing the Demand for Travel.
- 2.22 An extract from the Local Plan Policies Map showing the extent of the allocation and the wider Mastin Moor Regeneration Priority Area is shown below.

**Figure 1 Local Plan Policies Map (extract)**



2.23 The National Planning Policy Framework (NPPF) ‘sets out the Government’s planning policies for England and how these are expected to be applied’. Paragraph 10 of the NPPF sets out that ‘at the heart of the [NPPF] is a presumption in favour of sustainable development’. Paragraph 11 states that ‘For decision-taking this means:

c) approving development proposals that accord with an up-to-date development plan without delay; or

d) where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:

i. the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or



*ii. any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole.'*

## **Planning Assessment**

- 2.24 The proposal performs well against relevant Local Plan policies. In particular, it will deliver development in accordance with Policies CLP1 Spatial Strategy, CLP2 Principles for Location of Development, Policies CLP3 Flexibility in Delivery of Housing and Policy RP1 Regeneration Priority Areas.
- 2.25 It is also considered that there are no material considerations that indicate anything other than the fact that the LPA should determine the application in line with the extant plan as outlined above.
- 2.26 In addition, key benefits of the proposal would include:
- Provision of new, high quality housing;
  - New development in an area with acknowledged regeneration needs;
  - Greater variety of housing type and tenure (including Affordable Housing) to meet the diverse needs of the local community (including housing to buy and rent);
  - Extension of the Community Garden (approximately doubling its existing size) including provision for a new community building and parking area;
  - Improved local services and facilities (including provision for retail, health and other local and community services within a new Local Centre);
  - Significant new areas of parkland, play areas and other open greenspace available to existing and new residents;
  - New housing in a location where future residents will have a realistic choice of walking, cycling or using public transport, in preference to using private motor vehicles;
  - Additional capacity at local schools;
  - Opportunities for skills and learning through training programmes during construction and operational phases of the development;
  - New employment opportunities during construction and operational phases of the development;
  - Additional landscape planting and ecological enhancements;
  - New traffic signal-controlled junction on Worksop Road to include pedestrian and cyclist crossing facilities; and
  - On-site water storage to help reduce existing off-site flood risk.
- 2.27 The proposal will, therefore, provide opportunities and benefits for all sections of the local community, including existing and future residents. Benefits will accrue in the short- and longer-term. It will help to overcome issues that can lead to deprivation and will contribute to regeneration in line with Local Plan objectives.

### 3. BADGERS, THEIR ECOLOGY AND LEGISLATION

---

#### Background

- 3.1 PAA was commissioned by CST to conduct a suite of surveys at Land off Worksop Road, Mastin Moor; this was recommended following an extended Phase 1 habitat survey of the Site which identified a main badger sett just outside the Site boundary (PAA 2017). An update badger survey was commissioned in 2020. The surveys are to inform a planning application for a residential-led development scheme.
- 3.2 This report presents the results of a badger survey completed in August 2015 and updated in 2020, and identifies the constraints and opportunities in the context of the proposed development.
- 3.3 Badgers are vulnerable to illegal persecution and it is generally accepted that it is undesirable to advertise the locations of badger setts. The contents of this report should, therefore, be treated as **strictly confidential** and should only be released to individuals and parties with a *bona-fide* interest.
- 3.4 The objectives of the badger survey were to:
- locate/confirm any badger setts on or close to the Site;
  - determine, as far as possible, the social configuration and links between any setts found;
  - identify commuting routes and favoured foraging areas;
  - identify the impacts of development on badgers and their setts; and
  - provide recommendations to manage land for badgers in the future.

#### Legislation and Best Practice Relating to Badger

- 3.5 Badger are not an endangered species but have a long history of persecution and cruelty. As such, badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended), which makes it illegal for any person to kill, injure or take a badger (see Appendix 1). It is also an offence to destroy damage or obstruct a badger sett, or to disturb a badger whilst it is within a sett. There are also additional offences relating to possession of, buying and selling a dead badger, or anything derived from a badger, and causing a dog to enter a sett.
- 3.6 The Act defines a sett as 'any structure or place which displays signs of current use by a badger'. Setts are defined by English Nature (1995) as 'usually underground tunnel systems providing shelter for badgers, but may include other structures used by badgers, such as hay bales, drainage culverts or cellars'. 'Current use' is more difficult to define but is usually interpreted by the presence/absence of badger field signs over several observations of the sett (Natural England 2006).
- 3.7 The NPPF provides guidance for local authorities on the content of the Local Plans and is a material consideration in determining planning applications. Briefly, with an overall focus on sustainable development, the NPPF states that developments should aim to engender positive outcomes for habitats and biodiversity, with a particular focus on the maintenance and creation of ecological networks. Furthermore, the NPPF also states that any planning proposals for which significant negative impacts on biodiversity cannot be avoided, mitigated or compensated for should be refused. The NPPF states that the planning system should contribute to and enhance the natural environment through a range of actions, including:
- protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils;

- recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services; and
- minimising impacts on biodiversity and providing net gains for biodiversity including establishing coherent ecological networks that are more resilient to current and future pressures.

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

- 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
- 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.

3.9 Local authorities in England are required to consider the likelihood of any proposed development adversely affecting badgers' foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties amongst badger populations.

3.10 The basic requirements for new developments include:

- any scheme must be based on competent advice and appropriate survey;
- sett exclusion and destruction is limited to the period between the beginning of July and end of November to avoid undue stress during the breeding season on the badgers;
- large development schemes should take into account the effect on territory area of the sett, and provide artificial setts, enhanced feeding areas and access routes for badgers before, during and after building work;
- small developments should ensure paths are not obstructed, and that seasonally important resources, such as water and feeding areas, are not destroyed; and
- destruction of main setts should only be considered where all other options have been examined and failed.

## Badger Biology

3.11 Badgers are common and widespread in Britain. In the UK, it is estimated that there are 288,000 badgers, 190,000 of which are in England (Battersby 2005).

3.12 Badgers typically live in social groups. Social group size can vary considerably but typically averages five animals per group (Neal and Cheeseman 1996). Badgers live in complexes of underground tunnels and chambers called setts, which are excavated in a variety of locations including woodlands, hedge banks, drainage ditches, quarries, railway embankments or other suitable locations with well drained soil that is suitable for digging (Neal and Cheeseman 1996).

3.13 Badgers are nocturnal and their diet is principally composed of earthworms, which account for approximately 75% of their food intake, these being caught in pasture/short grassland or in woodland, particularly on wet nights. Badgers require a steady supply of food throughout the year, so when conditions are unsuitable for catching worms other foods, such as fruit, bulbs, cereals, root crops, insects, amphibians, rabbits and other small mammals, become more important (Kruuk 1989, Neal and Cheeseman 1996).

3.14 Badgers favour a mosaic of habitats for feeding, including managed/unmanaged grassland and scrub/woodland. In comparison to other habitats, managed grasslands are particularly important; studies show that earthworms are available nearer to the surface where grassland is

of a short sward. Unmanaged grassland and tall herbs offer alternative foraging opportunities, in that the vegetation structure provides a habitat for small mammals, a suitable alternative food source when earthworms are in short supply. Shrub and woodland may support fruit and nut bearing species, offering wider foraging opportunities throughout autumn.

- 3.15 Badger territories are centred on a main sett but there may also be several auxiliary setts within the badger's territory (the different types of sett are described in Section 2) which are used at different times of the year. Territory sizes can vary from as little as 15ha to over 300ha and are often dependent upon the availability of suitable foraging habitat and the proximity of other neighbouring badger social groups. Larger territories are found where badger groups are widely spread and are often associated with patchily distributed or sub-optimal foraging areas. Territorial boundaries of social groups are typically marked by dung pits or latrines and are regularly patrolled and actively defended from other trespassing badgers (Kruuk 1989).
- 3.16 Mating can take place at any time of year but the main peak period is during the spring. Normally only the dominant female in a social group breeds each year. Litters of two to three cubs are born in February or March, regardless of the time of mating. This is due to delayed implantation which ensures that cubs are born at the most appropriate time of year to maximise their chances of survival. Cubs are able to forage independently after approximately 15 weeks (Kruuk 1989, Neal and Cheeseman 1996).



## 4. METHODS

---

### Badger Surveys

- 4.1 The badger survey was conducted on 24th August 2015 by Sacha Rogers (MCIEEM<sup>1</sup>) and updated by Caroline Boffey (ACIEEM<sup>2</sup>) on 11<sup>th</sup> and 20<sup>th</sup> August 2020.
- 4.2 The survey method was based on the standard approach detailed in the Mammal Society publication *Surveying Badgers* (Harris *et al.* 1991) and used during the National Badger Survey (Cresswell *et al.* 1990) and involved searching for field signs associated with badgers, including setts, runs, foraging activity, latrines and footprints. Other signs searched for included scratching posts and hairs caught on fences. Where badger setts were found, the number of entrances was recorded along with activity levels and sett status. Sett status was categorised as follows:
- **Main sett** – A sett within a badger territory that appears to be the largest (usually with at least five holes) and the most well used, with much activity in the vicinity, is categorised as a main sett. Main setts always have active badger runs leading away from them and are normally marked by latrines. Social groups have one main sett, which is the most important sett in the territory. It is used throughout the year and is the main breeding sett.
  - **Annexe setts** – Setts are categorised as annexe setts where they are assumed to form a part of the main sett area but are unlikely to be directly linked by an underground passage to the main sett either due to a barrier (e.g. separated by a watercourse or ditch) or by distance. Annexe setts are normally linked to the main sett by a well used path and lie within 150m of a main sett entrance.
  - **Subsidiary setts** – Setts that offer an alternative large sett complex to the main sett are categorised as subsidiary setts. Often marked by latrines, subsidiary setts are normally at least 50m from the main sett and are not always obviously linked by a well used path to the main sett (unlike annexe setts). Subsidiary setts often exhibit moderate levels of activity, are larger than outlier setts but smaller than main setts.
  - **Outlier sett** – These setts often comprise of just one or two holes. They are used infrequently and can be found at the boundaries of a badger social group's territory.
  - **Disused and Inactive setts** - A badger sett that appears to have been abandoned by a badger social group for at least a year is described as 'disused'. These differ from 'inactive' setts, which are judged to be temporarily disused. Disused setts are often completely blocked with vegetation or have collapsed.

### Survey Limitations

- 4.3 The surveys were conducted in August, which is considered to be a sub-optimal time of year for badger surveys, given that vegetation is usually dense and can result in restricted assessment of some areas of a site, in particular hedgerows. Also, badger activity is generally highest when they are more territorial in spring and autumn, therefore, badger use on site may not be fully understood.
- 4.4 The survey was conducted within and immediately adjacent to the Site boundary only, due to access restrictions. In order to fully understand the use of the Site and surrounding area by

---

<sup>1</sup> Member of Chartered Institute of Ecology and Environmental Management (CIEEM)

<sup>2</sup> Associate member of CIEEM

different badger clans, a wider survey should be undertaken to include areas up to 500m from the identified main sett. In this case it is considered likely that all of the badger activity within the Site is associated with one main sett and the lack of off-site survey data is not a significant constraint in so far as identifying neighbouring clans is concerned. However, given the lack of data in the surrounding area, it must be assumed that the proposed development site could represent the entire foraging resource for this badger clan, and recommendations for mitigation are made within this context.

CONFIDENTIAL

## 5. RESULTS

### Desk Study

- 5.1 In 2015, Derbyshire Wildlife Trust provided two records of badger setts (Table 1), all recorded badger setts were more than 500m from site. No further records were provided in 2020.

**Table 1 Badger Sett Records Within 2.5km of the Site**

OS Grid Ref	Distance from Site	Location	Date
SK 465 765	>870m	Robinson's Lumb	Unknown
SK 447 740	c. 600m	Markham Employment Growth Zone	2012

### Badger Survey

#### *The Site*

- 5.2 The Site consists of large cereal fields, primarily oilseed rape with wheat grown in the southern-most field in 2015 and oats and wheat in 2020. The fields are bordered with mature, species-poor hedgerows dominated by hawthorn. A small stream runs through the Site from east to west. It is bordered by woodland in the eastern section of the site with a small broad-leaved woodland at the far eastern end. Bolsover Road dissects the Site in a north-south direction, with Worksop Road on the northern boundary. Residential properties are located beyond Worksop Road and, to the west of the Site boundary, mixed farmland is located to the east and south of the Site.

#### *Evidence of Badger*

- 5.3 The location of all badger setts and evidence recorded in 2020 is presented in Figure 2 and described below.

#### **Setts**

##### ***Sett 1 – Active Main Sett***

- 5.4 This sett was observed in 2014 and is located within woodland to the east of the Site boundary, at approximately 60-70m outside the Site boundary. The sett entrances are found within the woodland edge and the adjacent field boundary. Four active entrances and three disused entrances were recorded within the woodland.
- 5.5 During the extended Phase habitat 1 survey, on 20th May 2014, the sett appeared to be more active, with six very active holes within the woodland. Four very active holes in the field boundary (to the east) and three additional defunct holes were observed during the current survey.
- 5.6 Pathways to and from the sett extend east/west along the watercourse which runs east to west through the site.
- 5.7 In 2020 the sett area was not inspected closely, however, no signs of use by badgers such as mammal paths or latrines were observed in the area of the Site closest to this sett.

### **Sett 2 – Active Subsidiary Sett (NGR: SK457 753)**

- 5.8 Sett 2 is located inside the Site boundary within a mature hedgerow approximately 550m to the west of the main sett, with pathways leading between the two setts along the watercourse which runs east to west through the Site. It consists of three holes, which appeared to be active. A number of rabbit burrows are also located in proximity to this sett.

### **Sett 3 – Active Outlier Sett (NGR: SK451 752)**

- 5.9 Sett 3 consists of one hole located within a mature hedgerow within the Site boundary in the western section of the Site. It is approximately 1km to the west of the main sett.
- 5.10 Two setts, S2 and S3, identified during detailed badger survey in 2015 were relocated in 2020 within the site. S2 is a large, single hole with moss and vegetation at the entrance, and cobwebs, and is considered to be inactive. Sett S3, a single entrance hole of an outlier sett within mature hedgerow, has ivy partially growing over the entrance, cobwebs, and a lack of paths leading to it, and is, therefore, also considered to be currently inactive

### **Latrines, Pathways and Other Signs**

- 5.11 Evidence of badger activity on Site, other than setts, was relatively scant.
- 5.12 In 2015, two latrines were found adjacent to hedgerow H22 which runs alongside Worksop Road on the northern Site boundary, which may indicate that the road is a territorial boundary - a common occurrence with badgers. A further latrine was found along hedgerow H3, close to a badger pathway and foraging activity. Badger push throughs and foraging signs were found throughout the Site.
- 5.13 In 2020, a mammal path was noted alongside the central area of stream, west of Bolsover Road, as in 2017 and several push-through places in hedgerows as recorded previously, although fewer than present in 2015, along with several new weak paths and push-throughs, and a latrine at the far north-east corner of the site containing dried badger dung.

## 6. EVALUATION

---

- 6.1 In 2015 two small subsidiary and outlier setts (S2 and S3) were recorded on the Site, along with an active main sett (S1) located outside the Site boundary. These setts were all active at the time of the 2015 survey.
- 6.2 During the update survey in 2020, the two setts on site were re-located but appeared to be now disused. There was no evidence of badgers gaining access from the former large active sett just off-Site in the woodland to the south-east, however, the woodland was not able to be accessed at this time. No other setts were found. Badger activity on Site, therefore, appears to have reduced over time.
- 6.3 During both surveys, a small number of latrines and pathways were found throughout the Site, however, clear territory boundaries were not able to be confirmed at this stage. It is thought possible that Worksop Road may be a northern boundary for this clan. Two sett records were returned in the 2015 desk study, these setts were located to the north-east and south-west of the Site. It is possible that the closest of these setts, to the north-east above Worksop Road, may be the closest main sett to Sett 1, at approximately 1km distance from the sett and approximately 850m to the north-east of the Site boundary.
- 6.4 The habitats within the Site represent sub-optimal foraging resources for badgers, in particular where arable fields are planted up to the hedgerows, leaving a very narrow field boundary for badgers to forage and commute. Despite the narrow field boundaries, the hedgerow networks are considered to form important commuting and foraging routes for badgers across the Site and into the wider countryside. The corridor of the watercourse likely forms a particularly important foraging/dispersal route.
- 6.5 The Site is large and is likely to represent a large proportion of a badger clan territory. It is, therefore, important that the development proposals retain optimal foraging habitat which badgers can gain access to and that commuting/dispersal corridors are retained to provide a link between the setts and foraging areas.

## 7. IMPACTS OF DEVELOPMENT AND MITIGATION

---

### Potential Impacts to Badgers and their Setts

- 7.1 Set 1 is located approximately 60-70m from the Site boundary and will not be directly affected.
- 7.2 Construction machinery used within 30m of a sett may compromise sett tunnels (possible tunnel collapse due to ground vibration), therefore, Setts 2 and 3 may be subject to disturbance during the construction process. Depending upon the final design layout, Setts 2 and 3 may require closure, either permanently or temporarily, to ensure badger safety during construction operations.
- 7.3 Following completion of the construction phase it is expected that disturbance levels in the area around the setts would be increased due to noise and physical disturbance from residents and domestic pets (e.g. dogs). The use of boundary fencing to discourage people and dogs from entering the woodland where the main sett is located would be beneficial, with the provision of safe exit/entry points for the badgers themselves. If disturbance is minimised, it is likely that the animals will habituate to the presence of the residential development as badgers are often associated with gardens and human habitation generally.
- 7.4 The proposed development would result in the loss of up to 46.2ha of cereal fields which are likely to be used by the badger social group for foraging and for access to the wider countryside. New access roads through the site would potentially increase the risk of road mortality.
- 7.5 The proposed development may provide additional foraging opportunities for badgers, including areas of managed grassland associated with public open space and residential gardens, dependent on whether these areas are accessible to badgers.
- 7.6 A detailed understanding of the significance of habitat losses and any loss of access routes to the wider landscape is difficult to evaluate with confidence without additional information on the use of surrounding areas by badgers. It is, therefore, possible that the clan may lose a significant proportion of their territory to the development proposals, and the following recommendations are made with this assumption in mind.

### Recommended Mitigation and Compensation Measures

#### ***Sett Closure and Protection During Construction Phase***

- 7.7 It is recommended that Setts 2 and 3 are retained with an undisturbed buffer zone of at least 30m where feasible. The buffer zones can be integrated within areas of public open space. If it is not possible to retain the setts *in situ*, a Natural England licence would need to be obtained and the setts closed down between 1st July and 31st October.
- 7.8 Limited use of hand tools can be permitted under supervision of an appropriately experienced ecologist within the 30m buffers. If it is not possible to avoid disturbance to badgers by applying a suitable buffer zone, then a licence to disturb badgers would need to be applied for.
- 7.9 Set 1 does not require any particular measures to safeguard the sett during construction due to distance from the construction footprint. However, habitat connectivity to foraging areas will be required at the post-construction phase (see below).
- 7.10 Given the dynamic nature of badgers, it is possible that inactive sett holes could become re-occupied at any time and that new setts, in new locations, could be created quickly, even overnight. In light of this, it is advised to re-survey for badger activity two months before works are due to commence to ensure that mitigation measures/licensing requirements can be updated as required.

## ***Recommended Mitigation and Compensation Measures for Operational Phase***

- 7.11 A number of additional measures are recommended for inclusion within the development layout to retain suitable badger foraging habitats and corridors and to minimise disturbance to help maintain the local badger population:
- erection of boundary fencing along the eastern site boundary adjacent to the woodland. Containing the main badger sett is recommended to discourage access by people/dogs. Suitable badger runs/gaps should be incorporated to allow access by badger;
  - retain existing setts with a 30m buffer zone;
  - retain existing boundary hedgerows and internal hedgerows with suitable undisturbed buffer zones (3-5m) to maintain connectivity of badger foraging habitats. These can be incorporated into areas of public open space and managed as grassland;
  - retain a substantial buffer zone (8-10m) along the stream corridor as a key foraging/commuting corridor for badger and other wildlife (particularly bats and breeding birds), to be managed as public open space;
  - incorporate areas of grassland within the site layout, in particular amenity grassland, under a regular mowing regime, which would enhance the earthworm population for badgers. This would act as positive compensation for the loss of the field interiors and could tie-in with landscape management on site;
  - selected areas of the buffer/boundary habitats could be left as unmanaged grassland and tall herbs to ensure that badgers can forage for small mammals when earthworms are in short supply (i.e. in dry summer periods);
  - plant areas of landscaping with native fruit and nut bearing shrubs to ensure that badgers and other wildlife have a food supply over the autumn and winter period. It should be noted that ornamental species are of no or limited value to British wildlife; and,
  - consider inclusion of small-scale bunds to provide opportunities for badgers to excavate new setts.
- 7.12 With the recommended mitigation and compensation measures in place it is anticipated that there would be no significant harm to the local badger population.

## 8. REFERENCES

---

- Battersby, J. (ed). 2005. *UK Mammals: Species Status and Population Trends*. First Report by the Tracking Mammals Partnership. JNCC/Tracking Mammals Partnership.
- Cresswell, P., Harris, S., & Jeffries, D.J., 1990. *The history, distribution, status and habitat requirements of the badger in Britain*. Nature Conservancy Council.
- English Nature, 1995. *Species Conservation Handbook*. English Nature.
- Harris, S., Cresswell, P., and Jefferies, D., 1991. *Surveying Badgers*. An occasional publication of the Mammal Society.
- Kruuk, H., 1989. *The Social Badger*. Oxford University Press.
- Natural England, 2006. *Guidance on 'Current Use' in the definition of a badger sett*. Natural England.
- Neal, E. and Cheeseman, C., 1996. *Badgers*. T & D Poyser Ltd.
- PAA, 2017. *Mastin Moor. Extended Phase 1 Survey Report*. Penny Anderson Associates Ltd unpublished report for Chatsworth Settlement Trustees.



## 9. ABBREVIATIONS

---

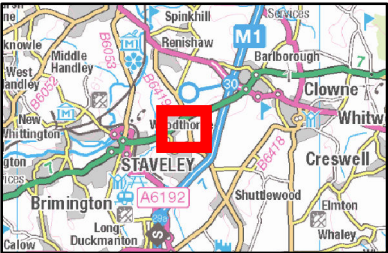
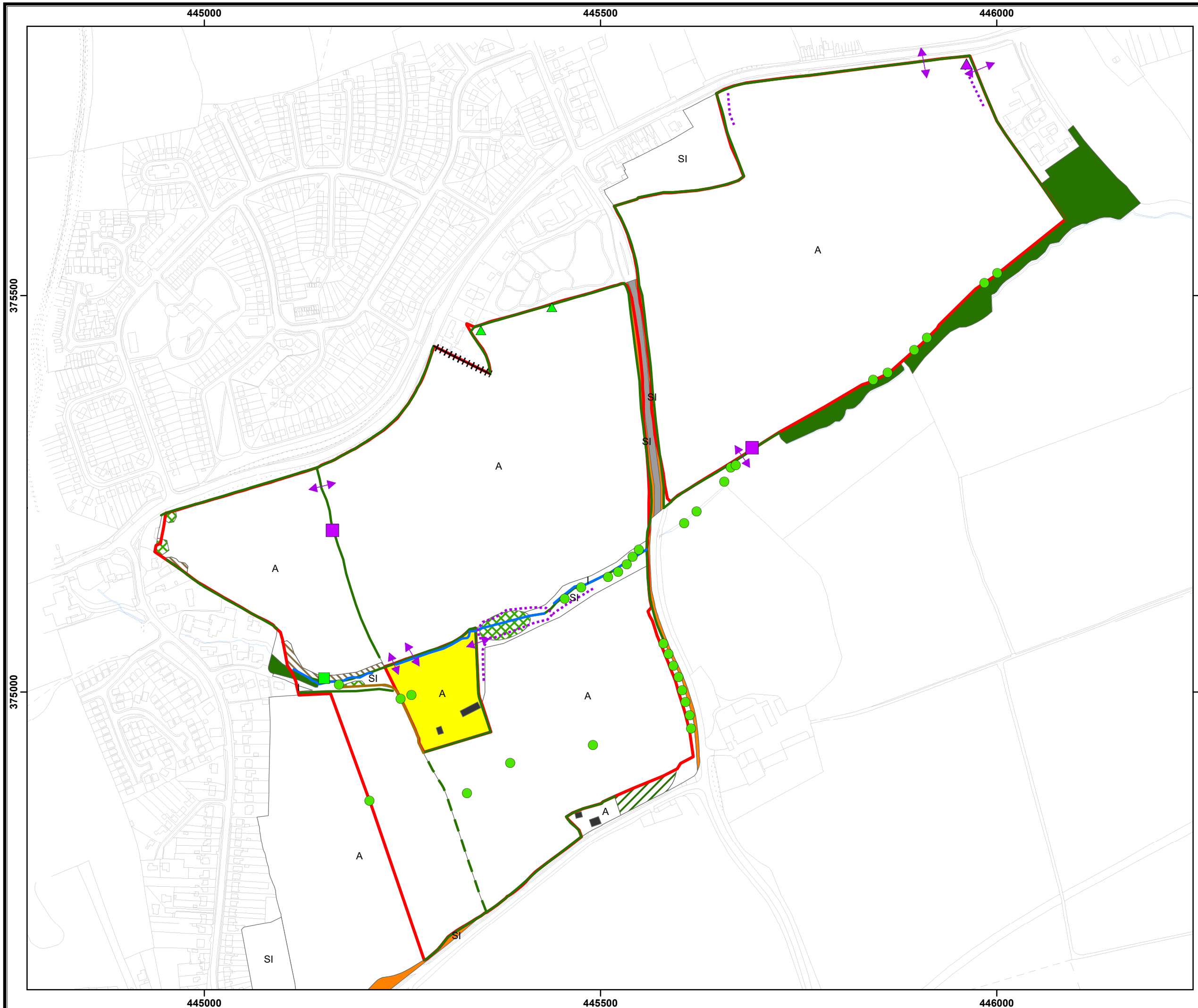
AOD	Above Ordnance Datum
CBC	Chesterfield Borough Council
CIEEM	Chartered Institute of Ecology and Environmental Management
CST	Chatsworth Settlement Trustees
DPMML	Devonshire Property (MM) Limited
LPA	Local Planning Authority
NPPF	National Planning Policy Framework
PAA	Penny Anderson Associates Ltd

CONFIDENTIAL

---

FIGURE

---



**Legend**

- Planning boundary
- Latrine
- Badger sett
- Push-through
- Badger path

**Type**

- Broadleaved woodland - semi-natural
- Broadleaved woodland - plantation
- Scrub - dense/continuous
- Neutral grassland - semi-improved
- I Improved grassland
- SI Poor semi-improved grassland
- Tall herb/ruderal
- A Arable
- A Amenity grassland
- Building
- Hardstanding
- Running water
- Intact hedge - species-poor
- Defunct hedge - species-poor
- Fence
- Track
- Scattered trees
- Japanese Knotweed
- Himalayan Balsam

British National Grid  
Projection: Transverse Mercator  
False Easting: 400000.000000  
False Northing: 100000.000000  
Central Meridian: 2.000000  
Scale Factor: 0.999601  
Latitude Of Origin: 49.000000

ISO A3

Metres

0 20 40 80 120

Penny Anderson Associates Ltd  
Parklea, 60 Park Road,  
Buxton, Derbyshire, SK17 6SN.  
Telephone 01298 27086

Project Name  
Mastin Moor

Discipline  
Ecology

Title:  
**Badger Survey Results**

Scale 1:4,500	Drawing No. Figure 2
Drawn By MDM	Originator CB
PAA Ref. G:\CHST04_Mastin_Moor\Maps\Figures\	Date 08/10/2020
	Revision 1.0

Contains OS data © Crown copyright [and database right] (2019)

CHST04\_4\_Badger\_MDM\_061020.mxd

---

## **APPENDIX 1**

### **Summary of the Legislation Relating to Badgers and Their Setts**

---

## SUMMARY OF THE LEGISLATION RELATING TO BADGERS AND THEIR SETTS

---

Badgers (*Meles meles*) are not an endangered species but have a long history of persecution and cruelty. As such, badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended), which makes it illegal for any person to kill, injure or take a badger. It is also an offence to destroy, damage or obstruct a badger sett, or to disturb a badger whilst it is within a sett. There are also additional offences relating to possession of, buying and selling a dead badger, or anything derived from a badger, and causing a dog to enter a sett.

The Act defines a sett as 'any structure or place which displays signs of current use by a badger'. Setts are defined by English Nature (1995) as 'usually underground tunnel systems providing shelter for badgers, but may include other structures used by badgers such as hay bales, drainage culverts, or cellars'. 'Current use' is more difficult to define but is usually interpreted by the presence/absence of badger field signs over several observations of the sett (Natural England 2006).

In addition, the National Planning Policy Framework (NPPF 2019) has an overall focus on sustainable development, and states that developments should aim to engender positive outcomes for habitats and biodiversity, with a particular focus on the maintenance and creation of ecological networks. Furthermore, the NPPF also states that any planning proposals for which significant negative impacts on biodiversity cannot be avoided, mitigated or compensated for should be refused. Reference is made to Circular 06/2005 *Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System* in respect of statutory obligations for biodiversity and geodiversity conservation.

The commitment to preserving, restoring or enhancing biodiversity is further emphasised for England and Wales in Section 40 of the NERC Act 2006.

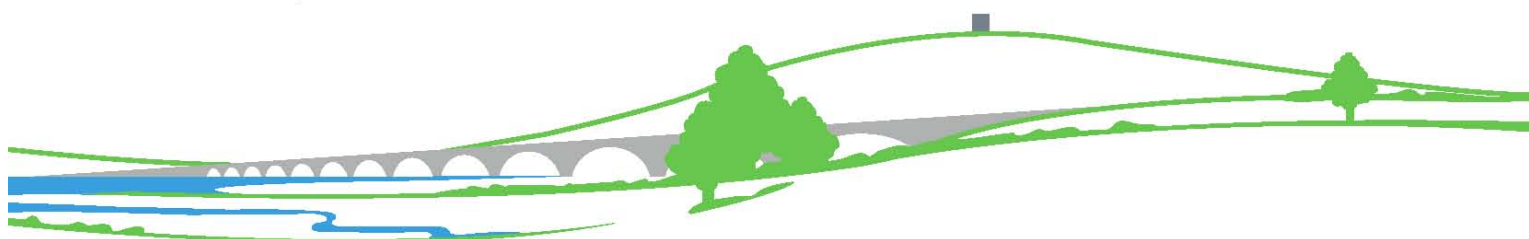
Local authorities in England are required to consider the likelihood of any proposed development adversely affecting badgers' foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties amongst badger populations. The planning guidance for Wales, Technical Advice Note (Wales) 5, identifies the need to comply with the Protection of Badgers Act 1992.

English Nature, 1995. *Species Conservation Handbook*. English Nature, Peterborough.

Natural England, 2006. *Guidance on 'Current Use' in the definition of a badger sett*. Natural England, Peterborough.

*Please note: the above text provides a brief summary of the legislation in relation to badgers for England and Wales and the original Act and amendments should be referred to for the precise wording.*

Penny Anderson  
Associates Ltd  
CONSULTANT ECOLOGISTS



Park Lea, 60 Park Road, Buxton, Derbyshire SK17 6SN