

**Annex I:
Invertebrate Scoping Report**

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PRELIMINARY INVERTEBRATE SURVEY OF DEEPCAR



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1 Summary

- This report describes a preliminary invertebrate survey of an area at Deepcar, based on a single visit on 6th August 2020.
- 160 species of invertebrate were recorded, covering a wide range of taxonomic groups.
- No invertebrate Species of Principal Importance (Section 41 species) were recorded.
- Only one 'Key Species' (i.e., species with rare, scarce, threatened or near threatened conservation status) was recorded. The bug *Lygus pratensis* was categorised as Rare (RDB3) in 1992 but has since become common and widespread. Hence, the preliminary survey found no accurately-rated Key Species (0.0% of the total species list of 160).
- Pantheon analysis yielded Species Quality Index (SQI) values ranging from very low to low.
- In a national context, the preliminary assessment can confidently state that the Deepcar survey area appears to be of little importance for invertebrate conservation.
- In the author's judgement, it is very unlikely that a full survey of the Deepcar survey area would result in a substantially different assessment. Thus, a full survey would be likely to conclude that the Deepcar survey area is of little importance for invertebrate conservation.
- it would be desirable if the large, mature Ash tree, standing above the stream bank, could be retained within the proposed development.

2 Introduction

This report describes a general invertebrate survey of a survey area at Deepcar, within the metropolitan borough of Sheffield, South Yorkshire (Figure 1). The survey area lies entirely within grid square SK2797, with a central point at approximately SK277974.

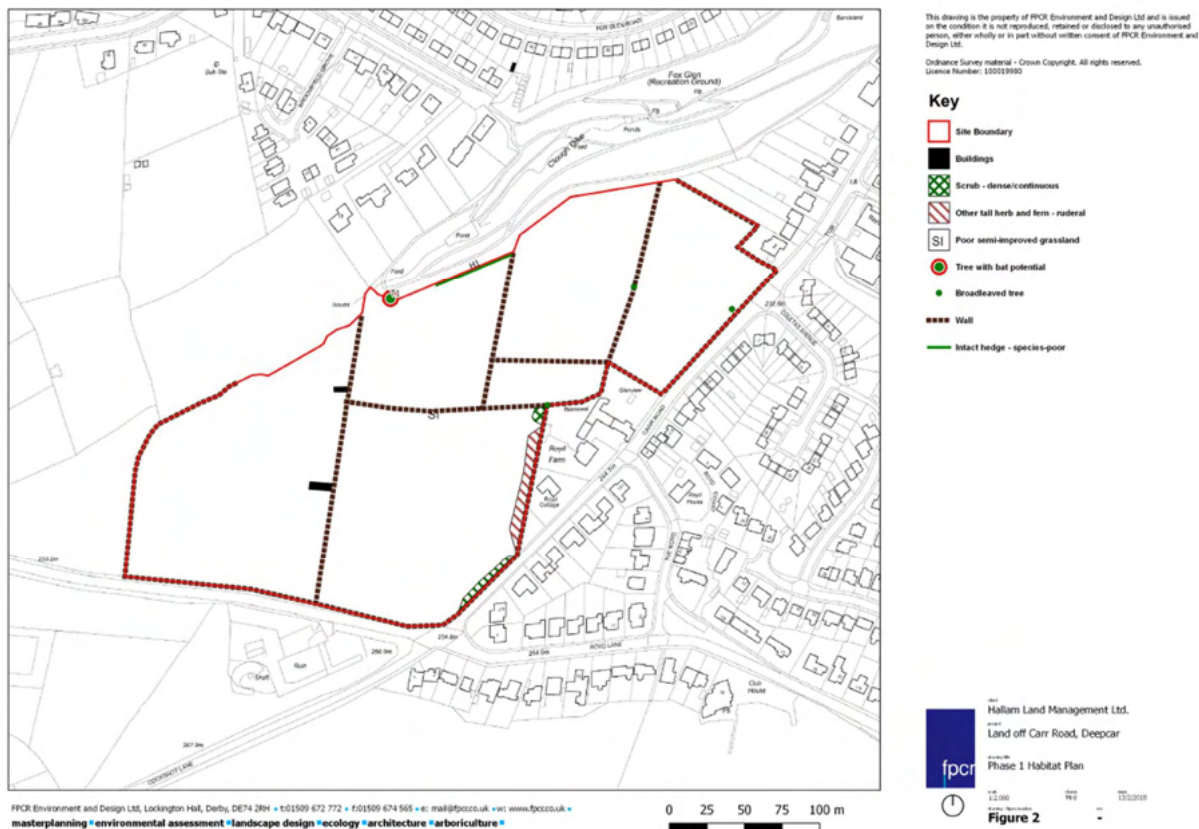


Figure 1: The Deepcar survey area is defined by the red outline.

2.1 THE SURVEY AREA

The survey area consists of agricultural grassland, divided into five fields by old stone walls (Figure 2), with some fields further subdivided by fencing. At the time of survey on 6th August 2020, the western field was being managed as pasture and was being grazed by a herd of Belted Galloway cattle. The remaining fields were being managed as meadows, with a small area of one field left uncut. The whole area slopes gently downwards towards the north-north-west.

The survey area includes one small area of differing habitat, where the north edge of one field slopes steeply down into Clough Dike enabling livestock to access the stream water (Figure 3). Clinging to the top edge of this steep bank is a large, mature Ash tree (Figure 4).



Figure 2: An old stone wall (gritstone?) at Deepcar.



Figure 3: The short section of stream included in the survey area.



Figure 4: The large, mature Ash standing above the stream bank.

Apart from the large, mature Ash, there are only a few trees or shrubs growing within the survey area (e.g., Figure 5, Figure 6) but there are some roadside and garden trees growing along the southern and south-eastern boundaries of the survey area, and the northern boundary adjoins the wooded Clough Dike (Figure 7). The woodland edge supports a rather diverse range of trees and shrubs, with the following being noted: Ash, hawthorn sp., Hazel, Elder, Sycamore, Horse Chestnut, oak sp., Rowan, willow sp., Holly and cherry sp.



Figure 5: Planted trees - an Ash and some cherries.



Figure 6: A hawthorn growing within the survey area.



Figure 7: The northern boundary of the survey area adjoins the wooded Clough Dike.

2.2 PREVIOUS INVERTEBRATE SURVEY

The author is not aware of any previous invertebrate survey results, or casual invertebrate recording, from the survey area.

2.3 DEVELOPMENT PROPOSALS

It is understood that the proposal is to develop the site for housing but the author is not aware of any further detail of this proposal.

2.4 OBJECTIVES

The developers may wish to appeal the planning decision relating to this survey area. In so doing, they may require a preliminary assessment of the potential importance of the survey area for invertebrates, and an understanding of whether the submission, which did not include an invertebrate survey, was fit for purpose.

The current survey was thus commissioned by FPCR to inform the planning appeal for the survey area and to provide survey recommendations as appropriate.

The objectives of the survey fieldwork were:

- to sample invertebrates from representative examples of the habitats and habitat features present,
- to make a preliminary assessment of the actual importance for invertebrates of the survey area and its component habitats and habitat features, and

- to estimate what further survey work may be required to upgrade a ‘preliminary assessment’ to a ‘full assessment’, and what such a full assessment may conclude.

3 Methods

Fieldwork was carried out on a single visit by the author on 6th August 2020. After a brief reconnaissance walkover, sampling was carried out firstly by ground-searching, and secondly by sweep-netting, covering representative habitats and habitat features across the survey area. Throughout the time in the field, direct observation was also used to search for larger or more conspicuous invertebrates such as butterflies and bumblebees. Table 1 provides further detail on the survey techniques deployed, and greater detail may be gleaned from the Natural England Research Report by Drake *et al.* (2007).

Table 1: Techniques employed on this survey to record invertebrates, and their target groups and target habitats.

Technique	Target groups	Target habitats
Sweep-netting with a stout canvas net.	Beetles (Coleoptera) and bugs (Heteroptera) and many other invertebrates.	All vegetated habitats, paying particular attention to potential food-plants and to nectar and pollen sources.
Ground-searching, turning over stones, rubbish, reptile felts, etc. and hand-searching through vegetation and plant litter.	A wide range of ground-living invertebrates, particularly beetles, bugs, ants (Hymenoptera: Formicidae) woodlice (Isopoda) and molluscs.	All open habitats, field edges, stream-bank and beside walls.
Direct observation.	Bees, wasps (Hymenoptera), flies (Diptera), butterflies and moths (Lepidoptera), grasshoppers and crickets (Orthoptera), dragonflies (Odonata), etc.	All habitats, paying particular attention to nectar and pollen sources.

3.1 IDENTIFICATION

Where practical, invertebrates were identified in the field but wherever the slightest doubt existed, one or more specimens were collected, or photographs taken, for more detailed scrutiny. To achieve rigorously accurate identifications, specimens were identified using the surveyor’s own library and entomological collection. Selected specimens have been retained in the surveyor’s personal collection as vouchers.

3.2 CONSTRAINTS

Invertebrate activity is significantly affected by the weather, which can seriously diminish the effectiveness of some sampling techniques. On the current survey, the weather was dry and warm (19 – 23 °C), with a lightly overcast sky, brightening later, and a Light Breeze (F2)

from the south. Weather conditions during fieldwork were thus very good for the time of year, and all the fieldwork time was productively spent.

3.3 ANALYSIS

3.3.1 Key Species

To assess the importance of a site for invertebrate conservation, the number and percentage of rare or scarce species found may be calculated. Sites of greater importance support higher percentages of rare or scarce species, and this percentage is a useful starting point for assessing the overall importance of a site, in comparison to other sites surveyed using similar techniques.

A standard definition of 'rare or scarce' is essential to allow a fair comparison to be made between sites. For the analyses in this report, species were only included which have been assigned an official rare or scarce conservation status as defined in the box below, and all such species are here called 'Key Species'.

Conservation status categories of invertebrates

A system of conservation statuses has been in use since the British Red Data Book for insects (Shirt, 1987), amended and supplemented by a series of JNCC Nature Conservation reviews. By this system, the rarest and most threatened British species are given one of the Red Data Book (RDB) statuses. Species which do not qualify as RDB but are nonetheless uncommon are given one of the Nationally Scarce statuses. The status categories and criteria of this first version are defined in Appendix 1.1.

A second version of British conservation statuses published in the Species Status series from Natural England and Natural Resources Wales is now gradually replacing the first version. For butterflies, dragonflies, water beetles and several other groups, the most up-to-date British conservation statuses are based on the International Union for Conservation of Nature (IUCN) Red List categories and criteria (IUCN, 2001). This system places less emphasis on rarity and more on factors which suggest a risk of extinction (such as severe declines in range or population). The status categories and criteria of this second version are defined in Appendix 1.2.

A third version of British conservation statuses operates in parallel with the second and is a very simplified version of the first, having just two categories: Nationally Rare or Nationally Scarce. This version is defined in Appendix 1.3.

Key Species are here defined as Red Data Book and Nationally Scarce species from version 1, Threatened, Near Threatened and Data Deficient species from version 2, and Nationally Rare or Nationally Scarce species from version 3.

There are frequent examples of invertebrates which have been given a conservation status and have subsequently been found to be more widespread and abundant. This may arise either as a result of an actual increase in range or population size, or as a result of improved understanding by entomologists of how to find or identify them. Where the official conservation status is regarded as being out of date, this is taken into account in the analysis and survey area assessment.

3.3.2 Pantheon

Pantheon is an analytical tool developed by Natural England and the Centre for Ecology & Hydrology to assist invertebrate nature conservation in England. Users import lists of invertebrates into Pantheon, which can then be used to analyse the species, attaching associated habitats and resources, conservation statuses and other data against them. Pantheon has been available online since April 2018 at: <http://www.brc.ac.uk/pantheon/>.

Some of the most informative outputs of Pantheon are the calculations of Species Quality Index (SQI). Precisely how SQI is calculated is no longer transparent but in Natural England's ISIS application (the predecessor to Pantheon), each species had been allocated to one of six rarity scores (0, 1, 2, 4, 8, 16), with the commonest species scoring 0 and the rarest scoring 16. For an assemblage of species, the mean of their rarity scores, multiplied by 100, yielded an ISIS Rarity Score for the assemblage. For example, if a survey recorded 46 species from a particular assemblage, and the sum of their 46 species rarity scores was 106, the average of all the individual species rarity scores would be 2.30 (= 106/46) and the ISIS Rarity Score would be 230, derived by multiplying that average by 100. It is presumed that the online Pantheon system calculates SQI by a similar method.

3.3.3 Assessing the importance of the survey area

Natural England's pamphlet *Organising surveys to determine site quality for invertebrates: a framework guide for ecologists* (Anon., 2005) advises that 'A survey should classify a site as one of the following:

- 1 Little/ no importance,
- 2 Local/ county importance,
- 3 Regional importance,
- 4 National importance,
- 5 European importance'.

4 Results

4.1 OVERALL RESULTS

The preliminary survey identified 160 species of invertebrate in total (Appendix 2). Invertebrates were identified from a very wide range of groups, including woodlice, spiders, harvestmen, centipedes, springtails, earwigs, grasshoppers, barkflies, psyllids, froghoppers, leafhoppers, planthoppers, bugs, beetles, ants, bees, wasps, flies, moths, butterflies, slugs and snails. There was a focus of effort on beetles (Coleoptera), with 69 species recorded, forming 43% of the total species list.

4.2 SPECIES OF PRINCIPAL IMPORTANCE

'Species of Principal Importance' are those species listed in Section 41 of the Natural Environment and Rural Communities Act 2006 as being 'of principal importance for the purpose of conserving biodiversity'.

No invertebrate Species of Principal Importance were recorded by this survey.

4.3 KEY SPECIES RESULTS

Amongst the 160 species recorded during this survey, only one species is here regarded as a Key Species (using the criteria defined in Section 3.3.1): the mirid bug *Lygus pratensis*.

***Lygus pratensis* (Hemiptera: Heteroptera: Miridae) a mirid bug, [RDB3]**

This is a large mirid bug (Figure 8). On the continent it is known to be polyphagous (Kirby, 1992). It was formerly known only in south-eastern England from Kent westwards to Hampshire and northwards to Berkshire, where it was mostly confined to rides in ancient woodland, open herb-rich areas and heathland. However, in recent years this bug has undergone a dramatic range expansion. It is now widespread and frequently recorded throughout much of southern Britain northwards to County Durham (Ryan, 2020) and undoubtedly no longer merits rare or even scarce conservation status. This is recognised within Pantheon which lists its status in square brackets as '[RDB3]' though a formal revision of the conservation status assigned by Kirby (1992) has yet to be carried out.



Figure 8: The mirid bug *Lygus pratensis*.

The result from Key Species analysis is that one Key Species was found, comprising 0.63% of the total species list of 160. However, as noted in Section 3.3.1, there are frequent examples of invertebrates with out of date conservation statuses, and the mirid bug *Lygus pratensis* firmly belongs in this category. Hence, the preliminary survey found no accurately-rated Key Species (0.0% of the total species list of 160).

4.4 PANTHEON RESULTS

The list of 160 species was entered into Pantheon. One species was unmatched, so Pantheon processed a list of 159 species, of which 139 are covered by Pantheon's analysis tools.

Within the subset of 139 species, two Broad Biotopes were well represented (with 15 or more species): 'open habitats' with 102 species, and 'tree associated' with 18 species. The SQI values for these Broad Biotopes are 106 and 135 respectively.

The 'open habitats' Broad Biotope includes a subset of 89 species of 'tall sward & scrub', yielding an SQI value of 103. Pantheon further subdivides the 'tall sward & scrub' subset into four subsets inhabiting different layers of the sward and with different preferences for soil humidity. These four subsets yield SQI values of 100, 100, 112 and 113.

All of the SQI values calculated from the Deepcar species list range from very low (100 being the lowest possible SQI value) to low (135, the SQI for the 'tree associated' Broad Biotope).

4.5 OTHER SPECIES

A single female of the Hawthorn Jewel-beetle *Agrilus sinuatus* (Figure 9) was swept off Yarrow near the edge of the Clough Dike woodland. This is a species which is currently undergoing a considerable range expansion northwards (Alexander, 2014), though from the records accessible via the NBN Atlas (at 22nd January 2021), Deepcar is about 40 km beyond the nearest known record.



Figure 9: Hawthorn Jewel-beetle *Agrilus sinuatus* at Deepcar.

A day-active Hedgehog was a surprising observation at Deepcar (Figure 10).



Figure 10: Hedgehog active by day at Deepcar.

5 Preliminary assessment

This preliminary survey area assessment is based on a list of 160 species which is a long species list for a single day's survey effort. A full survey would require additional survey effort and would generate a longer species list, but this is a useful basis for a preliminary assessment.

Key Species analysis found that the survey area supports no accurately-rated Key Species (0.0% of the total species list of 160). It is highly unusual to find no accurately-rated Key Species and in the author's experience, this has only previously happened with even shorter surveys, where fewer than 100 species have been recorded. On the basis of the Key Species analysis, the Deepcar survey area is certainly one of the least important areas for invertebrates that the author has surveyed.

The Pantheon results provide a valuable supplement to Key Species analysis by evaluating different ecologically-defined subsets of the species list. Because the SQI values yielded by Pantheon vary from very low (100) to low (135), it can also be said that the Deepcar survey area only supports invertebrate assemblages of very low to low conservation importance.

In a national context, the preliminary assessment can confidently state that the Deepcar survey area appears to be of little importance for invertebrate conservation.

This report does not attempt an assessment of the importance of the survey area in a more local, county or regional context, as such an assessment requires access to thorough

collations of local, county or regional records for the invertebrate groups, e.g., published county atlases or county status assessments. The survey area may support species, such as the Hawthorn Jewel-beetle, which are locally noteworthy but it is unlikely that a site of little importance in a national context would be of substantial importance in a more local context.

In order to convert the current preliminary invertebrate survey to a full survey and to generate a robust and accurate assessment, two further survey visits would be required, earlier in the field season (i.e., between early May and late July), with both preferably preceding the cutting of the meadows.

In the author's judgement, it is very unlikely that a full survey of the Deepcar survey area would result in a substantially different assessment. Thus, a full survey would be likely to conclude that the Deepcar survey area is of little importance for invertebrate conservation.

6 Recommendation

Although this preliminary survey found no evidence of any Key Species or important assemblages associated with trees or deadwood, it remains possible that such do occur at Deepcar in association with the large, mature Ash standing above the stream bank (Figure 4: The large, mature Ash standing above the stream bank.). On that basis, it would be desirable if this individual tree could be retained within the proposed development.

7 Acknowledgements

I would like to thank Kurt Goodman for arranging this survey, and Aveline Rowlands and Anthony Greaves for help with access arrangements.

8 References

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Appendix 1: British Conservation Status Categories – Definitions.

1.1 STATUS CATEGORIES AND CRITERIA VERSION 1 (SHIRT, 1987)

These status categories and criteria were introduced for British insects by Shirt (1987) and received some modifications by later authors (e.g., Hyman and Parsons (1992, 1994)).

Red Data Book category EXTINCT

Definition Species which were formerly native to Britain but have not been recorded since 1900.

Red Data Book category 1, Endangered

Definition Species in danger of extinction and whose survival is unlikely if causal factors continue to operate. Endangered species either (a) occur as only a single population within one 10-km square, or (b) only occur in especially vulnerable habitats, or (c) have been declining rapidly or continuously for twenty years or more to the point where they occur in five or fewer 10-km squares, or (d) may already have become extinct.

Red Data Book category 2, Vulnerable

Definition Species which are likely to move into the Endangered category in the near future if causal factors continue to operate. Vulnerable species are declining throughout their range or occupy vulnerable habitats.

Red Data Book category 3, Rare

Definition Species which occur in small populations and although not currently either Endangered or Vulnerable are at risk. Rare species exist in 15 or fewer 10-km squares, or are more widespread than this but dependent on small areas of especially vulnerable habitat.

Red Data Book category I, Indeterminate

Note: Best written as 'RDBi' rather than 'RDBI' as the latter is easily confused with 'RDB1' (Endangered).

Definition Species considered to be either Endangered, Vulnerable or Rare but with insufficient information to say which.

Red Data Book category K, Insufficiently Known

Definition Species suspected to merit either Endangered, Vulnerable, Rare or Indeterminate status but lacking sufficient information. Species included in this category may have only recently been discovered in Britain, or may be very poorly recorded for a variety of reasons.

Nationally Scarce Category A, Na.

Definition Species which do not fall within Red Data Book categories but which are nonetheless uncommon in Great Britain and thought to occur in 30 or fewer (typically between 16 and 30) 10-km squares of the National Grid, or for less well-recorded groups, in seven or fewer vice-counties.

Nationally Scarce Category B, Nb.

Definition Species which do not fall within Red Data Book categories but which are nonetheless uncommon in Great Britain and thought to occur in between 31 and 100 10-km

squares of the National Grid, or for less well-recorded groups, between eight and twenty vice-counties.

Nationally Scarce, N.

Definition Species which do not fall within Red Data Book categories but which are nonetheless uncommon in Great Britain. This status category has been used where information has not been sufficient to allocate a species to either Na or Nb. These species are thought to occur in between 16 and 100 10-km squares of the National Grid.

1.2 STATUS CATEGORIES AND CRITERIA VERSION 2 (IUCN, 2001)

These later status categories and criteria are based on IUCN Red List Categories and Criteria version 3.1 (IUCN, 2001) and have been applied to British butterflies, dragonflies, water beetles and several other invertebrate groups.

Critically Endangered (CR)

A taxon is Critically Endangered when the best available evidence indicates that it is facing an **extremely high** risk of extinction in the wild.

Endangered (EN)

A taxon is Endangered when the best available evidence indicates that it is facing a **very high** risk of extinction in the wild.

Vulnerable (VU)

A taxon is Vulnerable when the best available evidence indicates that it is facing a **high** risk of extinction in the wild.

N.B.: Species belonging to the above three categories may be collectively referred to as **Threatened**.

Data Deficient (DD)

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate.

The DD category effectively replaces the Indeterminate (RDBi) and Insufficiently Known (RDBK) categories of the earlier version.

Near Threatened (NT)

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

Least Concern (LC)

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

Not Applicable (NA)

A taxon is Not Applicable when it is regarded as a non-native in Britain, or occurs solely as a natural vagrant.

1.3 STATUS CATEGORIES AND CRITERIA VERSION 3 (GB RARITY STATUS)

These status categories and criteria operate in parallel with version 2 and are defined specifically for use in Britain where they provide some continuity with version 1, allowing the continued use of “rare and scarce” species for site assessment purposes.

Nationally Rare (NR)

Native species which have not been recorded from more than 15 British hectads in recent decades and where there is reasonable confidence that exhaustive recording would not find them in more than 15 hectads. This category includes species which are probably extinct.

Nationally Scarce (NS)

Native species which are not regarded as Nationally Rare AND which have not been recorded from more than 100 British hectads in recent decades and where there is reasonable confidence that exhaustive recording would not find them in more than 100 hectads.

Appendix 2: List of invertebrates recorded at Deepcar in 2020 by Mark G. Telfer

The single Key Species is listed in **red text**. The table is in taxonomic sequence. Full details of all records generated by the survey are held in a computer database by the author that may be consulted if required to provide further information such as precise localities, grid references, quantity, sex and life-stage.

Class	Order	Family	Species (scientific name)	Species (English name)	Conservation Status
Malacostraca	Isopoda	Trichoniscidae	<i>Trichoniscus provisorius</i>	a common pygmy woodlouse	LC
Malacostraca	Isopoda	Philosciidae	<i>Philoscia muscorum sens. str.</i>	a common striped woodlouse	LC
Malacostraca	Isopoda	Oniscidae	<i>Oniscus asellus</i>	Common Shiny Woodlouse	LC
Malacostraca	Isopoda	Porcellionidae	<i>Porcellio scaber</i>	Common Rough Woodlouse	LC
Arachnida	Araneae	Dysderidae	<i>Harpactea hombergi</i>	a spider	LC
Arachnida	Araneae	Oonopidae	<i>Oonops pulcher</i>	a spider	LC
Arachnida	Araneae	Araneidae	<i>Araneus diadematus</i>	a spider	LC
Arachnida	Opiliones	Nemastomatidae	<i>Nemastoma bimaclatum</i>	a harvestman	None
Chilopoda	Lithobiomorpha	Lithobiidae	<i>Lithobius variegatus</i>	a centipede	LC
Collembola	Entomobryomorpha	Entomobryidae	<i>Orchesella cincta</i>	a springtail	None
Insecta	Dermaptera	Forficulidae	<i>Forficula auricularia</i>	Common Earwig	LC
Insecta	Orthoptera	Acrididae	<i>Omocestus viridulus</i>	Common Green Grasshopper	LC
Insecta	Orthoptera	Acrididae	<i>Chorthippus brunneus</i>	Field Grasshopper	LC
Insecta	Psocoptera	Caeciliusidae	<i>Chilenocaecilius ornatipennis</i>	a barkfly	None
Insecta	Psocoptera	Caeciliusidae	<i>Valenzuela flavidus</i>	a barkfly	None
Insecta	Psocoptera	Stenopsocidae	<i>Graphopsocus cruciatus</i>	a barkfly	None

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Class	Order	Family	Species (scientific name)	Species (English name)	Conservation Status
Insecta	Hemiptera: Sternorrhyncha	Triozidae	<i>Triozia urticae</i>	Nettle Psyllid	None
Insecta	Hemiptera: Auchenorrhyncha	Aphrophoridae	<i>Philaenus spumarius</i>	a froghopper	None
Insecta	Hemiptera: Auchenorrhyncha	Aphrophoridae	<i>Neophilaenus lineatus</i>	a froghopper	None
Insecta	Hemiptera: Auchenorrhyncha	Cicadellidae	<i>Anoscopus albifrons</i>	a leafhopper	None
Insecta	Hemiptera: Auchenorrhyncha	Cicadellidae	<i>Anoscopus flavostriatus</i>	a leafhopper	None
Insecta	Hemiptera: Auchenorrhyncha	Cicadellidae	<i>Allygus mixtus</i>	a leafhopper	None
Insecta	Hemiptera: Auchenorrhyncha	Cicadellidae	<i>Euscelis incisus</i>	a leafhopper	None
Insecta	Hemiptera: Auchenorrhyncha	Cicadellidae	<i>Cicadula persimilis</i>	a leafhopper	None
Insecta	Hemiptera: Auchenorrhyncha	Cicadellidae	<i>Balclutha punctata</i>	a leafhopper	None
Insecta	Hemiptera: Auchenorrhyncha	Delphacidae	<i>Conomelus anceps</i>	a planthopper	None
Insecta	Hemiptera: Auchenorrhyncha	Delphacidae	<i>Javesella pellucida</i>	a planthopper	None
Insecta	Hemiptera: Heteroptera	Tingidae	<i>Tingis ampliata</i>	a lacebug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Campyloneura virgula</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Closterotomus norwegicus</i>	a mirid bug	None

Preliminary invertebrate survey of Deepcar

Class	Order	Family	Species (scientific name)	Species (English name)	Conservation Status
Insecta	Hemiptera: Heteroptera	Miridae	<i>Capsus ater</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Liocoris tripustulatus</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Apolygus lucorum</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Lygocoris pabulinus</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Lygus pratensis</i>	a mirid bug	[RDB3]
Insecta	Hemiptera: Heteroptera	Miridae	<i>Lygus rugulipennis</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Stenotus binotatus</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Leptopterna dolabrata</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Megaloceroea recticornis</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Stenodema calcarata</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Stenodema laevigata</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Blepharidopterus angulatus</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Heterotoma planicornis</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Orthotylus ericetorum</i>	a mirid bug	None

Preliminary invertebrate survey of Deepcar

Class	Order	Family	Species (scientific name)	Species (English name)	Conservation Status
Insecta	Hemiptera: Heteroptera	Miridae	<i>Europiella artemisiae</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Lopus decolor</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Plagiognathus arbustorum</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Miridae	<i>Plagiognathus chrysanthemii</i>	a mirid bug	None
Insecta	Hemiptera: Heteroptera	Nabidae	<i>Nabis limbatus</i>	Marsh Damsel-bug	None
Insecta	Hemiptera: Heteroptera	Anthocoridae	<i>Anthocoris confusus</i>	a flower bug	None
Insecta	Hemiptera: Heteroptera	Anthocoridae	<i>Anthocoris nemorum</i>	a flower bug	None
Insecta	Hemiptera: Heteroptera	Anthocoridae	<i>Temnostethus pusillus</i>	a flower bug	None
Insecta	Hemiptera: Heteroptera	Anthocoridae	<i>Orius laticollis</i>	a flower bug	None
Insecta	Hemiptera: Heteroptera	Anthocoridae	<i>Orius vicinus</i>	a flower bug	None
Insecta	Hemiptera: Heteroptera	Lygaeidae	<i>Heterogaster urticae</i>	a ground-bug	None
Insecta	Hemiptera: Heteroptera	Pentatomidae	<i>Dolycoris baccarum</i>	Hairy Shieldbug	LC
Insecta	Hemiptera: Heteroptera	Pentatomidae	<i>Palomena prasina</i>	Common Green Shieldbug	LC
Insecta	Coleoptera	Carabidae	<i>Clivina fossor</i>	a ground beetle	LC
Insecta	Coleoptera	Carabidae	<i>Bembidion lampros</i>	a ground beetle	LC

Preliminary invertebrate survey of Deepcar

Class	Order	Family	Species (scientific name)	Species (English name)	Conservation Status
Insecta	Coleoptera	Carabidae	<i>Pterostichus madidus</i>	a ground beetle	LC
Insecta	Coleoptera	Carabidae	<i>Pterostichus strenuus</i>	a ground beetle	LC
Insecta	Coleoptera	Carabidae	<i>Amara plebeja</i>	a ground beetle	LC
Insecta	Coleoptera	Carabidae	<i>Amara familiaris</i>	a ground beetle	LC
Insecta	Coleoptera	Carabidae	<i>Bradycellus ruficollis</i>	a ground beetle	LC
Insecta	Coleoptera	Hydrophilidae	<i>Megasternum concinnum</i>	a beetle	None
Insecta	Coleoptera	Staphylinidae	<i>Tachyporus dispar</i>	a rove-beetle	LC
Insecta	Coleoptera	Staphylinidae	<i>Tachyporus hypnorum</i>	a rove-beetle	LC
Insecta	Coleoptera	Staphylinidae	<i>Ischnosoma splendidum</i>	a rove-beetle	LC
Insecta	Coleoptera	Staphylinidae	<i>Amischa analis</i>	a rove-beetle	None
Insecta	Coleoptera	Staphylinidae	<i>Amischa nigrofusca</i>	a rove-beetle	None
Insecta	Coleoptera	Staphylinidae	<i>Mocyta fungi agg.</i>	a rove-beetle	None
Insecta	Coleoptera	Staphylinidae	<i>Acrotona parvula</i>	a rove-beetle	None
Insecta	Coleoptera	Staphylinidae	<i>Carpelimus pusillus</i>	a rove-beetle	None
Insecta	Coleoptera	Staphylinidae	<i>Anotylus rugosus</i>	a rove-beetle	None
Insecta	Coleoptera	Staphylinidae	<i>Anotylus tetracarinatus</i>	a rove-beetle	None
Insecta	Coleoptera	Staphylinidae	<i>Stenus similis</i>	a rove-beetle	None
Insecta	Coleoptera	Staphylinidae	<i>Tasgius melanarius</i>	a rove-beetle	None
Insecta	Coleoptera	Buprestidae	<i>Agrius sinuatus</i>	Hawthorn Jewel Beetle	LC
Insecta	Coleoptera	Cantharidae	<i>Rhagonycha fulva</i>	a soldier-beetle	LC
Insecta	Coleoptera	Dermestidae	<i>Anthrenus verbasci</i>	Varied Carpet Beetle	NA
Insecta	Coleoptera	Kateretidae	<i>Brachypterus glaber</i>	a nettle pollen beetle	None
Insecta	Coleoptera	Kateretidae	<i>Brachypterus urticae</i>	a nettle pollen beetle	None
Insecta	Coleoptera	Nitidulidae	<i>Epuraea aestiva</i>	a beetle	None

Preliminary invertebrate survey of Deepcar

Class	Order	Family	Species (scientific name)	Species (English name)	Conservation Status
Insecta	Coleoptera	Nitidulidae	<i>Meligethes aeneus</i>	Common Pollen Beetle	None
Insecta	Coleoptera	Nitidulidae	<i>Meligethes nigrescens</i>	a pollen beetle	None
Insecta	Coleoptera	Cryptophagidae	<i>Atomaria apicalis</i>	a beetle	None
Insecta	Coleoptera	Cryptophagidae	<i>Atomaria fuscata</i>	a beetle	None
Insecta	Coleoptera	Cryptophagidae	<i>Atomaria lewisi</i>	a beetle	None
Insecta	Coleoptera	Cryptophagidae	<i>Atomaria nitidula</i>	a beetle	None
Insecta	Coleoptera	Coccinellidae	<i>Rhyzobius litura</i>	a ladybird	None
Insecta	Coleoptera	Coccinellidae	<i>Psyllobora vigintiduopunctata</i>	22-spot Ladybird	None
Insecta	Coleoptera	Coccinellidae	<i>Propylea quattuordecimpunctat a</i>	14-spot Ladybird	None
Insecta	Coleoptera	Coccinellidae	<i>Coccinella septempunctata</i>	7-spot Ladybird	None
Insecta	Coleoptera	Coccinellidae	<i>Tytthaspis sedecimpunctata</i>	16-spot Ladybird	None
Insecta	Coleoptera	Latridiidae	<i>Enicmus transversus</i>	a beetle	None
Insecta	Coleoptera	Latridiidae	<i>Cartodere bifasciata</i>	a beetle	None
Insecta	Coleoptera	Latridiidae	<i>Corticarina minuta</i>	a beetle	None
Insecta	Coleoptera	Latridiidae	<i>Corticarina gibbosa</i>	a beetle	None
Insecta	Coleoptera	Tenebrionidae	<i>Lagria hirta</i>	a darkling beetle	LC
Insecta	Coleoptera	Salpingidae	<i>Salpingus planirostris</i>	a beetle	LC
Insecta	Coleoptera	Cerambycidae	<i>Rutpela maculata</i>	Black-and-yellow Longhorn	LC
Insecta	Coleoptera	Chrysomelidae	<i>Bruchus loti</i>	a seed-beetle	LC
Insecta	Coleoptera	Chrysomelidae	<i>Oulema obscura</i>	a leaf-beetle	LC
Insecta	Coleoptera	Chrysomelidae	<i>Cassida rubiginosa</i>	Thistle Tortoise Beetle	LC
Insecta	Coleoptera	Chrysomelidae	<i>Gastrophysa polygoni</i>	a leaf-beetle	LC

Preliminary invertebrate survey of Deepcar

Class	Order	Family	Species (scientific name)	Species (English name)	Conservation Status
Insecta	Coleoptera	Chrysomelidae	<i>Prasocuris marginella</i>	a leaf-beetle	LC
Insecta	Coleoptera	Chrysomelidae	<i>Longitarsus gracilis</i>	a flea-beetle	LC
Insecta	Coleoptera	Chrysomelidae	<i>Neocrepidodera ferruginea</i>	a flea-beetle	LC
Insecta	Coleoptera	Chrysomelidae	<i>Chaetocnema concinna</i>	a flea-beetle	LC
Insecta	Coleoptera	Chrysomelidae	<i>Sphaeroderma testaceum</i>	a flea-beetle	LC
Insecta	Coleoptera	Chrysomelidae	<i>Psylliodes chrysocephala</i>	a flea-beetle	LC
Insecta	Coleoptera	Apionidae	<i>Protapion apricans</i>	a weevil	None
Insecta	Coleoptera	Apionidae	<i>Protapion assimile</i>	a weevil	None
Insecta	Coleoptera	Apionidae	<i>Protapion fulvipes</i>	White Clover Seed Weevil	None
Insecta	Coleoptera	Apionidae	<i>Protapion trifolii</i>	a weevil	None
Insecta	Coleoptera	Apionidae	<i>Perapion curtirostre</i>	a weevil	None
Insecta	Coleoptera	Apionidae	<i>Holotrichapion aethiops</i>	a weevil	None
Insecta	Coleoptera	Apionidae	<i>Eutrichapion ervi</i>	a weevil	None
Insecta	Coleoptera	Curculionidae	<i>Otiorhynchus rugosostriatus</i>	a weevil	None
Insecta	Coleoptera	Curculionidae	<i>Exomias pellucidus</i>	a weevil	None
Insecta	Coleoptera	Curculionidae	<i>Sitona lineatus</i>	a weevil	None
Insecta	Coleoptera	Curculionidae	<i>Sitona suturalis</i>	a weevil	None
Insecta	Coleoptera	Curculionidae	<i>Euophryum confine</i>	a weevil	None
Insecta	Coleoptera	Curculionidae	<i>Pelenomus quadrituberculatus</i>	a weevil	None
Insecta	Coleoptera	Curculionidae	<i>Amalus scortillum</i>	a weevil	None

Preliminary invertebrate survey of Deepcar

Class	Order	Family	Species (scientific name)	Species (English name)	Conservation Status
Insecta	Coleoptera	Curculionidae	<i>Nedyus quadrimaculatus</i>	Small Nettle Weevil	None
Insecta	Hymenoptera: Aculeata	Formicidae	<i>Formica lemani</i>	an ant	None
Insecta	Hymenoptera: Aculeata	Formicidae	<i>Lasius niger sens. str.</i>	an ant	None
Insecta	Hymenoptera: Aculeata	Vespidae	<i>Vespula germanica</i>	German Wasp	None
Insecta	Hymenoptera: Aculeata	Crabronidae	<i>Crossocerus styrius</i>	a digger wasp	None
Insecta	Hymenoptera: Aculeata	Apidae	<i>Apis mellifera</i>	Honey Bee	None
Insecta	Hymenoptera: Aculeata	Apidae	<i>Bombus lapidarius</i>	Large Red-tailed Bumblebee	None
Insecta	Hymenoptera: Aculeata	Apidae	<i>Bombus pascuorum</i>	Common Carder-bee	None
Insecta	Hymenoptera: Aculeata	Apidae	<i>Bombus terrestris</i>	Buff-tailed Bumblebee	None
Insecta	Diptera	Stratiomyidae	<i>Pachygaster atra</i>	Dark-winged Black	LC
Insecta	Diptera	Syrphidae	<i>Sphaerophoria scripta</i>	a hoverfly	LC
Insecta	Diptera	Syrphidae	<i>Myathropa florea</i>	a hoverfly	LC
Insecta	Diptera	Syrphidae	<i>Volucella pellucens</i>	a hoverfly	LC
Insecta	Diptera	Tachinidae	<i>Eriothrix rufomaculata</i>	a parasitic fly	None (Falk, Pont & Chandler, 2005)
Insecta	Lepidoptera	Crambidae	<i>Agriphila straminella</i>	Pearl Veneer	None
Insecta	Lepidoptera	Crambidae	<i>Udea lutealis</i>	Pale Straw Pearl	None
Insecta	Lepidoptera	Hesperiidae	<i>Thymelicus lineola</i>	Essex Skipper	LC

Preliminary invertebrate survey of Deepcar

Class	Order	Family	Species (scientific name)	Species (English name)	Conservation Status
Insecta	Lepidoptera	Pieridae	<i>Pieris brassicae</i>	Large White	LC
Insecta	Lepidoptera	Pieridae	<i>Pieris napi</i>	Green-veined White	LC
Insecta	Lepidoptera	Nymphalidae	<i>Aglais io</i>	Peacock	LC
Insecta	Lepidoptera	Nymphalidae	<i>Polygonia c-album</i>	Comma	LC
Insecta	Lepidoptera	Nymphalidae	<i>Maniola jurtina</i>	Meadow Brown	LC
Insecta	Lepidoptera	Noctuidae	<i>Cerapteryx graminis</i>	Antler Moth	None
Insecta	Lepidoptera	Noctuidae	<i>Antitype chi</i>	Grey Chi	None
Gastropoda	Pulmonata	Agriolimacidae	<i>Deroceras laeve</i>	Marsh Slug	LC
Gastropoda	Pulmonata	Agriolimacidae	<i>Deroceras invadens</i>	Tramp Slug	LC
Gastropoda	Pulmonata	Arionidae	<i>Arion (Arion) rufus</i>	Large Red Slug	LC
Gastropoda	Pulmonata	Arionidae	<i>Arion (Kobeltia) intermedius</i>	Hedgehog Slug	LC
Gastropoda	Pulmonata	Discidae	<i>Discus rotundatus</i>	Rounded Snail	LC
Gastropoda	Pulmonata	Helicidae	<i>Cepaea nemoralis</i>	Brown-lipped Snail	LC
Gastropoda	Pulmonata	Helicidae	<i>Cornu aspersum</i>	Garden Snail	LC
Gastropoda	Pulmonata	Hygromiidae	<i>Trochulus hispidus</i>	Hairy Snail	LC
Gastropoda	Pulmonata	Oxychilidae	<i>Aegopinella pura</i>	Clear Glass-snail	LC
Gastropoda	Pulmonata	Oxychilidae	<i>Oxychilus alliarius</i>	Garlic Snail	LC
Gastropoda	Pulmonata	Oxychilidae	<i>Oxychilus cellarius</i>	Cellar Snail	LC

**Annex J:
Water Framework Directive
Assessment Summary (May 2021)**

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May 2021

Technical Note: Updated Survey Assessment – Water Framework Directive Assessment.

7301 – Land off Carr Road, Deepcar

FPCR Environment and Design Ltd. (FPCR) were commissioned by Hallam Land Management Ltd. to update the relevant ecological assessment to work to updated the Water Framework Directive (Screening) Assessment completed in 2017 for the proposed surface water outfall to the Clough Dike.

A full assessment of the proposed works was submitted to Sheffield City Council (SCC) in November 2017 (CD1.17c: Appendix 4). SCC have confirmed the submitted Water Framework Directive (Screening) Screening Assessment provided a robust assessment of the potential effects and the mitigation proposed in the document is adequate to avoid effect to Clough Dike or downstream receptors (CD6.11: Paragraph 2.3). A draft Construction & Environmental Management Plan outlining appropriate working method has also been produced and the proposed methods cover these works required to implement the drainage connection (Proof of Evidence (PoE) Kriston Harvey: Appendix K).

Methodology

The surveyed was completed on 20th April 2021 by Ian Hunter (Principal Ecologist, FPCR). Ian has been awarded a Level 5 Field Identification Skill Certificate (FISC) from Botanical Society of Britain and Ireland (BSBI).

The survey methods employed followed those detailed in the 'Water Framework Directive Assessment' (CD1.17c: Appendix 4).

Results & Discussion

Over the survey no substantive changes to the water course or associated habitat were recorded during the survey. Consequently, the assessment and mitigation submitted to SCC in November 2017 remains current and revisions to the original submission are not required.

**Annex K:
Biodiversity Net Gain**

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May 2021

Technical Note – Biodiversity Impact Assessment

7301 – Land off Carr Road, Deepcar

FPCR Environment and Design Ltd. were commissioned by Hallam Land Management to undertake a Biodiversity Impact Assessment (BIA) of the development off Carr Road, Deepcar.

Background

The BIA has been undertaken to support a planning application at the site. The proposed development comprises 85 units, along with areas of public open space and access / infrastructure.

The site has been subject to a suite of surveys over the years with a detailed Phase 1 survey undertaken most recently on 5th August 2020. Details of the survey results can be found in the main EclA (Paragraphs 3.28 – 3.41).

Methodology

The BIA calculations completed on the scheme have been calculated in accordance with the DEFRA Biodiversity Metric 2.0 Calculation Tool Beta Test (December 2019 Update).

The existing habitats and their conditions were taken from the latest Phase 1 survey undertaken in 2020, the result of which are provided at paragraph 3.28 – 3.41 in the EclA.

The proposed habitats have been taken from the Illustrative Masterplan submitted with the revision to the planning application submitted in Jan 2020 (Sten Architecture, December 2019) and the 'Revised Illustrative Masterplan (April 2021)'.

The condition assessments were undertaken using the condition criteria as set out within the DEFRA technical guidance¹, where appropriate.

¹ Natural England. 2019. *Biodiversity Metric 2.0 Technical Supplement – Beta Testing*

Biodiversity Impact Assessment (BIA)

Existing site habitats (Figure 1)

The site comprises a number of poor semi-improved grassland fields of which two are cattle grazed (c. 3-7cm sward height). The remaining fields were managed by intensive and regular hay cutting with a short sward height of 5-10cm. In accordance with guidance within the Defra Metric, the poor semi-improved grassland is considered to be 'modified grassland'. Perennial rye-grass is frequently recorded within the sward (>26%) and managed for pasture / mown frequently. As such, the grassland within the site is assessed as being in 'poor' condition within the metric, as per the DEFRA grassland condition assessment criteria.

Areas of dense bramble scrub were recorded present at the boundaries of the south eastern field compartment. This has been assessed against the DERA scrub condition criteria with the results set out in below in Table 1.

Table 1. Scrub condition assessment

Condition Assessment Feature	Target Assessment
1. There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be 100% cover).	Failed – bramble dominated (>75%)
2. There is a good age range – a mixture of seedlings, saplings, young shrubs and mature shrubs.	Failed – no diversity in bramble age
3. Pernicious weeds and invasive species make up less than 5% of the ground cover.	Failed – creeping thistle was recorded frequently within the bramble scrub
4. The shrub has a well-developed edge with un-grazed tall herbs.	Failed – the grassland is intensely managed through regular mowing
5. There are many clearings and glades within the scrub.	Failed – No clearings or glades were present within the dense bramble scrub
Poor Condition	

Two buildings were also present within the site, with the western field compartment. Buildings automatically do not have a condition within the metric, given they are developed sealed surfaces.

Existing hedgerows (Figure 1)

A single hedgerow is present along a section of the northern site boundary.

Condition Assessment Feature	Assessment
A1 - Height >1.5m average along length	Pass – hedgerow >4m in height
A2 - Width >1.5m average along length	Fail – hedgerow is <1m wide

Condition Assessment Feature	Assessment
B1 - Gap at base <0.5m for over 90% of hedgerow	Fail – the gap at base is >0.5m
B2 - Canopy gap <10% of total length with no canopy gaps over 5m	Fail – over 30% gaps present
C1 - >1m width of undisturbed ground with perennial vegetation for >90% of length present on at least one side of hedgerow at least	Pass – undisturbed woodland to on northern side of hedgerow
C2 – Plant species indicative of nutrient enrichment of soils dominate <20% of cover of undisturbed ground	Pass
D1 - >90% of hedgerow and undisturbed ground free from invasive none-native species	Pass
D2 - >90% of hedgerow or undisturbed ground free of damage caused by human activity	Pass
Moderate Condition (3 failures with 2 in a single functional group)	

A coniferous tree line is also present along the north eastern. Non-native tree lines (such as this one) are not included within the DEFRA metric. This tree line forms the a boundary with adjacent residential dwellings and is being retained in any case.

Proposed Habitats: Revised Planning Submission Jan. 2020 (Figure 2)

The proposed development of 85 units is located within the east of the site and comprises largely buildings / hardstanding, gardens, ornamental shrubs (plot frontages) and amenity grassland. The gardens and amenity grassland which are both likely to not reach more than poor condition.

An attenuation feature (Urban – Sustainable urban drainage feature) is proposed within the north of the site. This attenuation facility will provide a range of permanently wet habitat, wetland habitat and wet / dry habitat, but for the purpose of this assessment a precautionary approach to the habitat provision in this area has been taken with a target condition of poor being used.

Areas of neutral semi-improved grassland will be created around the edge of the attenuation feature in the north, whilst the scheme has been designed to retain areas of grassland at the edges of the development, where practical / appropriate, and within the whole of the south western field compartment. These areas of grassland will be created / enhanced through the sowing of an appropriate seed mix (e.g. Emorsgate EM2 – Standard general purpose meadow mixture or similar) and appropriate long term management to create neutral semi-improved grassland. It is considered that through appropriate management in the long term, the areas created / enhanced grassland will reach moderate condition.

Proposed Hedgerows: Revised Planning Submission Jan. 2020 (Figure 2)

Hedgerow H1, along a small section of the northern site boundary, is retained.

A number of native species rich hedgerows are proposed at the boundaries of the development footprint. It is considered that these hedgerows can be managed in the long term to reach at least moderate condition.

Proposed Habitats: Revised Illustrative Masterplan April 2021 (Figure 3)

The 'Revised Illustrative Masterplan (April 2021)' submitted to this Appeal, is a refinement of the potential scheme, adjusting the illustrative layout to show how more undeveloped land (in lieu of houses) can be achieved around the Listed Buildings. Whilst this revised illustrative layout shows 83 dwellings, it remains the case that the site can accommodate up to 85, with a different dwelling mix in due course, subject to reserved matters approval. From an ecological perspective, the revised plans result in no material difference to the overall assessment of effects but would likely provide some betterment to the surface water discharge; on the basis that they provide for a second SUDS basin, in the area, previously illustrated for houses.

Two attenuation features (Urban – Sustainable urban drainage feature) are proposed, one within the north of the site and another within the centre. A range of habitat will be provided in the northern attenuation facility. These will include permanently wet habitats, wetland habitat and wet / dry habitat. The central balancing facility has been designed to provide species rich grassland which is tolerant of both wet / dry conditions provide a range of different micro-climates for both habitats and species. As such as a precautionary approach these has been given a target condition of poor within the metric.

Areas of neutral semi-improved grassland will be created around the edge of the northern attenuation feature in the north, whilst the scheme has been designed to retain areas of grassland at the edges of the development, where practical / appropriate, and within the whole of the south western field compartment. These areas of grassland will be created / enhanced through the sowing of an appropriate seed mix (e.g. Emorsgate EM2 – Standard general purpose meadow mixture or similar) and appropriate long term management to create neutral semi-improved grassland. It is considered that through appropriate management in the long term, the areas created / enhanced grassland will reach moderate condition.

Proposed Hedgerows (Figure 3)

Hedgerow H1, along a small section of the northern site boundary, is retained.

A number of native species rich hedgerows are proposed at the boundaries of the development footprint. It is considered that these hedgerows can be managed in the long term to reach at least moderate condition.

Results and Conclusion

The full BIA calculator has been submitted separately with a summary of the results given below.

Habitats

The masterplan submitted with the revision to the planning application in Jan 2020 demonstrates that a **net gain of 6.78** habitat units, which equates to a net % change of 51.63%.

The proposed development results in a **net gain of 7.00** habitat units, which equates to a net % change of 53.26%.

Hedgerows

With the proposed native hedgerow planting, the proposed development shown on the Jan 2020 and April 2021 masterplans achieves a **net gain of 2.55** hedgerow units, which could increase if managed to good condition. This equates to a net % change of over 1000%.











Overall, the development achieves a significant net gain (over 10%) in both habitat and hedgerow units.

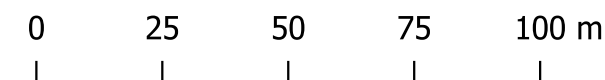
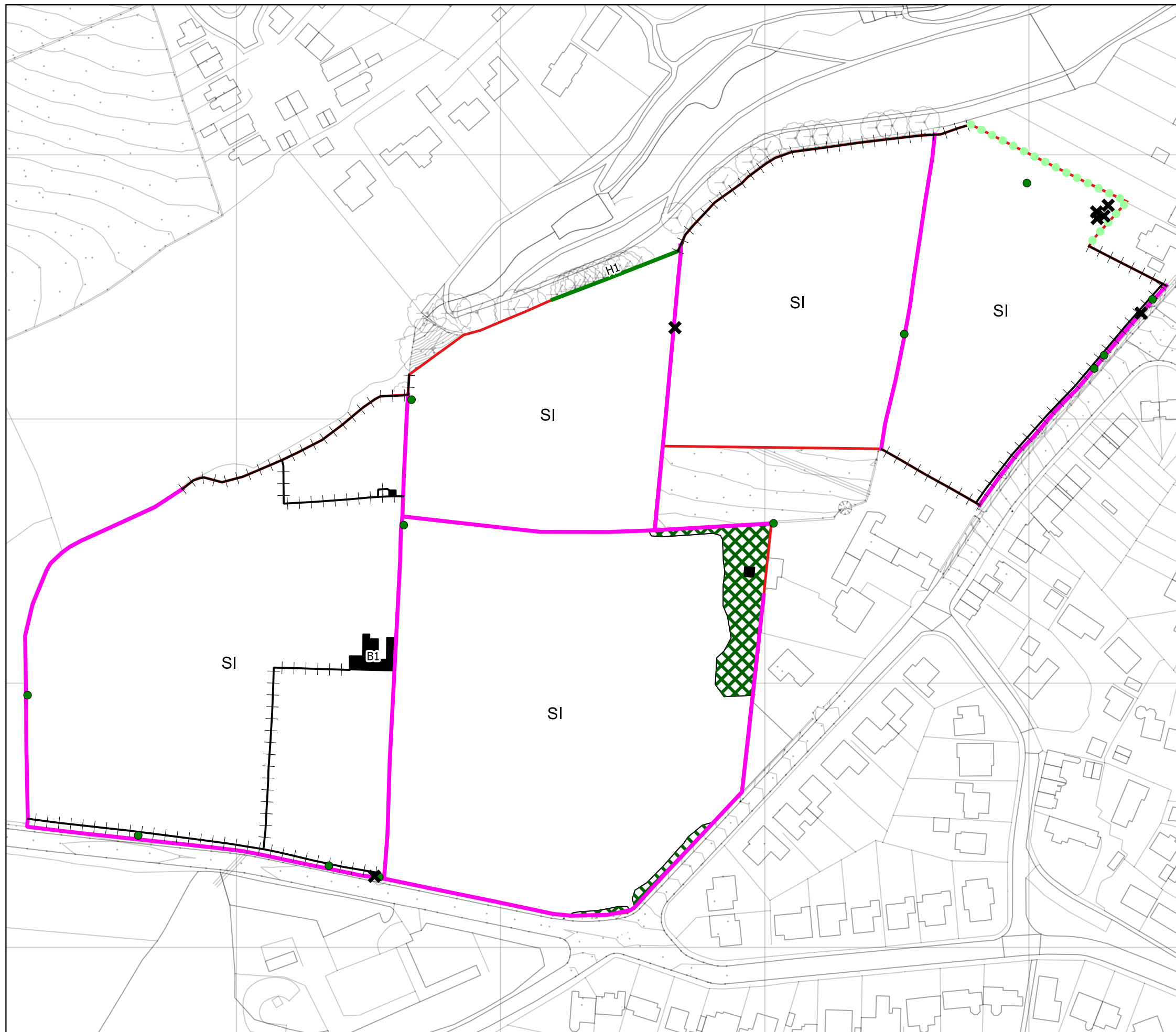
Figures

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Key:

-  Site Boundary
-  Buildings
-  Scrub - dense/continuous
-  Poor semi-improved grassland
-  Wall
-  Intact hedge - species-poor
-  Fence
-  Coniferous trees
-  Scrub - scattered
-  Broadleaved tree

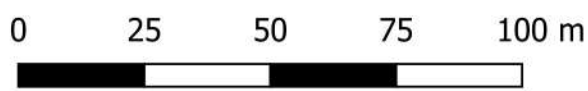




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- Key**
- Site Boundary
 - Amenity Grass
 - Amenity / Ornamental Shrub
 - Garden
 - Building / Hardstanding
 - SUDS
 - Semi-improved Grassland (enhanced and created)
 - Retained and Enhanced Grassland
 - Lost
 - Retained
 - New Species Rich Hedgerow



client
Hallam Land Management Ltd.

project
Land off Carr Road, Deepcar

drawing title
**REVISED PLANNING SUBMISSION
JAN 2020**

scale: 0/03
1:1500

drawn
AJR

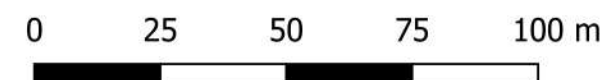
issue
24/5/2021

drawing / figure number
Figure 2

rev
-

Key

-  Site Boundary
-  Amenity Grass
-  Amenity / Ornamental Shrub
-  Garden
-  Building / Hardstanding
-  Attenuation Feature
-  Semi-improved Grassland (enhanced and created)
-  Retained and Enhanced Grassland
- Lost Hedgerow
- Retained Hedgerow
- New Native Species Rich Hedgerow



**DEFRA Metric Results Summary Sheet:
Revised Planning Submission Jan 2020**

Headline Results

[Return to results menu](#)

On-site baseline	<i>Habitat units</i>	13.14
	<i>Hedgerow units</i>	0.20
	<i>River units</i>	0.00
On-site post-intervention (Including habitat retention, creation, enhancement & succession)	<i>Habitat units</i>	19.92
	<i>Hedgerow units</i>	2.75
	<i>River units</i>	0.00
Off-site baseline	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Off-site post-intervention (Including habitat retention, creation, enhancement & succession)	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Total net unit change (including all on-site & off-site habitat retention/creation)	<i>Habitat units</i>	6.78
	<i>Hedgerow units</i>	2.55
	<i>River units</i>	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	<i>Habitat units</i>	51.63%
	<i>Hedgerow units</i>	1274.34%
	<i>River units</i>	0.00%

**DEFRA Metric Results Summary Sheet:
Revised Illustrative Masterplan April 2020**

Headline Results

[Return to results menu](#)

On-site baseline	Habitat units	13.14
	Hedgerow units	0.20
	River units	0.00
On-site post-intervention (Including habitat retention, creation, enhancement & succession)	Habitat units	20.14
	Hedgerow units	2.75
	River units	0.00
Off-site baseline	Habitat units	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation, enhancement & succession)	Habitat units	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention/creation)	Habitat units	7.00
	Hedgerow units	2.55
	River units	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	Habitat units	53.26%
	Hedgerow units	1274.34%
	River units	0.00%

Appendix 3:

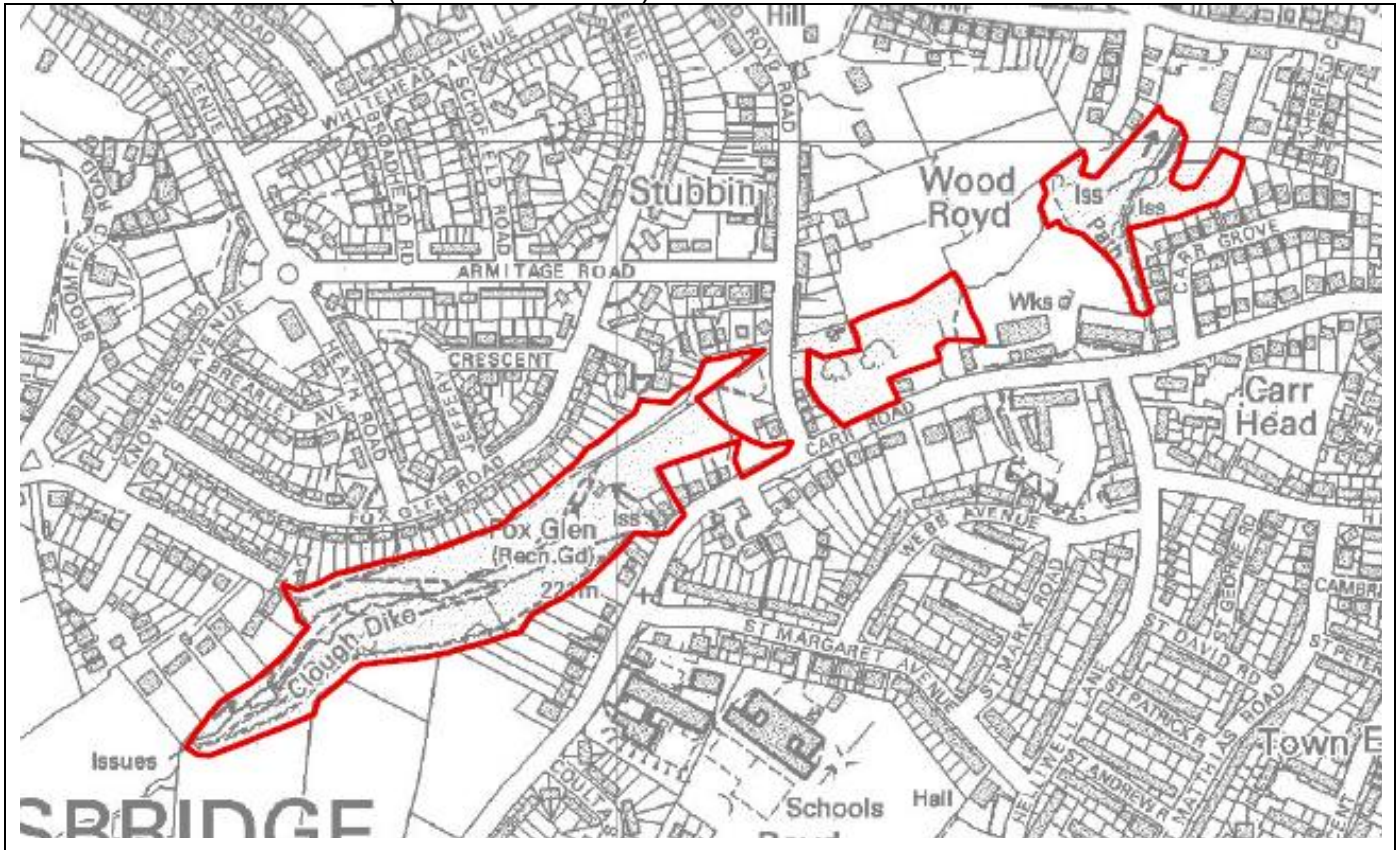
Fox Glen Sheffield Local Wildlife Site Citation Sheet:

Source Sheffield City Council Ecology Service

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SITE NAME	Fox Glen Wood				
SITE NUMBER	039	GRID REF (centroid)	SK280977	1:10,000 SHEET	SK29NE
WARD	Stocksbridge & Upper Don				

SITE BOUNDARY MAP (Date: 22/01/2018)



STATUS

<input checked="" type="checkbox"/> Local Wildlife Site	<input type="checkbox"/> Biological SSSI	<input type="checkbox"/> Other Nature Reserve
<input type="checkbox"/> Local Geology Site	<input type="checkbox"/> Geological SSSI	<input type="checkbox"/> Heritage Site
<input type="checkbox"/> RIGS	<input type="checkbox"/> Local Nature Reserve	<input type="checkbox"/> SAM
Other:		
Notes:		

OWNERSHIP/MANAGEMENT RESPONSIBILITY

<input checked="" type="checkbox"/> Sheffield City Council	<input checked="" type="checkbox"/> Private Ownership	<input type="checkbox"/> Unknown
Contact details held in Ecology Unit	Other/notes: The main part of the site is managed by SCC Trees and Woodlands. The two annexes to the north-east of the main woodland are in private ownership	

(Specify if ownership and management are separate organisations/people).

USE/MANAGEMENT

<input checked="" type="checkbox"/> Recreation	<input type="checkbox"/> Water storage	<input type="checkbox"/> Quarrying
<input type="checkbox"/> Agriculture	<input type="checkbox"/> Sewage treatment	<input type="checkbox"/> Brownfield
<input type="checkbox"/> Forestry	<input type="checkbox"/> Flood control	<input checked="" type="checkbox"/> Nature conservation
Other:		
Notes:		

INTERESTED PARTIES (such as friends groups, etc.)

Steel Valley Project

GEOLOGY

<input type="checkbox"/> Millstone Grit Series (Namurian)	<input checked="" type="checkbox"/> Lower Coal Measures (Westphalian A)	<input type="checkbox"/> Middle Coal Measures (Westphalian B)	<input type="checkbox"/> Upper Coal Measures (Westphalian C)
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ALTITUDE (M)

175m – 235m

SIZE (HA)

4.72ha

MAIN HABITATS/SITE DESCRIPTION

<input checked="" type="checkbox"/> Ancient woodland	<input type="checkbox"/> Heath/grassland mosaic	<input type="checkbox"/> Bog
<input checked="" type="checkbox"/> Upland oak woodland	<input checked="" type="checkbox"/> Bracken	<input checked="" type="checkbox"/> Blanket bog
<input checked="" type="checkbox"/> Wet woodland	<input checked="" type="checkbox"/> Other tall herbs	<input checked="" type="checkbox"/> Eutrophic standing waters
<input checked="" type="checkbox"/> Lowland mixed deciduous woodlands	<input checked="" type="checkbox"/> Grassland	<input checked="" type="checkbox"/> Ponds and standing water
<input checked="" type="checkbox"/> Semi-natural woodland	<input checked="" type="checkbox"/> Purple moor grass and rush pastures	<input checked="" type="checkbox"/> Rivers and running water
<input type="checkbox"/> Plantation	<input checked="" type="checkbox"/> Lowland dry acid grassland	<input checked="" type="checkbox"/> Marginal aquatic vegetation
<input checked="" type="checkbox"/> Wood pasture/Parkland	<input type="checkbox"/> Acid grassland	<input checked="" type="checkbox"/> Reedbed
<input checked="" type="checkbox"/> Traditional orchard	<input type="checkbox"/> Neutral grassland	<input checked="" type="checkbox"/> Upland flushes, fens and swamps
<input type="checkbox"/> Scrub	<input checked="" type="checkbox"/> Upland hay meadows	<input type="checkbox"/> Flush/spring
<input checked="" type="checkbox"/> Hedgerow (Ancient and/or Species Rich)	<input checked="" type="checkbox"/> Unimproved grassland	<input type="checkbox"/> Cliff/rock face/outcrop
<input type="checkbox"/> Ancient and species-rich hedgerows	<input type="checkbox"/> Semi-improved grassland	<input checked="" type="checkbox"/> Inland Rock/Scree
<input type="checkbox"/> Dry stone walls	<input type="checkbox"/> Improved grassland	<input type="checkbox"/> Quarry
<input checked="" type="checkbox"/> Lowland heathland (<300m)	<input checked="" type="checkbox"/> Coastal and floodplain grazing marsh	<input type="checkbox"/> Spoil
<input checked="" type="checkbox"/> Upland heathland	<input checked="" type="checkbox"/> Arable field margin	<input checked="" type="checkbox"/> Urban common
<input type="checkbox"/> Dry dwarf shrub heath	<input checked="" type="checkbox"/> Green roof	<input checked="" type="checkbox"/> Open mosaic habitats on previously developed land
<input type="checkbox"/> Wet dwarf shrub heath	<input type="checkbox"/> Marsh	<input type="checkbox"/> Mosaic Habitat

Other:

Notes/Site Description: A rather mixed area of woodland which seems to have developed at different stages. The northern (lower) end is more open with mainly mature trees and a poor ground flora. Moving through the woodland in a south-westerly direction the age structure becomes much better with a good understorey of holly (*Ilex aquifolium*), hazel (*Corylus avellana*) and hawthorn (*Crataegus monogyna*) and a good deal of natural regeneration. The dominant canopy species are sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*) and sessile oak (*Quercus petraea*) with good mature specimens of sycamore and ash in particular. There are abundant amounts of standing and fallen deadwood. The ground flora where it does exist is often dominated by bramble (*Rubus fruticosus* agg.) but there are good populations of a number of Ancient Woodland Indicator (AWI) species scattered throughout parts of the woodland. These include bluebell (*Hyacinthoides non-scripta*), wood sorrel (*Oxalis acetosella*), yellow archangel (*Lamium galeobdolon*), wood speedwell (*Veronica montana*), opposite-leaved golden-saxifrage (*Chrysosplenium oppositifolium*) and dog's mercury (*Mercurialis perennis*) amongst others. The most south-westerly part of the woodland has small patches of bilberry (*Vaccinium myrtillus*) and has the character of an upland oak wood with birch (*Betula* spp.), some mature rowan (*Sorbus aucuparia*) and bracken (*Pteridium aquilinum*). Many of the walls and trees on site have abundant amounts of moss and the site may well hold some

bryophyte interest, though these are unrecorded.

There is a stream which runs along the entire length of this section of the site, disappearing into a culvert at the northern end. Some sections of the stream bank have suffered somewhat from scouring and the banks are occasionally badly eroded; some remedial measures are evident in places. There is also a small dam which would have had a small pond but this has now completely vegetated over. There are still some plants associated with wetland habitats such as yellow iris (*Iris pseudacorus*), marsh-marigold (*Caltha palustris*) and brooklime (*Veronica beccabunga*) growing there.

The footpaths are generally in good condition and some have had some major re-surfacing work done recently. Some of the older paths from when the site was a formal area are now blocked. There is an interpretation panel next to the playground at the main entrance to the wood on Wood Royd Road. Bat boxes have also been placed in the woodland.

There was a considerable amount of bird activity in the wood at the time of the visit with common species such as coal tit (*Periparus ater*), great spotted woodpecker (*Dendrocopus major*) and treecreeper (*Certhia familiaris*) being present. Song thrush (*Turdus philomelos*), a NERC S41 'species of principal importance' and also listed on the Birds of Conservation Concern (BOCC) 'red-list' were noted to be breeding on site. Although the number of species is not extravagant, the populations of each species, with the exception of grey heron (*Ardea cinerea*) were significant. There are very few records for the bird life in the woodland and it may well have a high value for this particular fauna; a survey or at least some casual recording is recommended.

The site has a connective function with other areas of woodland to the north-east which run into the heart of Stocksbridge. Also, it connects with the wider open countryside to the south and west.

The two annexes which are to the north-east of the main woodland are privately owned. There are serious dumping and water pollution issues in the most north-easterly of the compartments (SK283979) which need to be resolved (This is section C on the March 2012 survey form). The middle compartment (SK282978) appears to be inaccessible so no survey information could be obtained. Part of the site has been converted to a lawn with raised beds (This is Section B on the March 2012 survey form).

The site was part of the England Woodland Grant Scheme (EWGS). However, this expired in 2017. The site is used by protected mammals.

: LBAP habitats. : UKBAP habitats.

Evaluation against Local Nature Site selection criteria from 1991 Sheffield Nature Conservation Strategy

SITE CHARACTERISTICS	Sub elements for site characteristics for the site.				COMMUNITY FACTORS	Sub elements for community factors for the site.				
	A	B	C	D		A	B	C	D	E
Richness/Diversity		Y	Y	Y	Community & Amenity Value	Y	Y	Y	Y	
Rarity	Y	Y			Educational Value					Y
Continuity of Land use					In an area of deficiency	Y				
Typicalness		Y			Threat of disturbance/destruction	Y				
Size					History of scientific recording	Y	Y			
Irreplaceability										
Fragility	Y	Y		Y						
Ecological	Y		Y							

Position										
Part of sequence of features	Y									
Significant Populations					Aesthetic Appeal & Landscape	Y	Y	Y	Y	
Potential Value	Y	Y			Geographical Position		X			
Naturalness					Physical & Visual Access	Y	Y		Y	

Greyed out boxes are not applicable/no scoring criterion exists: See accompanying explanatory text for descriptions of the criteria.

BIOLOGICAL/CONSERVATION INTEREST Tick only those boxes which reflect why the site has been selected.

<input checked="" type="checkbox"/> Plants	<input checked="" type="checkbox"/> Birds	<input checked="" type="checkbox"/> LBAP Priority Species
<input type="checkbox"/> Fungi	<input checked="" type="checkbox"/> UKBAP Priority Habitat(s)	<input checked="" type="checkbox"/> National Red Data Species
<input type="checkbox"/> Invertebrates	<input checked="" type="checkbox"/> UKBAP Priority Species	<input type="checkbox"/> Local Red Data Species
<input checked="" type="checkbox"/> Mammals	<input checked="" type="checkbox"/> LBAP Priority Habitat(s)	<input checked="" type="checkbox"/> Protected species
<input type="checkbox"/> Amphibians	<input type="checkbox"/> Reptiles	<input type="checkbox"/> Geological interest

Other (e.g. Some of the habitats and species recorded are on the NERC S41 lists of NERC S41) 'species and habitats of principal importance'.

Reason for selection

- Fulfils Local Wildlife Sites selection criteria for Upland Oak Woodland (UKBAP 'priority habitat' & NERC Section 41 'habitat of principal importance' based on habitat structure, species composition and size.
- Fulfils Local Wildlife Sites selection criteria for Lowland Mixed Deciduous Woodland (UKBAP 'priority' habitat & NERC Section 41 'habitat of principal importance'): 7 woody species, score of 20 points for woodland wild flowers against selected species list.
- Sheffield Nature Conservation Strategy criteria: The site is an important component of the variety of habitats within the Don Valley and it provides a connective function with other LWS in the area. LWS 031 East Whitwell, LWS 033 Knoll Top, Stocksbridge, LWS 035 Cockshott Hill, LWS 037 Lower Little Don, Stocksbridge, LWS 045 Old Haywoods, LWS 047 Townend Common, LWS 048 Parsonage Wood Farm and LWS 220 Upper River Don: Station Road, Deepcar all lie within 1km of this LWS

Description*

Other factors taken into consideration when selecting the site as a LWS but for which there are currently no official selection criteria

- UKBAP 'priority' habitats: Running Water
- NERC Section 41 species: song thrush
- LBAP 'priority' species: bluebell
- Protected mammals: badger (*Meles meles*), bats

* include reason for the inclusion of any habitats not listed in the reason for selection, these may include those of a supporting nature or important to the functioning/integrity of the site.

MANAGEMENT

In positive management for Local Sites reporting?	Yes/No
Date of last survey/assessment: Last survey 2012, last assessed 2012	
Recent or on-going projects: At the time of the 2012 survey the main part of the site seemed to be receiving adequate management but the smaller annexes appeared to be somewhat overlooked.	
Management recommendations supplied to land manager/owner?	Yes
Notes:	

SOURCES OF INFORMATION

Source (e.g. Phase I survey)	Date	Location of Records (e.g. SCC Ecology Unit)
Site visit and assessment	March 15 th 2012	SCC – Ecology Unit
SBRC data search	2018	SCC – Ecology Unit
Ecological survey	2002	SCC – Ecology Unit
Management plan	1987	SCC – Ecology Unit

Completed by: Michael Guy	Date: 16/03/2012
Revised and Updated by: Michael Guy	Date: 22/01/2018

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