

Goldthorpe ES10
Preliminary Ecological Appraisal
17th June 2020



Prepared by:

Middleton Bell Ecology, 33 Wilthorpe Road, Barnsley S75 1JA

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For Planning	R Bell MCIEEM <i>R Bell</i>	P Middleton MCIEEM <i>P Middleton</i>	R Bell MCIEEM <i>R Bell</i>	17/06/20

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Site Name Goldthorpe ES10	Location Land between A635 Dearne Valley Parkway and track west of Carr Head Lane, Goldthorpe
Local Authority Barnsley Metropolitan Borough Council	Grid Reference SE 44268 03583
Surveyors Robert Bell MCIEEM Peter Middleton MCIEEM	Date of Survey Extended Phase 1 Habitat Survey undertaken on 1 st & 6 th June 2020
Soilscape Slowly permeable seasonally wet acid loamy and clayey soils	Designation of Site None but falls within Dearne Valley Green Heart Nature Improvement Area (NIA)
Phase 1 Habitat Types on Site A1.1.1 Semi-natural broadleaved woodland, A1.1.2 Plantation broad-leaved woodland, A2.2 Scattered scrub, A3.1 Broad leaved scattered trees, B6 Poor semi-improved grassland, B4 Improved grassland, C1.1 Bracken, C3 Tall ruderal, G2 Running water, J1.1 Arable, J2.1.1 Native species-rich intact hedge, J2.1.2 Species-poor intact hedge, J2.2.2 Species poor defunct hedge, J2.3.1 Native species-rich hedge and trees, J2.3.2 Species poor hedge and trees, J2.3.6 Dry ditch, J2.3.4 Fence, J2.3.5 Wall, J2.3.8 Earth bank	
Protected/Notable Species, Constraints on Site Schedule 1 bird species (Marsh harrier), birds included on Red List of BOCC (skylark, grey partridge, song thrush, yellow wagtail, yellowhammer), hedgerow which classified as Important under Hedgerow Regulations (1997)	
HPis and SPis under NERC Act 2006 Habitats of Principal Importance – arable field margins, hedgerows, lowland mixed deciduous woodland Species of Principal Importance – lapwing, grey partridge, skylark, song thrush, yellow wagtail, linnet, reed bunting, yellowhammer, brown hare, hedgehog, noctule, soprano pipistrelle	
Barnsley BAP Habitats of Principal Importance – arable field margins, hedgerows, lowland mixed deciduous woodland Species of Principal Importance – farmland birds, brown hare, hedgehog	

1. Summary

- 1.1.1 A varied range of ecological survey works in connection with the proposed Goldthorpe ES10 development proposals were commissioned by Suzanne Brough of Barnsley Metropolitan Borough Council on 7th April 2020.
- 1.1.2 The area covered by the Goldthorpe ES10 proposals includes an area of land, approximately 73ha in size located between the A635 Dearne Valley Parkway and the track extending west from Carr Head Lane. This parcel of land, which comprises predominantly arable land is located on the west side of Goldthorpe.
- 1.1.3 The purpose of this report is to present the results of an extended Phase 1 habitat survey. This report includes an overview of key findings from bat, bird, hedgerow, otter, water vole and reptile surveys undertaken to date during 2020.
- 1.1.4 The site is located approximately 550m north of Bolton Ings and 1km north of Old Moor wetlands, both of which are included in the RSPBs Dearne Valley reserves. The Dearne Valley supports nationally important assemblages of breeding birds of lowland damp grassland, lowland open water and their margins and scrub, plus nationally important numbers of some individual species of breeding water birds. Carr Dike provides a measure of hydrologic and terrestrial habitat connectivity between the site and these reserves.
- 1.1.5 The most ecologically valuable habitats on site are considered to comprise Carr Dike, its associated ditch network and the broadleaf woodland bordering this watercourse. Away from the ditch network, the northern section of the site in particular, supports a number of hedgerows, some of which are classed as species rich. The hedgerow denoted by TN9 (Appendix 1) classifies as Important under the Hedgerow Regulations.
- 1.1.6 Bird survey works undertaken have shown the study area is used by at least one of the notable bird species present on RSPB Old Moor. During summer 2020 marsh harrier have been observed nesting at Old Moor, and this constitutes a first breeding record for this species within Barnsley. Bird surveys have also shown the site supports a good number and range of breeding farmland bird species, several of which are Red Listed. Bats also appear to make most extensive use of Carr Dike and the site's hedgerow network. The site is used by a wide range of more generalist bird species and other wild animals, such as hedgehog and rabbits with the majority of generalist wildlife species largely reliant on Carr Dike, site hedgerows and other semi-natural habitats for foraging and travelling through the site. Reptiles, water vole, white clawed crayfish and great crested newt appear to be absent from the site, whilst no signs of badger or otter have been recorded.
- 1.1.7 Key to avoided or minimising potential impacts upon the downstream Dearne Valley sites is the complete retention of Carr Dike, with the largest possible development buffer. It is recommended that a minimum 10m buffer, to comprise semi-natural habitat, is established beside Carr Dike, with a narrower buffer acceptable alongside tributary ditches and retained hedgerows. New blocks of semi-natural vegetation could be established in hard-to-develop areas of land between site ditches further widening this habitat corridor. Additional mitigation and compensation recommendations detailed include: a Sustainable Drainage System, green roofs, an ecologically sensitive lighting scheme, new hedgerow planting, gap planting of boundary hedgerows and the inclusion of a high ratio of integrated bird nesting and bat roosting opportunities in new buildings.

2. Introduction

- 2.1.1 A varied range of ecological survey works in connection with the proposed Goldthorpe ES10 development proposals were commissioned by Suzanne Brough of Barnsley Metropolitan Borough Council on 7th April 2020.
- 2.1.2 The ES10 proposals include an area of land approximately 73ha in size, located between the A635 Dearne Valley Parkway and the track extending west from Carr Head Lane. This parcel of land, which comprises predominantly arable land is located on the west side of Goldthorpe.
- 2.1.3 The purpose of this report is to present the results of an extended Phase 1 habitat survey which includes determining the potential for, or presence of, protected and notable species, plus an appended map of the site showing the Phase 1 habitats present. This report also includes an overview of the key findings from bat, bird, hedgerow, otter and water vole and reptile survey findings.
- 2.1.4 The key purpose of this report is to inform development proposals for the site by highlighting ecological constraints identified to date and present potential mitigation and compensation options.
- 2.1.5 Key legislation relating to designated sites and protected species and habitats is detailed in Appendix 3. The implications of legislation are detailed in the body of the report where necessary.

3. Site Description

- 3.1.1 The survey area comprises predominantly arable land located south of the A635 on the western side of Goldthorpe. The site is intersected by Carr Dike, a stream which enters the site close to the centre of the north boundary, flowing first in a southerly direction and then in an arc before exiting mid-way down the site's western boundary. Carr Dike is bordered by a partial belt of broadleaved semi-natural woodland, some plantation woodland and sections of species poor semi-improved grassland. A network of ditches joins this stream within the site, with some ditches dry at the time of survey.
- 3.1.2 A network of hedges within the survey area includes a mix of species-rich and species-poor hedgerows. Some hedgerows are intact whilst others are defunct, however, this network provides a measure of ecological connectivity through the site away from Carr Dike. To the south of Carr Dike the land is more open with a mixture of earth banks, collapsed stone walls and relicts of former hedgerows indicating historic field boundaries. Hedgerows are present along much of the site's northern, eastern and southern boundaries. In the northeast corner of the site an area of more mixed habitat, including improved grassland and scattered scrub has been established on a former brick works.
- 3.1.3 Approximately 135m from the site's southwestern boundary is a restored colliery spoil heap which is now covered by a mix of ephemeral vegetation, grassland, scrub and young woodland, known as Bolton Tip. This land adjoins an area of recently created (c.13 years ago) wetland known as Bolton Ings, which is located 550m south of the site. Bolton Ings is separated by a disused railway line and the River Dearne from the Old Moor wetlands. Both these sites together with Edderthorpe Flash, Houghton Washlands, Wombwell Ings and Adwick Washlands are included within the RSPBs

Dearne Valley reserves which extend over a c10km section of the river flood plain. Carr Dike which is an important ecological feature within the proposed development site is fed by a number of springs on high ground between Great Houghton and Clayton three to four kilometres north of the application site. This tributary eventually flows between Bolton Ings and Old Moor before entering the River Dearne.

- 3.1.4 The site is bordered to the east predominantly by the built environment comprising both Goldthorpe Industrial Estate and residential properties within the conurbations of Goldthorpe and Bolton Upon Dearne. The site's north boundary comprises mainly the A635, with arable land and the village of Billingley beyond. To the west of the site arable land extends to the A6195 south of Cathill roundabout.

Figure 1. The site location, as indicated by red line



- 3.1.5 The site falls within National Character Area (NCA) 38 - the Nottinghamshire, Derbyshire and Yorkshire Coalfield. This is a generally low-lying area, with hills and escarpments above wide valleys, the landscape embraces major industrial towns and cities as well as villages and countryside. Very little of the NCA is designated for geology or nature conservation, but instead the landscape is dotted with many pockets and patches of habitat where species find refuge.

4. Methodology

4.1 Data Consultation

- 4.1.1 Barnsley Biological Records Centre (BBRC), South Yorkshire Bat Group (SYBtG) and South Yorkshire Badger Group (SYBaG) were contacted to request the following information for locations within a 2km radius of the site:

- Protected and notable species records
- The boundaries of non-statutory designated sites of nature conservation interest

4.1.2 A search of the Multi-Agency Geographical Information for the Countryside (MAGIC) website was also undertaken to determine the following:

- The boundaries of statutory designated sites of nature conservation interest
- The locations of historic European Protected Species (EPS) licences granted by Natural England

4.1.3 Over the winter of 2019/2020 between 22nd October 2019 and 27th February 2020, weekly vantage point surveys of the site were undertaken specifically focused on recording wintering golden plover *Pluvialis apricaria* (WA, 2020). The resulting survey report was made available by Barnsley Metropolitan Borough Council with key survey observations detailed in Section 5 of this report.

4.2 Field Survey

Extended Phase 1 Habitat Survey

4.2.1 The site was surveyed on 1st and 6th June 2020 using extended Phase 1 habitat survey methodology (JNCC, 2010) by the following personnel:

- Peter Middleton (MCIEEM)

4.2.2 Notable, rare or scarce plant species were highlighted if present. Evidence of protected species or species of nature conservation importance was recorded where present at the time of survey. Species recorded are included within the report as appropriate. Information is presented on the Phase 1 plan, using Target Notes (TN) to identify particular features of interest, where appropriate. Additionally, and where possible, habitats were classified using the National Vegetation Classification (NVC), as described in the JNCC National Vegetation Classification – Users Handbook (Rodwell, 2006).

4.2.3 Ariel photographs (Google Earth) were studied to place the site in its wider context and to look for ecological features that would not be evident on the ground during the walkover survey. This is particularly useful for identifying wildlife corridors and ponds but because the latter are often not apparent on aerial photographs, OS 1:25 000 scale maps are also used.

Badger Survey

4.2.4 Both the site and land within a radius of 50m of the site were surveyed for signs of badger presence including setts, paths, snuffle holes, scratch posts, hair traces, footprints and latrines. This survey was undertaken by Robert Bell on 15th & 17th April 2020.

Bat Activity Survey

4.2.5 One spell of bat activity survey per season (Spring, Summer and Autumn) is being undertaken. Each spell of survey will include one bat activity transect and one five-night period of static monitoring using two static monitoring devices (Wildlife Acoustic SM4s). The first bat survey transect was undertaken by Robert Bell on 20th May 2020, with static monitoring undertaken between 20th-25th May 2020. Upon collection the static monitoring devices are downloaded and recorded bat calls identified to species level, where possible. The EcoBat web tool will be used to contrast bat activity data obtained from this site, with other sites in the region. Full survey results will be

presented in the final Ecological Impact Assessment report.

Breeding Bird Survey

- 4.2.6 The survey methodology used comprised an adaptation of the former British Trust for Ornithology (BTO) Common Bird Census and the BTO Breeding Bird Survey. A territory-mapping approach was used to estimate the number and positions of territories of each species present on site during the breeding season. The survey was undertaken by Peter Middleton, with the site surveyed four times between 23rd April and 8th June 2020. All contacts with birds, either by sight or sound were plotted on maps at a standard scale of 1:2,500. Codes were used to note each bird's species, with sex and age where possible, and also to record activity such as song or nest-building. The registrations were then transferred to species maps and digitised. Full survey results will be presented in the final Ecological Impact Assessment report.

GCN eDNA Survey

- 4.2.7 An eDNA survey to determine the presence/absence of Great Crested Newt (GCN) *Triturus cristatus* was undertaken on a single waterbody on the edge of Bolton Tip (OS Grid Reference: SE 44023 02648) on 15th April 2020 by Robert Bell (GCN Survey Licence: 2015-19174-CLS-CLS). The water sample was analysed by SureScreen Scientifics. Full survey results will be presented in the final Ecological Impact Assessment report.
- 4.2.8 In 2019 an eDNA of two ponds located to the north of the site was undertaken by Wildscapes CIC Ltd. The eDNA result was passed onto Middleton Bell Ecology by Barnsley Metropolitan District Council to inform this report.

Hedgerow Assessment (Ecological Features Only)

- 4.2.9 All site hedgerows were surveyed by Robert Bell against ecological criteria detailed in Hedgerow Regulations (1997). This survey was undertaken on 15th May 2020. Full survey results will be presented in the final Ecological Impact Assessment report.

Otter and Water Vole Survey

- 4.2.10 A single otter and water vole survey of Carr Dike and other site ditches was undertaken by Robert Bell and Amanda Murphy (QualCIEEM) on 30th April 2020. This survey included accessible sections of ditch and watercourse extending up to 100m beyond the site boundary. Full survey results will be presented in the final Ecological Impact Assessment report.

Reptile Survey

- 4.2.11 The site was subject to a seven-visit reptile survey using 60 felts spread in groups of 10 across section of suitable habitat on site. The felts were given 17 days to bed in before the seven survey visits were commenced with all survey visits undertaken during periods of suitable weather (Froglife, 1999) on dates between 2nd – 28th May 2020. All survey visits were undertaken by either Peter Middleton or Robert Bell (MCIEEM). Full survey results will be presented in the final Ecological Impact Assessment report.

4.3 Survey Limitations

4.3.1 No significant limitations to the surveys undertaken to date have been encountered.

5. Ecological Baseline

5.1 Data Consultation

5.1.1 Designated sites present within 2km of the site are detailed in Table 1.

Table 1. Designated sites

Designation	Name	Interest	Distance and orientation from site
Local Wildlife Site (LWS)	Old Moor and Wath Ings	An 83ha area including extensive wetlands used by a range of notable bird species including breeding bittern.	1.0km southwest
	Bolton upon Dearne Wetlands	A 2.5ha area of neutral grassland, marshy grassland and scrub containing a good diversity of plant species.	1.1km east
	Broomhill Flash and Wombwell Ings	A 58ha area of floodplain including neutral grassland, marshy grassland and open water. Of importance to wetland and wading birds.	1.7km west
	Gipsy Marsh	A 4.7ha site comprising range of habitats including swamp, standing water, scrub, marshy and neutral grassland. Supports good botanical diversity.	2.0km southwest

5.1.2 Old Moor and Wath Ings LWS, Gipsy Marsh LWS and the Wombwell Ings section of Wombwell Ings and Broomhill Flash LWS are all included in the RSPBs Dearne Valley reserves. Broomhill Flash is also actively managed for nature conservation with the focus on birds, by the Garganey Trust. The Dearne Valley supports nationally important assemblages of breeding birds of lowland damp grassland, lowland open water and their margins and scrub plus nationally important numbers of some individual species of breeding water birds. Although individual sites within the Dearne Valley are mainly designated at a local level only at this moment, Old Moor is currently under consideration for designation at a national level as a Sites of Special Scientific Interest (SSSI).

5.1.3 The site falls within the Dearne Valley Green Heart Nature Improvement Area (NIA) which includes parts of Barnsley, Doncaster and Rotherham boroughs. Nature Improvement Areas (NIA) were established to create joined up and resilient ecological networks at a landscape scale and the Dearne Valley Green Heart was one of 12 winning NIA projects chosen after a competitive process announced in the Natural Environment White Paper (2011). Barnsley Council's Biodiversity and Geodiversity Supplementary Planning Document specifies that within the NIA, specific biodiversity

enhancements over and above the minimum mitigation/ compensation measures are required. This document states that major developments are expected to incorporate full-site biodiversity measures including comprehensive sustainable drainage systems and landscape schemes. Such sites will be expected to provide connectivity throughout the site and link to sites and features outside the site.

- 5.1.4 No ancient woodland is present within 2km of the site.
- 5.1.5 Species records received from BBRC and historic EPS licences issued for locations within 2km of the survey area are discussed in the relevant species sections of the report.

5.2 Field Survey

- 5.2.1 The arrangement of site habitats is shown on the Phase 1 plan in Appendix 1, whilst a field survey botanical species list is provided in Appendix 2.

Habitats

A1.1.1 Broad leaved semi natural woodland

- 5.2.2 There is a linear woodland adjacent to Carr Dike which is almost 500m in length (Plate 1). The width of the woodland varies between 50m at its widest point at its northern most extremity, to less than 10m in places. Sycamore *Acer psuedoplatanus* is abundant together with frequent ash *Fraxinus excelsior*, hawthorn *Crataegus monogyna* and pendunculate oak *Quercus robur*, whilst wild cherry *Prunus avium* is locally frequent. Occasional species include silver birch *Betula pendula*, grey willow *Salix cinerea* and goat willow *Salix caprea*. Species present only rarely include hybrid willow *S. cinerea x caprea*, alder *Alnus glutinosa*, wych elm *Ulmus glabra*, hazel *Corylus avellana* and field maple *Acer campestre*. This woodland includes a number of tall and mature long-established trees (Plate 2) together with young specimens.

Plate 1. Broad leaved woodland



- 5.2.3 There is little understorey present in association with the woodland, however, where it is present (mainly at the edges) it comprises occasional bramble *Rubus fruticosus* agg. dog rose *Rosa canina*, grey willow, alder, hazel, hawthorn, elder *Sambucus nigra* and

rarely occurring blackthorn *Prunus spinosa*. The ground flora mostly comprises abundant nettle *Urtica dioica*, cow parsley *Anthriscus sylvestris* and garlic mustard *Alliaria petiolata* together with locally dominant ivy *Hedera helix*.

Plate 2. Mature oak and sycamore trees in centre of woodland belt



A1.1.2 Plantation broad-leaved woodland

- 5.2.4 Along the northern boundary of the site is a linear plantation woodland comprising abundant ash and field maple together with occasional pendunculate oak, hawthorn, sycamore, silver birch and alder (Plate 3). Rarely occurring species include rowan *Sorbus ocuparia*, grey willow and goat willow. Dog rose is abundant in the understory along the southern edge, together with occasional hazel whilst the ground flora comprises abundant rough meadow-grass and cleavers *Gallium aperine* together with frequent hogweed *Heracleum sphondylium*. Also, there is a small area that has been planted with trees adjacent to Carr Dike, south of the northern boundary, which is dominated by ash together with frequent alder and rarely occurring field maple (see TN 1). Trees within these areas of plantation are mainly young, with many trees yet to have their tree guards removed.

Plate 3. Plantation woodland on northern boundary (view west)



A2.2 Scattered scrub

- 5.2.5 Scattered scrub is present along the length of Carr Dike and includes frequent sycamore, bramble and hawthorn together with occasional dog rose and rarely occurring crack willow *Salix fragilis*, field maple and elder (Plate 4). In the northeast corner of the site, where there is a mosaic of habitats on a former tip, species include frequent hawthorn and bramble, occasional dog rose and rarely occurring broom *Cytisus scoparius*.

Plate 4. Scattered scrub along Carr Dike near western boundary



B3.1 Scattered trees

- 5.2.6 Scattered trees are present along Carr Dike in the north of the site with species present including frequent sycamore and hawthorn together with occasional goat willow and crack willow.

B4 Improved grassland

- 5.2.7 Two small fields in the northeast corner of the site which had been cut for silage prior to the visit comprise abundant perennial ryegrass *Lolium perenne* and soft brome *Bromus hordeaceus* together with occasional cocksfoot *Dactylis glomerata* and rough meadow-grass *Poa trivialis*. False oat-grass and wall barley *Hordeum murinum* are locally abundant at the field's periphery, together with occasional smooth meadow-grass *Poa pratensis* (Plate 5).

Plate 5. Improved grassland cut for silage



B6 Poor semi-improved grassland

- 5.2.8 Along the length of the southern side of Carr Dike, part of the northern side of the dike and some of the bank sides is a habitat that can best be described as poor semi improved grassland (Plate 6). The grassland is dominated by false oat-grass together with frequent cocksfoot and local abundant soft brome. Other grasses present along this bank include frequent barren brome *Anisantha sterilis* together with occasional rough meadow-grass, smooth meadow-grass *Poa pratensis* and common couch *Elytrigia repens*. Tall herbs are plentiful along the bank and dike sides and include locally dominant nettle, locally abundant rosebay *Chamerion angustifolium* and great willowherb *Epilobium hirsutum* together with frequent hemlock *Conium maculatum* and garlic mustard. Occasional species include hogweed, oilseed rape *Brassica napus*, spear thistle *Cirsium vulgare*, cow parsley, cleavers, broad leaved dock *Rumex obtusifolius*, curled dock *Rumex crispus* and greater stitchwort *Stellaria holostea*. Species present in smaller quantities include red dead nettle *Lamium purpureum*, red campion *Silene dioica*, water figwort *Scrophularia auriculata* and hop *Humulus lupulus* (Plates 3 & 5). Close to the north east corner of the site is an uncultivated triangular shaped piece of land which is almost entirely dominated by false oat-grass together with small areas of bracken *Pteridium aquilinum*. At the periphery of the field is locally abundant red fescue together with several tall herbs including occasional common knapweed *Centaurea nigra*, cow parsley, hogweed, nettle and spear thistle.

Plate 6. Poor semi improved grassland along Carr Dike bank



C1.1 Bracken

- 5.2.9 Two small areas of bracken *Pteridium aquilinum* are present in the northeast corner of the site.

C3 Tall ruderal

- 5.2.10 Tall ruderal vegetation is present in a number of locations across the site; however, areas are too small to show clearly on the Phase 1 plan (Appendix 1). Tall ruderal vegetation on site is interspersed with semi-improved grassland in many places on the bank sides of Carr Dike and mostly comprises dominant nettle and locally dominant rosebay and great willowherb. In addition, there is a derelict stone wall surround by arable land in the southern half of the site that supports areas dominated by nettle, spear thistle *Cirsium vulgare* and creeping thistle *Cirsium arvense* (TN 4, Appendix 1).

G2 Running water

- 5.2.11 Carr Dike is the main ecological feature on site. It enters the site close to the centre of the northern boundary via a culvert passing beneath the A635. It then travels in a gentle arc before exiting the site close to the centre of the western boundary. Within the site the main Carr Dike watercourse is joined by a tributary which enters the site at the eastern boundary and two dry ditches. Carr Dike is mainly c.1-2m in width, with the depth typically less than 0.5m with a gentle flow. The stream bed is a mix of silt and larger stones, with the water generally quite turbid. The dike's banks are generally quite steep (>45°). The dike supports little emergent vegetation (see Plates 4 & 7), although the tributary which enters from the east does support small areas of common reed *Phragmites australis* (TN3, Appendix 1). This watercourse is maintained by the Internal Drainage Board.

Plate 7. Looking south down Carr Dike shortly after it emerges from culvert beneath A635



Plate 8. Looking west along Carr Dike at western end of site



Plate 9. Tributary entering Carr Dike from east of site



J1.1 Arable

- 5.2.12 Arable land constitutes the majority of the site. Crops present at the time of survey include barley, wheat and oilseed rape (Plate 10). Arable weeds noted within the crops include scentless mayweed *Tripleurospermum inodorum*, knotgrass *Polygonum aviculare*, wild raddish *Raphanus raphanistrum*, field horsetail *Equisetum arvense* common field speedwell *Veronica persica*, annual meadow-grass *Poa annua*, American willowherb *Epilobium ciliatum*, common fumitory *Fumaria officinalis*, wild oat *Avena fatua*, cleavers, common couch, spear leaved orache *Atriplex prostrata*, common poppy *Papaver rhoeas* and wild pansy *Viola tricolor*. Narrow field margins, typically c.1m, between the arable land and hedgerows are largely dominated by either soft brome or barren brome. In the north of the site there is a wide field margin (TN1) that is mostly dominated by rough meadow-grass together with frequent Yorkshire fog *Holcus lanatus*. Occasional species include smooth meadow-grass, false oat-grass, cocksfoot, hogweed, curled dock, broad leaved dock, teasel *Dipsacus fullonum*, cow parsley, spear thistle, creeping thistle and nettle. Prickley lettuce *Lactuca serriola* is present locally together with rarely occurring hemlock (Plate 11).
- 5.2.13 A field margin on the northern side of Carr Dyke has an affinity with the NVC classification MG1 (TN8) and comprises abundant false oat-grass and cocksfoot together with frequent hogweed.

Plate 10. Arable land viewed from southern boundary



Plate 11. Wider section of field margin at TN1 (Appendix 1)



J2.1.1 Native species-rich intact hedge, J2.1.2 Species-poor intact hedge, J2.2.2 Species-poor defunct hedge, J2.3.1 Native species-rich hedge and trees, J2.3.2 Species-poor hedge and trees

- 5.2.14 All site hedgerows are dominated by native species, with a combination of species rich (5 or more native species in a 30m length) and species poor hedgerows present. Hedgerows range from intact managed hedgerows with a height of 1.5m through to outgrown hedgerows with a height of 4m. Some hedgerows have a relatively high proportion of standard trees whilst others are largely devoid of trees. Full hedgerow survey results will be presented in the Ecological Impact Assessment.
- 5.2.15 A single hedgerow (TN9, Appendix 1) classifies as Important under the ecological criteria of the Hedgerow Regulations (1997). This hedgerow has five or more woody species in a typical 30m length, a dry ditch along at least half its length, on average one tree every 50m, connections scoring four points or more and gaps not exceeding 10%. It is also noteworthy that a number of the trees in this hedgerow are mature and include features offering bat roost potential, as will be discussed in the species section of this report.

Plate 12. Hedgerow at TN9 (Appendix 1)



J2.3.5 Wall and J2.3.8 Earth bank

- 5.2.16 On land to the south of Carr Dike are a number of old field boundaries which are indicated solely by the presence of either earth banks, the base of former stone walls (TN4) and/or sections of remnant (defunct) former hedgerow (TN7). These areas now comprise strips of uncultivated land between 1-4m in width and they are generally covered by a mix of tall ruderal vegetation and unmanaged species-poor semi-improved grassland.

Plate 13. Unmanaged semi-improved grassland growing on earth bank and dry ditch to south of Car Dike



J2.3.4 Fence

5.2.17 Post and wire fences and more substantial security fencing are present either on-site or just beyond the site boundary along much of the eastern site boundary. Post and wire fences are also present through the centre of some site hedgerows and the boundary of woodland blocks.

J2.6 Dry ditch

5.2.18 Dry ditches are present in a number of locations across the site, mainly in association with hedgerows, but also adjacent to an earth bank in the southern section of the site. These ditches support a similar mix of unmanaged semi-improved grassland and tall ruderal vegetation to other unwooded and uncultivated areas of land on site. Species recorded from this habitat include abundant false oat-grass and locally abundant rosebay, together with frequent nettle and cocksfoot. Occasional species include rough and smooth meadow-grass, soft brome, dandelion *Taraxicum officinale* agg., broad leaved dock, spear thistle and creeping thistle.

J5 Other habitat

5.2.19 An area of land comprising a former brick works is present at the northeast corner of the site. Located between two small fields of improved grassland this area has been classified as 'Other' habitat (TN6) which has established on a mix of both low and high nutrient substrates. Much of this area is grassland comprising abundant false oat-grass together with locally dominant barren brome and frequent rough and smooth meadow-

grasses. Cocksfoot and false brome are present occasionally together with rarely occurring meadow foxtail *Alopecurus pratensis*. Somewhat large piles of dumped organic matter in this area are covered by dominant hemlock or spear leaved orache, together with smaller areas of frequent nettle and green alkanet *Pentaglottis sempervirens*. There are also areas of bare ground with sparse pioneer vegetation such as scentless mayweed, together with sparsely vegetated low nutrient stony ground comprising locally abundant red fescue *Festuca rubra*, sheep's sorrel *Rumex acetosella* and frequent smooth hawksbeard *Crepis capillaris* (see Plate 14). A full species list is detailed in Appendix 2.

Plate 14. Mosaic of grass, tall ruderal and bare ground



Species

Amphibians

- 5.2.20 Barnsley Biological Records Centre provided four Great Crested Newt (GCN) *Triturus cristatus* records for a single location approximately 1.4km west of the site. These records were all collected in 2011 and relate to a maximum count of one male newt. A total of eight common toad *Bufo bufo* records were supplied, with the closest record collected in 2007 from a location 1.3km northwest of the site. The closest of 18 common frog *Rana temporaria* records was also collected in 2007 from the same location as the toad record. Of the eight smooth newt *Lissotriton vulgaris* records received, the closest was collected from a location 930m south of the site in 2014. No EPS licences relating to GCN have been issued for locations within 2km of the site.
- 5.2.21 A pond search highlighted the presence of three ponds, located within 500m of the site which are not separated from it by a major barrier to movement (i.e. the A635). The location of these ponds is shown on Figure 2.

Figure 2. Ponds within 500m of site not separated from it by major barrier to movement



5.2.22 Ponds 1 and 2 (Figure 2) were subject to an eDNA survey by Wildscapes CIC Ltd in 2019, which showed that GCN were absent from these waterbodies. In addition, an eDNA survey of Pond 3, undertaken as part of the current program of survey also showed absence of GCN. As a result, it is considered that GCN are not a receptor to the proposed scheme.

5.2.23 Given the flowing nature of Carr Dike and its tributary ditch, combined with the lack of submerged vegetation present, it is considered that these water courses are unsuitable for breeding amphibians. Terrestrial habitat on site with suitability for use by amphibians is limited to areas other than the arable land.

Badger

5.2.24 No badger records are held by BBRC for locations within 1km of the site. South Yorkshire Badger Group are not aware of any records of this species within 4km of the site.

5.2.25 No signs of badger presence were recorded from the badger survey of the site. If present in the local area, then badger may occasionally visit the site as part of an extended foraging and commuting area.

Bats

5.2.26 A total of 130 bat records were supplied by BBRC with 333 supplied by South Yorkshire Bat Group. No bat records were provided for the site itself and species identified in the combined records include common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, noctule *Nyctalus noctula*, Leisler's bat *Nyctalus leisleri*, Daubenton's bat *Myotis daubentonii* and whiskered bat *Myotis mystacinus*.

5.2.27 The closest bat roost records received from BBRC comprises a common pipistrelle

maternity roost (peak count 187 bats), recorded from a location 1.3km northeast of the site in 1993. The closest roost included in records received from SYBG comprises a noctule roost supporting a single bat, recorded from a location 710m northeast of the site in 2012.

5.2.28 No bat EPS licences have been issued for locations within 2km of the site.

5.2.29 A total of six trees were recorded as supporting a significant level of bat roost potential during the Phase 1 survey (Figure 3), with these trees located either on Carr Dike or a hedgerow to the north (TN9). This included five trees offering moderate bat roost potential and one displaying low bat roost potential. These trees will be subject to a direct climbing inspection during summer 2020.

Figure 3. Trees with significant bat roost potential on site



5.2.30 The first spell of bat activity survey recorded a minimum of five species using the site, including common pipistrelle, soprano pipistrelle, noctule, Leisler's bat and one or more *Myotis* species. Initial analysis of the survey information obtained shows that as expected, Carr Dike is the most heavily used section of the site by foraging and commuting bats, however, bats (especially pipistrelle) also make extensive use of site hedgerows ranging across all habitats during calm weather.

Birds

5.2.31 A total of 15,368 bird records were received from BBRC. Records of the following species were received for the site itself: kestrel *Falco tinnunculus*, yellow hammer *Emberiza citrinella*, grey partridge *Perdix perdix*, dunnock *Prunella modularis*, common crane *Grus grus*, linnet *Linaria cannabina*, swift *Apus apus*, swallow *Hirundo rustica* and song thrush *Turdus philomelos*.

5.2.32 The lower Dearne valley (including the site) historically supported a large wintering population of golden plover which numbered up to 8,500 birds which was approaching the 1% threshold for international importance (9,300 birds) (BBSG 2012). However,

during weekly vantage point surveys of the site undertaken between 22nd October 2019 and 27th February 2020 no golden plover was recorded using the site (WA, 2020). The subsequent report concluded the following:

The survey results conclude that the habitats on site are not critical to the local wintering Golden Plover populations within the Dearne Valley. The reasons why the site is not used are not clear as a longer term study would be required to establish this, however it is postulated that the general population declines in the locality may be linked to a shift in behavioural preference towards coastal/estuarine habitats, especially in association with the Humber estuary.

5.2.33 In summary, the bird surveys have revealed that the site supports a relatively large assemblage and abundance of farmland/open habitat species of birds including yellowhammer, skylark, yellow wagtail *Motacilla flava* and linnet together with a single pair of grey partridge. Two pairs of lapwing have bred or attempted to breed in the southern section of the site and the woodland along Carr Dike supports a range of residents and summer migrants including song thrush, blackcap *Sylvia atricapilla*, willow warbler *Phylloscopus trochilus* and chiff chaff *Phylloscopus collybita*. Whitethroat *Sylvia communis* breed at field boundaries, reed buntings *Emberiza schoeniclus* nest in oilseed rape crops and the site appears to be used as part of a wider foraging habitat by marsh harrier *Circus aeruginosus*. Full bird survey results will be presented in the Ecological Impact Assessment.

Invasive species

5.2.34 Indian balsam *Impatiens glandulifera*, included on Schedule 9 of the Wildlife and Countryside Act (1981) (as amended), was recorded occasionally from various locations along Carr Dike.

Invertebrates

5.2.35 The mix of habitats present on site is likely to support a range of common invertebrates, however, habitats present are generally common in the local area. Consequently, rarely occurring invertebrate species are considered unlikely to be present.

Otter

5.2.36 A total of 22 otter *Lutra lutra* records were received from BBRC. The closest record was collected in 2010 from a location 730m south of the site.

5.2.37 No signs of otter were recorded during the first otter and water vole survey. It is considered that Carr Dike offers good potential as a movement corridor for this species however it is not apparent that it would provide a high-quality foraging resource.

Plants

5.2.38 Habitats are largely nutrient enriched and have been subject to extensive human modification. Consequently, these habitats are unlikely to support any rarely occurring plant species.

Reptiles

5.2.39 A total of 15 reptile records were received from BBRC. These records related to grass snake *Natrix helvetica*, adder *Vipera berus*, slow worm *Anguis fragilis* or common lizard

Zootoca vivipara. No reptile records were received for the site itself. The closest reptile records comprise four grass snake records recorded from a location 1.7km west of the site in 2016.

- 5.2.40 The reptile survey failed to record any reptiles from the site, and it is considered that this species group does not represent a receptor to the proposed scheme.

Water vole

- 5.2.41 A total of 282 water vole *Arvicola amphibius* records were supplied by BBRC. The closest records were collected in 2002 from a section of the River Dearne located 880m southwest of the site.

- 5.2.42 No evidence of water vole was recorded during the first water vole survey of the site. At present it appears likely that this species is absent from the site. A second water vole survey is scheduled to be undertaken between July-August this year.

White clawed crayfish

- 5.2.43 No white clawed crayfish *Austropotamobius pallipes* records were received from BBRC. Carr Dike is largely silt bottomed and it is considered unlikely that this species is present on site.

Other animals

Brown hare

- 5.2.44 A total of 25 brown hare records were received from BBRC. None of the records received related to the site itself with the closest record recorded from a location 800m southwest of the site in 2015.

- 5.2.45 During bird survey works, brown hare *Lepus europaeus* has been recorded on three occasions. On the 20th May, a pair were recorded from the northeast arable field, with individual animals recorded from arable land on the northwest of the site on 22nd and 28th May.

Hedgehog

- 5.2.46 A total of 21 hedgehog *Erinaceus europaeus* records were received from BBRC. No records were obtained for the site itself, with the closest record obtained in 2014 from a location 60m east of the site. A single hedgehog was recorded walking along the base of the southern boundary hedgerow on site during the bat survey transect, undertaken on 20th May 2020.

Roe deer and rabbit

- 5.2.47 Rabbit *Oryctolagus cuniculus* burrows have been observed from the bank of Carr Dike and also a double hedgerow near the northeast corner of the site. Rabbits have been seen during all the bird surveys in all parts of the northern section of the site

- 5.2.48 A roe deer *Capreolus capreolus* was recorded from a location close to the southwest corner of the site on 28th May 2020.

6. Assessment

6.1 Proposals

6.1.1 Proposals for the scheme are currently being developed.

6.2 Consideration of Impacts

Designated sites

6.2.1 There are a number of ways in which the proposed development may impact upon the Dearne Valley wetlands, notably including the RSPBs Old Moor, Wath Ings and Bolton Ings sites.

6.2.2 Bird survey works undertaken to date have shown the study area is used by at least one of the notable bird species present on RSPB Old Moor. Marsh Harrier comprise a bird species included on Schedule 1 of the Wildlife and Countryside Act (1981) as amended. During summer 2020 marsh harrier have been observed nesting at Old Moor, and this constitutes a first breeding record for this species within Barnsley. An adult male marsh harrier from this breeding pair has been recorded foraging over the site on a daily basis recently. If chicks from the nest fledge, then it is proposed to undertake targeted vantage point surveys, to determine the importance of the site to these juvenile birds. This observation demonstrates that the site is likely to be used as a wider dispersal and foraging area by birds using RSPB Old Moor and the other Dearne Valley wetlands. It is also noted that insensitive development of the site may negatively impact the integrity of the Old Moor and Bolton Ings sites by restricting foraging and dispersal opportunities for several species potentially including bittern.

6.2.3 Carr Dike provides further connectivity between the site and wetlands in the Dearne Valley as the two areas are likely to be hydrologically connected. This may mean that if increased flood water runoff were to enter Carr Dike as a result of the site's development, then it may result in downstream flooding at wetland sites in the Dearne Valley. In addition, runoff of pollutants from newly developed areas, either during construction or operation of any future development, could also impact downstream sites. For this reason, it is recommended that a hydrological investigation of the potential impact/s of the development proposals should be carried out.

Habitats

6.2.4 The most ecologically valuable habitats on site are considered to comprise Carr Dike, its associated ditch network and the broadleaf woodland that borders this watercourse. Carr Dike provides the main ecological link between land to the north and east of the site and the extensive complex of semi-natural habitat to the south and southwest, which includes Bolton Tip, Bolton Ings and Old Moor.

6.2.5 Direct habitat loss across this ditch network or the adjacent woodland could be required to enable works such as the construction of new roads across the site or parts of the ditch network may be culverted. Any direct habitat loss within this area would impair its appeal to foraging and commuting animals of a wide range of species. Runoff of pollutants from newly developed areas, either during construction or operation of any future development could also lead to kill or damage invertebrates within Carr Dike and faunal species which exploit these, as well as potential harming areas of retained vegetation.

- 6.2.6 It will also be important to consider the potential for indirect impacts upon Carr Dike, its associated ditch network and/or supporting habitats. Increases in noise, light, vibration or human presence across the ditch corridor would all have some level of negative impact upon its appeal to faunal species.
- 6.2.7 Away from the ditch network, the northern section of the site, in particular, supports a number of hedgerows, some of which are classed as species rich. In particular the hedgerow denoted by TN9 (Appendix 1) classifies as Important under the Hedgerow Regulations. The hedgerow denoted by TN9 also supports a dry ditch, a number of mature trees and provides further ecological connectivity between the northern boundary of the site and Carr Dike. It is likely that some hedgerow removal would be required to facilitate any site development, whilst damage to component plants, or semi-natural vegetation at the base of hedges during the development of adjacent land may also occur.

Species

- 6.2.8 The site supports a good number and range of breeding farmland bird species, several of which are Red Listed. Many farmland bird species have suffered severe declines in abundance over the last century. Farmland birds are largely reliant upon the continued cultivation of land. Any development of the arable land on site will result in a decrease in habitat available to the farmland bird species in the area. In addition, indirect impacts arising from the construction and operation of any new development would lessen the appeal of retained arable land adjacent to the development boundary. The same impacts would be experienced by brown hare, another species of farmland which would not be likely to remain present following any new development.
- 6.2.9 Bats currently appear to make most extensive use of Carr Dike and the site's hedgerow network. The main impacts on this faunal group would result from any severance of these features, most notably including Carr Dike. This species group would also be very sensitive to any increase in artificial lighting across the dike and to a lesser extent any retained hedgerows. The arable land is of less importance to this group of species and the scheme need not necessarily negatively impact bats.
- 6.2.10 The site is used by a wide range of more generalist bird species and other wild animals, such as hedgehog and rabbits. The majority of generalist wildlife species are likely to rely on Carr Dike, site hedgerows and other semi-natural habitats for foraging and travelling through the site. As with bats, negative impacts on many of these species may be avoidable.
- 6.2.11 Methods to avoid or mitigate for the impacts detailed above is discussed in Section 6.3.

6.3 Mitigation and compensation

Designated sites

- 6.3.1 Key to avoided or minimising potential impacts upon the downstream Dearne Valley wetland sites is the complete retention of Carr Dike with the largest development buffer possible. It is recommended that a minimum 10m buffer, to comprise existing and newly established semi-natural habitat, is established beside Carr Dike, with a narrower buffer acceptable alongside tributary ditches and retained hedgerows (see Appendix 4). Where buffers of semi-natural habitat beside ditches result in hard-to-develop and awkward shaped plots of land, then it would be ecologically beneficial if

new semi-natural habitats (i.e. reedbed or woodland), could also be established in these areas. This would further widen the main corridor running alongside Carr Dike. It is recommended that an earth bund, planted with native broadleaved trees, separates the developed areas from retained semi natural areas, to prevent encroachment and screen light spill.

- 6.3.2 It is recommended that consideration is given to the feasibility of developing new areas of reedbed beside Carr Dike, with this habitat particularly likely to appeal to marsh harrier and bearded tit *Panurus biarmicus*. A high-quality Sustainable Drainage System (SuDS) should be included in the scheme, in order to ensure runoff is filtered and slowed before it enters Carr Dike. Such measures would help prevent any new development from contributing to downstream flooding, or a deterioration in water quality within the dike. Consideration should also be given to using concrete permeable grass grids in employee car parking areas to further reduce water runoff from the site into Carr Dike.

Habitats

- 6.3.3 The establishment of a large buffer of semi-natural habitat beside Carr Dike and its contributory ditch network, would ensure the retention of the most ecologically valuable habitats on site. It is also recommended that the hedgerow denoted by TN9 is retained and protected by a buffer of at least 8m of semi-natural habitat. Similarly, it is recommended that a new species rich hedgerow, with a minimum 8m buffer of semi-natural habitat, should be established along the line of the existing earth bank and dry ditch, which connects Carr Dike to the southern site boundary. Gap planting of existing boundary hedgerows and planting of new boundary hedges, where absent, is recommended.
- 6.3.4 It is noted that Barnsley Council's Biodiversity and Geodiversity Supplementary Planning Document specifies that within the NIA, specific biodiversity enhancements over and above the minimum mitigation/ compensation measures are required. For this reason and to provide an additional benefit to nature conservation and to avoid runoff, it is recommended that all new site buildings should be constructed with green roofs. Any new building layout should be designed to avoid the location of new lighting immediately adjacent to retained or newly created semi-natural habitat.

Species

- 6.3.5 The establishment of large buffers of semi-natural habitat beside Carr Dike and other retained hedgerows and ditches would benefit most species which use the site and would ensure continued ecological connectivity through the site. The addition of green roofs would also offer new areas of habitat which could be exploited by invertebrates and birds.
- 6.3.6 Impacts on farmland birds as a result of any development of the site is difficult to mitigate against. However, green and/or brown roofs have the potential to be used by both skylark and lapwing.
- 6.3.7 In order to benefit bird species, such as swift and house sparrow that make use of buildings for nesting, and to provide new roost spaces for a range of bat species, it is recommended that new buildings are designed with integrated bird nesting and bat roosting opportunities.

7. References

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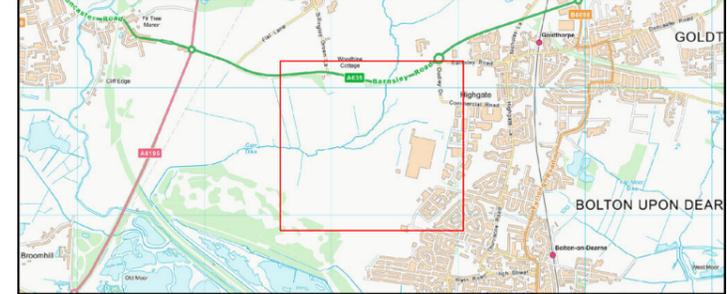
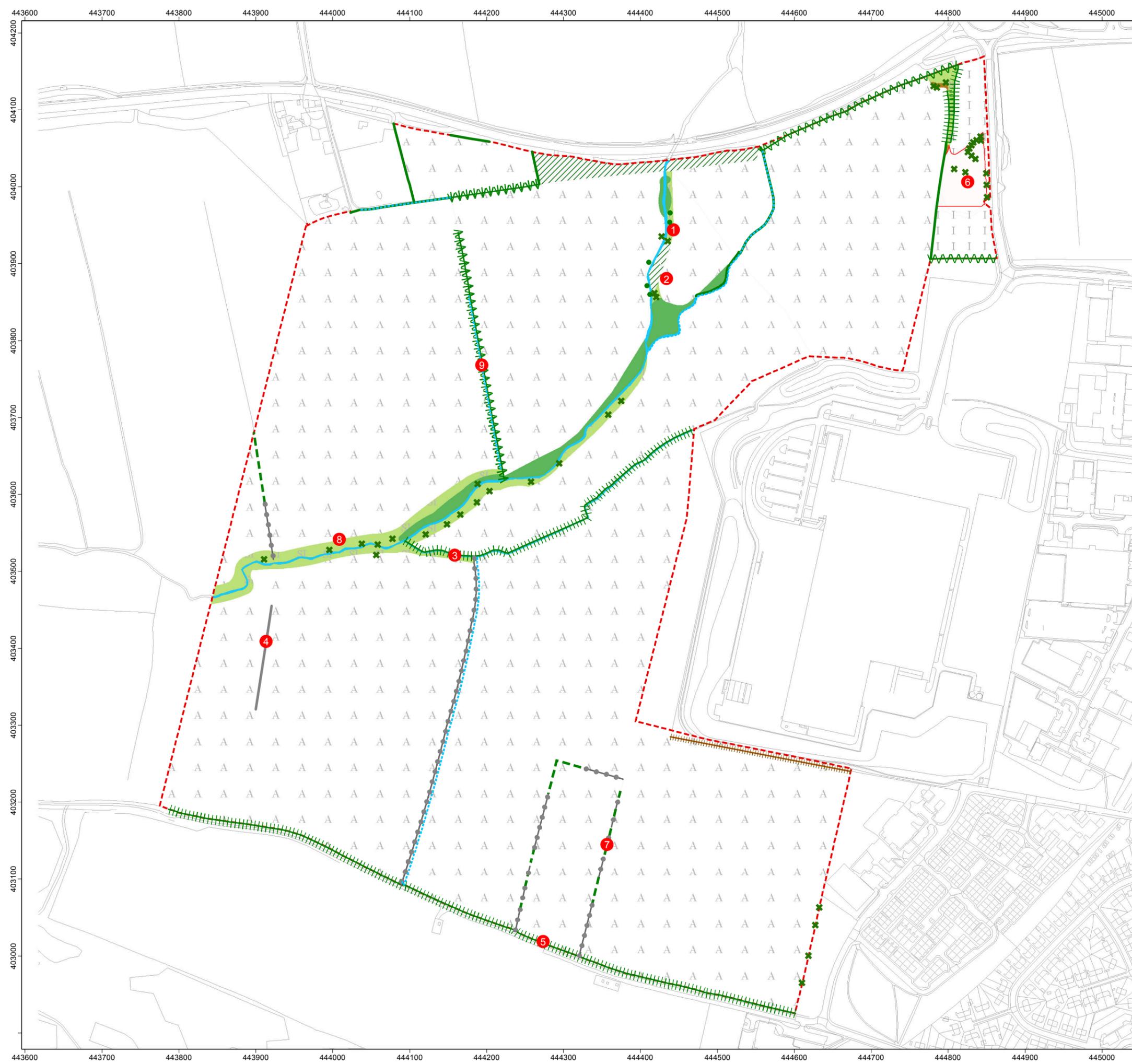
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Appendix 1. Phase 1 Habitat Survey Plan



Survey Information				
	Site boundary (732,947m ²)			
Phase 1 Habitat Survey				
	Broadleaved woodland (7,177m ²)			
	Plantation woodland (6,325m ²)			
	Poor semi-improved grassland (13,432m ²)			
	Improved grassland (10,162m ²)			
	Bracken (165m ²)			
	Running water (3,864m ²)			
	Arable (687,360m ²)			
	Other habitat (4,462m ²)			
	Intact hedge - native species-rich			
	Intact hedge - species-poor			
	Defunct hedgerow - species-poor			
	Hedge with trees - native species-rich			
	Hedge with trees - species-poor			
	Dry ditch			
	Fence			
	Remnant stone wall			
	Earth bank			
	Scattered broadleaved tree			
	Scattered scrub			
	Target note			
Target Notes: [1] Wide field margin [2] Planted woodland (ash, alder and field maple) [3] Common reed, in dyke [4] Remnant stone (collapsed) wall with tall ruderal [5] Defunct hedgerow and trees [6] Other habitat – former tip with low and high nutrient substrate including piles of organic matter – mosaic of grassland, ephemeral, tall ruderal and bare ground [7] Remnant hedge [8] Wide field margin [9] 'Important' under Hedgerow Regulations Source: Ordnance Survey © Crown copyright 2020, All rights reserved. License Number 100049837.				
PROJECT TITLE				
SCR PRIORITY CLUSTERS, BARNSELEY : GOLDTHROPE				
DRAWING TITLE				
Appendix 1. Phase 1 Plan				
VER	DATE	REMARKS	Drawn	Checked
1.6	16/06/20	Phase 1	MP	PM
DRAWING NUMBER:				
MIDDLETONBELLECOLOGY/Goldthrope/Phase1				
SCALE	1:4,800	PLOT SIZE	A3	DATUM
			OSGB	PROJECTION
				BNG
Middleton Bell Ecology 33 Wilthorpe Road, Barnsley, South Yorkshire, S75 1JA www.middletonbellecology.co.uk T: 01226 286282		Middleton Bell Ecology		

Appendix 2. Plant Species Recorded On Site

Full Species List		
English Name	Scientific Name	DAFOR Rating
A1.1.1 Broad leaved woodland		
Sycamore	<i>Acer psuedoplatanus</i>	A
Wild cherry	<i>Prunus avium</i>	Loc F
Ash	<i>Fraxinus excelsior</i>	F
Pendunculate oak	<i>Quercus robur</i>	F
Hawthorn	<i>Crataegus monogyna</i>	F
Dog rose	<i>Rosa canina</i>	F
Grey willow	<i>Salix cinerea</i>	O
Goat willow	<i>Salix caprea</i>	O
Hybrid willow	<i>Salix cinereal x caprea</i>	R
Ivy	<i>Hedera helix</i>	Loc A
Alder	<i>Alnus glutinosa</i>	R
Blackthorn	<i>Prunus spinosa</i>	R
Wych elm	<i>Ulmus glabra</i>	R
Field maple	<i>Acer campestre</i>	O
Hazel	<i>Corylus avellana</i>	O
Elder	<i>Sambucus nigra</i>	O
Silver birch	<i>Betula pendula</i>	O
Bramble	<i>Rubus fruticosus</i>	O
Cow parsley	<i>Anthriscus sylvestris</i>	Loc F
Garlic mustard	<i>Alliaria petiolata</i>	Loc A
Nettle	<i>Urtica dioica</i>	Loc A
A1.1.2 Plantation woodland		
Sycamore	<i>Acer psuedoplatanus</i>	O
Field maple	<i>Acer campestre</i>	A
Ash	<i>Fraxinus excelsior</i>	A
Rowan	<i>Sorbus ocaparia</i>	R
Grey willow	<i>Salix cinerea</i>	R
Goat willow	<i>Salix caprea</i>	R
Alder	<i>Alnus glutinosa</i>	O
Dog rose	<i>Rosa canina</i>	F
Pendunculate oak	<i>Quercus robur</i>	O
Cleavers	<i>Gallium aperine</i>	A
Hogweed	<i>Heracleum sphondylium</i>	F
Rough meadow-grass	<i>Poa trivialis</i>	A
Bramble	<i>Rubus fruticosus</i> agg.	O
Silver birch	<i>Betula pendula</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O
Hazel	<i>Corylus avellana</i>	O
A2.2 Scattered scrub		
Ash	<i>Fraxinus excelsior</i>	F
Sycamore	<i>Acer psuedoplatanus</i>	O
Field maple	<i>Acer campestre</i>	F
Silver birch	<i>Betula pendula</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O
Broom	<i>Cysisus scoparius</i>	R
Bramble	<i>Rubus fruticosus</i> agg.	Loc F

A3.1 Scattered trees		
Sycamore	<i>Acer psuedoplatanus</i>	O
Goat willow	<i>Salix caprea</i>	O
Crack willow	<i>Salix fragilis</i>	R
Hawthorn	<i>Crataegus monogyna</i>	R
B4 Improved grassland		
Perennial ryegrass	<i>Lolium perenne</i>	A
Soft brome	<i>Bromus hordeaceus</i>	F
Rough meadow-grass	<i>Poa trivialis</i>	O
Smooth meadow-grass	<i>Poa pratensis</i>	O
Cocksfoot	<i>Dactylis glomerata</i>	O
False oat-grass	<i>Arrhenatherum elatius</i>	O
Wall barley	<i>Hordeum murinum</i>	O
B6 Poor semi improved grassland		
False oat-grass	<i>Arrhenatherum elatius</i>	D
Cocksfoot	<i>Dactylis glomerata</i>	F
Rough meadow-grass	<i>Poa trivialis</i>	O
Smooth meadow-grass	<i>Poa pratense</i>	O
Common couch	<i>Elytrigia repens</i>	O
Broad leaved dock	<i>Rumex obtusifolius</i>	O
Great willowherb	<i>Epilobium hirsutum</i>	Loc A
Spear thistle	<i>Cirsium vulgare</i>	O
Soft brome	<i>Bromus hordeaceus</i>	Loc A
Yarrow	<i>Achillea millefolium</i>	
Nettle	<i>Urtica dioica</i>	Loc A
Creeping thistle	<i>Cirsium arvense</i>	R
Cow parsley	<i>Anthriscus sylvestris</i>	O
Spear thistle	<i>Cirsium vulgare</i>	O
Hogweed	<i>Heracleum sphondylium</i>	O
Hemlock	<i>Conium maculatum</i>	F
Garlic mustard	<i>Alliaria petiolata</i>	F
Barren brome	<i>Anisantha sterilis</i>	O
Oilseed rape	<i>Brassica napus</i>	O
Curled dock	<i>Rumex crispus</i>	O
Rosebay	<i>Chamerion angustifolium</i>	O
Red dead nettle	<i>Lamium purpureum</i>	O
Red campion	<i>Silene dioica</i>	R
Water figwort	<i>Scrophularia auriculata</i>	Loc F
Red fescue	<i>Festuca rubra</i>	Loc A
Black knapweed	<i>Centaurea nigra</i>	Loc F
?		
C3 Tall ruderal		
Nettle	<i>Urtica dioica</i>	D
Rosebay	<i>Chamerion angustifolium</i>	Loc A
Great willowherb	<i>Epilobium hirsutum</i>	O
Spear thistle	<i>Cirsium vulgare</i>	Loc D
Creeping thistle	<i>Cirsium arvense</i>	Loc D
J1.1 Arable		
Scentless mayweed	<i>Tripleurospermum inodorum</i>	Loc A
Fumitory	<i>Fumaria officinalis</i>	Loc F
Spear leaved orache	<i>Atriplex hastata</i>	O

Knotgrass	<i>Polygonum aviculare</i>	O
Field horsetail	<i>Equisetum arvense</i>	Local
Common field speedwell	<i>Veronica persica</i>	O
Wild raddish	<i>Raphanus raphanistrum</i>	O
Annual meadow-grass	<i>Poa annua</i>	O
American willowherb	<i>Epilobium ciliatum</i>	Local
Annual wall rocket	<i>Diplotaxis muralis</i>	R
Hedgerows		
Hawthorn	<i>Crataegus monogyna</i>	A
Blackthorn	<i>Prunus spinosa</i>	F
Elder	<i>Sambucus nigra</i>	F
Ash	<i>Fraxinus excelsior</i>	F
Dog rose	<i>Rosa canina</i>	O
Ivy	<i>Hedera helix</i>	O
Silver birch	<i>Betula pendula</i>	O
Wych elm	<i>Ulmus glabra</i>	R
Pedunculate oak	<i>Quercus robur</i>	R
Sycamore	<i>Acer pseudoplatanus</i>	O
Bramble	<i>Rubus fruticosus</i> agg.	O
Dogwood	<i>Cornus sanguinea</i>	R
Field maple	<i>Acer campestre</i>	O
Hazel	<i>Corylus avellana</i>	F
White bryony	<i>Bryonia dioica</i>	R
Aspen	<i>Populus tremuloides</i>	R
Crag apple	<i>Malus sylvestris</i>	R
J6 Dry ditch		
Cocksfoot	<i>Dactylis glomerata</i>	F
Nettle	<i>Urtica dioica</i>	F
Rosebay	<i>Chamerion angustifolium</i>	Loc A
False oat-grass	<i>Arrhenatherum elatius</i>	D
Rough meadow-grass	<i>Poa trivialis</i>	O
Smooth meadow-grass	<i>Poa pratense</i>	O
Soft brome	<i>Bromus hordeaceus</i>	O
Dandelion	<i>Taraxacum officinale</i> agg.	O
Broad leaved dock	<i>Rumex obtusifolius</i>	O
Hogweed	<i>Heracleum sphonylium</i>	O
Spear thistle	<i>Cirsium vulgare</i>	O
Creeping thistle	<i>Cirsium arvense</i>	O
J6 Other habitat		
Mugwort	<i>Artemisia vulgaris</i>	F
Nettle	<i>Urtica dioica</i>	Loc A
Hemlock	<i>Conium maculatum</i>	Loc D
False oat-grass	<i>Arrhenatherum elatius</i>	Loc A
Cocksfoot	<i>Dactylis glomerata</i>	O
Yorkshire fog	<i>Holcus lanatus</i>	F
Creeping bent	<i>Agrostis stolonifera</i>	O
Rough meadow-grass	<i>Poa trivialis</i>	O
Smooth meadow-grass	<i>Poa pratensis</i>	O
Barren brome	<i>Anisantha sterilis</i>	F
Meadow foxtail	<i>Alopecurus pratensis</i>	R
Green alkanet	<i>Pentaglottis sempervirens</i>	F

White dead nettle	<i>Lamium album</i>	O
Smooth hawkbeard	<i>Crepis capillaris</i>	Loc F
Sheep's sorrel	<i>Rumex acetosella</i>	Loc A
Red fescue	<i>Festuca rubra</i>	Loc A
Dandelion	<i>Taraxacum officinale</i> agg.	O
Ragwort	<i>Senecio jacobea</i>	O
Broadleaved dock	<i>Rumex obtusifolius</i>	O
Creeping thistle	<i>Cirsium arvense</i>	F
Bracken	<i>Pteridium aquilinum</i>	Loc D
Dog rose	<i>Rosa canina</i>	O
Lesser burdock	<i>Arctium minus</i>	O
Curled dock	<i>Rumex crispus</i>	O
Ribwort plantain	<i>Plantago lanceolata</i>	Loc F
Spear thistle	<i>Cirsium vulgare</i>	O
Hogweed	<i>Heracleum sphondylium</i>	O
Common orache	<i>Atriplex patula</i>	Loc D
Soft brome	<i>Bromus hordeaceus</i>	O
Scentsless mayweed	<i>Tripleurospermum inodorum</i>	Loc F
Cleavers	<i>Gallium aparine</i>	O
Tufted vetch	<i>Vicia cracca</i>	O
Smooth sow-thistle	<i>Sonchus oleraceus</i>	O
Field bindweed	<i>Convolvulus arvensis</i>	Loc A
Hedge mustard	<i>Sisymbrium officinale</i>	R

Appendix 3. Relevant Legislation

Wildlife legislation relating to statutory designated sites and species is summarised in Table A1 and A2 below. This legal information is intended for summary only, and the original legal documents should be consulted if a detailed understanding is required.

Table A1. Legislation relating to designated sites and habitats

Designated Site	Legal Status
Special Protection Area (SPA)	SPAs are strictly protected sites classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC), also known as the Birds Directive. They are classified for rare and vulnerable birds, listed in Annex I of the Birds Directive, and for regularly occurring migratory species. The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 are the legal instrument for implementing the Birds Directive in the UK. SPAs are of at least European importance to nature conservation.
Site of Special Scientific Interest (SSSI)	SSSIs are the national suite of sites providing statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs have been re-notified under the Wildlife and Countryside Act 1981 (as amended). Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000. SSSIs are of at least national importance to nature conservation
Local Wildlife Site (LWS)	While they have no direct legal status, Local Wildlife Sites are considered important enough to receive recognition within the planning system. National planning policy requires local authorities to identify Local Wildlife Sites and provide for their protection through local policy.

Table A2. Legislation relating to species

Species	Legal Status
European protection	
European Protected Species (EPS) (including bats, Great Crested Newt (GCN), otter and hazel dormouse)	<p>These animal species and their breeding sites or resting places are protected under Regulation 41 of the Conservation of Habitats and Species Regulations 2017, which makes it illegal to:</p> <ul style="list-style-type: none"> • Intentionally or deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs; • Deliberately disturb such an animal; • Damage or destroy a breeding site or resting place of such an animal. <p>European Protected Species (EPS) licences can be granted by Natural England in respect of development to permit activities that would otherwise be unlawful under the Conservation Regulations, providing that the following 3 tests (set out in the EC Habitats Directive) are passed:</p> <ul style="list-style-type: none"> • The development is for reasons of overriding public interest; • There is no satisfactory alternative; and

Species	Legal Status
	<ul style="list-style-type: none"> The favourable conservation status of the species concerned will be maintained and/or enhanced. <p>Under Regulation 9(5) of the Conservation Regulations, Planning Authorities have a legal duty to 'have regard to the requirements of the EC Habitats Directive in the exercise of their functions'. This means that they must consider the above 3 tests when determining whether Planning Permission should be granted for developments likely to cause an offence under the Conservation Regulations. As a consequence, Planning Applications for such developments must demonstrate that the 3 tests will be passed.</p> <p>Natural England also allow sites to be registered on the Bat Low Impact Class Licence to permit activities that would otherwise be unlawful under the Conservation Regulations where the 3 tests can be passed and the bat roosts to be impacted are of low conservation status.</p>
National protection	
European Protected Species and other species including water vole and white clawed crayfish	<p>These animals receive full protection under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to:</p> <ul style="list-style-type: none"> Intentionally kill, injure or take any such animal; Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal; and Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.
Common amphibians and reptile species	<p>These animals receive limited protection under The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal to intentionally kill or injure any such animal.</p>
Badger	<p>The Protection of Badgers Act 1992 makes it illegal to wilfully kill or injure a Badger or attempt to do so and also make it illegal to intentionally or recklessly interfere with a Badger sett. This includes damaging or destroying a sett, obstructing access to a sett and disturbing a Badger while it is occupying a sett. Licences can be granted by Natural England to permit sett closure and/or disturbance between July and November inclusive.</p>
Schedule 1 birds	<p>Special penalties relate to offences concerning birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In addition to the offences detailed above relating to all wild birds, it is illegal to intentionally or recklessly disturb any Schedule 1 bird or their dependent young while nesting.</p>
All bird species	<p>All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to:</p> <ul style="list-style-type: none"> Intentionally kill, injure or take any wild bird; Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.
Invasive species	<p>The Wildlife and Countryside Act 1981 (as amended) contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 of the Act. In</p>

Species	Legal Status
	relation to Schedule 9 plants it is an offence to plant or otherwise cause these plant species to grow in the wild.

Species and Habitats of Principal Importance

Planning authorities have a duty under Section 40 of the NERC Act 2006 to have regard to priority species and habitats in exercising their functions including development control and planning. In compliance with Section 41 of the NERC Act, the Secretary of State has published a list of species and habitats considered to be of principal importance for conserving biodiversity in England under the UK Post-2010 Biodiversity Framework. This is known as the list of Habitats and Species of Principal Importance (HPI/SPI). The HPI/SPI list is used to guide planning authorities in implementing their duty under the NERC Act.

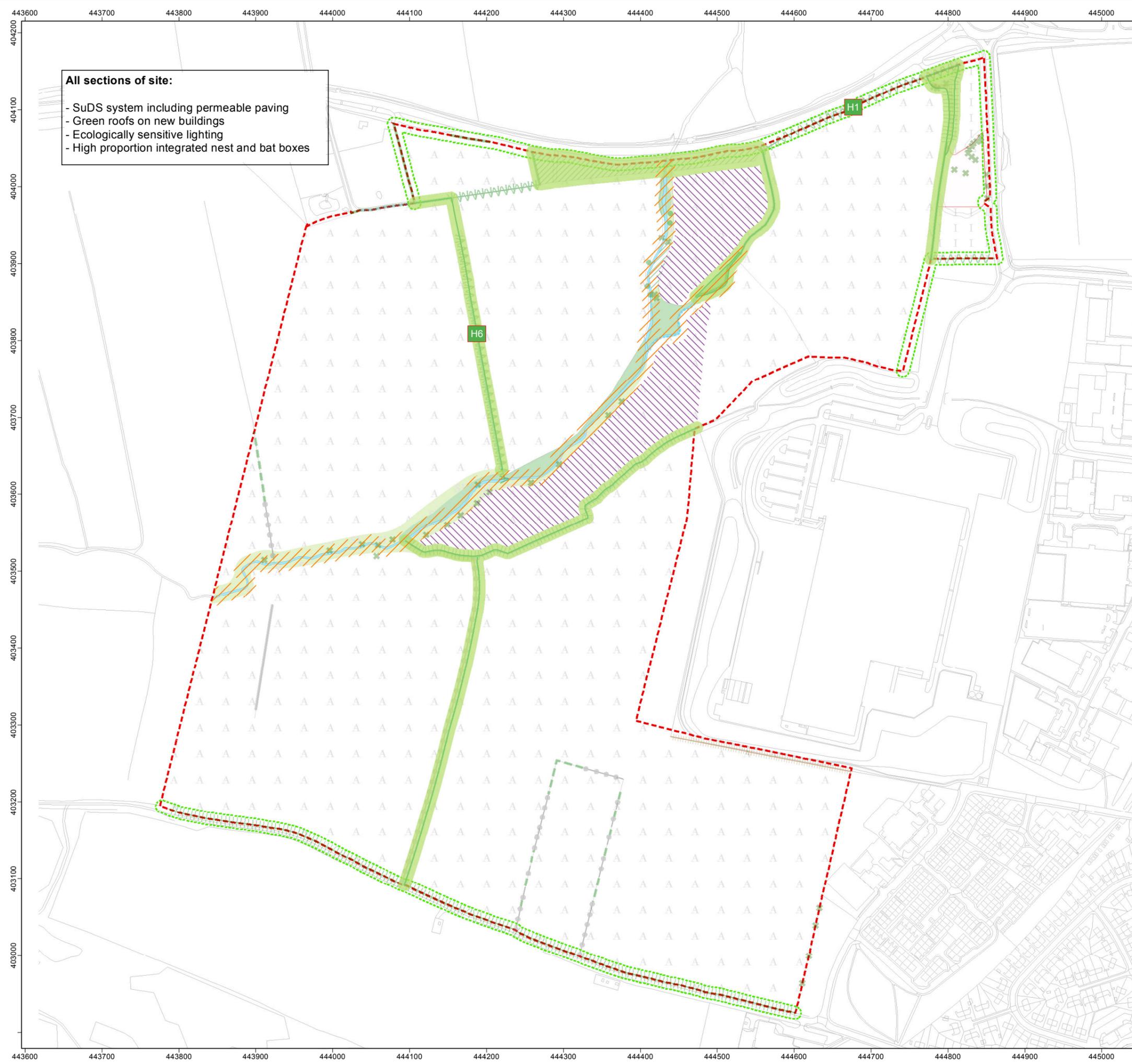
National Planning Policy Framework

The National Planning Policy Framework for England was revised in 2018. This document states that plans should ‘promote the conservation, restoration and re-creation 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’. It also puts an emphasis on refusing development which would result in the ‘loss or deterioration of irreplaceable habitats (such as ancient woodland)’ unless there are ‘wholly exceptional reasons and a suitable mitigation strategy exists’.

Local Biodiversity Action Plans

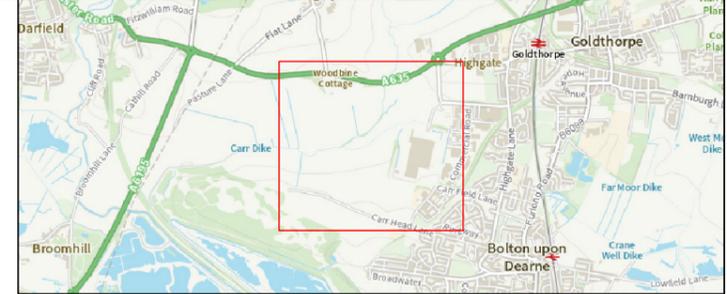
The HPI/SPI list included on Section 41 of the NERC Act 2006 is supported by a series of Local Biodiversity Action Plans (LBAPs), usually set up on a local authority local authority administrative boundary basis. Each LBAP identifies those habitats and species considered to be most important in that area (usually referred to as priority habitats and species). Commonly, an LBAP will identify a number of habitats and species for which “action plans” have been prepared.

Appendix 4. Ecological Constraints and Opportunities Plan



All sections of site:

- SuDS system including permeable paving
- Green roofs on new buildings
- Ecologically sensitive lighting
- High proportion integrated nest and bat boxes



Survey Information							
	Site boundary (732,947m ²)						
Ecological Constraints and Opportunities							
	Largest possible buffer of retained and newly created semi-natural habitat. Recommend at least 10m buffer from each bank						
	Look to maintain 8m buffer of retained and newly created semi-natural habitats						
	Look to develop blocks of semi-natural habitat (i.e. woodland/reedbed) on awkward shaped plots of land between ditches						
	Gap plant retained hedgerow and plant new hedgerow, retain boundary woodland						
Phase 1 Habitat Survey							
	Broadleaved woodland (7,177m ²)						
	Plantation woodland (6,325m ²)						
	Poor semi-improved grassland (13,432m ²)						
	Improved grassland (10,162m ²)						
	Bracken (165m ²)						
	Running water (3,864m ²)						
	Arable (687,360m ²)						
	Other habitat (4,462m ²)						
	Intact hedge - native species-rich						
	Intact hedge - species-poor						
	Defunct hedgerow - species-poor						
	Hedge with trees - native species-rich						
	Hedge with trees - species-poor						
	Dry ditch						
	Fence						
	Remnant stone wall						
	Earth bank						
	Scattered broadleaved tree						
	Scattered scrub						
Source: Ordnance Survey © Crown copyright 2021. All rights reserved. License Number 100049837.							
PROJECT TITLE							
SCR PRIORITY CLUSTERS, BARNSELY : GOLDTHORPE							
DRAWING TITLE							
Appendix 4. Ecological Constraints and Opportunities Plan							
VER	DATE	REMARKS	Drawn	Checked			
1.2	19/01/21	ECOP	MP	PM			
DRAWING NUMBER:							
MIDDLETONBELLECOLOGY/Goldthorpe/ECOP							
SCALE	1:4,800	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG
Middleton Bell Ecology		Middleton Bell ECOLOGY					
33 Wilthorpe Road, Barnsley, South Yorkshire, S75 1JA www.middletonbellecology.co.uk T: 01226 286282							