Anston Stones Wood Local Nature Reserve

Management Plan Review

Final Report Approved October 2021

Louise Hill, MRB Ecology and Environment

Introduction

The review covers physical habitat management works on the Local Nature Reserve. It follows the structure outline in the CMSi (Conservation Management System) approach to conservation management planning and implementation.

This approach states that all management plans should answer six essential questions:

- 1) Why are we here?
- 2) What have we got?
- 3) What is important?
- 4) What are the influences?
- 5) What do we want?
- 6) What must we do?

The document covers all six of the above elements. Feedback has been obtained at various stages throughout the plan's development so that the management prescriptions and action plans are practical and can be implemented rather than being a wish-list of possible options.

The Management Plan covers the area designated as Anston Stones Wood Local Nature Reserve, as well as two fields located to the east of the cricket ground and two areas located along the banks of Anston Brook, to the west of Ryton Road, as shown in Figure 1 below. The Local Nature Reserve incorporates the majority of Anston Stones Wood SSSI but excludes that part of the SSSI that is not owned by the Parish Council and is not included within the LNR boundary plan.

The previous Draft Management Plan (Bullen 2004) has been reviewed to assess whether the issues raised in that edition of the Management Plan remain relevant. This review has been coupled with information and insights gained from a series of familiarisation and survey visits undertaken by Louise Hill of MRB Ecology and Environment over 2020 and 2021. In addition, a number of outside organisations have also been contacted to discuss aspects of the site's special interests. These field visits have been supplemented by a search of biological data for the site held by Rotherham Local Records Centre.

This report provides summarised and tabulated list of factors affecting management of the site as identified in the previous plan with additional new issues that have come to light as a result of the recent visits and discussions undertaken during this '2020' review. The manner in which each issue could influence the management of the site has been identified. The means of overcoming any identified problems has been suggested. These actions will help to guide the appropriate management in specific areas of the Local Nature Reserve. In instances where there are conflicting interests, the site designations will be used to prioritise actions.

The summary includes a reference to the information sources. Throughout this document the sources are indicated as follows:

p(p)'xx' = Reference to page(s) in 2004 Draft Management Plan, Bullen Consultants.
(SAGT) = e-mail correspondence from SAGT representative and 2018 power point presentation given to Anston Parish Council.
(CAMP 2004) – Creswell Crags Limestone Heritage Area Management Action Plan
(SYBG) – South Yorkshire Bat Group – e-mail correspondence, survey reports and information
(ADAS) – Tree Safety Survey (updated 2019)
(LH) = Observations by Louise Hill (MRB Ecology and Environment) including recent correspondence with Clerk to the Parish Council.

Image: Google Earth

Figure 1 Extent of Management Plan, showing Compartment Boundaries

1) Why are we here? (Site History, Legislation & Policy)

Table 1

Event	Influence on Management	Required Action
1553 reference to ‘Sprynge’ i.e. coppiced woodland. (p15)	Provides rationale for woodland management.	Continue coppicing
1750- 1900? - Coppice with 'standards' for > 150 yrs until the 19th Century'. (p15)	Provides rationale for woodland management.	Continue coppicing with 'Standards'
1901 – 1909 Shireoaks and Laughton Railway constructed (Still in use).	Embankment and cuttings constructed. Paths re-routed, stepping stones replaced by bridges. Canalisation and culverting of Anston Brook.	Co-ordinate trackside-habitat management works with Network Rail maintenance schedules.
1900? Beech was planted – assumed date around the 19th Century. (p16)	Provides rationale for woodland management.	Remove mature beech and control regeneration.
1947 - Bought from the Duke of Leeds by the Kiveton Rural District Council to be safeguarded and preserved as a local amenity. p22	Provides rationale for overall site management.	Maintain public access and continue to provide amenities.
1955 – The Nature Conservancy Council (NCC) designated 94 acres of the woodland as a Site of Special Scientific Interest (SSSI). '*Ánston Stones Wood is recognised by botanists as one of the finest remaining fragments of native woodlands in northern England...One of the best remaining ash and elm dominated woods of the magnesium limestone. Yew and both native species of lime occur on the cliffs and valley sides, whilst throughout the woods there is a wide variety of calcicolous shrubs and herbs, some of them uncommon. The valley bottom has extensive streamside and vernal communities. The site is valued for both teaching and research work.* ' (p22). Site Re-notified under the Wildlife and Countryside Act (WCA) in 1993 to exclude clear-felled section (83.3 acres in total).	Provides rationale for SSSI management.	Ensure compliance with 'Views About Management'.
	Statutory Protection.	Ensure compliance with 'Operations Likely to Damage' and obtain necessary consents.
		Ensure all impacts on the SSSI are considered by Local Planning Authority (LPA).
	Priority for Stewardship Schemes.	Take advantage of funding sources.
1992 – Dead Man's Cave listed as a Scheduled Ancient Monument (SAM) . Listing No. 1013468	Constraints on site management.	Comply with 'Landowner Advice'.
	Statutory Protection.	Ensure necessary consents are obtained.
1989 – Interim Management Plan prepared	Formation of Management Committee made up of local councillors and representatives of NCC/English Nature, Rotherham Metropolitan Borough Council and Groundwork Cresswell.	Maintain and update representation on Committee.
1996 - Anston Stones Wood Woodland Project Plan – First Edition	Desired End Products defined	Review and carry forward.
2002 – Local Nature Reserve (LNR) designation (45ha) for its '*rich mosaic of semi-natural habitats, including the second best example of limestone woodland in South Yorkshire, limestone grassland, scrub and wetland. Underlain by Lower Magnesian Limestone, the site hosts many species which are confined to ancient woodland and others which have a very limited distribution within South Yorkshire*. The ancient woodland, dominated by oak, ash and lime, supports increasingly rare plant communities and the limestone outcrops and crags also provide suitable conditions for a range of flora including dog violet, fingered sedge and mountain melick. The natural limestone gorge hosts a range of features of geological, spaeleogical and geomorphological interest, including exposures of Mexborough Rock in the stream, outcrops of bedded limestone along the gorge and stepping stones of reef limestone with large cambered blocks. Large rock shelters and caves are also present at the site with the caves also being of notable archaeological interest. (p22). Revision of boundary – incorporating Brook Walk and Butterfield Walk. 200-	Provides rationale for LNR management.	Ensure compliance with 'reason for declaration'.
	Duty of care for natural features.	Care for and protect natural features.
	Accessibility control Byelaws and Public Spaces Protection Orders (Dog Control Orders).	Use Byelaws and Orders to prevent damage or disturbance.
2004 – Anston Stones Wood Draft Management Plan (Draft only).	Re-assessed the site. Source of background information Incorporated findings of Creswell Crags Limestone Heritage Area Management Action Plan.	Review to determine if: i) Prescribed management has been undertaken. ii) Prescriptions are still appropriate.

2008 – Local Wildlife Site (LWS) designation	Protection within Development Control	Ensure all impacts on the LWS are considered by LPA.
	Contributes to Local Authority 'Single Data List'. Indicator 160-00	Ensure positive management on Local Authority-owned sites.
2010- Regionally Importance Geological Site (RIGS) Designation as a Supersite containing other smaller sites. (Original Proposal 1996)	Protection within Development Control	Ensure all impacts on the RIGS are considered by LPA.
	Contributes to Local Authority 'Single Data List'. Indicator 160-00	Ensure positive management on Local Authority-owned sites.

Legal Obligations

Public Rights of Way (PROW) – Countryside and Rights of Way Act (CROW) 2001. Accessibility free of obstructions and vegetation encroachment. 5 definitive footpaths running through the site (24, 25, 27, 31 and 39).
SSSI – Operations Likely to Damage (OLD) and View about Management (VAM).
SAM – Consented Works.
Wayleave Agreements – rights of access by third parties: Network Rail, Northern Power Grid (Brook Walk), Severn Trent Water (Treatment Works and Pumping Station).
Badger setts (and 30m protection zone) – Badger Setts protected by Law.
Bat Roosts – European Protected Species.
Nesting Birds – UK Protection.
Permissive footpaths – provide link paths to housing estates.
Health and Safety - Workforce, Volunteer, Staff and Public safety. Tree Safety - High use Zone 1:A57 Sheffield to Worksop Road, and Network Rail Mineral track, Medium use Zone 2: Footpaths used by significant numbers Low use, and Zone 3: Woodland trees outwith the area that could affect the footpath zone. (ADAS)

Non legal obligations

Agreements with third party Land Managers (Grass cropping/Grazing). (p34)
Felling licence or approved woodland management Plan required to remove > $5m^3$ of timber (Forestry England) (LH)
Permissive access over third party land. (p34)
Agreements with adjacent landowners (p34)

Background information:
see **Appendix 1** and:
https://www.gov.uk/guidance/create-and-manage-local-nature-reserves
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/883901/Single_Data_List_of_central_government_data_requirements_from_local_government_2020-21.pdf
https://designatedsites.naturalengland.org.uk/PDFsForWeb/Consent/1004347.pdf
https://designatedsites.naturalengland.org.uk/PDFsForWeb/VAM/1004347.pdf

2) What have we got? (Description)

Succinct statements of facts – as broad and comprehensive as possible

Table 2

Physical Features (pp6 – 8)

Climate*	Geology	Hydrology	Geomorphology	Soils
The warmest monthly average for the area, taken from the Sheffield Weather Station (last 30 yr average) is during July, at 21.4 degrees C. The lowest monthly average is in January and February at 2.3 degrees. Average sunshine hours (30yr average) indicate that the most sunshine hours are experienced during July, with a monthly average of 199.1 hours. Monthly averages for rainfall over the past 30 yrs identify May as the driest month, with an average of 54.9mm falling within the month. The wettest month is December with a monthly average rainfall of 87.2mm	Head (solifluction deposits (northwest of the study area). Lower Magnesian Limestone of Permian age underlies the study area resting unconformably on the Upper Coal Measures of Carboniferous age. The study area lies upon the lower subdivision of the Lower Magnesian Limestone corresponding to compact or fine granular shelly limestones, oolites or pisolites, and occasionally hard crystalline limestone. The Lower Magnesian Limestone dips gently to the east. Upper Coal Measures of Carboniferous age outcrop to the east of the study area.	The site is located partly on a 'Minor Aquifer' (the Coal Measures) and a 'Major Aquifer' (Lower Magnesian Limestone) with soils of high leaching potential.	The gently undulating plateau of Lower Magnesian Limestone is drained by stream flowing east. Altitude of 105m A.O.D. on the upper valley sides. The Deep valley was eroded by glacial meltwaters whose drainage pattern was determined by permafrost. No major fault lies on or within a close proximity of the study area.	East of the area; Shallow, locally brashy, well-drained and calcareous fine loamy soils over Permian limestone. Some deeper soils in the mounds of soil and debris that have accumulated at the base of a slopes.

* www.metoffice.gov.uk/research/climate/maps-and-data/historic-station-data

Table 3

Archaeological (Known and potential (to 2004)) (p14 - P15)

Dead Man's Cave (SAM) SK 5282 8350	Fissure Cave SK 533 832	Find spots on Site	Finds Nearby	Archaeological Potential	Recent
Lithic artefacts. Faunal remains: Upper Palaeolithic (c. 33,000 – 8000 BC). Roman pottery.	Sherds of Roman pottery. Flints: (bone material from the same horizon Radiocarbon dated to 7800-8000BC).	Neolithic flint blades and flakes (SK 527 836) Romano-British Sherds (SK 524 838) Romano-British pottery (SK 516 826). Roman Brooches (SK 531 832, SK 530 834 & SK 532 830) Medieval Jettons/ tokens (SK 536 829 & SK 5253 8381) Medieval arrowhead (SK 52 83) A bronze ring (SK 537 829) undated	Remains of medieval date include: Iron prick spur 10th –12th century (SK 5419 8348). Four Anglo-Saxon coins of 11th century date (SK 5419 8348).	Cave and fissure sites have a high potential for Palaeolithic remains, both archaeological and palaeoecological. Caves with small entrances and larger rock shelters have produced more archaeological material to date (CAMP 2004)	South Yorkshire Joint Railway - opened to freight in January 1909. (still used to transport minerals).

Biological

Table 4

Flora & Fungi (pp8-9) updated by field visits undertaken in connection with the management plan review.

Angiosperms	Conifers	Pteridophytes	Bryophytes	Fungi
Notable, being nationally or locally rare/scarce		15 species of pteridophytes have been recorded at the site, including	Anston Stones Wood is very rich in bryophytes	Anston Stones provides good habitat for fungal species due to the diversity of vascular plants hosts and the gorge micro-climates.
Recently recorded: large leaved lime (Tilia platyphyllos) - 39 trees in compartments, 36, 39, 28, 26, 22, 18, 19, 24c, 32, 15 and 13. wood barley (Hordelymus europaeus) pale St johns wort (Hypericum montanum) bluebell (Hyacinthoides non-scripta) autumn gentian (Gentianella amarella) rock rose (Helianthemum nummularium) rest harrow (Ononis repens) wood vetch (Vicia sylvatica) mountain melick (Melica natans) fingered sedge (Carex digitata) toothwort (Lathraea squamaria) thin spiked wood sedge (Carex strigosa)	larch (Larix decidua) Scots pine (Pinus sylvestris) yew (Taxus baccata)	soft shield-fern (Polystichum setiferum) hard shield-fern (Polystichum aculeatum) polypody (Polypodium sp.) (2020)	20 species of liverwort including the Cololejeunea rossettiana.	Over 200 species of fungi have been recorded, including representatives of slime molds, lichens and rusts.
Historic records: saw-wort (Serratula tinctoria) monk’s hood (Aconitum napellus) wood fescue (Festuca altissima) horse shoe vetch (Hippocrepis comosa) early forget-me-not (Myosotis ramosissima) dwarf thistle (Cirsium acaule) meadow thistle (Cirsium dissectum) broad-leaved helleborine (Epipactis helleborine) yellow star of Bethlehem (Gagea lutea) fragrant orchid (Gymnadenia conopsea) fly orchid (Ophrys insectifera).			73 species of moss, a number of which are nationally scarce, including the mosses Campylium calcareum, Amblystegium compactum, Gymnostomum calcareum	
Other orchids of grasslands: pyramidal orchid (Anacamptis pyramidalis) spotted orchid (Dactylorhiza fuchsii) early-purple orchid (Orchis mascula) bee orchid (Ophrys apifera)				

Table 5 Fauna (pp 9-10) The majority of records are pre- 1999 (Appendix D of 2004 Plan). SYBG harp trapping, remote bat detector and hibernation surveys 2016- 2017.

Mammals	Herptiles (Amphibians and Reptiles)	Birds	Lepidoptera
20 species of mammal have been recorded/reported within the site, 11 of these have been recorded within the period 1990 - 2004	No amphibian records. 1 reptile.	Bird records with 83 species since 1990. Good assemblages of grassland, woodland and woodland edge species.	Anston Stones Wood and adjacent grasslands provide an area of outstanding butterfly habitat. Between 2000 and 2004, 28 species were recorded. Moth records: 164 larger moths and 115 micromoths recorded in the area 1970 – 2004 but less intensive recording has been undertaken recently.
Badger (Meles meles) Badger is protected under the Badger Protection Act	Reptile record eastern end of the wood: Viviparous Lizard (Zootoca vivipara),	Resident species include: great spotted woodpecker (Dendrocopos major) nuthatch (Sitta europaea) marsh tit (Parus palustris) Large rookery present in Compartment 32. (p18) confirmed 2020.	7 nationally notable species: holly blue (Celastrina argiolus) brown argus (Aricia agestis) comma (Polygonia c-album) dark green fritillary (Argynnis aglaja aglaja) marbled white (Melanargia galatheaserena) white letter hairstreak (Satyrium w-album) – medium conservation priority pearl bordered fritillary (Boloria beuphrosyne) – high conservation priority
Brown hare (Lepus europaeus) UK Biodiversity Action Plan short list		During the summer the woodland supports summer migrants including: chiffchaff (Phylloscopus collybita) willow warbler (Phylloscopus collybita) black cap (Sylvia atricapilla)	Other species of note (due to their relatively recent recorded appearance in the north of England are: Essex Skipper (Thymelicus lineola) speckled wood (Pararge aegeria) brimstone (Conepteryx rhamni)
Bats. European Protected Species Autumn Swarming activity in Dead Man's Cave, Fissure Cave and Large Fissure by notable numbers of: Daubenton's bat. (harp trap) Also found: Brown long-eared (harp trap) Natterer's bat (harp trap) Whiskered/Brandt's (detector).		Between 1990 and 2004 a number of notable species have been recorded, including: grey partridge (Perdix perdix) skylark (Alauda arvensis) song thrush (Turdus philomelos) spotted flycatcher (Muscicapa striata) willow tit (Parus montanus) linnet (Carduelis cannabina) yellowhammer (Emberiza citrinella) reed bunting (Emberiza schoeniclus) kingfisher (Alcedo atthis).	Nationally notable moth species were recorded between 1990 and 1999: Lunar Yellow Underwing (Noctua orbona) Red-green Carpet (Chloroclysta siterata) Campanula Pug (Eupithecia denotata).

Odonata and Ephemeroptera	Hymenoptera	Orthoptera	Dermaptera	Hemiptera	Diptera	Coleoptera	Arenea	Molluscs	Annelids	Millipedes	Centipedes
2 mayflies and 4 dragonflies have been recorded within the LNR. Only one has been recorded after 2000.	Includes bees, wasps, ants, sawflies and parasitic forms. 142 species have been recorded.	4 species of grasshopper and crickets have been recorded.	Common earwig (Forficula auricularia) is the only record for this group.	More than 80 bugs have been recorded within Anston Stones Wood up to 2004. Groundbugs uncommon in Yorkshire: Drymus revi Ischonodemus sabuleti Plant bugs uncommon in Yorkshire: Pachylops bicolor Hoplomarchus thunbergi	Over 300 species of fly have been recorded.	More than 200 species of beetle have been recorded including notable species.	Over 80 species of spider have been recorded.	52 species of slugs and snails have been recorded including a number of nationally and regionally notable species.	11 species of worm have been recorded.	14 species have been recorded.	14 species have been recorded.

Table 6 Habitats Based on 2004 Assessment, confirmed 2020:

Wet woodland	Limestone Woodland	Secondary Woodland	Limestone Grassland	Neutral Grasslands	Scrub and tall fern	Tall Herb
W6 Alnus glutinosa – Urtica dioica woodland (SSSI)	W8 Fraxinus excelsior-Acer campestre-Mercurialis perennis woodland (ash, sycamore, wych elm constant, small leaved lime (Tilia cordata), large leaved lime scattered with lesser amounts of oak and birch (Betula spp.) Shrub layer hazel, dogwood, field maple, holly (Ilex aquifolium) elder (Sambucus nigra) are frequent with scattered buckthorn (Rhamnus cathartica), spindle (Euonymus europaeus) and wild privet (Ligustrum vulgare). W8a – Primula vulgaris, W8d – Hedera helix, and W8f – Allium ursinum sub-communities (SSSI).	South of River. Dominant sycamore in the canopy and bramble, dog's mercury and ivy in the ground flora. (LNR)	CG5 Brachypodium pinnatum-Bromus erectus grassland. Co-dominance of tor grass (Brachypodium pinnatum) and upright brome (Bromopsis erecta) with quaking grass (Briza media), red fescue (Festuca rubra), sheep's fescue (Festuca ovina) and yellow oat grass (Trisetum flavescens). Dicotyledons present include yellow-wort (Blackstonia perfoliata), pignut (Conopodium majus) and harebell (Campanula rotundifolia). (SSSI)	Western fields of MG1 False oat grass (Arrhenatherum elatius), with Yorkshire fog (Holcus lanatus) and cock's foot (Dactylis glomerata). (LNR).	W25 Pteridium aquilinum-Rubus fruticosus scrub (SSSI).	South of River. Open area with locally-dominant rosebay willowherb (Chamerion angustifolium) with common nettle. (LNR)
W7a Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum woodland – Urtica dioica sub-community (SSSI)			Little Stones Grassland. (patchwork of CG5 grassland and MG1 grassland). Limestone sward of tor grass (Brachypodium pinnatum) and upright brome (Bromopsis erecta). Limestone herbs present include lady's bedstraw (Galium verum), fairy flax (Linum catharticum), rock rose (Helianthemum nummularium), salad burnet (Sanguisorba minor), hoary plantain (Plantago media), wild thyme (Thymus polytrichus) and ploughman's-spikenard (Inula conyzae). Some areas of neutral grass sward with false oat grass (Arrhenatherum elatius), Yorkshire fog (Holcus lanatus), and meadow fescue (Festuca pratensis). (LNR)	Riverside fields with Locally frequent meadowsweet (Filipendula ulmaria), with meadow vetchling (Lathyrus pratensis), and common spotted orchid. (LNR)		
			Defra Field Number 4113 (arable conversion to grassland) Converted from arable land to grassland: annual meadow grass (Poa annua), smooth meadow grass (Poa pratensis), Yorkshire fog (Holcus lanatus), meadow oat grass (Helictotrichon pratense), timothy (Phleum pratense) and cock's foot (Dactylis glomerata). Herb species present include yellow rattle (Rhinanthus minor), harebell, cat's ear (Hypochaeris radicata), birds foot trefoil (Lotus corniculatus), cowslip (Primula veris) and white clover (Trifolium repens). Of note in this field is the abundance of pyramidal orchid (Anacamptis pyramidalis). (LNR)			

3) What is important? (Evaluation)

Identifying, or confirming, which of the features on a site should be the focus for the conservation planning process involves asking the following question of each provisional feature in turn: is this feature, in its own right or in association with other features, sufficiently important to be regarded as one of the prime reasons for maintaining the protected area? The presence of conservation features was the basis of site acquisition, selection or designation. The features identified by this process are tabulated overleaf in Table 7. Abbreviations used are explained below. **Appendix 2** contains maps showing the locations of the various site designations over aerial photographs.

National

SSSI Site of Special Scientific interest - Summary of SSSI features (p22) and SSSI Citation

SAM Scheduled Ancient Monument

EPS European Protected Species – All Bat roosts. The importance of the caves of Anston Stones Wood as bat swarming sites has recently been confirmed by surveys undertaken by the South Yorkshire Bat Group. Whilst there is currently no formal protection for swarming sites there may be pressure to seek their protection through designation (The Vincent Wildlife Trust Newsletter December 2017). Bat swarming sites at Fissure Cave and Dead Man's Cave have therefore been included in the list of features.

Regional

LWS Local Wildlife Site - Anston Stones Wood Local Wildlife Site Description 2010, Assessment of Rotherham Local Wildlife Sites (2017 - 2019), The Framework for Rotherham's Local Wildlife System March 2011 www.rotherham.gov.uk.)

LNR Local Nature Reserve – Features mentioned in the reasons for notification (p22),

RIGS Regionally-important Geological Site - Sheffield Area Geology Trust Geological interest of Anston Stones Wood Powerpoint presentation to the Parish Council Sept 2018.

PHI Priority Habitat Inventories - www.magic.defra.gov.uk

PS Protected Species - Badgers are protected by UK Legislation and populations are considered to be of regional significance (p27)

BAP Biodiversity Action Plan species - Brown Hare is a Biodiversity Action Plan short list species (p27)

Local

Other Non-qualifying semi-natural Habitats

Table 7			Importance: National: SSSI SAM EPS	Regional PHI LWS RIGS PS BAP underlined = LNR	Local Other
Interest	**Qualifier**	**Type**	**Feature**	**Detail**	
Biological (Teaching and Research Resource) (Mosaic of semi-natural habitats)	Woodlands Includes **Ancient Woodland** which also *Meets **W1** LWS Qualifying Criteria for Ancient Woodland (2018)*	**Magnesian Limestone Woodland with cliffs and valley sides**	Magnesian Limestone Woodland Dominant Canopy Tree Species	Ash	
				Wych Elm	
			Magnesian Limestone Woodland Sub-ordinate Canopy Tree Species	Yew	
				Small Leaved Lime	
				Large Leaved Lime	
				Field Maple	
				Rowan	
			Magnesian Limestone Woodland Wide variety of calcicolous shrubs and herbs, some of them uncommon.	Dogwood	
				Hazel	
				Holly	
				Guelder Rose	
				Elder	
				Purging Buckthorn	
				Spindle	
				Wild Privet	
			Magnesian Limestone Woodland Vernal communities.	Dog's Mercury	
				Enchanter's Nightshade	
				Ivy	
				Early Dog violet	
				Toothwort	
				Wood Barley	
				Fingered Sedge	
				Mountain Melick	
			Other non-SSSI Magnesian Limestone Woodland areas Meet LWS Qualifying Criteria **W2** - NVC W8 Fraxinus excelsior - Acer campestre - Mercurialis perennis woodland and **W3** Criteria Neutral/ calcareous Woodland (2018). Meets **V1** LWS Qualifying Criteria for Vascular Plants (2010)	Large Leaved Lime	
				Wood Barley	
				Fingered Sedge	
				Monk's-hood	
		Plateau Woodland	Upper valley slopes and plateau woodland.	Oaks	
				Ash	
				Limes	
				Birches	
			Other non SSSI Woodland areas m*eet* **W3** LWS Qualifying Criteria Neutral/ calcareous Woodland (2018)		
		Streamside Woodland	Alder Woodland	Alder	
				Pendulous Sedge	

Biological (Teaching and Research Resource) (Mosaic of semi-natural habitats)			Other non-SSSI areas nearly meet both **W2** qualifying criteria for NVC W6 Alnus glutinosa - Urtica dioica woodland and **W3** LWS criteria for Wet Woodland 2018)	
		Broadleaved Plantation	Plantations	Beech
				Sycamore
	Other Habitats	**Limestone Grassland**	**Ungrazed** species-rich swards.	Upright brome
				Tor-grass
				Quaking Grass
				Cowslip
				Yellow-wort
				Yellow rattle
			Little Stones Meets **G1** Qualifying Criteria for NVC CG3 Bromus erectus grassland (2018) and meets **G2** Criteria for Calcareous Grassland (2018)	
		Neutral Grassland	Other LWS Grasslands Meet **G1 -** Qualifying Criteria for NVC MG5 Cynosurus cristatus - Centaurea nigra grassland and **G2** Criteria for Neutral Grassland (2018)	
			Brook Walk LWS failed to meet Qualifying Criteria (2019)	
		Scrub		
		Wetland	Flowing water (Anston Brook)	
	Species	Fungi Met **FU1** Qualifying Criteria for Fungi (2010)	A rust	Puccinia betonicae
		Non-Vascular Plants: lichens, bryophytes (mosses and liverworts) and algae. Met **NV1** Qualifying Criteria for presence of Schedule 8, RDB or Species of Principle Importance* (2010)	?	'Robust Bracket'
			A liverwort	Cololejeunea rossettiana
			A moss	Anomodon longifolius
		Invertebrates Met **INV1** - Qualifying Criteria for the presence of nationally rare or nationally scarce species (2010).	A cranefly	*Limonia masoni*
			An anthomyiid fly	*Botanophila sanctimarci*
		Mammals	Natterer's Bat	Fissure Cave and Dead Man's Cave Swarming Sites
			All bats	Bat Roost sites
			Badger	Occupied Badger Setts
			Brown Hare	
Geology	Natural Limestone Outcrops and Crags of bedded	Geological	Anston Stones Wood 1 (ravine) R51	Mudstone in stream bed. Mexborough Rock in stream bed. Folded Coal Measures strata and Shafton Marine Band.
				Major unconformity (Cadeby Formation ~50 million years time gap): Carboniferous strata 310 million yrs old beneath.

Geology Teaching and Research Resource High Recreational and Leisure Value	limestone within SSSI Anston Stones Wood RIGS Supersite Feature**			Cadeby Formation 'Stepping Stones' slipped blocks south of the Brook.
				Large-scale detachment of dolostone blocks (‘cambering’).
			Anston Stones Wood 4 (Clayton's Quarry) R54	Clayton’s Quarry, parallel-bedded dolostone, unweathered.
		Geomorphological	Anston Stones Wood 1 (ravine) R51	Incised sub-glacial drainage meltwater channel (Anglian Glaciation)?
			Anston Stones Wood 2 (The Cut) R52	Detached vertical slab, valley cambering, (within last c14,000 years?)
			Anston Crags (cave sites) R127	Crags and overhangs – smooth curving surfaces, ice meltwater erosion? South side of valley.
				Present-day carbonate weathering, dissolution and re-precipitation as ‘tufa’
		Spaeleological	Anston Stones Wood 1 (ravine) R51 Anston Crags (cave sites) R127 Creswell Limestone Heritage Area	Large rock shelters and caves :Caves are a finite and vulnerable resource. Sediment (accretion rather than erosion) and climate stability allows preservation of deposits in nooks and crannies, especially of Pleistocene sediments. (The Archaeology of English Caves and Rock-Shelters: A Strategy Document Report number: 32/2003)
Archaeology	Palaeolithic	Evidence for human occupation	Dead Man's Cave SAM	Scheduling includes the cave and the deposits from the back chamber to the entrance and extending in a c.3m arc around the cave mouth
			Anston Stones Wood 1 (ravine) R51	Use of overhangs and caves as pre-historic rock-shelters

**Schedule 8 of the Wildlife and Countryside Act, Red Data Book or Species of Principle Importance for conserving biodiversity in England*

*** Anston Stones Wood RIGS supersite boundary encloses individual sites R51, R52, R53, R54, R55 and R127). Anston Stone Wood 3 (railway) R53 Now completely covered by mesh and will soon be completely lost from view and is outside Parish Council land –Network Rail Ownership). Lindrick Hall Farm, Lindrick Common R55 is also outside Parish Council Ownership.*

4) What are the influences? (Factors)

A factor is anything that has the potential to influence or change a feature, or to affect the way in which a feature is managed. These influences may exist, or have existed, at any time in the past, present or future. Factors can be natural or anthropogenic in origin, and they can internal (on-site) or external (off-site) and they can be positive or negative. See **Appendix 3** for detailed analysis of each factor.

Table 8	Type	Factor	Trend
Existing	Natural	Natural succession	Inevitable without management intervention.
	Natural	Terrain: Steep gradients, water erosion, uneven ground.	Effects exacerbated by wetter climate and urbanisation.
	Natural	Tree /branch fall (LH)	Exacerbated by wetter climate, summer wind storms and disease.
	Natural	Bioturbation (burrowing animals) (p29)	Increased badger populations?
	Natural	Bioturbation (tree roots) (p30)	Woodland is UK climax vegetation type
	Natural	Vegetation vigour (especially ivy and bracken but also ruderals)	Increased by milder climate and environmental ammonia levels.
	Hybrid	Vegetation composition (trees) (LH)	Affected by changing climatic conditions, historic management, deer browsing and squirrel damage.
	Hybrid	Habitat Fragmentation/ connectivity	Affected by adjacent land use changes and on-site alterations and habitat degradation.
	Hybrid	Disease - Tree diseases (p32), Animal parasites (LH)	Introductions and increase in vector population. Risk increased by changing climate conditions.
	Hybrid	Fauna: Lack of Woodland 'foragers': bears, wild boar and beaver! (LH)	Re-introductions and recolonisation
	Hybrid	Fauna: Lack of grass and scrub grazers (LH)	Rabbit numbers reduced by Disease. Reduction in mixed farming resulting in a lack of grazing stock.
	Hybrid	Presence of invasive alien species (animals and plants) :Signal Crayfish? Mink? (LH)	Increasing risk of new arrivals and accidental introductions.
	Anthropogenic	Access limitations	Increasing size of available agricultural machinery. Increasing need to erect permanent barriers against quads and scrambler bikes.
	Anthropogenic	Ground shading by planted Beech Trees and self-set Sycamore (p16)	Deliberate planting and increased natural regeneration due to climatic conditions.
	Anthropogenic	Informal exercise (including, but not limited to, Public Rights of Way): Pedestrian visitors, Dog walkers, Rambling Groups (p16) and Mountain Bikers, jogging, 'fairy house trails' (LH)	Significantly increased by COVID 19 Lockdowns
	Anthropogenic	Dogs not under close control. (p16 and LH)	Increasing dog ownership. Multiple dogs per walker. COVID 19 Lockdowns increase used of local area.
	Anthropogenic	Bouldering (crag climbing) (LH & LWS Review 2018)	Increased popularity since online Crag Guide Published online in 2012
	Anthropogenic	Educational users: Amateur Naturalists and Photographers (LH), Guided/Self-guided walks (CAMP 2004 p46-55), Schools and Universities/ Colleges and Researchers (p16)	Organised group visits decreased by COVID 19 restrictions.
	Anthropogenic	Utilities:. Railway track, bridges and underpasses. Sewage works pipes and outfalls. Land drainage culverts. Overhead power Lines and poles (LH)	Unknown or predictable cycle?
	Anthropogenic	Vehicles, Quads, scrambler motorbikes (LH)	?
	Anthropogenic	Campfires and parties. In Summer (SYBG 2016)	?
	Anthropogenic	Possible introduction of butterflies (LWS review 2018).	Unofficial and unpredictable
	Anthropogenic	Financial resources. (LH)	Static? Real Terms decrease?
	Anthropogenic	Physical resources (suitably-trained personnel and equipment). (LH)	?
Future	Anthropogenic	Grazier (Hodkin's Field) (LH)	Future neighbouring land use
	Anthropogenic	Geocaching (LH)	Increasing popularity.

5) What do we want? (Objectives)

Objectives lie at the heart of a management plan and are the single most important section in any plan. An objective is, quite simply, an expression of something that we want to achieve.

Objectives contain two basic components: a vision which describes in plain language the outcome or condition that we require for a feature, and performance indicators which are monitored to provide the evidence that will be used to determine whether the condition that we require is being met. Two different types of performance indicators can be used, these are:

- Quantified attributes with limits. (*An attribute is a characteristic of a feature that can be monitored to provide evidence about the condition of the feature.)*
- Factors with limits which, when monitored, provide the evidence that the factors are under control or otherwise.

Desired End Product 2004

The desired end products listed in the 1996 Anston Stone Woodland Project Plan refer to the target habitats for discrete areas of the LNR. They were considered still appropriate in 2004 plan review and were carried forward (p15). The targets were:

Wildwood – with no or limited intervention (sycamore removal)
Ash and Elm woodland – Conversion from beechwood through many years of active management to selectively remove sycamore and beech tree and remove regeneration.
Productive Woodland – Highly-modified secondary plantation woodland with non-native mature trees as saleable timber.
Valley Alder Woodland – alluvial flat beside Anston Brook.
South- facing Coppice slopes – understorey coppice with tree canopy retained.
Mixed coppice – Coppice with standards maintained at < / = 12 tree per ha.
Scrub – scattered (hawthorn, gorse and bramble)
Scrub - Dense and continuous hawthorn and blackthorn
Bracken – Retained area
Scattered bracken – prevent further spread.
Calcareous Grassland – managed species-rich sward with limited scrub, coarse grasses or bracken.
Neutral Grassland Hay Meadow – Tall sward MG1 with improved diversity
Neutral Grassland Amenity - regular mowing (p34)
Secondary Plantation Woodland – Non intervention (due to access and topography)
Tall Ruderal Vegetation (Nettle)
Woodland Edge - mosaic of scattered scrub, rank grass and tall herb.
Hedgerow – Stockproof condition

These are all still considered appropriate as part of the 2020 review . The following additional possible desired end products have also be identified:

Scattered trees – open conditions around open-crown trees. (establish new 'parkland' trees)

In addition a number of so-called 'ecosystem services' have been identified as appropriate functions for the site:

Carbon Sequestration
Flow Attenuation and Flood Management

Appendix 4 contains a map of existing habitats, site amenities and desired end products.

6) What must we do? (Actions)

Rationale

This section is the process of identifying, in outline, the most appropriate management for the various site features (See **Appendix 5 Area Names**). The procedure which is applied to each feature in turn comprises two distinct phases:

a) the identification of the status of the feature and an assessment of current conservation management. If the feature is in the condition that we require then it is likely that the current management is effective.

b) The relationship between 'factors' and the condition of the feature is then considered, along with the implications of the factors to management.

The management of habitats and species involves controlling factors, or taking remedial action following the impact of a factor. Control means the removal, maintenance, adjustment or application of factors, either directly or indirectly. For example, grazing is the most important factor when managing grassland. Grazing can be removed, reduced, maintained, increased or introduced. Actions which aim to control the trends of natural succession (i.e conversion of grassland to woodland) or which prevent dominance by non-native species form the bulk of the routine maintenance management actions identified in the Action Plan.

Appendix 6 Condition Assessments sets out the assessment of current condition of features of the site (as per 'a' above).

Table 9 below sets out how the influence of the factors, already identified in answering question 4, might be addressed (as per 'b' above). Some of the required actions have been incorporated into the Action Plan for 'physical' management tasks but others are more 'procedural' actions which need to be addressed by the Management Group.

Table 9 Factor	Constraint	Required Action
Natural succession	Designations	Implement management necessary to maintain features for which the site has been designated.
Terrain: Steep gradients, water erosion, uneven ground.	Many eroded Badger paths present. Root damage to geological or archaeological features.	Attenuate overland flow by improving soil structure and vegetation cover especially in steep woodland. Improve surface and drainage of steep Public Rights of way to direct run off to natural vegetated soakaways. Reduce soil compaction, improve soil depth and ground vegetation by encouraging low woody species with fibrous root systems. Control invasive plant species beside brook to encourage native ground cover. Deter the creation of new desire-line paths, especially those which are perpendicular to the ground contours. Maximise the educational value of natural high vantage points by sensitive vegetation management to provide views of key geo-morphological features. Maintain contacts with local farmers and contractors with suitable small machinery. Work with other land-management organisations to source or share suitable management machinery (e.g. YWT, RSPB, Lindrick Golf Course? Natural England).
Tree /branch fall (LH)	Nesting birds (Late February to August) and bat roosts in tree cavities protected by Law.	Carry out regular safety assessment. Coppice/ pollard or crown thin trees 'at risk' next to critical infrastructure (culvert walls, bridge parapets and railway embankment) or 'dangerous' trees in defined safety zones based on proximity to Rights of Way and permitted paths. Leave natural woody brash/leaky dams in channel to attenuate flows. (Remove and dispose of trapped non-biodegradable debris).
Bioturbation (burrowing animals) (p29)	Setts Protected by law.	Monitor impact at critical geological sites (prime educational features as defined by SAGT) and archaeological sites at risk (including those with potential interest) as defined in the CAMP 2004). Assess significance of any damage before deciding on any further action.
Bioturbation (tree roots) (p30)	Bats sensitive to changes in woodland canopy near 'Swarming' sites.	Monitor bat activity at critical geological sites (prime educational features) and carry out localised and ecologically sensitive shrub and tree control in areas away from bat swarming activity. (May also benefit key vascular plant : Fingered sedge).
Vegetation vigour (especially ivy and bracken but also ruderals)	Nesting birds (Late February to August) and bat roosts in ivy clad trees protected by Law. Bracken in grasslands creates sheltered microclimate for butterflies (larvae and adults). (LH)	Monitor bird activity at critical geological sites (prime educational features as defined by SAGT) and carry out localised and ecologically sensitive ivy control in areas away from bird nesting sites. (May also benefit key vascular plant : Fingered sedge). Fixed point photographic monitoring of ivy abundance in tree canopies – in winter. Assess change in dominance and check for bat/bird usage before taking action to remove ivy. Aerial & fixed-point photographic monitoring of bracken spread in grassland – Summer. Define permitted limits and control by repeated cutting throughout May to reduce vigour. (Use hand scythes to prevent excessive disturbance to breeding birds). Encourage wide buffer strip on adjacent arable farmland edges to prevent over-nitrification of hedge.
Vegetation composition (trees) (LH)		Monitor natural regeneration and assess browsing levels before deciding on any further action. Lime seed viable – allowing natural regeneration? (LH). Reinstate historic management.
Habitat Fragmentation/ Connectivity	Eligibility for grants/landowner subsidies. Habitats targeted by NELMS. Stream culverts and discharges controlled by Utilities and National Infrastructure.	Work with adjacent landowners and use exiting Parish-owned land to improve continuity of habitat with adjacent high value habitats including limestone grasslands and scrub of Lindrick Golf Course SSSI and and ancient woodlands at Old Spring Wood and Low Spring Wood. P25. Areas surrounding the LNR lie within the Fragmentation Action Zone and Network Enhancement Zones 1 and 2. www.magic.defra.gov.uk . Work with Utilities and Environment Agency to improve water quality and watercourse morphology.
Disease - Tree diseases (p32), Animal parasites (LH)		Prevent transfer of infested/infected material. Prune dead wood in safety zones. Monitor ash abundance through aerial/UAV photography in late Spring (when ash trees are still leafless). Monitor tick numbers and tick vector prevalence.
Fauna: Lack of Woodland 'foragers': bears, and wild boar ! (LH)	Public and stock safety/control. SSSI (OLD) . Nesting birds (Late February to August).	Control Bramble and Sycamore in areas where both occur. Consult Natural England about introducing a herb layer diversification experiment using controlled pannage (grazing with pigs) in areas with low archaeological value or potential. (Educational event/ woodland management research potential). (LH)
Fauna: Lack of grass and scrub grazers (LH)	Public and stock safety/control. SSSI designation feature and OLD mention ungrazed nature of the grassland.	Limestone Grassland. Control options are Graze, Mow or Burn. (p17). Manage selected areas of grassland by rotational strimming/brush cutting to removal woody scrub growth but keep some areas of unmanaged Tor grass. Neutral Grassland: Control options are to mow more frequently than one annual cut (p64) and /or introduce occasional grazing.
Presence of invasive alien species (animals and plants) :Signal Crayfish? Mink? (LH)	Influenced by wider catchment. Off-site and Private Landowners (Severn Trent).	Control balsam beside stream and further up the valley slopes (especially important within the SSSI). Co-ordinate control with other landowners. Control snowberry and ground elder. Eradicate Japanese Knotweed (Butterfield Walk). P? Dissuade further planting of non-native daffodils. Remove bulbs from SSSI and Woodland areas and relocate to Picnic area.
Access Limitations	Natural terrain. Land tenure	Ensure that access points are maintained to a width, grade and surface quality that allows the necessary management equipment to reach the required management compartments. Maintain necessary wayleave agreements with third party landowners.

Ground shading by planted Beech trees and self-set Sycamore (p16)	Public safety. Nesting birds (Late February to August) and bat roosts in trees protected by Law. Rookery in compartment 32 (p18). SSSI OLD. Ancient Woodland soil (disturbance) (p24 and p43).	Reduce canopy shading by premature veteranisation of trees. Provide large diameter standing and fallen dead wood habitats. Check for bat/bird usage prior to works. Use specialist arboricultural techniques such as selective ring-barking, 'coronation cuts' and cavity creation as well as felling to create gaps in the canopy and potential nesting and roosting sites. Carry out ongoing rigorous control of beech and sycamore regeneration beneath. Choose areas away from public paths if creating standing dead timber habitat or encircle with ring of brash to prevent access within the risk zone. Fell large trees whole and up-slope and secure trunks with cut timber stakes. Use large diameter trunks to block unwanted contour paths or cut out a narrow section to allow pedestrian access but prevent passage by quad bikes, scrambler bikes and ATVs. Use brash to deter the use of creation of unwanted trails.
Informal exercise (including, but not limited to, Public Rights of Way): Pedestrian visitors, Dog walkers, Rambling Groups (p16) and Mountain Bikers, jogging, 'fairy house trails' (LH)	Lawful right of access on PROW. Archaeological interests near rock faces (vulnerable during path construction or excavations). Ancient Woodland soil (disturbance) (p24 and p43).	Maintain good standards and signing on all Public Rights of Way. Access control in sensitive areas ('Doorstep Walk route'). If necessary use Byelaws to prevent damage or disturbance. Encourage regular visitors to act as volunteer wardens. Control public access during tree safety works or woodland management operations. Use whole branches and brash to create barrier alongside paths to deter path widening. Block down-slope bike runs with coppice brash and trimmed branches. Surface muddy sections with wood chip from coppice.
Dogs not under close control. (p16 and LH)	Law stipulates that dogs must be 'under close control' on footpaths. LNR bylaws allow more control in 'Public Spaces'	Access control in sensitive areas. If necessary use Public Space Protection Orders to prevent damage or disturbance by dogs.
Bouldering (crag climbing) (LH & LWS Review 2018)	Setts protected by Law.	Liaison. Encourage site stewardship role. Ensure published guides promote responsible enjoyment.
Educational users: Amateur Naturalists and Photographers (LH), Guided/Self-guided walks (CAMP 2004 p46-55), Schools and Universities/ Colleges and Researchers (p16)		Liaison. Encourage site stewardship role and submission of records and research findings. Ensure published guides promote responsible enjoyment. Provide or commission guide-information (leaflets/QR code & website) and education packs. Information Guide on Archaeological Interests (Creswell Heritage Trust – see CAMP 2004 p65).
Utilities:. Railway track, bridges and underpasses. Sewage works pipes and outfalls. Land drainage culverts. Overhead power Lines and poles (LH)	Limited control in emergency situations.	Require appropriate impact assessment. Notify appropriate bodies and obtain necessary consents.
Vehicles, quads, scrambler motorbikes (LH)		Site Wardening and liaison with Local Police. Habitat manipulation to deter usage (woodland and watercourse management). During woodland thinning, fell a continuous line of whole young trees within the woodland edge parallel to A57 to hinder ATV access from the road.
Campfires and parties. In Summer (SYBG 2016)		Site Wardening and liaison with Local Police. Petrol wood chipper to convert coppice brash into chip to surface muddy paths (and discourage large campfires).
Possible introduction of butterflies (LWS review 2018).		Liaise with Butterfly Conservation and Local Naturalists
Financial resources. (LH)	Limitation of Parish Precept. Grants may require FC -approved management plan and RPA land registration.	Source outside funding : E.g. site may be eligible for the Biffa Award Rebuilding Biodiversity. Countryside Stewardship Scheme and Forestry Commission Woodland creation (tree planting and maintenance), Woodland fencing, Woodland infrastructure, Invasive species control, Woodland improvement. See magic.defra.gov.uk for maps of CSS targeting and Scoring areas to assess eligibility for funding. Site for Biodiversity Net Gain 'off-site' compensation works (habitat creation or condition improvement) for nearby developments unable to accommodate the required net gain on their site by the Local Authority planning process.
Physical resources (suitably-trained personnel and equipment). (LH)	Limited Management Personnel (no full time staff?) TVC/Groundwork Volunteers.	Maintain and build contacts with local farmers and contractors. Build up a workforce of volunteers and improve their skill levels through training. Increase number of existing maintenance personnel hours spent on site. Use specialist contractors. Fund purchase and maintenance of equipment.
Grazier (Hodkin's Field) (LH)		Access control to and from LNR.
Geocaching (LH)	Bird nesting (Late February to August)	Restrict to less sensitive areas. Provide information (QR code & website).

Action Plan

The action plan contains descriptions of all the work that needs to be carried out on a site in order to meet the objectives. Each individual task is identified and described in sufficient detail to enable the individuals responsible for the project to carry out the work.

Appendix 7 Site Management Tasks provides a description of the task, its frequency, what to monitor, and the resources required. Resources are defined combinations of manpower and equipment and they have been ranked in order of preference '1' or '2' based on efficiency. N.B. The Parish Council may not currently have all the necessary manpower and equipment available.

Procedural tasks which relate to progress monitoring, inspection routines, allocating financial resources, site wardening, the development of partnerships with other organisations, interested individuals or groups, and biological survey work are presented separately in **Table 10** below.

All the basic information for each project (i.e. when and where the work should be completed, who should do the work, the priority etc.) has been aggregated and can be used to produce a wide range of bespoke work programmes as necessary: annual programmes, programmes for a specified period, programmes for an individual, financial programmes, long-term programmes, etc. An action plan is prepared for a specified period, in this case 5 Years (see **Appendix 8 Five Year Task Schedule**).

The location of each action has been provided in **Appendix 9 Management Task Maps**.

Action plans also provide a structure (and establish priorities) for biological recording and monitoring. Bespoke targets for assessing the condition of each individual habitat area have been allocated to aid the future review of this management plan at the end of the plan period see **Appendix 10 2020 Management Targets.** These are based on the criteria appropriate such as SSSI status, LWS status or Condition Assessments methodologies set out in 'The Biodiversity Metric 2.0 auditing and accounting for biodiversity'.

Table 10

Monitoring	Management diary	Maintain Records	Record date of completed actions	Essential
	Progress reporting	Report on work	Prepare brief summary report of past years activities and results	Essential
Inspection	Tree safety and health inspection	Tree safety Survey	Yearly inspection routine and reactive survey. (Be aware of nesting birds (Late February to August) and bat roosts in tree cavities: Protected by Law.	Essential
	Boundary integrity	Check boundaries	Weekly inspection routine, programme of replacement and reactive repair/improvements.	Essential
	Visitor facilities, paths and interpretive boards maintenance.	Check facilities	Weekly inspection routine, programme of replacement and reactive repair/improvements and cleaning. Annual footpath survey with footpath officer.	Essential
Wardening	Liaison and training		Support volunteers and 'wardens'	Desirable
	Emergency procedures	Safety Signs	Ensure emergency contact and procedures details are displayed on site.	Essential
	Access control (LNR)	Signs	Access control in sensitive areas ('Doorstep Walk route' rented land (Hodkin's Field). If necessary use Byelaws to prevent damage or disturbance.	Desirable
	Dog Control		Access control in sensitive areas. If necessary use Public Space Protection Orders to prevent damage or disturbance by dogs.	Desirable
	ATV/Motorbike		On-site presence and liaison with Local Police.	Essential
	Public Engagement		Encourage regular visitors/naturalists/ Bouldering Climbers to act as volunteer wardens.	Desirable
	Species Introductions		Dissuade further planting of non-native daffodils.	Desirable
Working with Partners	Habitat connectivity		Liaise with adjacent landowners to encourage take-up of NELMS/ appropriate quarry restorations/ management of other Parish-Council owned land.	Desirable
	Habitat expansion		Use existing Parish-owned land to improve continuity of habitat with adjacent high value habitats including limestone grasslands and scrub of Lindrick Golf Course SSSI and and ancient woodlands at Old Spring Wood and Low Spring Wood. Areas surrounding the LNR lie within the Fragmentation Action Zone and Network Enhancement Zones 1 and 2. www.magic.defra.gov.uk .	Desirable
	Management Funding		Source outside funding : E.g. site may be eligible for the Biffa Award Rebuilding Biodiversity. Countryside Stewardship Scheme and Forestry Commission Woodland creation (tree planting and maintenance), Woodland fencing, Woodland infrastructure, Invasive species control, Woodland improvement. See magic.defra.gov.uk for maps of CSS targeting and Scoring areas to assess eligibility for funding. Site for Biodiversity Net Gain 'off-site' compensation works (habitat creation or condition improvement) for nearby developments unable to accommodate the required net gain on their site by the Local Authority planning process.	Essential
	Management equipment		Maintain contacts with local farmers and contractors with suitable small machinery. Work with other land-management organisations to source or share suitable management machinery (e.g. YWT, RSPB, Lindrick Golf Course? Natural England).	Essential
	Watercourse Quality		Work with Utilities, Trent River Trust and Environment Agency to improve water quality and watercourse morphology.	Desirable
Partnerships Cont.	Himalayan Balsam		Co-ordinate Himalayan Balsam control with other landowners.	Desirable
	Bouldering Climbers/Climbing Groups	Invite to Friends of/ User Group	Ensure published guides promote responsible enjoyment. Sensitivity of badger setts.	Desirable
	Geocachers	Invite to Friends of/ User Group	Provide information (linked to QR code & website). Avoid activities in sensitive areas and at sensitive times of year.	Desirable
	Educational Visitors, Researchers, Photographers and /Naturalists	Invite to Friends of/ User Group	Encourage submission of natural history records and research findings. Ensure published guides promote responsible enjoyment.	Desirable
	Butterfly Conservation	Invite to Friends of/ User Group	Liaise with Butterfly Conservation and Local Naturalists over Butterfly introductions.	Desirable

	Volunteering	Form and facilitate a Friends of Group	Build up a workforce of volunteers and improve their skill levels through training.	Essential
Interpretation	Information Provision	Provide Digital Media	Provide or commission guide-information (leaflets/QR code & website) and education packs. Information Guide on Archaeological Interests	Desirable
Landowner Responsibilities	Management personnel	Allocate Funds	Allocate necessary staff time for essential maintenance and management tasks. Hire specialist Contractor where necessary.	Essential
	Management equipment	Allocate Funds	Purchase and maintain equipment and train maintenance personnel. Hire specialist equipment where necessary.	Essential
	Tree Work		Coppice/ pollard or crown thin in preference to felling trees 'at risk' next to critical infrastructure (culvert walls, bridge parapets and railway embankment) or 'dangerous' trees in defined safety zones based on proximity to Rights of Way and permitted paths. Prune and burn wood affected by Dutch Elm Disease or Chalara to prevent accidental transfer around the site.	Desirable
	Access		Keep paths clear of encroaching vegetation. Maintain good standards and signing on all Public Rights of Way. Improve surface and drainage of steep Public Rights of way to direct run off to natural vegetated soakaways.	Essential
	Gates and tracks		Ensure that access points are maintained to a width, grade and surface quality that allows the necessary management equipment to reach the required management compartments.	Essential
	Wayleaves (Third parties)		Maintain necessary wayleave agreements with third party landowners.	Essential
	Third Parties (Consents)	Require appropriate impact assessment.	Notify appropriate bodies and obtain necessary consents.	Essential
	Soil Protection	Tree and shrub nursery	In order to improve the amount of ground cover fibrous roosted and suckering native shrubs should be propagated for planting in areas of the woodland which a devoid of low cover where soil erosion slippage is an problem. Suitable species include wild privet and dogwood which can be propagated from berries and vegetatively by laying, Spurge laurel and field rose can be propagated from from berries and hips.	Desirable
Biological Recording				
Whole Site	Reptile survey		ARG UK and Local Naturalists	Desirable
	Bat survey		Foraging and summer roost, swarming and hibernation roost surveys (South Yorkshire Bat Group).	Desirable
	Badger survey		Badger Sett inspections and map foraging paths (with assistance from South Yorkshire Badger Group).	Desirable
	Small Mammal	Diversity	Longworth trapping, hair and footprint traps, trail cameras	Desirable
	Invertebrates		Survey woodland rides and glades Monitor seasonal tick prevalence in well-used areas (white cloth sampling technique).	Desirable
	Botanical Survey		DAFOR/DOMIN of fixed quadrats. Rare plants survey. (Reasons for SSSI notification /LWS selection	Essential
Watercourse	Freshwater crustaceans and Fish		Trent Rivers Trust ? (Licenced surveyors)	Desirable
Woodlands	Ivy Survey		Fixed point photographic monitoring of ivy abundance in tree canopies – in winter. Assess change in dominance and check for bat/bird usage before taking action to remove ivy.	Desirable
	Ash Survey		Monitor ash abundance through aerial/UAV photography in late Spring (when ash trees are still leafless).	Desirable
	Deer Survey	Browsing damage	Monitor natural regeneration and assess browsing damage, deer numbers and site usage before deciding on any further action.	Desirable
Critical geological sites (educational features as defined by SAGT) and archaeological sites at risk (including those with potential interest) as defined in the CAMP 2004)	Bird, Bat and Badger surveys	Nesting, Roosting sites and Digging damage.	Monitor bird nesting and bat activity at critical geological and archaeological sites. Assess significance of any damage before deciding on any further action. (Badger setts protected by Law).	Desirable

Appendix 1 Statutory Management Objectives

Objective for management are set out in the SSSI papers (p1) and the Local Nature Reserve Act (p1 and p2)

The principal aim of management for the SSSI as defined by English Nature is;

‘To sustain the various plants and animals that make Anston Stones Wood of Special Interest.’

To achieve this the following objectives need to be met:

Maintain and enhance the magnesian limestone grassland.
Maintain and enhance ash/lime woodland and improve its age and structural diversity.
Reintroduce traditional coppice management regimes.
Maintain and enhance populations of rare plants.

In accordance with Section 101 of the Local Government Act 1972, Rotherham Metropolitan Borough Council delegated power to the Parish Council to declare Anston Stones Wood a Local Nature Reserve and therefore Anston Parish Council is responsible for managing Anston Stone Wood LNR.

Within section 15 of the 1949 Act, a nature reserve is defined as:

‘Land managed for the purpose:

a) of providing, under suitable conditions and control, special opportunities for the study of, and research into, matters relating to the flora and fauna of Great Britain and the physical conditions in which they live, and for the study of geological and the physical conditions in which they live, and for the study of geological and physiographical features of special interest in the area; or

b) of preserving flora, fauna, or geological or physiographical features of special interest in the area; or for both these purposes.’

The uses of LNRs are wide ranging, however management should maintain the features which give the site its special interest. Therefore where the purpose of an LNR is to preserve the flora and fauna then the maintenance and enhancement of these features should be a main aim.

Historic England encourage owners and occupiers to maintain their scheduled monuments in good condition so that the remains survive for future generations. The principal aims of management for the SAM as advised by Historic England in Scheduled Monuments A Guide for Owners and Occupiers are:

a) the less disturbance of the ground the better (for scheduled monuments that contain buried archaeological remains).
b) ordinary good land management such as control of vegetation growth, burrowing animals, prevention of erosion and ensuring that sites under pasture are not over-grazed. (for monuments that include earthworks).