Harworth Group

Dearne Valley Parkway, Rockingham, Barnsley – Unit 4

Biodiversity Offsetting Scheme

July 2023

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Appendix A. Biodiversity Metric 2.0 (Unit 4 BOS)

1.0 INTRODUCTION

1.1 This report has been prepared by FPCR Environment and Design Ltd on behalf of the Harworth Group in support of requirements under the Section 106 schedule 4 agreement (10 Aug 2020, APPLICATION NO. 2019/1573).

1.2 The Section 106 Agreement requires that for each phase of development a 'Biodiversity Impact Assessment Report and a Biodiversity Offsetting Scheme' is to be submitted to and approved by the Council. The Biodiversity Offsetting Scheme is 'to provide a minimum 10% net gain in Biodiversity Units for habitats based on the Biodiversity Impact Score in the Biodiversity Impact Assessment for that Phase'.

1.3 It specifies that the 'Biodiversity Offsetting Scheme for each Phase shall include:

- The identity of an appropriate receptor site or sites upon which any biodiversity enhancements will be provided;
- A management plan for the provision and maintenance of such offsetting measures for not less than 32 years from the date of implementation of the Approved Biodiversity Offsetting Scheme;
- The provision of contractual terms to secure the delivery of the offsetting measures.'

1.4 A majority of the contents of this report is comprised of summaries and references to existing approved documents and additional documents submitted by the wider project team. To avoid duplication please consult the following documents for full details:

- Biodiversity Impact Assessment (BIA) – Unit 4. Rev B (FPCR 2023)
- Offsite Habitat Management Plan – Rev A (FPCR 2023)

Site Location and Context

1.5 The Site sits to the north of Hoyland, adjacent to Shortwood Business Park in Barnsley, South Yorkshire (central grid ref: SE 3563 0103). The surrounding land use is largely arable and pasture with an area of broad-leaved semi-natural woodland to the north, forming part of the Short Wood and Hay Green LWS.

1.6 Unit 4 comprises a single plot within Phase 2 of the wider development. Access to the site will be provided from the service road running off Dearne Valley Parkway and through the previously approved Phase 2a.1.

1.7 The aim of biodiversity offsetting is to compensate for significant adverse impacts on biodiversity identified after appropriate avoidance, minimisation and on-site rehabilitation measures have been taken, according to the mitigation hierarchy as required by the NPPF.

1.8 This report summarises the steps taken to offset impacts as detailed in the Unit 4 BIA (Rev B, FPCR, 2023).

Site Proposals

1.9 Site proposals are for a business park development comprising warehousing with associated parking, lorry compounds and access infrastructure, with landscaping and green infrastructure (GI), including attenuation facilities.

1.10 Unit 4 comprises a single plot within Phase 2, with one commercial unit and associated infrastructure; alongside which will be an extensive area of green infrastructure and a swale. Woodland belts along the boundaries will buffer the development footprint from the environs beyond.

2.0 MITIGATION HIERACHY

Avoid Impacts

2.1 The site is located within an allocated site for employment within Barnsley's Local Plan as adopted on 3rd January 2019. As such the location of the development can be considered as an appropriate location to avoid likely major negative impacts.

2.2 Within the biodiversity metric, habitats are preassigned to distinctiveness bands. These are based on the distinguishing features, including the consideration of species richness, rarity, and the degree to which a habitat supports species rarely found in other habitats. Within this phase of development, no high distinctiveness habitats will be impacted.

Minimise Impacts

2.3 Site clearance and earthworks were completed in line with the CEMP (FPCR, 2020). This document detailed the requirements to protect retained habitats from construction activities and ensure that vegetation clearance was undertaken following relevant good practice methodologies and within seasonal constraints.

Mitigation (On-site)

2.4 Habitat losses resulting from the development were measured utilising the Biodiversity Metric 2.0. A summary from the BIA (Rev B, FPCR, 2023) is provided in Table 1.

2.5 The two habitat components; area habitats and hedgerows, require independent compensation and any gains made in one cannot be used to compensate for losses in the other.

Table 1. Biodiversity Unit Changes - Unit 4

	Biodiversity Units					
	Baseline	Retained	Created	Enhanced	Post-intervention	Net Change
Area Habitats	18.88	0.55	10.15	1.69	12.4	**- 6.48**
Hedgerows	5.25	-	3.77	-	3.77	**- 1.48**

Please note there may be minor discrepancies (rounding errors) between the columns and the totals, however, the numbers duplicate those presented within the matrix calculator.

2.6 The on-site habitat creation and management result in an overall net loss in area habitat biodiversity units and an overall net loss in hedgerow biodiversity units. This equates to biodiversity impact scores of -34.34% and -28.21% respectively.

2.7 To fulfil the Section 106 requirement to provide a minimum 10% net gain in Biodiversity Units for habitats, the biodiversity offsetting scheme will first combine the net gain assessment for unit 4 with those of previous phases. The results of the combined assessment will then inform the requirements for additional offsite habitat provision to compensate for the losses outstanding losses.

Offsetting

2.8 The biodiversity metric (Appendix A) has been used to track the cumulative changes for phase 2a.1, phase 3, unit 4, and offsite habitats provision (Figures 1-5). These areas provide an overall net gain, with surplus biodiversity units, in respect to the combined development impacts.

Phase 2a.1

2.9 The approved development of phase 2a.1 included a large area of retained, enhanced and new habitats providing a 13.37 (25.95%) unit gain for area habitats, and 3.93 (61.62%) unit gain for hedgerows.

2.10 Due to changes in the expected plot levels, the boundary between the Phase 2a.1 development area and Unit 4 development area has shifted. The result of which is that the Unit 4 plot overlaps with what was previously shown to be within phase 2a.1. To avoid double counting impacts or habitat creation works, the redline for Phase 2a.1 has been adjusted within these calculations to exclude the Unit 4 overlap. This has reduced the habitat assessment area for Phase 2a.1 by 0.42ha, and the Net Gain assessment has been updated to reflect this. For clarity Tables 2 and 3 provides the original summary figures, and the modified figures which represent the reduced redline.

Table 2. Area Habitat Biodiversity Units - Phase 2a.1

	Biodiversity Units					
	Baseline	Retained	Created	Enhanced	Post-intervention	Net Change
Initial Redline – 13.95ha (Nov 2021)	51.52	1.84	49.54	13.51	64.89	+13.37
Modified Redline - 13.5ha (July 2023)	50.19	1.7	46.66	13.51	61.87	+11.68
Difference	-1.33	-0.14	-2.88	0	-3.02	- 1.69

Please note there may be minor discrepancies (rounding errors) between the columns and the totals, however, the numbers duplicate those presented within the matrix calculator.

Table 3. Hedgerow Habitat Biodiversity Units - Phase 2a.1

	Biodiversity Units					
	Baseline	Retained	Created	Enhanced	Post-intervention	Net Change

	Biodiversity Units					
Initial Redline – 13.95ha (Nov 2021)	6.38	1.35	8.95	0	10.3	+3.93
Modified Redline - 13.5ha (July 2023)	6.07	1.33	8.95	0	10.29	+4.21
Difference	-0.31	-0.02	0	0	-0.01	+0.28

Please note there may be minor discrepancies (rounding errors) between the columns and the totals, however, the numbers duplicate those presented within the matrix calculator.

2.11 The updated assessment of on-site habitat creation and management for Phase 2a.1 results in overall net gains in both area habitat biodiversity units and hedgerow biodiversity units. This equates to biodiversity impact scores of -23.28% and +69.4% respectively.

2.12 The updated areas and figures have been utilised in the cumulative calculations for the Unit 4 Biodiversity Offsetting Scheme.

Cumulative Development Assessment

2.13 The biodiversity assessments for phases 2a.1, phase 3 and unit 4 have been combined to inform the cumulative offsite habitat provision requirements (tables 4 and 5).

Table 4. Area Habitat Biodiversity Unit Changes- Cumulative Changes

	Biodiversity Units					
	Baseline	Retained	Created	Enhanced	Post-intervention	Net Change
Phase 2a.1	50.19	1.7	46.66	13.51	61.87	+11.68
Phase 3-onsite	37.26	0.78	16.34	-	17.13	- 20.13
Phase 3-offsite	35.35	-	3.67	47.56	51.23	+ 15.88
Unit 4	18.88	0.55	10.15	1.69	12.4	- 6.48
Total	**141.68**	**3.04**	**76.83**	**62.76**	**142.63**	**+ 0.95**

Please note there may be minor discrepancies (rounding errors) between the columns and the totals, however, the numbers duplicate those presented within the matrix calculator.

Table 5. Hedgerow Biodiversity Unit Changes- Cumulative Changes

	Biodiversity Units					
	Baseline	Retained	Created	Enhanced	Post-intervention	Net Change
Phase 2a.1	6.07	1.33	8.95	0	10.29	+ 4.21

	Biodiversity Units					
Phase 3-onsite	5.06	0	6.5	0	6.5	+ 1.44
Phase 3-offsite	0	0	0	0	0	0
Unit 4	5.25	-	3.77	-	3.77	- 1.48
Total	**16.39**	**1.33**	**19.22**	**0**	**20.56**	**+ 4.17**

Please note there may be minor discrepancies (rounding errors) between the columns and the totals, however, the numbers duplicate those presented within the matrix calculator.

2.14 The cumulative assessment of the development parcel brought forward to date, result in overall net gains in both area habitat biodiversity units and hedgerow biodiversity units. This equates to biodiversity impact scores of +0.67% and +25.46% respectively.

Offsite Provision

2.15 Schedule 4 of the Section 106 agreement (10/08/2020) states that:

"It is acknowledged by the Owners and the Council that based on the Indicative Biodiversity Impact Assessment Report it will not be possible to provide a 10% net gain in Biodiversity Units across the Site as a whole and as such the Owners covenant to make available in the first instance the Replacement Receptor Sites as receptor sites for biodiversity enhancements and in the event that further land is required for biodiversity enhancements then the Owners will make available such additional land as is required from the Barrow Colliery PROVIDED THAT the precise amount of the Replacement Receptor Sites and any amount of the Barrow Colliery (if applicable) that is required to be provided for biodiversity enhancements shall be identified as part of the Biodiversity Offsetting Scheme submitted in respect of any Phase that is seeking to provide biodiversity enhancements on the Replacement Receptor Sites and the Barrow Colliery (if applicable)."

2.16 In order to reach the 10% net gain target required for area-based habitats, offsite habitat will be utilised to generate the additional biodiversity units required.

Barrow Hill Colliery

2.17 Subsequent to outline (hybrid) planning permission being granted, Dearne Valley Wetlands was notified by Natural England as a Site of Special Scientific Interest (SSSI) on 13th May 2021. Natural England confirmed Dearne Valley Wetlands SSSI under section 28 of the Wildlife and Countryside Act 1981 on 4 February 2022.

2.18 The notified SSSI consists of 22 site units, with differing interest features[1]. Site unit 21 is made up of Barrow Hill Colliery and Short Wood LWS. The notification for this site unit reports the features of interest to be breeding willow tit and breeding bird assemblage of lowland scrub. Both features of interest in this unit are reported in the notification documentation to be in favourable condition as of March 2020.

2.19 The supporting habitats for the features of interest as listed in the management objectives of the SSSI notification Annexe 2 document are reedbeds, fen, wet grassland, scrub and wet

[1] Dearne Valley Wetlands SSSI South Yorkshire – Supporting Information. 2021. Natural England

woodland, damp woodland margins, scrubby wetland margins, post-industrial sites with scrub and a high-water table, and occasionally mixed damp scrub along the edges of young plantations.

2.20 Management of SSSIs to maintain favourable condition for the features of interest is the responsibility of the UK government and landowners, and any works towards this objective would not count towards delivering biodiversity units[2].

2.21 From the notification documentation, the SSSI management obligations for site unit 21 are to maintain the scrub habitat in its current condition, preventing succession. Wider management of the Barrow Hill Colliery site which does not interfere with these objectives, or impact upon the favourable status of the features of interest would therefore be additional, going beyond that required under the SSSI designation.

2.22 Finalised site design proposals have been used to inform precise offsite requirements for biodiversity net gain. Woodland unit generation has been prioritised to compensate for losses.

[2] Biodiversity Net Gain. Good practice principles for development. 2019. Baker, J, Joskin, R, Butterworth, T. CIRIA.

3.0 BIODIVERSITY OFFSETTING PROPOSALS

Baseline Assessment

Methodology

3.1 The initial field survey of the offsite areas was undertaken over 1st - 3rd October 2019 by an experienced botanist (Field Identification Skills Certificate Level 6). This involved a walkover of the survey area during which discrete blocks of habitat were identified and mapped using 'Avenza Maps' software on a Samsung Tablet.

3.2 For each area, brief descriptions and species lists were recorded in a field notebook along with additional notes regarding the current 'condition'. This utilised UKHab[3] classifications for the habitat classification alongside condition criteria set out for the Biodiversity Metric 2.0[4].

3.3 The primary objective of this assessment was to make an initial rapid assessment as to whether the survey area contained habitat areas suitable for further consideration as a receptor site. Consequently, this part of the assessment has had to rely heavily on the surveyor's experience and professional judgement as a botanical surveyor.

Results

3.4 The survey highlighted several areas of woodland with potential for habitat management to generate biodiversity units.

Other woodland-mixed mainly broadleaved (w1h5)

3.5 This woodland is located within Barrow Colliery where it is bordered by areas of established lowland mixed deciduous woodland, mixed scrub and neutral grassland, and agricultural land.

3.6 The woodland was Plantation/Secondary semi-natural broadleaved woodland. Although there was clear evidence (tree tubes) of plantation, there was a substantial natural regeneration amongst the planting so has the 'feel' of secondary semi-natural woodland. Birch *Betula pendula* was the main canopy species and most of the natural regeneration comprised this species, but with some pedunculate oak *Quercus robur* and ash *Fraxinus excelsior*. Areas of the understorey were dense and largely impenetrable due to the regeneration and a field layer formed mainly by abundant bramble. Amongst the regeneration there was some hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, dog-rose *Rosa canina*, field maple *Acer campestre* (also occasionally present as a planted tree) and wild cherry *Prunus avium* which has also been planted. The field layer was only viewable from the edges but appeared to be sparse with very few forbs and no woodland species were noted. A lot of bare ground and some common bryophytes such as common feather-moss *Kindbergia praelonga* occurred. Tree age was difficult to assess, possibly 10 years, and there was a very limited deadwood resource but with reasonable structure due to the regeneration, which has given rise to a varied age class.

[3] UK Habitat Classification Working Group. (2019). UK Habitat Classification. Available at: http://ecountability.co.uk/ukhabworkinggroup-ukhab/ [Accessed01/11/2019]

[4] Natural England. (2019). The Biodiversity Metric 2.0 – Technical Supplement. Available at: http://publications.naturalengland.org.uk/publication/5850908674228224 [Accessed01/11/2019].

3.7 The woodlands were classed as 'moderate' condition, failing on Criteria 3 and 6 (lack of age diversity and height structure and poor deadwood resource) which reflects their relatively young age and planting origins.

Habitat Proposals

Woodland Enhancement

3.8 The condition of the existing woodland will be improved from moderate to good. Active management will need to ensure retention of standing and fallen deadwood, increase structural diversity and prevent degradation resulting from invasive species or disturbance.

Site wide assessment

3.9 It is expected that managing a 23.8ha area of the woodland will be required to compensate for the total impacts of the combined Phase 2 and Phase 3 developments. As each phase or plot is brought forward the precise quantum of woodland management required will be calculated and management secured.

3.10 This approach was agreed with Barnsley Metropolitan Borough Council and Natural England (13th January 2022) prior to securing an initial management area of 2.75ha under the Phase 3 application.

3.11 Under the Unit 4 development, management of an additional 5.5ha of the woodland area will be secured.

3.12 Management for the remainder of the woodland is expected to be secured through future development phases.

Habitat Management

3.13 Woodland management will target the following objectives.

1. Woodland will comprise an area of trees with complete canopy cover.

2. Native species are dominant. Non-native and invasive species account for less than 10% of the vegetation cover.

3. A diverse age and height structure of the trees.

4. Free from damage [Bark stripping; Browse line; Damage shoot tips] (in the last five years) from stock or wild mammals with less than 20% of vegetation being browsed.

5. There should be evidence of successful (i.e. not browsed off before it gets well established) tree regeneration such as seedlings, saplings and young trees.

6. Standing and fallen dead wood of over 20 cm diameter are present including fallen large dead branches/stems and stumps.

7. Wetland habitat if they exist within the wood has little sign of drainage or channel straightening.

8. The area is protected from damage by agricultural and other adjacent operations.

9. There should be no evidence of inappropriate management (e.g. deep ruts, animal poaching or compaction).

10. Invasive non-native plants are below 5% (see list below).

11. No signs of significant nutrient enrichment present.

12. More than 3 different native trees and 3 shrub species in an average 10 m radius

Net Gain Summary

3.14 By providing the above offsite habitat enhancement measures, an additional 9.93 biodiversity units will be delivered. This equates to a cumulative 10.88 biodiversity unit (+10.23%) net gain relative to the on-site baseline total (106.33 units) for area habitats. The metric excludes offsite baseline units from this calculation. A summary is provided in table 6 below.

$$\frac{TOTAL\ NET\ UNIT\ CHANGE}{BASELINE\ ONSITE\ UNITS}\ X\ 100 =\ PERCENTAGE\ CHANGE$$

Table 6. Area Habitat Biodiversity Unit Changes- Overall impact assessment (Unit 4).

Biodiversity Units						
	Baseline	Retained	Created	Enhanced	Post-intervention	Net Change
Cumulative total impacts	141.68	3.04	76.83	62.76	142.63	+ 0.95
Additional offsite mitigation	50.6	0	0	60.53	60.53	+ 9.03
Total	192.28 (*106.33 onsite*)	3.04	76.83	123.29	203.16	+ 10.88

Please note there may be minor discrepancies (rounding errors) between the columns and the totals, however, the numbers duplicate those presented within the matrix calculator.

3.15 Unit 4 alone resulted in a 1.48 biodiversity unit loss in hedgerow units. When assessed cumulatively with the previous phases of development, there was an overall 4.17 biodiversity unit (+25.46%**)** gain in hedgerow units. As such, no additional offsite hedgerow provision was required.

Habitat Trading

3.16 A large area of habitats to be lost are modified grassland fields, which are low distinctiveness habitats, that had been intensively managed. These have been compensated for through the creation of higher distinctiveness habitats. Similarly, low distinctiveness ruderal vegetation has been lost and compensated for through the provision of higher distinctiveness habitats.

3.17 The metric highlights the loss of 0.18 units of medium distinctiveness bramble scrub as an unaccounted for. However, the net increase in mixed scrub habitat on site is 31.58 units and so the small loss of bramble scrub is sufficiently accounted for, and the trading error highlighted is considered erroneous.

3.18 A significant area of broadleaved woodland has been lost. This is a medium distinctiveness habitat and requires compensation to be equivalent or better. Current proposals compensate for this loss through a combination of woodland habitat creation and enhancement.

3.19 The habitat creation and enhancement scheme is appropriate to the local area. The habitats used to compensate for the losses are those which are achievable and appropriate to the local area, and additionally align with the guidance in the Barnsley Biodiversity and Geodiversity supplementary planning document. In particular, the new scrub habitat is highly desirable given the proximity to the SSSI which has been designated in this area for lowland scrub assemblages of breeding birds and willow tits.

4.0 MANAGEMENT AND MONITORING RESPONSIBILITIES

4.1 Harworth Estates Ltd. have an obligation under the fourth schedule of the Section 106 agreement (Outline [hybrid] planning permission-. 2019/1573) to deliver a 10% net gain in biodiversity units for habitats and provide appropriate management for not less than 32 years from the implementation of the Approved Biodiversity Offsetting scheme.

4.2 The Section 106 agreement requires the provision of contractual terms by Harworth Estates Ltd. to secure the delivery of the above habitat creation and management are required.

4.3 Harworth Estates Ltd. will be responsible for delivering both the on-site habitat creation detailed within the BIA (Rev B. FPCR, 2023) and LEMP (Urban Wilderness, 2022), and offsite habitat creation detailed in the Offsite Habitat Management Plan (Rev A FPCR 2023). Ongoing management following creation should be undertaken by a suitable body, such as a management company, appointed by Harworth Estates Ltd. Ongoing work should be undertaken in agreement with the local authority and other relevant parties as appropriate.

4.4 Habitats will be managed for a minimum period of 32 years. It is anticipated that this management plan will run for an initial period of 15 years following initial creation as set out in the LEMP (Urban Wilderness, 2022). During this and in future periods, the plan should be viewed as a dynamic document, responding to the establishment and development of the habitats and species, as well as to any community needs and aspirations.

4.5 The progress of habitat creation will be monitored, and management prescriptions reviewed and altered where necessary to ensure habitat targets are met from the outset. Where appropriate, this management plan should be informed by updated and detailed surveys of the habitats to refine the identified objectives, targets, and prescriptions as necessary.

4.6 The aims of future on-going management should continue to maintain the habitats as proposed in the LEMP, unless there is a clear and agreed justification to alter these. It is therefore envisaged that future long-term management of the site will be a broad continuation of the agreed management prescriptions given for each habitat described within the LEMP (i.e., the grassland mowing regimes and hedge trimming frequencies are expected to be broadly the same) unless site factors or condition deem otherwise.

4.7 General monitoring should be undertaken annually by the appointed contractor/company and project ecologist to inform the forthcoming year's work programme to ensure the short-term objectives are being met, with results reported back and fed into the management plan review as necessary.

4.8 Where objectives are not being met, appropriate action will be put in place to amend management prescriptions and encourage better establishment to achieve the desired habitat, and any refinements incorporated into an updated management plan, for on-going medium and long-term management.

4.9 In accordance with the LEMP (Urban Wilderness, 2022), a full assessment of the site should be undertaken by all relevant disciplines prior to the end of the fifteenth year. The LEMP should be updated with management prescriptions modified as necessary for the remainder of the 32-year period to ensure that the targeted Biodiversity Net Gain is achieved.

5.0 FUTURE DEVELOPMENT PHASES

5.1 In order to comply with the Section 106 agreement (schedule 4), calculations for the remainder of the development should utilise the data provided within this report to track the site wide net gain and inform offsite habitat creation requirements.

5.2 The results of the assessment demonstrate that the combination of habitat creation in Phase 2a.1, Phase 3, Unit 4 and the identified offsite provision will lead to an overall gain of biodiversity units associated with the area habitats and hedgerows when compared with the baseline values.

5.3 Surplus units, as detailed within this report, may be used towards any offsetting required in future phases.



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Key

- Native species rich hedgerow
- Dry ditch
- Standing Water
- Running water
- Other neutral grassland
- Modified grassland
- Other woodland-broadleaved
- Scrub
- Developed land. sealed surface
- Artificial unvegetated unsealed surface
- Sparsely vegetated land

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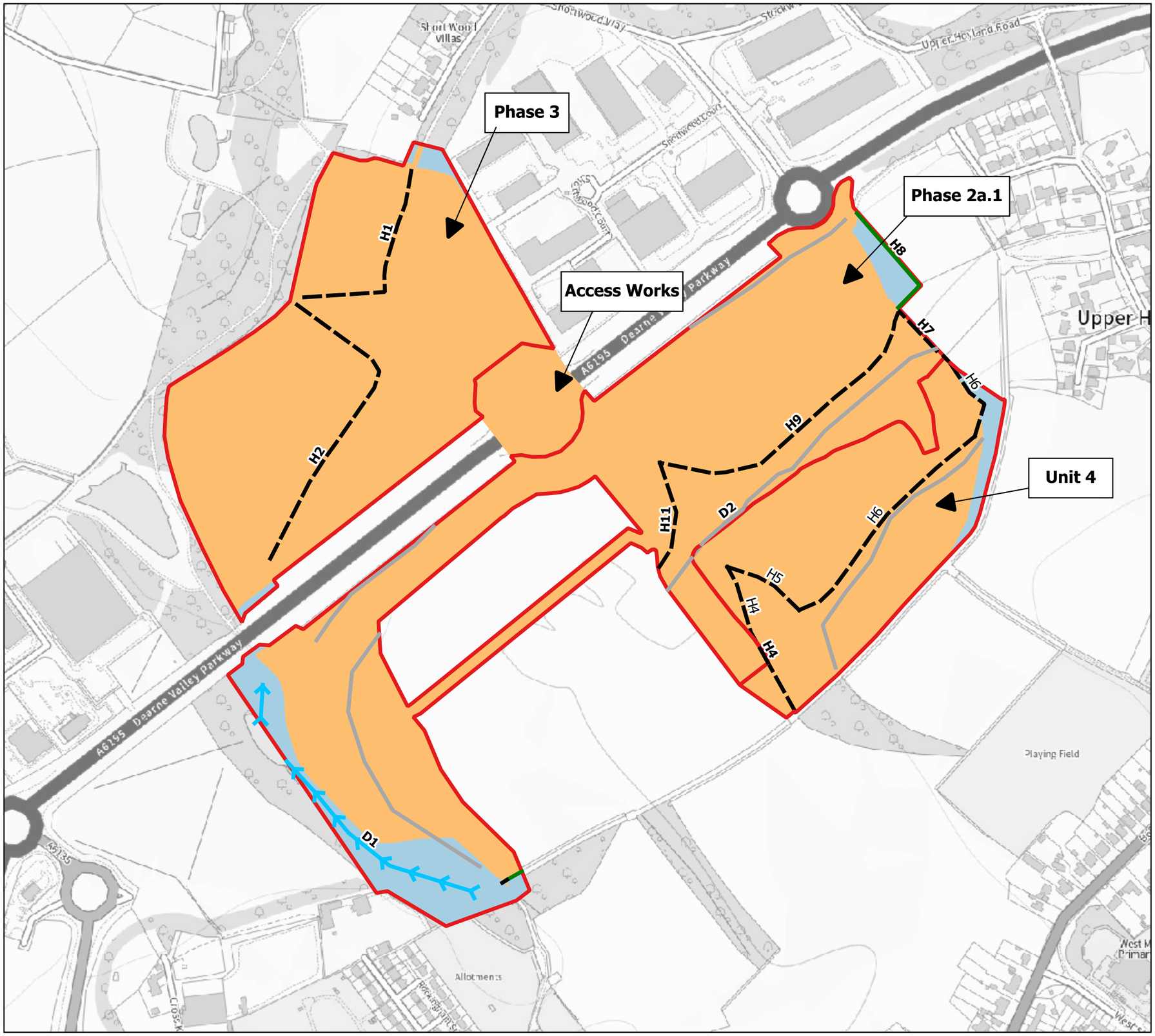
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drawing title
Onsite Baseline Habitat

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Figure 1



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Key

Area Habitats

- Lost
- Retained

Linear Habitats

- Lost Hedgerow
- Retained Hedgerow
- Lost Ditch
- Retained Ditch

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drawing title
Onsite Habitat Retention

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Figure 2



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Key

- Developed land, sealed suface
- Artificial unvegetated, unsealed surface
- Ornamental Planting
- Modified grassland
- Other neutral grassland
- Other broadleaved woodland
- Mixed scrub
- SUDS
- Non-priority pond
- Pond Planting
- Green Roof
- Native species-rich hedge with ditch
- Native species-rich hedge
- Native species-poor hedge
- Line of Trees
- Ornamental hedge
- Running water
- Urban trees

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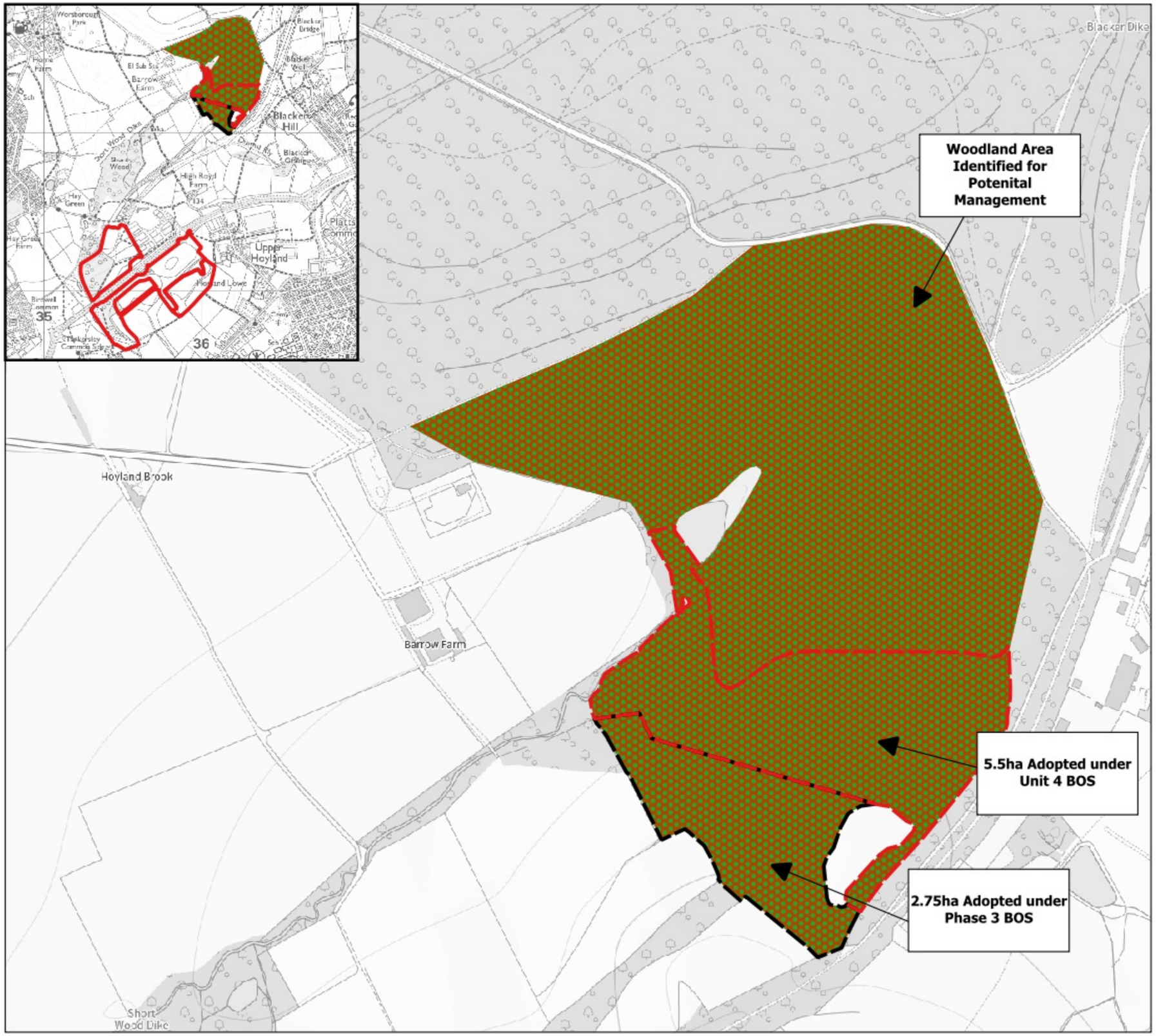
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Key

- Unit 4 Managment Area
- Phase 3 Management Area
- Other Woodland- mixed, mainly broadleaved

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0 50 100 150 200 m

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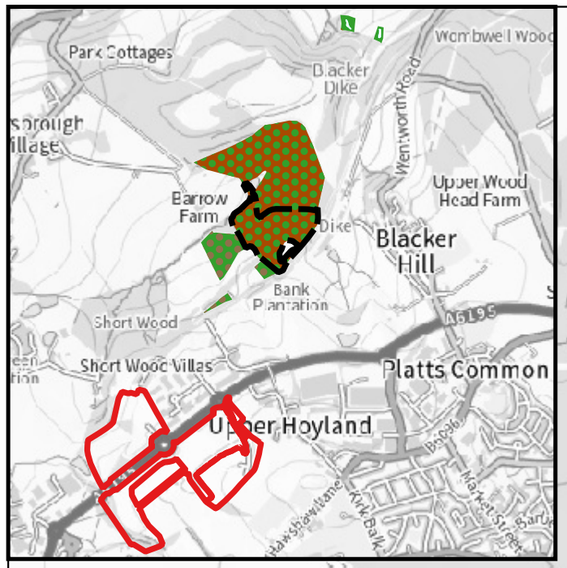
client
Harworth Group

project
Dearne Valley Parkway, Rockingham, Barnsley

drawing title
Offsite Baseline Habitat

scale @ A3	drawn	issue date
1:4,000	JDH	21/7/2023

drawing / figure number
Figure 4



2 x 0.05ha ponds surrounded by 0.64ha wet woodland planted under Phase 3

Woodland proposed to be utlisilsed by future phases

8.25ha Woodland managed under Phase 3 and Unit 4

2.87ha Broadleaved Woodland Planted under Phase 3

Blacker Dike

Wentworth Road

Hoyland Brook

Barrow Farm

Bank Plantation

Short Wood

Wortley View

Grange View

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Key

- Cumulative woodland management area
- Other Woodland - mixed, mainly broadleaved
- Other woodland - broadleaved
- Wet woodland
- Ponds

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0 100 200 300 400 m

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client
Harworth Group

project
Dearne Valley Parkway, Rockingham, Barnsley

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Offsite Cumulative Proposals

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Figure 5