Newlands Developments

Land off Barnsley Road, Goldthorpe

BIODIVERSITY NET GAIN REPORT

December 2023

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C	FINAL – minor amendment to wording	SJH / PRA 17.11.23	PRA 01.12.23	

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1.0 INTRODUCTION

1.1 This report has been prepared by FPCR Environment and Design Ltd on behalf of Newlands Development and relates to Land off Barnsley Road, Goldthorpe, herein referred to as 'the Site'.

1.2 This report has been prepared with reference to the following documents:

- Ecological Appraisal, FPCR, 2023;
- Illustrative Masterplan, Drawing No. 22081 F0045. UMC Architects, 2023 (Environmental Statement Figure 4.1).

Site Location and Context

1.3 The Site is centred on Ordnance Survey grid ref. SE 4414 0356 and lies to the west of the town of Goldthorpe on farmland, south of the A635 Barnsley/Doncaster Road and adjacent to the west of the Aldi Goldthorpe Regional Distribution Centre. Carr Dike bisects the Site flowing in a general south-westerly direction from Barnsley/Doncaster Road in the north-east of the Site. Dearne Valley Wetlands Site of Special Scientific Interest (SSSI) lies to the south-west with the land between dominated by large cultivated arable fields.

1.4 The Site at the time of survey, comprised predominately large arable fields with boundary features which include plantation woodland, Carr Dike (stream), a wet ditch (connecting to Carr Dike), and native hedgerows with associated mature trees. A small pond was located in the north of the Site adjacent to a small conifer plantation.

Site Proposals

1.5 Proposed development is for employment uses (B2 and B8), a new link road and associated works including provision of internal access roads, landscaping, and drainage/flood compensation areas.

Aims and Objectives

1.6 This Biodiversity Net Gain Report is based on the Chartered Institute of Ecology and Environmental Management (CIEEM) guidance[1]. The scope and objectives of this report are to:

- Summarise the results of the baseline UKHab Survey undertaken on the Site and to present the results of habitat condition assessment surveys following the Defra Biodiversity Metric 3.1 Technical Guidance.
- Provide an overview of the proposed habitats following completion of the scheme.
- Present the results of the Defra Biodiversity Metric 3.1 assessment completed for the proposals.
- Assess the feasibility of the proposals to achieve a net gain in biodiversity through the Defra Biodiversity metric 3.1.
- Recommendations for the proposals to maximise their biodiversity potential.

Legislative and Policy Context

[1] CIEEM (2021) Biodiversity Net Gain Report and Audit Templates Chartered institute of Ecology and Environmental Management, Winchester, UK.

1.7 The UK Government, as signatory to the Rio Convention on Biological Diversity, is committed to conserving and enhancing biodiversity. This commitment is further enforced in the Natural Environment and Rural Communities Act (NERC) 2006 and the Natural Environment White Paper (June 2011).

1.8 DEFRA's 25 Year Environment Plan (2018) seeks to embed a 'net environmental gain' principle for development to deliver environmental improvements locally and nationally. Current policy is that the planning system should provide biodiversity net gains where possible; however, this is moving towards a mandatory requirement.

1.9 The NPPF (2021) in particular seeks to ensure that the planning system contributes to and enhances the natural and local environment, protect, and enhance biodiversity and geodiversity by:

"174. d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

179. b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity."

The Environment Act

1.10 Following the Environment Bill receiving Royal Ascent in November 2021 mandatory biodiversity net gain will be required under the Environment Act in the future.

1.11 Part 6 of the Environment Act 2021 is entitled 'Nature and Biodiversity'. Within this part is section 98, entitled 'Biodiversity gain as condition of planning permission'. It says that 'Schedule 14 makes provision for biodiversity gain to be a condition of planning permission in England'. Part 1 of Schedule 14 contains the requirement for biodiversity net gain, including the requirement for 10%.

1.12 Section 147(3)(s) highlights that Part 6 of the Environment Act 2021 only comes into force 'on such day as the Secretary of State may by regulations appoint'. Thus, it is not until further secondary legislation is made by the Secretary of State does Part 6 of the Environment Act come into play.

Measurable Net Gain

1.13 In the absence of secondary legislation coming forward, making the requirements of the Environment Act mandatory, the term "measurable net gain" is not defined. Additionally, this term currently has no agreed definition in local or UK policy. Whilst a figure of 10% is widely viewed as best practice, it currently has no adopted policy support at either a local or national level. However, the Site is within an area allocated for development as employment land within the Barnsley Local Plan and the requirements for the masterplan area within which the is located are that 10% biodiversity net gain will be provided (see Local Policy below for more detail).

Barnsley Local Policy

1.14 The site lies within the administrative area of Barnsley Metropolitan Borough Council (BMBC) and is covered by the Barnsley Local Plan[2] (adopted January 2019).

1.15 Whilst the Barnsley Local Plan has not adopted a policy for new developments to require a 10% net gain in biodiversity, objective 5 of the Local Plan aims to encourage an overall biodiversity net gain as follows: "*Protect and enhance Barnsley's environmental assets and achieve net gains in biodiversity*."

1.16 The Barnsley Local Plan identifies the area which includes the Site as part of the ES10 employment land allocation and includes the following description (with prescriptions relevant to biodiversity and ecology highlighted in bold);

"Site ES10 Land South of Dearne Valley Parkway 72.9 ha

The development will be subject to the production of a phased Masterplan Framework and will be expected to:

Protect and enhance biodiversity value including possible impacts on the Golden Plover population and on the nearby Old Moor RSPB reserve and ensure that the development avoids impacts or incorporates effective mitigation measures. Any impact on the golden plover habitat will be expected to be mitigated by either;

a. On-site creation of optimal agricultural conditions for fields to be retained; or

b. Creating suitable compensation habitat for the species off-site but nearby.

Provide a contribution towards improvements to biodiversity within the Dearne Valley Green Heart Nature Improvement Area;

Include the creation of a habitat corridor (at least 8m in width) along Carr Dike and a sustainable drainage scheme to ensure that rainwater falling on the site is still able to drain into the Dike aiming to improve water quality;

Improve the highway network to mitigate the impact of additional traffic generated by the development on surrounding roads and in particular effects on the A635 and other strategic road links to the A1/M and M1 motorways;

Provide appropriate access to housing site reference HS51 from Billingley View through the south-east corner of the site;

Retain the existing woodland and hedgerows on the site periphery;

Retain the section of hedgerow remaining in the north-west corner of the site;

Avoid locating any built development in Flood zones 2 and 3;

Safeguard the setting of the Billingley Conservation Area;

Give consideration to Carr Dike and the connecting unnamed ordinary watercourse which run through the site; and

Provide an air quality assessment to assess the impacts of traffic emissions within air quality management areas along the A635 and other strategic road links to the A1/M and M1. Any adverse impacts on air quality should be mitigated in accordance with policy AQ1.

[2] Barnsley Local Plan January 2019. Available at: https://www.barnsley.gov.uk/media/17249/local-plan-adopted.pdf

Archaeological remains are known to be present on this site. The site area has been reduced to allow flexibility in the development to ensure the remains can be preserved in situ if necessary."

1.17 The above allocation is further considered within the Goldthorpe Masterplan Framework (ES10)[3] which also states that biodiversity net gain of 10% will be sought through on-site or off-site compensation.

1.18 The following policies within the Barnsley Local Plan are relevant for achieving net gains in biodiversity (objective 5 of the Barnsley Local Plan): BIO1 Biodiversity and geodiversity; GI1 Green Infrastructure; CC4 Sustainable drainage systems; CC5 Water resource management.

1.19 Policy BIO1: Biodiversity and Geodiversity

"Development will be expected to conserve and enhance the biodiversity and geological features of the borough by:

Protecting and improving habitats, species, sites of ecological value and sites of geological value with particular regard to designated wildlife and geological sites of international, national, and local significance, ancient woodland and species and habitats of principal importance identified via Section 41 of the Natural Environment & Rural Communities Act 2006 (for list of the species and habitats of principal importance) and in the Barnsley Biodiversity Action Plan.

Maximising biodiversity and geodiversity opportunities in and around new developments.

Conserving and enhancing the form, local character, and distinctiveness of the boroughs natural assets such as the river corridors of the Don, the Dearne and Dove as natural floodplains and important strategic wildlife corridors.

Proposals will be expected to have followed the national mitigation hierarchy (avoid, mitigate, compensate) which is used to evaluate the impacts of a development on biodiversity interest.

Protecting ancient and veteran trees where identified.

Encouraging provision of biodiversity enhancements.

Development which may harm a biodiversity or geological feature or habitat, including ancient woodland and aged or veteran trees found outside ancient woodland, will not be permitted unless effective mitigation and/or compensatory measures can be ensured.

Development which adversely effects a European Site will not be permitted unless there is no alternative option and there are imperative reasons of overriding public interest (IROPI)."

1.20 The Barnsley Local Plan section 17: Green Infrastructure and Greenspace includes a section relating to the Dearne Valley Green Heart Nature Improvement Area (NIA), which states;

"Nature Improvement Areas (NIAs) are large, discrete areas that will deliver a step change in nature conservation, where a local partnership has a shared vision for their natural environment. The NIA grant scheme was established to help address ecological restoration as part of series of actions at a landscape scale to improve biodiversity, ecosystems and our connections with the natural environment identified by the Natural Environment White Paper (2011) and taking forward recommendations identified in the Lawton Review Making Space for Nature (2010). As set out in the Relationship with Plans and Strategies section, the Dearne Valley Green Heart has been

[3] Goldthorpe Masterplan Framework v2.0 Sept. 2021. https://www.barnsley.gov.uk/media/19799/goldthorpemasterplanframework.pdf

designated as an NIA and its extent within Barnsley's boundary can be seen in the Green Infrastructure Diagram.

The Council expects to adopt an NIA Planning Advice Note which will encourage major developments to incorporate biodiversity enhancements in their proposals."

1.21 Policy GI1: Green Infrastructure;

"We will protect, maintain, enhance, and create an integrated network of connected and multi functional Green Infrastructure assets that:

Helps to meet the challenge of climate change;

Enhances biodiversity and landscape character;

and Secures and improves linkages between green and blue spaces;

At a strategic level Barnsley's Green Infrastructure network includes the following corridors which are shown on the Green Infrastructure Diagram: River Dearne Valley Corridor. River Dove Valley Corridor. River Don Valley Corridor. Dearne Valley Green Heart Corridor. Historic Landscape Corridor.

The network of Green Infrastructure will be secured by protecting open space, creating new open spaces as part of new development, and by using developer contributions to create and improve Green Infrastructure."

1.22 Policy BIO1: Biodiversity and Geodiversity (relevant details below);

"Development will be expected to conserve and enhance the biodiversity and geological features of the borough by:

Protecting and improving habitats, species, sites of ecological value … and species and habitats of principal importance identified via Section 41 of the Natural Environment & Rural Communities Act 2006) and in the Barnsley Biodiversity Action Plan.

Maximising biodiversity and geodiversity opportunities in and around new developments.

Conserving and enhancing the form, local character and distinctiveness of the boroughs natural assets….

Proposals will be expected to have followed the national mitigation hierarchy (avoid, mitigate, compensate) which is used to evaluate the impacts of a development on biodiversity interest.

Protecting ancient and veteran trees where identified.

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The Council expects to adopt an NIA Planning Advice Note which will encourage major developments to incorporate biodiversity enhancements in their proposals."

1.24 BMBC published a Supplementary Planning Document (SPD) related to Biodiversity and Geodiversity, which was adopted in May 2019. This document provides supplementary guidance related to Barnsley Local Plan policies BIO1, GI1 and GS1.

The Biodiversity and Geodiversity SPD is currently in the process of being updated, and a consultation draft was issued in July 2023 but at the time of reporting this document was not adopted.

2.0 METHODOLOGY

Baseline Habitat Assessment

2.1 A survey of the Site was originally undertaken on 19th April 2022 by an FPCR ecologist with over 10 years' experience and a FISC Level 4 botanist. For each habitat recorded, a list of botanical species present was produced. This list is not considered to be exhaustive, but sufficient information was gained to ascertain broad habitats and features of interest present.

2.2 Since the field survey was completed, the boundary of the Site and the proposed development design have been revised and updated. As such, an additional survey was carried out on 12th January 2023 by an FPCR ecologist with over 6 years' experience, and a FISC level 4 botanist, in order to assess habitats within areas not previously captured by the April 2022 survey.

2.3 The Site was assessed using the Phase 1 Habitat Survey Methodology (JNCC, 2010) and the UKHab Classification Methodology[4] as recommended by Natural England[5] and the Chartered Institute of Ecology and Environmental Management[6]. Condition assessments for each habitat following the stated criteria within the 3.1 Biodiversity Metric technical supplement[7]. A desk study was undertaken using free publicly available resources. Detailed results are provided in the Ecological Appraisal Report (FPCR 2023).

2.4 Hedgerows within the Site were assessed;

- In accordance with wildlife and landscape criteria contained within Part II of the Hedgerow Regulations 1997, to determine whether the hedgerow qualified as an 'Important Hedgerow'; and
- In accordance with the Hedgerow Evaluation and Grading System (HEGS) to establish the conservation value of the hedgerows.

2.5 The above information was used to inform this Biodiversity Net Gain Assessment, utilising Natural England's Biodiversity Metric 3.1.

River Condition Assessment

2.6 The River Condition Assessment (RCA) field survey was completed on 7th and 14th June 2022 and was carried out by an FPCR ecologist with over 7 years' experience in ecological consultancy and accredited in conducting MoRPh field surveys, River Type desk studies, recording data using the RCA information system and interpreting RCA indicators and scores for baseline and post-intervention River Metric.

2.7 The survey was focused on the channel of Carr Dike, which flows through the centre of the Site from the north-east to south-west. The survey was conducted during low flow with weather conditions as <10% cloud cover, no rain, and a max temperature of 19°C and 21°C. The

[4] UK Habitat Classification Working Group. (2019). UK Habitat Classification. Available at: http://ecountability.co.uk/ukhabworkinggroup-ukhab/ [Accessed 01/11/2019]. Now superseded with UKHab V2 Available at: https://ukhab.org/ [Accessed 15/08/23]

[5] Natural England, 2014. Protected species and development: advice for local planning authorities. (updated 2021) [online] Available at: https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications [Accessed 05/03/2021)

[6] CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

[7] Natural England, The biodiversity metric 3.1 Technical Supplement (2022) Available at: https://nepubprod.appspot.com/publication/5850908674228224 [Accessed 15/08/2023]

watercourse measured on average <5m wide with a river length of approximately 1km. This resulted in four MoRPh5 sub-reaches being surveyed, titled A – D, each comprising 10m x5 modules (MoRPh5) (approximate locations of the sub-reaches are provided on Figure 6). Surveys were largely undertaken from the right bank with the left bank/bank top easily visible. Sub-reach C was largely surveyed from the left bank, with the right bank top not easily visible. Where access was suitable, surveyors entered the channel. All surveys were undertaken working from upstream to downstream.

2.8 A second ditch is located at the Site (D1 on Figure 3 of the Ecological Appraisal, FPCR 2023), and this ditch had a low flow rate flowing from east to west and discharging into Carr Dike. Historical maps show that the ditch was not present prior to 1910 and it was created following existing field boundaries. As per the description of a ditch provided in the 3.1 Metric, the ditch on-Site is considered to be an artificially created water feature, less than 5m wide and considered likely to retain water more than four months a year, with the primary function of land drainage which would not be present without human intervention. As such, this ditch was not assessed using the RCA MoRPh methodology.

Natural England's The Biodiversity Metric 3.1

2.9 Natural England's published biodiversity net gain metric is an MS Excel spreadsheet that is used to quantify the predicted net-change in biodiversity value ("biodiversity units") of a proposed development site before and after development. It treats the flat "habitats" and linear features "hedgerows" separately, and is based on pre-determined values, along with published written guidance, set by a Natural England-led team of experts. The latest version of this metric is 4.0, published in March 2023. For the purposes of this assessment metric version 3.1 (published in April 2022) was used to make initial calculations and, as a result, was continued to be used for the final calculations provided in Appendix A. This is in accordance with Natural England Guidance: *"Users of previous versions of the Biodiversity Metric should continue to use that metric (unless requested to do otherwise by their client or consenting body) for the duration of the project it is being used for. This is because users may find that certain biodiversity unit values generated in biodiversity metric 4.0 will differ from those generated by earlier versions"*.

2.10 To facilitate this, the Site has been mapped and digitised using the Biodiversity Metric QGIS Template, with the existing habitats identified and areas automatically generated. In accordance with the 3.1 Metric User Guide, habitats have been defined under UK Habitat Classification (UKHab) Version 1. The detailed landscaping proposals for the Site were then uploaded into the QGIS template, and the proposed habitats mapped and digitised to generate areas for each of the habitats proposed for creation.

2.11 These pre- and post-development habitat areas were then inputted into the 3.1 Metric Calculation tool. Pre-development habitats were grouped into their habitat type and condition based on the results of the UKHab and condition assessment surveys, while post-developments were classified into their UKHab type as identified through the classification of proposed habitats within landscaping plans into appropriate UKHab types and their target condition scores. The metric then provides a habitat distinctiveness score for each of the baseline and proposed habitats which are pre-assigned scores based on the habitat type.

2.12 The strategic significance of the habitats was also assessed for both the pre- and post-development habitats based on the location of the site, its proximity to existing areas of biodiversity interest and its setting within wider habitat corridors.

2.13 The metric then assigns a range of pre-assigned factors to each of the proposed habitats. These have been advised by subject knowledge experts and are universal multipliers generated by the metric itself for the following variables relevant to habitat creation, enhancement, or restoration proposals:

- Difficult of creating or restoring/enhancing a habitat: This pre-assigned score is based on how difficult a particular habitat type is to create or restore/enhance.
- Temporal risk: This is the 'time to target condition' for any particular habitat and determines how long a particular habitat type is likely to take to reach the condition score that the desired condition score assigned to it.
- Spatial risk: This score is based on the distance between the site of habitat loss and any habitats creation or enhancement proposals at any offsite offsetting solutions.

2.14 Full details of the calculation methodology used is provided in the Biodiversity Metric 3.1 – User Guide[8].

Limitations

2.15 The UKHab habitat map has been produced from detailed field notes and informed by aerial imagery, OS mapping and previous reports provided by the client. The accuracy of this figure is ultimately guided by the accuracy of these sources and can only be relied upon to a certain degree of resolution.

2.16 Natural ecological communities are susceptible to change; at times this change can be rapid as a result of internal and external environmental factors. The biodiversity offsetting calculations are based on ecological assessments of habitats carried out during 2022 and updated in 2023; as a result, changes which may affect the conclusions of this report may occur, if a prolonged period of time elapses prior to the commencement of the project.

2.17 The latest version of the UKHab classification[9] is Version 2, issued in July 2023. At the time of survey UK Hab version 1 was used for the classification of habitats at the Site. This is not considered to be a limitation to the classification of habitats or the calculation of biodiversity net gain.

2.18 No other limitations are considered to have influenced this assessment.

[8] Natural England, The biodiversity metric 3.1 (2022) Available at: https://nepubprod.appspot.com/publication/5850908674228224 [Accessed 15/08/2023]
[9] UK Habitat Classification https://ukhab.org/

3.0 BASELINE CONDITIONS

Desktop Study

3.1 Full details of the desktop study are provided in the Ecological Appraisal Report (FPCR 2023).

Internationally Designated Sites of Nature Conservation Importance

3.2 No internationally designated sites of nature conservation were located within 15km of the Site.

Nationally Designated Statutory Sites of Nature Conservation Importance

3.3 One statutory designated site of national nature conservation interest was present within 2km of the Site. Dearne Valley Wetlands Site of Special Scientific Interest (SSSI) comprised a number of separate areas, the nearest of which is approximately 100m south-west of the site, with a second discrete area lying 1.7km north-west, and a third discrete area lying 1.6km south-east of the development. The SSSI is designated for:

- Breeding gadwall *Mareca strepera*, shoveler *Spatula clypeata*, garganey *Spatula querquedula*, pochard *Aythya farina*, bittern *Botaurus stellaris*, black-headed gull *Chroicocephalus ridibundus* and willow tit *Poecile montanus.*
- Non-breeding gadwall and shoveler; and
- Diverse assemblage of breeding birds of lowland damp grassland, scrub, open water, and fen.

3.4 The Site falls into the Impact Risk Zone (IRZ) of Dearne Valley Wetlands SSSI which lists large non-residential development as a potential impact to the SSSI.

Non-Statutory Sites

3.5 One non-statutory site of local nature conservation interest is present within 1km of the Site. Old Moor and Wath Ings Local Wildlife Site (LWS) lies 950m south-west of the Site and is considered to be important for a range of habitats and species of flora and fauna, and particularly important for birds.

3.6 It should also be noted that several of the RSPB Dearne Valley sites lie south-west of the Site including Bolton Ings RSPB site (620m south-west) and Old Moor RSPB site (950m south-west).

Strategic Significance

3.7 The Site consists of other neutral grassland, ponds (non-priority habitat), built linear features, vacant/derelict land/bare ground, other coniferous woodland, other woodland; mixed, and arable land (cereal crops). These habitats represent no intrinsic strategic significance.

3.8 The entire Site lies within the Dearne Valley Green Heart Nature Improvement Area (NIA). Although funding and development of the NIA ended in 2015 the area is referenced within the Local Plan and is considered to have strategic significance. Therefore all habitats present within the Site are considered to have strategic significance.

Habitats

Ecological Appraisal (FPCR 2023)

Plantation: Other Woodland; Mixed

3.9 There are several compartments of plantation woodland recorded in association with Carr Dike and land adjacent to Barnsley/Doncaster Road (A635), as described in the Ecological Appraisal Report (FPCR 2023).

3.10 All the plantation woodland parcels are considered to be analogous to the UKHab classification of 'other woodland; mixed' (w1h) with 'plantation' (36) as a secondary code as shown in Figure 1.

3.11 The woodland compartments were all assessed to be in moderate condition and scored low for the following: only one or two age classes being present; lack of woodland regeneration; no recognisable NVC communities within the vegetation and ground flora; only 1-2 storeys present in vertical structure; lack of veteran trees; amount of deadwood being between 25-50% or less than 25%; and woodland disturbance evident in some cases.

3.12 Due to the lack of mature trees and poor overall diversity, it is considered that all of these woodlands are a poor fit with the mixed deciduous woodland category described within the Barnsley Biodiversity Action Plan[10] and therefore are not considered to represent priority habitats.

Plantation: Other Coniferous Woodland

3.13 A single compartment of plantation coniferous woodland was located along the northern boundary of the Site. It was dominated by immature Norway spruce *Picea abies* ranging in height from 0.5 – 4m. From review of historical aerial imagery, it would appear that this area is regularly cleared (likely as a crop for Christmas trees) and the woodland is not allowed to become mature.

3.14 The woodland corresponds to the UKHab classification 'other coniferous woodland' (w2c) with 'plantation' (36) as the secondary code. The woodland was assessed to be in poor condition, scoring low due to the following: only one age class present; lack of native tree and shrub species; lack of woodland regeneration; no recognisable NVC communities within the vegetation and ground flora; 0-1 storeys of the woodland vertical structure; no veteran trees; less than 25% deadwood present; and some woodland disturbance.

3.15 Coniferous woodland is not included within the Barnsley Biodiversity Action Plan.

Urban Trees

3.16 Several mature pedunculate oak *Quercus robur* trees were observed to be associated with hedgerow H1 (see Figure 3 of the Ecological Appraisal) and classified as 'native hedgerow with trees' (hedgerow h2 with code 190) under UKHab secondary codes (see Figure 1). Although the extent of deadwood and other features did not indicate possible veteran status, two of the trees supported features such as stem cavities which are described in the faunal section in the Ecological Appraisal with regard to bat roost potential.

3.17 Mature trees associated with the Carr Dike corridor included crack willow *Salix fragilis*, pedunculate oak, and beech *Fagus sylvatica* were assessed under the UKHab secondary code as 'scattered trees' (11). These are described in the faunal section in the Ecological Appraisal with regard to bat roost potential.

[10] Barnsley Biodiversity Trust (2022) *Barnsley Biodiversity Action Plan Consultation Draft 2022 – for comment. Available online at:* http://www.barnsleybiodiversity.org.uk/deciduouswoodland_features.html *[accessed 13.06.22].*

3.18 A number of sycamore *Acer pseudoplatanus* trees were recorded at the southern Site boundary adjacent to Carr Head Lane and eight of these were considered to be established as individual medium trees. Trees appeared free of obvious disease and no features indicating possible veteran status were noted. No protected/undisturbed strip of land was recorded at the base in association with these trees. The trees are considered to correspond to UKHab secondary code 'scattered trees' (11).

Scrub

3.19 Scrub habitats comprising discreet patches of continuous and scattered scrub were observed in association with tall herbs within some of the grassland field margins. These areas were either dominated by bramble or hawthorn (with over 75% cover) and homogenous stands of common nettle and cleavers were recorded at their margins. Varied age classes were absent from these areas of scrub.

3.20 The scrub on-Site is classified as 'scattered scrub' (10) under UKHab secondary codes and is associated with the relevant primary habitats it is linked to (see Figure 3 of the Ecological Appraisal Report). Given the extent of the Site/habitats these small areas of scattered scrub were not mapped within the BNG calculation, rather included as part of the wider primary habitat present.

Other Neutral Grassland

3.21 A number of semi-improved grassland parcels were located within the Site and were noted to be associated with field margins and boundaries: described under arable margin 1 and 2 (AM1 and AM2) in the Ecological Appraisal Report.

3.22 Both AM1 and AM2 were assessed as being analogous with UKHab classification 'other neutral grassland' (g3c) as shown in Figure 1. The habitats were assessed as being in moderate condition: failing criteria for lack of species diversity and sward height variation.

Modified Grassland

3.23 A parcel of poor semi-improved grassland (labelled as PS1 in the Ecological Appraisal Report) is located in the north of the Site, corresponding to the UKHab definition for 'modified grassland' (g4) as shown in Figure 1. It was assessed as being in poor condition due to its low species diversity and bare ground coverage not being between 1-10%.

Open Water

<u>Pond (Non-priority)</u>

3.24 A non-priority pond was located in the north of the Site within the area of coniferous plantation and was observed to be approximately 4m wide by 8m long with relatively steep but small banks and tall grasses and herbs on the banksides.

3.25 The pond is analogous with the UKHab classification 'other eutrophic standing waters' (r1a6). It was assessed as being in poor condition failing for the following: the pond was not of good water quality indicated by the presence of algae and turbidity; within 10m from the pond edge there is not semi-natural habitat due to its location within the coniferous plantation; more than 10% of the pond is covered with duckweed or filamentous algae; the pond is artificially connected to ditches at either end.

Running Water

3.26 A stream (Carr Dike) bisected the Site, flowing in a general south-westerly direction, entering the Site from a culvert under Barnsley/Doncaster Road in the north-east of the Site and exiting the Site in the central, western area. The channel was approximately 2m wide throughout the length on-Site with a moderate flow of water and very steep banks in most areas (set at around 80 degrees). The stream meets UKHab definition 'other rivers and streams' (r2b) and was further assessed using the River Condition Assessment (RCA) MoRPh methodology, as outlined in the RCA section below

3.27 A single wet ditch/tributary of Carr Dike (referenced as D1 in the Ecological Appraisal Report) was located in the central area of the Site entering the Site from the eastern boundary (from the Aldi Regional Distribution Centre) and flowing in a general west/south-west direction discharging into Carr Dike at a point in the central west area of the Site. The channel was observed to be approximately 2m wide, with slow flowing water and supported no aquatic or emergent vegetation and was shaded by an adjacent dense hedgerow (H5 in the Ecological Appraisal). The habitat was assessed within the river condition assessment as a wet ditch (analogous of 'standing open water and canals' r1 within the UKHab classification)).

Arable

3.28 A series of large cultivated arable fields supported cereal crops and oilseed rape *Brassica napus* with margins of 1m wide or less which were dominated by a small number of common grasses.. The arable compartments are categorised as 'cereal crops' (c1c) under UKHab classification, the condition of which is not applicable.

Hedgerow

3.29 Thirteen native species hedgerows were identified within the Site and assessed under the Hedgerow Regulations 1997. Twelve hedgerows did not qualify as 'important' due to low canopy diversity and lack of associated features. One hedgerow (H11; see Ecological Appraisal Figure 3) did not meet the criteria for 'important' as it was less than 30 years old, however it was noted to have the prerequisite number of woody species (native species rich).

3.30 The hedgerows were further assessed under the Hedgerow Evaluation and Grading System (HEGS) to assess their conservation value. Of the 13 hedgerows assessed most supported a dense structure with some connectivity (detailed within Table 2 in the FPCR Ecological Appraisal 2023). Five hedgerows were graded as moderately high, to high conservation value, and eight hedgerows were graded of moderate conservation value.

3.31 All hedgerows were assessed as being in moderate condition under metric 3.1 and are classified as 'native hedgerow' (h25) under UKHab with additional codes for species-rich hedgerow, inclusion of trees, or association with bank/ditches (where present).

Dry Ditch

3.32 Typically, dry ditches encountered within the Site were approximately 0.5m wide and 0.5m deep with steeply sloping sides vegetated by encroaching grasses and herbs, although lacking in any aquatic vegetation. The individual dry ditches are described in the Ecological Appraisal Report.

3.33 The dry ditches would be categorised as UKHab secondary code 'ditch' (191) and are associated with the relevant primary habitats the ditches are located within. On mapping dry ditches are not included and only the primary habitats are shown (due to the relative size of the Site/habitats). The condition assessments are not applicable to dry ditches.

Bare Ground

3.34 Recently cleared ground was observed between the two compartments of 'other mixed woodland' on the northern boundary of the Site (shown as 'vacant / derelict land / bare ground' habitat on Figure 1 and described further within the Ecological Appraisal Report). This area comprised poached, and wheel rutted fresh earth, wood/shrub brash, young tree stumps, litter, and occasional areas of regenerating herbs at ground level. This area appears to have been felled at some point during 2021/early 2022 and was not cleared as part of the current development application but in relation to a separate development for a new roundabout on the A635 Barnsley/Doncaster Road (Planning application reference 2021/1511). The condition assessment is not applicable for this habitat. It is assumed that the loss of habitats in this area due to the construction of the roundabout would be accounted for by the separate planning application and as such the area is assessed as 'vacant / derelict land / bare ground' within this assessment.

River Condition Assessment

3.35 Carr Dike was assessed using the RCA MoRPh5 methodology. Four sub-reaches were identified A-D, each comprising 5 x 10m modules. The watercourse falls within the Humber River Basin District and within the Dearne Catch Operational Catchment Ings/Carr/Thurnscoe Dikes from Source to Dearne Water Body[13]. The river type was assessed to be River Type A (Confined bedrock) with a sinuosity of 1.03 and not considered to be over deep.

3.36 Table 1 below provides the condition class scores for the sub-reaches surveyed.

Table 1. RCA Final Condition/Class Scores

Sub-reach	Preliminary Condition Score	Final Condition Class / Score
A	0.955	Moderate / 3
B	1.036	Moderate / 3
C	1.117	Moderate / 3
D	0.676	Moderate / 3

Baseline

3.37 The watercourse was surrounded by large fields of arable land, although some sections of the watercourse flowed through small stands of plantation woodland.

3.38 The watercourse (as a whole) tended to score poorly for bank-top vegetation structure, tree feature richness, water-related features, managed ground cover, and also scored poorly for bank profile attributes including vegetation structure, tree feature richness, and natural bank material richness.

3.39 The channel margins scored poorly in respect of physical features extent, with sub-reaches A and B also scoring poorly in terms of aquatic vegetation and morphotype richness.

[13] https://environment.data.gov.uk/catchment-planning/ [Accessed 15.08.2023]

3.40 All the sub-reaches scored poorly when it came to the bed channel tree feature richness, hydraulic feature richness and natural features richness, with sub-reaches A and C also scoring poorly for natural feature extent.

3.41 Although Himalayan balsam *Impatiens glandulifera* was recorded occasionally on some of the banks, the sub-reaches still score relatively well in respect of invasive species.

Post Development

3.42 The watercourse will be retained within the Proposed Development and will largely be buffered from the development footprint with the creation of semi-natural habitats.

3.43 The change of bank-top use from agriculture to native habitat creation will improve the tree feature richness and managed ground cover scores along the watercourse, whilst removal of Himalayan balsam and the small area of concrete on the banks of sub-reach D will marginally improve the relevant scores for sub-reaches A, C and D. It is considered that these enhancements would improve the condition to ***fairly good***.

3.44 A single section of watercourse, approximately 15m in length will be culverted to provide a road crossing.

3.45 The ditch which discharges into Carr Dike will also have a section of approximately 16m in length culverted to provide a road crossing.

3.46 A small amount of additional wet ditch will be created within the Proposed Development.

RCA Summary

3.47 For the purposed of the 3.1 Metric calculation the RCA has determined the following characterisation for Carr Dike:

River type is “other river”, in moderate condition. Carr Dike would be considered to be within the catchment management plan. No watercourse encroachment was assessed to be present. No riparian encroachment was assessed to be present.

4.0 PROPOSED DESIGN

4.1 Habitat proposals have been informed by the Illustrative Masterplan, Drawing No. 22081 F0045. UMC Architects, 2023 (***Environmental Statement Figure 4.1***). Proposals aim to create habitats appropriate to the local area, with conditions targeted to be realistically achievable.

Retained Habitats

4.2 Habitat retention is illustrated in Figure 3.

4.3 It is assumed that all compartments of arable fields within the Site will be cleared prior to development in order to level the development area and allow of the installation of drainage and other services.

4.4 Habitat parcels to be retained include the broadleaved woodland parcels: PBW1, PBW2, PBW4, PBW5 and PBW6 (refer to Figure 3 of the FPCR Ecological Appraisal 2023), without enhancement.

4.5 Hedgerow retention includes the native hedgerows in the northeast border of the site (H6, H7) and the southern border (H2, H3, H4) (refer to Figure 3 of the FPCR Ecological Appraisal 2023), without enhancement.

4.6 All urban trees on Site will be retained without enhancement.

Habitat Enhancement

4.7 Habitat Enhancement is illustrated in Figure 3.

4.8 All of the area habitats and hedgerows within the Site (with the exception of those retained) are assumed will be lost to Site clearance and earthworks.

4.9 The stream (Carr Dike) which bisects the Site, as described above, will be enhanced through the provision of additional bankside habitat management and habitat creation improving the bankside grassland habitats, as well as the proposed bank top grassland and woodland habitat creation providing improvements to the channel corridor. Bankside grasslands will be enhanced through overseeding, appropriate cutting and removal of arisings, and treatment/removal of undesirable species and invasive species, as well as planting of desirable species (where appropriate). The change of use from agricultural arable bank-top habitats to native habitat creation will facilitate some uplift in the condition of the watercourse.

Habitat Creation

4.10 Post-development habitats are shown in Figure 4. Habitat creation proposals include the creation of a range habitats suited to an urban edge location, including other neutral grassland, mixed scrub, sustainable urban drainage basins, modified grassland, broadleaved and mixed woodland, wet woodland, ponds, ornamental planting, and urban trees.

4.11 The existing corridor of the Carr Dike watercourse will be retained and extended with woodland planting and areas of grassland providing rides and glades. Woodland creation will include areas planted and managed to be wet woodland.

4.12 On the Site boundaries, where practicable, habitats will be retained, and in these areas existing areas of woodland will be expanded or extended through additional woodland and scrub planting, strengthening connectivity along the Site boundary (particularly on the southern boundary.

4.13 Embankments to in the north and west of the Site will also be planted as woodland and managed to provide biodiversity, ecological connectivity, and visual screening of the development plots.

4.14 Extensive grassland areas will be provided in the north and west of the Site to provide areas of flood alleviation, additional biodiversity, and connectivity, including connectivity and habitat for marsh harriers known to be present in this area.

4.15 Seven permanent pond features will be created within the Site. These will be used for Site drainage but will also be managed as ponds to provide biodiversity value. These ponds will provide new habitats within the Site which may support species also associated with the nearby Dearne Valley Wetlands SSSI and the local RSPB reserves.

4.16 SUDS features will be created within the Site and will include new ditches and semi-permanent pond/basin features.

4.17 Hedgerows will be created across the Site to provide additional boundary habitats in the west of the Site, as well as providing connective and aesthetic functions on the boundaries of the development plots and following access roads within the Site.

4.18 Small lengths of new ditch will be created to provide drainage function within the Site.

Biodiversity Units

4.19 The biodiversity units for each habitat on the Site have been calculated and are presented in Table 2, along with a description of the management recommendations which will be employed to achieve the target conditions for each habitat type.

Table 2: Summary of Proposed Habitat Management

Habitat (Proposed Site Plan)	Habitat (UKHab Type)	Targets for Creation/Management	Area/Length	Target Condition	Distinctiveness	Biodiversity Units
Terrestrial/Area based Habitat Units						
Proposed individual trees	Urban tree	70 medium-sized trees will be planted throughout the grassland areas of the Site and adjacent to hedgerows. Species are yet to be determined but will be native species managed to achieve medium size, as such, trees will be planted as heavy standards or lighter standards will be of fast-growing robust species. Trees will be managed to achieve moderate condition. • Area beneath trees maintained as vegetation (not paved/gravelled) • Avoid herbicide use in close proximity to trees (<1m). • Replace any failed specimens.	2.564ha	Moderate	Medium	7.84
Retained individual trees	Urban Tree (retained)	23 trees will be retained within the Proposed Development	0.84ha	Moderate	Medium	6.74
Proposed Grassland	Modified grassland	Small areas of modified grassland will be maintained on the verges along the Site access roads. Although these will be more intensively managed areas of grassland a diverse seed mix suitable for roadside amenity use will be used and the number of species per metre will be maximised. Management will aim to maintain these habitats in moderate condition.	0.240ha	Moderate	Low	0.83
Proposed Meadow Grassland	Other-neutral grassland	Grassland areas throughout the site will be managed to produce a species diverse other neutral grassland. The areas of flood alleviation in the north and west of the Site will be managed with species that form tussocks and are tolerant to wet/damp conditions. Whilst no specific habitat	19.857ha	Moderate	Medium	132.93

		UKHab/NVC habitat community will be targeted the seed mixes used will look to create a high species count (to encourage up to 12 species per m^2) and should areas fail these will be resown. The area will undergo annual management to remove any encroaching scrub, tall ruderal species, undesirable species, and invasive species (if present). An annual cut will take place in late summer and all arisings removed from the grassland areas. When appropriate an earlier cut may also be used to create diversity in the structure of the grasslands. Small areas of bare ground 1-5% would be beneficial and might be created within the grassland areas.				
Proposed pond and marginal planting	Ponds (non-priority habitat)	Permanently wet ponds will be provided as part of the Site's Sustainable Urban Drainage Systems (SUDS) and as such will be managed as non-priority habitats in poor condition. Never-the-less ponds will be provided with diverse marginal planting too promote biodiversity.	2.98ha	Poor	Medium	11.49
Proposed Native Thicket/Woodland Edge	Mixed scrub	Mixed scrub planting will be provided in a number of areas throughout the Site to provide ecological diversity, woodland edge structure, and screening of the development or other features within the Site. Species are not yet specified but will comprise a mix of native species and where possible include species that are of value to wildlife (providing food sources from flowers and nuts/berries). The following management prescriptions should be adopted to achieve moderate condition:	3.01ha	Moderate	Medium	20.13

		• Planting mix to use a diverse range of native species, with no one species compromising more than 50% of the mix. • Replace any failed woody specimens. • Targeted weeding/treatment to limit/remove invasive/undesirable species to below 5% ground cover (typical species include but are not limited to- Creeping thistle *Cirsium arvense,* Cleavers *Gallium aparine, and* common nettle *Urtica dioica*). • Allow a graduated edge to form with scattered scrub and tall grassland along the periphery. • Rotational clearance/coppicing of selected areas to allow opportunities for natural regeneration.				
Proposed Amenity Shrubs and Grasses	Introduced Shrub	A small area of roadside planting will be provided as low growing ornamental shrub to allow for visibility on the bend in the access road. This area will be managed to ensure the shrub remains healthy and viable.	0.106ha	N/A	Low	0.2
Sustainable Urban Drainage Basins	Sustainable Urban Drainage Features	SUDS features will include a cascading pond system in the eastern area of the Site which is anticipated will be wet for part of the year but may occasionally dry. The area will be managed to extend the adjacent grassland but will likely colonise with species tolerant of wet/damp conditions. The area will be planted/seeded with a range flowering native species tolerant to wet/damp conditions and the structure of the habitat managed or allowed to develop to be varied.	0.27ha	Moderate	Low	0.65
Proposed Native Woodland	Other Woodland - Broadleaved	Areas of woodland planting will be provided throughout the Site extending retained areas of woodland as well as providing new woodland blocks.	4.85ha	Moderate	Medium	22.75

		Woodland will be managed towards moderate condition with native species planted to provide diversity and any failed trees being replaced at regular intervals. Management will allow for variation in the woodland to allow small glades and rides to develop and aim for the development of an understorey layer and active regeneration in the longer term. The woodland will be regularly managed to prevent the establishment of undesirable and non-native invasive species.				
Proposed Native Woodland	Other Woodland - Mixed	Areas of woodland planting will be provided throughout the Site extending retained areas of woodland as well as providing new woodland blocks. Woodland will be managed towards moderate condition with native species planted to provide diversity and any failed trees being replaced at regular intervals. Management will allow for variation in the woodland to allow small glades and rides to develop and aim for the development of an understorey layer and active regeneration in the longer term. The woodland will be regularly managed to prevent the establishment of undesirable and non-native invasive species.	8.68ha	Moderate	Medium	23.85
Proposed Native Woodland	Other Woodland - Wet	Areas of woodland planting following the corridor of Carr Dike will be managed towards wet woodland with species characteristic of wetter conditions. Woodland will be managed towards moderate condition with native species planted to provide diversity and any failed trees being replaced at regular intervals. Management will allow for variation in the woodland to allow small glades and rides to develop and aim for the development of an understorey layer and active regeneration in the longer term. The woodland will be	3.67ha	Moderate	High	17.31

		regularly managed to prevent the establishment of undesirable and non-native invasive species.				
Existing Vegetation Retained	Other Woodland – Mixed (Retained)	Areas of existing mixed woodland will be retained on the Site boundaries and along the corridor of Carr Dike	2.27ha	Moderate	Medium	18.15
Hedgerow Biodiversity Units						
Proposed Native Hedgerow	Native Hedgerow	New native hedgerow planting will be provided across the Site, species are not yet known therefore species rich has not been specified, but where possible planting will look to achieve >5 woody native species per 30m. The following management prescriptions should be adopted to increase the value of the hedgerow: • Planting will ensure a diversity of native species with at least five different native woody species every 30m for species rich hedgerows. • The borders of the hedgerow (where appropriate) will be subject to relaxed management to encourage a diverse interface between habitats. • Treatment to remove any invasive non-native species and undesirable species (e.g. common nettle). • Replacement planting to compensate for failed specimens during establishment period. • Canopy height allowed to reach and be maintained above 1.5m.	2.060km	Moderate	Low	6.89
Native hedge	Native hedgerows with trees	New native hedgerow planting will be provided across the Site, species are not yet known therefore species rich has not been specified, but where possible planting will look to achieve >5 woody native species per 30m. In addition	4.559km	Moderate	Medium	25.54

		standard tree planting will also be provided at 20m intervals or less. The following management prescriptions should be adopted to increase the value of the hedgerow: • Planting will ensure a diversity of native species with at least five different native woody species every 30m for species rich hedgerows. • The borders of the hedgerow (where appropriate) will be subject to relaxed management to encourage a diverse interface between habitats. • Treatment to remove any invasive non-native species and undesirable species (e.g. common nettle). • Replacement planting to compensate for failed specimens during establishment period. • Canopy height allowed to reach and be maintained above 1.5m.				
Native hedge	Native hedgerows (Retained)	Areas of native hedgerow bounding the Site will be retained where possible and managed to maintain their existing habitat condition.	0.890km	Moderate	Low	3.55
River Biodiversity Units						
Watercourse Not shown	Ditches (Created)	Small sections of wet ditch will be provided as part of the SUDS features within the proposed development. The ditches will be managed with a diverse range of planting of marginal and emergent vegetation which will be replaced if failed and maintained in good health. Any undesirable and non-native invasive species will be removed through regular maintenance and woody species deterred from overshading the ditch through removal or pruning.	0.045km	Moderate	Medium	0.35

Existing Watercourse/Culvert under roadway	Culvert	Carr Dike and the existing drainage ditch on-site will both have sections of approximately 15-20m culverted to allow for an access road to cross the watercourses. The culvert is expected to be of concrete construction with limited variation in channel morphology or ecological features.	0.031km	Poor	Low	0.06
Existing Watercourse	Other Rivers and Streams (Enhanced)	Sections of Carr Dike will be enhanced through land-use change on the bank tops, as well as management of the banks to provide additional diversity to bank side vegetation and emergent vegetation within the channel.	0.96km	Enhance from Moderate to Fairly Good	High	15.36
Existing Watercourse	Ditches (Retained)	The drainage ditch in the central area of the Site which discharges into Carr Dike will be retained. The ditch and banks will be managed to maintain the current moderate condition, but where there is opportunity management should encourage enhancement/improvement of the banks and emergent vegetation along this ditch.	0.47km	Moderate	Medium	4.33

Additional Enhancements

4.20 In line with the recommendations from the Ecological Appraisal (FPCR 2023), Bat Report (FPCR 2023), Breeding Bird Report (FPCR 2023) and Wintering Bird Report (FPCR 2023), additional mitigation measures will be implemented to contribute to a biodiversity net gain across the Site. This will focus on the provision of faunal enhancements that are not captured within the Natural England Biodiversity Metric 3.1 calculations.

4.21 It is anticipated that a scheme of bat box installations on poles, buildings or where available retained vegetation, will be provided with 15no. bat boxes considered appropriate for the size of the Site and local bat populations.

4.22 The development will include a lighting scheme which will aim to minimise impacts upon retained habitats, and in particular habitats used by bats.

4.23 It is anticipated that a scheme of bird box installations will take place in areas of retained vegetation and may also be incorporated into/onto the proposed buildings. The bird boxes would incorporate a mixture of boxes including small hole boxes, small open fronted boxes, stock dove boxes and potentially a small number of kestrel boxes. Numbers of bird boxes have not been quantified but would be appropriate to the size of the Site and bird assemblages that might use the boxes.

4.24 The provision of features which may attract willow tits *Poecile montanus* could be provided in the area to be developed as wet woodland. Willow tits require specialist nesting habitat in the form of holes within decaying deadwood. Where appropriate decaying logs of birch or willow could be attached to existing retained vegetation on the Carr Dike corridor.

4.25 The following provisions will be included where appropriate:

- Log piles - logs will be retained from clearance works and used to create features for fauna and insects within areas of habitat creation.
- Debris piles – debris such as rocks, and soil from clearance works may be used to create features with structural diversity for fauna and insects within areas of habitat creation.

5.0 BIODIVERSITY NET GAIN (BNG) METRIC

5.1 The habitat retention, enhancement, and creation proposals detailed within this report have all been inputted into the Biodiversity Metric 3.1. Table 3 provides a summary of the headline results of the Biodiversity Metric 3.1 assessment completed for the proposals. The full metric has been provided in Appendix A.

Table 3: Biodiversity Metric 3.1 Headline Results

Baseline	Habitat Units	205.26
	Hedgerow Units	15.15
	River Units	17.98
Post-Intervention	Habitat Units	262.87
	Hedgerow Units	35.98
	River Units	20.10
Total Net Unit Change	Habitat Units	**+57.61**
	Hedgerow Units	**+20.84**
	River Units	**+2.12**
Total Net Percentage Change	Habitat Units	**+28.06**
	Hedgerow Units	**+137.55**
	River Units	**+11.80**

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.

5.2 As shown in Table 3, assessment has demonstrated proposals will lead to a gain in area-based units in all three categories: habitat, hedgerow, and river.

5.3 As set out above, this application achieves the policy requirement of 10% net gain within the Site Boundary, with the potential to utilise the additional units for other developments in the future.

Habitat Trading Rules

Trading Summary

5.4 The proposals satisfy the trading rules as set out within the Biodiversity Metric 3.1. Table 4 summarises the habitat trading summaries across the site.

Table 4: Habitat Trading Summary

Trading Summary		
Distinctiveness Group	**Trading Rule**	**Trading Satisfied?**
Very High	Bespoke compensation likely to be required	Yes
High	Same habitat required	Yes
Medium	Same broad habitat or a higher distinctiveness habitat required	Yes
Low	Same distinctiveness or better habitat required	Yes

6.0 BIODIVERSITY NET GAIN PRINCIPLES

6.1 The above have been guided by the Biodiversity Net Gain Principles as set out by Natural England in the Biodiversity Metric 3.1 User Guide. Table 5 lists all of the principles along with a description of how the principles has been applied to this assessment.

Table 5: Application of the Biodiversity Net Gain Principles to the Proposals

Principle	Indicators
Principle 1: Apply the Mitigation Hierarchy	The Site is allocated for employment development within the Barnsley Local Plan. The Site location is within an area of previous agricultural land-use with the majority of habitats present being of low ecological value. The Proposed Development provides a significant Biodiversity Net Gain on-site for terrestrial habitats, hedgerows, and rivers.
Principle 2: Avoid losing biodiversity that cannot be offset by gains elsewhere	Other habitats present at the Site were not considered to be highly distinctive or unable to be offset by gains elsewhere. The proposals have sought to retain hedgerows where possible as well as retaining the existing woodland on the Site boundary and along the Carr Dike corridor.
Principle 3: Be inclusive and equitable	Preliminary biodiversity net gain calculations were provided during the design stage to inform the proposals. These were completed using the 3.1 metric. The Site design evolved with input from the preliminary calculations in order to maximise the potential for Biodiversity Net Gain and meet the 3.1 metric trading rules.
Principle 4: Address risks	The habitats recommended for creation include those that would be suitable for establishment in the urban edge setting and provide some similar habitats to those within nearby designated sites and nature reserves. The condition scores have been set at achievable levels, though management will ultimately strive to improve the condition scores above those stated above where possible.
Principle 5: Make a measurable Net Gain contribution	This assessment has demonstrated that a significant net gain will be achieved on-site, when compared to the pre-development baseline. The habitats created will improve connectivity with grassland and woodland habitats providing a north/south corridor in the western are of the Site, and woodland planting and retained woodland providing a corridor following Carr Dike in a north-east/south-west orientation.
Principle 6: Achieve the best outcomes for biodiversity	
Principle 7: Be additional	

	Additional biodiversity enhancements will be incorporated in the scheme to provide further benefits for faunal species e.g. bat and bird boxes and habitat piles.
Principle 8: Create a Net Gain legacy	This document will inform future management provision for the Site. Management should be secured in the long-term to ensure that the target conditions can be achieved. It is recommended that a specific Landscape Environmental Management Plan (LEMP) is also produced to document detailed management of the proposed habitat creation areas.
Principle 9: Optimise sustainability	The habitat creation scheme will improve connectivity and improve opportunities for a range of faunal species.
Principle 10: Be transparent	All assumptions have been set out within this report and its appendices to ensure that the information used to inform the Biodiversity Metric 3.1 calculations can be reviewed.

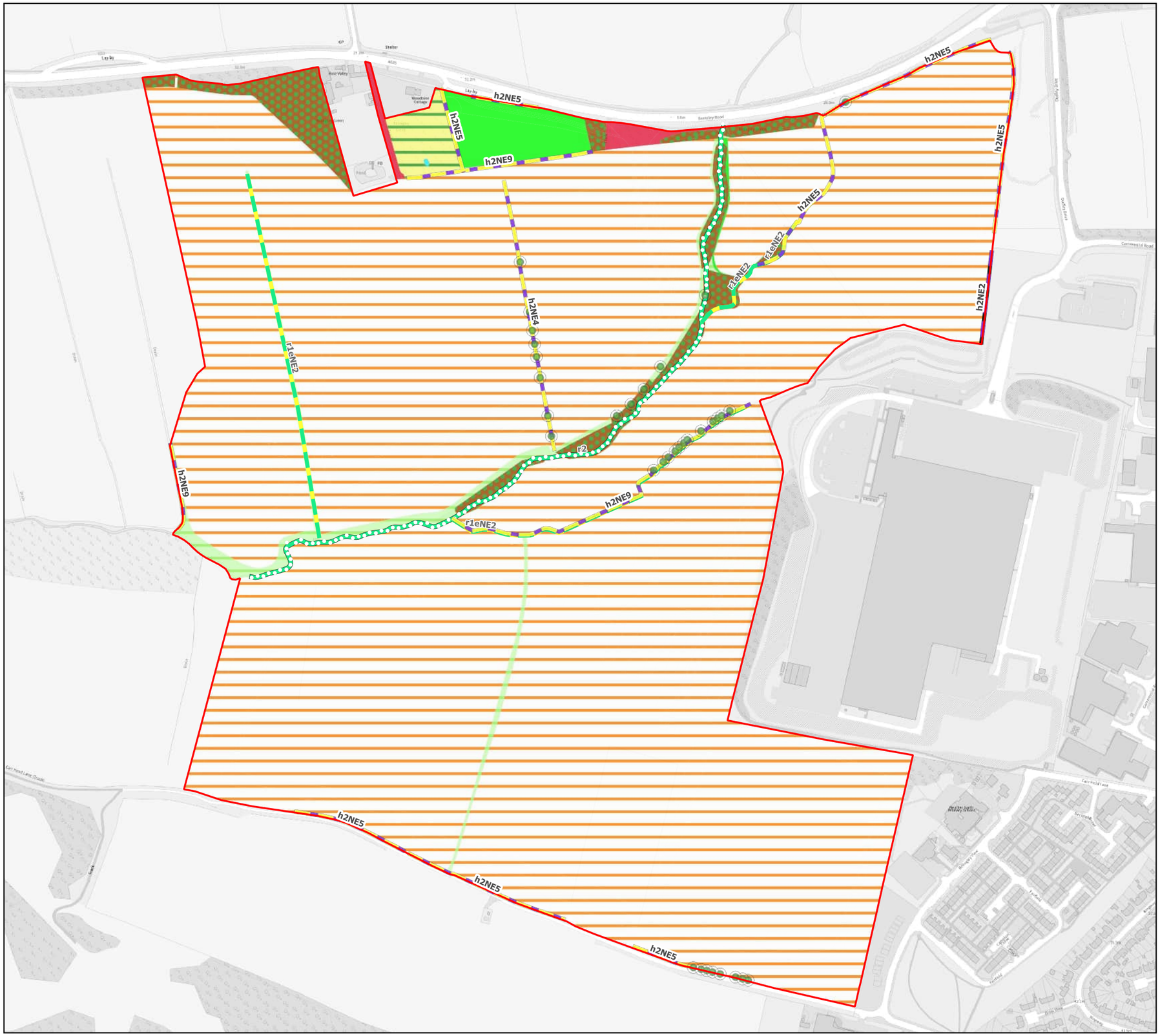
7.0 CONCLUSION

7.1 The approach to habitat creation has aimed to maximise biodiversity value within the space made available within the proposals for habitat creation. Biodiversity Net Gain has then been used to inform the habitat creation and enhancement proposals for the scheme and to guide decisions around additional habitat provision.

7.2 The results of the assessment demonstrate that the outline scheme currently will lead to a surplus of area-habitat biodiversity units, a surplus of hedgerow biodiversity units, and a small surplus of river biodiversity units within the Site and will meet the metric 3.1 trading rules.

7.3 This calculation demonstrates that 10% net gain will be achievable on-site, as per the requirements of the ES10 masterplan and policies within the Barnsley Local Plan.

7.4 As set out above, this application achieves the policy requirement of 10% net gain within the Site Boundary, with the potential to utilise the additional units for other developments in the future).



Key

Baseline Habitats

- Built linear features
- Cereal crops
- Modified grassland
- Other coniferous woodland
- Other neutral grassland
- Other woodland; mixed
- Ponds (Non- Priority Habitat)
- Vacant/derelict land/ bareground

Baseline Hedgerows

- Native Hedgerow (h2NE5)
- Native Hedgerow (h2NE5)
- Native Hedgerow with trees (h2NE4)
- Native Species Rich Hedgerow (h2NE2)

Baseline Linear Watercourses

- Ditches
- Other Rivers and Streams

Baseline Trees

- Medium Tree

0 100 200 m

client
Newlands Developments

project
Barnsley Road, Goldthorpe

drawing title
BASELINE HABITATS

scale @ A3
1:5000

drawn
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Figure 1

rev
Rev A

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Key

Baseline Habitat Condition

- Moderate
- Poor
- N/A - Other
- N/A -Agricultural

Baseline Habitat Distinctiveness

- Medium
- Low
- V.Low

Baseline Hedgerow Condition

- Moderate

Baseline Hedgerow Distinctiveness

- Medium
- Low

Baseline Linear Watercourse Condition

- Moderate

Baseline Linear Watercourse Distinctiveness

- High
- Medium

0 100 200 m

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project
Barnsley Road,
Goldthorpe

drawing title
BASELINE HABITAT CONDITION & DISTINCTIVENESS

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Figure 2

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Rev A

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Key

Site boundary

Habitats Retention

- **Retained**
- **Lost**

Hedgerow Retention

- **Created**
- **Retained**
- **Lost**

Rivers Retention

- **Created**
- **Retained**
- **Enhanced**
- **Lost**

Urban Trees Retention

- **Created**
- **Retained**
- **Proposed Lost**

0 100 200 m

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Figure 3

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Rev A

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Key

Site boundary

HABITATS

- **Artificial unvegetated, unsealed surface**
- **Developed land; sealed surface**
- **Introduced shrub**
- **Mixed scrub**
- **Modified grassland**
- **Other neutral grassland**
- **Other woodland; broadleaved**
- **Other woodland; mixed**
- **Ponds (Non- Priority Habitat)**
- **Sustainable urban drainage feature**
- **Wet woodland**

HEDGEROWS

- **Native Hedgerow (h2NE5)**
- **Native Hedgerow with trees (h2NE4)**

RIVERS

- **Culvert**
- **Ditches**
- **Other Rivers and Streams**

URBAN TREES

- **Proposed Medium**

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0 100 200 m

client
Newlands Developments

project
Barnsley Road,
Goldthorpe

drawing title
BASELINE HABITAT CONDITION & DISTINCTIVENESS

scale @ A3 1:5000 | drawn SAM / IJ | issue date 1/6/2023

drawing / figure number **Figure 4** | rev **Rev A**

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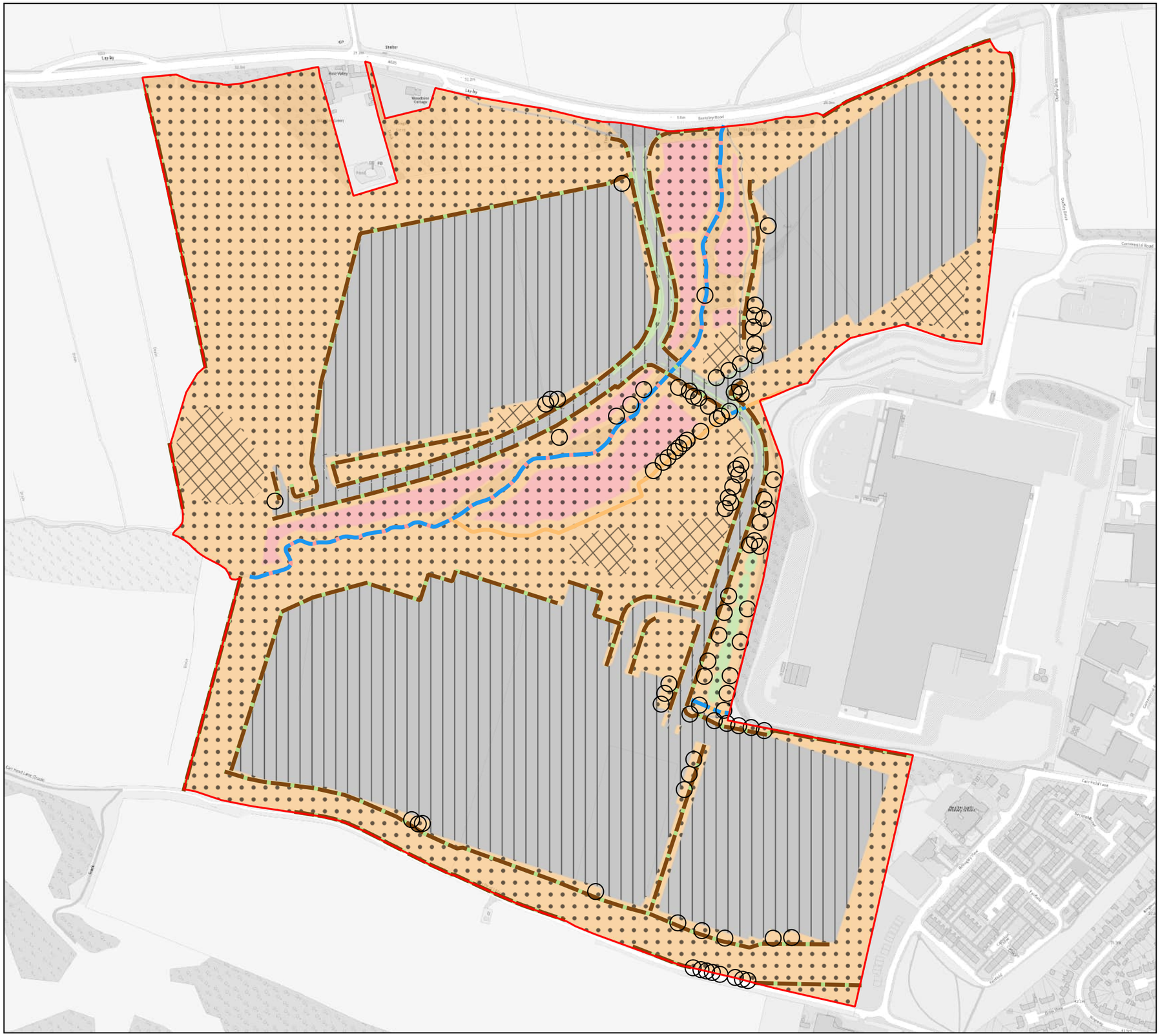

Key

Site boundary

Proposed Habitats Condition

- **Moderate**
- **Poor**
- **N/A - Other**

Proposed Habitats Distinctiveness

- **High**
- **Medium**
- **Low**
- **V.Low**

Proposed Hedgerow Condition

- **Moderate**

Proposed Hedgerow Distinctiveness

- **Low**

Proposed Rivers Condition

- **Fairly Good**
- **Moderate**
- **Poor**

Proposed Rivers Distinctiveness

- **High**
- **Medium**
- **Low**

Proposed Urban Trees Condition

- **Moderate**

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BASELINE HABITAT CONDITION & DISTINCTIVENESS

scale @ A3
1:5000

drawn
SAM

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1/6/2023

drawing / figure number
Figure 5

rev
Rev A

N

0 100 200 m

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