



BIODIVERSITY METRIC SUMMARY REPORT

Land at Doncaster Road, Goldthorpe, Rotherham

March 2022

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- Land at Doncaster Road, Goldthorpe, Rotherham –

A report for

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1. INTRODUCTION

1.1 BACKGROUND

PENNINE Ecological have been commissioned by Graham Wrightson, to undertake a Biodiversity Metric 3.0 calculation on land at Doncaster Road, Goldthorpe, Rotherham. A Lidl supermarket is proposed for the plot of land which was formerly Goldthorpe Primary School.

This report can be read in conjunction with the Preliminary Ecological Appraisal (PEA) report written and submitted to the client by PENNINE Ecological in December 2021 (PENNINE Ecological, 2021).

Accompanying figures to this report are included within Appendix A.

1.2 PURPOSE OF THIS REPORT

This document provides the relevant information to address the response from the Senior Planning Officer (Hannah Andrew) at Barnsley County Council whose *“currently policy is no net loss”*.

The report will support the planning application and it presents the results of a biodiversity metrics impact assessment.

Based on the relevant calculations carried out by the Biodiversity Metric Calculator 3.0 (Panks *et al.*, 2020), the development will provide a **+4.14% biodiversity net gain (+0.07 biodiversity units)**.

2. BIODIVERSITY METRIC METHODOLOGY

2.1 UK HABITAT CLASSIFICATION SURVEY AND CONDITION ASSESSMENT

2.1.1 Background

The site is located at National Grid Reference SE 46237 04335 and is adjacent to Doncaster Road and High Street, Goldthorpe, Barnsley. An Extended Phase 1 Habitat Survey was undertaken in December 2021 by PENNINE Ecological. The site measures approximately 0.9831ha and comprises the following habitats and features (the Extended Phase 1 habitat codes preceding the habitat types):

- A2.1 Dense scrub
- A3.1 Parkland/Scattered trees – broad-leaved
- A3.2 Coniferous
- B4 Improved grassland
- C3.1 Tall ruderal
- J2.2 Species-poor hedgerow
- J2.4 Fence
- J2.3.5 Wall
- J3 Ephemeral
- J5 Hard standing

Following a request for a Biodiversity Net Gain (BNG) to be calculated for the proposed development, the Extended Phase 1 Habitat Survey habitats recorded during the PEA survey conducted in December 2021 had to align with the new habitat classification system which is used in conjunction with Defra's BNG Biodiversity Metric 3.0 Calculation Tool (refer to section 2.2 below); the UK Habitat Classification System (referred to as 'UKHab') (<https://ukhab.org/>).

The habitats were remapped to UKHab Level 3 and each habitat condition assessed in accordance with the Defra's Biodiversity Metric 3.0 - Technical Supplement (Panks, *et al.*, 2021).

The mapping was undertaken by Stuart Macpherson who is an Associate member of the Chartered Institute of Ecology and Environmental Management (ACIEEM); Stuart is a competent botanist and is experienced in UK Habitat Classification.

The following documents have been used to undertake the biodiversity metric calculation:

- Land at Doncaster Road, Goldthorpe, Rotherham Preliminary Ecological Appraisal (PEA) (PENNINE Ecological, 2021).
- High Street / Doncaster Road, Goldthorpe Detailed Landscape Proposals (Drawing No. 3509/2: Revision C; Dated 19/03/22 (Rosetta Landscapes Design, 2022).

The mitigation for the development will be implemented within the site's red line boundary.

2.2 CALCULATOR TOOL

All habitats recorded within the footprint of the site during the December 2021 PEA field survey were included in the Defra Biodiversity Metric 3.0 Metric Calculation Tool. This enabled an

assessment of the baseline condition, expected habitat losses arising from the development and proposed on-site habitat mitigation following construction.

Each area of habitat was drawn as a polygon and the area calculated in m² and reported in hectares. For linear habitat features such as hedgerows, the length was calculated and reported in kilometres. The relative area/length of retained and enhanced habitats (i.e., within the footprint of the development but not subject to loss) were recorded separately and not factored into the overall baseline net loss.

To calculate the individual unit worth of each habitat feature, it was allocated a distinctiveness level and assessed against three criteria:

- Condition.
- Ecological connectivity; and
- Strategic significance.

The distinctiveness allocation and method of assessment was undertaken in accordance with the Defra Biodiversity Metric 3.0 - Technical Supplement. Using the current *beta* version of the Metric 3.0, the accepted approach of linking the habitat connectivity value to the distinctiveness values was adopted. As such all habitats of medium or lower distinctiveness were given a 'low' connectivity value. Habitats of greater distinctiveness were given a 'medium' connectivity value. Additionally, the assessment of a habitats strategic significance is carried out based on the inclusion of said habitat in either national or local biodiversity action plans, or its association with a pre-existing designated site.

2.3 LIMITATIONS

The Biodiversity Metric Calculator 3.0 is currently in a *beta* state of completion. As such there are still limitations in the assessment and calculation processes. To remedy the metric limitations, professional judgement has been used in conjunction with the Technical Supplement (Panks *et al.*, 2021), so to undertake a robust condition assessment and with reference to an advised benchmark. Where professional judgement, knowledge of the site and the wider area has been used in conjunction with the calculator, this has been described accordingly.

3. BIODIVERSITY METRIC RESULTS

3.1 SITE HABITAT BASELINE RESULTS

The habitats encountered on site were of Low distinctiveness according to the metric. The habitats included those synonymous with brownfield sites (refer to section 2).

The summary of the baseline results is provided in Table 1 below. In total, the surveyed habitats had a calculated size of **0.9831ha** and has a total habitat value of **1.65 habitat units** (Table 1).

Table 1 Site Habitat Baseline

Broad Habitat Type	UKHab Classification Type	Area (Hectares)	Distinctiveness	Condition	Connectivity	Strategic Significance	Ecological Baseline - Total Habitat Units	Area Retained (Total Hab. Units)	Area Enhanced (Total Hab. Units)	Area Lost (Hab. Units Lost)	Assessment Comments
Grassland	Modified grassland	0.074275	Low	Poor	Low	Low strategic significance	0.15	N/A	N/A	0.15	Improved grassland area which was formerly the primary school's playing field.
Heathland and shrub	Mixed scrub	0.194575	Medium	Poor	Low	Low strategic significance	0.78	N/A	N/A	0.78	Areas of bramble, buddleia and willow dominated scrub, predominantly on the margins of the site.
Urban	Vacant/derelict land/bare ground	0.348475	Very low	N/A	N/A	Low strategic significance	0	N/A	N/A	0.00	Area of derelict ground which were formerly the areas used as car parking and the hard standing playground.
Sparsely vegetated land	Ruderal	0.0365775	Low	Poor	Low	Low strategic significance	0.73	N/A	N/A	0.73	Short, ephemeral habitat has appeared in areas of what was suspected to be formally hard standing.
Total(s)		0.9831					1.66*	Habitat Units Lost (before mitigation)		1.66*	

*The calculator calculates this total to be 1.65, reasons are unknown, and it assumed rounding to the nearest whole number may have occurred. 1.65 units are used so to reflect that which is shown in the accompanying Biodiversity Metric Calculator to this report.

A summary of the baseline results for hedgerows on site is provided in Table 2 below.

Table 2 – Site Hedge Baseline

Hedge Number	Hedgerow Type	Length (km)	Distinctiveness	Condition	Connectivity	Strategic Significance	Ecological Baseline -Total Hedgerow Units	Length Retained (Total Habitat Units)	Length Enhanced (Total Habitat Units)	Length Lost (Habitat Units Lost)	Assessment Comments
1	Hedge ornamental non-native	0.038	Very low	Poor	Low	High strategic significance	0.04	N/A	N/A	0.04	Cotoneaster, privet, laurel dominated hedge with holly, elder and a rose species.
Total length		0.038						Habitat Units Lost (before mitigation)		0.04	

3.2 ON-SITE HABITAT MITIGATION

Below is a summary of the habitats proposed to be implemented as part of the development of the site. In total **1.72 habitat units** have been delivered (**1.65 habitat units** were recorded as a result of the baseline habitats surveyed).

A summary of the post-development on-site habitat mitigation is provided in Table 3 below.

Table 3 Site Habitat Creation

Broad Habitat Type	UKHab Classification Type	Area (Hectares)	Distinctiveness	Condition	Connectivity	Strategic Significance	Standard Time to Target Condition (Years)	Habitat Units Delivered	Assessment Comments
Urban	Introduced shrub	0.0242	Low	Poor	Low	Low strategic significance	1	0.05	Proposed shrub mix to include laurel and pyracantha.
Heathland and shrub	Mixed scrub	0.1061	Medium	Good	Low	Low strategic significance	10	0.89	Proposed species to include dogwood, hazel, hawthorn, holly, cherry laurel, blackthorn, dog rose, goat willow and guelder rose.
Grassland	Other neutral grassland	0.0933	Medium	Good	Low	Low strategic significance	10	0.78	Grass mix to comprise Emorsgate EL1 Flowering Lawn Mixture' sown with 'Fine Lawn Grass Mixture'.

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Broad Habitat Type	UKHab Classification Type	Area (Hectares)	Distinctiveness	Condition	Connectivity	Strategic Significance	Standard Time to Target Condition (Years)	Habitat Units Delivered	Assessment Comments
Urban	Developed land; sealed surface	0.761	Very low	N/A	N/A	Low strategic significance	0	0.00	Combination of buildings, hard standing i.e., car parking, walkways etc.
Total(s)		0.9846*	Habitat Units Delivered					1.72	

*The site habitat creation total area exceeds the baseline area by just 0.0015m². The difference is assumed to be because of the different software used by the architect and landscape designer. The difference is minor and would not significantly alter the overall net gain which has been achieved for this site (+4.14%).

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A summary of the post-development on-site hedgerow mitigation is provided in Table 4 below.

Table 4 – Site Hedge Creation

Hedge Type	Area (km)	Distinctiveness	Condition	Connectivity	Strategic Significance	Time To Target Condition (Years)	Hedge Units Delivered	Assessment Comments
Habitat Creation/Enhancement								
Native species rich hedgerow	0.119	Medium	Good	Low	High strategic significance	12	1.07	Species to include dogwood, hazel, hawthorn, holly, blackthorn, dog rose and guelder rose.
Hedge ornamental native	0.025	Very low	Poor	Low	High strategic significance	1	0.03	Species to include red robin.
Total(s)		Total On-site Habitat Units Delivered					1.1	

3.3 BIODIVERSITY NET GAIN SUMMARY

Based on the relevant calculations carried out by the Biodiversity Metric Calculator 3.0 (Panks *et al.*, 2020), the development will provide a **+4.14% biodiversity net gain (+0.07 biodiversity units)**. A summary of these results is provided in Table 5.

Table 5 - Summary of the biodiversity metric gains and/or losses (where applicable)

Gains / Losses	Biodiversity Metric Calculations	Baseline Habitat/Hedgerow Units	Habitat/Hedgerow Units Delivered	Habitat/Hedgerow Unit Change	Percentage Change
Losses	Total Habitat Units	N/A	N/A	N/A	N/A
	Total Hedgerow Units	N/A	N/A	N/A	N/A
Gains	Total Habitat Units	1.65*	1.72	+0.07	+4.14%
	Total Hedgerow Units	0.04	1.1	+1.06*	+2414.09%

* The Biodiversity Metric Calculator calculates this total to be 1.05. 1.05 units are used so to reflect that which is shown in the accompanying Biodiversity Metric Calculator to this report.

4. DISCUSSION

4.1 SUMMARY OF CALCULATION FINDINGS

The landscape plan for the development has attempted to off-set as much of the biodiversity loss as possible, with the inclusion of the following measures:

1. Implementation of mixed scrub (0.1061ha), wildflower meadow (0.0933ha) and introduced shrub (0.0242ha) throughout the development, notably on the outer extents of the sites adjacent to Doncaster Road and the residential housing and Asda supermarket on the sites' southern boundary. The landscape design has generally aimed to maximise the area of soft landscaping where feasibly possible.
2. Implementation of 119m of new native species rich hedgerow particularly along the sites' northern and western boundaries adjacent to Doncaster Road and High Street. An additional 25m of ornamental hedgerow will also be planted along the site's eastern boundary.
3. Implementation of 13 'large' trees across the site. Additionally, existing trees will be retained throughout the site.

Overall, maximising the areas within the site for habitat creation has led to an overall biodiversity net gain with the Biodiversity Metric Calculator 3.0 indicating the site will provide a **+4.14% biodiversity net gain (+0.07 biodiversity units)**.

REFERENCES

Joint Nature Conservancy Council (2016) Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit. Nature Conservancy Council.

LOROC Architects, 2022. High Street / Doncaster Road, Goldthorpe S639NG Planning Information GENERAL ARRANGEMENT PROPOSED SITE PLAN (Drawing No. 1526-150(P): Revision e; Dated 18/03/22.

Panks, S., White, N., Newsome, A., Potter, J., Heydon, M., Mayhew, M., Alvarez, M., Russell, T., Sarah S.J., Scott B., Heaven, M., Scott, S.H., Treweek, J., Butcher, B., Stone, D., 2021. Biodiversity metric 3.0: Auditing and accounting for biodiversity – User Guide. Natural England.

PENNINE Ecological, 2021. Land at Doncaster Road, Goldthorpe, Rotherham Preliminary Ecological Appraisal.

The UK Habitat Classification (2020) System (<https://ukhab.org/>)

Appendix A - Figures

Figure 1 – Baseline Habitats (PENNINE Ecological, December 2021)

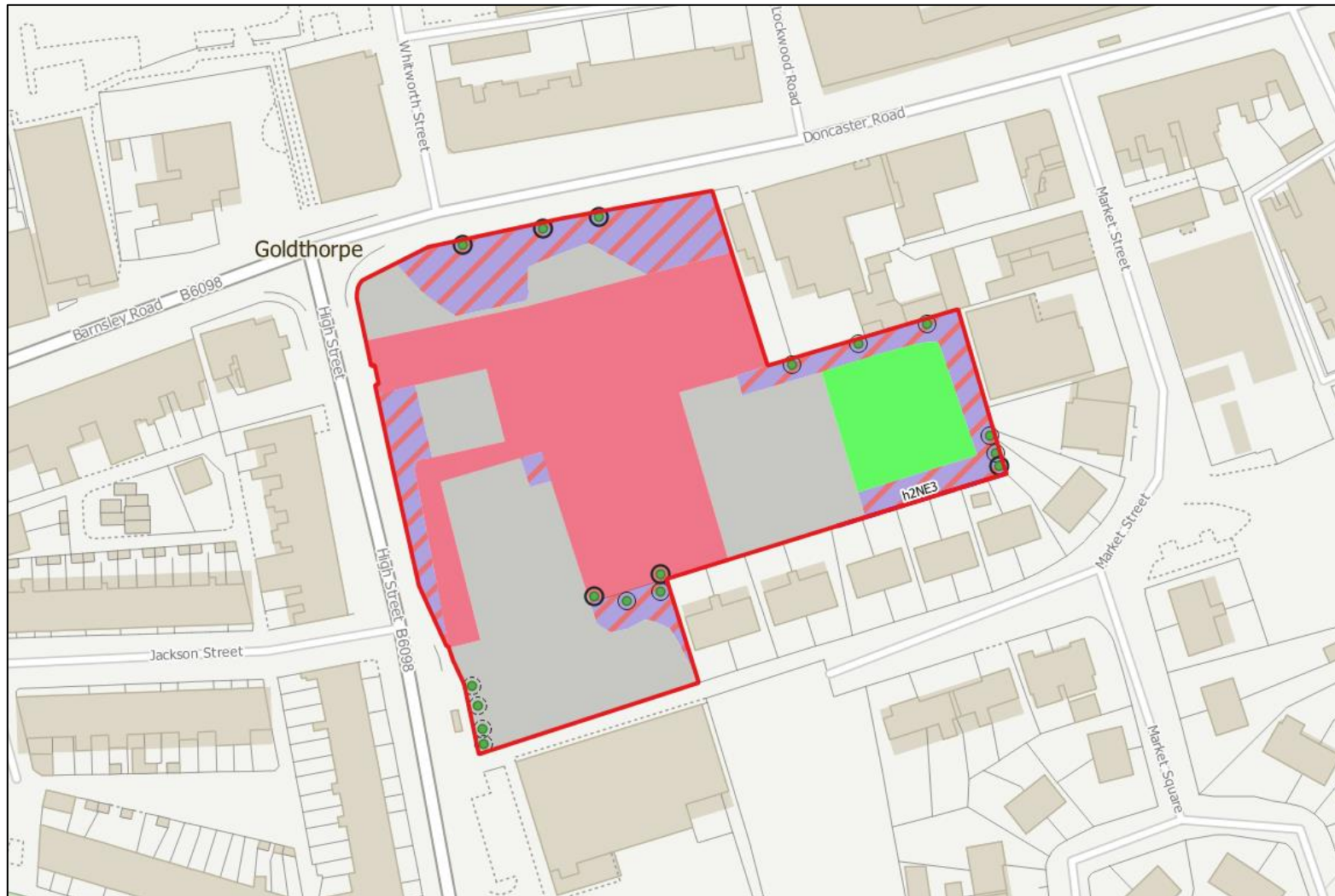


Figure 2 – Proposed Site Habitat Mitigation (Rosetta Landscape Design, March 2022)

