Biodiversity Net Gain Matrix

By

ProHort Limited

Unit 16 Sutherland Institute

Lightwood Road

Longton

Stoke-on-Trent

ST3 4HY

For

Richard Wenman

Mill Drove South

Cowbit

Spalding

Lincolnshire
PE12 6FS

8TH July 2024

1. Introduction

ProHort Limited have been commissioned by Richard Wenman to conduct a Biodiversity Net Gain Assessment for Mill Drove South, Cowbit, Spalding, Lincolnshire, PE12 6FS on 12/06/2024 by Richard Weaver of ProHort Limited.

The 3 buildings are to be developed and the Old Pumping Station to be converted into a residential dwelling and the Local Planning Authority has requested that a Biodiversity Net Gain (BNG) Assessment is completed to support the planning application. The development includes the construction of 3 residential properties with the installation of associated hard and soft landscaping and drainage installations. The refurbishment and conversion of the existing engine shed into a residential dwelling.

South Holland District Council requires developments in the town to achieve a net gain in biodiversity, with a minimum of a 10% gain compared to the pre-development value of the site. A quantitative measure of the base value of a site for biodiversity, and the value of a site post-development, is arrived at by using a recognised Biodiversity metric. Biodiversity metrics measure the value of a site in terms of Biodiversity Units. Biodiversity Units are a proxy measure of biodiversity, arrived at by assessing the type, area and condition of semi-natural habitats on site. A limitation of the use of metrics is that they only measure habitat areas, and do not take into account species-specific measures which may nevertheless make meaningful contributions to gains in local biodiversity.

2. Site and Surroundings

The area surveyed was the plot of land at Mill Drove South, Cowbit, Spalding, Lincolnshire, PE12 6FS. It is comprised of undeveloped land mainly bare ground with patches of vegetation across the site. It also contains a property in the north section of the site. Site access is via Mill Drove South.

The property is located in the centre of Spalding at Grid Ref: TF26561812. The area surrounding the property is mainly made up of hard and soft landscaping and residential building to the North, South and Southwest of the site with larger areas of green space to the West of the site. To the East, the site is bound by Mill Drove South beyond which are industrial properties.

3. Methodology

The pre-development (baseline) and post development (proposed) value of the habitats have been calculated using the DEFRA/Natural England's Biodiversity Metric 4.0 calculator. The methodology for determining habitat distinctiveness and condition values, follows the guidelines set out the User Guide and Technical Supplement for Biodiversity Metric 4.0.

The habitat mapping and condition assessments were undertaken by Owen Brown 08/07/2024. The metric calculations were undertaken by the same ecologist.

4. Data Sources

The following data sources have been used to define the boundary for the BNG calculation and determine the relevant attributes for BNG (e.g. size, condition and habitat type) for the pre- and post-development habitats.

Boundary:

The boundary used for the BNG assessment is the red line application boundary for the project.

Unit 16 Sutherland Institute,
Lightwood Road
Longton
Stoke-on-Trent
ST3 4HY

Telephone: 01782 479479
Email: info@prohort.co.uk
Website: www.prohort.co.uk

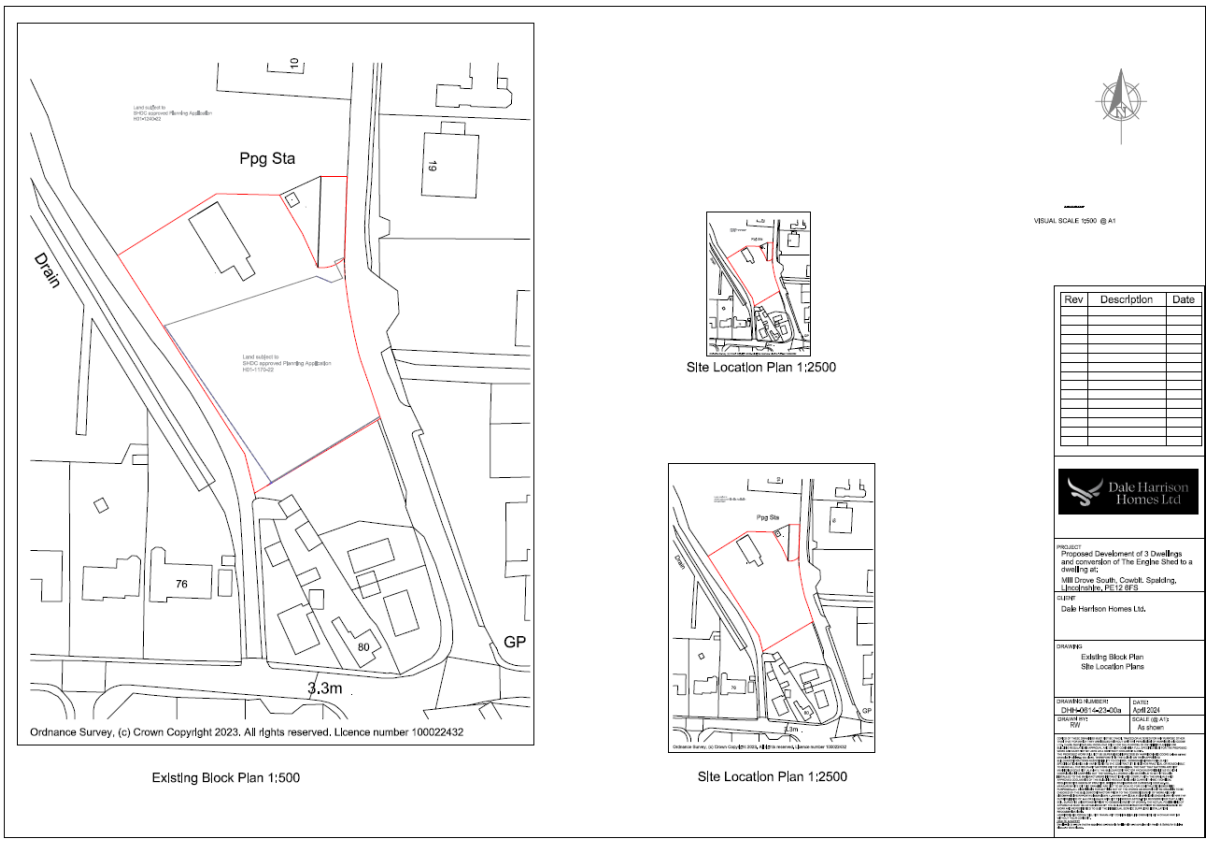

Image 1: Site (pre-development).

Unit 16 Sutherland Institute,
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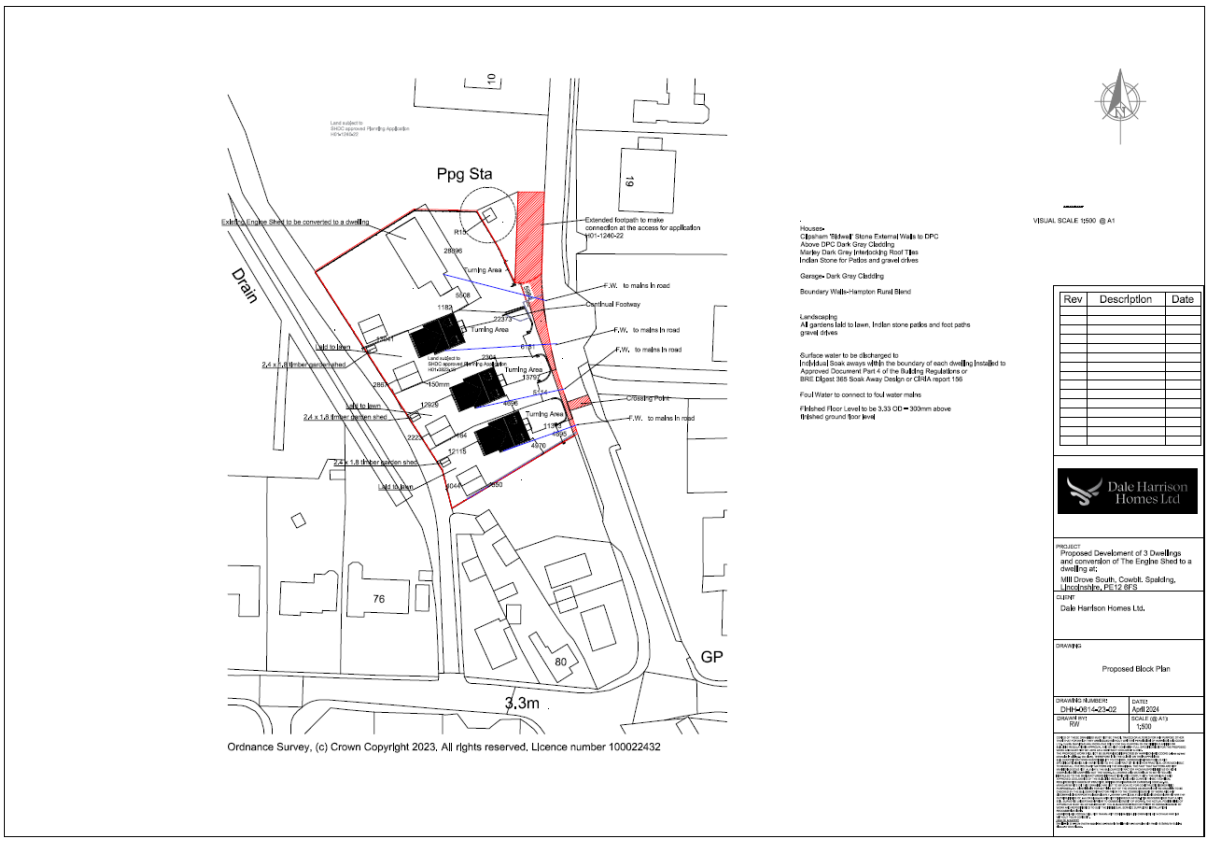

Image 2: Proposed plot design (post-development)

Baseline Habitats:

In order the generate the site baseline habitat data (e.g. habitat type, condition), the following data survey was used; a phase 1 habitat survey, where the site was systematically walked over and the dominant habitat type in each area recorded. Dominant plant species were noted, as were any that are legally protected (Schedule 8 of the Wildlife and Countryside Act 1981), invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981.

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5. Calculation of Baseline Habitats

The metric includes 3 broad categories of habitats and biodiversity units for which scores are calculated differently:

- Area habitats, such as grasslands, woodlands and ponds
- Linear hedgerows and lines of trees
- Linear rivers and ditches

6. Value of Baseline Habitats

The baseline habitats have been calculated using Biodiversity Metric 4.0 as having a baseline habitat of 0.6566. A summary of the pre-development baseline habitat is summarised in the table below:

Broad Habitat	Habitat Type	Area (m^2)	Distinctiveness	Condition	Habitat Units	Strategic Significance
Urban	Developed land; sealed surface	162.5	Very low	N/A	0.00	Low
Urban	Bare ground	1149.05	Low	Moderate	0.46	Low
Sparsely vegetated land	Ruderal/ Ephemeral	492.45	Low	Moderate	0.20	Low

7. Report

A Biodiversity Net Gain Assessment using DEFRA Matrix 4.0 was commissioned for the plot of land at Mill Drove South, Cowbit, Spalding, Lincolnshire, PE12 6FS by Richard Wenman to inform proposals to develop 3 buildings and the Old Pumping Station to be converted into a residential dwelling. This report should be read in conjunction with the previous habitat survey that has been completed for the site. Previous assessments have been used for reference for the BNG assessment of the habitat.

A further inspection was carried out by Owen Brown on 08/07/2024 to complete the BNG matrix. These surveys were undertaken to identify and to assess the impacts of

the development proposals for the site. The proposal involves the development of 3 dwellings and the Old Pumping Station to be converted into a residential dwelling. The development will result in any measurable losses to the habitats. It is concluded that development works cannot take place without the need for further surveys.

8. The Biodiversity Metric Results

For this development, which is of a relatively small scale and the site does not substantively affect any natural habitats, the Small Sites Metric Calculation Tool has been used. This Metric was considered to be appropriate for use in this case, since the site, and the development proposal are small-scale, and the site does not support any notable habitats.

Using the metric, the site has been shown to support 0.6566 Biodiversity Units. Most of this value is comprised of developed sealed surface, bare ground and sparsely vegetated land. The developed sealed surface will be retained during the development, while the bare ground and sparsely vegetated land will be replaced during the development. In order to achieve the 10% Biodiversity Net Gain, 0.06566 Biodiversity Units would be required, which would result in meaningful habitat creation.

9. Achieving a Net Gain in Local Biodiversity

The development will result in some loss to local biodiversity, but there is space within the site to create semi-natural habitats which will support the local biodiversity.

To achieve the necessary 10%+ net gain required creation of other neutral grassland from the bare ground and sparsely vegetated land. The introduction other neutral grassland would provide an excellent habitat to a variety of species of small mammals, birds, invertebrates, and amphibians. Collared Dove (*Streptopelia decaocto*), Grey Heron (*Ardea cinerea),* Lapwing (*Vanellus vanellus*), West European Hedgehog (*Erinaceus europaeus*), Brown Long-eared Bat (*Plecotus auratus*) are just few of the vulnerable species within 2km of this the area that would thrive in this habitat.

Other neutral grassland is a commonplace type of grassland that is found all over the country. Some examples include false oatgrass, rush pasture, rye grass and crested dog's-tail. Neutral grasslands have moderate levels of biodiversity, but high levels of bio abundance compared with other grassland habitats. Tall herbs such as meadowsweet would provide abundant pollen and nectar throughout the season or invertebrates.

Other neutral grasslands should be managed by rotational mowing to create a dense and varied habitat. Not all the meadow should be cut annually, as leaving some tall tussocky areas uncut over winter would provide insects with a hibernation habitat. The grassland should be mowed to create disturbance within the habitat which prevents competitive grasses from dominating other plant species and ensures patches of bare ground which creates warm basking areas for insects and reptiles.

I would recommend creating the other neutral grassland within the Northwest of the site as this would provide the necessary space to reach the targeted amount. Also, this would replace the bare ground in the area that can be used by an abundant range of species increasing biodiversity in the area.

There are also opportunities to introduce enhancements for birds, reptiles and amphibians. It is proposed that 2 bird nesting boxes and 1 bat box are installed on the new buildings. The recommended height for bird nesting box is between 2-4m, attached to a wall, fence or tree, to ensure that they're out of reach from predators. The recommended direction to place a bird box is between north and east, as this provides natural protection from direct sunlight, wind and rain.

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10. On-Site Habitat Proposals

To achieve a 10% net gain, creating 200m^2 of neutral grassland, 212.5m^2 vegetated garden and 150m^2 mixed shrub will deliver 0.7275 habitat units giving a total net gain of 0.0709 achieved from the creation of these habitats.

A summary of the proposed habitat units is show below:

Habitat Type	Area (m^2)	Distinctiveness	Condition	Habitat Units	Created/enhanced	Habitat enhanced in advance (years)
Vegetated garden	212.5	Low	N/A	0.0410	Created	1
Developed land; sealed surface	85	Very low	N/A	0.0000	Created	0
Developed land; sealed surface	12.96	Very low	N/A	0.0000	Created	0
Other neutral grassland	350	Medium	Good	0.2941	Created	10

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11. Biodiversity Net Gain Matrix DEFRA 4.0: Excel Sheets

Site Name		Old Engine Shed	
Sheet Name		Headline Results	
Headline Results			
Headline		BNG Targets Met ✓	
Trading Rules		Trading Rules Satisfied ✓	
Next steps		Check for input errors/rule breaks present in the metric ⚠	
Baseline Units	*Habitat units*	0.6566	
	Hedgerow units	Zero Units Baseline	
	Watercourse units	Zero Units Baseline	
Post-development Units	*Habitat units*	0.7275	
	Hedgerow units	0.0000	
	Watercourse units	0.0000	
Total net unit change	*Habitat units*	0.0709	✓
	Hedgerow units	0.0000	
	Watercourse units	0.0000	
Total net % change	*Habitat units*	10.81%	✓
	Hedgerow units	% target not appropriate	
	Watercourse units	% target not appropriate	

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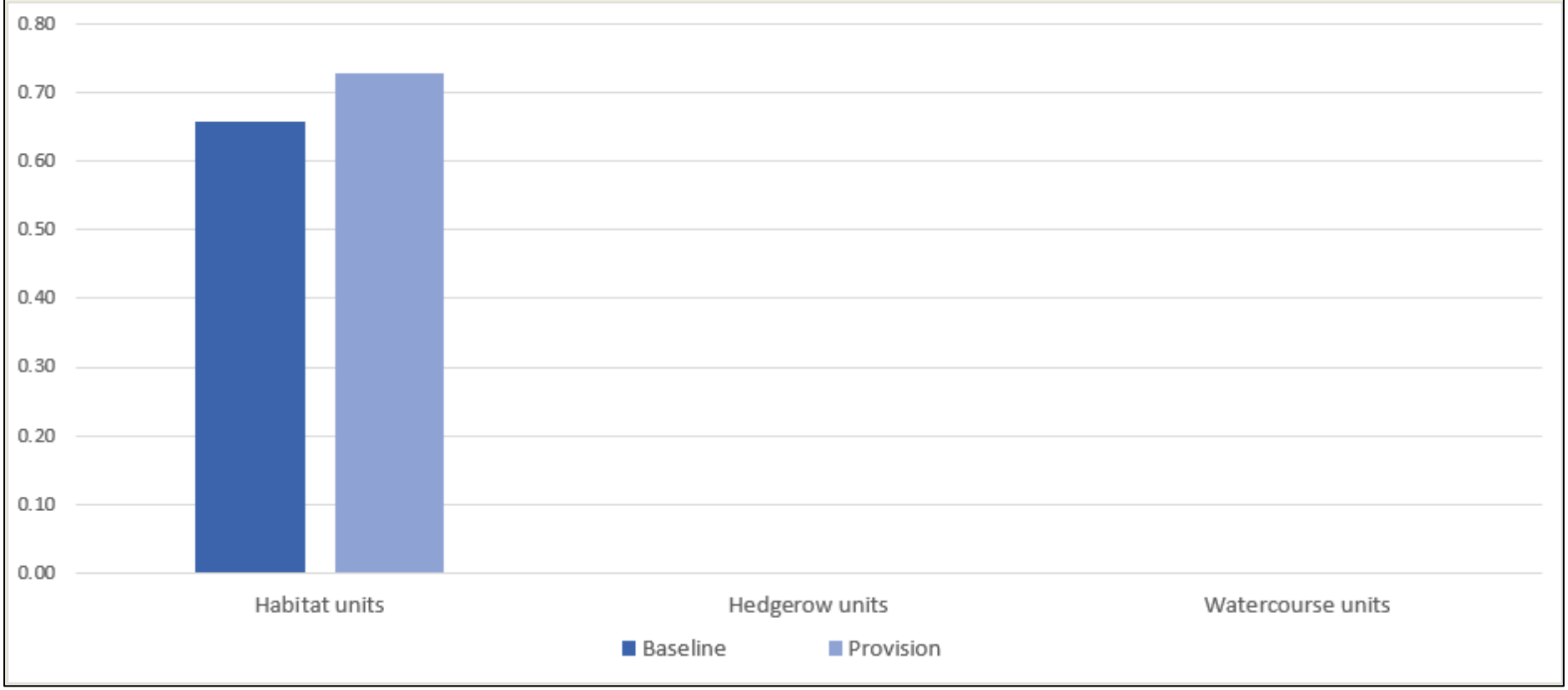
Chart 1 - Unit change by habitat group



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12. Biodiversity Net Gain Matrix: Data

1a. Baseline habitats

Ref	Habitat		C. Strategic significance	Areas (m^2)			Baseline results		
	A. Broad Habitat	B. Habitat type		D. Total Area	E. Area retained	F. Area enhanced	Total habitat units onsite	Area Lost	Units lost
1	Urban	Developed land; sealed surface	Area/compensation not in local strategy/ no local strategy	162.50	162.50		0.00	0.00	0.000
2	Urban	Bare ground	Area/compensation not in local strategy/ no local strategy	1149.05	701.09		0.46	447.96	0.179
3	Sparsely vegetated land	Ruderal/Ephemeral	Area/compensation not in local strategy/ no local strategy	492.45	279.95		0.20	212.50	0.085
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16									
17									
18									
19									
20									
Trees	Individual trees	Urban/rural tree	Formally identified in local strategy	0.00	0.00		0.0000	0.00	0.0000
			Totals (areas excl trees, green walls and intertidal hard structures)	1804.00	1143.54	0.00	0.6566	660.46	0.2642
			Error Check 1	Areas Acceptable ✓					
			Error Check 2	Areas Acceptable ✓					
			Error Check 3	Areas Acceptable ✓					

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1b. Habitats to be created

Ref	A. Broad Habitat	B. Habitat type	Condition Assessment: Acceptable condition options	Condition Assessment: C. Targeted condition	D. Strategic significance	E. Total Area (m^2)	Habitat units created onsite
1	Grassland	Other neutral grassland	Moderate, Good	Good	Area/compensation not in local strategy/ no local strategy	350.00	0.2941
2	Urban	Vegetated garden	Condition Assessment N/A	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	212.50	0.0410
3	Urban	Developed land; sealed surface	N/A - Other	N/A - Other	Area/compensation not in local strategy/ no local strategy	85.00	0.0000
4	Urban	Developed land; sealed surface	N/A - Other	N/A - Other	Area/compensation not in local strategy/ no local strategy	12.96	0.0000
5							
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12							
13							
14							
15							
16							
17							
18							
19							
20							
Trees	Individual trees	Urban/rural tree	Moderate	Moderate	Area/compensation not in local strategy/ no local strategy	0.00	0.0000
					Totals (areas excl trees, green walls and intertidal hard structures)	660.46	0.3351
					Error Check 4	Areas Acceptable ✓	

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1e . Trading Summary

Broad Habitat Type - Medium Distinctiveness Habitats	Trading Rules Satisfied ✓
Medium and Low Distinctiveness Band	Trading Rules Satisfied ✓

1f . Habitat trading assessment

Broad habitat types	Distinctiveness band	Baseline units	Onsite provision	Net change	Trading satisfied?
Cropland	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Grassland	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.2941	0.2941	N/A
Heathland and shrub	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Intertidal hard structures	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Intertidal sediment	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Lakes	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Sparsely vegetated land	Low	0.1970	0.1120	-0.0850	-
	Medium	0.0000	0.0000	0.0000	N/A
Urban	Low	0.4596	0.3214	-0.1382	-
	Medium	0.0000	0.0000	0.0000	N/A
Woodland and forest	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Coastal saltmarsh	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A
Individual trees	Low	0.0000	0.0000	0.0000	-
	Medium	0.0000	0.0000	0.0000	N/A

Distinctiveness band	Baseline units	Onsite provision	Net change	Trading satisfied?
Medium distinctiveness	0.0000	0.294	0.2941	Yes ✓
Low distinctiveness	0.6566	0.433	-0.2232	Yes ✓
Surplus area habitat biodiversity units after offsetting low distinctiveness units	0.0709			Yes ✓

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