

Science and Industry Museum,
Manchester
Biodiversity Net Gain Assessment
2024



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ECOLOGY

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Executive Summary

Development Details

The client is proposing re-development at the Science and Industry Museum, Manchester, hereafter referred to as the 'Site'.

This report describes the predicted changes in biodiversity units resulting from the proposed development. Recommendations are provided so that the development is compliant with biodiversity policy and legislation.

Assessment

The site has a negligible level of ecological interest. Baseline habitats score 0.12 units. Proposed habitats score 0.19 units. This represents a net gain of 59.36%.

Outcomes

The proposed development is predicted to achieve biodiversity net gain and exceeds the requirements of national and local planning policy.



1. Introduction

1.1 Project Brief

- 1.1.1 Rachel Hacking Ecology Limited was commissioned in 2023 by the Science Museum Group to carry out a Biodiversity Net Gain (BNG) assessment of a proposed development at the Science and Industry Museum, Manchester, hereafter referred to as the 'Site'. The Site is in Castlefield on the site of the former Liverpool Road railway station at O.S. grid reference: SJ 830978.

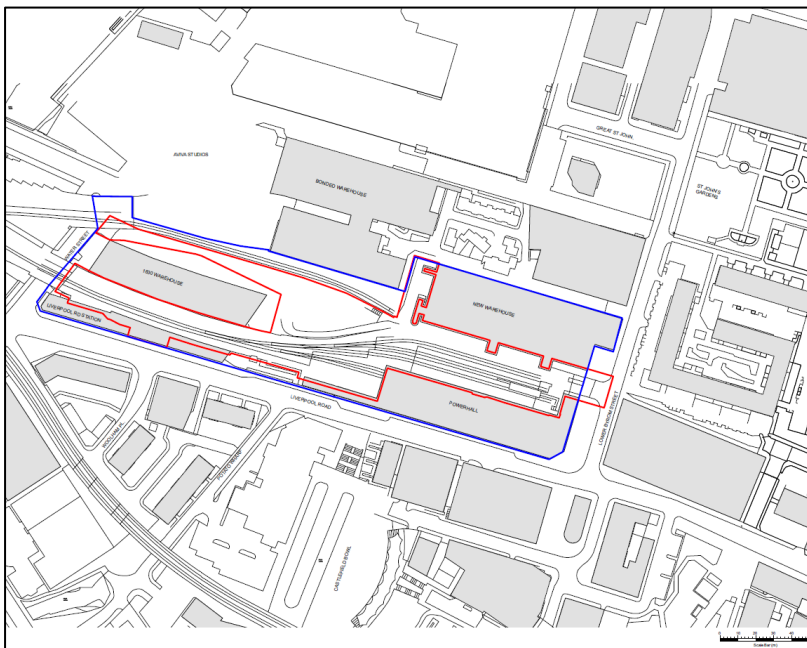


Figure 1. Map showing the planning boundary

Description of Development

- 1.1.2 Due to the Site's location within the curtilage of, and adjoining, several listed assets, six listed building consent applications will be submitted alongside one planning application for the works. The proposals are for landscaping works to the Upper Yard and Station Approach plus temporary landscaping between these two areas to allow for temporary access, removal of the vehicle ramp and associated making good works, and works to the plant room deck.

1.2 Scope of Work

- 1.2.1 The Client commissioned Rachel Hacking Ecology to calculate the baseline and predicted post-development biodiversity units.

2. Methods

2.1 Extended Phase 1 Habitat Survey

- 2.1.1 An Extended Phase 1 Habitat Survey of the Site was undertaken on 27th June 2023. The Site was walked, and habitats were recorded and mapped. The survey was undertaken by Simon Holden MCIEEM (Associate Ecologist).

2.2 Biodiversity Net Gain Assessment

- 2.2.1 The Defra statutory biodiversity metric tool was used to assess the predicted changes in habitat units resulting from the proposed development.
- The baseline habitats recorded during the Extended Phase 1 Habitat Survey were measured using QGIS software.
 - The baseline habitats were translated into UKHab classification using the translation tool in the metric.
 - Habitat conditions were assessed using the Defra Statutory Metric Habitat Condition Assessment sheets.
 - The strategic significance of baseline habitats was assessed on whether they were formally identified in a local strategy or policy, or whether they were in an ecologically desirable location.
 - The proposed habitats, including any retained or enhanced habitats, were assessed based on information provided by Plan-it (areas of proposed habitats).
 - The predicted change in biodiversity units was determined by calculating the difference between the baseline units and the post-development units.
- 2.2.2 This report should be read in conjunction with the Excel spreadsheet '*Statutory Biodiversity Metric Calculation Tool, SIM 130324*'.

3. Baseline Habitats

Urban; Developed Land-Sealed Surface

- 3.1.1 The vast majority of the Site comprises hardstanding and unvegetated railway ballast. These habitats are assessed together as they are of very low distinctiveness and low strategic significance. Condition assessment does not apply to these habitats which extend to 0.9559ha and score zero habitat units.

Sparsely Vegetated Land; Ruderal/Ephemeral

- 3.1.2 A small area of railway ballast extending to 0.024ha is sparsely vegetated with ephemeral/ruderal species including Sticky Ragwort, Herb Robert, Hare's-tail Grass, Black Medick and Bird's-foot Trefoil. This habitat is in poor condition as it fails Criteria A and B (see Table 1 below). Ruderal/ephemeral habitat scores 0.05 habitat units.

Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
Core Criteria - must be assessed for all urban habitat types :			
A	Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.	No	Vegetation comprises all ground layer plants.
B	The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.	No	Limited species composition is unlikely to provide an extended flowering period.
C	Invasive non-native plant species (listed on Schedule 9 of WCA ¹) and others which are to the detriment of native wildlife (using professional judgement) ² cover less than 5% of the total vegetated area ³ . Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	Yes	No INNS recorded.
Number of criteria passed			
Condition Assessment Result		Condition Assessment Score	Score Achieved x/✓
Results for habitats requiring assessment of 3 core criteria only (all listed urban habitats except Open mosaic habitat on previously developed land, Bioswale, SuDS and Green roofs) :			
• Passes all 3 core criteria; - AND • Meets the requirements for Good condition within criterion C.		Good (3)	
• Passes 2 of 3 core criteria; - OR • Passes 3 of 3 core criteria but does not meet the requirements for Good condition within criterion C.		Moderate (2)	
• Passes 0 or 1 of 3 core criteria.		Poor (1)	Yes

Table 1. Condition assessment for ephemeral/ruderal habitat



Ground Level Planters

- 3.1.3 Several planters are present containing ornamental species. This habitat is of low distinctiveness and low strategic significance. Condition assessment is not applicable. The planters extend to 0.00281ha and score 0.01 habitat units.

Individual Trees

- 3.1.4 Four small Birch and Cherry trees are present within planters. This habitat is of medium distinctiveness and low strategic significance. They are in poor condition as they fail four of the six criteria (see Table 2 below). The trees have an equivalent area of 0.0163ha and score 0.07 habitat units.

Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	The tree is a native species (or at least 70% within the block are native species).	No	Ornamental Betula and Prunus species.
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Yes	
C	The tree is mature (or more than 50% within the block are mature) ¹ .	No	Small specimens.
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	No	Trees are in planters, which will limit their growth.
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	No	
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Yes	In planters with other ornamental vegetation.
Number of criteria passed		2	
Condition Assessment Result (out of 6 criteria)		Condition Assessment Score	Score Achieved x/√
Passes 5 or 6 criteria		Good (3)	
Passes 3 or 4 criteria		Moderate (2)	
Passes 2 or fewer criteria		Poor (1)	x
Note that 'Fairly Good and Fairly Poor' condition categories are not available for this broad habitat type.			

Table 2. Condition assessment for individual trees

4. Proposed Habitats

4.1 Retained Habitats

- 4.1.1 The ornamental planters and individual trees will be retained, with a combined score of 0.08 habitat units.

4.2 Proposed Habitats

Ground Level Planters

- 4.2.1 Ornamental planters and wildflower trays will be created, extending to 0.026ha and scoring 0.05 habitat units.

Individual Trees

- 4.2.2 Six small ornamental trees will be planted in containers, extending to 0.0244ha and scoring 0.07 habitat units.

Developed Land; Sealed Surface

- 4.2.3 The remainder of the Site (1.034ha) will comprise buildings, hardstanding and unvegetated ballast. These habitats score zero habitat units.

5. Assessment

- 5.1.1 Baseline habitats score 0.12 habitat units. Retained and proposed habitats score 0.19 habitat units.
This is a net gain of 0.07 habitat units (+59.36%).



6. Conclusion

- 6.1.1 The proposed development is predicted to achieve a net gain in habitat units that exceeds current requirements of national and local planning policy.



Appendix 1: Headline Results

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	0.07
	<i>Hedgerow units</i>	0.00
	<i>Watercourse units</i>	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	59.36%
	<i>Hedgerow units</i>	0.00%
	<i>Watercourse units</i>	0.00%
Trading rules satisfied?	Yes ✓	

