

Ellen Wilkinson Courtyard
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**Biodiversity Net Gain/Net loss
Report**

November 2023

FINAL

Produced by
*Ecology and Land
Management*
**For Plincke
Landscape Ltd.
on behalf of
University of
Manchester**



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Site Name: Ellen Wilkinson Courtyard, University of Manchester

Grid Reference: SJ 84653 96289

County: Greater Manchester

Planning Authority: Manchester City Council

Natural Character Area: Manchester Conurbation

Client: Plincke Landscape Ltd. for University of Manchester

Proposed Disturbance: Proposed re development of courtyard

Report Request: Biodiversity Net Gain

Ecologist: Henriette Westergaard, MSc, BSc (Hons), MCIEEM, CMLI, CEnv

For and on behalf of Ecology & Land Management

Assessment Period: November 2023

Limitations: Protected species surveys are not part of this assessment.

Information within this report is based on information from the Baseline Habitat Assessment and measurements provided by the landscape architect as shown on their landscape plan.

1.0 Introduction

- 1.1 The Biodiversity net gain assessment has been produced in response to the proposed site for re-development of Ellen Wilkinson Courtyard. Ecology & Land Management were commissioned by Plincke Landscape Ltd on behalf of University of Manchester to carry out the assessment.

2.0 Methodology

Good Practice Principles

- 2.1 Biodiversity net gain has been defined as ‘development that leaves biodiversity in a better state than before, and an approach where developers work with local governments, wildlife groups, landowners and other stakeholders in order to support their priorities for nature conservation’ (Baker, 2016).

Good practice principles for development include:

- 2.2 Apply the ‘Mitigation Hierarchy’ (in line with CIEEM Guidelines for Ecological Impact Assessment (EcIA)) (CIEEM, 2018) and be ‘additional’ by achieving outcomes that exceed existing obligations.
- Avoid losing biodiversity which cannot be off-set elsewhere (e.g. irreplaceable habitats).
 - Address risk (e.g. difficulty of achieving habitat creation / enhancement for net gain).
 - Make a ‘measurable’ net gain contribution (e.g. calculated using an appropriate metric) and ensure that calculations consistent and transparent (i.e. limitations and assumptions are clearly identified).
 - Ensure that net gain design achieves the best outcome for biodiversity (this may require both quantitative and qualitative assessment) and create a net gain legacy for long-term benefits.

Desk Study and Preliminary Ecological Appraisal

- 2.3 A Baseline Habitat Survey was undertaken in July 2023. The assessment was carried out by Katy Perry (PEA Arbtech, 2023).
- 2.4 The assessment has measured whether the proposed development will make a contribution to or have an impact on the wider ecosystem service of the site. The assessment is based on data gathered from the baseline habitat survey. A habitat survey plan produced by Arbtech can be found in the Preliminary Ecological Appraisal (PEA, arbtech, 2023). The ecological assessment has created a biodiversity unit baseline to enable assessment of how distinctiveness of habitats retained or lost are replaced or restored by equally distinctive new habitats.

Condition Assessment

- 2.5 Habitat condition was assigned following guidance from the ‘Technical Supplement’ document (Natural England, 2021) which accompanies the Biodiversity Metric 4.0 Assessment criteria as well as the UK Habitat Classification User Manual (v.1.0 2018).

Calculation of Biodiversity Units

- 2.6 Calculation of biodiversity units has been undertaken using the Defra 4.0 Biodiversity Beta Metric Calculator to calculate the biodiversity unit values of area habitats and linear features for the site before and after development. This helps determine the overall habitat biodiversity net loss or gain of the wider site. This allowed calculation of the change in biodiversity units and the overall percentage of gain/loss achieved. Metric calculations have been undertaken by Principal Ecologist, Henriette Westergaard, Msc,

MCIEEM, CMLI, CEnv. Pre-development baseline habitat areas were calculated using measurements taken from measuring the baseline habitats illustrated on the Indicative Habitat Survey Plan (Arbtech, July 2023). Post-development habitats were calculated based on the Soft Works Strategy Plan (0658-PLI-00-ZZ-DR-L-03100, shown in Appendix I. Habitat condition for created habitats was assigned taking a precautionary approach and with consideration of biotic and operational phase conditions (i.e. those which may limit the extent to which 'good' condition is likely to be reached).

Strategic Significance

- 2.7 The criteria within the Biodiversity Metric 4.0 was assessed by determining if habitat areas within the site occur within any strategic locations for biodiversity, form part of a designated site for nature conservation or are identified within local plans such as Ecological Networks (MAGIC).

Assumptions & Limitations

- 2.8 The baseline habitat areas have been calculated by cross referencing the Habitat Survey Plan (Appendix I) with aerial imagery. Post-development habitat areas have been provided by the landscape architect. All existing trees within the site will be retained.

3.0 Baseline Habitat Assessment

- 3.1 The biodiversity units for each habitat have been calculated and summaries are shown in Table 7. The site is estimated to be 0.1731ha (1731m²) in extent. The site is not designated for its Importance for Nature Conservation. There are no known statutory or non-statutory designated sites within 2km. Traditional orchard, a UK priority habitat' (Natural England) is located ca. 350m south of the site (see Appendix II).
- 3.2 Habitats within the site boundary include 11 mature trees both native and non-native, modified grassland and introduced shrubs. The mature six are category 'C' and four are category 'B' all in 'good' condition (Arboricultural Survey, Arbtech, June 2023). Species observed at shown in Table 1.

Table 1 – Species Observed

Scientific Name	Common Name
<i>Acer campestre</i>	Field maple
<i>Betula utilis</i>	Himalayan birch
<i>Euonymus europaeus</i>	Spindle
<i>Ginkgo biloba</i>	Maidenhair tree
<i>Liquidamber styraciflua</i>	Sweetgum
<i>Prunus avium</i>	Wild Cherry
<i>Prunus spp.</i>	Cherry

4.0 Biodiversity Impact Calculations

Existing Habitats and linear features

- 4.1 The following tables show existing and proposed habitats and linear features and their individual biodiversity unit scores. The tree canopies have been calculated using the values given in the Arboricultural Survey (Arbtech, 2023). Habitat extensiveness of all other groups were measured using Google Earth.

Table 2 - UKHab Definitions

Description	UKHab
Urban Individual trees	w1g6
Urban – Modified grassland	g4
Urban – Introduced shrub	u1
Developed/sealed surface	u1b5/6

- 4.2 A summary of existing biodiversity units is presented in tables 3 and 4 below.

Table 3 – Summary of Existing Habitat Biodiversity Units

All habitats within boundary	Area (ha) Existing	Area (ha) Retained	Biodiversity Units Current	Biodiversity Units Lost
Individual trees	0.02204	0.02204	0.19	0
Grassland modified	0.0582	0	0.13	0.13
Introduced shrub	0.0592	0	0.13	0.13
Developed/sealed surface	0.0557	0	0	0
Total	0. 1731*		0.45	0.26

*excluding individual trees

Table 4 – Summary of Existing Linear Features Biodiversity Units

Linear Feature	Length (km) Existing	Length (km) Lost	Biodiversity Units Current	Biodiversity Units Lost
N/A	-	-	-	-
Total	-	-	-	-

Compensation - Habitats

- 4.3 The proposed soft landscape includes retention of 220.4m² of individual trees and creation of a variety soft landscaping, which is described below.

Individual trees

- 4.4 A total of 8 medium size trees would be planted within the courtyard site. Trees include *Betula utilis* 'Jacquemontii' Multi Stem x 2, *Cornus kousa* var. *chinensis* Multi Stem x 4 and *Prunus maackii* 'Amber Beauty' x 2. The predicted mature canopy has been calculated using landscape predicted circumferences and RPAs calculated from those values. The predicted condition is 'poor, due to trees being non-native species. Trees would create green dispersal corridors through the proposed site.

Urban – Introduced Shrub

- 4.5 A total of 601m² of ornamental planting is proposed as part of the green infrastructure of the proposed site. Planting would be based on three types of herbaceous plants including plants suitable for pollinators.

Urban - Modified Grassland

- 4.6 A total of 100m² of amenity grassland based on amenity A6 Supreme shade is proposed. This habitat type is of low distinctiveness but provides some biodiversity units.

Grassland – Other Neutral

- 4.7 An area of 151m² of wildflower turf would be created. The grassland habitat would be based on Wildflower Turf WFT, species-rich 26 mix. Details of species mix is not currently available. In order to achieve 'good' condition this type of grassland should be managed as traditional meadow with a summer hay cut in combination with autumn and possibly spring mowing.

Ornamental Pond

- 4.8 A small ornamental pond will be created measuring ca. 16m². A mix of native marginal plants would be planted around the edge. Plants proposed are as follows: *Alisma plantago-aquatica*, *Aponogeton distachyos*, *Cardamine pratensis*, *Carex acutiformis*, *Ceratophyllum demersum*, *Houttuynia cordata*, *Iris ensata* 'Variegata', *Isolepis cernua*, *Ligularia* 'Gregynog Gold', *Lythrum salicaria*, *Matteuccia struthiopteris*, *Mentha aquatica*, *Nymphaea alba*, *Pontederia cordata lancifolia*, *Primula japonica* 'Miller's Crimson', *Ranunculus aquatilis*, *Rodgersia pinnata* 'Superba', *Rodgersia pinnata* 'Superba' and *Typha minima*.

Urban – Developed Land, Sealed Surface

- 4.9 There will be hard surfaces as part of pathways around the courtyard. This type of habitat does not provide any biodiversity unit on the metric. A total of approximately 557m² is proposed.

Table 5 – Summary of Compensation Habitat Biodiversity Units

Compensation Habitat	Area/ha	Distinctiveness Score	Target Condition Score	On-site Habitat Compensation
Individual trees - native	0.0160	Medium	Moderate	0.05
Grassland Modified	0.0100	Low	Poor	0.02
Grassland Other neutral	0.0151	V.High	Good	0.11
Introduced Shrub	0.0601	Low	Poor	0.13
Ornamental pond	0.0016	Low	Poor	
Urban -Developed sealed surface	0.5557	v. low	n/a	0
Total	0.1731*		Total	0.31

*excluding trees,

Compensation – Linear Features

- 4.10 228.9m of ornamental is proposed within the site. This includes a mixture of ornamental shrubs including *Lonicera ligustrina* var. *yunnanensis* and *Berberis verruculosa*.

Table 6 – Summary of Compensation Linear Biodiversity Units

Compensation Linear - Hedgerow	Km	Distinctiveness Score	Target Condition Score	Biodiversity Units
Non-native ornamental	0.037	v.low	Poor	0.04
Total	0.037		Total	0.04

5.0 Conclusion

- 5.1 Biodiversity off setting has been used to inform the habitat retention, restoration, creation and enhancement proposals for the proposed site. The results show that the proposals will lead to an overall delivery of net gain in linear biodiversity units and habitat biodiversity units.
- 5.2 The development is valued at 0.45 units for habitats and 0 units for linear features. The retention of individuals trees and creation of a range of soft landscape including trees, ornamental shrub, modified grassland, wildflower grassland as well as planting of plants for pollinators will mitigate the loss of habitat biodiversity units. In summary the resulting change biodiversity units are 12.04% (0.05 units) for habitats and 100% (0.04 units) for hedgerows.
- 5.3 This means that the trading rules for habitats have been satisfied. This also means that the proposals meet the national planning policy (Ministry of Housing, Communities & Local Government, 2021) and the environment Bill 2021. See Table 7 for summary. Overall, if all the landscape proposals are followed as prescribed the current proposed development will make a net gain in terms of habitat biodiversity units and a net gain in terms of hedgerow biodiversity units. Results from the biodiversity calculator have been included in Tables 7, 8, 9 and 10.

Table 7 – Headline Results

Ellen Wilkinson Courtyard

Headline Results

Scroll down for final results

Return to results menu

On-site baseline	Habitat units	0.45	
	Hedgerow units	0.00	
	Watercourse units	0.00	
On-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.51	
	Hedgerow units	0.04	
	Watercourse units	0.00	
On-site net change (units & percentage)	Habitat units	0.05	12.04%
	Hedgerow units	0.04	0.00%
	Watercourse units	0.00	0.00%

On-site net gain is less than target set

Off-site baseline	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change (units & percentage)	Habitat units	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%

Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.05	
	Hedgerow units	0.04	
	Watercourse units	0.00	
Spatial risk multiplier (SRM) deductions	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	

FINAL RESULTS

Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.05	
	Hedgerow units	0.04	
	Watercourse units	0.00	
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	12.04%	
	Hedgerow units	100.00%	
	Watercourse units	0.00%	

Trading rules satisfied?	Yes ✓
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Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
Habitat units	10.00%	0.45	0.50	0.00	Unit requirement met or surpassed ✓
Hedgerow units	10.00%	0.00	0.00	0.00	Unit requirement met or surpassed ✓
Watercourse units	10.00%	0.00	0.00	0.00	Unit requirement met or surpassed ✓

Table 8 – Biodiversity Metric Calculator – On-site Habitat Baseline Scores

Project Name: Ellen Wilkinson Courtyard Map Reference:				
A-1 On-Site Habitat Baseline				
Condense / Show Columns		Condense / Show Rows		
Main Menu		Instructions		

Area habitat summary									
Total Net Unit Change					0.05				
Total Net % Change					17.04%				
Trading Rules Satisfied					Yes /				

Ref	Broad Habitat	Habitat Type	Area (hectares)	Distinctiveness		Condition		Strategic significance			Required Action to Meet Trading Rules	Ecological baseline
				Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic Significance multiplier		
1	Urban	Introduced shrub	0.0592	Low	2	Condition Assessment N/A	1	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Same distinctiveness or better habitat required ≥	0.13
2	Grassland	Modified grassland	0.0582	Low	2	Poor	1	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Same distinctiveness or better habitat required ≥	0.13
3	Individual trees	Urban tree	0.02204	Medium	4	Moderate	2	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Same broad habitat or a higher distinctiveness habitat required (3)	0.19
4	Urban	Developed land; sealed surface	0.0557	V.Low	0	N/A - Other	0	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Compensation Not Required	0.00
5												
6												
7												
8												
9												
Total habitat area			0.20									
Site Area (Excluding area of Individual trees and Green walls)			0.17									

Retention category biodiversity value							Repeke compensation agreed for unacceptable loss
Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area habitat lost	Units lost		
0	0	0.00	0.00	0.06	0.13	Yes	
0	0	0.00	0.00	0.06	0.13	Yes	
0.02204	0	0.19	0.00	0.00	0.00	Yes	
0	0	0.00	0.00	0.06	0.00	Yes	
0.02	0.00	0.19	0.00	0.17	0.26		

Total area lost (excluding area of Individual trees and Green walls)				0.17
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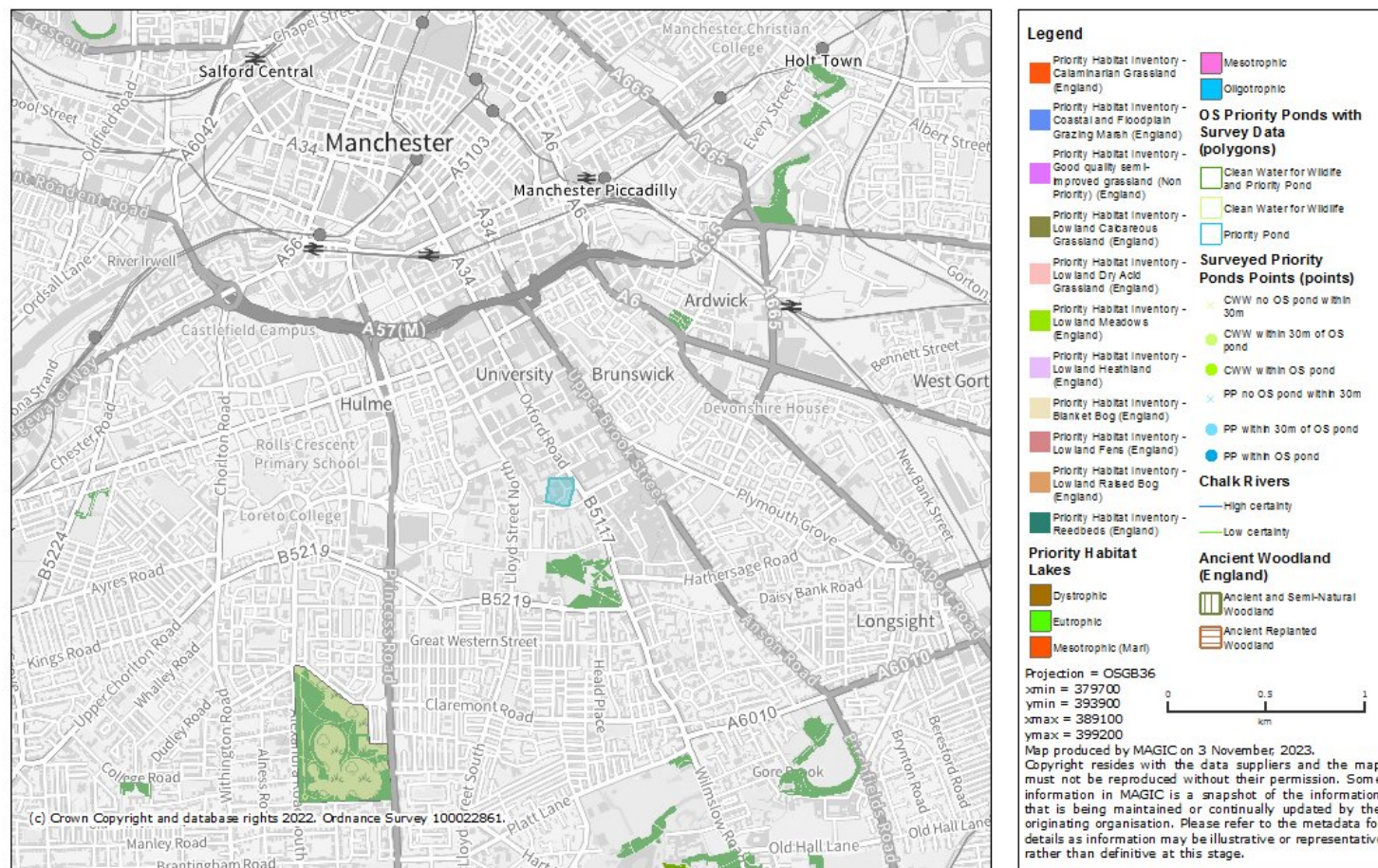
Table 10 – Biodiversity Metric Calculator – On-site Hedge Creation Scores

Project Name: Ellen Wilkinson Courtyard Map Reference:				Hedge row summary																	
B-2 On-Site Hedge Creation				Total Net Unit Change		0.04															
				Total Net % Change		100.00%															
				Trading Rules Satisfied		Yes ✓															
Condense / Show Columns				Condense / Show Rows																	
Main Menu				Instructions																	
Proposed habitats				Distinctiveness		Condition		Strategic significance			Temporal multiplier						Difficulty risk multipliers				Hedge units delivered
Baseline ref	New hedge number	Habitat type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard Time to target condition (years)	Habitat created in advance (years)	Delay in starting habitat creation (years)	Standard or adjusted time to target condition	Final time to target condition (years)	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied	
1	1	Non-native and ornamental hedgerow	0.037	V.Low	1	Poor	1	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	0.04
2																					
3																					
4																					
5																					
6																					
			0.04																		0.04

Appendix I – Priority Habitats

MAGiC

Priority habitats



Source: Magic.gov.uk (Natural England)

Appendix II – Proposed Soft Works Strategy



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