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Intended Outcome

The main aim of the Biodiversity Student Placement was to identify the types, size and abundance of habitats across the estate before establishing a biodiversity baseline. The baseline will enable monitoring of changes over time. The survey was also used to highlight particular habitats and/or species that would benefit from specific management plans.

Placement Aims

1. To review previous ecology surveys undertaken. (Appendix 2)
2. To identify the size and types of habitat across the estate. (Tables)
3. To investigate and establish a biodiversity benchmark. (Results)
4. To review/redraft the universities biodiversity policy and management plan. (Separate document)
5. To give a presentation of survey and plan to estates.

Methodology

(Desk study gain an primary understanding of the estates ecological features and size)

An initial desk study of the university grounds was undertaken, this included research of universities biodiversity and wildlife documentation, examining maps and aerial images of the estate, using web-based tools for mapping, and reviews of previous university ecological surveys to gain abroad overview of the site.

Digimap by EDINA is a valuable online resource for maps and geospatial data. With tool Ordnance survey maps of the required area were generated (appendix 1) at a scale of 1:2500. Using the tool maps can be annotated and measured. Print outs of these maps enabled them to amended and annotated on paper whilst out on site then via a PC transferred on to the digital version within the Digimap web tool.

A walk over of the site was completed, noting any changes in relation to land, building and vegetation cover when compared to the maps and images derived from the desk study. Parcels of land were initially given alpha numeric I.D. codes that related to a previous map of the estate. This was later changed to a simpler numbering system, which could be altered to suit the Landscape Management method of labelling if established.

The Biodiversity Index is an online survey and calculation tool developed by Northampton University. It was the suggested method for surveying habitat types and obtaining an opening biodiversity benchmark figure. The tool includes:

- An instructed biodiversity habitat survey
- An online calculation tool
- A Biodiversity Index Report
- A Biodiversity Index Score

The method involves

1. Looking at the predominant habitat features of an area or plot on the site, the area can be identified from a choice of twenty-one habitat types (see appendix *put ref here*).
2. Once an areas habitat type is established estimations are made (in bands of 20%) on the vegetation structure. See table 1* for the six options of vegetation structures.
3. Next the number of leaf shapes present in each individual habitat area was recorded.
   - ❖ At this point the number of leaf shapes present per vegetation structure in each habitat was also recorded.
4. Measuring the size of each habitat using Bing Maps (www.bing.com/maps).
   - ❖ We used an alternative measuring method as this was found to currently represent the site better. Ordinance Survey maps were used to plot and measure the sites identified in the habitat survey. *This can be backed by GPS coordinates as a measure of accuracy and to aid with plotting of data into GIS software.
5. The data collected in the previous steps are then fed into the online Biodiversity Index calculator.
6. A biodiversity report and score for the sites are then generated (see appendix 2*)

The Biodiversity Index Survey forms and Instructions can be found here: www.biodiversityindex.org

Results

The site surveyed totalled 16.19ha (see maps in Appendix 1) of that 40447.6m² was under construction, and 24165m² comprising Thirty-seven plots, was the total area of habitat surveyed. These plots range in size from 6 m² up to 4618 m².

The Biodiversity Index score for the site is 186. The numerical value indicates the diversity of habitats, by measuring the frequency and variety of species. Steps 2 and 3 in the Biodiversity Index method section enables the calculations based on variability of vegetation and provides the Biodiversity Ide Score.

The biodiversity surveyed identified thirty-seven parcels of land (or small habitats) and six broad habitat types across the university estate, as demonstrated in table 1. Of the thirty-seven plots Short Grass was the most numerous habitat identified with eleven plots, Rows of Trees had the lowest with one. The remaining broad habitats were; Hedges & Shrubbery and Planted Flower Borders both had eight plots; Groups of Trees five plots; and Varied Habitat had four plots.

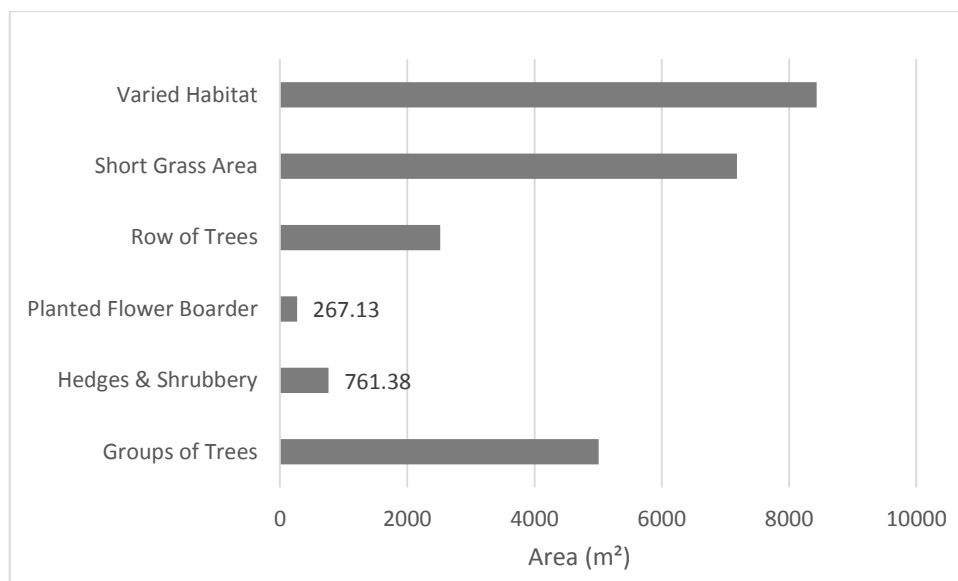The chart (1) below illustrates the overall size of grouped broad habitat types.

Figure 1 total Area of broad habitat types

Although set in an urban city environment the University of Salford Estate is enveloped within areas of green vegetation. The main campus is settled beside Peel Park and sits at the south west end of the SBI River Irwell. Reference GMEU survey in Ecology Report. Attach GMEU map in appendix

The site is comprised of university buildings, hard landscaping, amenity grassland, long grass, ornamental planting, hedges & shrubs, grouped trees, woodland, mixed fruit orchards and, a recently installed living green roof.

As the green roof has only recently been laid it has not been measured within the survey. However the projected calculations for the green roof are an area of 1470 m² with the average number of species at 68 (URS, Aug 2013).

Management

The Gifford Extended Phase 1 Ecological Appraisal was reviewed as part of this report. The management plan within the appraisal will lend well to the whole site. It covers management for animal species and habitats relevant to the site.

Include species and habitat management text here, it will include management techniques and guidelines.

Habitats - Mature Trees

Shrubs

Newly Planted Trees

Amenity Grassland and wildflower

Animal Species – Birds

Bats

Insects

(Small mammals are mentioned within)

Suggestions for Biodiversity interpretation on campus

Interpretation of the universities objectives will promote an awareness and interest of biodiversity and the role we can play in preserving such relied upon assets.

Some landscape feature signage has worn, it would be favourable if replaced with frames that allow information to be changed and kept update.

Further suggestions are;

- Dedicated areas designed to entice visitors and promote interactions. A butterfly garden for instance may be relatively easy to achieve, the mixed habitat adjacent to University House shows potential for this.
- Educational and social benefits a greater understanding of the local wildlife can be gained.
- Work with or sponsor a wildlife charity and include an onsite feature demonstrating this.
- Host or support practical activities such as competitions on and off site, and open to staff, students and the local community. Promote the leisure and social values of a healthy environment.
- Social Web content – allow people to sign up and get a badge, the badge could pledge the wearer is actively aware of biodiversity or to that effect.

Put forward suggestions of annual events for staff, students and the local community.
- Create a fun and easy wildlife survey to hand out on campus (paper/tweet/email). It will create awareness and inclusion of staff and students whilst also building a database of sightings, records can be added to an interactive maps as previously done with google maps https://maps.google.co.uk/maps/ms?ie=UTF8&vps=1&jsv=308a&oe=UTF8&msa=0&msid=211010489889578005375.000499d18f381d90931cb&dg=feature.

- The university could offer help, possibly in the form of wildlife student volunteers, to collaborate and involve local schools, business or organisations with conservation and biodiversity on their own site.
- Hold a fun day to raise awareness and relevance of biodiversity. E.g. A fun run around the campus or hold an auction of native or species of importance flora to local businesses or community.
- Competition photos, drawings, words, ask for interpretations of biodiversity or habitats, or something depicting our habitats in use.

Contribute to a landscape management plan

Suggestions will be put forward with relation to protection and enhancement of existing features on the site. It has been agreed that where appropriate site specific managements plans can then be developed with the Landscape Management Team as required.

Liaise with Landscape Management team to

- Clarify current or future landscape plans for the site, e.g. changes in vegetation structure.
- Confirm current mow regimes, Punning schedules, and other relevant practices.
- Establish the locations of all wildlife installations or enhancements.

Biodiversity protection and enhancement will be integrated into the universities landscape management plan. There are standards, legislation and policy frameworks in relation to biodiversity and geodiversity in the UK. Due to the expanse of the universities estate it may prove beneficial to have apportioned persons to support and monitor biodiversity and wildlife matters, and be a central point of contact across the universities customer base.

Further Information.

Below is a section from, 1995 Unitary Development Plan Landscape Policy for Salford City council available from www.salford.gov.uk. It has been included as a guide to refer to when considering a change in land use or habitat.

EN10 - The city council will seek to protect and enhance landscape quality within the city through:

i. *The protection and wherever possible the enhancement of features of the landscape which are of intrinsic value or which make a contribution to the quality of the landscape in which they are found*

ii. *The improvement of existing landscape in terms of quality, diversity and maintenance; and*

iii. *The provision of improved standards of landscaping within all new developments.*

Landscape features to be considered for protection in accordance with criterion (i) of the policy will include, trees (single or grouped), woodlands, hedges, ponds, streams, ditches and lakes.

In considering the impact of a proposal on a landscape feature particular attention will be paid to:

a. *The value of the landscape feature per se*
b. *The value of landscape feature within its wider setting*
c. *The value of the landscape feature for wildlife*
d. *The contribution that the landscape feature makes towards the viability of a wildlife corridor*
e. *The contribution that the landscape feature makes towards the local amenity of the area in which it is found.*

In pursuing the policy the city council will, in particular, encourage the provision and protection of landscaping which is conducive to wildlife.

Tables

Table 1 HABITAT TYPE AND SIZE ACROSS THE ESTATE

Habitat type	Groups of Trees	Hedges & shrubbery	Short Grass	Varied Habitat	Planted Flower Boarder	Row of Trees	Total
Number of habitats	5	8	11	4	8	1	37
Total Area of habitat across the estate (m²)	6673.43	761.38	7178.94	8431.95	267.13	852.11	24164.94

Table 2 AREA OF EACH PARCEL SURVEYED AND NUMBER OF LEAF SHAPES RECORDED

Parcel Number	Habitat Area Size (m²)	(N) Num. of Leaf Shapes	Parcel Number	Habitat Area Size (m²)	(N) Num. of Leaf Shapes
1	103.93	8	**20**	100.94	41
2	1223.17	38	**21**	25	16
3	1235.96	43	**22**	63.6	5
4	1920.9	46	**23**	755.88	49
5	896.24	35	**24**	90.12	18
6	852.11	31	**25**	53.92	24
7	7	5	**26**	534.18	16
8	162.39	13	**27**	538.94	33
9	2162.17	32	**28**	1303.1	52
10	476.33	23	**29**	31.76	23
11	136.83	10	**30**	669.73	62
12	1074.77	14	**31**	93.91	38
13	2729.92	29	**32**	115.11	4
14	25.27	14	**33**	51.11	13
15	46.84	11	**34**	74.6	11
16	17.52	12	**35**	1663.82	18
17	70.21	29	**36**	179.87	13
18	5.92	2	**37**	4618.15	39
19	53.72	7			

Tables Continued

Table 3 Vegetation types within habitats

N.B.I. Habitat Type	Habitat Area ID (survey Form)	Parcel Number	High Trees	Low Trees	Bushes	Tall Grasses & Herbs	Short Grasses & Herbs	Other Ground Flora
Group of Trees	C-S2/05	22	5	0	0	0	0	0
Groups of Trees	N-E1/37	25	1	0	0	0	0	23
Groups of Trees	B-G1/04	9	7	0	1	12	12	0
Groups of Trees	B-G1/13	13	4	0	10	0	15	0
Hedges & Shrubbery	N-D1/86	24	0	0	14	0	0	4
Hedges & Shrubbery	U-D1/73	33	0	0	5	0	0	8
Hedges & Shrubbery	N-G1/23f	31	0	0	8	0	15	15
Hedges and Shrubbery	U-D1/74	34	0	0	1	0	0	10
Hedges and Shrubbery	C-D1/01b	17	1	0	12	0	0	16
Hedges and Shrubbery	U-D1/41	32	1	0	3	0	0	0
Hedges and Shrubbery	A-D1/09	1	0	1	7	0	0	0
Hedges and Shrubbery	B-D1/23	8	2	0	11	0	0	0
Planted Flower Boarder	B-D1/18	7	0	0	1	0	0	4
Planted Flower Boarder	C-G1/02b	21	0	0	10	0	0	6
Planted Flower Boarder	N-G1/23c	29	0	1	1	0	10	11
Planted Flower Boarder	C-D1/01	16	0	0	0	0	0	12
Planted Flower Boarder	C-G1/02a	20	2	0	14	0	11	14

Planted Flower Boarder	B-G1/17a	14	0	0	0	0	0	14
Planted Flower Boarder	C-D1/02	18	0	0	2	0	0	0
Planted Flower Boarder	C-D1/03	19	0	0	7	0	0	0
Row of Trees	U-D3/01	35	5	0	0	0	7	6
Row of Trees	A-G1/04c	6	1	1	8	0	12	9
Short Grass Area	A-G1/01f	3	0	0	17	0	20	6
Short Grass Area	A-G1/04a	5	2	1	7	0	16	9
Short Grass Area	G1/19a	23	4	0	17	0	17	11
Short Grass Area	N-G1/22c	27	2	5	0	0	11	15
Short Grass Area	N-G1/23a	28	1	2	16	0	17	16
Short Grass Area	B-G1/12	12	1	0	4	0	9	0
Short Grass Area	N-G1/22a	26	0	5	1	0	10	0
Short Grass Area	B-G1/08	11	0	0	0	0	10	0
Short Grass Area	B-G1/17b	15	0	0	0	0	11	0
Short Grass Area	U-G1/05	36	2	0	0	0	11	0
Short Grass Area	B-G1/06	10	1	0	4	0	18	0
Varied Habitat	U-G1/25	37	4	2	5	5	14	9
Varied Habitat	A-G1/01a	2	5	0	10	0	13	10
Varied Habitat	N-g1/23d	30	1	3	10	4	14	30

Varied Habitat	A-G1/02	4	4	2	24	0	16	0

Name of Site	Area (m²)
Peel - Wallness	132130
Maxwell	10490.48
Adelphi	12620.85
Crescent	6661.38
Arts and Media	8688.6
New Residencies	31759

Table 4: **Species Lists**

This is not an inventory of species.	

Appendix 1

Figures

Maps 1-6 cover the university campus. Maps 7 and 8 were contained within the University of Salford AMSS Building - Education BREEM ecology Report (URS 2013).
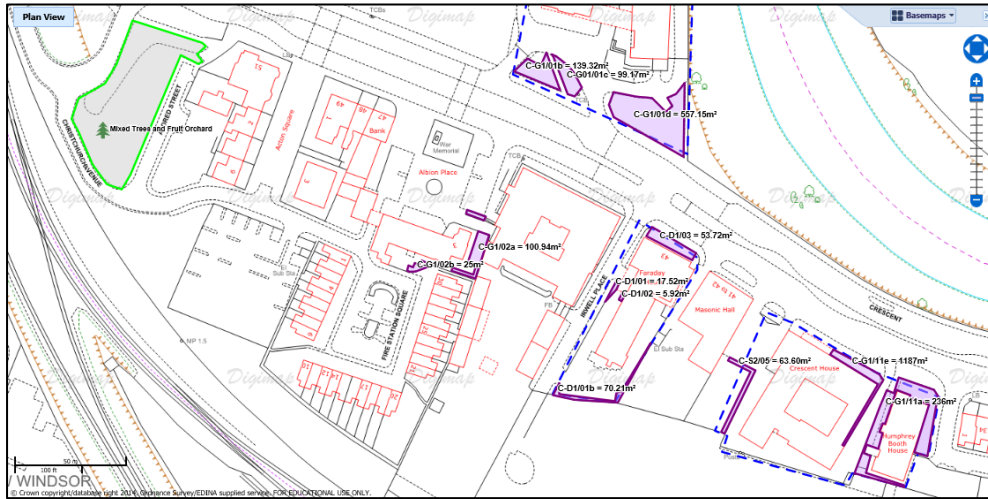
Figure 2 Crescent
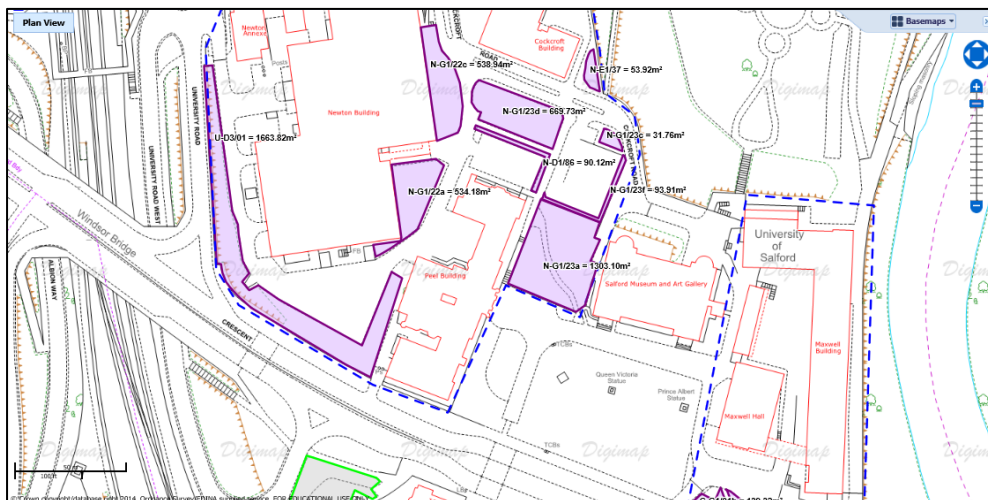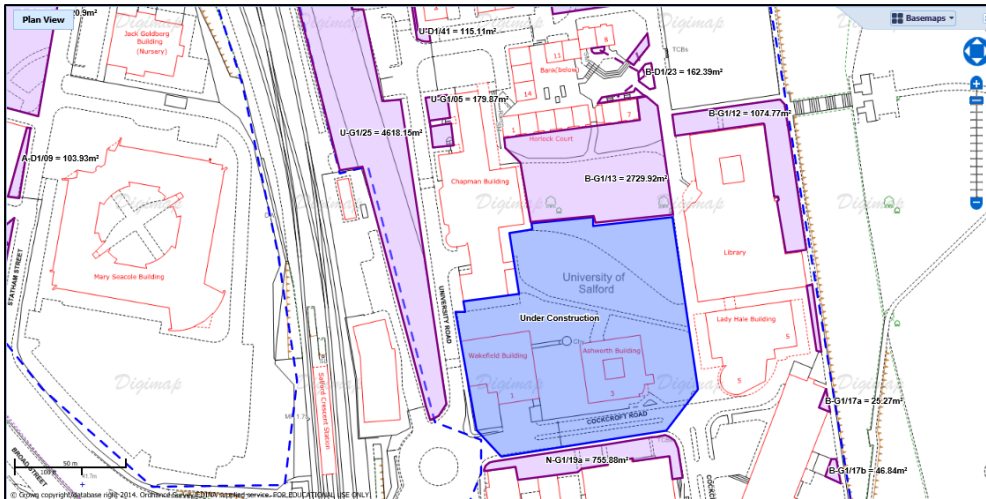

Figure 3 Maxwell, Peel, and NEWTON.
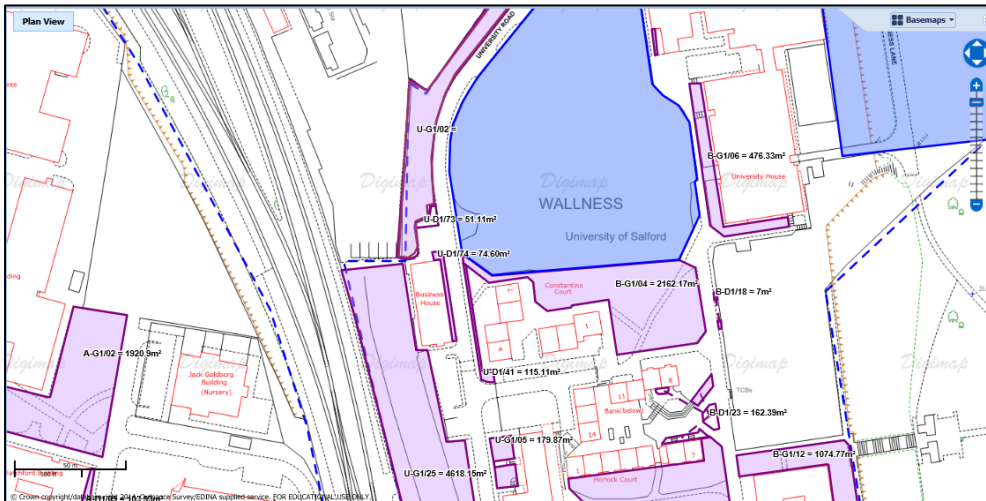
Figure 4 University Road (south)

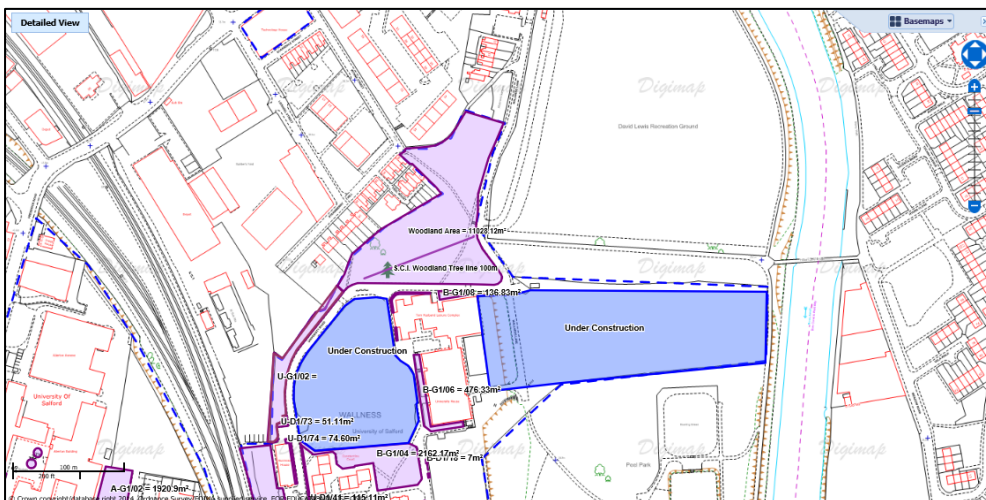**Figure 5 University road (south)**
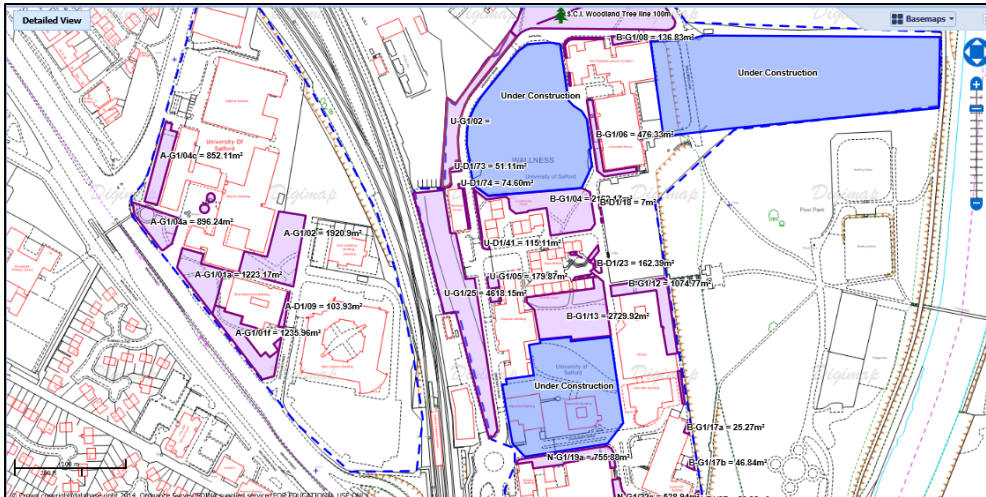

Figure 6 Wallness woodland

Figure 7 Allerton

End of figures.

Appendix 2

Review of previous ecological surveys undertaken.

This is an internal review of the documents stated. The review is part of a student placement, I do not take credit for this work. Please refer to Estate and Property Services for actual document.

Education BREEM Ecology Report August 2013 – Prepared by URS on behalf of the UOS, contained within the UOS Ecological Appraisal December Ramboll 2013.

Section 1 – introduction and Scope of Works

- The report describes an ecology BREEM assessment in respect of the Arts Building Project, within the Peel Park Campus (referred to as 'the site').
- Intent – achieving an 'excellent' rating under the Education BREEM for this redevelopment.
- Limited to an assessment boundary. See figure 1 in named document (the report does not cover the entire estate/grounds).
- The central grid reference of the site is SJ 819 989
- Landscaping works include tree lined broad walk through the campus linking the campus to Peel Park and the train station. A number of existing trees will be retained along the side if the new broad walk.
- For further insight regarding particulars of the development e.g. building demolishment, pleases refer to the section 1 in the named report.

Section 2 - Methodology

- To inform this BREEM Assessment and collate existing ecological knowledge of the site, a desktop study was undertaken (reviewing previous reports for the site, and undertaking a web based review of existing information of the site). Reviewed documents and resources are listed in section 2. Of the named report.
- Initial ecological walkover survey march 2011 followed in August 2011 by a Bat Roost Potential Survey of the trees within the site boundary.
- The information collected from these surveys and data obtained via the desktop study were used to determine if the credits associated with LE01, LE05 and LE06 are achievable with the development proposals, if so what design details are required to achieve the credits.
- BREEM calculates the change in ecological value by comparing the diversity of plant species pre and post construction. The ecological value is expressed as an area weighted average of plant species for the land types of the site.
- Eco Credits (overview – for requirements please see named report)
- LE04 - Mitigating Ecological Impact
- Can be awarded where the impact of a building development on existing ecology is minimised.
- Evidence proves ecological value is between <0 and equal to or < nine species, i.e. small negative change.
- BREEM calculates the change in ecological value by comparing the diversity of plant species pre and post construction. The ecological value is expresses as an area weighted average of plant species for the land types of the site
- LE05 - Enhancing Site Ecology

- Available if it is adequately demonstrated the ecology of the site has been protected and enhanced as part of the development.
- LE06 – Long Term Impact on Biodiversity
- Available where the long term impact of the development on the site and surrounding area's biodiversity is minimised.

Section 3 – Ecological value of the site

- Habitats within the site include buildings and hard standing, ornamental planting, amenity grassland and scattered trees.
- Regarding ornamental planting areas all species found to be native or of wildlife value with the exception of three species.
- Bamboo (Phyllostachys bissetii) ornamental palm (Palmaceae sp.) and Japanese aralia (Fatsia japonica) are not native and do not provide value for wildlife. Not included in LE04 andLE05 calculations.

Section 4 – Requirements for Achieving Eco-credits

- Bats -Scattered trees and ornamental planting areas around the site provide potentially suitable habitats for foraging bats. Foraging common pipistrelle bats were recorded during the 2012 bat activity surveys.
- Bats are listed as priority species in the UK Biodiversity Action Plan (BAP) and within Greater Manchester LBAP. LBAP objectives (this should be checked via UK BAP/LBAP directly). Three stated in report.
- All bat species are fully protected by The Wildlife and Countryside act 1981 and the Conservation of Habitats and Species Regulations 2010.
- Birds - Peel Park to the east of the site – Song thrush, dunnock and house sparrow. Kingfisher along the River Irwell. Onsite scattered trees have potential to support both foraging and nesting birds, Blackbird magpie and robin were recorded in the site.

- LE05 Enhancement Recommendations (see 4.2.1 in named report)
- It was recommended that five suitable bird boxes be included in the site plan. They should be positioned in areas of reduced disturbance and close to suitable foraging areas. Limited landscaping means preferred locations is associated with mature existing trees being retained in the site.
- Management – where possible, bird boxes should be cleaned once a year (outside of breeding season)
- The provision of four bat boxes within the development would enhance the ecological value of the site for bats in the locality.
- LE06 Long Term Impact on Biodiversity
- Three mandatory and two additional requirements must be met to achieve one credit under this category, to achieve two credits four of the additional requirements must be met.
- Mandatory requirements 1 and 2 have been met. Regarding mandatory requirement 3, a management plan has been prepared for the site and an outline is included in section 6 of the report, check to see if this covers parts a, b and c of requirement 3.

- Re additional requirements being met – requirement 4 requires the nomination of a 'Biodiversity Champion', if this is done then additional items 5 and 6 may also be achieved through appropriate training and documentation. Additional items 7 and 8 have been met.

End of Review.