



Biodiversity Net Gain Assessment

Land at 1 Arkwright Road, Reading RG2 0LU.

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LIABILITIES:

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing. Whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date. This report provides a snap shot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated, only dominant species may be recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 Introduction

- 1.1 The Ecology Partnership was commissioned by Studland Properties to undertake a BNG assessment of the land at 1 Arkwright Road, Reading, RG2 0LU. The PEA was conducted on the 8th February 2024 by ecologists from The Ecology Partnership.
- 1.2 The site (SU 71711 71499) is situated in the south of Reading, east of the A33. The site is approximately 0.2 ha and includes hardstanding, an industrial building and sections of ruderal vegetation. The immediate surroundings consist of an industrial estate to all aspects. The extent of the site is shown in Figure 1.



Figure 1: Approximate location of the red line boundary.

2.0 Statutory Biodiversity Metric

- 2.1 The Statutory Biodiversity Metric was used to calculate biodiversity losses and gains for habitats within the site. The metric is included as a separate excel document and the metric underpins the Environment Bill's provisions for mandatory BNG in England.
- 2.2 The Statutory Biodiversity Metric uses habitat as a proxy for wider biodiversity with different habitat types scoring different values according to their relative biodiversity value and dependent on the condition and location of the habitat, to calculate 'biodiversity units'.

2.3 The habitat creation for the metric is based on the proposed layout plan below (Figure 2).

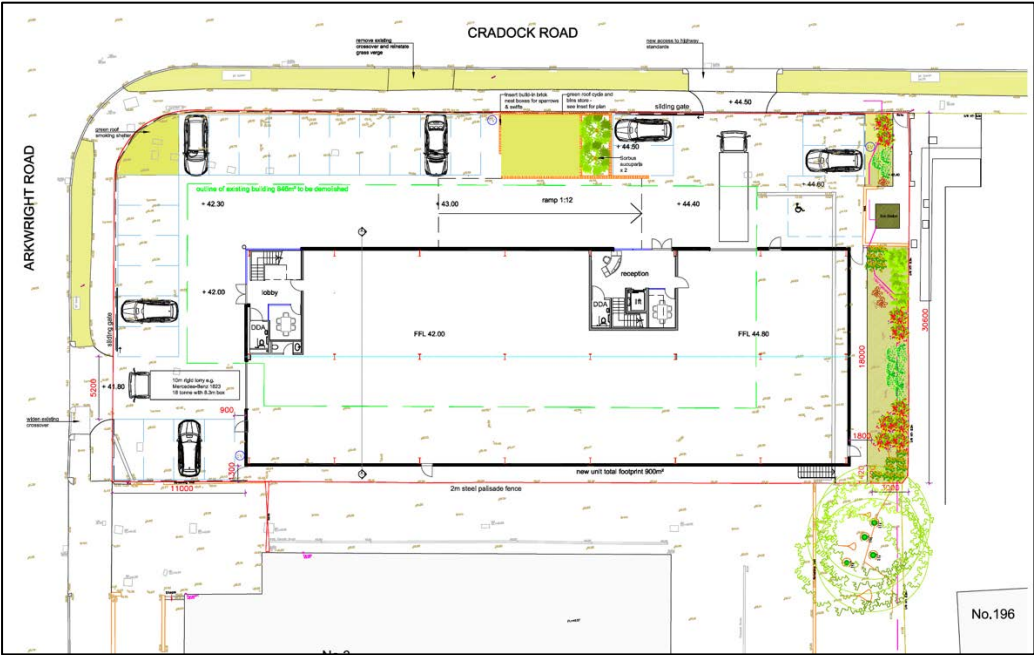


Figure 2: Site Layout (Paul Reeves Architectural, 851-02, March 2024).

3.0 Metric Calculations

3.1 The habitats currently present on site have been divided into several habitat types. The baseline habitats are shown in Tables 1 and 2 as well and Figure 3 below. *Note: these habitats have been updated since the initial PEA report to better suit the habitat types within the latest UKHab descriptions and statutory biodiversity metric categories.*

Table 1: Habitat Breakdown – Baseline

Habitat	Area (ha)	Condition
Buildings & Hardstanding (Developed land; sealed surface)	0.1563	Condition Assessment N/A
Artificial unvegetated, unsealed surface	0.0133	Condition Assessment N/A
Ruderal/Ephemeral	0.0117	Poor
Tall herbs	0.0041	Moderate
Bramble scrub	0.0126	N/A - Other
Introduced shrub	0.0008	Condition Assessment N/A
Total	0.2ha	-



Figure 3: Habitat baseline map

3.2 The proposed habitat types and areas are shown below in Table 2 and Figure 4.

Table 2: Habitat Breakdown – Habitat creation

Habitat	Area (ha)	Proposed Condition
Developed land; sealed surface	0.1816	N/A - Other
Artificial unvegetated, unsealed surface	0.0022	N/A - Other
Biodiverse green roof	0.0057	Moderate
Mixed scrub	0.0076	Moderate
Modified grassland	0.0014	Moderate
Urban tree (x2)	(0.0081)	Poor
Total (excluding area of individual trees)	0.2ha	

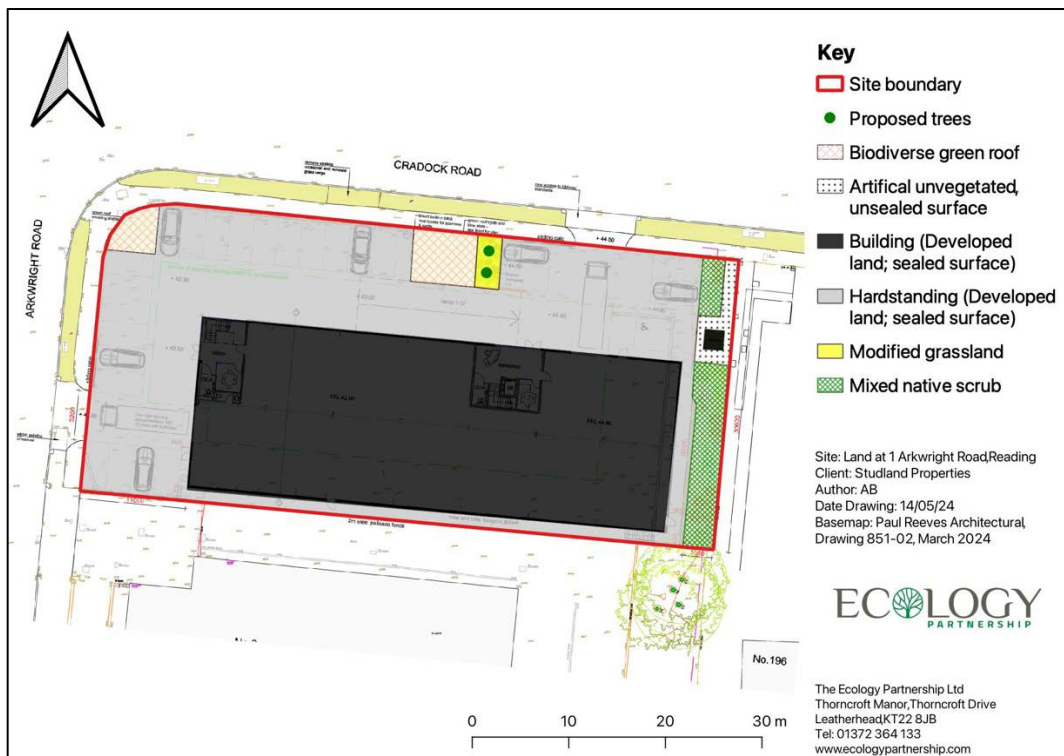


Figure 4: Baseline proposals habitat creation map.

- 3.3 The development proposals will result in a **+15.54%** biodiversity net gain and trading rules will be satisfied. The existing site is dominated by urban habitats, and the green habitats present are considered to be of limited ecological value at a site levels only. Their loss has been adequately compensated for within the proposed scheme with the creation of new mixed native scrub habitats, tree planting, and biodiverse green roof installation.

FINAL RESULTS				
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)		Habitat units	0.01	
		Hedge row units	0.00	
		Watercourse units	0.00	
Total net % change (including all on-site & off-site habitat retention, creation & enhancement)		Habitat units	15.54%	
		Hedge row units	0.00%	
		Watercourse units	0.00%	
Trading rules satisfied?		Yes ✓		
Unit Type	Target	Baseline Units	Units Required	Unit Deficit
Habitat units	10.00%	0.09	0.10	0.00
Hedge row units	10.00%	0.00	0.00	0.00
Watercourse units	10.00%	0.00	0.00	0.00
No additional area habitat units required to meet target ✓				
No additional hedge row units required to meet target ✓				
No additional watercourse units required to meet target ✓				

Figure 5: Headline Results for the current proposals.

4.0 Recommended Enhancements

- 4.1 It is recommended that any additional newly created areas of ornamental planting which may be added on site are designed to provide ecological opportunities for invertebrate species. Sweet nectar and protein-rich pollen, especially night-scented flowers, are excellent to encourage insects. These species should be incorporated into the development where possible. It is recommended that any ornamental planting on site post-development should follow the 'RHS Plants for Pollinators' guidelines (rhs.org.uk/plantsforpollinators) regarding the most suitable native and non-native plants to encourage pollinating insects.
- 4.2 Examples of suitable native woody species for the suggested mixed native scrub planting on site include at least five of the following species: wayfaring tree (*Viburnum lantana*), sweet briar (*Rosa rubiginosa*), wild privet (*Ligustrum vulgare*), hazel (*Corylus avellana*), hawthorn (*Crataegus monogyna*), holly (*Ilex aquifolium*), elder (*Sambucus nigra*), spindle (*Euonymus europaeus*), honeysuckle (*Lonicera periclymenum*), dog rose (*Rosa canina*), guelder rose (*Viburnum opulus*). No one species should dominate the planted selection. These flowering species will create an attractive feature for amenity purposes whilst providing a valuable habitat for local birds, insects, and other wildlife.

- 4.3 Log piles can be created within the areas of mixed native scrub to act as valuable wildlife refugia for reptiles, amphibians, small mammals and invertebrates (Figure 6). They can be situated in a variety of locations, such as damp places with some situated in sunnier locations. These should be stacked and perhaps some leaf litter added. Planting around log piles with species such as honeysuckle or clematis can also add value.



Figure 6: Log piles and hibernacula can be created within the edges of the site or in the retained habitats on site

- 4.4 Areas of green roof can be planted with a wildflower mix. A recommended wildflower mix would include species such as agrimony (*Agrimonia eupatoria*), kidney vetch (*Anthyllis vulneraria*), common knapweed (*Centaurea nigra*), wild basil (*Clinopodium vulgare*), Viper's bugloss (*Echium vulgare*), lady's bedstraw (*Galium verum*), perforate St John's wort (*Hypericum perforatum*), wild candytuft (*Iberis amara*), field scabious (*Knautia arvensis*), rough hawkbit (*Leontodon hispidus*), oxeye daisy (*Leucanthemum vulgare*), common toadflax (*Linaria vulgaris*), birdsfoot trefoil (*Lotus corniculatus*), musk mallow (*Malva moschata*), wild marjoram (*Origanum vulgare*), hoary plantain (*Plantago media*), cowslip (*Primula veris*), wild mignonette (*Reseda lutea*), wild clary (*Salvia verbenaca*), small scabious (*Scabiosa columbaria*), bladder campion (*Silene vulgaris*), dark mullein (*Verbascum nigrum*).
- 4.5 Artificial house sparrow and swift nest sites can also be built into the development. Nest boxes should be installed in order to provide new nesting opportunities for birds. These will be inserted into the building and become integral with the design. Such boxes include the following below. Either of these models can be used within the building (Figure 7):

- Schwegler Sparrow Terrace (1SP) should be inserted into the wall structure or inserted on to the wall.
- Woodstone Build-in House Sparrow Nest Box.
- Woodstone Build-in Swift Nest Box.



Figure 7: Schwegler sparrow terrace (left) with the Woodstone Build in House boxes (centre/right).

5.0 Conclusion

- 5.1 The current proposed development will result in a **+15.54%** biodiversity net gain and satisfying trading rules for any lost green habitats of ecological value at a site level only. Examples of suitable species lists for proposed habitats and wildlife features have been given within this report.
- 5.2 It should be noted the biodiversity units calculated do not take into consideration enhancement features added such as, bird nesting boxes and log piles, which will be installed on the site. It is therefore considered the biodiversity net gain would also be increase because of these additional measures.

Appendix 1: The Statutory Biodiversity Metrics

- Separate excel documents.

Appendix 2: Site Habitat Baseline Condition Assessment Table

Condition Sheet: URBAN - NON PRIORITY Habitat Type			
UKHab Habitat Type(s): Sparsely vegetated land - Ruderal/ephemeral and Tall forbs; Urban – Allotments/Bioswale/Cemeteries and churchyards/Open mosaic habitats on previously developed land(OMH)/Rain garden/SUDs/bare ground/all green walls and roofs			
Condition Assessment Criteria		Tall herbs	Ruderal/ephemeral
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.	Fail	Fail
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.	Pass	Fail
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).	Pass	Pass
D	OMH only: The parcel shows spatial variation and forms a mosaic of bare substrate PLUS: - At least four early successional communities (a) to (i): Communities: (a) annuals; (b) mosses/liverworts; (c) lichens; (d) ruderals; (e) inundation species; (f) open grassland; (g) flower-rich grassland; (h) heathland, (i) pools.	N/A	N/A
E1	SUDs/Bioswales only: Plant species are mostly native. If non-native species are present, they should not be detrimental to the habitat or native wildlife ⁴ .	N/A	N/A
E2	SUDs/Bioswales only: The vegetation is comprised of plant species suited to wetland or riparian situations.	N/A	N/A
F	Intensive green roofs – The roof has a minimum of 50% native and non-native wildflowers - 70% of the roof area is soil and vegetation (including water features)	N/A	N/A

G	Biodiverse green roofs - have a varied depth of 80 - 150mm at least 50% is at 150mm and is planted and seeded with wildflowers and sedums or is pre-prepared with sedums and wildflowers. Note – to achieve Good condition some additional habitat, such as sand piles, stones, logs etc. be present.	N/A	N/A
Condition		Moderate	Poor
Condition Assessment Result			
Good	Passes 3 of 3 core criteria; AND Meets the requirements for good condition within criteria 2 and 3	Passes 3 of 3 core criteria; AND Meets the requirements for good condition within criteria 2 and 3; AND Passes additional criterion 4	
Moderate	Passes 2 of 3 core criteria; OR Passes 3 of 3 core criteria but does not meet the requirements for good condition within criteria 2 and 3	Passes 2 of 3 of 4 criteria; OR Passes 4 of 4 criteria but does not meet the requirements for good condition within criteria 2 and 3	
Poor	Passes 0 or 1 of 3 core criteria	Passes 0 or 1 of 4 criteria	
Footnote 1 – Wildlife and Countryside Act 1981 (as amended). Footnote 2 – Sources of information about detrimental non-native species can be found on the GB Non-native Species Secretariat (GBNNSS) website: Home » NNSS (nonnativespecies.org) And Natural England Access to Evidence page should also be checked for up-to-date information: Horizon-scanning for invasive non-native plants in Great Britain - NECR053 (naturalengland.org.uk) For criterion C – For green roof habitat types only – buddleia <i>Buddleja davidii</i> should be assessed alongside Schedule 9 species. This species impairs the health of the local ecosystem and reduces the biodiversity potential of the roof. It is also a sign that a roof has not been planted and seeded correctly in subsequent years. Footnote 3 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement. Footnote 4 – Use professional judgement. Sources of information about non-native species that are not detrimental to native wildlife can be found on the GBNNSS website: Alternative plants » NNSS (nonnativespecies.org)			

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